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9-26-2004

Ex. 277-US-444

R. Nawa
Oregon Department of Fish and Wildlife

C. Huntington
Oregon Department of Fish and Wildlife

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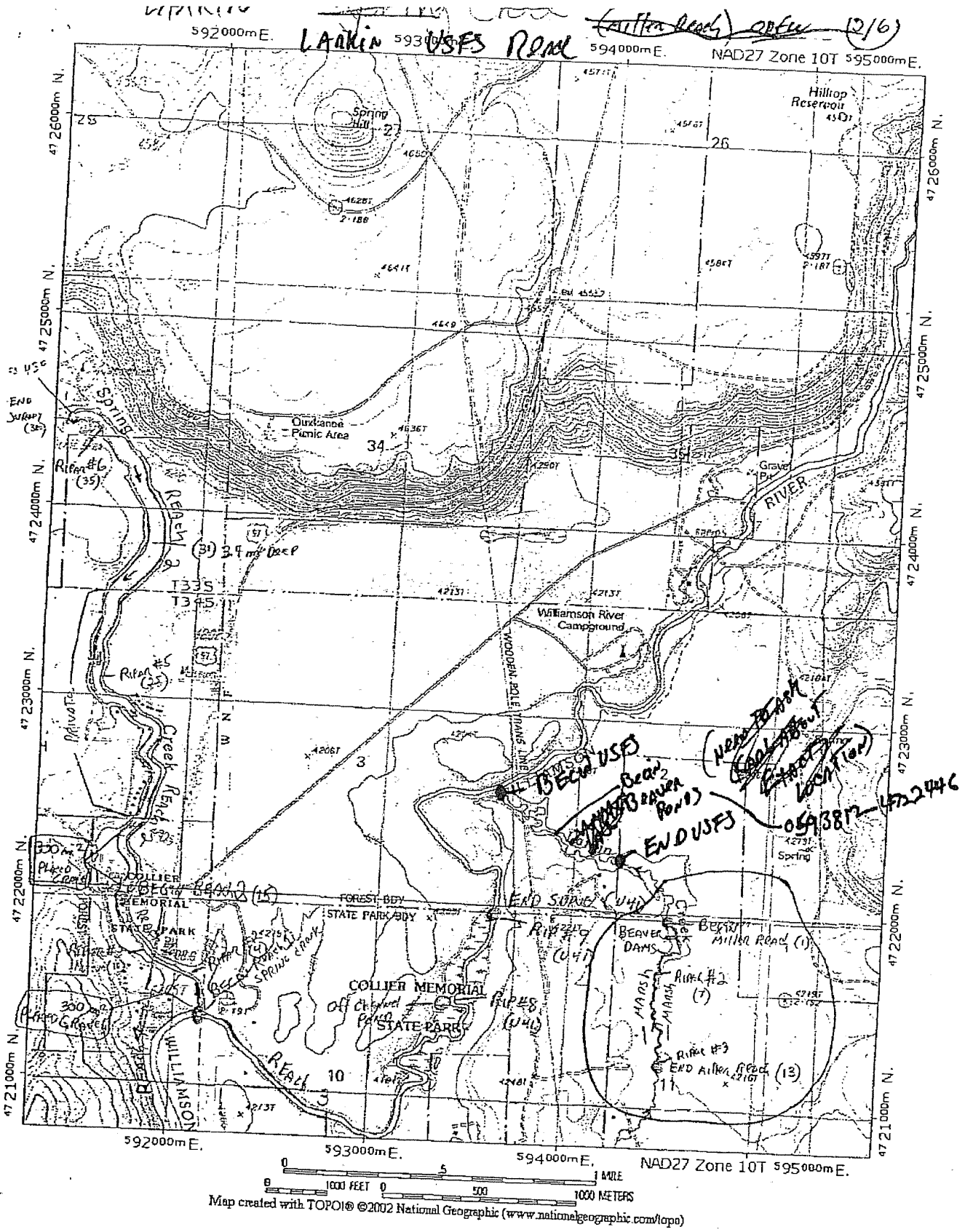
Stream: Larkin Creek
Tributary to: Williamson River
Survey Type: Spawning Gravel
Access: Foot
Reach: USFS (upstream from mouth)
Start: T34S-R7-S~~11NE~~ 35E
Quad: Soloman Butte
Date: 31 August 04
Surveyor: K. Hartzell
Report: R. Nawa, C. Huntington
Distance: 1,094 m

Approximately 356 m^2 of gravel suitable for spawning southern was found on Forest Service lands from the mouth upstream for 500 m (map). Some stream areas in riffles had high densities of mussels. The upper 500 m was dominated by beaver dam complexes with no spawning gravel. Stream temperature at the mouth of the stream was 20°C on 29 July 2004 (1600 PDT).

Photo 301.
Patches of suitable spawning gravel were found in riffles for about the first 500 m of stream.


