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**SALT SPRING ISLAND PARKS AND RECREATION COMMISSION**

Notice of Meeting on **Tuesday, May 24, 2022 at 2:30 PM**

SSI Public Library, 129 McPhillips Ave, Salt Spring Island, BC

Gary Holman	Randy Cunningham	Drew Takahashi	Sean Norgard
Sonja Collombin	Drew Bodaly	Colin Walde	
Andrea Little			(r) = Regrets

**Zoom Link:**

<https://us06web.zoom.us/j/84103930536?pwd=R29FZ1dzY2RmaUZPYVFTdzRtaWtYQT09>

**AGENDA**

- 1. **Territorial Acknowledgement / Call Meeting to Order**
- 2. **Approval of Agenda** **1-2**
- 3. **Adoption of Minutes of April 26, 2022** **3-6**
- 4. **Delegation/Presentation**
  - 4.1 **Shelia Walker re: Rotary Marine Park Enhancement Project** **7-15**
  - 4.2 **Bruce Dunbar re: Development of Softball Fields on Salt Spring Island** **16-17**
- 5. **Director and Chair Reports**
- 6. **Outstanding Business**
  - 6.1 **Rainbow Recreation Site Master Plan Update** **18-24**  

That the Salt Spring Island Parks and Recreation Commission recommends that the Rainbow Recreation Centre Master Plan be approved as presented in Attachment 1.
  - 6.2 **Drummond Park Playground Assessment Update** **25-33**  

There is no recommendation. This report is for information only.
  - 6.3 **Pool Electrical, Recommissioning and Structural Update** **34-44**  

There is no recommendation. This report is for information only.
- 7. **New Business**
  - 7.1 **Sharp-tailed Snake Surveys** **45-77**  

There is no recommendation. This report is for information only.
- 8. **Correspondence – None**

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*To ensure quorum, advise Shayla Burnham 250 537 4448 if you cannot attend.*

**9. Next Meeting – June 14, 2022 at 2:30 PM in the Salt Spring Island Library Meeting Room, 129 McPhillips Avenue, Salt Spring Island, BC**

**10. Adjournment**



## **5. Director and Chair Report**

**Director Holman** briefly reported:

- Attended the ground breaking ceremony for the emergency department expansion project at Lady Minto Hospital on the morning of April 26, 2022.
- Inter-Agency meeting took place on April 14, 2022 which was an opportunity for organizations to share information and raise the possibility for future collaborations. Positive feedback was received.
- Local Community Commission (LCC) Advisory Committee preliminary report discussion meeting on Tuesday, May 3, 2022.
- Purchase agreement for the Ganges Fire Hall discussions underway.

**Chair Collombin** briefly reported:

- Expressed appreciation for the Inter-Agency meeting and spoke to the benefits of multi-jurisdictional communication and collaboration.

## **6. Outstanding Business**

### **6.1 Saturday Market Operating and Management Update**

- Staff issued an Expression of Interest (Eoi) for the operation and management of the Saturday Market starting in spring 2023.
- Information session scheduled for Thursday, April 28, 2022 from 12:30pm – 2:30pm in the Salt Spring Island Library Program Room.

### **6.2 Rainbow Road Recreation Site Master Plan Survey Results**

- The community preferred Option 3 with additional feedback regarding amenities for inclusion or removal.
- Strong community support for pickleball courts.
- The community expressed dislike towards the potential maintenance facility on the Rainbow Road Recreation site.
- Preference for future tennis courts at Portlock Park was expressed by local tennis groups. Staff noted the Rainbow Road Property had adequate space to relocate the tennis courts which would allow for a future potential senior ball field expansion at Portlock Park.
- Staff confirmed that future revisions to the Rainbow Road Recreation Site Master Plan could be made.
- The potential for future community gardens expansion on another CRD property discussed.
- The Commission expressed support for the playground and picnic area to be located within close proximity of one another.
- The Commission expressed support for covered multi-use courts.
- A maintenance facility 'place holder' within the Rainbow Road Recreation Site Master Plan was recommend in order for staff to explore Islands Trust rezoning requirements for the Kanaka Road site.
- The Commission requested staff provide the pre-existing Portlock Park conception designs for inclusion in the May 24, 2022 Regular meeting for information.

- Staff confirmed all amenities within the plan are currently placeholders and are subject to modifications and revisions.
- Staff noted that the development of site master plans assist with grant funding opportunities.
- The Commission noted the lack of public demand and funding for a future ice arena.

There is no recommendation. This report is for information only.

### **6.3 Salt Spring Island Administration Project Tracker**

- There is no recommendation. This report is for information only.

### **6.4 PARC 24 Passenger Bus**

- SSI Parks and Recreation to receive a new 24 passenger bus in fall 2022.
- Panorama Recreation bus to be used by SSI Parks and Recreation during summer 2022.

There is no recommendation. This report is for information only.

## **7. New Business**

### **7.1 2022/2023 Proposed Fees and Charges**

- Staff to update page 61 of the agenda, “Park Use” table, “Commercial Filming – Elaborate set up, less than 10 days” from “\$530.60 \$514.20” to “\$530.60 \$541.20” and, to further update page 58 of the agenda package with these corrections.
- The Commission request staff increase wedding ceremony bookings from \$54.10 to \$250.00.
- Half price swim to replace toonie swim.

**MOVED** By Commissioner Little, **SECONDED** by Commissioner Takahashi, that the Salt Spring Island Parks and Recreation Commission recommends that the Electoral Areas Committee and the Capital Regional District Board approve the Salt Spring Island Parks and Recreation 2022/2023 Fees and Charges as amended in Appendix A.

**CARRIED**

## **8. Correspondence**

Letter dated March 30, 2022, re: Damaged Slide at Drummond Park

**MOVED** By Commissioner Little, **SECONDED** by Commissioner Takahashi, that the Salt Spring Island Parks and Recreation Commission request staff to provide a report on the condition of the playground in Drummond Park.

**CARRIED**

Letter dated March 26, 2022, re: Toddler Friendly Play Structures

- There is no recommendation. This letter is for information only.

**9. Next Meeting – May 24, 2022 at 2:30 PM in the Salt Spring Island Library Meeting Room, 129 McPhillips Avenue, Salt Spring Island, BC**

**10. Adjournment**

**MOVED** By Commissioner Norgard, **SECONDED** by Commissioner Bodaly, that the meeting adjourn at 4:26 pm.

**CARRIED**

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**CHAIR**

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**SENIOR MANAGER**



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### RULES GOVERNING THE HEARING OF INDIVIDUALS OR DELEGATIONS BY THE CAPITAL REGIONAL DISTRICT COMMISSIONS

- Under the CRD Procedural Bylaw, the Commission may, by *resolution*; allow an individual or a delegation to address the meeting **on the subject of an agenda item**, provided written application has been received by the Salt Spring Island Administration Office no later than 4:30pm two (2) calendar days prior to the meeting.
- If you miss this deadline, you may still submit this form; however such requests will require *unanimous* approval of the Commissions at the intended meeting.
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- Each delegation should provide the number of copies of their written submission, as determined by the Salt Spring Administration Staff.

Submit form to Salt Spring Island Administration

E-mail: [saltspring@crd.bc.ca](mailto:saltspring@crd.bc.ca)

Fax: (250) 537-4456

Capital Regional District, 108 121 McPhillips Ave, Salt Spring Island, BC V8K 1K3

I wish to address the:

Parks and Recreation Commission     Transportation Commission

Community Economic Development Commission

AT THE MEETING OF May 24th, 2022 at 2:30 AM/PM

ON AGENDA ITEM ROTARY MARINE PARK ENHANCEMENT PROJECT (SLIDE DECK)

NAME Sheila Walker

ADDRESS [REDACTED]

I REPRESENT Rotary Club of Salt Spring Island (Ganges)  
(Name of Organization if applicable)

AS President

(Capacity/Position)

TELEPHONE [REDACTED]

FAX [REDACTED]

E-MAIL [REDACTED]

My reason(s) for appearing is (are) and the substance of my presentation is as follows:

The Rotary Club is planning to apply for a matching grant of \$5000.00, US with our Rotary District 5020 so that we can improve the park. New tables, story boards some shrubs, new trellis, new sign of the fifty enhance

(If more space is required, please attach an additional page to this form.)

May 10, 2022  
Date

[REDACTED SIGNATURE]

Signature

grant application goes w July 9, 22 at 9am



# Revitalization of Rotary Marine Park



**Goal:**

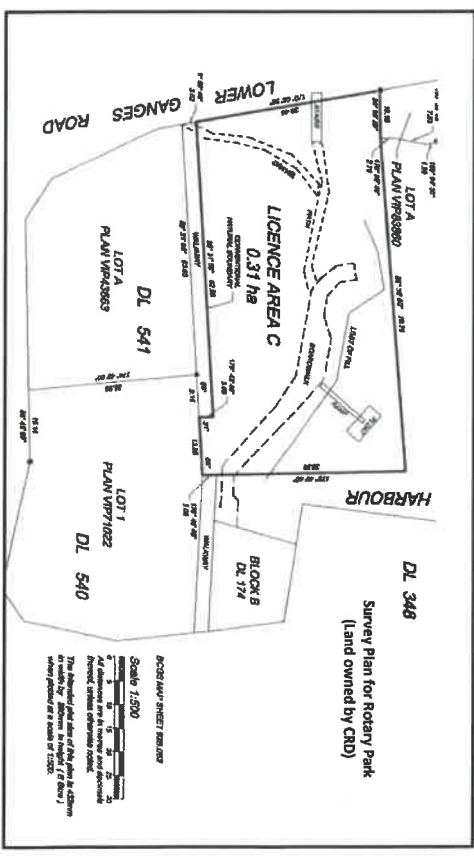
To revitalize the existing Rotary Marine Park in Ganges center and create a meeting place that will enhance the village waterfront and attract families/residents and visitors by making it more user friendly

**Vision:**

- We as the Rotary Club of Salt Spring Island want to revitalize the existing Rotary Marine Park that:
  - Would be a direct benefit to the Salt Spring community
  - Be sustainable and reflect our sensitivity and protection of the environment
  - Could be accomplished with identified resources (both monetary, bureaucratic and human)



The primary usage of the park currently is:  
 Pedestrian corridor from Lower Ganges Road to the waterfront/Trinity's parking lot  
 A place to eat and enjoy the waterfront vistas  
 A backdrop for the existing waterfront boardwalk





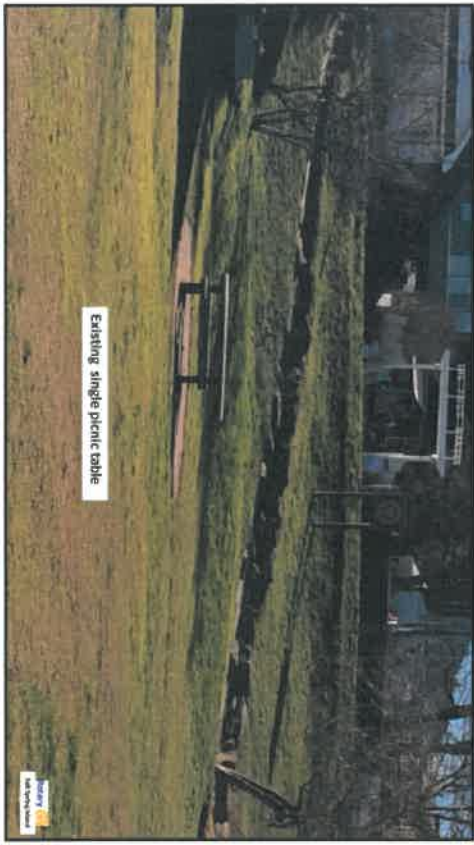
Satellite Image of Rotary Marine Park



Summer 2022 with grant funding from the Rotary district

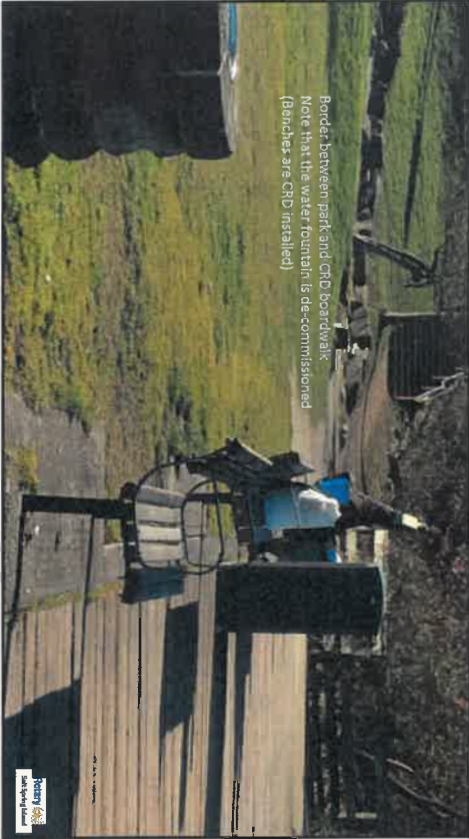
- The statue is being refurbished by the Rotary Club funding.
  - The flower bed will have soil and plants added.
  - The white picket fence that borders the Thrifty's entrance needs to be painted and shrubs placed in front.
  - The existing trees need a serious pruning
  - The existing arbor needs to be replaced with a new one
  - The Rotary donor patio needs to be power washed and cleaned
- Rotary Club of New Zealand

