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In re Klamath River (Klamath Tribe)

Hedden-Nicely

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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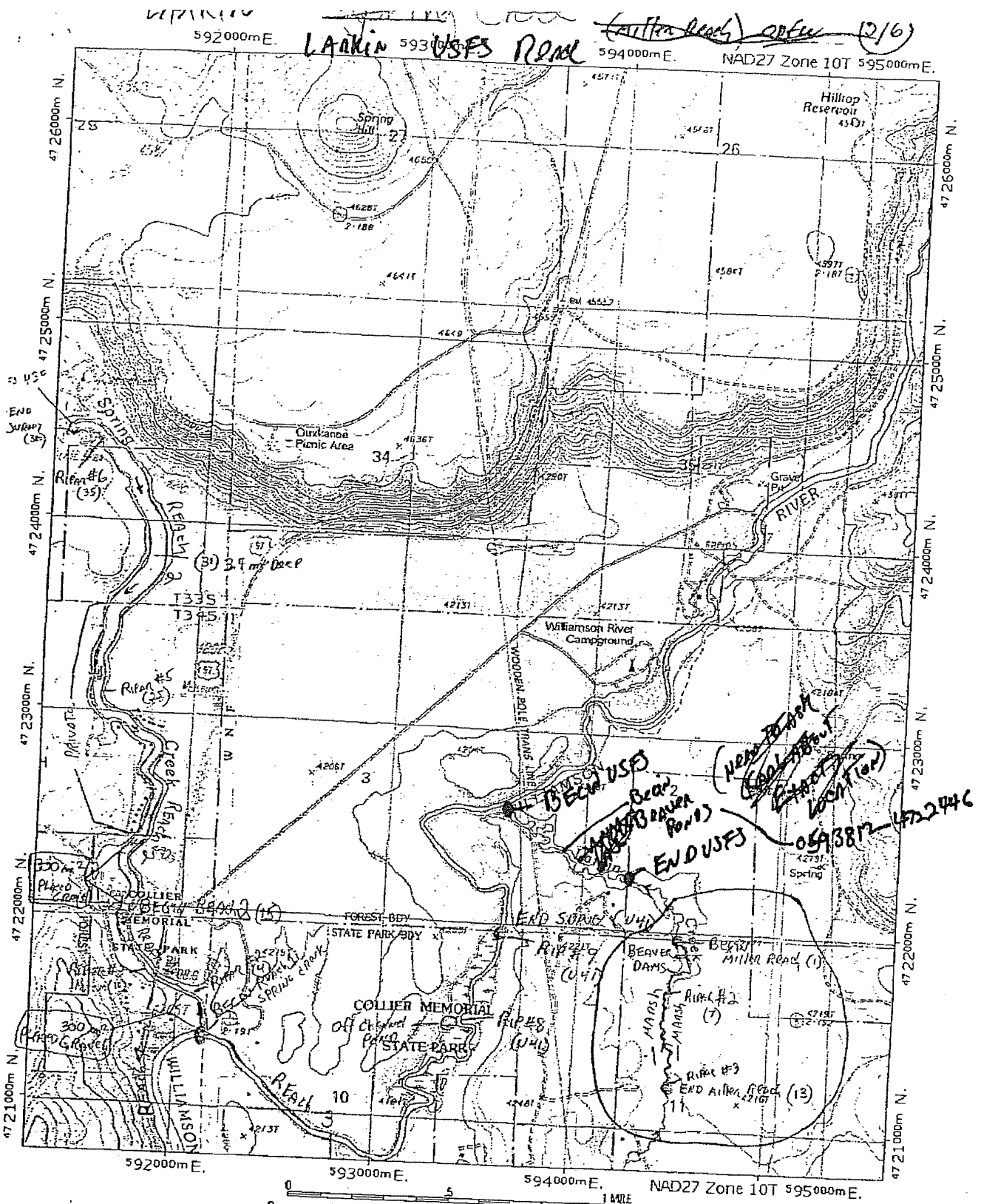
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Stream: Larkin Creek
Tributary to: Williamson River
Survey Type: Spawning Gravel
Access: Foot
Reach: USFS (upstream from mouth)
Start: T34S-R7-S11NE ~~350~~ 356
Quad: Soloman Butte
Date: 31 August 04
Surveyor: K. Hartzell
Report: R. Nawa, C. Huntington
Distance: 1,094 m