592000mE.
593000mE.
594000mE.
595000mE.
NAD27 Zone 10T
47 26000m N.
47 25000m N.
47 24000m N.
47 23000m N.
47 22000m N.
47 21000m N.
Hilltop Reservoir
Spring Hill
Ouxkanna Picnic Area
Gravel Pit
RIVER
Williamson River Campground
WOODEN POLE TRANS LINE
Spring
Creek
Reach
COLLIER MEMORIAL STATE PARK
FOREST BDY
STATE PARK BDY
BEAVER DAMS
Miller Road
COLLIER MEMORIAL STATE PARK
WILLIAMSON
MARSH
END USFS
END SURVEY
Spring
0 5 1 MILE
0 1000 FEET
0 500 1000 METERS
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

SPAWNING HABITAT FORM

Stream Larkin Reach USFS Date 9/6/04

Surveyor(s) KH

Surface area (m^2)	Class (G, GC, C)	Percent wetted	Percent usable	Comments
12	G	100	100	Near Mouth
3	G	100	20	
8	G	100	80	
8	G	100	90	
15	G	100	90	
12	G	100	100	
2	G	100	100	
18	G/C	100	20	
6	G	100	50	
6	G	100	100	
20	G	100	70	
10	G	100	80	
8	G	100	60	
24	G	100	60	
28	G	100	80	
10	G	100	100	
16	G/C	100	100	
8	G	100	80	
6	G	100	100	
10	G	100	80	
18	G	100	70	
28	G	100	70	
26	G	100	40	
22	G	100	100	
16	G	100	80	
10	G/C	100	100	
6	G	100	100	End of Riffle Habitat
				Start of Beaver Dam/Pool
				Complex - Continues to
				USFS Prop. Line

Class: G= gravel; C= small cobble (≤150mm [6"])
Usable habitat is at least 150mm (6") deep and has water velocities between 1 and 4 feet/second.

SPAWNING HABITAT FORM

Stream_____ Reach_____ Date_____

Surveyor(s)_____

Surface area (m^2)	Class (G, GC, C)	Percent wetted	Percent usable	Comments

PHOTO RECORD

PAGE: 1 OF:

STREAM: Larkin and Crooked Cr. Headwaters

SURVEY TYPE: OR. PLAN ☐ BASIN ☒ MIXED ☐

BASIN OR GCG: Williamson

FILM: DIGITAL ☒ SLIDE ☐ PRINTS ☐

SURVEY CREW: KH

ROLL #: MAILER #:

PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1: B 103		9/6/04	1043	Mouth of Larkin Cr.
2: 300 104			1053	DS View of Channel
3: 301 105			1053	US View of Spawning Gravel
4: 302 106			1120	US View of Installed Log Step
5: 303 107			1130	Mussel Bed
6: 304 108			1135	First Beaver Dam: 0593812, 4722446
7: 305 109			1150	Fourth and Largest BD: 0593939, 4722349
8: 306 110			1200	FS Foreline: Rt. Bank View
9: B 111			1205	US View of Private Land
10:				
11:				
12:				
13: B 112 308		9/14/04	1335	Crooked Creek, DS View into Private Land
14: B 113 309			1336	Typical Pumice/Sand Substrate in Headwaters
15: B 114 310			1340	Headwater Glide of Crooked Cr. Temp. 48°F
16:				
17:				
18:				
19:				
20:				
21:				
22:				
23:				
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36:				
37:				
38:				
39:				
40:				

SPAWNING HABITAT FORM

Stream Larkin (USFS) Reach USFS Date 9/6/04

Surveyor(s) KH

Surface area (m^2)	Class (G, GC, C)	Percent wetted	Percent usable	Comments
12	G	100	100	Near Mouth
32	G	100	80	
8	G	100	80	
8	G	100	90	
15	G	100	90	
12	G	100	100	
2	G	100	100	
18	G/C	100	80	
6	G	100	50	
6	G	100	100	
20	G	100	70	
10	G	100	80	
8	G	100	60	
24	G	100	60	
28	G	100	90	
10	G	100	100	
16	G/C	100	100	
8	G	100	80	
6	G	100	100	
10	G	100	80	
18	G	100	70	
28	G	100	70	
26	G	100	40	
22	G	100	100	
16	G	100	80	
10	G/C	100	100	
6	G	100	100	End of Riffle Habitat
				Start of Beaver Dam/Pool
				Complex - Continues to
				USFS Prop. Line

Class: G= gravel; C= small cobble (≤150mm [6"])
Usable habitat is at least 150mm (6") deep and has water velocities between 1 and 4 feet/second.

PHOTO RECORD

PAGE: 1 OF: ____

STREAM: Larkin and Crooked Cr. Headwaters

SURVEY TYPE: OR. PLAN [ ] BASIN [X] MIXED [ ]

BASIN OR GCG: Williamson

FILM: DIGITAL [X] SLIDE [ ] PRINTS [ ]

SURVEY CREW: KH

ROLL #: ____ MAILER #: ____

299 PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1: B 1/03		9/6/04	1043	Mouth of Larkin Cr.
2 300/04			1053	DS View of Channel
3 301/05			1053	US View of Spawning Gravel
4 302/06			1120	US View of Installed Log Step
5 303/07			1130	Mussel Bed
6 304/08			1135	First Beaver Dam: 0593812, 4722446
7 305/09			1150	Fourth and Largest BD: 0593939, 4722349
8 306/10			1200	FS Foreline: Rt. Bank View
9: B 11/307			1205	US View of Private Land
10:				
11:				
12:				
13: B 12/308		9/14/04	1235	Crooked Creek, DS View into Private Land
14: B 13/309			1236	Typical Pumice/Sand Substrate in Headwaters
15: B 14/310			1240	Headwater Glide of Crooked Cr. Temp. 48°F
16:				
17:				
18:				
19:				
20:				
21:				
22:				
23:				
24:				
25:				
26:				
27:				
28:				
29:				
30:				
31:				
32:				
33:				
34:				
35:				
36:				
37:				
38:				
39:				
40:				

Stream: Larkin Creek
Tributary to: Williamson River
Survey Type: ODFW Stream Habitat
Access: Foot
Reach: Miller Reach (upper portion of creek)
Start: T34S-R7-S11NE
Quad: Soloman Butte
Date: 31 August 04
Surveyors: R. Nawa, K. Hartzell
Report: R. Nawa, C. Huntington
Distance: 1,094 m

Land Use
Land use was young forest trees and rural residential.