Existing single picnic table



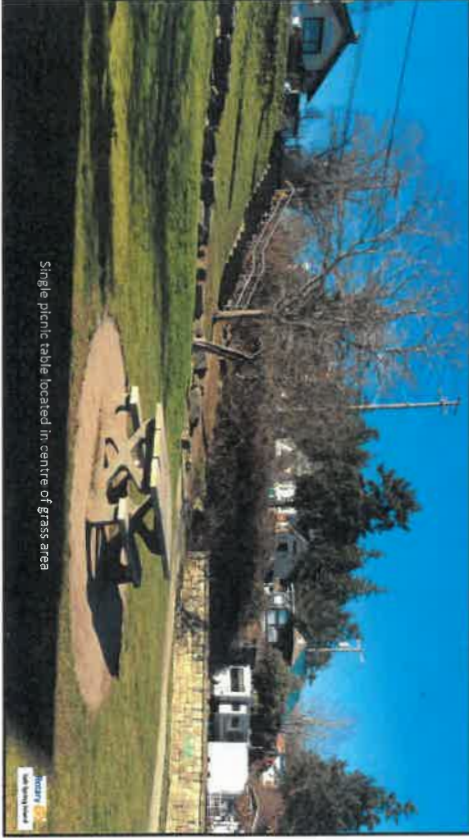
Thrifty's entrance and fire lane showing the white picket fence





Border between park and CRD boardwalk  
Note that the water fountain is de-commissioned  
(benches are CRD installed)

2022  
20/05/2022  
10:00 AM



Single picnic table located in centre of grass area

2022  
20/05/2022  
10:00 AM



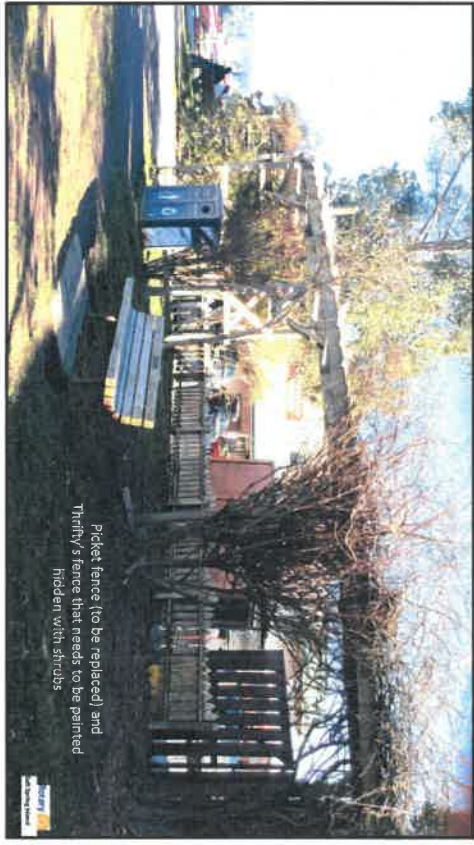
Thrifty's store wall potential mural location

2022  
20/05/2022  
10:00 AM

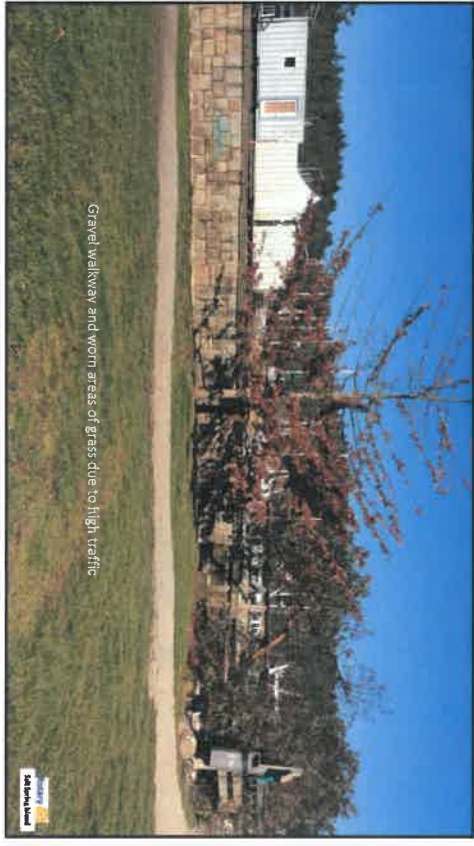


Exchange shrubbery that needs pruning and  
artwork that needs to be replaced

2022  
20/05/2022  
10:00 AM



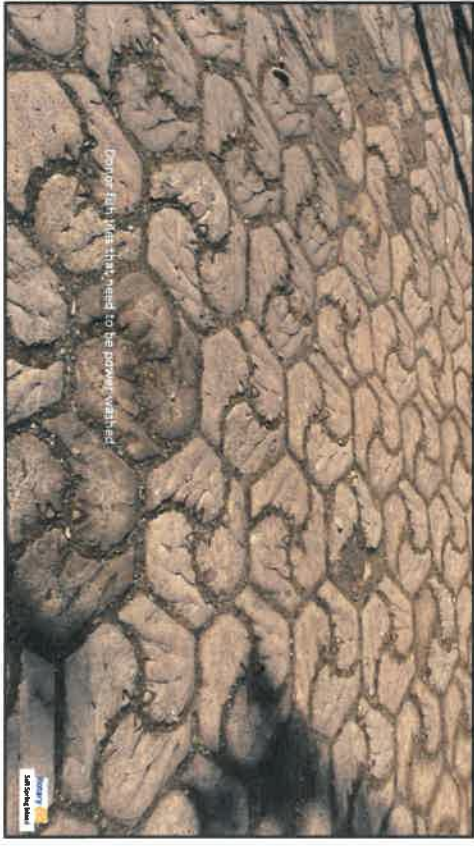
Picket fence (to be replaced) and Thrifty's fence that needs to be painted hidden with shrubs



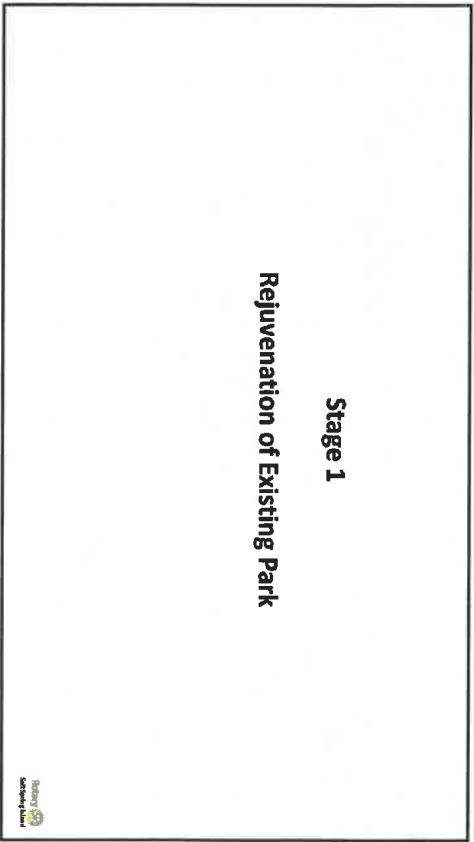
Gravel walkway and worn grass of grass due to high traffic



Statue of Kariyas and stone walkway with first stone walls to be removed and replaced by the Rotary Club in the next few weeks



Cobble path like that need to be removed, washed



### Staging of Project

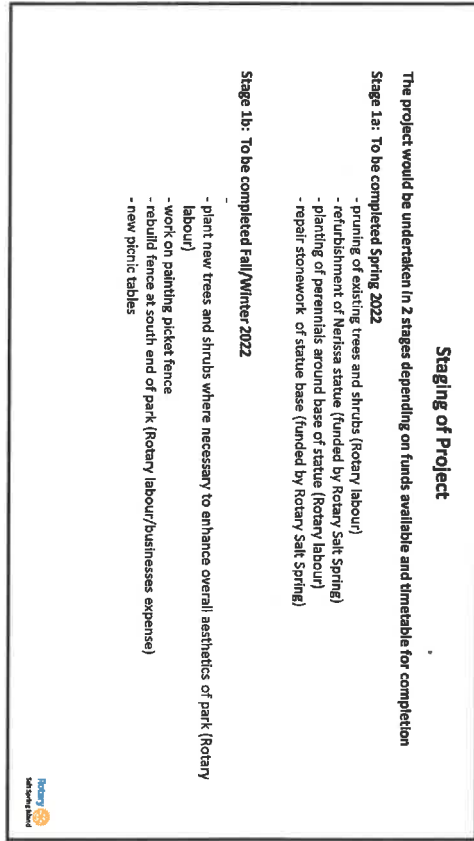
The project would be undertaken in 2 stages depending on funds available and timetable for completion

#### Stage 1a: To be completed Spring 2022

- pruning of existing trees and shrubs (Rotary labour)
- refurbishment of Nerissa statue (funded by Rotary Salt Spring)
- planting of perennials around base of statue (Rotary labour)
- repair stonework of statue base (funded by Rotary Salt Spring)


#### Stage 1b: To be completed Fall/Winter 2022

- plant new trees and shrubs where necessary to enhance overall aesthetics of park (Rotary labour)
- work on painting picket fence
- rebuild fence at south end of park (Rotary labour/businesses expense)
- new picnic tables




**Possible Themes**

- Celebrating the Relationship of Salt Spring Island and the Salish Sea
- Part of the Salt Spring Arts Council "Art Walk"
- Making it a Cornerstone for the Harbour/Boardwalk
- Making the Park Inclusive for the Salt Spring Community



**Partner Opportunities**

Rotary District  
 Capital Regional District (CRD)  
 Government of British Columbia  
 Local Businesses  
 PARC  
 Salt Spring Historical Society  
 Salt Spring Chamber of Commerce  
 Salt Spring Foundation School  
 District 64


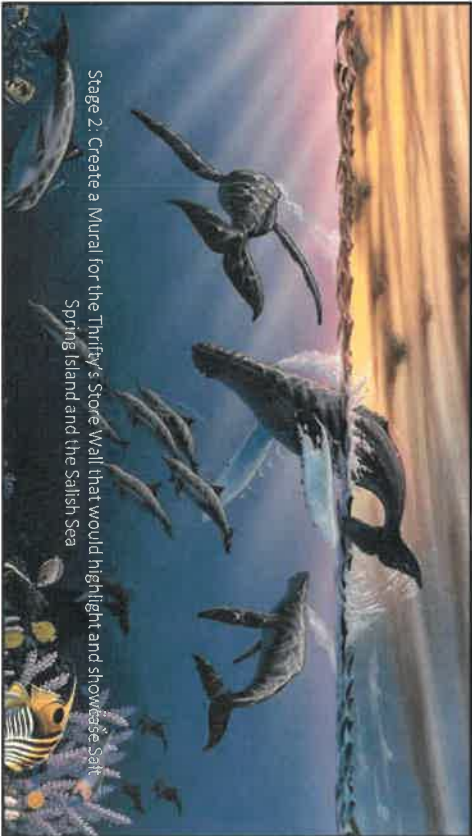


**Stage 2**

**Enhancement of Park Features**

Stage 2: To be completed spring 2023

- Installation of 2 new wheelchair accessible picnic tables with chest boards
- creation of storyboards if allowed
- Installation of memorial tree planting area
- build and install donor plaque for fish tiles
- commission of marine theme wall mural on Thrifty's building
- Installation of entrance arbour at the Thrifty entrance with a Rotary sign

