

8-10-2004

Ex. 280-US-435

R. Nawa
Oregon Department of Fish and Wildlife

C. Huntington
Oregon Department of Fish and Wildlife

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Stream: Sprague River
Tributary to: Williamson River
Reach: 8A Kirk
Survey Type: ODFW Stream Habitat
Start: T36S-R11E-S10NW RM 49.5
Quad: Sprague River West
Date Surveyed: 10 August 04
Surveyors: R. Nawa K. Hartzell
Report: R. Nawa, C. Huntington
Distance Surveyed: 1.5km

Land Use

Land use is light grazing with heavy use in some areas (Photo 71).

Valley and Stream Channel Geometry

The map measured 0.03 percent gradient river was in a broad valley over 1000 m wide. Sinuosity was uncharacteristically low (1.1). Low terraces sloped abruptly to constrain narrow (<8m) floodplains adjacent to the 58 m wide river.

Substrate

The streambed was very fine textured. An estimated 93 percent of the streambed was sand/organics; seven percent was gravel.

Spawning Gravel

A riffle formed by a mid channel bar was 30 percent 25 mm gravel and 70 percent sand/silt (Photo 68). An estimated 200 m² of gravel was judged to be unsuitable for salmon spawning due to high sand and fine gravel content (Photo 67).

Riparian Vegetation

Sagebrush and grass dominate the riparian zone. Streambanks lacked woody vegetation due to livestock grazing (Photo 71). In some areas all vegetation had been removed from streambanks leaving the soil vulnerable to erosion. Existing grass and shrub cover is inadequate to stabilize streambanks. About 21 percent of streambanks were actively eroding. Shade from terraces averaged only 3 percent.

Wood

The reach had low amounts of wood debris (<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 (170-790 m). Pools were segregated from glides based on maximum depths that ranged from (2.6m-2.8 m). Residual pool depths averaged (2.1 m). Glides averaged about 0.5 m deep. Rooted aquatic vegetation was abundant in areas less than 1.5 m deep. About 8 percent of streambanks were undercut. Pool depths >1 m, dense aquatic vegetation, and undercut streambanks provide cover for fish.

Stream Temperature

Maximum spot stream temperature was 23.5°C at 1045 pdt.

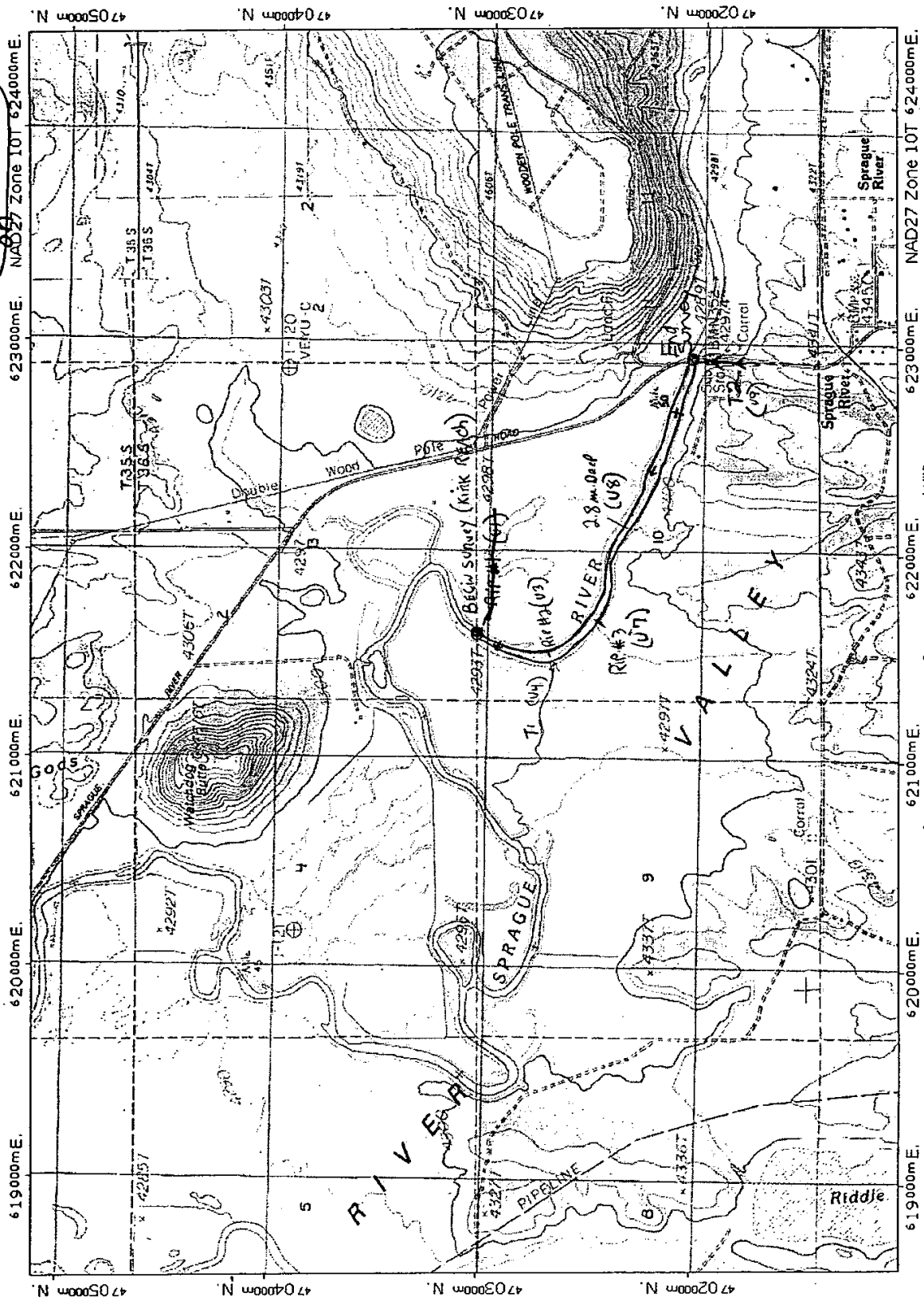
Photo 67 Unit3
Fine gravel judged
unsuitable for
salmon spawning

Photo 68 Unit 3
Shallow riffle with
fine gravel deposit
(foreground, middle)

Photo 71 Unit 6
Lack of riparian
vegetation resulted
in 21% streambank
erosion and only 3%
shade.

