Youth and Ecological Restoration Program Phase II Project

Yellow Sand-verbena Inventory

Goose Spit Park 2024

YER participants count flower and seeds within a 1m^2 quadrate

August 28th, 2024

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Acknowledgements

The Youth and Ecological Restoration Program (YER) was created by Wendy Kotilla over twenty years ago and has had sixty-nine youth complete Phase II of this program. Graham Hilliar from YER was the coordinator and leader of this project. Youth field technicians and YER Phase II participants Sofia Thiesburger-Silva and Kaiden Huber assisted in collecting the data for this report as well as providing suggestions for park management and recommendations. Biologist, Caroline Heim coordinated the field research, supported the youth with the scientific data collection methodology and Quality Control/Quality Assurance.

This YER, Phase II (YER II) project was funded through a partnership with BC Ministry of Children and Family Development and the Comox Valley Regional District (CVRD) Parks Branch.

Cassidy Patton, Parks Technician with the CVRD, provided input for the project including determining the study area, providing background information about Goose Spit Park, discussing methodology for assessments, and treating the crew to Bigfoot Donuts. Will Marsh, Professor Emeritus, met with the crew and described the geomorphological and more recent changes to Goose Spit. Kent Fiddy, stopped by to describe the history of the log wall on the south side of Goose Spit and changes he has observed to the land elevation over time. Thanks to Morrison Creek Streamkeepers for lending their iPad and Garmin Glo for the mapping.

Many thanks to all of the people listed above for making this project a reality and for helping provide a positive learning opportunity for the youth involved in this program.

Introduction and Background

The YER program provides opportunities for vulnerable or at-risk youth to engage with the public and mentors while connecting them more closely to the outdoors and nature. Mentors share knowledge with the youth as they participate in important biological work and learn scientific field skills. Through the YER process, youth travel a journey together with their community and develop a sense of worth, belonging, and place (YER website 2024).

Goose Spit Park was decided upon by the CVRD with input from YER as a study site for the 2024 YER II project. The Yellow Sand-verbena (YSV) (*Abronia latifolia*) and Sand-verbena Moth (*Copablepharon fuscum*) are important species of concern for the CVRD parks managers, so getting more up to date information about abundance and distribution over time will help inform future decisions around preserving this species and allowing it to flourish.

The geographic focus of the 2024 YER II project extended in width between the log wall on the southeast side and the paved roadway, and over the length of the section of park from the Department of National Defense (DND) gates to the northernmost parking lot near the base of the stairs (Figure 1). Cassidy Patton and her field team assessed the area on the inner Comox Bay (northwest) side of the spit. The data collected by YER II will be shared with the CVRD in addition to being presented in this report and adds to the monitoring information collected in past YER II studies that were completed in 2020 and 2021.

The field work was completed at Goose Spit from August 12-16, 2024. Youth participants Sofia Thiesburger-Silva and Kaiden Huber worked together with Graham Hilliar (YER Youth Support Worker) and Caroline Heim (Professional Biologist).

Objectives of Study

The objectives of this study were to:

- support vulnerable youth within the Comox Valley by providing them with hands-on work to engage with nature and adult mentors through an ecological inventory project;
- inventory the blue-listed YSV plant in Goose Spit Park to compare with past assessments completed in 2020 and 2021
- provide data, reporting and recommendations to support CVRD park management and future park planning.

Study Area and History of Goose Spit

Goose Spit is located at the end of Hawkins Road in Comox and is a twenty-one hectare park managed by the CVRD. The park is Crown land that has been licensed to the CVRD since 1971 to be managed as a Regional Park (CVRD website, 2024). It is a sandy promontory of land that juts out to form a spit separating the inner Comox Harbour on the southwest side from the Strait of Georgia on the northeast side. Goose Spit is very popular for swimming, boating, wind sports, and picnicking and receives at least 30,000 park visitors and 5,000 dogs on an annual basis (CVRD website and public signage). Beyond the park boundary towards the south end of the spit, the land is currently occupied by the DND. Further south is the K'ómoks First Nation Indian Reserve (IR #3).

The study area for the 2024 YER II project is indicated in Figure 1 within the red circle on the east of Georgia Strait or "outer bay" area of the park.

Prior YER II projects at Goose Spit engaged with K'ómoks First Nation Elders who tell of a rich traditional use of Goose Spit where shellfish, seaweeds, eulachon (fish), smelt and herring were harvested (Maslovat and Kotilla, 2021). Due to the disappearance of some of these food sources combined with risk of pollution, the K'ómoks peoples no longer harvest foods from the Goose Spit area (Maslovat and Kotilla, 2021). The traditional K'ómoks First Nation name for Goose Spit is Pelxqikw, meaning "round on point" (CVRD 2021).

Over the last fifteen years, the CVRD has installed and maintained a log wall on the northeast side of the road to reduce erosion of the upland area, and to protect dune habitat and infrastructure in the long term such as the road and powerlines (Patton, pers.comm. 2024). Kent Fiddy (past CVRD parks warden) visited the participants during the field week and explained how the logs are designed to deflect large logs, and to stop larger substrate from transporting upslope. Photos 1 (1986), 2 (2008) and 3 (2024) show how the east side of the spit has been altered over time. The gaps purposely left between the logs allow for sand to be transported and deposited in the strip of land between the logs and the roadway. Over time, this sand area has built up higher in elevation and provides good YSV habitat (Kent Fiddy, pers.comm. 2024).

Figure 1. Study area for YER Phase II August 2024 project shown in red at Goose Spit Park, Comox Valley

Recent work has included creating pathways or “portals” so that park visitors use only a select few locations to cross from the parking areas to the beach. This effort is to stop people from trampling the sensitive sand dune ecosystem that is home to YSV and other associative plants.

In the last several years the CVRD has been trying to raise awareness about the YSV by installing interpretive signs, distributing brochures, posting smaller signs in key YSV areas, and by delineating sensitive areas by placing boundary logs around perimeters of clumps of YSV. The CVRD Parks Department has been supporting the monitoring of the YSV with studies taken place in 2009, 2020, 2021 and 2024.

Photos 1-3. Historical and more recent photographs of outer bay of Goose Spit

Photo from 1986 prior to log placement on outer Bay. (From Park Management report for CVRD in 1986).

Outer Bay of Goose Spit from May 2008 showing partial vertical logs on right (from Wong, 2008).

