

## Site Assessment Report

### A. Site Description

<b>CABIN Study Name</b>	BC-Elk River Tributaries-Elk River Alliance
<b>CABIN Site Code</b>	Alx-01
<b>Sampling Date</b>	Oct 13 2012
<b>Know Your Watershed (KYW) Basin</b>	Central Kootenay
<b>Province / Territory</b>	British Columbia
<b>Terrestrial Ecological Classification</b>	Montane Cordillera Ecozone Northern Continental Divide Ecoregion
<b>Coordinates (decimal degrees)</b>	49.67396 N, 114.77993 W
<b>Altitude</b>	4004
<b>Feature Name</b>	Alexander Creek
<b>Stream Order</b>	4



Figure 1. Location Map



Across Reach



Down Stream



Field Crew: Allie Dierckhout & Ayla Bennett Site Code: Alx-D1  
 Sampling Date: (DD/MM/YYYY) 13/10/2012

Occupational Health & Safety: Site Inspection Sheet completed

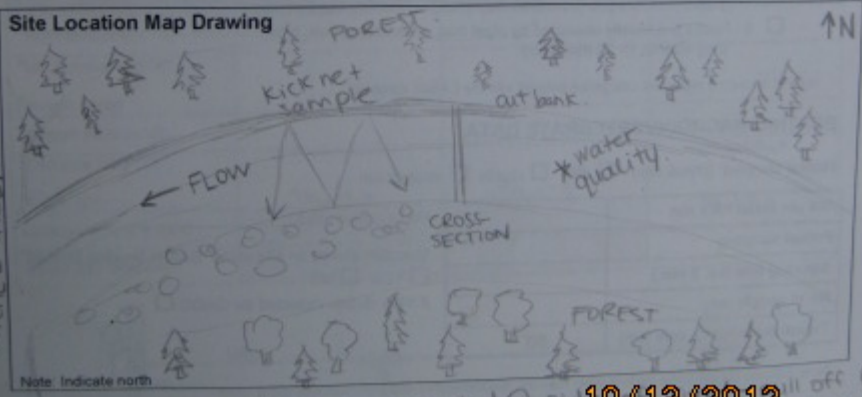
**PRIMARY SITE DATA**  
 CABIN Study Name: Alexander Test Site Local Basin Name: Alexander Creek  
 River/Stream Name: Alexander Creek Stream Order: (map scale 1:50,000) 4th order  
 Select one:  Test Site  Potential Reference Site

**Geographical Description/Notes:** Alexander Creek - site 1  
~80 m w/s from mouth (enters Michel Creek), parked @ east end of  
HWY 3 bridge over Michel Creek (last MC bridge heading east)

Surrounding Land Use: (check those present) Information Source: visual maps local knowledge  
 Forest  Field/Pasture  Agriculture  Residential/Urban  
 Logging  Mining  Commercial/Industrial  Other mining in area out not in basin, highway

Dominant Surrounding Land Use: (check one) Information Source: \_\_\_\_\_  
 Forest  Field/Pasture  Agriculture  Residential/Urban  
 Logging  Mining  Commercial/Industrial  Other highway

**Location Data**  
 Latitude: 49°40'26.744" N Longitude: -114°46'47.732" W (DMS or DD)  
 Elevation: 1720.6 (ft or m) GPS Datum:  GRS80 (NAD83/WGS84)  Other: \_\_\_\_\_

**Site Location Map Drawing**  
  
 Note: Indicate north

10/13/2012  
 parked here HWY 3 \*parked @ side of HWY 3 off @ east end of Michel Creek bridge  
 CABIN Field Sheet June 2012 Page 1 of 8 CABIN