LOWRY • KIRK
SA

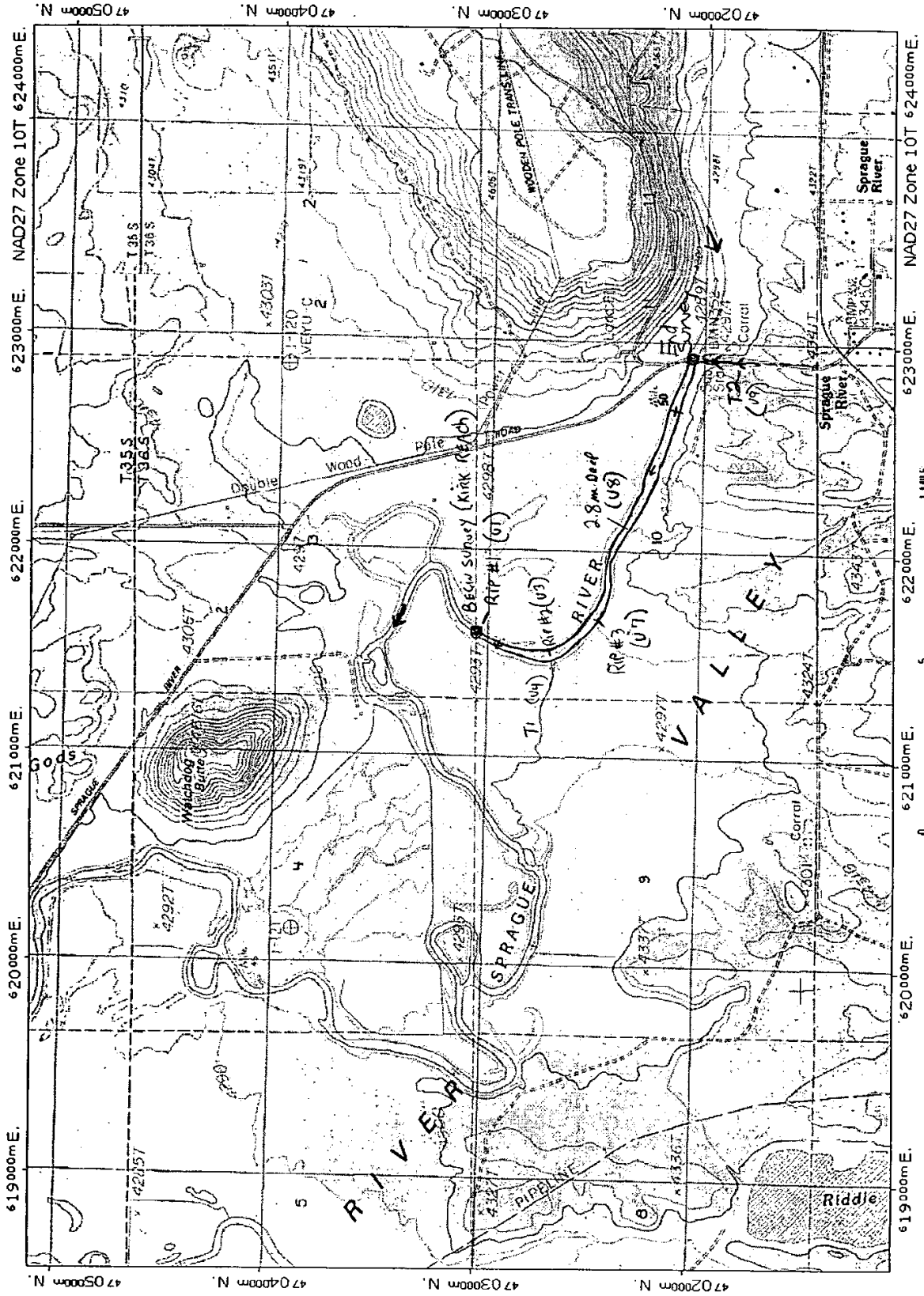
RM/KH 10AVU04



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

Sprague R.

KM/JKH 10AVL04 Lower • Kirk



Sprague R.

PHOTO RECORD

PAGE: 1 OF:

STREAM: Sprague (Lower Kirk Road) SURVEY TYPE: OR. PLAN BASIN MIXED

BASIN OR GCG: Sprague FILM: DIGITAL SLIDE PRINTS

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

PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1: A 63	1	9/10/04	1045	US View From Sec. Line Fence - Kirk
2: 64	1		1045	US View " " " "
3: 65	1		1045	Left Bank View of Sec. Line Fence
4: 66	1		1045	Right Bank View of Sec. Line Fence
5: 67	3		1130	Unit 3 Riffle Substrate
6: 68	3		1145	Unit 3 Riffle View from Left Bank
7: 69	3		1155	Unit 3 Riffle Substrate
8: 70	3		1205	0-3 Rt. Bank Inflow of Side Channel
9: 71	6		1220	Unit 6 Left Bank View of Limestone
10: 72	6		1225	" " " "
11: A 73	8	↓	1300	Unit 8 Pool US View of Bridge Piers
12:				
13:				
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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:				
4:				
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40:				

UNIT - 1

PAGE: 1 OF: 1

ESTIMATOR: Hartzell

DATE: 8/10/04

* STREAM: Sprague (Lower Kirk Reach)

