

Appendix E - Aquatic Habitat Survey and Fisheries Assessment for Clover Valley

Figure 1 - Clover Valley Creek Habitat Assessment

Figure 2 - Total Species Composition and Relative Abundance for Lower Reach, Middle Reach, and Upper Reach, Clover Valley 2006

Table 1 - Clover Valley Creek Habitat Mapping Summary by Reach, June 2006

Table 2 - Habitat Mapping Summary, Clover Valley Creek, Lower Reach, June 16, 2006

Table 3 - Habitat Mapping Summary, Clover Valley Creek, Middle Reach, June 16, 2006






Table 4 - Habitat Mapping Summary, Clover Valley Creek, Upper Reach, June 16, 2006

Table 5 - Fish and Invertebrate Catch Data, Clover Valley Creek, June 2006

Appendix A - Representative Site Photos



Map Features

-  Project Boundary
-  Lower Reach
-  Middle Reach
-  Upper Reach
-  Areas Surveyed

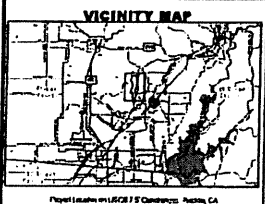
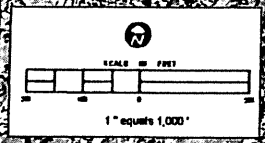


FIGURE 1. CLOVER VALLEY CREEK HABITAT ASSESSMENT

2005-427 Clover Valley EIR

Location: USGS Map#2005-427_Clover_Valley_EIR	Map Name: Creek_mevsxy.mxd	Project Number: 2005-427
Origin of Project/Action Date: 7/9/05	Revision:	Project Manager: CH
Printing Date: 7/26/05	Scale: 1" equals 1,000'	GIS Specialist: BK

NOTES

Gross Project Acreage: +/- 627
Project Boundary: Placer County GIS Parcel Data
Aerial Photo Source: Airphoto USA, April 2004

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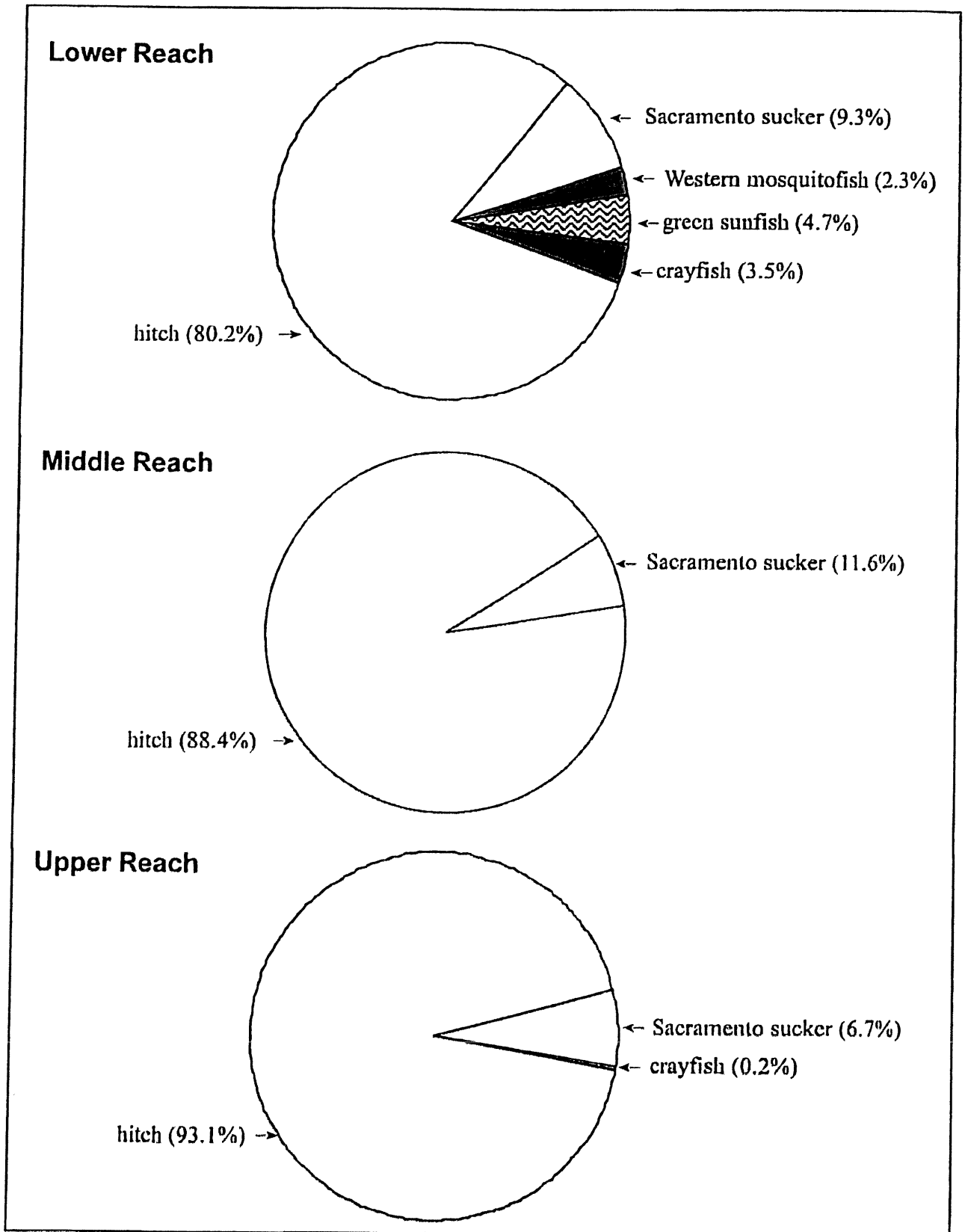