Approximately 356 m² of gravel suitable for spawning 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). *Section*

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



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
3	G	100	20	
8	G	100	20	
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	20	
6	G	100	100	
10	G	100	20	
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 Ripple Habitat
				Start of Beaver Dam/Pool
				Complex - Continues to
				USFS Prop. Line

Class: G= gravel; C= small cobble ($\leq 150\text{mm}$ [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

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	5	9/16/04	1043	North 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: 0593912, 4722446
7: 305 109			1150	Fourth and Largest BD: 0593939, 4722849
8: 306 110			1200	FS Fencing at Bank View Bank
9: B 111			1205	US View of Private Land
10:				
11:				
12:				
13: B 112 308	2	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:				
24:				
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35:				
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
3	G	100	20	
8	G	100	20	
8	G	100	90	
15	G	100	90	
12	G	100	100	
2	G	100	100	
18	GC	100	20	
6	G	100	50	
6	G	100	100	
20	G	100	70	
10	G	100	80	
9	G	100	60	
24	G	100	60	
28	G	100	20	
10	G	100	100	
16	GC	100	100	
8	G	100	20	
6	G	100	100	
10	G	100	20	
18	G	100	70	
28	G	100	70	
26	G	100	40	
22	G	100	100	
16	G	100	80	
10	GC	100	100	
6	G	100	100	End of Ripple 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: 1

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 9/03	U S S R V E R	9/16/04	1043	Mouth of Larkin Cr.
2300/104			1053	DS View of Channel
3301/105			1053	US View of Spawning Gravel
4302/106			1120	US View of Installed Log Step
5303/107			1130	Mussel Bed
6304/108			1135	First Beaver Dam: 0593912, 4722446
7305/109			1150	Fourth and Largest BD: 0593939, 4722349
8306/110			1200	ES Fording, RT Bank View Bank
9: B 11/307			1205	US View of Private Land
10:				
11:				
12:				
13: B 11/2/309	U	9/19/04	1235	Crooked Creek, DS View into Private Land
14: B 11/3/309	U		1236	Typical Pumice/Sand Substrate in Headwaters
15: B 11/4/310	U		1240	Headwater Glide of Crooked Cr. Temp. 49°F
16:				
17:				
18:				
19:				
20:				
21:				
22:				
23:				
24:				
25:				
26:				
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32:				
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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: Solomon 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 m² 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.