Valley and stream channel geometry
Two beaver dams at the beginning of the reach created pools that averaged 34 m wide (map). Above the beaver dams, the 2-5 m wide stream meandered in a marsh. Low map measured stream gradient (0.1%) was accompanied by moderate sinuosity (1.4).

Substrate
The streambed was 100 percent sand and organics with no gravel.

Spawning Gravel
No gravel was found in the streambed.

Riparian Vegetation
The stream is mostly in a marsh bordered by grasses and sedges. Patches of willows occurred sporadically on floodplains above flooded marsh areas. The stream averaged 142 willows per 1000 ft of stream and 3 percent shade. None of the streambanks were eroding. Existing grasses, sedges and willow growth is adequate to protect streambanks.

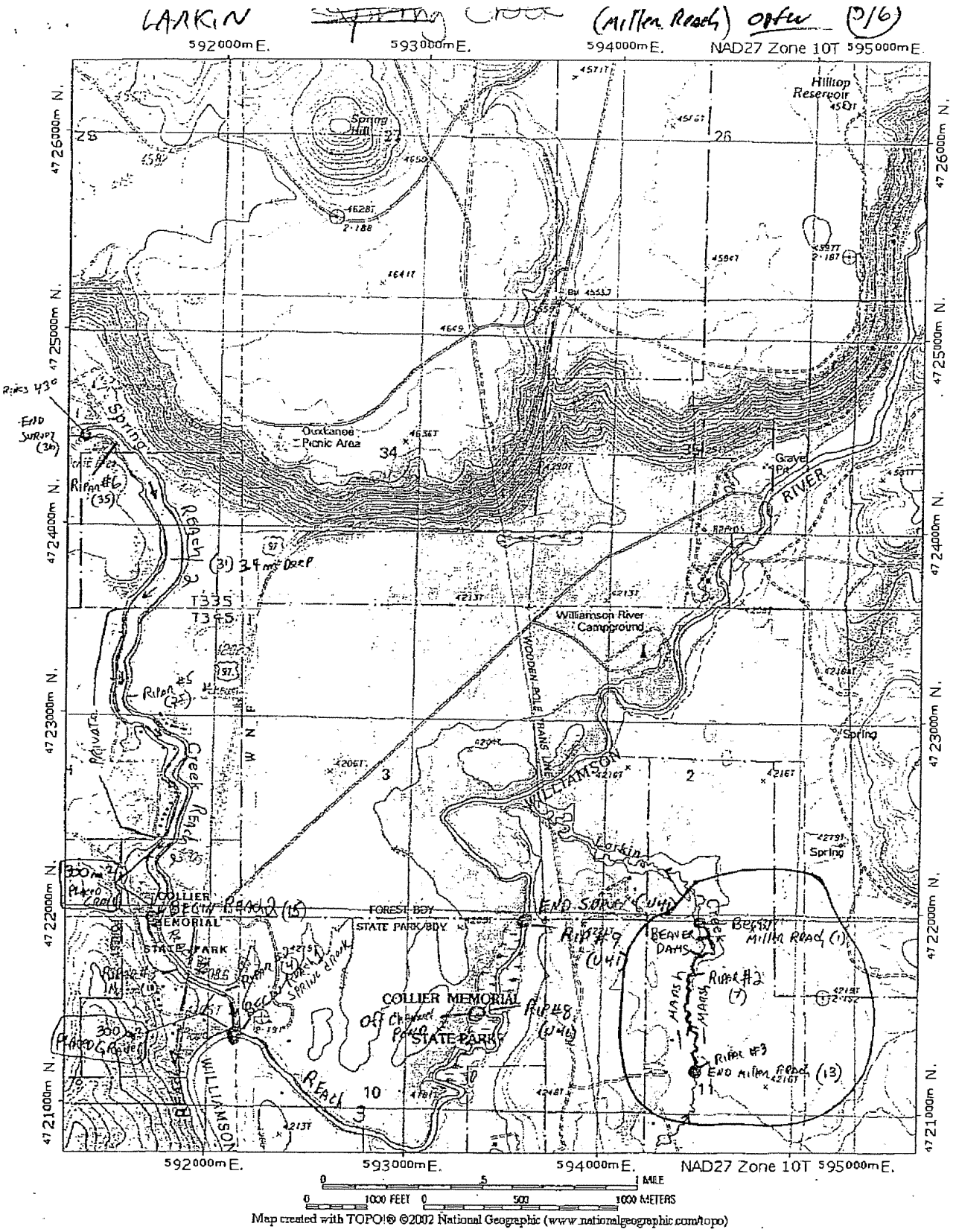
Wood
No wood was found in the stream because no trees grow anywhere near the stream.

Rearing and Adult Holding Habitat
Two beaver ponds at the beginning of the reach provided a total of 8,320 m^2 of pool habitat (map). Above the beaver ponds the stream was a continuous glide for about 600 m. Beaver ponds were about a meter deep while glides averaged 0.7 m.

Stream Temperature
At the beginning of the reach (below the beaver dams) maximum spot stream temperature was 18°C. Upstream of the beaver dams at the end of the reach the stream was 15.6°C.

Photo 197 Unit 1
The stream was mostly a continuous 2-5 m wide glide in a marsh.

Photo 201 Unit 2/3
A 0.6 m high beaver dam created a 0.4 ha 1 m deep pond.