Field Sheet



Substrate



Up Stream  
Figure 2. Site Photographs

**B. CABIN Assessment Results**

REFERENCE MODEL SUMMARY					
<b>Model Name</b>	Columbia-Okanagan Preliminary March 2010				
<b>Analysis Date</b>	April 10, 2015				
<b>Taxonomic Level</b>	Family				
<b>Predictor Variables</b>	Depth-Avg Latitude Longitude Reg-Ice Reg-SlopeLT30%				
<b>Reference Groups</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Number of Reference Sites</b>	9	43	17	12	33
<b>Group Error Rate</b>	22.2%	24.5%	22.2%	25.0%	32.4%
<b>Overall Model Error Rate</b>	26.4%				
<b>Probability of Group Membership</b>	0.0%	0.3%	86.1%	12.0%	1.6%
<b>CABIN Assessment of Alx-01 on Oct 13, 2012</b>	Mildly Divergent				



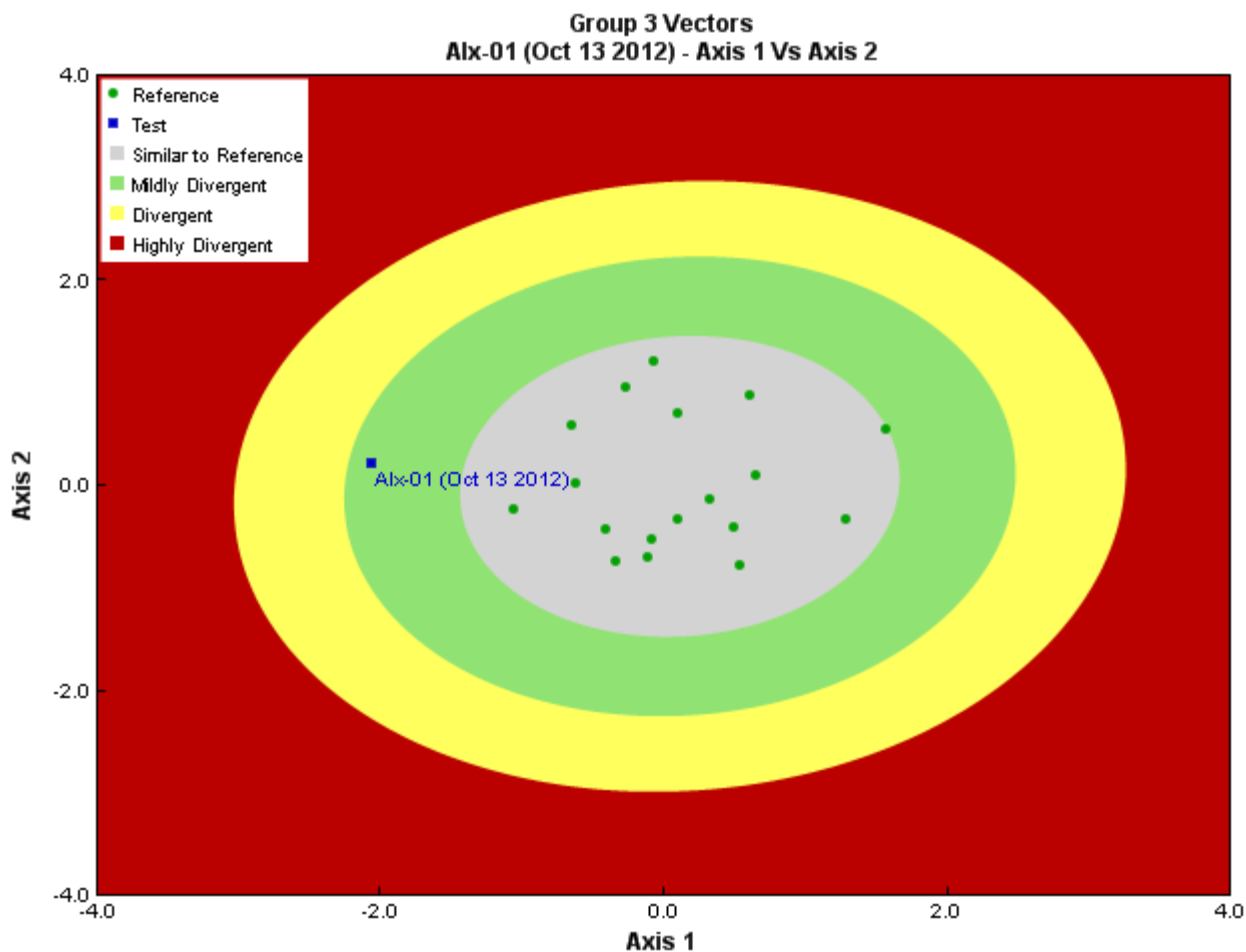


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

**Sample Information**

<b>Sampling Device</b>	Kick Net
<b>Mesh Size</b>	363
<b>Sampling Time</b>	3
<b>Taxonomist</b>	Eco Analsyts, EcoAnalysts
<b>Identification Date</b>	February 04, 2013
<b>Subsampling Device</b>	Marchant Box
<b>Proportion Subsampled</b>	100/100

**Community Structure Sample Data**

Phylum	Class	Order	Family	Raw Count	Mean Count
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	2	2.0
		Insecta	Coleoptera	Elmidae	2
	Diptera		Chironomidae	24	24.0
			Empididae	1	1.0
			Psychodidae	2	2.0
	Ephemeroptera		Ameletidae	2	2.0
			Baetidae	39	39.0
			Ephemerellidae	43	43.0
			Heptageniidae	36	36.0
	Plecoptera		Chloroperlidae	1	1.0
			Leuctridae	1	1.0
		Nemouridae	84	84.0	
		Perlodidae	8	8.0	
		Taeniopterygidae	40	40.0	
	Trichoptera		Apataniidae	1	1.0

**Community Structure Sample Data**

Phylum	Class	Order	Family	Raw Count	Mean Count
			Brachycentridae	3	3.0
			Glossosomatidae	34	34.0
			Hydropsychidae	1	1.0