FIGURE 2. Total Species Composition and Relative Abundance for Lower Reach, Middle Reach and Upper Reach, Clover Valley Creek, June 2006.

Table 1. Clover Valley Creek Habitat Mapping Summary by Reach, June, 2006.

Reach	Unit Type	No. of Units	Total Length (ft)	Avg. Length (ft)	Avg. Width (ft)	Avg. Depth (ft)	Total Surface Area (ft ²)	Avg. Surface Area (ft ²)	Total Volume (ft ³)	Avg. Volume (ft ³)
Lower Reach	GLD	3	128.0	42.7	16.2	0.6	2,073.6	691.7	1,244.2	415.0
	LGR	1	26.2	26.2	8.2	0.7	214.8	214.8	150.4	150.4
	LSL	1	32.8	32.8	18.0	1.3	590.4	590.4	767.5	767.5
	LSR	3	129.6	43.2	10.9	1.0	1,412.6	470.9	1,412.6	470.9
	MCP/GLD	1	82.0	82.0	16.4	1.0	1,344.8	1,344.8	1,344.8	1,344.8
	RUN	1	98.4	98.4	11.5	0.8	1,131.6	1,131.6	905.3	905.3
TOTAL	6	10	497.0				6,767.9			
Middle Reach	GLD	3	70.5	23.5	10.4	0.4	733.2	244.4	293.3	97.8
	LGR	1	65.6	65.6	14.8	0.3	970.9	970.9	291.3	291.3
	LSL	1	23.0	23.0	8.5	0.8	195.5	195.5	156.4	156.4
	LSR	2	78.7	39.4	12.3	0.7	968.0	484.6	677.6	339.2
	LSR/LSL	1	50.9	50.9	11.5	0.8	585.4	585.4	468.3	468.3
	MCP	1	32.8	32.8	9.2	1.0	301.8	301.8	301.8	301.8
	PLP	1	13.1	13.1	11.5	0.7	150.7	150.7	105.5	105.5
	RUN	5	159.1	31.8	9.3	0.8	1,479.6	295.7	1,183.7	236.6
RUN/GLD	1	36.1	36.1	11.2	0.5	404.3	404.3	202.2	202.2	
TOTAL	9	16	529.8				5,789.3			
Upper Reach	DPL	1	19.7	19.7	8.2	1.5	161.5	161.5	242.3	242.3
	GLD	1	39.4	39.4	8.2	0.8	323.1	323.1	258.5	258.5
	LGR	1	19.7	19.7	9.8	0.2	193.1	193.1	38.6	38.6
	LSBo	1	23.0	23.0	12.3	1.1	282.9	282.9	311.2	311.2
	MCP/GLD/MCP	1	59.1	59.1	11.5	0.8	679.7	679.7	543.7	543.7
	PLP	3	38.7	12.9	12.0	1.0	464.4	154.8	464.4	154.8
	RUN	4	216.5	54.1	8.2	0.7	1,775.3	443.6	1,242.7	310.5
	STP	1	98.4	98.4	12.3	1.1	1,210.3	1,210.3	1,331.4	1,331.4
TOTAL	8	13	514.5				5,090.3			

