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## Monitoring Overwintering Shorebird Use of Agricultural and Intertidal Habitats in the Fraser River Delta Key Biodiversity Area

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# Monitoring Overwintering Shorebird Use of Agricultural and Intertidal Habitats in the Fraser River Delta Key Biodiversity Area

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### Introduction

The Fraser River delta is a key overwintering habitat for 10,168 to 143,643 Dunlin every year. Human development and predation pressures have altered how Dunlin use the delta. This project is looking to update data on Dunlin and other shorebird usage of the Fraser River Delta.

### Materials and methods

The project is using a combination of road based point counts, citizen science coastal surveys and Motus Wildlife Tracking System radio-telemetry technology to explore Dunlin movement across the Fraser River delta and beyond.

### Preliminary Results



To date radio-telemetry efforts have focused on installing receiver stations on the coastal edge of the delta and tagging Dunlin during the winter season. Through combined efforts of Environment and Climate Change Canada, Birds Canada, and collaborators there are now 11 Motus stations on the delta and radio-transmitters have been deployed on 101 Dunlin. Preliminary results show some movement along the coastal edge and inland.

Dunlin continue to forage on agricultural lands although point counts indicate lower numbers. Other shorebird species such as Killdeer and Black-bellied Plover are also using agricultural habitat though use varies by farm practice.

