8-17-2004

Ex. 280-US-440

R. Nawa
Oregon Department of Fish and Wildlife

C. Huntington
Oregon Department of Fish and Wildlife

Stream: Sprague River
Tributary to: Williamson River
Reach: 9B Anderson
Survey Type: ODFW Stream Habitat
Access: Canoe
Start: T36S-R12E-S14NE
Quad: Beatty, Ferguson Mountain
Date Surveyed: 17 August 04
Surveyors: R. Nawa K. Hartzell
Report: R. Nawa, C. Huntington
Distance Surveyed: 3.4 km

Land Use
Light grazing and hay production.

Valley and Stream Channel Geometry
The 0.03 percent gradient river was in a broad valley over 1 km wide. Sinuosity was high (1.7). Low terraces sloped abruptly to constrain narrow floodplains adjacent to the 35 m wide river.

Substrate
The streambed was very fine textured. An estimated 90 percent of the streambed was sand/organics; 10 percent was gravel. Riffles were fine textured gravel (42%) and sand (58%).

Spawning Gravel
About 16 m^2 of spawning gravel was found at a lateral bar in unit 1 but 90 percent of the gravel was dry (Photo 76). Surveyors recorded an estimated 2 m^2 of spawning gravel suitable for steelhead at existing low flows (1 m^2/km). An additional 14 m^2 (4 m^2/km) would become available at bankful flows. A riffle at unit 10 had 150 m^2 of marginal spawning gravel (5mm-20mm). A riffle at unit 6 had 200 m^2 of marginal spawning gravel (Photo 84). A mid-channel bar in unit 12 had 300 m^2 of marginal spawning gravel (8-25mm). A total of 650 m^2 of marginal spawning gravel was not judged suitable for salmon and steelhead spawning.

Riparian Vegetation
Sagebrush and grass dominate the riparian zone with occasional patches of willows (Photo 76). A large willow thicket is on the right bank where the railroad crosses the river (unit 14). Existing grass and shrub cover is inadequate to stabilize streambanks. About 30 percent of streambanks were actively eroding. Shade from terraces and willow patches averaged only 5 percent.

Wood
The reach had very low amounts of wood debris (0.1 pieces/100m) because streambanks lack tree cover.