**Stage 2: Develop Story Boards that would highlight and showcase the relationship between Salt Spring Island and the Salish Sea**

- Story board text and images would be developed collaboratively with Salt Spring School District
- Possible topics
  - Sea life around Salt Spring Island
  - Relationship between the Salish Sea and the intertidal zone of the Island
  - Impact of Climate change on marine life
  - Invasive species and their impact on local aquatic species
- Possible number of story boards (5-6)
- Strategically placed in the park to attract visitors
- Construction would be wood with a printed image that is protected by lexan sheet (similar to what is currently in Mowat's Park)



**Stage 2: Install Picnic Tables (Increase the number of picnic tables to 3)**

- Tables should be durable, not movable and vandal proof
- Funding for these items could be by selling them as memorials with a commemorative plaque acknowledging the donor
- Ground surrounding the table would be a poured patio to eliminate the need to mow around the table
- Top of picnic table could be inset chessboards



**Goal of Project**

**To make Salt Spring Rotary Park a place that the Community will want to meet and gather in and be a building block for the rejuvenation of Ganges Village core**



**This is an exciting project for the Salt Spring Rotary Club and we hope that all parties involved will embrace and be part of our vision**

**Thank You !!!**





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**Capital Regional District, 108 121 McPhillips Ave, Salt Spring Island, BC V8K 1K3**

I wish to address the:

Parks and Recreation Commission     Transportation Commission

Community Economic Development Commission

AT THE MEETING OF May 24, 2022 at 2:30 AM/PM

ON AGENDA ITEM Development of Softball fields on Salt Spring

NAME Bruce Dunbar

ADDRESS 241 Fernwood Rd Salt Spring

I REPRESENT Salt Spring Minor Baseball

AS Softball coordinator (Name of Organization if applicable)

(Capacity/Position)

TELEPHONE [REDACTED] FAX [REDACTED]

E-MAIL [REDACTED]

My reason(s) for appearing is (are) and the substance of my presentation is as follows:

present an option for Softball fields on Salt Spring Island

(If more space is required, please attach an additional page)

May 17/2022  
Date



# Field Behind SD64 Works Yard



50.8  
0  
25.4  
50.8 Meters  
NAD\_1983\_UTM\_Zone\_10N  
© Capital Regional District

Important: This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. This map is not for navigation. The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be changed by the CRD at any time.

**PARK ACCESS ROAD**  
1:1,000



Legend

Notes



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**REPORT TO PARKS AND RECREATION COMMISSION  
MEETING OF TUESDAY, MAY 24, 2022**

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**SUBJECT**     **Rainbow Recreation Centre Master Plan – Draft Design**

**ISSUE**

To review the final draft conceptual design for the Rainbow Recreation Centre Site Master Plan based on feedback from the three draft designs and ongoing community consultation.

**BACKGROUND**

Rainbow Recreation Centre Site Master Plan development was identified as a priority in the 2019 Salt Spring Island Parks and Recreation Strategic Plan, in response to the community's desire for increased access to indoor recreation facilities for residents and visitors. This project was budgeted in the 2020 capital plan but was not initiated until the fall of 2021 due to the pandemic.

The master plan will assess current and future capacity needs to identify suitable expansion opportunities. This plan will inform a phased capital planning approach for new facilities and program amenities based on inputs from First Nations, key stakeholders and the public.

Staff and stakeholder workshops were organized in the Fall of 2021 followed by the first public survey that recorded over 900 responses. Survey responses were presented to the Salt Spring Island Parks and Recreation Commission (PARC) in November 2021 where additional comments from PARC were incorporated into three draft conceptual designs. From March 7<sup>th</sup> to April 4<sup>th</sup> 2022, the draft conceptual designs were posted online and in the lobby of the Rainbow Recreation Centre, along with a second survey to gather public feedback. The second round of public engagement has concluded with 763 responses.

The feedback received has been used to develop one draft design (Attachment 1) incorporating what features and amenities we heard that the community would like to see in the future development on the Rainbow site. A Design Brief (Attachment 2) has been prepared for PARC's consideration of the final draft detailing:

- Proposed facilities in all three conceptual designs
- Public feedback
  - Facilities like to see added
  - Facilities like to see removed
- Additional considerations
- References
- Planning considerations

The next steps in the process will be to obtain approval in principle from the Agricultural Land Commission (ALC) and Islands Trust.

Milestone	Fall	Feb.	Apr.	May	Jun.	Sept.
Year	2021	2022	2022	2022	2022	2022
<b>Stakeholder/Staff Workshops, Community Survey, PARC Comments</b>						
<b>Survey Two</b> Online and in person						
<b>PARC Review</b> Present results from survey two on the three draft designs. Receive additional feedback from PARC						
<b>Park Maintenance Facility</b> PARC to confirm location of Park Maintenance Facility						
<b>Final Draft Design</b> Additional information and input received will inform a final draft						
<b>PARC Review</b> PARC will consider feedback and analysis as part of its final review and approval of design						
<b>Government Approvals</b> Obtain ALC and Islands Trust approval (Approve in principle)						
<b>Final Master Plan</b> Publish Final Master Plan and Final Report						

## ALTERNATIVES

That the Salt Spring Island Parks and Recreation Commission recommends

### Alternative 1

That the Rainbow Recreation Centre Master Plan be approved as presented in Attachment 1.

### Alternative 2

That the Rainbow Recreation Centre Master Plan be approved as amended in Attachment 1.

### Alternative 3

That the report be referred back to staff for further consideration

**CONCLUSION**

The development of a Rainbow Road Recreation Centre Master Plan was identified as a priority in the 2019 Salt Spring Island Parks and Recreation Strategic Plan. The second round of public engagement has concluded and additional feedback received has been incorporated into one final draft design and presented to PARC for final consideration.

**RECOMMENDATION**

That the Salt Spring Island Parks and Recreation Commission recommends that the Rainbow Recreation Centre Master Plan be approved as presented in Attachment 1.

Submitted by:	Dan Ovington, Manager, Parks and Recreation
Concurrence:	Karla Campbell, Senior Manager, SSI Electoral Area

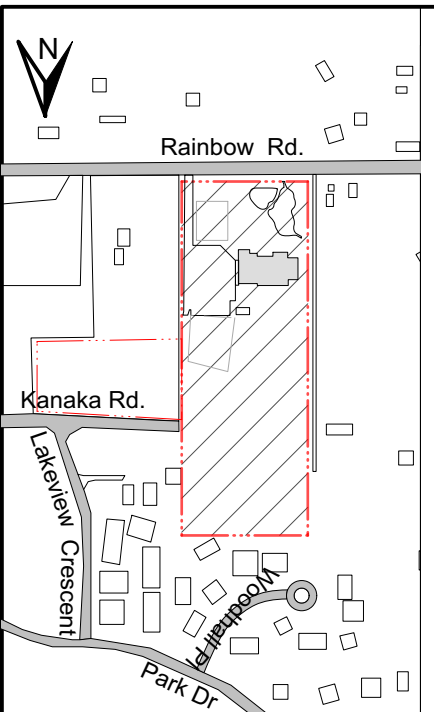
DO:sc

Attachments:

- Attachment 1: Rainbow Recreation Centre Master Plan - Final Draft Design
- Attachment 2: Rainbow Recreation Centre Master Plan – Design Brief

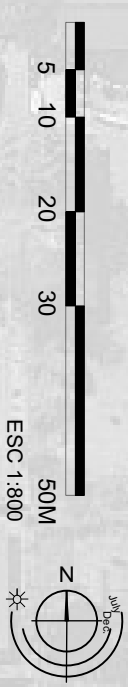


**LOCATION PLAN**



**LEGEND**

1	AQUATIC CENTRE (EXISTING)	12	4 TENNIS COURTS (17.07M X 34.75M)
2	DAYCARE/MULTI-PURPOSE ROOM (EXISTING)	13	NATURE-THEMED PLAYGROUND FOR TODDLERS
3	FENCED PLAY AREA (EXISTING)	14	PLAYGROUND FOR SCHOOL-AGE KIDS
4	PRESCHOOL (EXISTING)	15	NATURAL TRAIL ALONG THE TREE COVERED AREA
5	COMMUNITY GARDEN (EXISTING)	16	PET PARK (PLACEHOLDER FOR MAINTENANCE FACILITY/ADDITIONAL PARKING)
6	PARKING (EXISTING, 38 STALLS)	17	ADDITIONAL PARKING (15 STALLS)
7	THERAPYLEISURE/KIDS POOL/LAZY RIVER	18	LAWN AREA FOR INFORMAL GATHERING
8	INDOOR PROGRAMS (SENIOR/FITNESS/DANCE)	19	COVERED PICNIC AREA
9	STEAM AND SAUNA	20	WATERSLIDE
10	COVERED MULTI-PURPOSE COURT (21.35M X 36.60M)	21	MAINTENANCE FACILITY AT 210 KANAKA ROAD
11	4 PICKLEBALL COURTS ACCOMMODATED IN THE MULTI-PURPOSE COURT (9.14M X 18.29M)	22	PLACEHOLDERS TO DISPLAY LOCAL ARTWORKS



**262 Rainbow Road**  
RECREATION SITE MASTER PLAN

Final Option



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LADR LANDSCAPE ARCHITECTS

# Memorandum



TO: Salt Spring Island Parks and Recreation Commission  
 FROM: Dan Ovington, Manager Salt Spring Island Parks and Recreation  
 DATE: May 24, 2022  
 SUBJECT: Design Brief, Rainbow Recreation Centre Site Master Plan

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## Project Background

Rainbow Road Aquatic Centre was built in 2008 with a six-lane, 25 metre lap multi-purpose pool and 12-person whirlpool. In a typical year, the pool sees over 50,000 visits and over 400 aquatic program registrations. In 2018, the CRD assumed responsibility for pool operations and management from a private contractor.

The CRD Salt Spring Island Parks and Recreation Commission (PARC) is developing a 20-year master plan for the Rainbow Road Recreation Centre site. The site master plan will assess current and future capacity needs to identify suitability and expansion opportunities.

This plan will inform a phased capital planning approach for new facilities and programs based on information and input gathered through public engagement. The project has developed through the following stages – Staff Workshop, Stakeholder Workshops, Public Survey - 1, Conceptual designs with public Survey – 2, PARC’s comments and we are working on incorporating the public and PARC feedback in one final design draft layout.

