SKAGIT FISHERIES ENHANCEMENT GROUP

Bowman Bay Vegetation Monitoring 2016

Figure 1. Example of Zone 2 and Zone 1 plant communities

Introduction:

Bowman Bay planting was initiated in fall 2015 with a school work party, and completed on Earth Day 2016. Zone 2 is the highest elevation planting and consists of a back beach tree and shrub community. Zone 1 was designated as a beach grass community and is expected to experience tidal inundation during extreme tides and storms. This monitoring report is intended to track survival of vegetation planted to date and to make suggestions for replanting. The Bowman Bay planting project was monitored by staff, Washington Conservation Corps and volunteers from Skagit Fisheries Enhancement Group (SFEG) on June 15 15. 2016 and July 5th 2016.

Methods:

In Zone 2, all planted species were assessed by height and a mortality rating (M rating) was assigned based of the health and vigor of each plant (See Table 1).

1	Dead or nearly dead
2	Live plant with dead portions and/or signs of stress
3	Signs of new vegetative growth
4	Poor reproduction (Few and poorly developed flowers/fruit)
5	Healthy reproduction(Many well developed flower/fruit)

Table 1. Description of parameters used assess M rating

Monitoring of Zone 1 was approached differently. For this area, one transect was laid throughout the planting area parallel to the shoreline. Along the transect, 4 ft. X 4 ft. quadrats were placed at intervals of 16 ft. creating a 25% sample size. For each quadrat sampled, the surveyors identified all plants and determined if they were alive or dead. The number of live plants determined the density of native plants in each quadrant.

To determine stocking, quadrat density was determined by the number of native plants per quadrat. If a quadrat had 7 or more native planted plants, the survival rate was considered to be 80% or higher. Anything less than 7 plants per quadrat was considered under-stocked. SFEG determined 7 plants per quadrat was approximately the spacing in initial planting in 2016.

Coverage was estimated for each quadrat in three categories: native vegetation, non-native vegetation, and bare ground. This was done by counting vertices within the quadrat grid for each cover class. Each quadrat was comprised of 121 vertices created by crossing 11 lines of string spaced 4'' apart by 11 perpendicular lines of the same spacing. At each vertex the cover class was recorded.

Results:

Zone 2:

The overall survivorship of Zone 2 was 82%. Tufted hair grass, salal, tall Oregon grape, and red elderberry did the best. Pearly everlasting had the poorest survival at 41%. 635 plants were naturally recruited. Among these 565 were red alder seedlings.

Table 2. Survival of installed plants at the Bowman Bay site during the first season following planting of Zone 2

		M. Rating									
Common Name	*Scientific Name*	1	2	3	4	5	Total	Originally Installed	Total Live	% survival	Average of Height (ft)
Pearly everlasting	ANMA	1	46	13	2		62	150	61	41%	0.31
Serviceberry	AMAL		1				1	2	1	50%	1.20
Sword Fern	POMU	4	27	1	1		33	50	29	58%	0.68
Tufted Hairgrass	DECE	1	19	32	16	13	81	80	80	100%	2.07
strawberry	FRCH		76	22	15		113	150	113	75%	0.12
salal	GASH		79	8	75	7	169	169	169	100%	0.30
oceanspray	HODI		2				2	4	2	50%	1.85
Beach Pea	LAJA		9	11	4		24	**50**	24	48%	0.21
Pacific crabapple	MAFU		1				1	2	1	50%	5.10
Tall Oregon grape	MOAQ	5	37	13			55	**55**	50	91%	0.63
Dull Oregon grape	MANE	2	35	1			38	80	36	45%	0.41
Red flowering currant	RISA	5	27	4			36	8	31	388%	2.25
Nootka Rose	RONU	1	55	1			57	**58**	56	97%	1.44
Spirea*	SPDO		50	4			54	55	54	98%	1.53
snowberry	SYAL	1	55				56	**58**	55	95%	1.11
red elderberry	SARA	2					2	2	0	0%	0.00
Beach lupine	LULI						0	6	0	0%	0.00
	Unknown	6					6		0	n/a	0.00
	Grand Total	26	521	101	113	20	781	979	755	77%	0.78
	*Not in the orginal planting plan we are assuming 55 were planted										

Table 3. Natural Recruitment at Bowman Bay site following first planting in Zone 2

Common Name	*Scientific Name*	1	2	3	4	5	Total	Average of Height (ft)
Big leaf Maple	ACMA		9				9	0.11
Red Alder	ALRU		565	59	1		625	0.13
Madrone	ARME		2	1			3	0
Salmonberry	RUSP		2				2	0.25
	Grand Total		575	59	1		635	0.13

Figure 2. Recruited alder growing next to planted beach strawberry

Zone 1:

Dune wild rye was the most widely distributed species in Zone 1 at 86.96% making the majority of the planted species in Zone 1. The majority of the ground cover was bare ground at 70%; however, this is not unusual for a planting that is still being established. Stocking was poor in Zone 1; of 29 quadrats 20 were stocked with 6 or less plants per quadrat, 9 had 7-19 plants per quadrat, therefore none had more 20 or more plants per quadrat.