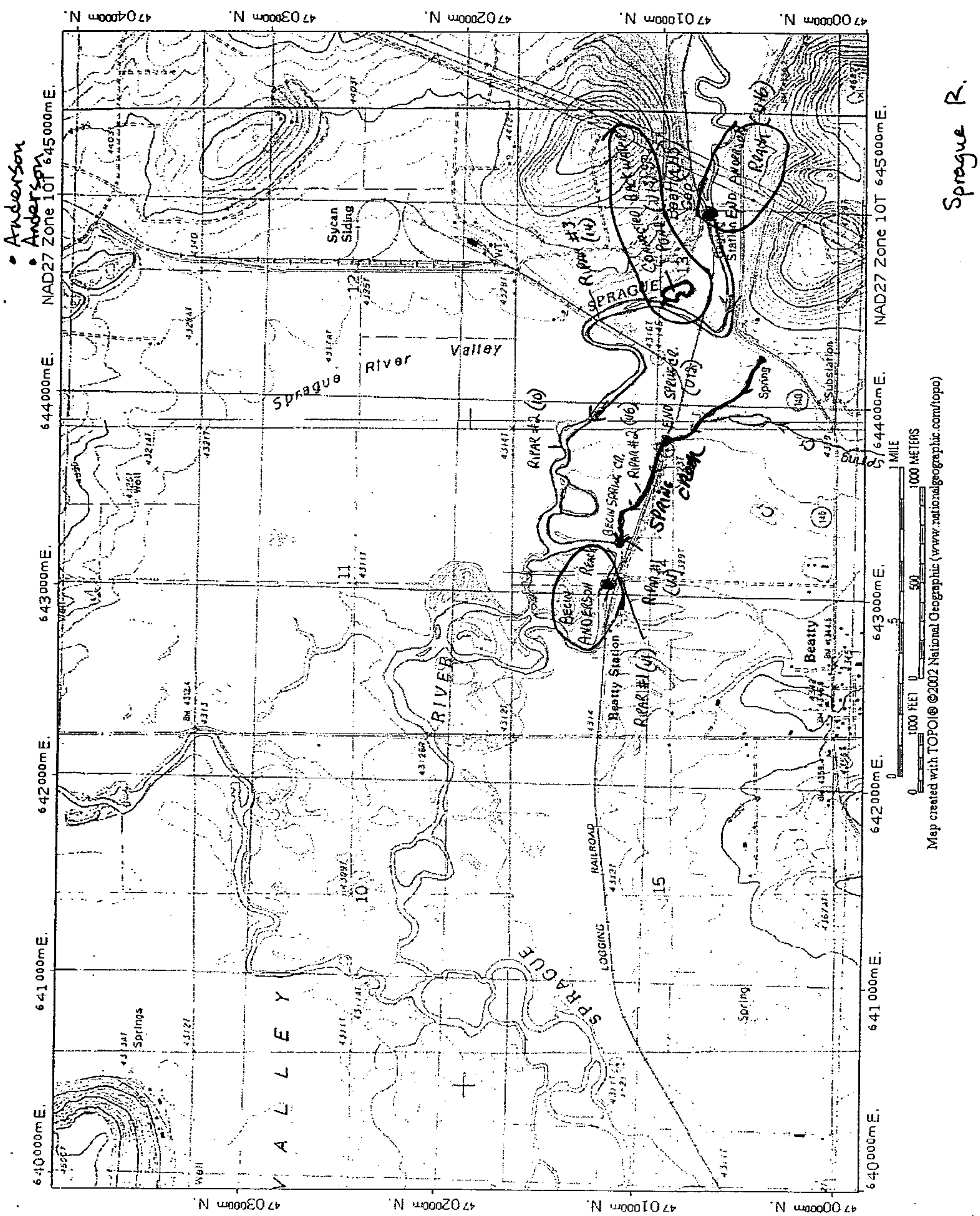
Rearing and Adult holding Habitat
Due to very low stream gradient, the reach consisted of long scour pools and glides (70m-1265 m). Pools were segregated from glides based on maximum pool depths that ranged from (1.0 m- 2.5 m). Residual pool depths averaged 1.0 m. Glides averaged about 0.5 m deep. A 1.6 ha off channel pond at unit 16 (Map) has high potential for rearing juvenile fish. The pond has an outlet to the mainstem Sprague but no apparent inlet.

Stream Temperature

Spring Creek (18.9°C) lowered the temperature of the Sprague River from 20.5°C to 20°C for about 100 m 1500 (pdt).

Photo 76 Unit 1
Marginal spawning gravel was found at lateral and mid-channel bars.

Photo 84 Unit 6
Marginal spawning gravel (5mm-20mm) was not judged suitable for spawning steelhead and salmon. Tape is in inches.



