

Progress Report to Willapa National Wildlife Refuge 2008

COMPARATIVE GEESE FORAGING IN THE RIEKKOLA UNIT PASTURES AND PORTER POINT UNIT TIDEFLATS AND SALT MARSH DURING FALL 2008

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Introduction. Prior to 2004 there were more than 3000 acres of thick *Spartina* meadows covering the tideflats in the Porter Point Unit of the Willapa National Wildlife Refuge. Usage of these affected tideflats by geese was almost non-existent (Patten and O'Casey, 2005). Since that time period there has been a massive effort to eradicate *Spartina* in Willapa Bay. Based on a recent survey conducted by Pacific County Weed Board, current *Spartina* coverage on the Porter Point Unit consists of ~ 163 plants/clones covering only 354 ft² (Wecker, 2008). A survey of geese usage was conducted in the fall of 2008 to compare the foraging value of these newly available tideflats to that of the immediate adjacent dike pasture land of the Riekkola Unit.

Methods. Ground surveys were conducted on October 14th and December 11th and 13th by using binoculars and a spotting scope. Surveys were conducted during days when no hunters were using the site(s). The location of the surveys is shown in Figure 1. During each survey, the total number of all geese, across all species, for each of the units was recorded. Effort was made to gather data across an array of tides, from total exposure of the tideflat to total coverage of the tideflat and salt marsh. For the Riekkola Unit, the counts were confined to the ~ 140 acres of maintained pasture that is used for goose hunting. For the Porter Point Unit, counts were taken along 1.4 miles of dike road starting at the east end (foot bridge) going to the end of fresh water impoundment. Counts were made to approximately 1000' out past the native marsh line, ~ 630 acres of salt marsh and mudflat. There were eight survey counts of the pasture site and four of the tideland site.

Results and Discussion. The date, time, tidal exposure and total number of geese per site for each survey is shown in Table 1. Of the eight counts made at the Riekkola Unit, only two of them had any significant counts of geese. This contrasts to the Porter Point Unit where significant counts were made during each of the four surveys. There were not enough surveys done to make statistical inferences about geese usage at each site as a function of tides. However, two trends were observed (Table 2). As expected, when counts were made for the tideflats near low tide, geese density was reduced, since large areas of other foraging sites were available. It was also expected that with tidal coverage geese would be driven off the tideflats and utilize the pasture site. Instead, geese remained at Porter Point utilizing the upper salt marsh and never transitioned to the pasture ground. Averaged across all tides, there was 8.6 times more geese utilization of the surveyed area of tideflats of Porter Point than that of the pastures of the Riekkola Unit.

This difference was only 1.7 times when survey data was converted to geese/100 acres (Table 3). The total usage per survey unit is significantly different, while usage standardized per 100 ac is not significantly different.

These surveys were made during the typical inclement fall weather of southwest coastal Washington. Results would likely vary during severe winter storms. We have noted on several occasions that flocks of geese tend to utilize the leeward side of the Riekkola Unit during fierce storms.

Conclusion. Comparative surveys of geese utilization of adjacent foraging habitat at the Willapa National Wildlife Refuge indicate a strong preference for tideflats and salt marsh to that of managed dike pasture land. The preference occurred regardless of the level of water coverage of the tidelands. These data suggest that loss of pasture ground by removing dikes would likely not be problematic for migrating geese populations.

Literature Cited.

Patten, K. and C. O'Casey. 2007. Use of Willapa Bay, Washington, by shorebirds and waterfowl after *Spartina* control. *J. Field Ornithol.* 78(4):395–400, 2007.

Wecker M., E. Darcher, T. Crose, and K. Bennett. 2008. Photo survey of *Spartina* infestation in Willapa Bay.