Outer Bay August 2024 with YSV growing in between large logs

Ecological Processes and Values of Goose Spit

Goose Spit is within the Nanaimo Area Lowlands Ecosection (NAL) in the very dry, maritime subzone of the Coastal Western Hemlock biogeoclimatic zone (CWHxm1). The xm1 variant occurs at lower elevations from sea level to 700 m along the east coast of Vancouver Island (Wong, 2009). Comox Harbour is an Important Bird Area (IBA) and provides habitat for waterfowl including four rare birds: Brant (*Branta bernicla*), Surf Scoter (*Melanitta perspicillata*), Great Blue Heron (*Ardea herodias fanini*) and Western Grebe (*Aechmophorus occidentalis*) (Wong 2009). Other bird species commonly observed include gulls, eagles, and long tailed ducks.

Will Marsh, professor emeritus, visited the YER participants to describe the coastal processes that helped form and maintain the landform of Goose Spit. The Willemar sand bluffs, located north of Goose Spit used to extend seaward much further than the current location. Over time, prevailing southeast storm winds eroded the sand from the bluffs and transported it via longshore currents in a southerly direction where the sand eventually deposited. Over time, the spit built up and extended in length to the present day. However, rip rap was placed at the base of the bluffs in the early 2000's to protect home owners, and to provide protection to a sewage pipe that had been laid at the base of the bluffs. This rip rap has interrupted the natural scouring and transporting of sand, and Goose Spit has reduced recruitment of bluff sands to replenish the sand that provides critical sand dune habitat for plants including the YSV (Marsh pers. comm. 2024).

YSV (*Abronia latifolia*) is provincially blue-listed and is the exclusive host plant for the provincially red-listed and federally endangered Sand-verbena Moth (*Copablepharon fuscum*) (CDC 2021). Sand-verbena Moth is known from only six sites in British Columbia including Goose Spit (BC CDC 2021), Sandy Island, Cordova Spit, and James Island (two sites) (Page et al, 2011) and five locations in Washington State (Environment Canada 2012) for a total of eleven sites globally. Goose Spit Park is federally designated as Critical Habitat for this species (Environment Canada 2012). Given the moth's endangered status, maintaining healthy, flowering populations of YSV is essential for the protection and survival of the Sand-verbena Moth.

Methods

The methods used to conduct the ecological inventory were similar to those used in the previous 2021 assessment (Maslovat and Kotilla, 2021). Carrina Maslovat adapted the data forms from the BC Conservation Data Centre's Wildlife Data Submission Templates (Rare Plant and Lichen Template 2018) so that the YER II participants could fill out the information and

develop basic field skills while still providing quality data. Data collected in 2024 will be submitted to the BC Conservation Data Centre and will also be shared with the CVRD.

The study area for this project was the strip of dune habitat on the south or Georgia Strait side of the asphalt roadway from the DND gates to the last parking lot at the north end of the park. The youth, with input from Graham and Caroline, surveyed the study area looking for YSV. Once a clump was located, data collected included total area of YSV clump, Global Positioning System (GPS) location, coverage, substrate, habitat and general descriptions. Numbers of buds, flowers and seedpods were counted for each plot using a 1X1m quadrate that was placed in a representative area. Percent coverage of YSV was noted for each plot, and that percentage was multiplied by the total area and then multiplied by the seeds/flowers/buds per quadrate (1m2) in order to come up with the total seeds/flowers/buds for each plot.

For plots larger than $25m^2$, the perimeter of the plot was tracked and mapped. Waypoints for each plot were recorded as well as photos. Other associative plants were noted as well as their relative abundance within the plot.

Plot data was recorded on August 12, 13, and 14th, 2024. An area was considered a separate patch or plot if it was separated from other plants by more than a meter with no plants in between. Location coordinates were recorded at the centre of each patch with a hand-held Garmin Glo GPS which was linked to an iPad that contained the base maps of Goose Spit. Patches larger than $25m^2$ were mapped as a polygon around the edges of the plants. Both youth technicians were shown how to use the handheld GPS and were responsible for taking readings.

Youth were shown how to identify common plants associated with YSV and these were recorded as associated species on the data sheets. Relative abundance (from 1-4) of associated plants was determined after discussion with all surveyors.

Results

Figure 3 shows the three maps of the study area where the YSV was mapped. Figures 4, 5, and 6 show the polygons or plots mapped in the 2024 survey compared with data mapped in 2020 and 2021.

A total of twenty three plots were identified, mapped and measured in the August 2024 survey in the portion of Goose Spit Park between the roadway and the upright seashore log wall ("outer bay"). Data forms can be found in Appendix I. Table 1 provides a summary of the area of each polygon. Total area of YSV observed in the outer bay section was $511m^2$. Eleven of the twenty three plots were less than $10m^2$ in size. Average size of the eleven plots within the 1-$10m^2$ size range was only $3.81m^2$.

Three plots fell into the 10-25m^2 size range and average plot size in this size range was 16.5m^2. Nine plots were in the >25m^2 size range, and the average size in this category was 46.6m^2. The largest plot (plot 17) was 88m^2. The nine plots that were greater than 25m^2 are shown as polygons in Figures 3, 4 and 5.

Table 1 also compares plot data from either 2020 or 2021 to the 2024 data for the plots larger than 25m^2 in size. In 2020, three sites in the outer bay were mapped, and in 2021, an additional eleven sites were mapped in the outer bay for a combined total area of 619.7m^2. The total YSV mapped in 2024 was 511m2 which means there has been an approximately 20% reduction in YSV in the outer bay portion of Goose Spit between 2021 and 2024. In two locations in 2024, three plots were identified within an area that in 2021 was one continuous plot. This indicates that two larger plots that were continuous in 2021 have become fragmented in at least two locations in the outer bay potion of Goose Spit.

Table 2 shows a comparison of the range of flowers/buds and seedpods counted at each plot in 2024 with 2021 and 2020. Variability of flowers/buds are affected by timing of annual surveys and local weather conditions. In 2024 there were 50% more seedpods per square meter than in the other two years where counts were made. On average for all twenty three plots counted, there were eighteen flowers/buds per m^2 and seventy five seedpods per m^2.

Photo 4. YSV showing flower and seed head stages. Note that YSV is growing over top of the logs.