NAD27 Zone 10T
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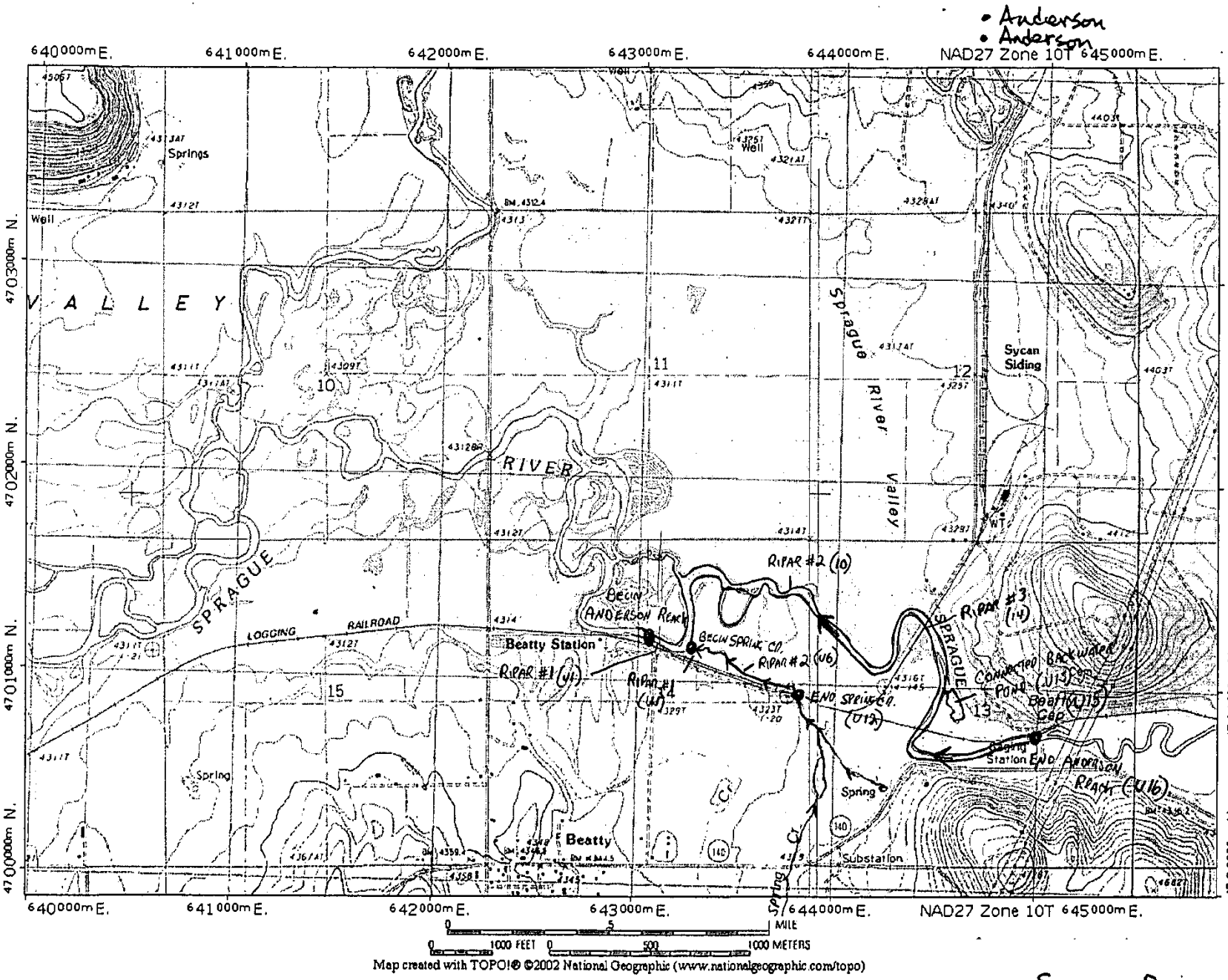
644000mE.
643000mE.
642000mE.
641000mE.
640000mE.
4704000m N.
4703000m N.
4702000m N.
4701000m N.
4700000m N.
Sycan Siding
Sprague River Valley
SPRAGUE
RIVER
SPRAGUE
VALLEY
LOGGING
RAILROAD
Beatty Station
Beatty
Spring
Springs
Well
Substation
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)
1 MILE
1000 FEET
1000 METERS
Anderson
Anderson
Sprague R.


• Anderson
• Anderson
640000m E.
641000m E.
642000m E.
643000m E.
644000m E.
NAD27 Zone 10T 645000m E.
4704000m N.
4703000m N.
4702000m N.
4701000m N.
4700000m N.
VALLEY
SPRAGUE
RIVER
Sprague River Valley
Springs
Well
BM 4312.4
Sycan Siding
LOGGING RAILROAD
Beatty Station
Beatty
Spring
Substation
Spring Ct
BEGIN ANDERSON REACH
BEGIN SPRING CR.
END SPRING CR. (U12)
RIPAR #1 (U1)
RIPAR #2 (U6)
RIPAR #2 (10)
RIPAR #3 (14)
CONNECTED BACKWATER POND (U15)
Boat (U15)
END ANDERSON REACH (U16)
10
11
12
13
14
15
0 5 MILE
0 1000 FEET 0 500 1000 METERS
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Sprague R.

REACH

PAGE: 1 OF:

STREAM: Sprague (Anderson Property)

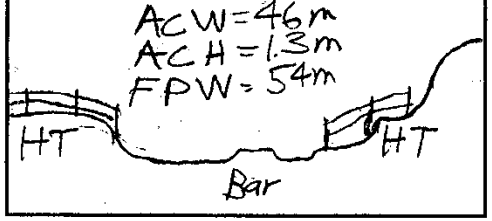
CREW: KH, RN

BASIN: Sprague

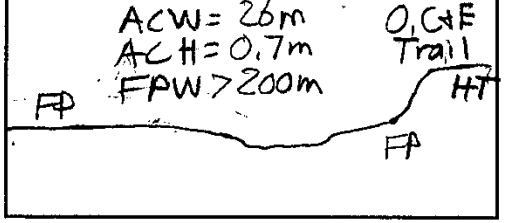
USGS 7.5' MAP NAMES:

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
8/17/04	Anderson	1-16	CT	CT	22	P	S	AG	LG	69°F	LF	36S,12E,14,NE	74/1430	N-S Fenceline
8/17/04		1-12	US	WF	30	P	S	AG	LG	66° F	LF	36S,12E,14,NE	78/1505	Conf. w/Sprague

Anderson UTM: 0643044 4701226



Spring Cr. UTM: 0643258 4701190



UTM:

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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:_____

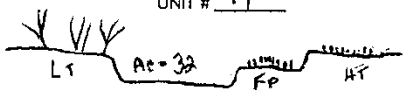
RIPARIAN

PAGE: 2 OF: 2

STREAM: SPRAGUE ANDERSON CREEK DATE: NAME:

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
	LEFT	1	FP	10	0	0	80	CONIFER						
								HARDWOOD						
		2	LT	0	0	0	40	CONIFER						
								HARDWOOD						
		3	LT	0	0	0	40	CONIFER						
								HARDWOOD						
	RIGHT	1	FP	12	40	40	60	CONIFER						
								HARDWOOD						
		2	LT	4	20	40	40	CONIFER						
								HARDWOOD						
		3	LT	0	40	60	40	CONIFER						
								HARDWOOD						
	LEFT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						
	RIGHT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						

UNIT # 14



Above Rail crossing

#3

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.

RIPARIAN

PAGE:_____ OF:_____

STREAM:_____ DATE:_____ NAME:_____

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
	LEFT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						
	RIGHT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						
	LEFT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						
	RIGHT	1						CONIFER						
								HARDWOOD						
		2						CONIFER						
								HARDWOOD						
		3						CONIFER						
								HARDWOOD						

UNIT # _____

UNIT # _____

WOOD

PAGE: 1 OF: ____

STREAM: Sprague (Anderson) DATE: 8/17/04 NAME: Hartzell

UNIT NUMBER	UNIT TYPE	DEBRIS CONFIG	DEBRIS TYPE	DEBRIS LOCAT	DBH CLASS	LENGTH CLASS (m) RW <3	3	6	9	12	15	18	21	24	28	32	36+	WOOD NOTE
13	LP	S	N	S	15		1											
14	GL	S	N	S	15		1											
15	SP	S	N	S	30			1										
16	SP	S	N	S	15		1											

WOOD

PAGE:_______ OF:_______

STREAM:_______________ DATE:_______________ NAME:_______________

UNIT NUMBER	UNIT TYPE	CONFIG	DEBRIS TYPE	LOCAT	DBH CLASS	RW <3	3	6	9	12	15	18	21	24	28	32	36+	WOOD NOTE
						LENGTH CLASS (m)												

UNIT-2

PAGE: 1 OF: 1

STREAM: SPRAGUE (ANDERSON REACH) DATE: 17 AUG 04 NUMERATOR: R. NAWA

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	.45				100										Small 2nd Raid Culvert
2	RI	.35				80		20								80% < 1"
3	LP	1.0	.21			100										
4	RI	.40				100										90% < 1" SPRING CR
5	GL	.55				80		20					40			
6	RI	0.30				40		60					50			< 1" 95%
7	GL	.60				90		10					60			
8	RI	0.30				40		60					50			< 1" 95%
9	LP	2.5	.40			100							60			
V 10	RI	.20				30		70					70			.3 - .7 inches
11	LP	1.8	.40			100							30			
12	GL	0.4				30		70					40			.3 - 1 inch
13	LP	1.2	.45			80		15			5		50			
14	GL	0.6				100							20			
15	SP	1.4				100							20			Bankwide slough of Acres
16	SP	.5	.			100							20			
V																
V																

AX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS

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

UNIT-2

PAGE: 1 OF: ______

STREAM: WOOD R. (Kimball Park) DATE: 9 AUG 04 NUMERATOR: R. NAWA

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 Begin 0583332 - 4732373 west Franklin LG
1	C	1.6 (.7)	119.+	84+86 KC		60		~~40~~				10	100 m	90		Mostly Fine G <1"
2	RI	.030		329			20	80				11	130 m		MANY SS	Mostly Fine Gravel < 1", 47° @ 1050
3	LP	3.5	.55	~~352~~ 350		45		5				30,12,+26			MANY SS	53° @ 1130
4	G	0.20				50		50				23			SS	
																Above TI = 44°
															WOOD R. Spring	TI = 43 } 1200
																Below TI = 44
V																
V																
V																