## Proposed Facilities in Conceptual Designs:

1. Aquatic centre (existing)
2. Therapy/leisure/kids pool/lazy river
3. Daycare (existing)
4. Fence play area (existing)
5. Preschool (existing)
6. Water slide
7. Multi-purpose room (existing)
8. Gym multi-purpose facility
9. Indoor fitness / dance/ senior programs
10. Playground – toddlers (nature themed)
11. Playground – school age kids
12. Pet park
13. Covered picnic area
14. Covered multi-purpose court (15M X 30M) – 1 unit
15. Pickleball courts (18M X 9M) (60' X 30') – 4 units
16. Tennis courts (26M X 16M) (85' X 50') – 2 units
17. Lawn area for informal gathering
18. Community garden (expansion)
19. Community garden (existing)
20. Maintenance facility on Rainbow Road

21. Maintenance facility on 210 Kanaka
22. Natural trail along the tree covered area
23. Disc golf course along trail
24. Parking (existing)
25. Additional parking

### **Public feedback on Conceptual Draft Designs:**

Facilities like to see Added:

- An ice arena
- A gym, with weight room/cardio equipment
- Indoor fitness/dance/seniors programs
- Additional parking
- Pickleball
- Steam room and sauna
- Larger playground
- A splash pad for little ones

Facilities like to see Removed:

- Disc golf
- Dog park
- Maintenance facility
- No more tennis courts
- Gym/multipurpose facility

### **Additional Considerations from Island Trust Feedback:**

- Environmental
- Agricultural Land Commission
- Island Trust restrictive covenant
- Archeological
- Parking

### **References:**

- Park and Reserve Zones - CF1B
- By Law – 0355

### **Notes for the final design draft:**

- Integrate the public feedback in the final design proposal
- Tennis courts – to mention that they are relocated from Portlock Park
- Check the court sizes and orientation as per the standards
- Zone the activities based on the function and the user age
- Make the entrance prominent with a roundabout
- Connect the pathways and make it more fluid
- Placeholders for design features – local art and craft display, featured walls that depicts Salt Spring Island local artworks
- Add landscape elements
- Multipurpose court is covered and accommodate 2 pickleball courts
- More trees in parking area
- Accommodate Steam room and Sauna, indoor fitness/dance/senior programs facility in the location designated for therapy/leisure/kids pool/lazy river
- Pet park area as a placeholder for the maintenance facility and if we get approval for maintenance facility at Kanaka then it can be used as a placeholder for additional parking (future expansion)

## Proposed Facilities in Final Design Option:

1. Aquatic centre (existing)
2. Daycare/ multi-purpose room (existing)
3. Fenced play area (existing)
4. Preschool (existing)
5. Community garden (existing)
6. Parking (existing)
7. Therapy/leisure/kids pool/lazy river
8. Indoor programs (senior/fitness/dance)
9. Steam and sauna
10. Covered multi-purpose court (21.35M X 36.60M) – 1 unit
11. Pickleball courts (9.14M X 18.29M) – 4 units (accommodated in the multipurpose court)
12. Tennis courts (17.07M X 34.75M) – 4 units
13. Playground – toddlers (nature themed)
14. Playground – school age kids
15. Natural trail along the tree covered area
16. Pet park (placeholder for maintenance facility/additional parking)
17. Additional parking
18. Lawn area for informal gathering
19. Covered picnic area
20. Water slide
21. Maintenance facility on 210 Kanaka
22. Placeholders to display local artworks



**REPORT TO SALT SPRING ISLAND PARKS AND RECREATION COMMISSION  
MEETING OF TUESDAY, MAY 24, 2022**

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**SUBJECT**     **Drummond Park Playground and Park Amenities Assessment**

**ISSUE**

To address community concerns about the current state of Drummond Park amenities and graffiti.

**BACKGROUND**

The Salt Spring Island Parks and Recreation Commission (PARC) has received concerns from the community about the current state of amenities in Drummond Park. Staff have also received complaints about graffiti in the park. The concerns brought to PARC have been referred to staff to provide additional information for consideration.

Drummond Park occupies two lots of one acre (approx.) each owned by the Fulford Community Hall Association, on Isabella Point Road. The park provides attractive community open space on the shoreline of Fulford Harbour and is used extensively by local residents as a children's play area and gathering place for special events. In addition to a children's play area park amenities include picnic facilities and public pit toilets.

The Salt Spring Island Parks and Recreation Commission (PARC) is responsible for all costs of operation and maintenance of the park. In 2021 a total of \$6,110 was spent for bylaw enforcement, park maintenance wages, electricity, garbage, supplies and repairs due to vandalism. In 2022 \$6,326 has been budgeted to cover these operating costs.

During recent site visit to Drummond Park it was noted that a number of park amenities are at or near their end of life and several park features including the toilets have been vandalized. Vandalism on the washroom facility is extensive and staff are waiting on quotes to repaint the washroom and remove or cover the graffiti. This work can proceed in 2022.

The slide has been in disrepair for some time and a replacement slide is not available. Options for the slide replacement could include installing a stand-alone slide or replacing the play structure. This work can be included in the 2023 capital plan.

Additional considerations for improvements to Drummond Park include:

- Pea Gravel to be replaced with Engineered Wood Fibre
- Benches to be replaced with the memorial benches
- Installation of a new gate at the side entrance
- Fence to be replaced with split rail or chain link
- Picnic shelter to be pressure washed and graffiti removed
- Picnic tables to be painted

**CONCLUSION**

PARC has received complaints about the current state of amenities in Drummond Park. During a recent site visit it was noted that a number of park amenities are at or near their end of life and several park features including the toilets have been vandalized. Vandalism on the washroom facility is extensive and can be repainted in 2022. Additional considerations for park improvements would need to be included in the Five Year Capital Plan.

**RECOMMENDATION**

There is no recommendation. This report is for information only.

DO:sc

Submitted by:	Dan Ovington, BBA, Parks and Recreation Manager
Concurrence:	Karla Campbell, DBA, Senior Manager

Appendix 1 – Site Visit Images Dated May 3, 2022

Appendix 1 – Site Visit Images Dated May 3, 2022

- Washroom Facility to be pressure washed and graffiti removed



- Concrete aboriginal columns to be pressure washed and graffiti removed



- Slide to be removed



- Slide to be replaced



- Pea Gravel to be replaced with Engineered Wood Fibre



- Benches to be replaced with the memorial benches



- Installation of a new gate at the side entrance



- Fence to be replaced with split rail or chain link





- Picnic shelter to be pressure washed and graffiti removed



- Picnic tables to be painted



# Rainbow Road Aquatic Centre Salt Spring Island, BC Recommissioning Planning Report



Project No.: 221669

May 12, 2022

Prepared for:

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**AM** AVALON  
MECHANICAL

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## PROJECT BACKGROUND

Avalon Mechanical Consultants' initial scope of work included the following:

- a. Assist owner in developing a recommissioning scope of work.
- b. Develop a Recommissioning Plan based on
  - owner's goals for the project
  - findings from the initial site visit and
  - information gathering.

Certain factors complicated completion of the scope of work:

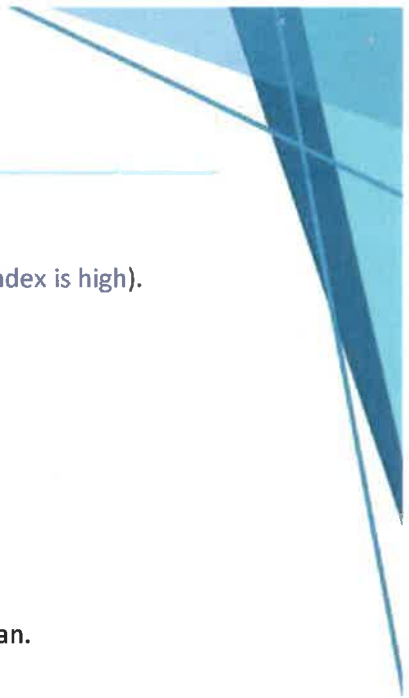
- a. the original heating system design intent was not being met
- b. the heat pumps (the building's main energy-saving feature) are nearing the end of their life expectancy
- c. control system has various shortcomings or defects
- d. the control strategies and software currently in place result in minimal heat contribution from the heat pumps system (the vast majority of the heating load is met by boilers).

## APPLICABILITY OF RECOMMISSIONING

A building's energy and environmental control performance deteriorates over time. When reduced performance compromises the original sustainability goals, or increased complaints are being heard, then recommissioning should be considered.

The following lists the optimal conditions for a facility re-commissioning project, and comments on how they apply to this aquatic centre at this time:

- ✓ Efficiency degraded because unoccupied schedules and setbacks reduced (True for Rainbow Road, as no time schedules or set backs are in place).
- ✓ DDC points or variables have been taken off "auto" and placed in "manual" (True for Rainbow Road – see below).
- ✓ Sophisticated control strategies have been replaced by simpler yet less effective ones. (True for Rainbow Road).
- ✓ Equipment wear has resulted in performance drifting out of adjustment/calibration. (True for Rainbow Road).



**Financial & Performance Considerations**

- ✓ Energy consumption and costs are higher than anticipated (Rainbow Road Energy Use Index is high).

ENERGY	Floor Area (sm)	kWh/yr	MJ/sm.y
Hydro	1,063	931,674	3,154
COST	Power Factor Charge	Total Charge	\$/sm.y
Hydro	0	\$89,326	\$84.01

**Table 1. Energy Performance**

- ✓ IAQ and/or comfort issues are present (e.g., high natorium relative humidity (RH)).
- ? The building may qualify for financial incentives from agencies such as BC Hydro or NRCan.

**Future Building Projects and Changes**

- X Re-Cx is best undertaken if no major retrofit projects are planned in the near future. A deep retrofit energy modeling project is imminent for the facility.

**Mechanical Equipment Age and Condition**

- X Re-Cx is best undertaken if building equipment and systems are not in need of major upgrades (see issues below for overview of recommended upgrades before recommissioning).
- X Re-Cx is best undertaken if the majority of building equipment and systems are less than 12 years old or are several years from the end of their useful life (if older equipment is to be replaced soon, then it is advised to do so before a full and comprehensive recommissioning).

**Building Controls**

- X Re-Cx is best undertaken when the DDC system is functional, accessible, has important trending set up, and has adequate memory to be used as a data acquisition tool during recommissioning. (See hardware and software issues below).

**FINDINGS AND ISSUES**

The original Commissioning Report from 2008, site review, and DDC review with Cougar Pacific revealed the following challenges:

1. AH1,2,3,4 & EF1 were drawing full load amps, which suggests they may have been somewhat under-sized.
2. Pool heat capacity does not seem large enough to allow for 3-day warmup period (7.5 day required if system functioning optimally). Recommend: Add more heat. Note: LED lighting retrofit may have freed up some amps and kW.

3. Heat pumps do not seem to operate as intended. They are reaching the end-of-life expectancy. Recommend considering new heat pumps (photo of one of the heat pumps below).



4. HP-1B BACnet communication board seems broken. Recommendation: fix it if heat pumps are not to be replaced.
5. Only 1 HP runs at any given time, although all pumps are on. HP-1A is manual "lead" (HP-1B may be doing nothing, or degrading SWT if water is flowing thru it)
6. It is possible that there is too much flow through the heat pumps (making for less temperature rise)
7. Heating pumps P6/7 were left to run simultaneously in parallel, rather than as per design intent (under which they would have run singly in a duty/standby configuration). This further supports the under-sizing theory.
8. Cooling pumps 8/9 were left to run simultaneously in parallel, rather than as per design intent (under which they would have run singly in a duty/standby configuration).
9. Pumps 6/7 & 8/9 have no DDC on/off. This can remain as-is. If a new plant is considered, full control recommended.
10. P6/7 and 8/9 Flotrex balance valves are too large to measure flows. If a new plant is considered, proper flow measurement should be added.
11. There are no Heat Pump RWT limits programmed in DDC (they may be in proprietary HP controller). If a new plant is considered, RWT limits should be programmed.
12. The heat pump system cannot produce water hot enough to heat the Swirlpool or the DHW tank. If significant plant changes are considered, this should be addressed.

13. There are no flow measurement devices on DHW & Swirl heat exchangers. If a new plant is considered, flow measurement should be added, although the heat pump connection to the Swirlpool should be considered for removal – this would
  - a. provide more flow to remaining devices
  - b. free up some DDC points
  - c. eliminate piping heat loss from the pipes going to HX-2.
14. Heat pumps are controlled entirely for cooling. Theoretically, heat pump heat is used if and when it is available due to cooling load. Recommendation: Provide new DDC software to control chillers based on lowest of heat or cool demand (as determined by DDC). Also see outdoor fluid economizer options below.
15. Location of the existing Fluid Cooler does not permit addition of heat to the heat pump source side from ambient outdoor air. Recommendation: Once dehumidification is recommissioned, analyze whether a new fluid economizer should be added to the chilled water side to absorb heat when chilled water temperature is below outdoor air temperature. This would augment heat added by EF-1.
16. Relative humidity sensors were not functional. This make AH1 chilled water dehumidification non-functional – which reduces the amount of recovered heat. New sensors are on order.
17. Boiler SWT\_SP is intended to be controlled by DDC; Set point goes to separate boiler controller which controls boiler staging. This can remain, although there can be no runtime logs of boiler heat without DDC connection.
18. Boiler pump is not on DDC graphic. Recommendation: New design to include control of boilers, Heat Pumps and water pumps.
19. Unfortunately, boiler DDC reset variable is in manual at 100%; this sets SWT-SP at maximum (65C), which is high above heat pump capability. Recommendation: put B1 reset in auto.
20. DDC code programmed such that "if OAT>22C (hot summer weather), disable B1; Recommendation: Remove this condition (heat is required due to pool evaporation in warm weather).
21. B1 needs a SWT sensor. Recommendation: Add sensor
22. Fluid cooler fan 1 was found to be on in manual. This was fixed.
23. PH-2 (Swirl) was found to be enabled 'on' in manual. This was fixed.
24. There are no weekly or holiday schedules programmed in the DDC for Admin or pool set back. Recommendation: Contract Cougar to institute unoccupied setback schedules, such as the following (including Optimal Start software).