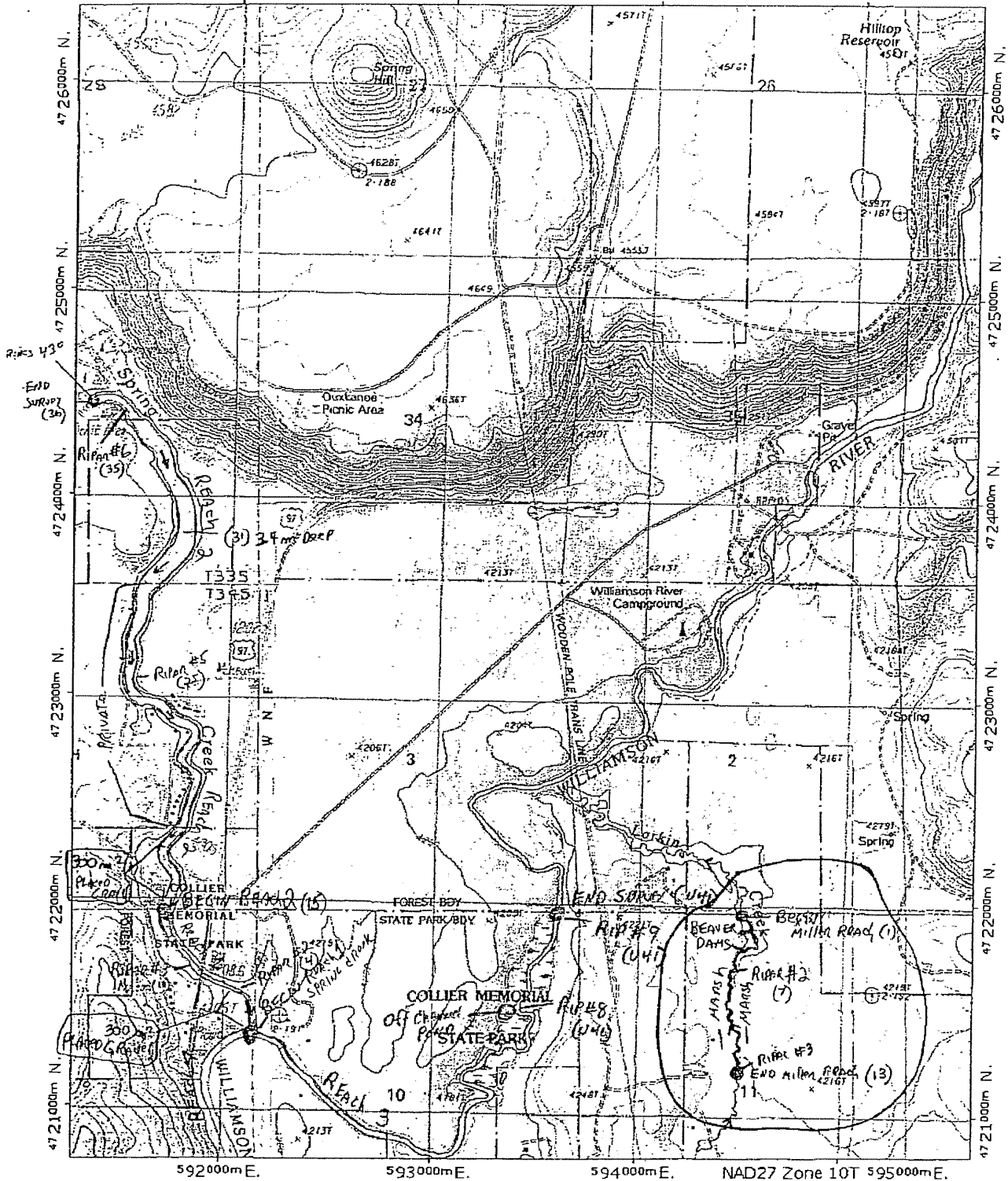
197-101

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 ~~Spring Creek~~ (Miller Reach) offw (1/6)

592000m E. 593000m E. 594000m E. NAD27 Zone 10T 595000m E.



Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

REACH: _____

STREAM: Lowkin (Miller)

PAGE: 1 OF: _____

CREW: RN, KH

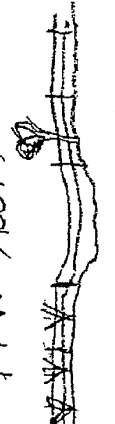
BASIN: _____

USGS 7.5' MAP NAMES:

DATE	REACH #	UNIT NUMBER	CHIANL FORM	VALLEY FORM	VVI	VEG CLASS		LAND USE		WATER TEMP	STRM FLOW	LOCATION TWP-RNG-SEC-1/4	PHOTO #	REACH NOTE
						DOM.	SUB-DOM.	DOM.	SUB-DOM.					
8/3/04	2	1	US	WF	20	P	S	RR	YT	60	LF	34E, 7E, 11, NE1/1344	E-W Fens	

UTM: _____

UTM: _____

UTM: 0594494
4721998
 ACW = 24m
 AC H = 1.0m
 FPW = > 100m


UTM: _____

UTM: _____

UTM: _____

REACH

PAGE: _____ OF: _____

STREAM: _____ CREW: _____

BASIN: _____ USGS 7.5' MAP NAMES: _____

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

UTM: _____

UTM: _____

UTM: _____

UTM: _____

UTM: _____

UTM: _____

UNIT - 1

PAGE: 1 OF 1

STREAM: LARKIN CR. (Milba Sect)