LARKIN
(Miller Reach) open (D/6)
592000mE.
593000mE.
594000mE.
NAD27 Zone 10T 595000mE.
Hilltop Reservoir
Spring Hill
Ouxtanoe Picnic Area
Grave Pit
RIVER
Williamson River Campground
WOODEN POLE TRANS LINE
WILLIAMSON
Spring
Larkin
COLLIER MEMORIAL STATE PARK
FOREST BDY
STATE PARK BDY
BEGIN Reach (15)
END SURVEY (14)
BEGIN Miller Road (1)
BEAVER DAMS
MARSH
COLLIER MEMORIAL STATE PARK
Off Channel Pond
Reach 3
END Miller Reach (13)
Riparian #6 (35)
Riparian #5 (32)
Riparian #9 (14)
Riparian #8 (14)
Riparian #2 (7)
Riparian #3
END SURVEY (36)
T33S
T34S
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

REACH

PAGE: 1 OF:

STREAM: Larkin (Miller)

CREW: RN, KH

BASIN:

USGS 7.5' MAP NAMES:

DATE	REACH #	UNIT NUMBER	CHANL FORM	VALLEY FORM	VWI	VEG CLASS DOM.	VEG CLASS SUB-DOM.	LAND USE DOM.	LAND USE SUB-DOM.	WATER TEMP	STRM FLOW	LOCATION TWN-RNG-SEC-1/4	PHOTO # /TIME	REACH NOTE
8/31/04	2	1	US	WF	28	P	S	RR	YT	64°	LF	34S, 7E, 11, NE	1/1348	E-W Fence

2

UTM: 0594494
4721998

ACW = 24m
ACH = 1.0m
FPW = >100m

UTM:

UTM:

UTM:

UTM:

UTM:

UTM:

REACH

PAGE:_____OF:_____

STREAM:_____

CREW:_____

BASIN:_____

USGS 7.5' MAP NAMES:_____

DATE	REACH #	UNIT NUMBER	CHANL FORM	VALLEY FORM	VWI	VEG CLASS DOM.	VEG CLASS SUB-DOM.	LAND USE DOM.	LAND USE SUB-DOM.	WATER TEMP	STRM FLOW	LOCATION TWN-RNG-SEC-1/4	PHOTO # /TIME	REACH NOTE
													/	

UTM:_____

UTM:_____

UTM:_____

UTM:_____

UTM:_____

UTM:_____

UNIT - 1

PAGE: 1 OF: 1

STREAM: LARKIN CR. (MILDR ROCK) DATE: 31 AUG 04 ESTIMATOR: R NAWA

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	% FLOW	UNIT LENGTH	UNIT WIDTH	SLOPE %	SHADE (0-90) LEFT	SHADE (0-90) RIGHT	ACTIVE CHANNEL HT.*	ACTIVE CHANNEL WIDTH	FLOOD PRONE HT.	FLOOD PRONE WIDTH	TERRACE HT.	TERRACE WIDTH	NOTE VWI	NOTE
2	1	GL	OO	100	104	3.5	0	2	3	1.0	24	2.0	100			28	NORTH EDGE of PROPERTY
	2	SD	OO	100	1.5	36	100	2	3								0.60 High DAM
	3	BP	OO	100	150'	28	0	2	3								
	4	GL	OO	100	108	12	0	2	2								
	5	SD	OO	100	1.5	50	80	3	3								0.60 high Dam
	6	BP	OO	100	94	40	0	3	3								
	7	GL	OO	100	150	5.0	0	3	2	.9	26	1.8	150			19	RIFFLE #2
	8	AL	OO	100	14	6	0	3	2								
	9	GL	OO	100	150	4	0	3	3								
	10	GL	OO	100	150	4	0	3	2								
	11	AI	OO	100	23	12	0	2	2								
	12	GL	OO	100	150	3.5	0	2	2								
V	13	GL	OO	100	35	2.1	0	2	3	.5	20	1.0	150			24	MARSH 60° @ 1614

Beaver Bonus

* MEASURE FROM THE STREAMBED TO THE TOP OF THE ACTIVE CHANNEL. TAKE THE MEASUREMENT AT POOL TAIL CREST ON POOL UNITS.

UNIT - 1

PAGE:_____OF:_____

STREAM:_____ DATE:_____ ESTIMATOR:_____

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	% FLOW	UNIT LENGTH	UNIT WIDTH	SLOPE %	SHADE (0-90) LEFT	SHADE (0-90) RIGHT	ACTIVE CHANNEL HT.*	ACTIVE CHANNEL WIDTH	FLOOD PRONE HT.	FLOOD PRONE WIDTH	TERRACE HT.	TERRACE WIDTH	NOTE VWI	NOTE

* MEASURE FROM THE STREAMBED TO THE TOP OF THE ACTIVE CHANNEL . TAKE THE MEASUREMENT AT POOL TAIL CREST ON POOL UNITS.

UNIT-2

PAGE: 1 OF: ____

STREAM: Larkin (Miller) DATE: 8/31/04 NUMERATOR: Hartzell

UNIT #	UNIT TYPE	DEPTH*	DEPTH** PTC	VERIFIED LENGTH	VERIFIED WIDTH	PERCENT SUBSTRATE S/O	SND	GRVL	CBLE	BLDR	BDRCK	BLDR COUNT	% ACTIVE EROSION	% UNDER CUT	COMMENT CODES	NOTE
1	GL	0.9				100							0	0		Start @ E-W Fence
2	SD	0.6				100							0	0		Depth = Drop
3	BP	1.2				100							0	0		
4	GL	0.8				100							0	0		
5	SD	0.5				100							0	0		Depth = Drop
6	BP	1.0				100							0	0		
7	GL	0.8				100							0	0		
8	AL	0.7				100							0	0		
9	GL	0.8				100							0	0		
V 10	GL	0.9				100							0	0		
11	AL	0.9				100							0	0		
12	GL	0.6				60	40						0	0		
13	GL	0.5				30	70						0	0		End @ E-W Fence
V																
V																