		Mon	Tues	Wed	Thurs	Fri	Sat	Sun	hr/wk	Stat	hr/yr	AS-found Hr/yr	Saved hr/yr
FACILITY>		800 to 1900	800 to 1900	800 to 1900	800 to 1900	630 to 2000	800 to 1500	0	0		2782	8736	5954
AHU1	Pool	24	24	24	24	24	24	24	168		8736	8736	0
AHU2	Pool O/A	24	24	24	24	24	24	24	168		8736	8736	0
AHU3	Lobby	11	11	11	11	13.5	7	0	64.5	?	3354	8736	5382
AHU4	Mech Rm	T'STAT	T'STAT	T'STAT	T'STAT	T'STAT	T'STAT	T'STAT	67.2				
TF1		11	11	11	13.5	7	0		53.5	?	2782	8736	5954

EF1	Changerms	24	24	24	24	24	24	24	168		8736	8736	0
EF2	washroom	11	11	11	13.5	7	0			?	0		0
EF3	staff change	11	11	11	13.5	7	0			?	0		0
EF4	Pool Storage	24	24	24	24	24	24	24			0		0
EF5	Servery	SWITCH	SWITCH	SWITCH	SWITCH	SWITCH	SWITCH	SWITCH		?			

**Table 2. Preliminary example of suggested weekly and annual occupancy / operation schedules**

25. There are very few trend logs set up for inputs, outputs or variables. **Recommendation:** Contract Cougar to add trend logs (Avalon has provided a preliminary list which would likely cost less than \$1,000).
26. Electric Pool Heaters 1&2: DDC PI controller sends SWT-SP to HX & PH; PH on if SWT < SP; off when (SP+1.5); Heater local controller stages electric elements. This can remain, but does not allow for runtime logs for the electric heat.
27. 30 min delay between Swirl HX2 and PH2 (HX2 & delay redundant). **Recommendation:** Remove
28. Heat pump reversing valves often leak, and have been replaced. These valves are not used. **Recommendation:** Remove if new heat pumps are not to be designed.
29. EF1 CCV closes if OAT > 20 (on 19) – **Recommendation:** Remove code
30. Spare DDC points for new features or system expansion:
  - a. There is only 1 spare input;
  - b. 14 Binary Outputs;
  - c. 3 Analog Outputs.

## RECOMMENDATIONS

It is recommended, at this point, that CRD consider options before developing a detailed Recommissioning Plan. Suggested next steps include the following:

1. The Heat Pumps are likely at least 4 times more efficient than the boilers. Steps should be taken to allow the heat pumps to carry more of the building heating load:
  - a. Re-establish the dehumidification routine, which is the primary source of heat pump heat.
  - b. Try to allow both heat pumps to operate at once. This may require design changes and equipment replacements.
  - c. Optimize water flow through heat pumps - enough to allow both to operate, but not too much so as to prevent a hot discharge temperature. This may require design changes and equipment replacements.
  - d. Consider new DDC software strategy to control chillers based on lowest of heat or cool demand, rather than purely on cooling demand.
  - e. Consider installation of new outdoor fluid warmer on chilled water side to absorb heat when chilled water temperature is below outdoor air temperature.
  - f. Keep electric boiler B-1 off more by putting B1 reset in auto to allow SWT-SP to drop below at maximum (65C), which is high above heat pump capability
  - g. Swirl boiler primary water has a 3-way control valve. Prevent water returning from Swirlpool from heating



- the Heat Pump loop with Electric boiler (PH-2) heat. May want to isolate heat pump loop from PH-2 loop.
- h. Remove DDC code that closes EF1 CCV when OAT>20C.
  2. Add trend logs to DDC system to permit performance evaluation.
  3. Add weekly and annual occupancy schedules to all systems that can have setbacks during unoccupied hours.

## SPECIAL PROJECT RECOMMISSIONING PLAN OVERVIEW

Once the redesign and equipment replacement issues are decided upon, commissioning can be part of the new installation project(s), or can be done separately. The following table provides a preliminary checklist of tasks to be involved.

Equipment	Serves	Model	Location	Preliminary Re-Cx Plan Tasks
<b>Hydronic Heating</b>				
HP1A	HX1 LP; HX2 Whrl; HX3 DHW	Waterfurnace EW-360	Bsmt	Waterside Clean; Water filter change; Water balance; Sensor calibr (incl BACNet); Heat/Cool capacity test; Sequence of operation verification (before boiler)
HP1B	HX1 LP; HX2 Whrl; HX3 DHW	Waterfurnace EW-360	Bsmt	as above
Boiler B1		Chromalox CWG-250A-100	Bsmt	Waterside clean; Test water flow; Check sensor calibration; Test waterside dT's and elements; Verify staging and sequencing only after WWHPs tapped out
PH-1	Lap pool Stage 2	Coates 57 kW	Bsmt	Waterside clean; Test water flow; Check sensor calibration; Test waterside dT's and elements; Verify staging and sequencing only after HP loop tapped out
HX1	Lap pool Stage 1		Bsmt	Clean water side; Stroke HCV and verify closure; Check sensor calibration; Verify HX & PH1 staging and sequencing
PH-2	Swirl pool Stage 2	Coates 57 kW	Bsmt	Waterside clean; Test waterside dT's and elements; Verify staging and sequencing only after HP loop tapped out
HX2	Swirl pool Stage 1		Bsmt	Clean water side; Stroke HCV and verify closure; Check sensor calibration; Verify HX & PH2 staging and sequencing
WH-1	DHW stage 2		Bsmt	Waterside clean; Test water flow; Check sensor calibration; Test waterside dT's and elements; Verify staging and sequencing only after HP loop tapped out
HX3	DHW Stage 1		Bsmt	Clean water side; Stroke HCV and verify closure; Check sensor calibration; Verify HX & PH2 staging and sequencing
Fluid Coller FC-1		Cancoil DFC-030	outside	Air & waterside clean; Test air & waterside dT's and approach temps; Verify fan staging and sequencing
<b>Fans</b>				
AHU1	Pool	Loren Cook 245PCL	Bsmt	Air & waterside (heat & cool) clean; Test air & waterside flows (identify leaks, belt or filter issues), dT's and approach temps; Stroke HCV & CCV and verify closure; Check sensor calibration; Verify fan & heat/cool/dehumid staging and sequencing
AHU2	Pool O/A	McQuay CAH008GHAC	Attic	Air & waterside (heating) clean; Test air & waterside flows (identify leaks, belt or filter issues), dT's and approach temps; Stroke HCV and verify closure; Check sensor calibration; Verify fan & heat coil staging and sequencing
AHU3	Admin O/A, Lobby	McQuay CAH008GHAC	Attic	Air & waterside (heat & cool) clean; Test air & waterside flows (identify leaks, belt or filter issues), dT's and approach temps; Stroke HCV & CCV and verify closure; Check sensor calibration; Verify fan staging and sequencing

Equipment	Serves	Model	Location	Preliminary Re-Cx Plan Tasks
AHU4	Mech Rm	McQuay CAH008GHAC	Basement	Air & waterside (heat & cool) clean; Test air & waterside flows (identify leaks, belt or filter issues), dT's and approach temps; Stroke HCV and verify closure; Check sensor calibration; Verify fan & coil staging and sequencing
TF1	Entrance		Wall	Duct clean; Test airflow (identify leaks, belt or filter issues), dT's and element condition; Check sensor calibration; Verify fan & heater staging and sequencing
<b>Pumps</b>				
P-Boiler	Boiler		Bsmt	Water flow
P1	Pool	Pool water	Bsmt	
P2	Swirl	Pool water	Bsmt	
P3	Swirl jet	Pool water	Bsmt	
P4	Chlorine	Pool water	Bsmt	
P5		Pool water	Bsmt	
P6/7	HP HSW		Bsmt	Main heat loop flow; parallel or lead/lag sequencing
P8/9	HP ChWS		Bsmt	Main heat loop flow; parallel or lead/lag sequencing
P10	B Primary		Bsmt	Boiler flow; interlock with 2nd stage heating demand
P11	DHW Str Tank		Bsmt	Clean hydronic coil and drain sediment from potable side tank
P12	DHW recirc		Bsmt	Check flow
P13	DHW HX		Bsmt	Check flow
<b>Exhaust Fans</b>				
EF1	Changerooms	McQuay CAH008GHAC	Attic	Air & waterside (heat & cool) clean; Test air & waterside flows (identify leaks, belt or filter issues), dT's and approach temps; Stroke HCV & CCV and verify closure; Check sensor calibration; Verify fan & heat rejection from H/C; heat recovery from C/C, staging and sequencing
EF2	washroom		mezz	Duct clean; Test airflow (identify leaks, belt or filter issues); verify schedules
EF3	staff change		ceiling	Duct clean; Test airflow (identify leaks, belt or filter issues); verify schedules
EF4	Pool Storage		ceiling	Duct clean; Test airflow (identify leaks, belt or filter issues); verify schedules
EF5	Servery		ceiling	Duct clean; Test airflow (identify leaks, belt or filter issues); verify schedules

Table 3. Equipment list with preliminary Re-Cx tasks

## REGULAR O&M PROCEDURES

Seasonal O&M items include:

- Check Heating hydronics water filters each autumn.
- Check Heating hydronics air vents each autumn.
- Check air filters before heating and cooling coils as recommended in O&M Manual.

- Check heating coil and heat exchanger cleanliness each autumn (clean every 5 years approx.)
- Trend Water make-up volumes and
  - locate leaks
  - adjust water treatment accordingly.
- Verify lighting control operation (occupancy sensors, photocells, etc.)
- Verify calibration of RH or CO2 sensors that control dehumidification each autumn.
- Review DDC sequences each autumn to ensure proper operation.
- Provide lubrication as recommended in O&M Manual.
- Check weather stripping of windows and doors each autumn.
- Check heat recovery efficiency each autumn.
- Maintenance personnel should perform stroking spot checks biannually on actuators, valves, dampers, unless complaints or trend reviews reveal additional specific problems.
- Thermistor temperature sensors can be spot checked biannually. They typically do not drift significantly. The RH or CO<sub>2</sub> sensors may drift and should be recalibrated once a year or as indicated. Auto calibration alarms are recommended (relating to limits on the 3:00 am readings).

## PERFORMANCE MONITORING & ACTION

**If major disparities exist between projected and measured energy demand and consumption, investigate the reasons, and take corrective actions.**

1. If electricity use goes up, check
  - space temperatures vs set points
  - night space temperatures (check operating schedules if high)
  - over-ventilation during heating, and/or heat recovery efficiency
  - that heat pumps are not over-cooling
  - look for outputs, schedules, alarms, set points and inputs in manual mode; review the reason and plan how to return to auto
  - verify that Optimal Start, Ambient Lockouts, Temp / Pres Resets and other energy strategies are operational.
  - night lighting levels, and that occupancy sensors, etc. operating correctly.
  - whether new loads have been connected.
  
2. Existing O&M software could be modified to automatically schedule energy-related tasks at regular intervals. Such tasks include the following:

What	Why
Filter changes	Less resistance for fan motor
Lubrication	Energy not lost to friction
HX, and fan wheel cleaning	Improved heat transfer
Duct/pipe leaks	Wasted heat
Duct/pipe, crawl space/envelope insulation	Wasted heat

What	Why
Repair faucet leaks	Wasted heat/water
Repair running toilets	Wasted water
Fan speeds and balance	Wasted power & heat
Lighting controls and cleanliness	Wasted power
Controls settings and operation	Reduced run hours
Envelope air sealing	Wasted heat
Energy awareness (last out turns light/equip off)	Wasted power

Table 4. DDC Re-Cx strategy checklist

This report is for the use of the intended client only and was produced in accordance with good engineering practice. Avalon Mechanical Consultants Ltd. will not be responsible for any unauthorized third-party use of this report. The assessments and conclusions in this report are based on information gathered and provided by various methods, and should new or conflicting information arise, Avalon Mechanical Consultants Ltd. requests the opportunity to amend the report as required.