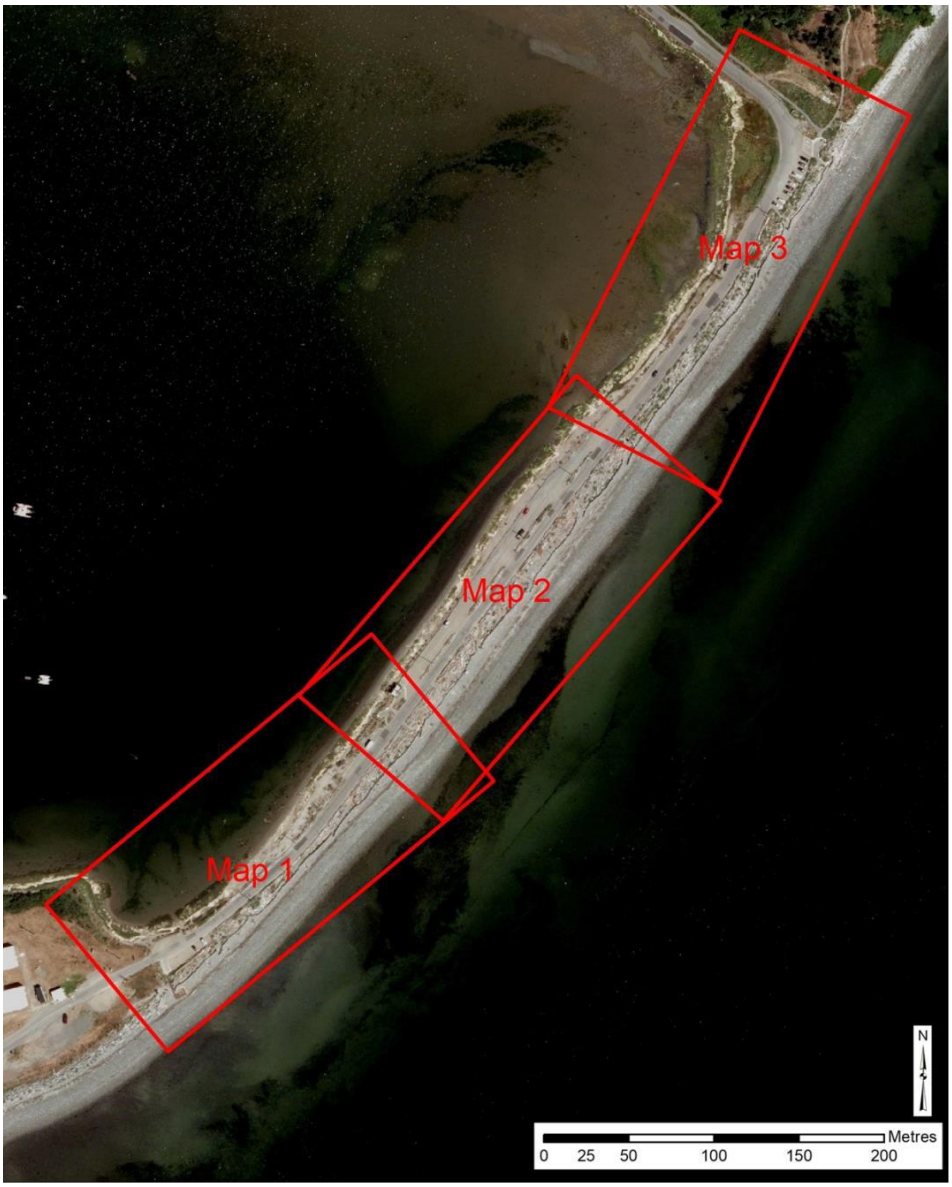

Figure 3. Three maps showing area surveyed in August 2024. CVRD parks completed assessment on northwest side of the road, and YER II participants completed assessment on southeast ('outer bay") side of road.

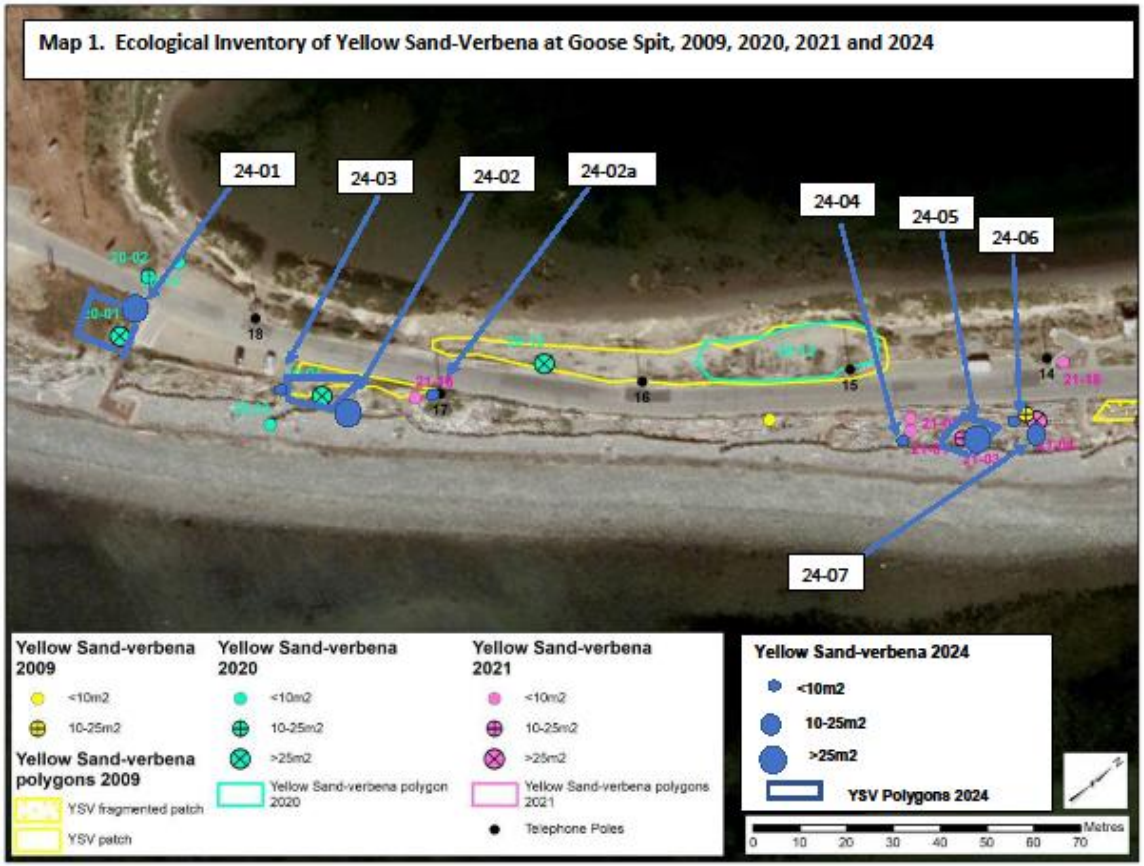

Figure 4. Map 1 showing location of YSV plots mapped in 2024 in blue, as well as data from previous studies.