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	% FLOW	UNIT LENGTH	UNIT WIDTH	SLOPE %	SHADE (0-90)		ACTIVE CHANNEL HT.*	FLOOD PRONE		TERRACE		NOTE	
								LEFT	RIGHT		HT.	WIDTH	HT.	WIDTH		VWI
1	1	GL	00	100	250	40	0.5	2	3	1.2	52	2.4	74	3.4	70	Temp. 73° @ 1000
2	2	GL	00	100	170	45	0.5	2	3	0.6	65	1.2	76	2.4	85	
3	3	RP	01	99	142	56	0.5	3	3							RT. Bank Trnb < ICE
4	4	RP	01	1	15	3.5	0.5	3	3							
5	5	GL	00	100	188	44	0.5	3	3							
6	6	LP	00	100	210	45	0.5	3	3							
7	7	GL	00	100	170	46	0.5	3	3	1.1	57	2.2	75	3.2	81	9
8	8	LP	01	99	190	46	0.5	3	3							Ended @ Bridge
9	9	GL	11	1	5	1.6	1.5	15	16							RT. Bank Trnb. 800 @ 1330

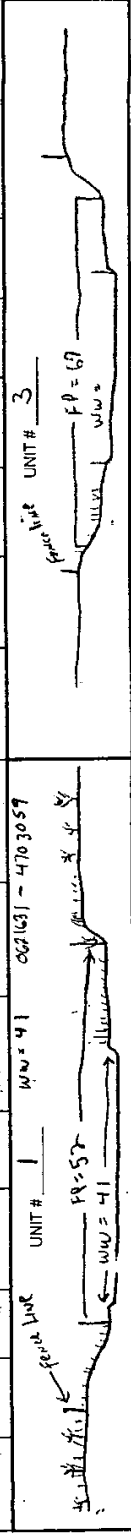
* MEASURE FROM THE STREAMBED TO THE TOP OF THE ACTIVE CHANNEL. TAKE THE MEASUREMENT AT POOL TAIL. CREST ON POOL UNITS.

RIPARIAN

STREAM: SPRAGUE R. (Kick Reach)

DATE: 10 AUG 04 NAME: R. MAUER PAGE: 1 OF:

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	5	0	0	80	CONIFER						Observed
		2	LT	15	0	40	80	HARDWOOD						Sagebrush/Grass
		3	LT	0	0	60	80	CONIFER						Rushes at Edge of Riparian
1	RIGHT	1	FP	25	0	0	100	HARDWOOD						Estimating Flow in Run
		2	HT	20	0	20	80	CONIFER						
		3	HT	0	0	20	80	HARDWOOD						
3	LEFT	1	FP					CONIFER						
		2	FP	5	0	0	80	HARDWOOD						
		3	LT	0	0	80	60	CONIFER						
3	RIGHT	1	FP	5	0	0	100	HARDWOOD						
		2	FP	14	0	20	80	CONIFER						
		3	HT	1	0	40	60	HARDWOOD						



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: 2 OF 2
 NAME: R. Mann

DATE: 10 Aug 04

STREAM: Spruce r. (Lower Kink Reach)

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+	
7	LEFT	1	FP	4	0	0	100	CONIFER					
		2	FP	4	0	0	100	HARDWOOD					
		3	LT	8	0	20	40	CONIFER					
7	RIGHT	1	FP	4	0	0	100	HARDWOOD					
		2	HT	1	0	0	100	CONIFER					
		3	HT	9	0	0	100	HARDWOOD					
7	LEFT	1						CONIFER					
		2						HARDWOOD					
		3						CONIFER					
7	RIGHT	1						CONIFER					
		2						HARDWOOD					
		3						CONIFER					
												UNIT # <u>7</u>	

lowa Kiak

REACH 1 T36S-R11E-S10NW REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0%	Constraining Terraces	100%
Moderate V-shape	0%	Multiple Terraces	0%
Open V-shape	0%	Wide Floodplain	0%
Valley Width Index	3.0	WVI Range:	3 - 3

Channel Morphology (Percent Reach Length)

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

Channel Characteristics

Type	Length (m)	Area (m2)	Dry Units
Primary	1,920	87,484	0
Secondary	20	61	0

*1770
9.993
11.813*

Channel Dimensions (m)

Wetted		Active		Floodprone n = 3		First Terrace n = 3	
Width:	36.3	Width:	58.0	75.0 (74 - 76)		81.3 (78 - 85)	
Depth:	0.92	Height:	1.0	1.9 (1.2 - 2.4)		3.0 (2.4 - 3.4)	

W:D ratio: 67.8

Entrenchment (ACW:FPW ratio): 1.3

Stream Flow Type: LF

Habitat Units/100m (total channel length): 0.5

Average Unit Gradient 0.2%

Habitat Units/100m (primary channel length) 0.5

Water temperature (°C) 23.5 - 23.5

Riparian, Bank, and Wood Summary

	Primary	Secondary
Land Use:	AG	LG
Riparian Vegetation:	P	B

Bank Condition and Shade

Bank Status	Percent Reach Length	Shade (% of 180)
Actively Eroding:	21%	Reach avg: 3%
Undercut Banks:	8%	Range: 3 - 17

Large Wood Debris

	Total	Total / 100m primary channel
All pieces (>=3m x 0.15m):	5	0.3
Volume (m ³):	3	0.1
Key pieces (>=12m x 0.60m):	0	0.0

OREGON DEPARTMENT OF FISH AND WILDLIFE

SPRAGUE RIVER

HABITAT INVENTORY

Report Date: 8/26/2004

Survey Date:

8/10/2004

REACH 1		T36S-R11E-S10NW					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	5	783	35.3	0.51	33,750	0	91	0	9	0	0	0
POOL-LATERAL SCOUR	2	1,000	45.5	2.70	45,790	0	95	0	5	0	0	0
RIFFLE	2	157	29.8	0.15	8,005	0	85	0	15	0	0	0
Total:	9	1,940	36.3	0.92	87,545	0	Avg 91	0	9	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	0	0			0	0.00%	0	0.0				
Scour Pools	2	1,000	45.5	2.70	45,790	52.30%	0	0.0				
Glides	5	783	35.3	0.51	33,750	38.55%	0	0.0				
Riffles	2	157	29.8	0.15	8,005	9.14%	0	0.0				
Rapids	0	0			0	0.00%	0	0.0				
Cascades	0	0			0	0.00%	0	0.0				
Step/Falls	0	0			0	0.00%	0	0.0				
Dry	0	0			0	0.00%	0	0.0				
Culverts	0	0			0	0.00%	0	0.0				
POOL SUMMARY												
	Total of all Channel Lengths		Primary Channel Length									
	Total	# / Km	Total	# / Km								
All Pools:	2	1.0	2	1.0								
Pools >=1m deep:	2	1.0	2	1.0								
Complex pools (LWD pieces>=3):	0	0.0	0	0.0								
Pool frequency (channel widths/pool):	16.7											
Residual pool depth (avg):	2.13											

STREAM SUMMARY

SPRAGUE RIVER

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Substrate Percent Wetted Area						Large Boulders (>0.5m)
					S/O	Snd	Grv	Cbl	Bldr	Bdrk	
9	1,940	36.3	0.92	87,545	91	0	9	0	0	0	0

Habitat Group	Wetted Area	
	(m ²)	Percent
Dammed & BW Pools	0	0.00%
Scour Pools	45,790	52.30%
Glides	33,750	38.55%
Riffles	8,005	9.14%
Rapids	0	0.00%
Cascades	0	0.00%
Step/Falls	0	0.00%
Dry	0	0.00%
Culverts	0	0.00%

OREGON DEPARTMENT OF FISH AND WILDLIFE

SPRAGUE RIVER

HABITAT INVENTOR Report Date: 8/26/2004

Survey Date: 8/10/2004

RIPIARIAN ZONE VEGETATION SUMMARY

REACH 1

REACH 1

Summary of Riparian Zone (0-30m) 2 transects

Total hardwoods/1000	0
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	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Canopy closure and ground cover

	Zone 1 0-10 meters	Zone 2 10 - 20 meters	Zone 3 20 - 30 meters
	(%)	(%)	(%)
Canopy closure	0	0	0
Shrub cover	0	20	50
Grass/forb cover	73	80	70

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	25	50
Low terrace	0	25	50
Floodplain	100	50	0
Wetland/meadow	0	0	0
Stream channel	0	0	0
Roadbed/Railroad	0	0	0
Riprap	0	0	0
Surface slope (%)	10	14	0

Summary of Riparian Zone (0-30m) for all reaches 2 transects

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

Total hardwoods/1000	0
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	0.0
15-30cm	0.0	0.0
30-50cm	0.0	0.0
50-90cm	0.0	0.0
>90cm	0.0	0.0

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	5	0	0	80											
								Conifer										
								Hardwood										STREAMSIDE RUSHES
1	LF	2	LT	15	0	40	80	Conifer										
								Hardwood										
1	LF	3	LT	0	0	60	80	Conifer										
								Hardwood										
1	RT	1	FP	25			100	Conifer										EST. FROM RIVER
								Hardwood										
1	RT	2	HT	20	0	20	80	Conifer										
								Hardwood										
1	RT	3	HT	0	0	20	80	Conifer										
								Hardwood										
3	LF	1	FP	5	0	0	100	Conifer										
								Hardwood										
3	LF	2	FP	5	0	0	80	Conifer										
								Hardwood										
3	LF	3	LT	0	0	80	60	Conifer										
								Hardwood										
3	RT	1	FP	5	0	0	10	Conifer										
								Hardwood										
3	RT	2	FP	14	0	20	80	Conifer										
								Hardwood										
3	RT	3	HT	1	0	40	60	Conifer										
								Hardwood										

SPRAGUE RIVER

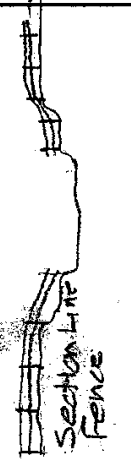
REACH	UNIT#	TYPE	CHAN	DIST.(m)	COMMENTS	NOTE_ESTIMATOR	NOTE_NUMERATOR
1	1	GL	00	250		TEMP. 23C @ 1000	EMERGENT VEG 60% BOTTOM
1	3	RI	01	562			MOSTLY FINE GRAVEL <1"
1	4	RI	11	577		RB TRIB <1CFS	
1	6	LP	00	960			LIVESTOCK GRAZING LB
1	8	LP	01	1920	BC	ENDED @ BRIDGE	BOULDER PIERS BRIDGE SUPPORT
1	9	GL	11	1925		RB TRIB; 20C@1330	20C @ 1320

REACH: Sprague R. (Lower Kirk Reach) PAGE: 1 OF: 1
 CREW: KH, RN
 BASIN: SPRAGUE USGS 7.5' MAP NAMES: _____

DATE	REACH #	UNIT NUMBER	CHANL FORM		VALLEY FORM	VVI	VEG CLASS		LAND USE		WATER TEMP	STRM FLOW	LOCATION TWIN-RING-SEC-1/4	PHOTO # / TIME	REACH NOTE
			DOM	SUB-DOM			DOM	SUB-DOM	DOM	SUB-DOM					
8/10/84	1045	1	CI	CI	CI	72.5	P	B	AG	LG	74°F	LF	38	115E, R/W	1045 Sec Line Fence

UTM: _____

UTM: _____

UTM: 062153
4703059
 ALW = 52m FFW = 74m
 ACH = 1.20m

 Section Line Fence

UTM: _____

UTM: _____

UTM: _____

WOOD

PAGE 1 OF 6

STREAM: Sprague R. (Lower Fork Reach) DATE: 8/10/04 NAME: Hartzell

UNIT NUMBER	UNIT TYPE	DEBRIS TYPE	CONFIG	LOCAT	DBH CLASS	RW <3	3	6	9	12	15	18	21	24	28	32	36+	WOOD NOTE
1	GL	U	S	N	30		1											
2	GL	U	S	N	45		1											
3	GL	U	S	S	45		2											
7	GL	U	S	S	30		1											