Table 2. Habitat Mapping Summary, Clover Valley Creek, Lower Reach, June 16th, 2006.

Reach	Unit No.	Habitat Type	Physical Measurements				Dominant Substrate (1-5)					Cover				
			Downstream End (ft)	Cumulative Distance (ft)	Unit Length (ft)	Avg. Width (ft)	Max Depth (ft)	Avg. Depth (ft)	Gradient (%)	Silt	Sand	Gravel	Cobble	Boulders	Canopy (%)	Instream (%)
Lower	L-1	GLD	0	46	45.9	25.6	1.0	0.8	1%	1	2	-	-	-	25	15
	L-2	MCP/GLD	46	128	82.0	16.4	1.8	1.0	1%	1	2	-	-	-	75	15
	L-3	GLD	128	194	65.6	13.1	1.0	0.7	1%	1	2	-	-	-	40	10
	L-4	RUN	194	292	98.4	11.5	1.3	0.8	1%	2	1	3	-	-	20	10
	L-5	LSR	292	313	21.3	13.1	1.6	1.0	-	3	1	2	-	-	30	15
	L-6	GLD	313	330	16.4	9.8	0.9	0.4	1%	3	1	2	-	-	10	10
	L-7	LSR	330	405	75.5	11.5	1.6	1.0	-	3	1	2	-	-	35	35
	L-8	LGR	405	431	26.2	8.2	0.9	0.7	1%	3	1	2	-	4	<10	10
	L-9	LSR	431	464	32.8	8.2	2.0	1.0	-	3	1	2	-	-	25	15
	L-10	LSL	464	497	32.8	18.0	2.0	1.3	-	2	1	3	-	-	70	25
Total Distance Mapped:			497													

Table 3. Habitat Mapping Summary, Clover Valley Creek, Middle Reach, June 16th, 2006.

Reach	Unit No.	Habitat Type	Downstream Cumulative				Physical Measurements				Dominant Substrate (1-5)					Cover		
			m End (ft)	Distance (ft)	Unit Length (ft)	Avg. Width (ft)	Max Depth (ft)	Avg. Depth (ft)	Gradient (%)	Silt	Sand	Gravel	Cobble	Boulders	Canopy (%)	Instream m (%)		
Middle	M-1	MCP	0	33	32.8	9.2	1.3	1.0	-	2	1	-	-	-	15	20		
	M-2	GLD	33	62	29.5	11.5	0.7	0.5	1%	2	1	3	-	-	30	<10		
	M-3	RUN	62	89	26.2	11.5	1.0	1.0	1-2%	2	1	3	-	-	50	<10		
	M-4	PLP	89	102	13.1	11.5	1.1	0.7	-	2	1	-	-	-	90	30		
	M-5	RUN	102	123	21.3	13.1	1.0	0.7	1-2%	2	1	-	-	-	10	<10		
	M-6	LGR	123	189	65.6	14.8	0.6	0.3	1-2%	2	1	3	-	-	95	<10		
	M-7	LSR	189	231	42.7	14.8	1.0	0.7	-	2	1	-	-	-	90	10		
	M-8	GLD	231	251	19.7	11.5	1.0	0.4	1%	2	1	-	-	-	40	<10		
	M-9	LSR/LSL	251	302	50.9	11.5	1.3	0.8	-	2	1	-	-	-	85	<10		
	M-10	RUN/GLD	302	338	36.1	11.2	1.1	0.5	1-2%	2	1	3	4	-	70	<10		
	M-11	LSL	338	361	23.0	8.5	1.4	0.8	-	2	1	3	-	-	75	10		
	M-12a	RUN	361	397	36.1	6.6	1.3	1.0	1-2%	2	1	3	-	-	75	50		
	M-12b	RUN	397	433	36.1	5.2	1.0	1.0	1-2%	2	1	3	-	-	60	10		
	M-13	GLD	433	454	21.3	8.2	1.0	0.3	1%	2	1	3	-	-	10	<10		
	M-14	LSR	454	490	36.1	9.8	1.5	0.7	-	2	1	3	-	-	40	25		
M-15	RUN	490	530	39.4	9.8	0.6	0.3	1-2%	3	1	2	-	-	<10	<10			
			Total Distance Mapped:														530	