Table 4. Distribution of plant species in Zone 1 after first planting at Bowman Bay

COMMON NAME	SCIENTIFIC NAME	NO. LIVE	%
Dune wild rye	*Leymus mollis*	120	86.96%
Pacific silverweed	*Argentnia edgii*	18	13.04%
TOTAL		**138**	100.00%

Figure 3. Percent Ground Cover for Zone 1 at Bowman Bay

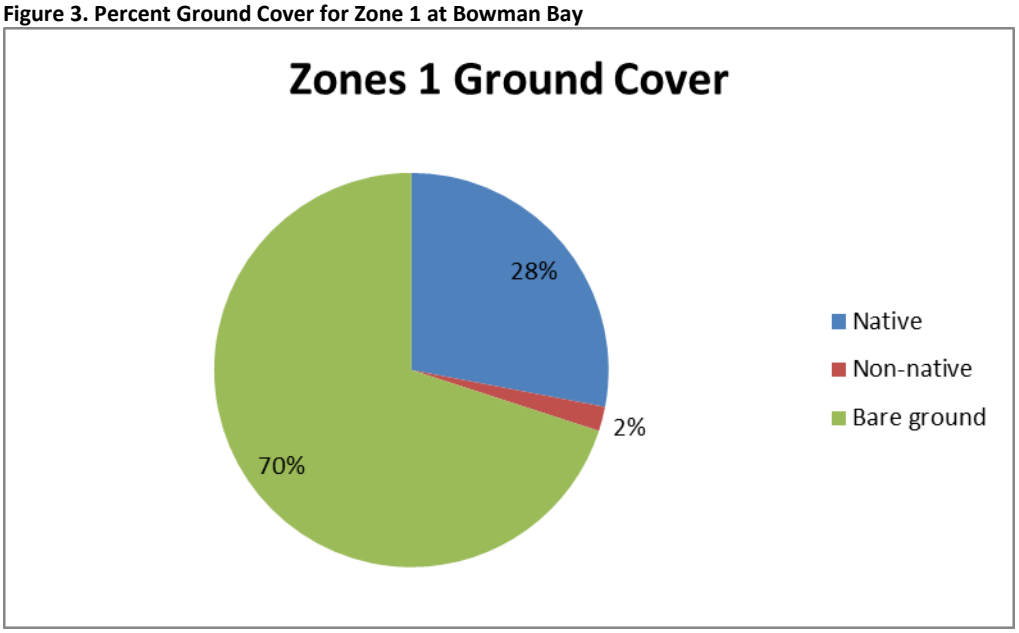
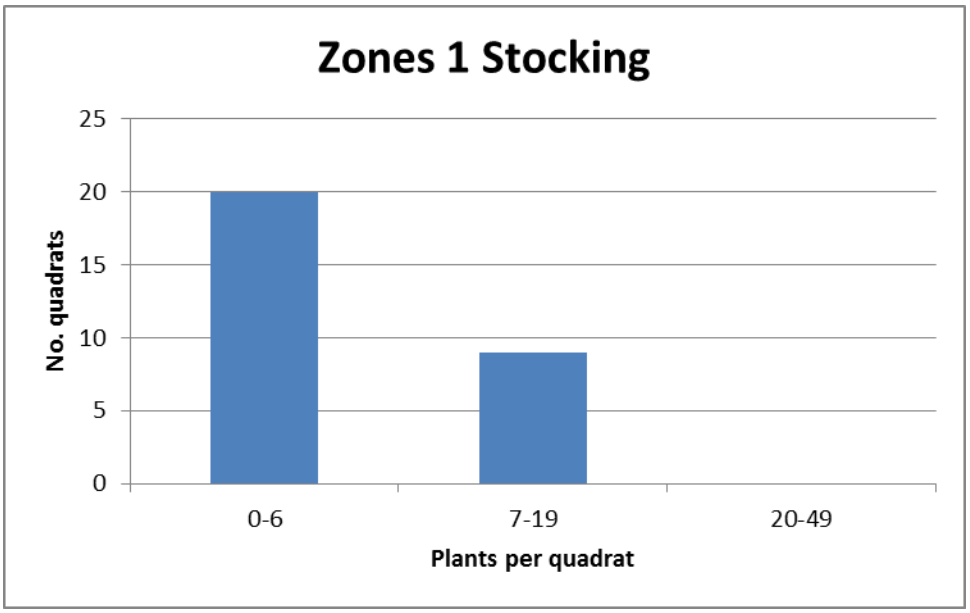


Figure 4. Stocking for Zone 1- Quadrat with 7 or more plants per quadrat are considered well stocked



Discussion:

Zone 2:

Though back beach area plants have been browsed heavily by local deer populations, they are starting to establish themselves. A post-monitoring site visit has shown these plants are spreading and establishing themselves well. The next growing season should reflect this. There were a substantial number of red alder naturally recruited from a parent tree outside of the planting. Plants within the cluster communities are looking vigorous and healthy. Red-flowering current was measured at 388% of

the original stocking; this may be due to heavy browsing that made these plants difficult to identify and were most likely mistaken for ocean spray. We will re-evaluate this during our 2017 monitoring,

Zone 1:

Plants in the beach grass community are not well established. This is most likely due to the many challenges that are present on site such as: pedestrian traffic, erosion, and soils that do not retain water. It was clear the plants in the northern section were better established than the dune grass in the southern section. The reason for that discrepancy is unclear, as all plants were installed at the same time by the same group of volunteers.

Recommendations:

SFEG will continue to host monthly weeding and watering parties in the summer months to reduce the weed load competing with the native community. The fencing will be removed from the cluster communities to ensure they have room to grow beyond their fences (as needed). As one goal of this planting project is to establish a low-growing vegetation community that preserves park views, the red alders will be salvaged by volunteer school groups this fall and spring to be used on other restoration projects.

SFEG will replant where needed and will include more ground cover plants to keep the aesthetic of the park; a planting plan will be provided in a separate document. Zone 1 will have temporary goose exclusion fencing placed around the perimeter; this will also deter pedestrian traffic. This fencing will not be netting to ensure wildlife cannot get entangled in the materials and will be installed in the spring to avoid damage caused by tides, winds and driftwood. The goose exclusion fence will allow the dune grass community to establish itself and will aid in erosion control. Zone 1 should be replanted to ensure a successful outcome.