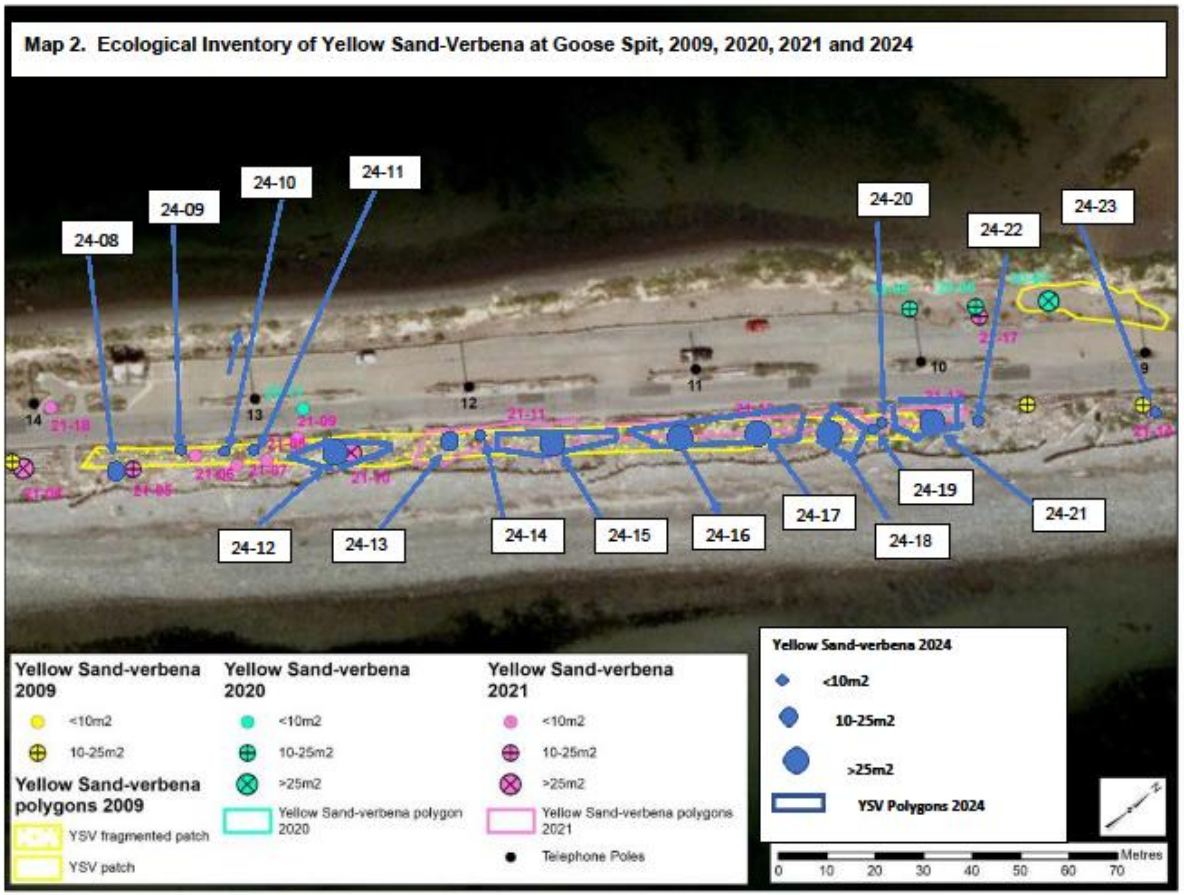

Figure 5. Map 2 showing location of YSV plots mapped in 2024 in blue, as well as data from previous studies.

Figure 6. Map 3 showing location of YSV plots mapped in 2024 in blue, as well as data from previous studies.

Table 1. Dimensions and total area of YSV polygons/patches mapped in 2024. Column on the right compares large patches with previous data collected in either 2020 or 2021 for comparison or changes in patch sizes over time.

Plot number in 2024	Length m	Width m	Total Area 2024 (m^2)	Size in m^2 in 2020 or 2021 in same location (areas shown for plots >25m^2)
24-01	8.8	4.4	38.7	8m x 4.5m* = 36.0 (2020)
24-02	14.4	2.65	38.16	13m X 5m* = 67.3 (2020)
324-03	1.4	0.3	0.42	x
24-04	2.8	3	8.4	x
24-05	8.9	4.1	36.5	4.5X 3.8m = 17.1 (2021)
24-06	1.9	0.9	1.71	x
24-07	9.5	2	19	10m X 3.1m = 31.0m2 (2021)
24-08	7.1	1.5	10.65	7.8m X 2.4m = 18.7m2 (2021)
24-09	5.6	0.7	3.92	x
24-10	3	2.5	7.5	x
24-11	1.6	1.3	2.1	x
24-12	17.2	2	34.4	16.9mx3m = 50.7m (2021)
24-13	8	2.5	20	In 2021 plots 24-13,14 and 15 were one continuous plot of 141m2 (30.2m x 4.7m)- Plot 2021-11)
24-14	0.2	0.2	0.04	Part of plot above
24-15	22	4	88	Part of plot above
24-16	9.4	2.8	26	Part of plot below
24-17	32	2.8	90	59.2x3.2m = 189.4m2 (2021- Plot 12) in 2024 plots 16, 17, and 18 were all within this plot
24-18	7.3	4.3	31	Part of plot above
24-19	2.4	1.3	3.12	x
24-20	2	1.6	3.2	x
24-21	12.4	3	37.2	17.7 x 3.7m = 61.8m2 (2021)
24-22	2.8	2.4	6.72	x
24-23	2.4	2	4.8	x
Total Area			**512**	**620**

*These two plots were mapped in 2020 and the remaining polygons on the outer bay were mapped in 2021.