AX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS

** ONLY MEASURED @ POOLS (EXCEPT OFF-CHANNEL POOLS)

UNIT-2

PAGE:_____ OF:_____

STREAM:_____ DATE:_____ NUMERATOR:_____

UNIT #	UNIT TYPE	DEPTH*	DEPTH** PTC	VERIFIED LENGTH	VERIFIED WIDTH	PERCENT SUBSTRATE S/O	SND	GRVL	CBLE	BLDR	BDRCK	BLDR COUNT	% ACTIVE EROSION	% UNDER CUT	COMMENT CODES	NOTE
V																
V																
V																

MAX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS

** ONLY MEASURED @ POOLS (EXCEPT OFF-CHANNEL POOLS)

PHOTO RECORD

PAGE: 1 OF: _____

STREAM: Larkin

SURVEY TYPE: OR. PLAN ☐ BASIN ☒ MIXED ☐

BASIN OR GCG: Williamson

FILM: DIGITAL ☒ SLIDE ☐ PRINTS ☐

SURVEY CREW: RH, KH

ROLL #: _____ MAILER #: _____

	PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
101 Gateway	1: 197B 1	1	8/31/04	1349	US View from E-W Fenceline
	2: 198 2	1			DS View
	3: 199 3	1			LB View
	4: 200 4	1			RB View
102 Gateway A	5: 201 5	2,3		1415	LB View of BD
	6: 202 6	3		1415	US View of BP
	7: 203 7	3		1430	DS View of BP
	8: 204 8	6,6		1450	US View of BD + BP
	9: 205B 9	11		1530	RB View Including Akare
	10: 206 10	13		1614	US View from E-W Fenceline
	11: 207 11	13			DS View
	12: 208 12	13			LB View
	13: 209B 13	13			RB View
	14:				
	15:				
	16:				
	17:				
	18:				
	19:				
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	26:				
	27:				
	28:				
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	35:				
	36:				
	37:				
	38:				
	39:				
	40:				

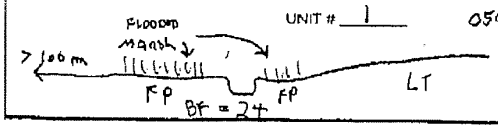
RIPARIAN

STREAM: LARKIN CR. (Miller Reach) DATE: 31 AUG.04 NAME: R. NAWA

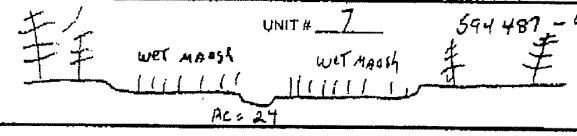
PAGE: 1 OF: 2

UNIT NUMBER	SIDE	ZONE	SURFACE	SLOPE	CANOPY CLOSURE	SHRUB % COVER	GRASS/FORB % COVER	TREE	COUNT (DBH in CENTIMETERS) 3-15	15-30	30-50	50-90	90+	RIPARIAN NOTE
1	LEFT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
								HARDWOOD						
1	RIGHT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	LT	5	0	0	100	CONIFER						
								HARDWOOD						
		3	LT	5	0	20	20	CONIFER						
								HARDWOOD						
7	LEFT	1	FP	0	0	20	100	CONIFER						
								HARDWOOD	2					Willow
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
								HARDWOOD						
7	RIGHT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	40	40	100	CONIFER						
								HARDWOOD	5					Willow

UNIT # 1 0594494-4721998



UNIT # 7 594487 - 4721687



RIPARIAN

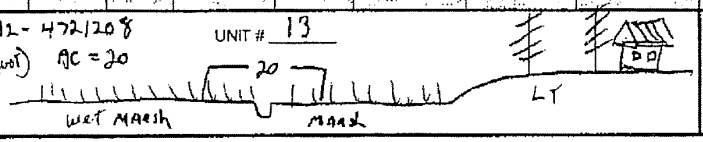
PAGE: 2 OF: 2

STREAM: Larkin Creek (Miller Road) DATE: 31 Aug 04 NAME: R. Nawa

UNIT NUMBER	SIDE	ZONE	SURFACE	SLOPE	CANOPY CLOSURE	SHRUB % COVER	GRASS/FORB % COVER	TREE	COUNT (DBH in CENTIMETERS) 3-15	15-30	30-50	50-90	90+	RIPARIAN NOTE
13	LEFT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
								HARDWOOD						
13	RIGHT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	40	100	CONIFER						
								HARDWOOD						
		3	FP	0	20	20	100	CONIFER						
								HARDWOOD						
	LEFT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						
	RIGHT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						

594512 - 472208 (wet) AC = 20

UNIT # 13



UNIT # _____

FOR EACH RIPARIAN TRANSECT, DRAW AND LABEL THE SURFACES (HT, LT, FP, HS, ETC) OF A CROSS SECTION IN THE BOX PROVIDED ABOVE. DRAWING AND LABELING VEGETATION IS NOT NECESSARY.

