

Skagit County, WA

Human Bacteria Source Tracking with Scent-Trained Canine

May 28 and 29, 2014



Prepared by:
Environmental Canine Services LLC
130 Durham Road
Dover, NH 03820



Summary

On May 28 and 29, 2014, Environmental Canine Services LLC (ECS) President, Karen Reynolds, and Handler/Canine team Aryn Havel/Crush worked with Skagit County, WA to conduct targeted human bacteria source tracking in the Samish watershed. ECS canines are specially trained to locate human fecal contamination in stormwater systems while ignoring non-human sources.

During the morning of May 28, Skagit County personnel collected water samples from approximately 20 sites of interest in the watershed. The samples were brought to the parking lot of the County building and poured into shoebox sized clean plastic containers (“bucket samples”), which were arranged in 3 rows. Approximately 5 additional Quality Assurance (QA) samples containing distilled water, animal fecal mixed with distilled water, and human sewage samples were also placed in containers in the parking lot. Aryn took Crush to each sample container to sniff and Skagit County personnel recorded the results. An alert to the presence of human fecal contamination was indicated by Crush by lying down at the sample container. Crush correctly alerted on the QA samples containing human sewage and ignored the QA samples containing distilled water and animal fecal mixed with distilled water. Crush also alerted on 3 containers from field sampling sites.



Field investigations following up on the results of the bucket samples and at other sites of interest were conducted by ECS and Skagit County personnel during the afternoon of May 28. Crush alerted at 4 site locations. Results of the field investigations are found on page 3.



During the morning of May 29, ECS and Skagit County personnel conducted field investigations at various sites of interest in the watershed. Of particular interest was a re-investigation of the site at Bob Smith Creek near 5945 Bow Hill Road. Crush had alerted on a bucket sample from the site on the morning of May 28 but did not alert at the site during field investigations that afternoon. Upon reinvestigation of the site on the morning of May 29, Crush alerted. This may indicate an intermittent source of human fecal contamination at the site during morning hours.



Other field investigations on May 29 yielded alerts from Crush at 9 locations. Results of the field investigations on May 29 are found on page 3.



In the afternoon of May 29, bucket samples collected by Skagit County personnel from field sites during the morning, along with QA bucket samples, were placed in the County building parking lot and arranged in rows. Aryn took Crush to each sample container to sniff and Skagit County personnel recorded the results. Crush correctly alerted on the QA samples containing human sewage and ignored the QA samples containing distilled water. Crush also alerted on several containers from field sampling sites.