Table 2. Comparison of range of flower and buds and seedpods between different monitoring years

	2020	2021	2024
Flowers and Buds	5-90	1-61	1-68
Seed pods	4-100	5-100	6-158

Associated plants inventoried during the 2024 assessment are shown in Table 3. In the field surveys not all grasses or sedges were identified to species due to the late stage in the life cycle.

In total, there were fifteen plants identified growing in proximity to YSV on the outer bay study area. The most abundant and commonly observed associative plants were entire leaved gumweed (*Grindelia integrifolia*) and silver burweed (*Ambrosia chamissonis*). Towards the northeast end of the surveyed area indicated in Map 3 (Figure 6), there was no YSV observed. The main plants in this section were Dune Grass, sedge species, Queen Anne's Lace, and Silver Burweed.

Table 3. List of Plants Identified in Outer Bay Study Area at Goose Spit, August 2024

Common name	**Latin name**	**Biogeoclimatic zone classification**	**Notes**
American Searocket	Cakile edentula	CDFmm/00	
Beach pea (pea family)	Lathyrus japonicus	CDFmm/00	
Douglas' aster (aster family)	Aster subspicatus	CDFmm/Ed03	
Dune grass / dune wildrye	Elymus mollis	CDFmm/00	Easily confused with European dune grass
Entire-leaved gumweed (aster family)	Grindelia integrifolia	CDFmm/00	Commonly observed
Large-headed Sedge	*Carex macrocephala*		
Orache	Atriplex patula	CDFmm/Em03	
Seashore bluegrass	Poa macrantha	CDFmm/00	15 – 40 cm tall, stabilizes sand dunes-common in study area
Seashore lupine (pea family)	Lupinus littoralis	CDFmm/00	
Silver burweed (aster family)	Ambrosia chamissonis	CDFmm/00	Commonly observed
Yellow sand-verbena	Abronia latifoilia	CDFmm/00	**Species at risk, blue listed**
Yarrow	Achillea millefolium	CDFmm/00	
Hairy cat's ear	Hypocharis radicata	CDFmm/00	Non-Native
Pepper-grass	*Lepidium* sp.		Non-Native
Queen Anne's lace	Daucus carota		Non-Native
Sheep sorrel	Rumex acetosella	CDFmm/00	Non-Native

Youth Led Tour

On Friday, August 16th, the YER II participants led a public walk that was attended by twenty three members of family, public, local government and elected politicians. The walk began at the main YSV interpretive sign where there were introductions, a traditional territorial acknowledgement and acknowledgement of program support. The youth then led the walk attendees to six stations where a variety of topics were shared including background of the plant and its habitat and reliance of the moth, the beach dynamics and how the spit was formed, history and function of the log wall, associative plants, methodology of the study, and recommendations for future protection of the YSV at Goose Spit Park.

At the end of the guided walk, the youth were presented with a certificate of completion, a YER hoodie, a reference letter and an honorarium cheque.

Photo 5. Participants in the Phase II 2024 Goose Spit Project following completion of the program.

Discussion

Seven threats to coastal sand ecosystems have been identified (in order of priority): (1) invasive plants; (2) disruption to coastal sediment transport; (3) recreation; (4) coastal development; (5) climate change; (6) invasive animals; and (7) atmospheric nitrogen deposition. Overall, 85.6% of coastal sand ecosystems in BC are protected as park, with over 73.8% of the total area within provincial parks. (Page et. al, 2011).

The results from monitoring YSV in the outer bay of Goose Spit in 2024 indicate an approximately 20% decrease in size of patches since 2021 when the last survey was completed. In two locations, patches that were mapped as continuous in 2021 now consist of three separate patches. Slight variability in methodologies may account for some of this change. In 2024, the team measured average width over the length of the polygon versus maximum width.

Possible explanations for the decrease in YSV in the outer bay area since 2021 may include an increase in other more successful native plants. In many polygons, silver burweed was growing in dense patches and within these patches there was often YSV observed (Photos 7 and 8). The YSV within the silver burweed appeared leggy and in poor condition which suggests that the silver burweed growing more vigorously than the YSV and potentially shading it out. Silver burweed is more robust and can tolerate trampling more than YSV. In 2021, it was noted that an overall denser growth of other plant species within the outer bay study area may be a result of less active sand transport and a stabilization of the dune habitat which may, over time lead to other species out-competing the YSV (Maslovat and Kotilla, 2021). Anecdotally, the survey team observed large mats of Silver burweed that are obviously growing over top of the YSV in some locations.

While trampling was noted in a few areas in the outer bay study area, the problem is much less than the inner bay. There were a couple of locations where people have cut across the outer bay side logs to access a portal instead of using the portal path from the road access point Photo 6). In one location, a vertical beach log was missing and this provided an access point through for people wanting to get to the beach. As a result, there was more trampling in this specific area. Overall based on health of the YSV plants, trampling does not seem to be the main culprit for the decline observed in the YSV in the outer bay since 2021.

Transplanting of YSV has had success in the past. Rupert Wong who was involved in a YSV transplant in 2009 on DND land noted that some tubers extend up to 1.2m into the ground. . Seeding may be another strategy to increase the YSV in areas where it has been reduced. An experimental plot could be set up with temporary boundaries and signage to see if re-seeding or planting is a possible way to increase the YSV. There were several small sand areas on the outer bay that could be candidate locations for some experimental seeding and/or transplanting.

Photo 6. Note trampling of YSV in middle portion of photo as people take a short cut to the outer beach.