AX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS

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

Siskiyou BLVD one way North E/ Florin

PHOTO RECORD PAGE: 1 OF:

STREAM: Sprague R. (Anderson) SURVEY TYPE: OR. PLAN ☐ BASIN ☒ MIXED ☐

BASIN OR GCG: Sprague FILM: DIGITAL ☒ SLIDE ☐ PRINTS ☐

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

	PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1:	A 74	1	8/17/04	1430	Left Bank View @ Beginning of Reach
2:	75	1			Right " " " " " "
3:	76	1			US View @ " " "
4:	77	1		↓	DS View @ " " "
5:	78	4		1505	US View of Sprague + Spring Cr. Confl.
6:	79	4			DS View of Sprague + Spring Cr. Confl.
7:	80	4			Lt Bank View
8:	81	4	↓	↓	Rt Bank View
9:	82	105	8/17/04	1605	View of Beaver Dam UTM 643742 4700990 Spring Ser.
10:	83	93	8/17/04	1700	Left to Rt. View of Wolman Count Site
11:	84	6	"	1800	Bar Gravel
12:	85	10		1835	View of Spawning Gravel on Sprague R. Bar
13:	86	10		1840	US View
14:	87	10		↓	DS View
15:	A 88	10	↓	↓	Left Bank View
16:					
17:					
18:					
19:					
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38:					
39:					
40:					

Spring up

Sprague

PHOTO RECORD

PAGE:_____ OF:_____

STREAM:_____ SURVEY TYPE: OR. PLAN ☐ BASIN ☐ MIXED ☐

BASIN OR GCG:_____ FILM: DIGITAL ☐ SLIDE ☐ PRINTS ☐

SURVEY CREW:_____ ROLL #:_____ MAILER #:_____

PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1 :				
2 :				
3 :				
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UNIT - 1

PAGE: 1 OF: _____

STREAM: Sprague (Anderson Property) DATE: 9/17/04 ESTIMATOR: Haltzell

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
Anderson	1	GL	00	100	108	39	0.5	3	18	1.3	46	2.6	54	2.8	60	22	FC
	2	RI	00	100	42	35	0.5	2	14								
	3	LP	01	80	40	34	0.5	3	2								
	4	RI	11	20	70	9	1.0	2	10	0.7	26	1.4	7200	5.0		33	Spring Cr. → Rt. Terrace Only
	5	GL	00	100	260	33	0.5	4	2								
	6	RI	01	70	250	45	1.0	2	7								
	7	GL	11	30	112	19	0.5	2	7								Side Channel For Sprague
	8	RI	00	100	40	37	1.0	2	5								
	9	LP	00	100	155	30	0.5	2	5								
	10	RI	00	100	95	40	1.0	3	2	0.75	42	1.5	44	2.0	46	19	Lt. Terrace Only
	11	LP	00	100	860	36	0.5	2	2								
	12	GL	00	100	130	35	0.6	8	8								
	13	LP	00	100	150	18	0.5	2	11								
	14	GL	01	100	70	32	0.5	3	8	1.1	36	2.2	53	2.4	56	21	Lt. Terrace Only BC
	15	SP	01	90	1265	34	0.5	5	9								BC
↓	16	SP	11	10	180	90	0.5	3	4								Side Channel Pool with no apparent inflow from main channel; only outflow into latter