			Rhyacophilidae	5	5.0
			Total	329	329.0

**Site Metrics**

Metric Name	Alx-01	Predicted Group Reference Mean ±SD
Bray-Curtis Distance	0.83	0.4 ± 0.2
<b>Biotic Indices</b>		
Long-lived taxa	1.0	1.9 ± 1.3
<b>Number Of Individuals</b>		
No. EPT individuals/Chironomids+EPT Individuals	0.9	0.9 ± 0.1
Total Abundance	329.0	5757.3 ± 4889.9
<b>Richness</b>		
EPT taxa (no)	14.0	11.5 ± 1.2
Total No. of Taxa	19.0	17.1 ± 2.4

**D. Habitat Description**

Variable	Alx-01	Predicted Group Reference Mean ±SD
<b>Channel</b>		
Depth-Avg (cm)	24.8	22.5 ± 10.5
Depth-Max (cm)	38.0	32.9 ± 17.9
Discharge (m <sup>3</sup> /s)	2.090	0.000 ± 0.000
Macrophyte (PercentRange)	0	0 ± 0
Reach-%CanopyCoverage (PercentRange)	1.00	0.94 ± 0.80
Reach-Pools (Binary)	1	0 ± 1
Reach-Rapids (Binary)	0	0 ± 1
Reach-Riffles (Binary)	1	1 ± 0
Reach-StraightRun (Binary)	1	1 ± 0
Slope (m/m)	0.0080000	0.0235102 ± 0.0284557
Veg-Coniferous (Binary)	1	1 ± 0
Veg-Deciduous (Binary)	1	1 ± 0
Veg-GrassesFerns (Binary)	1	1 ± 0
Veg-Shrubs (Binary)	1	1 ± 0
Velocity-Avg (m/s)	0.71	0.51 ± 0.25
Velocity-Max (m/s)	1.08	0.75 ± 0.28
Width-Bankfull (m)	13.5	15.6 ± 12.8
Width-Wetted (m)	11.9	10.2 ± 7.0
<b>Landcover</b>		
Reg-Ice (%)	0.00000	0.46949 ± 1.15785
<b>Sediment Chemistry</b>		
Ag (ppm)	0.000	0.000 ± 0.000
Al (ppm)	0.006	0.006 ± 0.004
As (ppm)	0.000	0.000 ± 0.000
B (ppm)	0.025	0.050
Ba (ppm)	0.071	0.064 ± 0.045
Be (ppm)	0.000	0.000 ± 0.000
Bi (ppm)	0.001	0.000 ± 0.000
Ca (ppm)	48.400	38.614 ± 14.846
Cd (ppm)	0.000	0.000 ± 0.000
Co (ppm)	0.000	0.000 ± 0.000
Cr (ppm)	0.001	0.000 ± 0.000
Cu (ppm)	0.000	0.000 ± 0.000
Fe (ppm)	0.022	0.009
Hg (ppm)	0.000	0.000 ± 0.000
K (ppm)	0.428	0.647 ± 0.715
Li (ppm)	0.003	0.001 ± 0.000
Mg (ppm)	14.000	9.881 ± 6.160