Milk REACH 2

OREGON DEPARTMENT OF FISH AND WILDLIF — **LARKIN CREEK**

HABITAT INVENTORY Report Date: 9/26/2004 Survey Date 8/31/2004

REACH 1 **T34S-R07E-S11NE** **REACH 1**

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0%	Constraining Terraces	0%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	100%

Valley Width Index ~~[illegible]~~ 24 VWI Range: ~~[illegible]~~ 19-28

Channel Morphology (Percent Reach Length)

Constrained		Unconstrained	
Hillslope	0%	Single Channel	100%
Bedrock	0%	Multiple Channel	0%
Terrace	0%	Braided Channel	0%
Alt. Terrace/Hill	0%		
Landuse	0%		

Channel Characteristics

Type	Length (m)	Area (m2)	Dry Units
Primary	1,094	12,298	0
Secondary	37	360	0

Channel Dimensions (m)

Wetted		Active		Floodprone n = 3	First Terrace n = 0
Width:	15.9	Width:	23.3	133.3 (100 - 150)	(-)
Depth:	0.78	Height:	0.8	1.6 (1 - 2)	(-)

W:D ratio: 31.0
Stream Flow Type: LF
Average Unit Gradient 0.2%
Water temperature (°C) 18.0 - 18.0

Entrenchment (ACW:FPW ratio): 5.8
Habitat Units/100m (total channel length): 1.1
Habitat Units/100m (primary channel length) 1.2

Riparian, Bank, and Wood Summary

	Primary	Secondary
Land Use:	RR	YT
Riparian Vegetation:	P	S

Checked 10-31 CWHW

Bank Condition and Shade

Bank Status	Percent Reach Length	Shade (% of 180)
Actively Eroding:	0%	Reach avg: 3%
Undercut Banks:	0%	Range: 2 - 4

Large Wood Debris

	Total	Total / 100m primary channel
All pieces (>=3m x 0.15m):	LARKIN HAD NO WOOD DATA SHEET	
Volume (m^3):		
Key pieces (>=12m x 0.60m):		

OREGON DEPARTMENT OF FISH AND WILDLIF **LARKIN CREEK**

HABITAT INVENTORY Report Date: 9/26/2004 Survey Date: 8/31/2004

REACH 1 **T34S-R07E-S11NE** **REACH 1**

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m^2)	Large Boulders (#>0.5m)		Substrate Percent Wetted Area S/O	Snd	Grvl	Cbl	Bldr	Bdrk
GLIDE	7	847	4.9	0.74	4,209	0		84	16	0	0	0	0
POOL-ALCOVE	2	37	9.0	0.80	360	0		100	0	0	0	0	0
POOL-BEAVER DAM	2	244	34.0	1.10	7,960	0		100	0	0	0	0	0
STEP/BEAVER DAM	2	3	43.0	0.55	129	0		100	0	0	0	0	0
Total:	13	1,131	15.9	0.78	12,658	0	**Avg**	92	8	0	0	0	0

HABITAT SUMMARY

Habitat Group	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m^2)	Wetted Area Percent	Large Boulders Number	Large Boulders (# / $100m^2$)
Dammed & BW Pools	4	281	21.5	0.95	8,320	65.73%	0	0.0
Scour Pools	0	0			0	0.00%	0	0.0
Glides	7	847	4.9	0.74	4,209	33.25%	0	0.0
Riffles	0	0			0	0.00%	0	0.0
Rapids	0	0			0	0.00%	0	0.0
Cascades	0	0			0	0.00%	0	0.0
Step/Falls	2	3	43.0	0.55	129	1.02%	0	0.0
Dry	0	0			0	0.00%	0	0.0
Culverts	0	0			0	0.00%	0	0.0

POOL SUMMARY

	Total	Total of all Channel Lengths # / Km	Primary Channel Length # / Km
All Pools:	4	3.5	3.7
Pools >=1m deep:	2	1.8	1.8
Complex pools (LWD pieces>=3):	0	0.0	0.0
Pool frequency (channel widths/pool):	12.1		
Residual pool depth (avg):	0.55		

STREAM SUMMARY **LARKIN CREEK**

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m^2)	Substrate Percent Wetted Area S/O	Snd	Grvl	Cbl	Bldr	Bdrk	Large Boulders (#>0.5m)
13	1,131	15.9	0.78	12,658	92	8	0	0	0	0	

Habitat Group	Wetted Area (m^2)	Percent
Dammed & BW Pools	8,320	65.73%
Scour Pools	0	0.00%
Glides	4,209	33.25%
Riffles	0	0.00%
Rapids	0	0.00%
Cascades	0	0.00%
Step/Falls	129	1.02%
Dry	0	0.00%
Culverts	0	0.00%

OREGON DEPARTMENT OF FISH AND WILDLIFE — LARKIN CREEK

HABITAT INVENTOR — Report Date: 9/26/2004 — Survey Date: 8/31/2004

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1 — REACH 1

Summary of Riparian Zone (0-30m) — 3 transects

Total hardwoods/1000	142
Total conifers/1000 ft	0
Total conifers >20" dbh/1000 f	0
Total conifers >35" dbh/1000 f	0

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10 - 20 meters		Zone 3 20 - 30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	0.0	0.7	0.0	0.0	0.0	1.7	0.0	2.3
15-30cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-50cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50-90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m2	0.0	0.7	0.0	0.0	0.0	1.7	0.0	0.8

Canopy closure and ground cover

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Canopy closure	0	0	10
Shrub cover	3	7	13
Grass/forb cover	100	100	87

Predominant landform in each zone

	Zone 1 0-10 meters (%)	Zone 2 10 - 20 meters (%)	Zone 3 20 - 30 meters (%)
Hillslope	0	0	0
High terrace	0	0	0
Low terrace	0	17	17
Floodplain	100	83	83
Wetland/meadow	0	0	0
Stream channel	0	0	0
Roadbed/Railroad	0	0	0
Riprap	0	0	0
Surface slope (%)	0	1	1