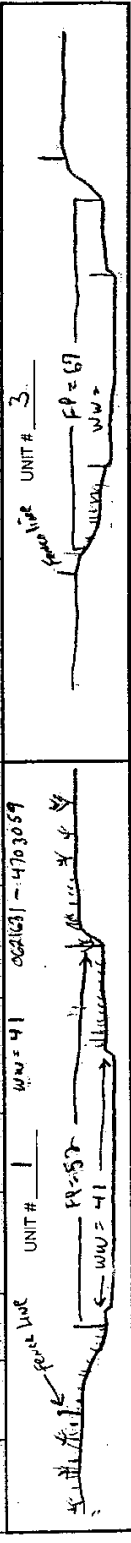
RIPARIAN

STREAM: SPRAGUE R. (Lower Kick Reach)

DATE: 10 AUG 04 NAME: R. NAWA

PAGE: 1 OF:

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	5	0	0	80	CONIFER						observed
		2	LT	15	0	40	80	HARDWOOD						Sagebrush / grass
		3	LT	0	0	60	80	CONIFER						Rushes at Edge of River
1	RIGHT	1	FP	25	0	0	100	HARDWOOD						Estimating from Area
		2	HT	20	0	20	80	CONIFER						
		3	HT	0	0	20	80	HARDWOOD						
3	LEFT	1	FP					CONIFER						
		2	FP	5	0	0	80	HARDWOOD						
		3	LT	0	0	80	60	CONIFER						
3	RIGHT	1	FP	5	0	0	100	CONIFER						
		2	FP	14	0	20	80	HARDWOOD						
		3	HT	11	0	40	60	CONIFER						



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.

UNIT - 1

PAGE: 1 OF 1
ESTIMATOR: Holtzell

STREAM: Sprague (Lower King Reach) DATE: 8/11/04

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	FLOW %	UNIT LENGTH	UNIT WIDTH	SLOPE		SHADE (0-90)		ACTIVE CHANNEL		FLOOD PRONE		TERRACE		NOTE
							LEFT	RIGHT	HT.	WIDTH	HT.	WIDTH	HT.	WIDTH	VWL		
1	GL	00	100	250	40	0.5	2	3	1.7	52	74	34	70	72.5	Temp. 73° @ 1000		
2	GL	00	100	170	45	0.5	2	3	0.6	65	76	2.4	85	72.5	RT. BANK ELEVATION 65		
3	GL	00	100	142	56	0.5	3	3	1.1	57	75	3.2	81	72.5	Imperfect Bridge		
4	GL	00	100	15	35	0.5	3	3							RT. BANK TAB. 60 @ 1830		
5	GL	00	100	188	44	0.5	3	3									
6	GL	00	100	210	45	0.5	3	3									
7	GL	00	100	170	46	0.5	3	3									
8	GL	00	100	190	46	0.5	3	3									
9	GL	00	100	15	16	0.5	15	16									

* 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 1
 STREAM: Spacoe River - (Lower Kwik Beach) DATE: 10 AUG-04 NUMERATOR: R. MAWIA

UNIT #	UNIT TYPE	DEPTH*	DEPTH** PTC	VERIFIED LENGTH	WIDTH	PERCENT SUBSTRATE			BLDR COUNT	% ACTIVE EROSION	% UNDER CUT	COMMENT CODES	NOTE
						S/O	SND	GRL					
1	G	0.7			39.42	90		10	0	20	20		Emergent Veg 60% Bottom
2	G	0.5				80		20	0	50	10		Mostly fine G & 1"
3	RI	0.25				70		30	0	50	0		
4	RI	0.04				100			0	50	0		
5	G	0.5				90		10	0	0	10		Largest CRAZYS 10
6	P	2.6	.55			95		5	0	30	0		
7	G	0.6				96		3	0	30	0		
8	P	2.8	0.6			96		5	0	70	10	bc	Barbed Poles. Barbed Supports 68° @ 135°
9	RI	0.2				100			0	60	0		
V													

1300 p.m.

AX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS
 ** ONLY MEASURED @ POOLS (EXCEPT OFF-CHANNEL POOLS)

EMO Beach - AT Highway Bridge 0622919 - 4702042.

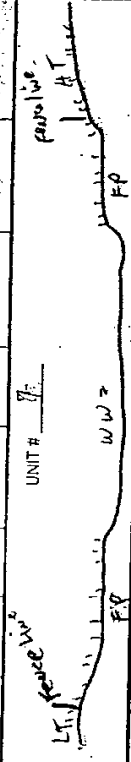
RIPARIAN

PAGE: 2 OF: 2
 NAME: R. N. Nunn

DATE: 10 Apr 04

STREAM: Spruce r. (Lower Kink Bend)

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+		
7	LEFT	1	FP	4	0	0	100	CONIFER						
		2	FP	4	0	100		HARDWOOD						
		3	LT	8	0	40		CONIFER						
7	RIGHT	1	FP	4	0	100		HARDWOOD						
		2	HT	1	0	100		CONIFER						
		3	HT	9	0	100		HARDWOOD						
7	LEFT	1						CONIFER						
		2						HARDWOOD						
		3						CONIFER						
7	RIGHT	1						HARDWOOD						
		2						CONIFER						
		3						HARDWOOD						



Stream: Sprague River
Tributary to: Williamson River
Reach: 8C Hess
Survey Type: ODFW Stream Habitat
Access: Canoe
Start: T36S-R11E-S12SW
Quad: Beatty
Date Surveyed: 20 August 04
Surveyors: R. Nawa, K. Hartzell
Report: R. Nawa, C. Huntington
Distance Surveyed: 4.3 km

Land Use

Land use is hay production and light grazing.

Valley and Stream Channel Geometry

The 0.03 percent gradient river was in a valley about 2.5 km wide. Anastomosing stream channels created high sinuosity (1.7). Low terraces sloped abruptly to constrain narrow floodplains adjacent to the 32 m wide river. The channel appeared to be locally downcutting in a hardened clay substrate which is deepening the glide at unit 3.