DATE: 3/18/04

ESTIMATOR: R. NAWA

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	% FLOW	UNIT LENGTH	UNIT WIDTH	SLOPE %	SHADE (0-90)		ACTIVE CHANNEL HT.	ACTIVE CHANNEL WIDTH	FLOOD PRONE		TERRACE		VWI	NOTE
								LEFT	RIGHT			HT.	WIDTH	HT.	WIDTH		
Z	1	GL	00	100	104	3.5	0	2	3	1.0	24	2.0	100			20	North Edge of Property
	2	SD	00	100	15	3.6	100	2	3								0.60 High DAM
	3	BP	00	100	150	2.8	0	2	3								
	4	GL	00	100	108	1.8	0	2	2								
	5	SD	00	100	1.5	5.0	80	3	3								
	6	BP	00	100	94	4.0	0	3	3								
	7	GL	00	100	150	5.0	0	3	2	.9	26	1.8	150			19	RIVER # 2
	8	AL	00	100	14	6	0	3	2								
	9	GL	00	100	150	4	0	3	3								
	10	GL	00	100	150	4	0	3	2								
	11	AI	00	100	23	12	0	2	2								
	12	GL	00	100	150	3.5	0	2	2								
	13	GL	00	100	35	2.1	0	2	3	.5	20	1.0	150			24	MARSH 60°E 1614

Beaver Dam

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

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
1: 197B	1	9/3/04	1349	US View from E-W Fence line
2: 198	2			DS View
3: 199	3			LB View
4: 200	4			RB View
5: 201	5	2,3	1415	LB View of BP
6: 202	6	3	1415	DS View of BP
7: 203	7	3	1430	DS View of BP
8: 204	8	6,6	1450	US View of BD + BP
9: 205	9	11	1530	RB View Including A/Cave
10: 206	10	13	1614	US View from E-W Fence line
11: 207	11	13		DS View
12: 208	12	13		LB View
13: 209	13			RB View
14:				
15:				
16:				
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101 Cover A

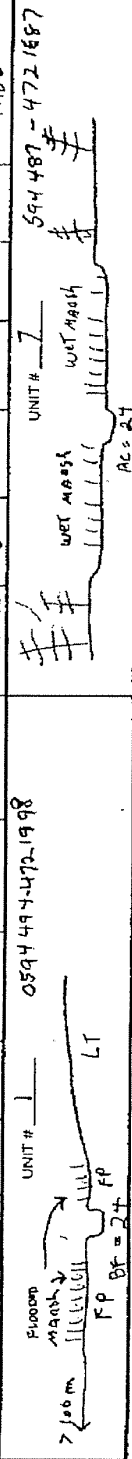
RIPARIAN

PAGE: 1 OF 2
 NAME: R. NAWA

DATE: 31 AUG. 04

STREAM: LARKIN CR. (Milton Ranch)

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



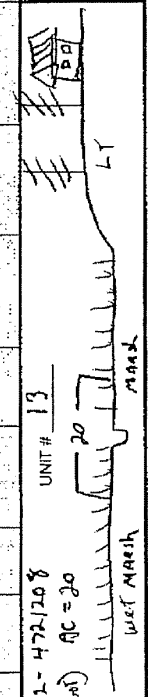
RIPARIAN

PAGE: 2 OF 2
 NAME: R. NAVA

DATE: 3 Aug 04

STREAM: Lark Creek (Miller Road)

UNIT NUMBER	SIDE	ZONE	SURFACE	SLOPE	CANOPY CLOSURE	SHRUB % COVER	GRASS/FORB % COVER	TREE	COUNT (DBH in CENTIMETERS)				RIPARIAN NOTE	
									3-15	15-30	30-50	50-90		90+
13	LEFT	1	FP	0	0	0	100	CONIFER						
		2	FP	0	0	0	100	HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
13	RIGHT	1	FP	0	0	0	100	HARDWOOD						
		2	FP	0	0	40	100	CONIFER						
		3	FP	0	20	20	100	HARDWOOD						
	LEFT							CONIFER						
		2						HARDWOOD						
		3						CONIFER						
	RIGHT	1						HARDWOOD						
		2						CONIFER						
		3						HARDWOOD						
594511-472/208 (unit) AC=20 West Marsh 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.