Photos 7 and 8 . Silver Burweed growing amongst YSV

Recommendations

The following list of recommendations were developed with youth participant involvement and include:

- Add poles with lines or rope to fence off the areas with YSV, and have driftwood around patches. CVRD parks is already planning for this for 2025 (Cassidy Patton, pers.comm., 2024).
- Add more interpretive signage near picnic tables where people spend time or incorporate information on to the table surfaces under plexiglass
- Paint logs along the portal pathways and add arches over the portals so they are more visible.
- Install a low split rail fence all along the road on the outer bay side in strategic areas to prevent people from cutting through and not using portals
- Experiment with hand removing burweed in certain plots where it is taking over the sand verbena. This could be a small scale endeavor to monitor effects.
- Experiment with relocation and seed planting within Goose Spit Park in areas where there is bare sand. Cordon off these areas temporarily to see if the plants take. In 2008, successful transplanting of YSV root stock on DND land at Goose Spit took place (Wong, 2009).
- Relocate plants and/or plant seeds to other places on the Spit, in conjunction with invasive plant removal (particularly broom) especially towards the tip of the spit beyond the DND land. Increase efforts to increase the population of YSV at Goose Spit Park.
- Continue with monitoring after these measures have been put in place.
- Overall, add more signage to engage and educate the public or involve local schools through a colouring contest or other educational signage contests

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Appendix I. Data Tables

Outer Bay – Plot # 24-01

Species at Risk Data Form			
Project Name: YER II	Day: 12	Month: 08	Year: 2024
Study Area: Goose Spit	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-01		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362526 Northing: 5502863		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 8.8m Width (m) 4.4m Metre^2: 38.7 Total coverage of plot: 38.7X.75=29.03	Plants (Code 1-4)*: # of flowers and buds: 32 # of seed pods: 132 # of flowers and buds/m^2: 929 # of seedpods/m^2: 3,832 % cover of polygon/plot-75%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Yarrow sp		1	
Sheep sorrel		2	
Seashore lupine		2	
Grass sp		1	
Dune Grass		3	
Habitat Description: Substrate is mostly sand. Elevated berm that butts against DND fencing at entrance. Some logs and many associative plants.			

Outer Bay – Plot # 24-02			
Species at Risk Data Form			
Project Name: YER II	Day: 12	Month: 08	Year:2024
Study Area: Goose Spit outer bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-02		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting:362562 Northing: 6502886		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 14.4 Width (m) 2.65 Total Area Metre^2: 38.16 Total coverage of plot:38.16 x .35=13.36	38Plants (Code 1-4)*: # of flowers and buds: 5 # of seed pods: 6 # of flowers and buds/m^2: 67 # of seedpods/m^2: 80 % cover of YSV in Plot/polygon-35%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		3	
Silver Burweed		3	
Sheep sorrel		2	
Hairy Cat's Ear		1	
Dune Grass		2	
Yarrow		1	
Shoreline Lupine		1	
Grass sp.		3	
Habitat Description: Sandy shoreline surrounded by logs and many associated plants. YSV ends where silver burweed becomes thick. Found patches of YSV further down the path that used to connect to this polygon in past years. Substrate is sand with a little woody debris and organics. NOTE: Site 2a added. Two small isolated plants at 362578E 5502903N just beyond plot 2 and near Telephone pole 17. Did not fill out form for this tiny patch, but noted.			

Outer Bay – Plot # 24-03

Species at Risk Data Form			
Project Name: YER II	Day: 12	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-03		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362559 Northing: 5502882		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 1.4 Width (m) 0.3 Total Area Metre^2: 0.42 Total coverage of plot: 0.42 x .75=0.315	Plants (Code 1-4)*: # of flowers and buds: 1 # of seed pods: 12 # of flowers and buds/m^2: 1 # of seedpods/m^2: 12 % cover of YSV in Plot/polygon-		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		3	
Silver Burweed		3	
Habitat Description: Minimal logs, sandy shoreline, growing next to a portal path so is being trampled. Substrate is a think layer of rocks/pebbles and gravel with a lot of sand underneath.			

Outer Bay – Plot # 24-04

Species at Risk Data Form			
Project Name: YER II	Day: 12	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-04		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362651 Northing: 5502975		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 2.8 Width (m) 3 Total Area Metre^2: 8.4 Total coverage of plot: 8.4 x .65=5.46	Plants (Code 1-4)*: # of flowers and buds: 49 # of seed pods: 94 # of flowers and buds/m^2: 267 # of seedpods/m^2: 513 % cover of YSV in Plot/polygon-65%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		2	
Hairy Cat's Ear		1	
Grass sp		3	
Habitat Description: Plot surrounded by logs, sandy shoreline, some larger rocks boulders). Dense YSV growth, substrate is organic matter, sand and wood chunks.			

Outer Bay – Plot # 24-05

Species at Risk Data Form			
Project Name: YER II	Day: 12	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-05		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362660 Northing: 5502988		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 8.9 Width (m) 4.1 Total Area Metre^2: 36.49 Total coverage of plot:36.49 x .75=27.36	Plants (Code 1-4)*: # of flowers and buds: 9 # of seed pods: 95 # of flowers and buds/m^2: 246 # of seedpods/m^2: 2600 % cover of YSV in Plot/polygon-75%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Bluegrass		3	
Hairy Cat's Ear		2	
Habitat Description: Substrate is wood debris, organics and grass. Organic soil and sand underneath the wood chips.			

Outer Bay – Plot # 24-06

<table>
<tr><th colspan="4">Species at Risk Data Form</th></tr>
<tr><td>Project Name: YER II</td><td>Day: 12</td><td>Month: 08</td><td>Year:2024</td></tr>
<tr><td>Study Area: Goose Spit Outer Bay</td><td colspan="3">Weather: cloudy</td></tr>
<tr><td>Surveyors:
Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)</td><td colspan="3">Plot #: 24-06</td></tr>
<tr><td>Rare Species Surveyed:
Yellow Sand Verbena</td><td colspan="3" rowspan="2">UTM Zone: 10U
Easting: 362663
Northing: 6502996</td></tr>
<tr><td>Plant Life Stage:
Buds, flowering, fruiting</td></tr>
<tr><td>Area Occupied
Length (m) 1.9
Width (m) 0.9
Total Area Metre^2: 1.71

Total coverage of plot: 1.71 x .6 = 1.02m2</td><td colspan="3">Plants (Code 1-4)*:
# of flowers and buds: 58
# of seed pods: 117
# of flowers and buds/m^2: 60
# of seedpods/m^2:120
% cover of YSV in Plot/polygon-60%</td></tr>
<tr><td colspan="2">Associated Plant Species:</td><td colspan="2">Abundance (Code 1-4)*:</td></tr>
<tr><td colspan="2">Oregon Gumweed</td><td colspan="2">1</td></tr>
<tr><td colspan="2">Blue grass</td><td colspan="2">2</td></tr>
<tr><td colspan="2">Queen Anne’s Lace</td><td colspan="2">1</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
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<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="4">Habitat Description: Substrate is wood debris with sand</td></tr>
</table>