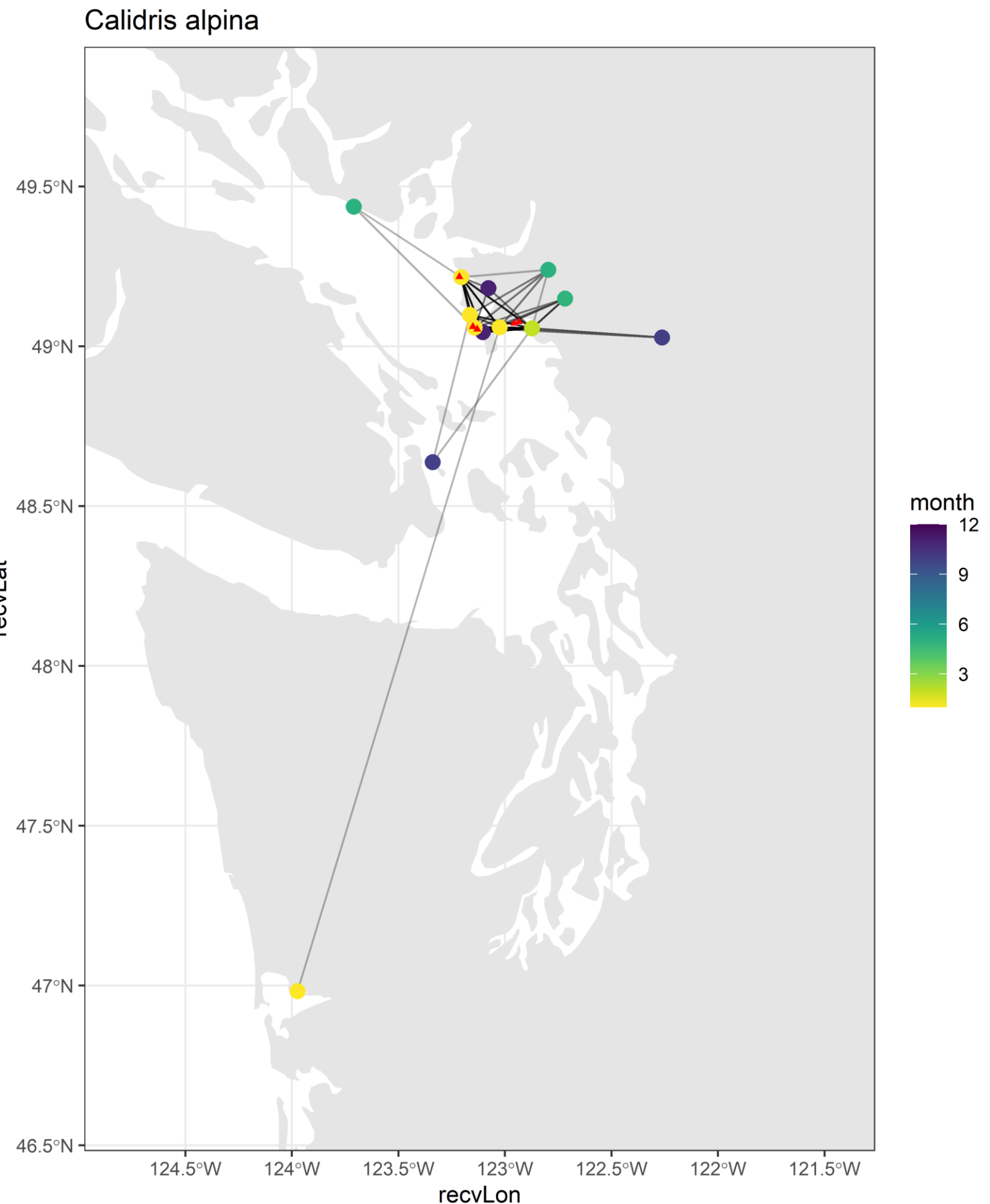
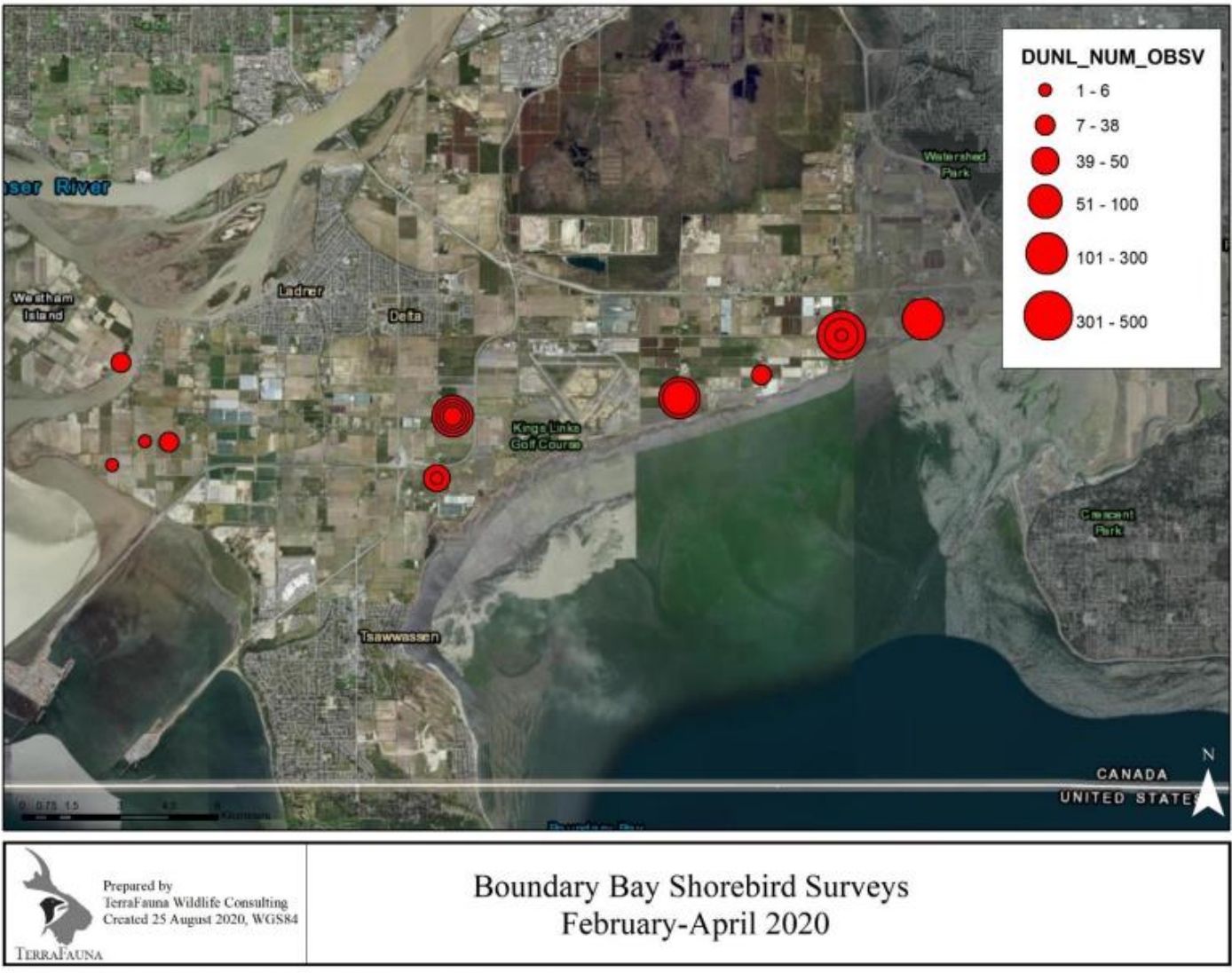