## D. Habitat Description

Variable	Alx-01	Predicted Group Reference Mean $\pm$ SD
Mn (ppm)	0.002	0.001 $\pm$ 0.002
Mo (ppm)	0.001	0.002 $\pm$ 0.007
Na (ppm)	1.930	2.636 $\pm$ 3.771
Ni (ppm)	0.001	0.000 $\pm$ 0.000
Pb (ppm)	0.000	0.000 $\pm$ 0.000
S (ppm)	4.900	5.000
Sb (ppm)	0.000	0.000 $\pm$ 0.000
Se (ppm)	0.001	0.000 $\pm$ 0.000
Si (ppm)	2.270	3.066 $\pm$ 1.407
Sn (ppm)	0.003	0.000 $\pm$ 0.000
Sr (ppm)	0.129	0.116 $\pm$ 0.098
Ti (ppm)	0.003	0.001
Tl (ppm)	0.000	0.000 $\pm$ 0.000
U (ppm)	0.001	0.001 $\pm$ 0.000
V (ppm)	0.001	0.000 $\pm$ 0.000
Zn (ppm)	0.003	0.000 $\pm$ 0.000
Zr (ppm)	0.000	0.000 $\pm$ 0.000
<b>Substrate Data</b>		
%Bedrock (%)	0	0 $\pm$ 0
%Boulder (%)	7	6 $\pm$ 7
%Cobble (%)	43	61 $\pm$ 27
%Gravel (%)	9	1 $\pm$ 2
%Pebble (%)	37	31 $\pm$ 28
%Sand (%)	0	0 $\pm$ 0
%Silt+Clay (%)	3	1 $\pm$ 3
D50 (cm)	6.50	79.45 $\pm$ 47.98
Dg (cm)	5.5	73.9 $\pm$ 48.0
Dominant-1st (Category(0-9))	7	6 $\pm$ 2
Dominant-2nd (Category(0-9))	5	6 $\pm$ 2
Embeddedness (Category(1-5))	4	4 $\pm$ 1
PeriphytonCoverage (Category(1-5))	3	2 $\pm$ 1
SurroundingMaterial (Category(0-9))	3	4 $\pm$ 2
<b>Topography</b>		
Reg-SlopeLT30% (%)	37.93000	27.92073 $\pm$ 14.83033
SlopeLT30% (%)	37.93000	27.74594 $\pm$ 10.84742
<b>Water Chemistry</b>		
Ag (mg/L)	0.0000100	0.0000000 $\pm$ 0.0000000
Al (mg/L)	0.0060000	0.0000000 $\pm$ 0.0000000
As (mg/L)	0.0001400	0.0000000 $\pm$ 0.0000000
B (mg/L)	0.0250000	0.0000000 $\pm$ 0.0000000
Ba (mg/L)	0.0714000	0.0000000 $\pm$ 0.0000000
Be (mg/L)	0.0000500	0.0000000 $\pm$ 0.0000000
Bi (mg/L)	0.0005000	0.0000000 $\pm$ 0.0000000
Ca (mg/L)	48.4000000	0.0000000 $\pm$ 0.0000000
Cd (mg/L)	0.0000050	0.0000000 $\pm$ 0.0000000
Co (mg/L)	0.0002500	0.0000000 $\pm$ 0.0000000
Cr (mg/L)	0.0005000	0.0000000 $\pm$ 0.0000000
Cu (mg/L)	0.0002400	0.0000000 $\pm$ 0.0000000
Fe (mg/L)	0.0215000	0.0000000 $\pm$ 0.0000000
General-Alkalinity (mg/L)	153.0000000	121.5944444 $\pm$ 36.7225924
General-Conductivity (uS/cm)	295.0000000	186.8500000 $\pm$ 84.0864011
General-DO (mg/L)	11.0000000	10.4922222 $\pm$ 0.8833463
General-Hardness (mg/L)	178.0000000	146.8222222 $\pm$ 41.6699011
General-pH (pH)	8.8	8.0 $\pm$ 0.6
General-TempAir (Degrees Celsius)	13.0	10.5 $\pm$ 4.2
General-TempWater (Degrees Celsius)	6.9000000	6.6716667 $\pm$ 2.0277755
Hg (ng/L)	0.0000250	0.0000000 $\pm$ 0.0000000
K (mg/L)	0.4280000	0.0000000 $\pm$ 0.0000000
Li (mg/L)	0.0025000	0.0000000 $\pm$ 0.0000000
Mg (mg/L)	14.0000000	0.0000000 $\pm$ 0.0000000
Mn (mg/L)	0.0018000	0.0000000 $\pm$ 0.0000000