Milka
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)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0%	Constraining Terraces	0%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	100%
Valley Width Index 14 24		WVI Range: 8-10 19-28	

Channel Morphology (Percent Reach Length)

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

Channel Characteristics

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

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u> n = 3	<u>First Terrace</u> 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 Entrenchment (ACW:FPW ratio): 5.8
 Stream Flow Type: LF Habitat Units/100m (total channel length): 1.1
 Average Unit Gradient 0.2% Habitat Units/100m (primary channel length) 1.2
 Water temperature (°C) 18.0 - 18.0

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	RR	YT
Riparian Vegetation:	P	S

Bank Condition and Shade

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

Large Wood Debris

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

Checked 10-31
CWH

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		Large Boulders		
					(m ²)	Percent	Number	(# / 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						Large Boulders (#>0.5m)
					Percent Wetted Area						
					S/O	Snd	Grv	Cbl	Bldr	Bdrk	
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		Zone 2		Zone 3		Zones 1-3	
	0-10 meters		10 - 20 meters		20 - 30 meters		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		Zone 2		Zone 3	
	0-10 meters		10 - 20 meters		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		Zone 2		Zone 3	
	0-10 meters		10 - 20 meters		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	

RIPARIAN ZONE VEGETATION

Reach 1

Reach 1

Unit	Side	Zone	Surface	Slope	Cover (percent)				Diameter class (cm)					Notes	
					Canopy	Shrub	Grass		3-15	15-30	30-50	50-90	>90		
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							

OREGON DEPARTMENT OF FISH AND WILDLIFE
HABITAT INVENTORY - RIPARIAN SURVEY

LARKIN CREEK

8/31/2004

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 class (cm)	Zones 1-3 0-30 meters	
	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	YVI	VEG CLASS DOM.	SUB-DOM.	LAND USE DOM.	SUB-DOM.	WATER TEMP	STRM FLOW	LOCATION TWR-RNG-SEC-1/4	PHOTO #	REACH NOTE
9/3/04	Miller	1	US	WF	12	P	S	RR	YIT	60°	LF	345, TE11, NE1	1348	BEAN FENCE

Miller
 UTM: 0594494
 4721998
 ACW = 24m
 AC H = 1.0m
 FPN = > 100m

UTM: _____

UTM: _____

UTM: _____

UTM: _____

PHOTO RECORD

PAGE: 1 OF:

STREAM: Larkin SURVEY TYPE: OR. PLAN BASIN MIXED

BASIN OR GCS: Williamson FILM: DIGITAL SLIDE PRINTS

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

PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1: 197B	1	9/3/04	1348	US View from E-W Fence line
2: 198	2		↓	DS View
3: 199	3		↓	LB View
4: 200	4		↓	RB View
5: 201	5		↓	LB View of BP
6: 202	6		↓	US View of BP
7: 203	7		↓	DS View of BP
8: 204	8		↓	US View of BD & BP
9: 205B	9		↓	RB View Including Alcas
10: 206	10		↓	US View from E-W Fence line
11: 207	11		↓	DS View
12: 208	12		↓	LB View
13: 209	13		↓	RB View
14: 209A				
15:				
16:				
17:				
18:				
19:				
20:				
21:				
22:				
23:				
24:				
25:				
26:				
27:				
28:				
29:				
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31:				
32:				
33:				
34:				
35:				
36:				
37:				
38:				
39:				
40:				

UNIT - 1

PAGE: 1 OF 1

ESTIMATOR: R. NAUSA

DATE: 3/19/04

STREAM: LARKIN CR. (MIDDLE FORK)