Substrate

The streambed was very fine textured. An estimated 86 percent of the streambed was sand/organics and 14 percent was gravel. Five riffles were fine textured gravel (28%) and sand (72%).

Spawning Gravel

About 106 m² of spawning gravel was associated with a mid-channel bar in unit 13 (Map) but 90 percent of the gravel was dry (Photos 130,131). Surveyors recorded an estimated 11 m² of spawning gravel suitable for steelhead at existing low flows (3 m²/km). An additional 95 m² (22 m²/km) would become available at bankful flows. A riffle at unit 6 had 20 m² of gravel (8-30 mm) and a dry mid channel bar in unit 11 had 80 m² of gravel (8-20 mm). Marginal spawning gravel at these 2 riffles were not judged suitable for salmon spawning.

Riparian Vegetation

Shade was only 3 percent because sagebrush and grass dominate the riparian zone (Photo 131). Riparian vegetation was inadequate to stabilize streambanks. About 23 percent of the streambanks were eroding.

Wood

The reach had no wood debris because streambanks lack tree cover.

Rearing and Adult holding Habitat

Due to very low stream gradient, the reach consisted of long scour pools (33%) and glides (50%). Pools were segregated from glides based on maximum pool depths that ranged from (1.6 m-2.6 m). Residual pool depths averaged 1.4 m. Glides averaged about 0.5 m deep. Undercut streambanks (7%) and emergent aquatic vegetation provide cover for fish.

Stream Temperature

High stream temperature (25°C at 1630 pdt) reduces salmonid rearing potential.

Photo 131 Unit 13
Fine textured gravel
deposited as mid-
channel bar.

Photo 130 Unit 13
Gravel judged suitable
for steelhead
spawning at higher
flows. Most pebbles
20 mm (1") or greater.

KT-CHIL-HABFS-00792



Sprague - Hess Reach ~~Smith~~

065272
4702372

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

R. Nantz
24 Aug 04
Sprague R.

UNIT - 1

PAGE: 1 OF 1

STREAM: Sprague (Hess)

DATE: 8/20/04

ESTIMATOR: Hantec 11

REACH #	UNIT #	UNIT TYPE	CHANL TYPE	% FLOW	UNIT LENGTH	UNIT WIDTH	SLOPE %	SHADE (0-90)		ACTIVE CHANNEL HT.*	FLOOD PRONE		TERRACE		NOTE	
								LEFT	RIGHT		HT.	WIDTH	HT.	WIDTH		HT.
1	Hess	LP	01	60	87	16	0.5	3	3						Starte N-S FL	
2		RP	01	50	62	16	1.0	3	3							
3		GL	02	40	43	16	0.5	3	3							
4		LP	02	40	60	16	0.5	2	2							
5		GL	03	100	120	17	0.5	2	2							
6		RP	00	100	40	45	0.5	2	2							
7		GL	00	100	250	30	0.5	2	2	1.0	32	2.0	45	2.2	50	72
8		GL	00	100	250	34	0.5	2	2							
9		GL	00	100	110	37	0.5	2	2							
10		SP	00	100	40	44	0.5	2	2							
11		RP	00	100	110	52	0.5	2	2	1.0	50	2.0	70	2.4	74	10
12		LP	00	100	115	37	0.5	2	2							
13		GL	00	100	250	52	0.5	3	3							
14		LP	00	100	575	40	0.5	2	2							
15		RP	00	100	170	37	0.5	2	2							
16		SP	00	100	135	30	0.5	2	2							
17		RP	00	100	145	65	0.5	2	2							
18		LP	00	100	260	43	0.5	2	2							
19		GL	00	100	185	40	0.6	2	2							
20		GL	02	40	250	24	0.5	2	2							
21		GL	01	60	250	35	0.5	2	2	1.2	32	2.4	45	2.4	45	19
22		GL	01	60	250	32	0.5	2	2							
23		GL	01	60	150	25	0.5	2	2							
24		GL	01	60	65	34	0.5	2	2							
25		RP	01	60	70	40	0.5	2	2							
26		GL	01	50	250	24	0.5	2	2							
27		AL	03	10	320	75	0.5	2	2							
28		LP	01	60	390	20	0.5	2	2							

Side Ch. off Hess Prop.

Investigation Ch. Intak
Ende N-S FL

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

UNIT-2

STREAM: SPRAGUE R. (Hess Road) DATE: 20 Aug 04 NUMERATOR: R. NAUW / K.H

PAGE: 1 OF: 1

UNIT #	UNIT TYPE	DEPTH* FT	DEPTH** FT	VERIFIED LENGTH	WIDTH	PERCENT SUBSTRATE			BLDR COUNT	% ACTIVE EROSION	% UNDER CUT	COMMENT / CODES	NOTE
						S/O	SND	GRVL					
1	LP	1.6	0.30			100				40			
2	SLP	0.6				80		20		30			74° @ 1420
3	RP	0.6				90		10		20			
4	LP	1.0	0.2			80		20		50			G is < 6" Channel Downcut Hole in soft bank
5	GL	0.25				100				20			G mostly < 6"
6	RF	0.30				70		30		10			G mostly < 1"
7	GL	0.6				80		20		40			< mostly < 7"
8	GL	0.5				70		30		30			
9	GL	0.4				90		10		20			
V 10	SP	2.6	0.2			100				10			
11	RF	0.5				70		30		20			G mostly < 1"
12	LP	1.0	0.3			90		10		20			
13	RF	0.30				70		30		20			
14	LP	2.1	0.4			80		20		10			71° @ 1630
15	RF	0.30				70		30		10			
16	SP	1.5	0.3			90		10		10			
17	RF	0.35				70		30		10			G < 1"
18	LP	1.7	0.3			100				10			
19	GL	0.6				90		10		10			SECONDARY CHANNEL
V 20	GL	0.5				100				40			
21	GL	0.6				100				10			
22	GL	0.7				80		20		30			
23	GL	0.8				90		10		30			
24	GL	0.6				90		10		20			
25	RF	0.3				80		20		20			
26	GL	0.4				60		40		20			Min Channel Bar
27	AL	0.9				100				20		SD	FOR LARGE POND
28	LP	1.7	0.3			100				40			77 1820 - END AT fence
V													81° incalific. REGION AT R/B 0637412 - 4701882 - END