**D. Habitat Description**

<b>Variable</b>	<b>Alx-01</b>	<b>Predicted Group Reference Mean <math>\pm</math>SD</b>
<b>Mo (mg/L)</b>	0.0005000	0.0000000 $\pm$ 0.0000000
<b>Na (mg/L)</b>	1.9300000	0.0000000 $\pm$ 0.0000000
<b>Ni (mg/L)</b>	0.0005000	0.0000000 $\pm$ 0.0000000
<b>Nitrogen-NO2 (mg/L)</b>	0.0025000	0.0023889 $\pm$ 0.0063351
<b>Nitrogen-NO2+NO3 (mg/L)</b>	0.0100000	0.0130000 $\pm$ 0.0088111
<b>Nitrogen-NO3 (mg/L)</b>	0.0100000	0.0245003 $\pm$ 0.0229452
<b>Pb (mg/L)</b>	0.0001000	0.0000000 $\pm$ 0.0000000
<b>Phosphorus-TP (mg/L)</b>	0.0025000	0.0032778 $\pm$ 0.0061816
<b>S (mg/L)</b>	4.9000000	0.0000000 $\pm$ 0.0000000
<b>Sb (mg/L)</b>	0.0002500	0.0000000 $\pm$ 0.0000000
<b>Se (mg/L)</b>	0.0008200	0.0000000 $\pm$ 0.0000000
<b>Si (mg/L)</b>	2.2700000	0.0000000 $\pm$ 0.0000000
<b>Sn (mg/L)</b>	0.0025000	0.0000000 $\pm$ 0.0000000
<b>Sr (mg/L)</b>	0.1290000	0.0000000 $\pm$ 0.0000000
<b>Ti (mg/L)</b>	0.0025000	0.0000000 $\pm$ 0.0000000
<b>Tl (mg/L)</b>	0.0000250	0.0000000 $\pm$ 0.0000000
<b>U (mg/L)</b>	0.0006600	0.0000000 $\pm$ 0.0000000
<b>V (mg/L)</b>	0.0025000	0.0000000 $\pm$ 0.0000000
<b>Zn (mg/L)</b>	0.0025000	0.0000000 $\pm$ 0.0000000
<b>Zr (mg/L)</b>	0.0002500	0.0000000 $\pm$ 0.0000000