Outer Bay – Plot # 24-07

Species at Risk Data Form			
Project Name: YER II	Day: 12	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-07		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362667 Northing: 6502999		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 9.5 Width (m) 2 Total Area Metre^2: 19 Total coverage of plot: 19 x .5 = 9.5	Plants (Code 1-4)*: # of flowers and buds: 37 # of seed pods: 90 # of flowers and buds/m^2: 351 # of seedpods/m^2: 855 % cover of YSV in Plot/polygon-50%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		3	
Silver Burweed		2	
Queen Anne's Lace		1	
Hairy Cat's Ear		2	
Blue Grass		3	
Seashore Lupine		1	
Sheep Sorrel		1	
Habitat Description: Logs, shoreline, sandy and patchy growth of YSV in this plot. Substrate is pebbles, wood, sand mixed with organics			

Outer Bay – Plot # 24-08

Species at Risk Data Form			
Project Name: YER II	Day: 13	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-08		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362680 Northing: 5503014		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 7.1 Width (m) 1.5 Total Area Metre^2: 10.65 Total coverage of plot: 10.65 x .3 = 3.195	Plants (Code 1-4)*: # of flowers and buds: 21 # of seed pods: 75 # of flowers and buds/m^2: 67 # of seedpods/m^2: 240 % cover of YSV in Plot/polygon-30		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		2	
Silver Burweed		3	
Blue Grass		2	
Habitat Description: Substrate is wood debris, sand and pebbles. Lots of log debris in this area.			

Outer Bay – Plot # 24-09

Species at Risk Data Form			
Project Name: YER II	Day: 13	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-09		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362687 Northing: 5503027		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 5.6 Width (m) 0.7 Total Area Metre^2: 3.92 Total coverage of plot: 3.92 x .3 = 1.17	Plants (Code 1-4)*: # of flowers and buds: 12 # of seed pods: 45 # of flowers and buds/m^2: 14 # of seedpods/m^2: 53 % cover of YSV in Plot/polygon-		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		2	
Silver Burweed		3	
Queen Anne's Lace		1	
Blue Grass		3	
Habitat Description: Wood, sand substrate. YSV is patchy because of abundant woody logs and spreading burweed.			

Outer Bay – Plot # 24-10

Species at Risk Data Form			
Project Name: YER II	Day: 13	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-10		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362693 Northing: 5503035		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 3.0 Width (m) 2.5 Total Area Metre^2: 7.5 Total coverage of plot: 7.5 x .55 = 4.125	Plants (Code 1-4)*: # of flowers and buds: 19 # of seed pods: 67 # of flowers and buds/m^2: 78 # of seedpods/m^2: 276 % cover of YSV in Plot/polygon-55%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Silver Burweed		3	
Blue grass		2	
Habitat Description: Burweed looks like it's choking out the YSV. Substrate is sand, wood chips, organics. Patchy YSV in this polygon.			

Outer Bay – Plot # 24-11

Species at Risk Data Form			
Project Name: YER II	Day: 13	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-11		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362697 Northing: 5503040		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 1.6 Width (m) 1.3 Total Area Metre^2: 2.1 Total coverage of plot: 2.1 x .75 = 1.57	Plants (Code 1-4)*: # of flowers and buds: 28 # of seed pods: 55 # of flowers and buds/m^2: 44 # of seedpods/m^2: 86 % cover of YSV in Plot/polygon-75%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		1	
Blue grass		2	
Habitat Description: Tiny bit of trampling, lots of overhanging logs. Substrate is sand and wood chips.			

Outer Bay – Plot # 24-12

Species at Risk Data Form			
Project Name: YER II	Day: 13	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-12		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362703 Northing: 5503050		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 17.2 Width (m) 2.0 Total Area Metre^2: 34.4 Total coverage of plot: 34.4 x .6 = 20.64	Plants (Code 1-4)*: # of flowers and buds: 3 # of seed pods: 61 # of flowers and buds/m^2: 62 # of seedpods/m^2: 1,527 % cover of YSV in Plot/polygon-60%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		1	
Silver Burweed		3	
Blue Grass		2	
Yarrow		2	
Hairy Cats Ear		1	
Sedge sp		2	
Peppergrass		2	
Habitat Description: Substrate is sand with wood chips, lots of silver burweed.			

Outer Bay – Plot # 24-13

Species at Risk Data Form			
Project Name: YER II	Day: 13	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-13		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362720 Northing: 5503072		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 8.0 Width (m) 2.5 Total Area Metre^2: 20 Total coverage of plot: 20m x .35 = 7.0	Plants (Code 1-4)*: # of flowers and buds: 1 # of seed pods: 23 # of flowers and buds/m^2: 7 # of seedpods/m^2: 161 % cover of YSV in Plot/polygon-35%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		3	
Sedge sp		3	
Bluegrass		2	
American Dunegrass		1	
Habitat Description:			

Outer Bay – Plot # 24-14

Species at Risk Data Form			
Project Name: YER II	Day: 13	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-14		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362720 Northing: 5503072		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 0.2 Width (m) 0.2 Total Area Metre^2: 0.04 Total coverage of plot: 0.04	Plants (Code 1-4)*: # of flowers and buds: 0 # of seed pods: 0 # of flowers and buds/m^2: 0 # of seedpods/m^2: 0 % cover of YSV in Plot/polygon-100		
Associated Plant Species:		Abundance (Code 1-4)*:	
Habitat Description: Note: A few plants located close to 24-13 and 24-15 that are noted here. Sand substrate.			

Outer Bay – Plot # 24-15

Species at Risk Data Form			
Project Name: YER II	Day: 14	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-15		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362730 Northing: 5503088		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 22.0 Width (m) 4.0 Total Area Metre^2: 88.0 Total coverage of plot: 88m x .45 = 40	Plants (Code 1-4)*: # of flowers and buds: 4 # of seed pods: 29 # of flowers and buds/m^2: 160 # of seedpods/m^2: 1,160 % cover of YSV in Plot/polygon-45		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		1	
Silver Burweed		2	
Queen Anne's Lace		1	
Blue Grass		3	
Pepper Grass		1	
Dune Grass		3	
Shoreline lupine		2	
Grass Sp		1	
Habitat Description: Substrate is sand and wood chips. Lots of heavy logs scattered throughout plot.			