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

Unit 15 Ends @ USGS Gaging Station

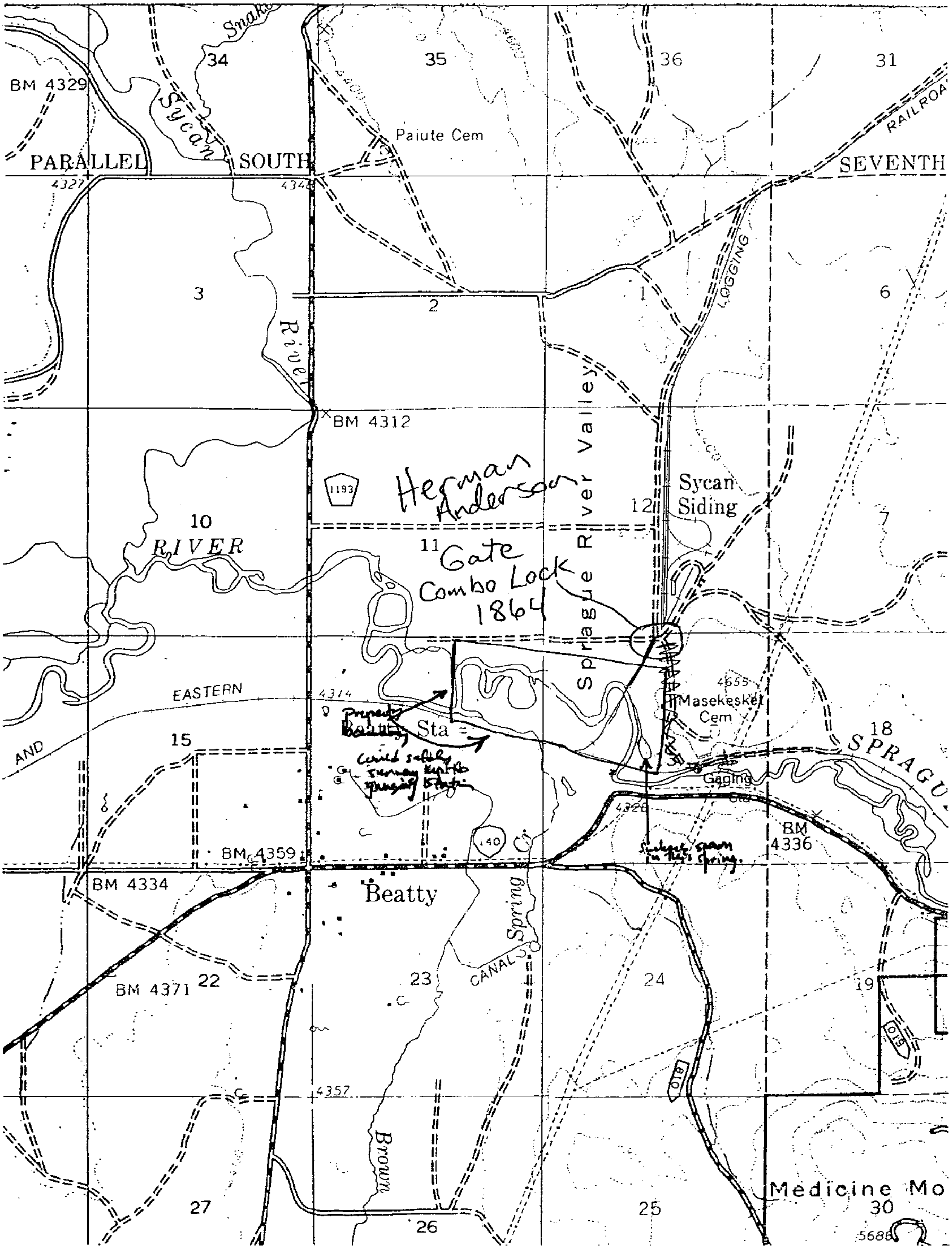
UNIT - 1

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.


Snake
Sycan
34
35
36
31
BM 4329
Paiute Cem
RAILROAD
PARALLEL
SOUTH
SEVENTH
4327
4346
LOGGING
3
2
1
6
River
BM 4312
Sprague River Valley
1193
Herman Anderson
Sycan Siding
12
10
RIVER
11
Gate
Combo Lock
1864
7
EASTERN
4314
4655
Masekesket Cem
AND
Beatty Sta
18
SPRAGUE
15
Gaging Sta
4326
140
BM 4336
BM 4359
BM 4334
Beatty
Spring Cr
CANAL
22
BM 4371
23
24
19
4357
Brown
27
26
25
Medicine Mo
30
5686

SPAWNING HABITAT FORM

Stream SPRAGUE R. Reach ANDERSON Date 17 AUG 04

Surveyor(s) R. NEWMAN / K. HARRELL

Surface area (m^2)	Class (G, GC, C)	Percent wetted	Percent usable	UNIT	Comments
16	G	10	0	1	EXPOSED LATERAL BAR >50% SAND
SPRING CREEK			SPRING	CREEK	
3	G	100	100	6	
6	G	100	0	7	<6"
15	G	80	70	8	MOST SIZE <1"
7	G	100	60	9	<6"
2	G	100	100	10	

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

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.