**Report Prepared by:**

Written: Bob Landell  
File:Document1

**AVALON MECHANICAL CONSULTANTS LTD.**



**Bob Landell, A ScT, LEED AP**

**Principal**

**Installation and Monitoring of Artificial Cover Objects (ACOs) for  
Sharp-tailed Snake in Monteith Drive Park Reserve and Reginald Hill  
Park Reserve  
and  
Gastropod Surveys in Reginald Hill Park Reserve**



*Monteith Drive Park Reserve with Scotch Broom invasion and driveway blasting and boulder installation on adjacent property.*

**January 2022**

**Prepared for: SSI Parks and Recreation Commission**

**Prepared by:** Laura Matthias (consultant) and  
Carrina Maslovat, R.P. Bio. #1407 (consultant)

All photos by L. Matthias

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Environment and  
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Changement climatique Canada

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## 1. Project Goals and Objectives

The goals of this project are:

1. Conduct surveys and long-term monitoring to increase the known distribution of Sharp-tailed Snake and its proposed Critical Habitat in both Monteith Drive Park Reserve and Reginald Hill Park Reserve. Data will provide up to date knowledge on Species at Risk occurrences and guide habitat stewardship and management planning for land managers and landowners. Surveys will be accomplished by the following objectives: 1) installing Artificial Cover Objects (ACOs) in areas of suitable habitat; and 2) conducting traditional surveys by monitoring ACOs for snakes.

2. Survey for gastropod (slug and snail) species in Reginald Hill Park Reserve. Surveys will be accomplished by conducting time-constrained ground searches in areas of suitable habitat for key species of slugs and snails, with a focus on endangered Oregon Forestnail.

This report outlines the accomplishment of the 2021 activities. Scotch Broom removal was also conducted in Monteith Drive Regional Park and details are included in a separate report.

## 2. Sharp-tailed Snake

### 2.1 Background

The federally Threatened and provincially Red-listed Sharp-tailed Snake (*Contia tenuis*) Pacific Coast Population is a cryptic, fossorial species, spending most of its life underground (Environment and Climate Change Canada 2017). Traditional survey methods use Artificial Cover Objects (ACOs) to detect these snakes in their natural habitat. ACOs are small asphalt shingles that are placed on the surface of the ground in suitable habitat.



*Sharp-tailed Snake adult.*

Snakes naturally thermoregulate under rocks or within woody debris but they will also use the ACOs. Traditional surveys require searching under ACOs during seasons of peak snake activity (spring and fall), which enables snake detection without disturbing or destroying the habitat (Isaac, et al. 2006).

Although ACOs are an important survey method, using them can be time-consuming and requires ongoing, consistent survey efforts in an area of suitable habitat to be successful. Terrestrial environmental DNA (eDNA) sampling protocols have been developed by the authors to detect this species using samples collected in the field which are analyzed for snake DNA (Matthias et al. 2021). Environmental DNA (eDNA) is DNA left in the environment from skin,

feces, mucus, etc. It has primarily been used to detect aquatic species and techniques have recently been developed for terrestrial species.

Innovative eDNA techniques can be used in areas of highly suitable habitat but where the species has not yet been detected. The eDNA sampling protocols demonstrate great potential for detecting cryptic terrestrial species, though there is still much to learn about the degradation, persistence and deposition rates of eDNA by Sharp-tailed Snakes *in situ*. Current eDNA protocols offer a complementary innovative tool when combined with traditional surveys. Novel terrestrial eDNA sampling protocols for the Sharp-tailed Snake (as per Matthias et al. 2021) will be rigorously followed and honed as necessary to apply this new tool to locations where this species has not yet been found. eDNA samples will be analyzed by Bureau Veritas Labs with support from Dr. Caren Helbing at UVic who is at the forefront of eDNA research.

This project applies both the traditional and novel eDNA research tools in focal conservation properties on Salt Spring Island to help determine the distribution of Sharp-tailed Snakes. Building on the success of the protocols developed, traditional snake monitoring using Artificial Cover Objects (ACOs) will be done in conjunction with eDNA swab and soil sampling as a survey tool to detect this elusive species.

## 2.2 Importance of Monitoring for Species at Risk

Both Monteith Drive Park Reserve and Reginald Hill Park Reserve are used by the public for recreation. Recreation in all green spaces in the Gulf Islands and southeastern Vancouver Island continues to increase as populations grow, areas next to parks become developed and local residents as well as visitors turn to outdoor activities. The global pandemic has also increased recreational pressure on these sites, many of which are small with limited management budgets. Working with independent consultants to support ecological inventories is essential for these non-governmental agencies to identify which Species at Risk are present on their lands and to develop management strategies to protect them. Understanding the presence and distribution of new Species at Risk occurrences found during this HSP funded project will help guide future land management and address issues associated with increased recreational and trail use, park maintenance, and invasive species management.

Surveys and population monitoring are essential for understanding the species' population biology, habitat requirements, life history, identifying undocumented populations to increase habitat protection, and determining distribution at known sites. This is particularly important for



*Sharp-tailed Snake adult.*



cryptic species that are challenging to detect. New occurrences of Sharp-tailed Snakes will be shared with Canadian Wildlife Service to inform Critical Habitat designation and guide on-the-ground management activities in multi-jurisdictional protected areas facing ongoing and increasing threats.

### 2.3 Target sites for Sharp-tailed Snake Long-term Monitoring

Within Canada, threatened Sharp-tailed Snake are known from only 15 extant subpopulations in BC. On Salt Spring Island, that includes 4 subpopulations on the north and south ends. Monitoring known sites will help to determine if the species is still present and identify impacts from recreational use over time.

In the late summer of 2021 after HSP funding was approved, biologists visited the two target properties to assess possible locations for installation of ACOs. At each site where ACOs were installed, the area was assessed for habitat and the best locations for installing the ACOs were determined based on habitat needs of the species and biophysical attributes at the site. ACO locations were chosen around open areas with abundant loose rocks, rotting logs, coarse woody debris or Douglas-fir stumps and snags. The ACOs were placed in pairs and the underside of each ACO was labelled using nail polish to mark the ACO number. Coordinates and photographs were taken of all ACO pairs at each site. Both sites had permission from PARC to conduct the work, and a Wildlife permit is also in place.

#### 2.3.1 Monteith Drive Park Reserve (0.14 ha/0.34 ac): 10 pairs

This small Salt Spring Parks and Recreation Commission (PARC) parcel is located on the northwest coast of Salt Spring Island. Sharp-tailed Snake has been confirmed by the authors in previous years and the data was submitted to the BC Conservation Data Centre and the Canadian Wildlife Service. No monitoring had been conducted for the past 5 years. The park is an open Garry Oak ecosystem with thin soiled rock outcrops.

There has been substantial development in adjacent parcels including a large driveway that was blasted along the border of the park on the neighbouring lot. These activities in adjacent parcels may have impacted habitat within the park. There have also been impacts in the park including the installation of a trail circuit, signage, and a bench since the snakes were last monitored.

Monteith Drive Park Reserve has designated Critical Habitat for Sharp-tailed Snake and is a small oasis surrounded by developed private lands and lands that are being actively developed. There is currently 70.54 ha of Critical Habitat mapped on northwest Salt Spring Island which includes Monteith Park. Targeted HSP-funded invasive species removal (Scotch Broom) was completed at Monteith Park in previous years but there has been no maintenance for several years and the broom is quickly re-establishing. Removal work funded by this HSP project will ensure protection of biophysical attributes for Sharp-tailed Snake at this site and hopefully inspire adjacent private landowners to remove broom on their lands as well. Snakes require open sites for thermoregulation and egg-laying (Environment and Climate Change Canada

2017). Some locations where Sharp-tailed Snakes were previously detected were shaded by large Scotch Broom and the habitat will likely degrade and become unsuitable unless this invasive species is removed regularly on an annual basis. Reduced habitat complexity associated with encroachment and invasive species can also lead to reduced prey availability (Environment and Climate Change Canada 2017).

**ACO Installations**

On August 19, 2021, a site visit was made to Monteith Drive Park Reserve on Salt Spring Island and the area was assessed for suitable habitat locations to install ACOs for long-term monitoring of Sharp-tailed Snakes (see Table 1 and Figure 1 for location data). Ten ACO pairs were installed in areas with suitable habitat in the park and the Right-of-Way access. This very small community park previously had ACOs in place but the site had not been monitored in ~5 years. Monitoring will help to assess and confirm the presence of the snakes at this site. Any old ACOs remaining from previous monitoring efforts were removed as they had degraded over time. Photos of ACO locations can be found in Appendix A.

*Table 1. Locations of ACOs in Monteith Park*

<b>Monteith Park</b>			
<b>STS ACO Installation Date</b>	<b>ACO#</b>	<b>Easting</b>	<b>Northing</b>
19-Aug-21	1 A&B	457656	5414912
19-Aug-21	2 A&B	457663	5414913
19-Aug-21	3 A&B	457653	5414911
19-Aug-21	4 A&B	457660	5414909
19-Aug-21	5 A&B	457664	5414903
19-Aug-21	6 A&B	457653	5414891
19-Aug-21	7 A&B	457656	5414881
19-Aug-21	8 A&B	457647	5414902
19-Aug-21	9 A&B	457650	5414912
19-Aug-21	10 A&B	457652	5414922



ACOs installed in Monteith Park where Scotch Broom has re-established within the park.



Figure 1. Locations of ACOs installed at Monteith Park, Salt Spring Island.

### Monitoring Effort and Results

Monteith Drive Park Reserve was monitored on September 9 and September 24, 2021. On September 9, 2021, no snakes were found. On September 24, 2021 one juvenile Sharp-tailed Snake was found under ACO 2A. Biometric data was collected for the snake and photographs taken to record any markings (included in Appendix B). One juvenile Northwestern Gartersnake (*Thamnophis ordinoides*) and one adult Northern Alligator Lizard (*Elgaria coerulea*) were also found under other ACOs on this site visit.



*Northern Alligator Lizard at Monteith Drive Park Reserve*



*Northwestern Gartersnake at Monteith Drive Park Reserve*

### Recommendations

It is recommended that the ACOs be monitored regularly by a biologist familiar with the species (annually in both the spring and fall during peak snake activity) to help assess the abundance of snakes following recent development both in and adjacent to the park. It is recommended that the Scotch Broom be controlled annually to maintain the sunny open conditions required by snakes for egg-laying and thermoregulation. Sharp-tailed Snakes lay eggs on sunny open slopes to allow for warmth during incubation. It is recommended that no further infrastructure be installed in the park to reduce any further impacts to Sharp-tailed Snake and their habitats (including habitat fragmentation and potential harm associated with trampling from trail and bench installations) in this small but important park that provides Critical Habitat for this threatened species.



*Sharp-tailed Snake found in Monteith Drive Park Reserve under an ACO on September 24, 2021.*

### 2.3.2 Reginald Hill Park Reserve (2.22 ha/5.49 ac): 5 pairs

This small Salt Spring Parks and Recreation Commission (PARC) parcel has Sharp-tailed Snake confirmed sightings by the authors in previous years, but no monitoring had been conducted for the past 5 years. The data was submitted to the BC Conservation Data Centre and the Canadian Wildlife Service. The park includes a linear trail to the summit of the hill and a small open rock outcrop at the top of Reginald Hill with Douglas-fir, Arbutus and Garry Oak trees and open meadow and bluff habitat. This site has a high use public trail which is surrounded by private lands and has designated Critical Habitat (12.57 ha) for Sharp-tailed Snake based on previous observations in the park.