AX DEPTH POOLS - MODAL DEPTH IN FAST WATER UNITS

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

RIPARIAN

PAGE: 2 OF: 2
 NAME: Naming

DATE: 8/20/04

STREAM: Sprague R. (Hess Road)

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+		
22	LEFT	1	FP	10	0	0	40	CONIFER						
		2	LT	0	0	0	80	HARDWOOD						
		3	LT	0	0	40	60	CONIFER						
22	RIGHT	1	FP	8	0	0	100	HARDWOOD						
		2	FP	0	0	0	100	CONIFER						
		3	FP	0	0	0	100	HARDWOOD						
	LEFT	1						CONIFER						
		2						HARDWOOD						
		3						CONIFER						
	RIGHT	1						HARDWOOD						
		2						CONIFER						
		3						HARDWOOD						
UNIT # <u>22</u> 0136739-4702308 LT FP RE=32 LT, FP												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: 1 OF: 2
 NAME: R. Newell / K.H.

DATE: 20 Aug 04

STREAM: Spangor R. (Hess Reach)

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+		
7	LEFT	1	FP	10	0	0	40	CONIFER						
								HARDWOOD						
								CONIFER						
7	RIGHT	1	FP	10	0	0	60	HARDWOOD						
								CONIFER						
								HARDWOOD						
10	LEFT	1	FP	12	0	0	100	HARDWOOD						
								CONIFER						
								HARDWOOD						
10	RIGHT	1	FP	10	0	0	80	HARDWOOD						
								CONIFER						
								HARDWOOD						

UNIT # 7 0635126 - 4702189
 AC = 32.00
 LT FP fence LT

UNIT # 10 063559 - 4702486
 AC = 58
 LT FP LT

PHOTO RECORD

PAGE: 1 OF: 2

STREAM: SPRAGUE R. (Hess Reach) SURVEY TYPE: OR. PLAN BASIN MIXED

BASIN OR GCG: SPRAGUE FILM: DIGITAL SLIDE PRINTS

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

PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
1: <u>A 125</u>	<u>7</u>	<u>20 Aug 04</u>	<u>1400</u>	<u>UPSTREAM RIPAR #1</u>
2: <u>126</u>	<u>7</u>	<u>"</u>	<u>"</u>	<u>DOWN</u>
3: <u>127</u>	<u>7</u>	<u>"</u>	<u>"</u>	<u>RICKI BANK</u>
4: <u>128</u>	<u>7</u>	<u>"</u>	<u>"</u>	
5: <u>129</u>	<u>11</u>	<u>"</u>	<u>1600</u>	<u>GRAVEL BAR - SPAWNING GRAVEL < 1"</u>
6: <u>130</u>	<u>13</u>	<u>"</u>	<u>1635</u>	<u>GRAVEL BAR - SPAWNING GRAVEL = 1"</u>
7: <u>131</u>	<u>17</u>	<u>"</u>	<u>"</u>	<u>"</u>
8: <u>132</u>	<u>22</u>	<u>"</u>	<u>1720</u>	<u>UPSTREAM RIPAR #3</u>
9: <u>133</u>	<u>22</u>	<u>"</u>	<u>"</u>	<u>DOWN</u>
10: <u>A 134</u>	<u>22</u>	<u>"</u>	<u>"</u>	<u>DOWN - Better View</u>
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PHOTO RECORD

PAGE: _____ OF: _____

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

BASIN OR GCG: _____ FILM: _____ DIGITAL SLIDE PRINTS

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

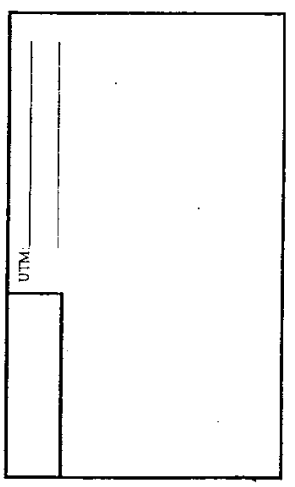
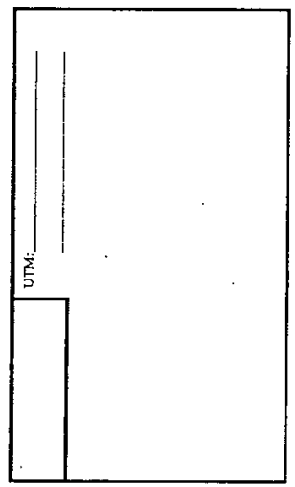
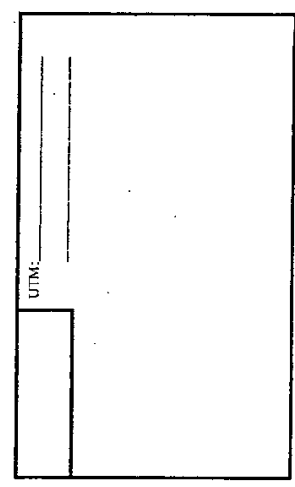
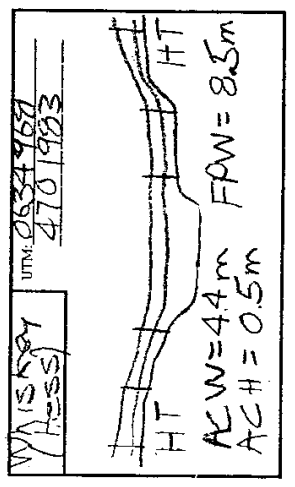
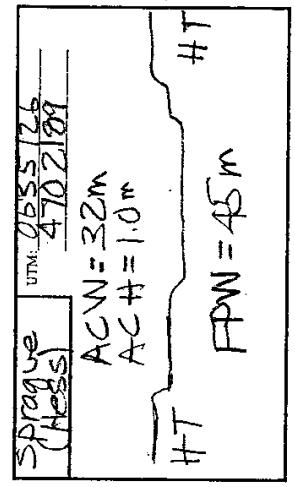
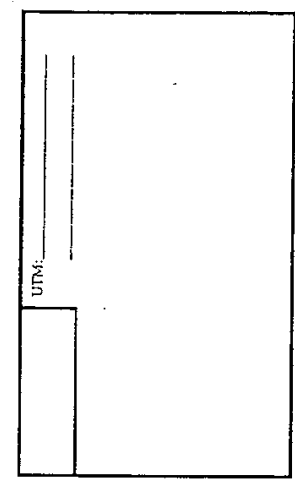
PHOTO # OR DIGITAL ID	UNIT #	DATE	TIME	STREAM / PHOTO DESCRIPTION
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REACH: _____ PAGE: _____ OF: _____