Table 4- Habitat Use by Shorebirds Within Survey Area by Classified Habitat Type

	HABITAT USE WITHIN SURVEY AREA									TOTALS
	FBS	MS	CS	TP (<6")	TP (>6")	BB	CB	NV	OTHER	
KILL	7	16	5	3	1	0	0	0	1	33
DUNL	237	347	0	600	200	0	0	500	0	1,922
BBPL	254	408	0	225	216	0	0	30	0	1,134
GRYE	0	0	0	5	0	0	0	0	12	17
LESA	0	0	1	0	0	0	0	0	0	1
WESA	0	0	0	0	0	0	0	500	0	500
<b>TOTALS</b>	<b>498</b>	<b>771</b>	<b>6</b>	<b>833</b>	<b>417</b>	<b>0</b>	<b>0</b>	<b>1030</b>	<b>13</b>	<b>3607</b>
<b>% OF USAGE</b>	<b>13.81</b>	<b>21.38</b>	<b>0.17</b>	<b>23.09</b>	<b>11.56</b>	<b>0.00</b>	<b>0.00</b>	<b>28.56</b>	<b>0.36</b>	<b>37.15</b>

FBS= FLAT BARE SOIL MS= MOUNDED SOILD CS= CORN STUBBLE TP= TAME PASTURE BB= BLUEBERRY CB= CRANBERRY NV= NATURAL VEG

### Preliminary Conclusions

The Fraser River delta continues to support the highest abundance of shorebirds in western Canada. Available habitat is being converted on the coastal edge to shipping related infrastructure and on the land side to non-compatible agricultural uses such as blueberry farms and greenhouses.

As climate change results in a loss of habitat quality and quantity for shorebirds these sites and practices may also need to be shifted inland.

Collaborative research with land owners and managers is required to identify beneficial land use practices that may support additional shorebirds at a site scale.

Informing site scale practices requires finer scale data than is currently being collected. The addition of distance and directionality to monitoring records is highly beneficial. Additional coverage further inland is needed to better understand movement data being picked up by Motus stations.

### Literature cited

Drever, M. C., Lemon, M. J., Butler, R. W., & Millikin, R. L. (2014). Monitoring populations of western sandpipers and Pacific dunlins during northward migration on the Fraser River Delta, British Columbia, 1991–2013. *Journal of Field Ornithology*, 85(1), 10-22.

Lesley J Evans-Ogden, Shabtai Bittman, and David B Lank. A review of agricultural land use by shorebirds with special reference to habitat conservation in the Fraser River Delta, British Columbia. *Canadian Journal of Plant Science*. 88(1): 71-83. <https://doi.org/10.4141/P06-137>

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