#### ACO Installations

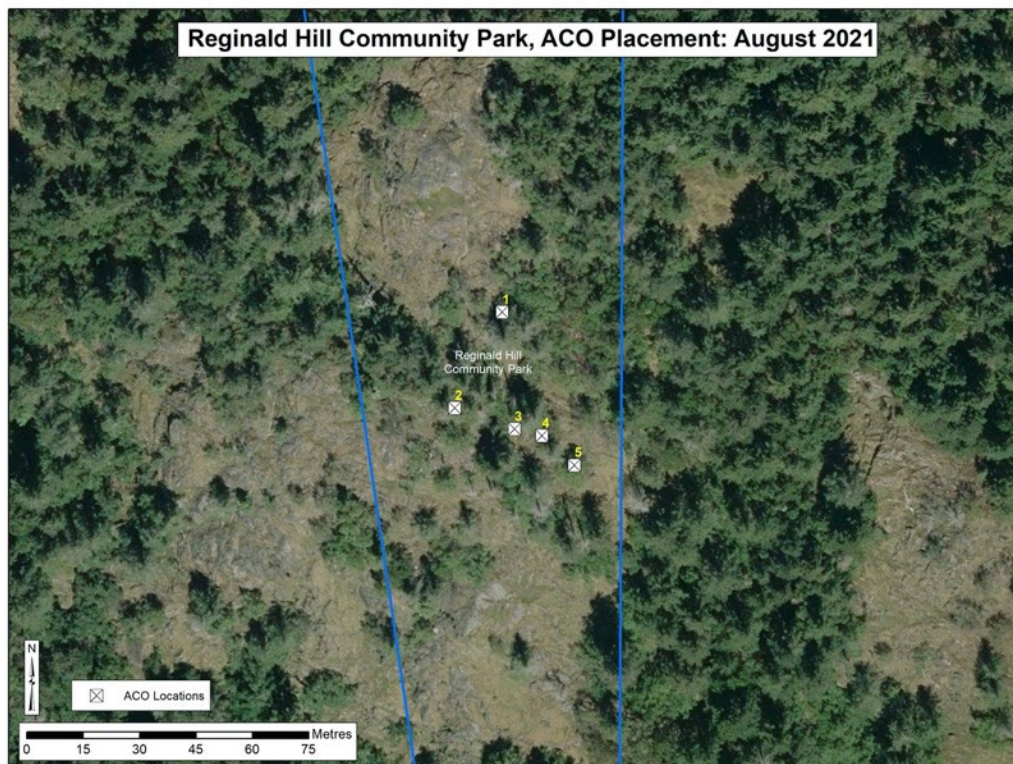
On August 19, 2021, a site visit was made to Reginald Hill Park Reserve on Salt Spring Island and the area was assessed for suitable habitat locations to install ACOs for long-term monitoring of Sharp-tailed Snakes (see Table 2 and Figure 2 for location data). Five ACO pairs were installed in areas with suitable habitat in the park. This very small community park had previously had ACOs in place but the site had not been monitored in ~5 years. Any old ACOs remaining from previous monitoring efforts were removed as they had degraded over time. Photos of ACO locations can be found in Appendix C.

Table 2. Locations of ACOs in Reginald Hill Regional Park

<b>Reginald Hill Regional Park</b>			
<b>STS ACO Installation Date</b>	<b>ACO#</b>	<b>Easting</b>	<b>Northing</b>
19-Aug-21	1 A&B	468182	5401329
19-Aug-21	2 A&B	468169	5401303
19-Aug-21	3 A&B	468184	5401296
19-Aug-21	4 A&B	468192	5401295
19-Aug-21	5 A&B	468201	5401287



*ACOs installed at Reginald Hill Regional Park.*



*Figure 2. Locations of ACOs installed at Reginald Hill Regional Park, Salt Spring Island.*

## Monitoring Effort and Results

Reginald Hill Regional Park was monitored on September 10 and September 24, 2021. No Sharp-tailed Snakes were found.

## Recommendations

Ongoing monitoring will help to assess and confirm the presence of the snakes at this site and is important for guiding management as it is a highly used community park trail. It is recommended that the ACOs be monitored regularly by a biologist familiar with the species (annually in both the spring and fall during peak snake activity). The park is remarkably free from Scotch Broom but the area should be inspected annually to remove any new invasive shrubs before they can become established. Invasive Common Foxglove (*Digitalis purpurea*) is establishing in the park and should be considered for removal efforts.

### 2.4 eDNA Sampling 2021

eDNA is any trace fragment of exogenous genetic material left in the environment from skin, feces, mucus, etc. eDNA has been used to detect aquatic species and is being researched to determine its potential for terrestrial species detection. In 2018, a quantitative real-time polymerase chain reaction (qPCR)-based tool was developed for Sharp-tailed Snake by the authors in collaboration with the University of Victoria. Testing by the authors confirmed that samples collected from swabbing the underside of ACOs and samples collected from soil beneath the ACOs were effective at detecting eDNA, even when snakes were not visually present. eDNA swab and soil samples were collected from where the snake was seen at Monteith Drive Park Reserve, to test the new eDNA protocols to ensure they are working.

Sampling protocols followed were those developed by the authors (Matthias et al. 2021). The samples were kept on ice in the field and delivered to Bureau Veritas Labs for analysis, with technical support provided by the Helbing lab at the University of Victoria who developed the primer. Filtration of soil samples was completed in Burnaby and testing for eDNA was completed in the Guelph lab of BVL.

#### 2.4.1 Monteith Park (0.14 ha/0.34 ac): 10 pairs

One eDNA swab and one eDNA soil sample was collected from under the ACO where a Sharp-tailed Snake was found on September 24, 2021 at Monteith Park. Soil and swab samples are taken when a snake is found to ensure the novel eDNA protocols are working and to test accuracy in the lab analysis from a known positive sample. Both soil and swab samples tested positive: the swab sample tested positive in 1/8 replicates after 1:1 dilution with a lab call of suspected positive; the soil sample tested positive in 5/8 replicates without dilution and 3/8 replicates after 1:1 dilution with a lab call of positive (results in Appendix D).

### 3. Oregon Forestsnail

The endangered Oregon Forestsnail (*Allogona townsendiana*) has a restricted range, patchy distribution in remnant habitats, and faces threats from habitat loss, invasive species and human activities such as recreation and development. There has only been one documented population outside of the lower mainland of BC on Vancouver Island (from 1903: Whiteaves 1906; from 2003: Ovaska and Sopuck 2013; and from 2019: Ovaska et.al 2020). No records are known from the Gulf Islands though suitable habitat exists. A survey for this species was conducted in Reginald Hill Park Reserve.



*Oregon Forestsnail adult in Westholme (2019)*

#### 3.1 Background

This project addressed the Schedule of Studies in the *Recovery Strategy for the Oregon Forestsnail (Allogona townsendiana) in Canada* to Identify Critical Habitat which includes: “Survey candidate sites identified as Oregon Forestsnail habitat by the habitat suitability model” (Environment Canada 2016). As the habitat suitability model was in progress at the time of surveys, this activity relied on expert identification of suitable habitat by a biologist familiar with the species and its habitat requirements.



As of 2011, there were 67 known sites in Canada. There are no known records for the Oregon Forestsnail on the Gulf Islands, although Salt Spring Island is less than 8 km from the only known population on Vancouver Island. Target sites for surveys included areas with suitable biophysical attributes of Critical Habitat including intact deciduous and/or mixed wood and/or dense shrub or herbaceous canopy to



*Oregon Forestsnail in Westholme (2019)*

maintain microclimate; patches of Stinging Nettle (*Urtica dioica*); dense understory vegetation; and coarse woody debris and leaf litter. Target sites for this project are on Salt Spring Island and include lower Mt. Tuam crown lands, Water Preservation Society lands at St. Mary Lake, and lower portions of Reginald Hill Regional Park.

### 3.2 Survey Methods

Surveys were done by wandering transects through suitable habitat using time-constrained searches as recommended for presence/absence determination in the *Oregon Forestsnail Best Management Practices Guidebook* (J Hobbs Ecological Consulting Ltd. et al. 2021). Snail detections and habitat information was recorded and transect routes were tracked to quantify search effort. Work was done by biologists familiar with the habitat and with the species, and with extensive experience searching for terrestrial gastropods and Oregon Forestsnail. Surveys included searches for other threatened gastropods, including Threaded Vertigo (*Nearctula* sp. 1) and Blue-grey Taildropper (*Prophysaon coeruleum*). A baseline list of gastropod species present was compiled for each site to guide land management activities.

### 3.3 Target Site

Reginald Hill Park Reserve was chosen as a site to focus gastropod surveys on due to the presence of key habitat characteristics required by several rare gastropods.

### 3.3.1 Reginald Hill Park Reserve

#### Monitoring Effort and Results

No Oregon Forestsnail specimens were observed during surveys at Reginald Hill Park Reserve in November 2021. Threaded Vertigo (Special Concern) was found (see Appendix E for location data).

There is a small patch of suitable habitat at the lower part of the trail that has large Bigleaf Maple trees and some Stinging Nettle adjacent to the trail, which extends further beyond the trail system. A survey was conducted on November 19, 2021. In addition to the gastropods listed in Table 3, two Pacific Treefrog (*Pseudacris regilla*) were also observed in the maple leaf litter. Time-constrained searches resulted in four gastropod species identified on site, including the Threaded Vertigo (federal Special Concern; provincial Blue-list) and a survey track map can be found in Figure 3. No Oregon Forestsnail specimens were observed during surveys at Reginald Hill Park Reserve in November 2021. Threaded Vertigo (Special Concern) were found (see Appendix 1 for location information).



*Pacific Treefrog observed in Reginald Hill Park Reserve, November 2021*



*Bigleaf Maple and Stinging Nettle growing at lower slopes of Reginald Hill Regional Park*

Table 3. Species observed during November 19, 2021, site visit at Reginald Hill Regional Park (temp=4°C, clear, no precipitation).

Common Name	Scientific Name	Federal COSEWIC listing	Provincial listing
Lancetooth sp.	<i>Ancotrema</i> sp.		
Northwest Hesperian	<i>Vespericola columbianus</i>		
Robust Lancetooth	<i>Haplotrema vancouverense</i>		
Threaded Vertigo	<i>Neactula</i> sp. 1	Special Concern	Blue

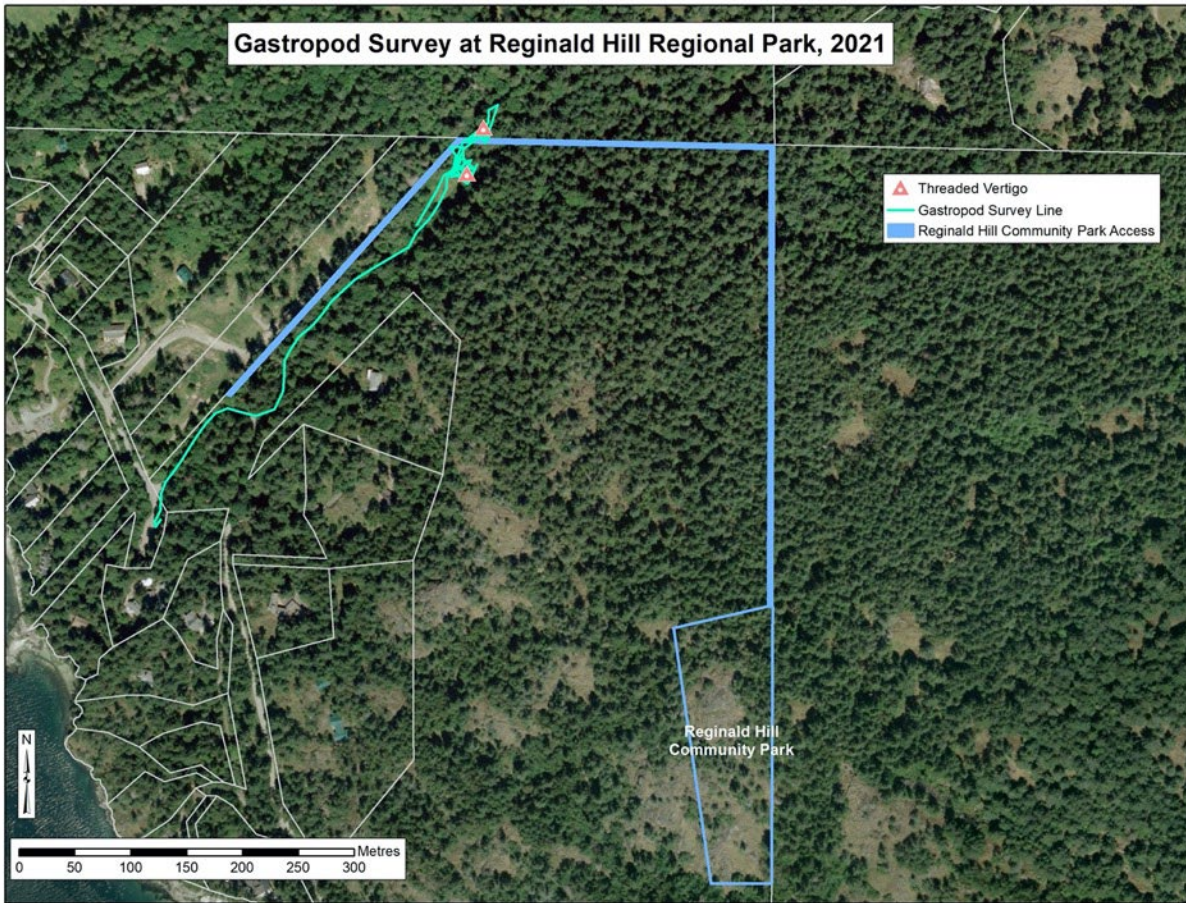


Figure 3. Track map and gastropod species at risk locations in Reginald Hill Park.