STREAM: Sprague & Whiskey (Hess Pop.) CREW: KH, RN

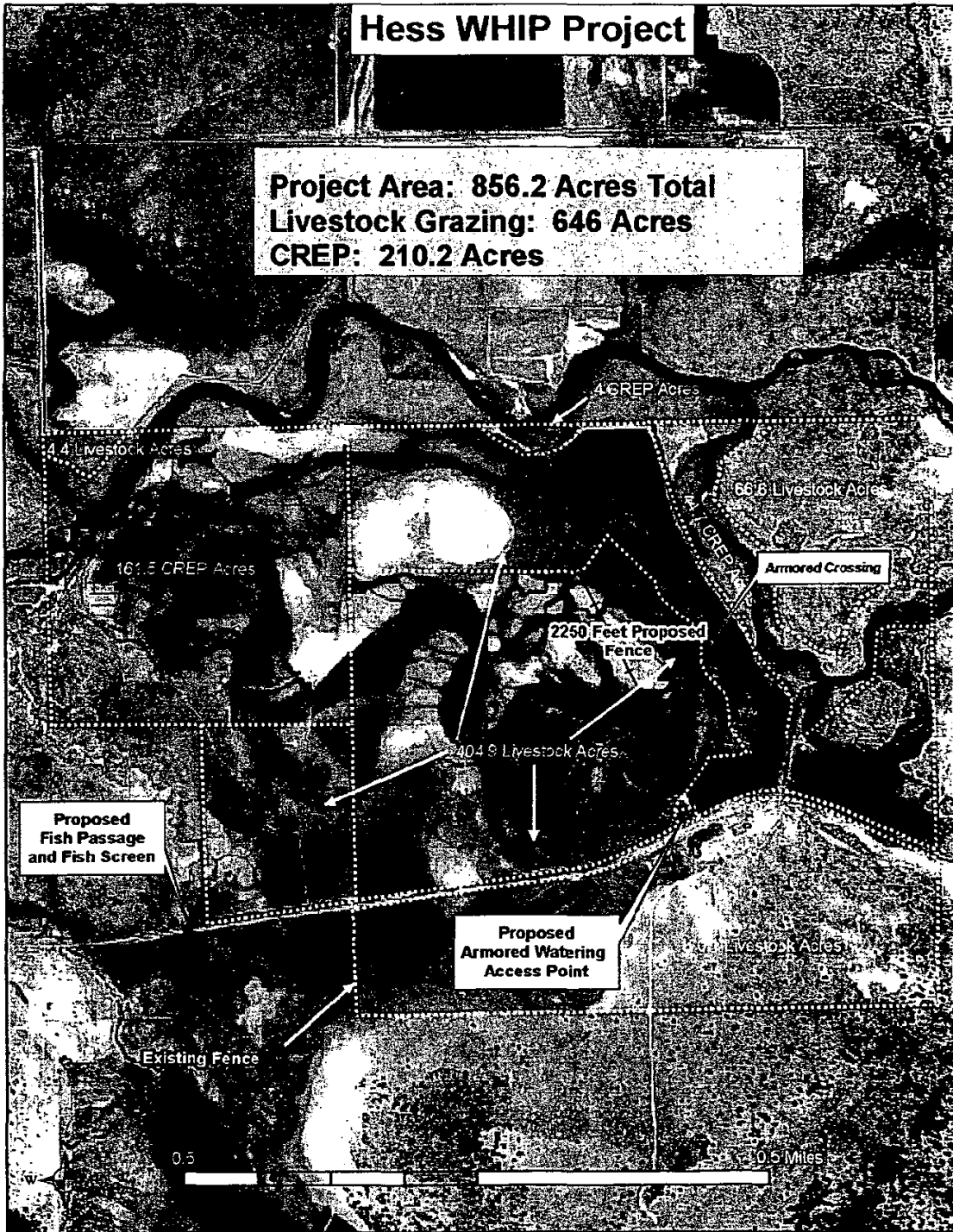
BASIN: Sprague USGS 7.5 MAP NAMES: _____

DATE	REACH #	UNIT NUMBER	CHANL FORM	VALLEY FORM	VVI	VEG CLASS		LAND USE		WATER TEMP	STRM FLOW	LOCATION TWP-RNG-SEC-1/4	PHOTO # / TIME	REACH NOTE
						DOM.	SUB-DOM.	DOM.	SUB-DOM.					
8/20/04	Hess	1	CT	CT	50	P	B	AG	LG	72°F	LF	38S, 11E, 12SE	101/1115	N-S Fence line
8/20/04	Hess	7	CT	CT	22	P	B	AG	LG	74°F	LF	38S, 11E, 12SE	125/1450	Main Channel



Hess WHIP Project

Project Area: 856.2 Acres Total
Livestock Grazing: 646 Acres
CREP: 210.2 Acres



Sprague R