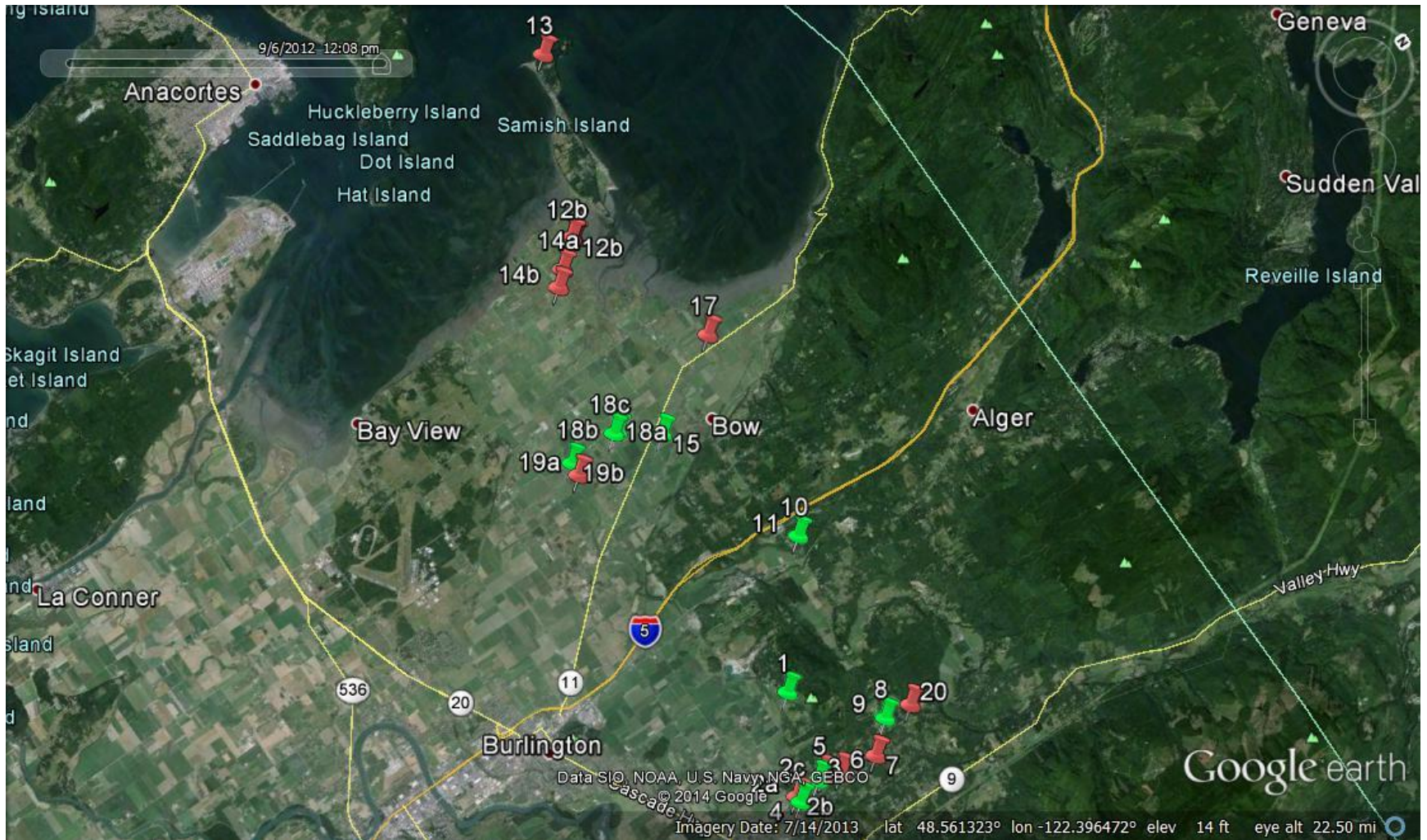
Skagit County, WA Field Investigations by Environmental Canine Services

Legend for matching canine results to Google Earth sites plotted:

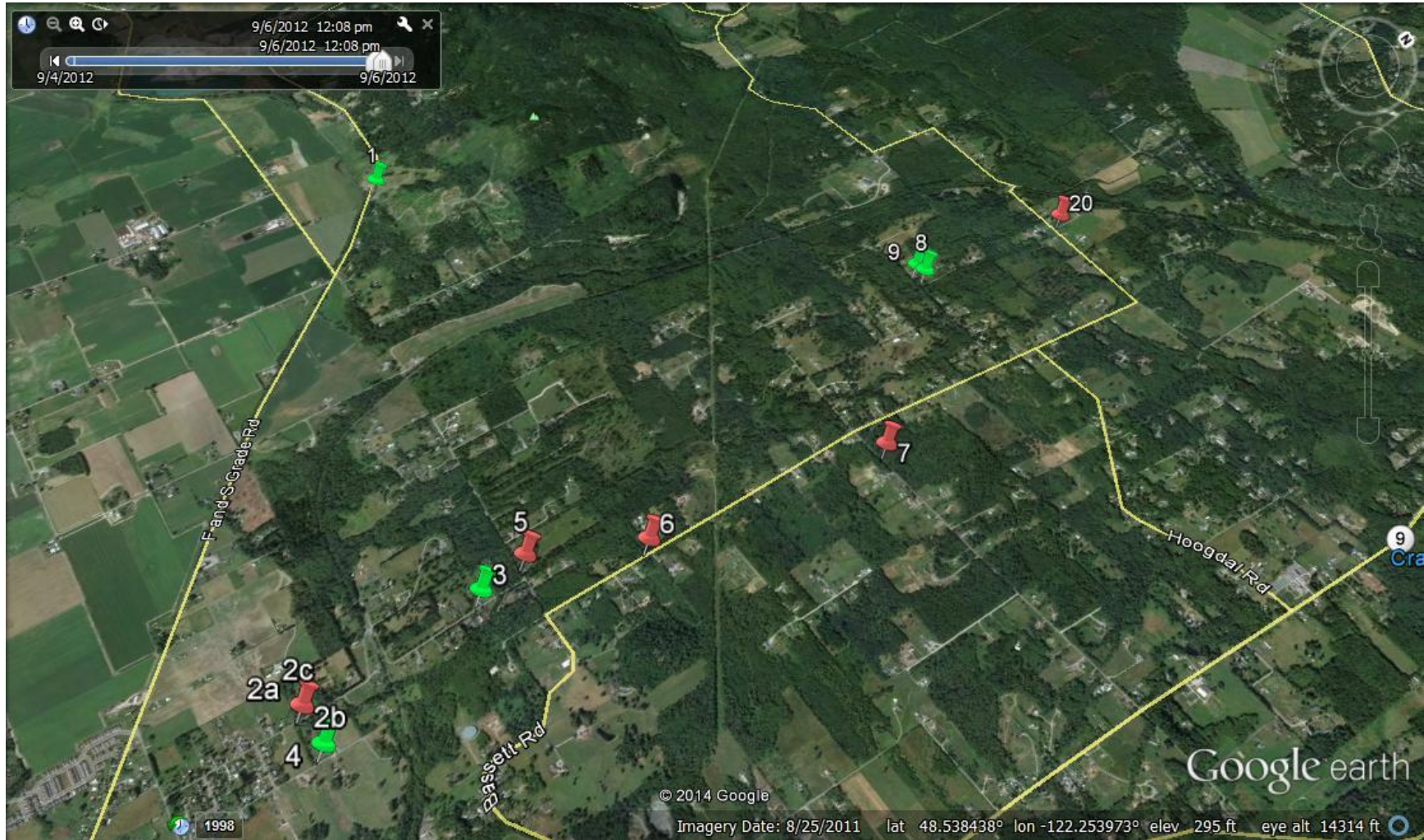
No Alert
Strong interest but no alert
Alert