OREGON DEPARTMENT OF FISH AND WILDLIFE LARKIN CREEK

HABITAT INVENTORY Report Date: 9/26/2004 Survey Date: 8/31/2004

RIPARIAN ZONE VEGETATION

Reach 1 Reach 1

					Cover (percent)				Diameter class (cm)					
Unit	Side	Zone	Surface	Slope	Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90	Notes
1	LF	1	FP	0	0	0	100	Conifer						
								Hardwood						
1	LF	2	FP	0	0	0	100	Conifer						
								Hardwood						
1	LF	3	FP	0	0	0	100	Conifer						
								Hardwood						
1	RT	1	FP	0	0	0	100	Conifer						
								Hardwood						
1	RT	2	LT	5	0	0	100	Conifer						
								Hardwood						
1	RT	3	LT	5	0	20	20	Conifer						
								Hardwood						
7	LF	1	FP	0	0	20	100	Conifer						WILLOW
								Hardwood	2					
7	LF	2	FP	0	0	0	100	Conifer						
								Hardwood						
7	LF	3	FP	0	0	0	100	Conifer						
								Hardwood						
7	RT	1	FP	0	0	0	100	Conifer						
								Hardwood						
7	RT	2	FP	0	0	0	100	Conifer						
								Hardwood						
7	RT	3	FP	0	40	40	100	Conifer						WILLOW
								Hardwood	5					
13	LF	1	FP	0	0	0	100	Conifer						
								Hardwood						
13	LF	2	FP	0	0	0	100	Conifer						
								Hardwood						
13	LF	3	FP	0	0	0	100	Conifer						
								Hardwood						
13	RT	1	FP	0	0	0	100	Conifer						
								Hardwood						
13	RT	2	FP	0	0	40	100	Conifer						
								Hardwood						
13	RT	3	FP	0	20	20	100	Conifer						
								Hardwood						

Summary of Riparian Zone (0-30m) for all reaches 3 **transects**

Summary of riparian zone (0-100 feet) extrapolated to 1,000 feet along stream

Total hardwoods/1000	142
Total conifers/1000 ft	0
Total conifers >20" dbh/1000 f	0
Total conifers >35" dbh/1000 f	0

Average number of trees in a 5-m wide band

Diameter	Zones 1-3 0-30 meters	
class (cm)	Conifer	Hardwood
3-15cm	0.0	2.3
15-30cm	0.0	0.0
30-50cm	0.0	0.0
50-90cm	0.0	0.0
>90cm	0.0	0.0

LARKIN CREEK

REACH	UNIT#	TYPE	CHAN	DIST.(m)	COMMENTS	NOTE_ESTIMATOR	NOTE_NUMERATOR
1	1	GL	00	104		NORTH EDGE OF PROPERTY	START AT E-W FENCE
1	2	SD	00	106	BD	0.6M HIGH DAM	DEPTH = DROP
1	3	BP	00	256	BV		
1	5	SD	00	365	BD	0.5M HIGH DAM	DEPTH = DROP
1	6	BP	00	459	BV		
1	7	GL	00	609		RIPARIAN #2	
1	13	GL	00	1094		MARSH 15.5C AT 1615	END AT E-W FENCE

REACH

PAGE: 1 OF:

STREAM: Larkin (Miller)

CREW: RN, KH

BASIN:

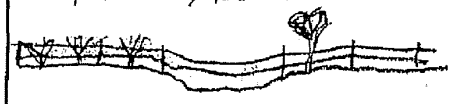
USGS 7.5' MAP NAMES:

DATE	REACH #	UNIT NUMBER	CHANL FORM	VALLEY FORM	VWI	VEG CLASS DOM.	VEG CLASS SUB-DOM.	LAND USE DOM.	LAND USE SUB-DOM.	WATER TEMP	STRM FLOW	LOCATION TWN-RNG-SEC-1/4	PHOTO # /TIME	REACH NOTE
8/31/04	Miller	1	US	WF	12	P	S	RR	YT	64°	LF	34S, 7E, 11, NE	1 / 1348	E-W Fence

Miller

UTM: 0594494
4721998

ACW = 24 m
ACH = 1.0 m
FPW = >100 m



UTM:

UTM:

UTM:

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PHOTO RECORD

PAGE: 1 OF: ____

STREAM: Larkin SURVEY TYPE: OR. PLAN [ ] BASIN [X] MIXED [ ]

BASIN OR GCG: Williamson FILM: DIGITAL [X] SLIDE [ ] PRINTS [ ]

SURVEY CREW: RH, KH ROLL #: ____ MAILER #: ____

	PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1	197 R 1	1	8/31/04	1348	US View from E-W Fenceline
2	198 2	1			DS View
3	199 3	1			LB View
4	200 4	1			RB View
5	201 5	2,3		1415	LB View of RD
6	202 6	3		1415	US View of BP
7	203 7	3		1430	DS View of BP
8	204 8	5,6		1450	US View of BD + BP
9	205 R 9	11		1530	RB View Including Alcove
10	206 10	13		1614	US View from E-W Fenceline
11	207 11	13			DS View
12	208 12	13			LB View
13	R 13	13			RB View
14	209 1				
15					
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40					