<http://depts.washington.edu/onrc/Miranda/photosurvey2008.jpg>

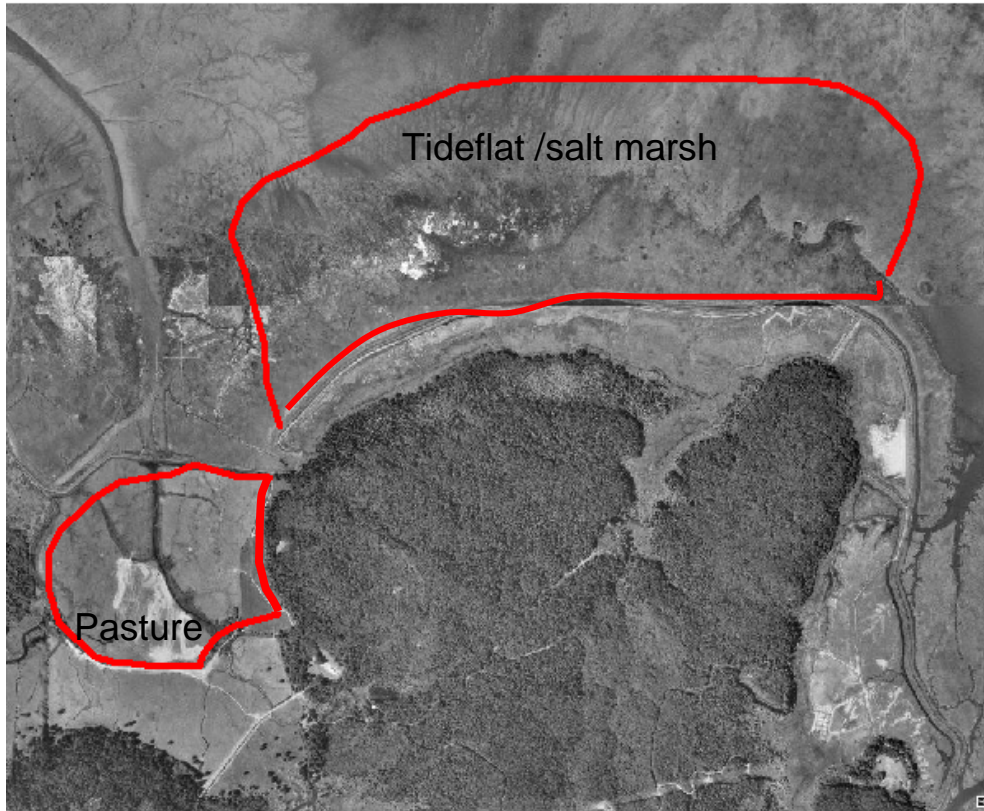


Figure 1. Goose foraging survey sites at the Willapa Nation Wildlife Refuge.

Table 1. Goose survey data from Willapa National Wildlife Refuge at Riekkola pasture and Porter Point Unit, Fall 2008.				
Date/time	time	Mudflat /Salt marsh Tidal coverage*	Site**	Total geese***
10/14/2008	9:25 - 10:15	Incoming, exposed mud and salt marsh	Riekkola pasture	355
10/14/2008	13:45 - 14:15	High tide, mud covered and salt marsh partly covered	Riekkola pasture	0
10/14/2008	10:38 - 12:54	Incoming, lower mudflat covered, upper mudflat partly covered, salt marsh exposed	Porter Point	876
12/11/2008	8:00 - 8:45	Incoming, exposed mud and salt marsh	Riekkola pasture	0
12/11/2008	12:00 -12:45	High tide, covered mud and salt marsh	Riekkola pasture	0
12/11/2008	15:15 - 16:00	Outgoing, upper mudflat partly exposed and salt marsh exposed	Riekkola pasture	362
12/13/2008	9:00 - 9:50	Incoming, exposed mud and salt marsh	Porter Point	440
12/13/2008	10:15	Incoming, exposed mud and salt marsh	Riekkola pasture	0
12/13/2008	11:00 - 11:50	Incoming, lower mudflat covered, upper mudflat mostly covered, salt marsh exposed	Porter Point	395
12/13/2008	12:15	Incoming, mudflat covered, salt marsh partly covered	Riekkola pasture	0
12/13/2008	13:10 - 13:50	High tide, covered mud and salt marsh	Porter Point	727
12/13/2008	14:15	High tide, covered mud and salt marsh	Riekkola pasture	1
*Tides: 10/14/2008: 9.9 @14:20pm; 12/11/2008: 12.1@11.47; 12/13/2008: 12.4 @ 13.10				
**~ survey area size - Riekkola pasture = 140 acres; Porter Point tideflat = 630 acres.				
*** All species				

Table 2. Mean number of geese utilizing the Riekkola pasture and Porter Point tideflats as a function of the extent of tidal coverage during Fall 2008.		
Mudflat /Salt marsh Tidal coverage	mean # of geese/ site	
	Riekkola pasture	Porter Point
Exposed mud and salt marsh	117	442
Upper mudflat and/or, salt marsh partly covered	103	756
Mud and salt marsh covered	1	725
All tides*	74	636
*The difference between sites across all tides is significant @ 0.006 probability level		

Table 3. Mean number of geese/100 acres utilizing the Riekkola pasture and Porter Point tideflats as a function of the extent of tidal coverage during Fall 2008.		
Mudflat /Salt marsh Tidal coverage	mean # of geese/100 acres *	
	Riekkola pasture	Porter Point
Exposed mud and salt marsh	0.84	0.56
Upper mudflat and/or, salt marsh partly covered	0.86	1.2
Mud and salt marsh covered	0.01	1.15
All tides**	0.57	0.97
* Total geese per sites were standardized to a # per unit area.		
** The difference between sites when adjusted for usage per 100 ac across all tides is not significant.		