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	% FLOW	UNIT LENGTH	UNIT WIDTH	SLOPE %	SHADE (0-90)		ACTIVE CHANNEL HT.	ACTIVE CHANNEL WIDTH	FLOOD PRONE		TERRACE		NOTE
								LEFT	RIGHT			HT.	WIDTH	HT.	WIDTH	
1	1	GL	00	100	104	3.5	0	2	3	1.0	24	20	100			NEAR EDGE of Tributary
1	2	SD	00	100	13	3.6	100	2	3							0.60 High DAM
1	3	RP	00	100	150	2.8	0	2	3							
1	4	GL	00	100	108	1.9	0	2	2							
1	5	SR	00	100	1.5	50	80	3	3							0.50 High DAM
1	6	RP	00	100	94	4.0	0	3	3							
1	7	GL	00	100	150	3.0	0	2	2	1.9	26	1.8	150			RICA # 2
1	8	RL	00	100	14	6	0	2	2							
1	9	GL	00	100	150	4	0	3	3							
1	10	GL	00	100	150	4	0	3	2							
1	11	AI	00	100	23	1.2	0	2	2							
1	12	GL	00	100	150	3.5	0	2	2							
1	13	GL	00	100	35	2.1	0	2	3	1.5	20	1.0	150			MAASH 60' 1614

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

UNIT-2

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

PAGE: 1 OF: 1

UNIT #	UNIT TYPE	DEPTH*	DEPTH** FTC	VERIFIED LENGTH	WIDTH	PERCENT SUBSTRATE			BLDR COUNT	% ACTIVE EROSION	% UNDER CUT	COMMENT CODES	NOTE
						S/O	SND	GRVL					
1	GL	0.9				100				0	0		Started E-W Flow Depth = 1.5 Depth = 1.2 Depth = 1.0 Depth = 0.8 Depth = 0.7 Depth = 0.6 Depth = 0.5 End @ E-W Flow
2	SD	0.5				100				0	0		
3	BD	1.2				100				0	0		
4	GL	0.8				100				0	0		
5	BD	0.8				100				0	0		
6	GL	0.8				100				0	0		
7	AL	0.7				100				0	0		
8	GL	0.6				100				0	0		
9	GL	0.9				100				0	0		
V10	AL	0.9				100				0	0		
11	GL	0.6				50	40			0	0		
12	GL	0.6				50	70			0	0		
13	GL	0.5											
V													
V													

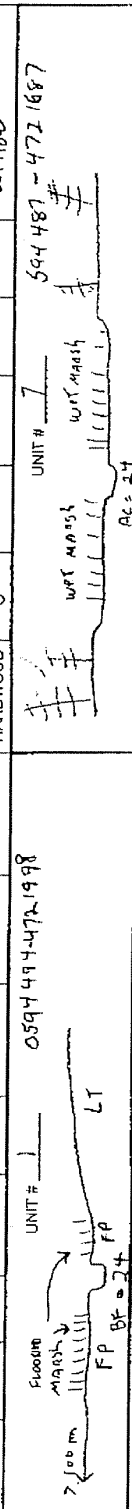
AX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS

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

RIPARIAN

STREAM: Lankiw Cr. (Milla Ranch) DATE: 31 AUG 04 NAME: R NAWA PAGE: 1 OF: 2

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



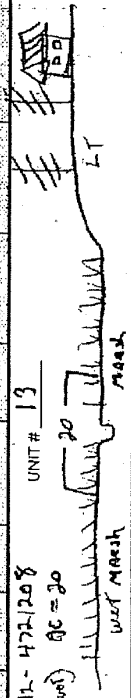
RIPARIAN

PAGE: 2 OF 2
 NAME: R. NAVA

DATE: 21 Aug 04

STREAM: Lark Creek (Miller Road)

UNIT NUMBER	SIDE	ZONE	SURFACE	SLOPE	CANOPY CLOSURE	SHRUB % COVER	GRASS/FORB % COVER	COUNT (DBH in CENTIMETERS)					RIPARIAN NOTE	
								TREE	3-15	15-30	30-50	50-90		90+
13	LEFT	1	FP	0	0	0	100	CONIFER						
		2	FP	0	0	0	100	HARDWOOD						
		3	FP	0	0	0	100	CONIFER						
13	RIGHT	1	FP	0	0	0	100	HARDWOOD						
		2	FP	0	0	40	100	CONIFER						
		3	FP	0	20	20	100	HARDWOOD						
	LEFT	1						CONIFER						
		2						HARDWOOD						
		3						CONIFER						
	RIGHT	1						HARDWOOD						
		2						CONIFER						
		3						HARDWOOD						
594511-4721208 (wet)														



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.