Date	ID	GPS Coord	Description	Canine Response	Comments
5/28/2014 Afternoon	1		Thomas Creek @ F & S Grade Rd	N	
"	2a	48.519306 -122.250275	Willard Creek @ Garden of Eden Rd	Strong Interest	Ditch at convergence of E & W branches
"	2b	"	East branch	Y	Bucket sample
"	2c	"	West branch	N	Bucket sample
"	3	48.526421 -122.250679	Catch basin near 8106 Garden of Eden Rd	N	Upstream of 2b
"	4	48.519344 -122.247597	Drain pipe near 8641. Dead end road.	N	Upstream of 3
"	5	48.528454 -122.251244	Willard Creek @ Garden of Eden Rd near 22849 Cully	Y	Bucket sample
"	6	48.532547 -122.248123	South fork Thomas Creek near 2895 Grip Rd	Y	Alert on bucket sample from creek. No alerts in ditch.
"	7		NE fork Thomas Creek near 23162 Mosier and Grip Rd	Y	Strong alert on bucket sample from creek. No alerts in ditch.
"	8	48.550503 -122.255913	Bridgewater @ Erwin Pt Ln near 6280	N	Bucket sample
"	9	48.550384 -122.256615	Bridgewater @ N. fork Thomas Creek	N	Bucket sample
"	10	48.559147 -122.335648	Bob Smith Creek near 5945 Bow Hill Rd	N	Small sample bottle at end of collection pole
5/29/14 Morning	11		Bob Smith Creek near 5945 Bow Hill Rd	Y	Bucket sample. Revisit of #10 from 5/28.
"	12a		Alice Bay pump station	Y	Bucket sample. Strong alert.
"	12b		Alice Bay ditches to pump station	Y	Alerts on both ditches
"	13		Ditch near house @ 1261 Samish Island Rd	Y	Bucket sample very strong alert and alert on ditch. Upstream of 12 a&b.
"	14a		Ditch from house near 6988 Bayview Edison Rd	Y	6988 is suspected house. Multiple barns & structures/multiple cars on property.
"	14b		Ditch near 7253	Y	Bucket sample. Upstream of 14a.
"	15		Ditch near 16036 Sunset	N	Bucket sample
"	16		4492 Chuckanut	N	Sample collected by Pascal
"	17		Estes/Shuckanut (Estes Rd ditch)	Y	"
"	18a		Thomas Rd near 7623. Catch basin.	N	Site of former discharge to ditch that was repaired.
"	18b		Thomas Rd near 7623. "No spray" sign area.	N	
"	18c		Ditch at Thomas Rd near 7623	N	Bucket sample
"	19a		Samish River/Thomas Rd - Voss pipe	Y	Bucket sample
"	19b		Samish River @ Thomas Rd	N	Bucket sample
"	20		Grip Rd near 22227/Swede Creek	Y	Alert on white pipe discharging to ditch, next to drainage pipe under driveway. No alert on drainage pipe.