UNIT - 1

PAGE: 1 OF: 1

STREAM: LARKIN CR. (MIDDLE FORK) DATE: 31 AUG 04 ESTIMATOR: R. NAWA

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	% FLOW	UNIT LENGTH	UNIT WIDTH	SLOPE %	SHADE (0-90) LEFT	SHADE (0-90) RIGHT	ACTIVE CHANNEL HT.*	ACTIVE CHANNEL WIDTH	FLOOD PRONE HT.	FLOOD PRONE WIDTH	TERRACE HT.	TERRACE WIDTH	VWI	NOTE
1	1	GL	OO	100	104	3.5	0	2	3	1.0	24	2.0	100				NORTH EDGE of PROPERTY
1	2	SD	OO	100	13	36	100	2	3								0.60 High DAM
1	3	BP	OO	100	150	28	0	2	3								
1	4	GL	OO	100	108	12	0	2	2								
1	5	SD	OO	100	1.5	50	80	3	3								0.50 High Dam
1	6	BP	OO	100	94	40	0	3	3								
1	7	GL	OO	100	150	5.0	0	3	2	.9	26	1.8	150				RIFFLE #2
1	8	AL	OO	100	14	6	0	3	2								
1	9	GL	OO	100	150	4	0	3	3								
1	10	GL	OO	100	150	4	0	3	2								
1	11	AL	OO	100	23	1.2	0	2	2								
1	12	GL	OO	100	150	3.5	0	2	2								
1	13	GL	OO	100	35	2.1	0	2	3	.5	20	1.0	150				MARSH 60% 1614

* MEASURE FROM THE STREAMBED TO THE TOP OF THE ACTIVE CHANNEL. TAKE THE MEASUREMENT AT POOL TAIL CREST ON POOL UNITS.

UNIT-2

PAGE: 1 OF: ____

STREAM: Larkin (Miller) DATE: 8/31/04 NUMERATOR: Hartzell

UNIT #	UNIT TYPE	DEPTH*	DEPTH** PTC	VERIFIED LENGTH	VERIFIED WIDTH	PERCENT SUBSTRATE S/O	SND	GRVL	CBLE	BLDR	BDRCK	BLDR COUNT	% ACTIVE EROSION	% UNDER CUT	COMMENT CODES	NOTE
1	GL	0.9				100							0	0		Start @ E-W Fence
2	SD	0.6				100							0	0		Depth = Drop
3	BD	1.2				100							0	0		
4	GL	0.8				100							0	0		
5	SD	0.5				100							0	0		Depth = Drop
6	BD	1.0				100							0	0		
7	GL	0.8				100							0	0		
8	AL	0.7				100							0	0		
9	GL	0.8				100							0	0		
V 10	GL	0.9				100							0	0		
11	AL	0.9				100							0	0		
12	GL	0.6				60	40						0	0		
13	GL	0.5				30	70						0	0		End @ E-W Fence
V																
V																

AX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS

** ONLY MEASURED @ POOLS (EXCEPT OFF-CHANNEL POOLS)

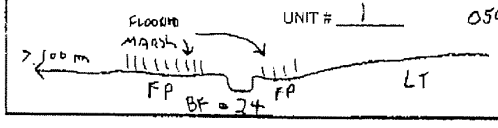
RIPARIAN

STREAM: LARKIN CR. (Miller Ranch) DATE: 31 AUG 04 NAME: R NAWA

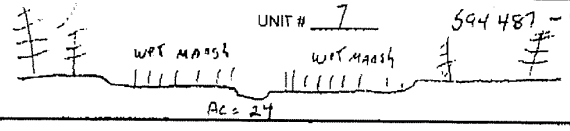
PAGE: 1 OF: 2

UNIT NUMBER	SIDE	ZONE	SURFACE	SLOPE	CANOPY CLOSURE	SHRUB % COVER	GRASS/FORB % COVER	TREE	COUNT (DBH in CENTIMETERS) 3-15	15-30	30-50	50-90	90+	RIPARIAN NOTE
1	LEFT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
								HARDWOOD						
1	RIGHT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	LT	5	0	0	100	CONIFER						
								HARDWOOD						
		3	LT	5	0	20	20	CONIFER						
								HARDWOOD						
7	LEFT	1	FP	0	0	20	100	CONIFER						
								HARDWOOD	2					Willow
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
								HARDWOOD						
7	RIGHT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	40	40	100	CONIFER						
								HARDWOOD	5					Willow

UNIT # 1 0594494-4721998



UNIT # 7 594487 - 4721687



RIPARIAN

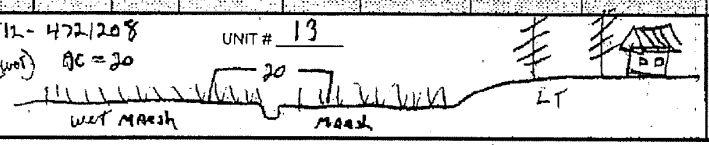
PAGE: 2 OF: 2

STREAM: Larkin Creek (Miller Road) DATE: 31 AUG 04 NAME: R. NAWA

UNIT NUMBER	SIDE	ZONE	SURFACE	SLOPE	CANOPY CLOSURE	SHRUB % COVER	GRASS/FORB % COVER	TREE	COUNT (DBH in CENTIMETERS) 3-15	15-30	30-50	50-90	90+	RIPARIAN NOTE
13	LEFT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
								HARDWOOD						
13	RIGHT	1	FP	0	0	0	100	CONIFER						
								HARDWOOD						
		2	FP	0	0	40	100	CONIFER						
								HARDWOOD						
		3	FP	0	20	20	100	CONIFER						
								HARDWOOD						
	LEFT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						
	RIGHT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						

594512 - 4721208 UNIT # 13

(wet) QC = 20



UNIT # _____

FOR EACH RIPARIAN TRANSECT, DRAW AND LABEL THE SURFACES (HT, LT, FP, HS, ETC) OF A CROSS SECTION IN THE BOX PROVIDED ABOVE. DRAWING AND LABELING VEGETATION IS NOT NECESSARY.