## 4. Discussion

It can take years of consistent monitoring to detect these elusive species and long-term monitoring is essential for better understanding of this species biology and life history and for guiding management. Many parks and protected areas are facing increasing pressures from recreational activities, development, invasive species, and multi-user groups that compound the impacts and threats on protected areas and their sensitive ecosystems and the Species at Risk that depend on them. Knowing what species are present and what their habitat needs are will provide insight and guidance to landowners and land managers that are responsible for creating and updating management plans and stewardship actions within these protected areas.

The robust collaboration from multi-jurisdictional partners to support surveys and long-term monitoring of for Sharp-tailed Snake in target areas demonstrates the importance of this snake as an umbrella species in Garry Oak ecosystems, and the desire for land managers and landowners to have current information about the presence of species at risk on the lands they steward and manage. Ongoing monitoring at sites with known occurrences is also important for understanding the biology of Sharp-tailed Snakes. Because biometric data is collected for each snake captured, ongoing surveys allow the opportunity for re-captures which provides important information on the species' seasonal movements and growth rates. Ongoing monitoring also provides clues to population structure and demographics since it creates a portrait of the number of hatchlings and subadults compared to adults and also gender ratios.

Ongoing habitat management should include removal of invasive shrubs in areas with suitable snake habitat, most notably Scotch Broom. Broom is established in and all around Monteith Drive Park Reserve in adjacent private lands. Supporting ongoing annual removal within the park will help to maintain the habitat characteristics that this species requires in this park listed as Critical Habitat, and will hopefully encourage other adjacent landowners to remove invasive species on their own lands which will benefit the park. Common Foxglove is established at Reginald Hill Park Reserve and should be considered for targeted removal in future years.

Forest habitats support a variety of terrestrial gastropods (slugs and snails) in British Columbia which are important for maintaining healthy forest ecosystems. They perform important ecological functions as decomposers and consumers of both living and decaying plant matter. They play important roles in facilitating nutrient cycling (Mason 1970; Richter 1979, 1980) and dispersing seeds and fungal spores (Richter 1980; Gervais et al. 1996), which are critical for mycorrhizal associations that support tree growth. Understanding the diversity of gastropod species serves as an important baseline that can inform land management and guide future decision making by landowners. Maintaining and protecting these important habitat features required by gastropod species will help ensure there is suitable habitat and connectivity available for dispersal into the future.

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Appendix A. Photos of pairs of ACO locations in Monteith Drive Regional Park

ACO 1A&B



ACO 2A&B



ACO 3A&B



ACO 4A&B





ACO 5A&B



ACO 6A&B



ACO 7A&B



ACO 8A&B



ACO 9A&B



ACO 10A&B



## Appendix B. Biometric Data of Sharp-tailed Snakes Found in 2021 at Monteith Drive Park Reserve

Location	Date	Time	Temp	Northing	Easting	Gender	Age	Weight	Snout-vent Length	Tail length	Notes
Monteith Drive Park Reserve	Sept 24, 2021	10:30 am	18C	457675	5414915	Male	Juvenile	3.1g	18.3 cm	3.4 cm	Underside of tail white. Large pinkish red blotch on dorsal centre of back about 10cm below snout.



*White underside of tail*



*Pinkish red blotch noted on dorsal surface of snake about 10cm below snout*



*Unique throat pattern can identify snakes seen again at the same site*

Appendix C. Photos of pairs of ACO locations in Reginald Hill Regional Park

ACO 1A&B



ACO 2A&B



ACO 3A&B



ACO 4A&B



ACO 5A&B



## Appendix D. eDNA Sample Analysis Results

Sample Name	ACO #	Date Sampled	Sample Type	Location*	Clean Up Required?	COTE Frequency	Lab Call
21-FALL-1-SOIL	2A	2021-09-24	Swab	Monteith	No	0/8 1/8 after 1:1 dilution	S
21-FALL-1-SWAB	2A	2021-09-24	Soil	Monteith	Yes	5/8 3/8 after 1:1 dilution	Y

S=suspected positive detection; Y=yes (positive detection)



## Appendix E. Gastropod Species at Risk Occurrence Data

The following occurrences for Species at Risk were noted during surveys. All were confirmed by visual inspection of denticles with a hand lens by Laura Matthias.

<b>Date</b>	<b>Location</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
Nov 19 2021	Reginald Hill Park	Threaded Vertigo	<i>Neactula</i> sp. 1	467940	5401839	One shell collected under moss mat on Bigleaf Maple 1m up from base of tree
Nov 19 2021	Reginald Hill Park	Threaded Vertigo	<i>Neactula</i> sp. 1	467955	5401880	One shell collected under moss mat on Bigleaf Maple 0.6 m up from base of tree (same location as specimen collected several years prior)

# Invasive Species Removal Report for Monteith Drive Park Reserve 2021/2022 Fiscal



*Photo 1. Before (above) and after (below) Scotch Broom removal looking east on the middle terrace*

**February 28, 2022**

**Prepared by: Carrina Maslovat (R.P. Bio.) and Laura Matthias  
Funding provided by: Habitat Stewardship Protection Fund**

## Background

Monteith Drive Park Reserve, Salt Spring Island provides critical habitat for Sharp-tailed Snakes, and at-risk Arbutus and Coastal Douglas-fir ecosystems. The rare ecosystems and species on this site face ongoing threats including habitat loss from invasive, non-native species.

Scotch Broom (*Cytisus scoparius*), Spurge-laurel (*Daphne laureola*) and Aaron's beard (*Hypericum calycinum*) degrade habitat on this property for rare species including the federally endangered Sharp-tailed Snake (*Contia tenuis*), which requires sunny, open locations for thermoregulation. These exotic species also degrade habitat for native plants and wildflowers by competing for light, moisture, nutrients and space. Because they can spread freely to adjacent properties, landowners have a stewardship responsibility to control their occurrence.

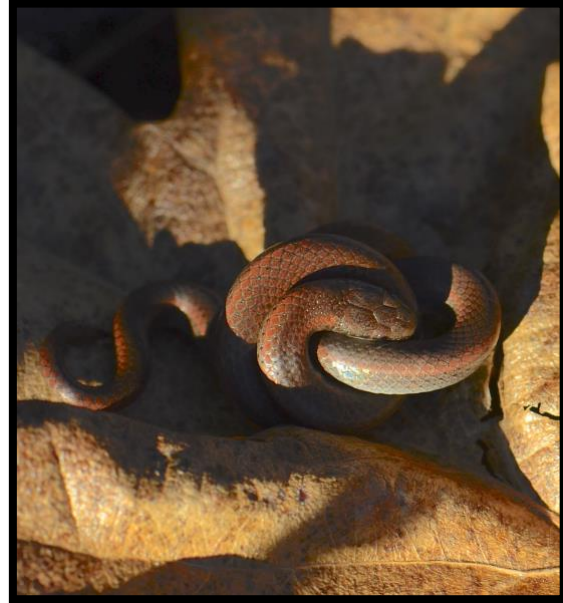


Photo 2. Sharp-tailed snake discovered under an artificial cover object in 2016.

## 2022 Invasive species removal

Targeted Scotch broom removal was implemented over approximately 0.7 ha, with focused, intensive removal occurring along the high-quality habitat of the middle terrace at Monteith Regional Park Reserve. An estimated 10 cubic meters of broom was cut and pulled during this time and subsequent visits were made to remove all the broom from the entire property and adjacent right-of-way.



Photo 3. Approximate volume of Scotch Broom removed on January 30 and February 9.

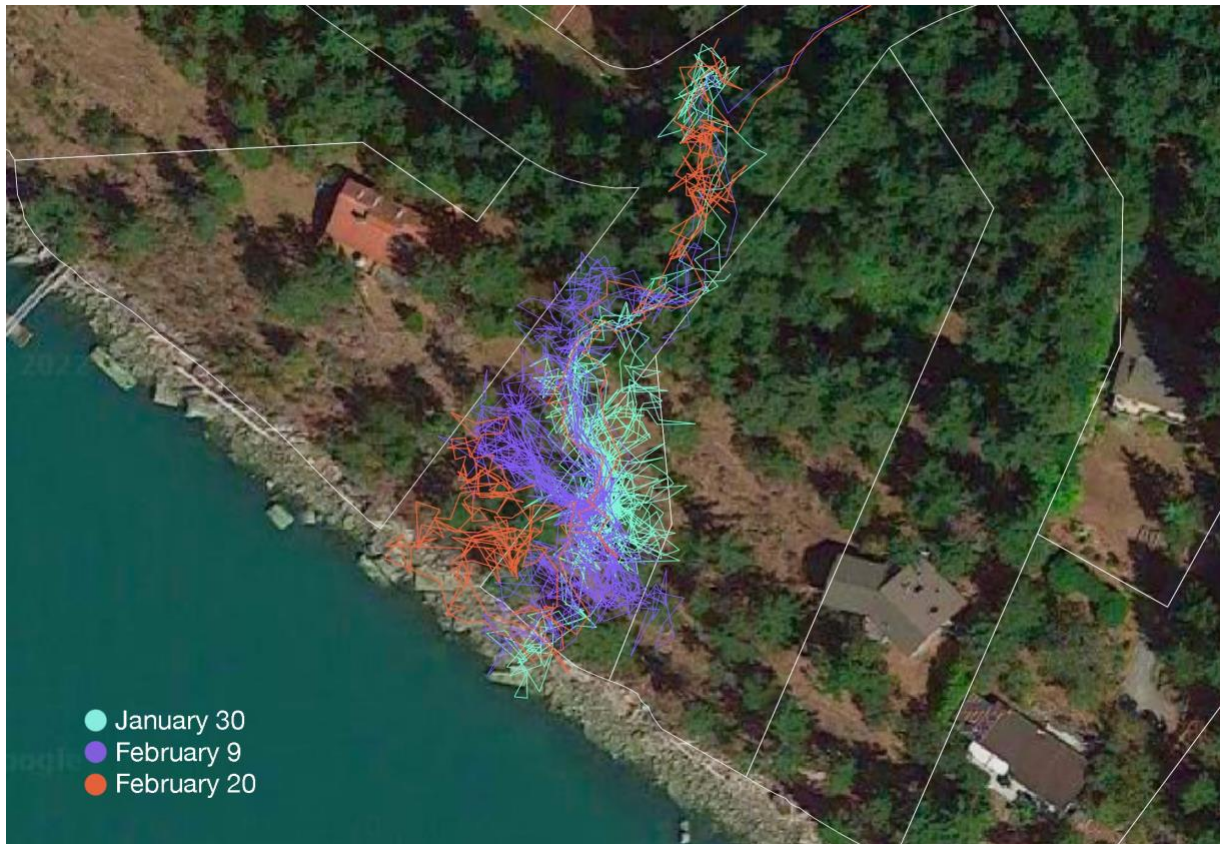


Figure 1. Coverage of 2022 Scotch Broom removal.

### Discussion

It is important to maintain constant, ongoing effort to remove any new germinants of Scotch Broom and to cut resprouting plants each year before they flower, go to seed and add further to the existing seed-bank. Much of the broom at Monteith showed signs of being cut in previous years but because a sustained removal program spanning multiple years was not in place, much of it had grown back with renewed vigor and the outcrop habitat was strikingly degraded by the large volume of it. Of note, a handful of mature broom plants appear to have died of their own accord, likely during the excessive heat and drought from the last two summers. With sustained effort, ongoing funding and an annual removal program this is an invasive species that can be controlled, keeping critical outcrop habitat open for the species that require it. While the focus this year was on broom, future efforts could also target the Spurge-laurel and Aaron's Beard patches that occur at the front of the right-of-way along the road.



*Photo 4. Before (above) and after (below) Scotch Broom removal looking north on the middle terrace*