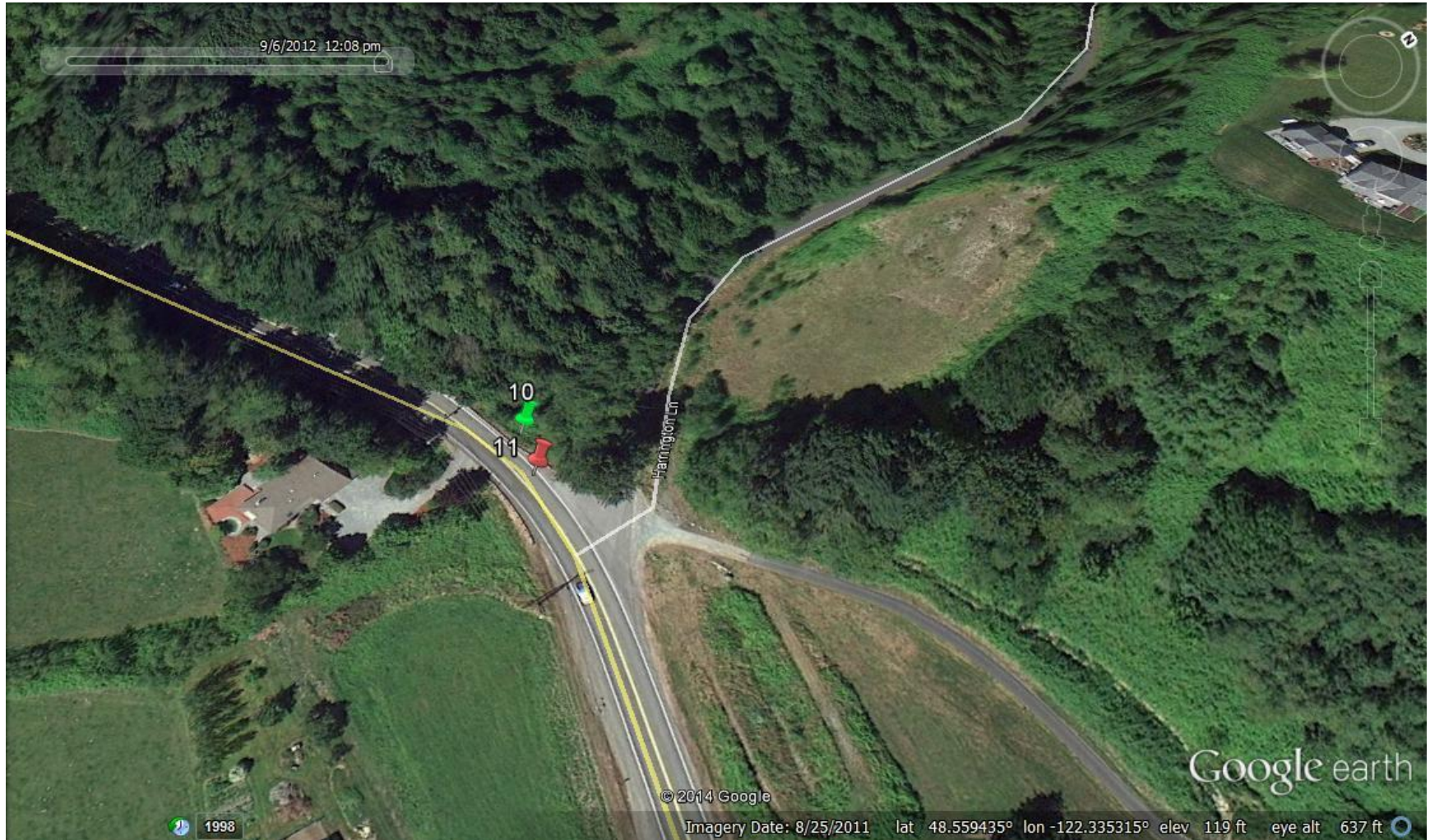
All Field Sites Investigated (1-20)



Sites 2-9 and 20



Sites 10-11



Sites 12-14



Sites 15-19