Outer Bay – Plot # 24-16

Species at Risk Data Form			
Project Name: YER II	Day: 14	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-16		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362744 Northing: 5503107		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 9.4 Width (m) 2.8 Total Area Metre^2: 26.0 Total coverage of plot: 26.0M X .4 = 10.4	Plants (Code 1-4)*: # of flowers and buds: 11 # of seed pods: 68 # of flowers and buds/m^2: 114 # of seedpods/m^2: 721 % cover of YSV in Plot/polygon-40%		

Associated Plant Species:	Abundance (Code 1-4)*:
Oregon Gumweed	3
Silver Burweed	3
Blue Grass	3
Hairy Cat's Ear	1
Seashore Lupine	2

Habitat Description:

Substrate is boulder, cobble, sand and wood chips.

Outer Bay – Plot # 24-17

Species at Risk Data Form			
Project Name: YER II	Day: 14	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-17		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362756 Northing: 5503118		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 32.0 Width (m) 2.8 Total Area Metre^2: 90.0 Total coverage of plot: 90.0m x .65 = 58.0	Plants (Code 1-4)*: # of flowers and buds: 18 # of seed pods: 158 # of flowers and buds/m^2: 1,044 # of seedpods/m^2: 9,164 % cover of YSV in Plot/polygon-65		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		2	
Silver Burweed		3	
Blue Grass		3	
Beach Knotweed		1	
Habitat Description: Substrate is sandy organics and small amounts of wood debris. Lots of logs and pebble patches in plot.			

Outer Bay – Plot # 24-18

Species at Risk Data Form			
Project Name: YER II	Day: 14	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-18		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362767 Northing: 5503138		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 7.3 Width (m) 4.3 Total Area Metre^2: 31.0 Total coverage of plot: 31.0m x 0.7 = 21.7m	Plants (Code 1-4)*: # of flowers and buds: 23 # of seed pods: 93 # of flowers and buds/m^2: 500 # of seedpods/m^2: 2,008 % cover of YSV in Plot/polygon-70%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		2	
Silver Burweed		1	
Blue Grass		4	
Hairy Cat's Ear		2	
Seashore Lupine		1	
Sedge spp.		3	
Habitat Description: Substrate sand with some organics. Small amount of wood chips. Habitat is sandy and rocky with many logs			

Outer Bay – Plot # 24-19

Species at Risk Data Form			
Project Name: YER II	Day: 14	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-19		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362771 Northing: 5503135		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 2.4 Width (m) 1.3 Total Area Metre^2: 3.12 Total coverage of plot: 3.12m x 0.5 = 1.56	Plants (Code 1-4)*: # of flowers and buds: 12 # of seed pods: 101 # of flowers and buds/m^2: 19 # of seedpods/m^2: 157 % cover of YSV in Plot/polygon-50%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Blue Grass		2	
Silver Burweed		2	
Dune Grass		1	
Beach Pea		1	
Seashore Lupine		1	
Hairy Cat's Ear		2	
Sea Rocket		1	
Habitat Description: Wood log debris Substrate sand, boulder/cobble and some shells			

Outer Bay – Plot # 24-20

Species at Risk Data Form			
Project Name: YER II	Day: 14	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-20		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362772 Northing: 5503138		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 2.0 Width (m) 1.6 Total Area Metre^2: 3.2 Total coverage of plot: 3.2m x 0.7 = 2.24	Plants (Code 1-4)*: # of flowers and buds: 12 # of seed pods: 46 # of flowers and buds/m^2: 27 # of seedpods/m^2: 103 % cover of YSV in Plot/polygon-70%		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		3	
Silver Burweed		2	
Blue Grass		2	
Habitat Description: Logs, sand cobble and wood chips and a few logs. Substrate is sandy organics.			

Outer Bay – Plot # 24-21

Species at Risk Data Form			
Project Name: YER II	Day: 14	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: cloudy		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-21		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362777 Northing: 5503146		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 12.4 Width (m) 3.0 Total Area Metre^2: 37.2 Total coverage of plot: 37.2m x 0.45 = 16.74	Plants (Code 1-4)*: # of flowers and buds: 4 # of seed pods:77 # of flowers and buds/m^2: 67 # of seedpods/m^2: 1,290 % cover of YSV in Plot/polygon-45 %		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		2	
Silver Burweed		3	
Blue Grass		3	
Hairy Cat's Ear		2	
Habitat Description: Logs, sand, cobbles and pebbles Substrate is sand, organics and wood chips.			

Outer Bay – Plot # 24-22

Species at Risk Data Form			
Project Name: YER II	Day: 15	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: sunny		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-22		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362783 Northing:5503153		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 2.8 Width (m) 2.4 Total Area Metre^2: 6.72 Total coverage of plot: 6.72m x 0.35 = 2.35	Plants (Code 1-4)*: # of flowers and buds: 26 # of seed pods: 119 # of flowers and buds/m^2: 61 # of seedpods/m^2: 280 % cover of YSV in Plot/polygon-35		
Associated Plant Species:		Abundance (Code 1-4)*:	
Oregon Gumweed		2	
Pepper grass		1	
Hairy Cat's Ear		1	
Blue Grass		2	
Habitat Description: Habitat is wood logs, and boulders Substrate is sand with organics, and wood debris. Note that YSV is growing up and over logs in some locations here.			

Outer Bay – Plot # 24-23

Species at Risk Data Form			
Project Name: YER II	Day: 15	Month: 08	Year:2024
Study Area: Goose Spit Outer Bay	Weather: sunny		
Surveyors: Caroline Heim (CH), Sofia Thiesburger-Silva (STS), Kaiden Huber (KH), Graham Hilliar (GH)	Plot #: 24-23		
Rare Species Surveyed: Yellow Sand Verbena	UTM Zone: 10U Easting: 362808 Northing: 5503186		
Plant Life Stage: Buds, flowering, fruiting			
Area Occupied Length (m) 2.4 Width (m) 2.0 Total Area Metre^2: 4.8 Total coverage of plot: 4.8m x 0.5 = 2.4m	Plants (Code 1-4)*: # of flowers and buds: 11 # of seed pods: 86 # of flowers and buds/m^2: 26 # of seedpods/m^2: 206 % cover of YSV in Plot/polygon- 50		
Associated Plant Species:		Abundance (Code 1-4)*:	
Blue Grass		3	
Silver Burweed		2	
Pepper weed		1	
Dune Grass		1	
Beach Pea		1	
Aster sp.		1	
Habitat Description: Wood chips and organics. Burweed is encroaching on the YSV in this location. This is the last patch observed and beyond this point there is lots of burweed and dune grass. Substrate sand and organics with some wood debris.			