Table 4. Habitat Mapping Summary, Clover Valley Creek, Upper Reach, June 16th, 2006.

Reach	Unit No.	Habitat Type	Downstream				Physical Measurements				Dominant Substrate (1-5)					Cover	
			Start (ft)	End (ft)	Cumulative Distance (ft)	Unit Length (ft)	Avg. Width (ft)	Max Depth (ft)	Avg. Depth (ft)	Gradient (%)	Silt	Sand	Gravel	Cobble	Boulder	Concrete	Canopy (%)
Upper	U-1	GLD	0	39.4	39	8.2	1.0	0.8	1%	4	1	2	3	-	-	20	<10
	U-2	STP	39	98.4	138	12.3	1.5	1.1	2-4%	4	1	2	3	-	5	60	15
	U-3	RUN	138	45.9	184	8.9	0.7	0.6	2-4%	4	1	2	3	-	5	80	<10
	U-4	LSBo	184	23.0	207	12.3	2.2	1.1	-	4	2	3	5	1	-	65	50
	U-5	LGR	207	19.7	226	9.8	0.5	0.2	2-4%	-	1	2	3	4	-	20	<10
	U-6	MCP/GLD/MCP	226	59.1	285	11.5	1.4	0.8	1-2%	4	1	2	3	-	5	60	20
	U-7	PLP	285	14.1	300	14.8	2.0	1.1	-	3	1	2	-	-	-	10	15
	U-8	DPL	300	19.7	319	8.2	2.0	1.5	-	2	1	-	-	-	-	20	20
	U-9	RUN	319	427	427	108.3	6.6	1.0	2-4%	3	1	2	-	-	-	30	10
	U-10	PLP	427	11.5	439	9.8	1.4	0.9	-	-	1	2	-	-	-	40	30
	U-11	RUN	439	32.8	472	8.2	1.0	0.9	2-4%	2	1	3	-	-	-	40	<10
	U-12	PLP	472	13.1	485	11.5	1.7	1.2	-	3	1	2	-	-	-	40	20
	U-13	RUN	485	29.5	514	9.0	0.8	0.6	2-4%	3	1	2	-	-	-	85	10
			Total Distance Mapped:														
			514														

Table 5. Fish and Invertebrate Catch Data, Clover Valley Creek, June 2006.

Reach	Species Caught					
	Common Name	Scientific Name	Native/Non-Native	Number Collected	Length Range (mm) Average (mm)	Total Catch
Lower Reach	Hitch	<i>Lavinia exilicauda</i>	Native	69	51-106	80.2
	Sacramento sucker	<i>Catostomus occidentalis</i>	Native	8	27-37	32.4
	Western mosquitofish	<i>Gambusia affinis</i>	Non-Native	2	27-56	41.5
	Green sunfish	<i>Lepomis cyanellus</i>	Non-Native	4	26-79	58.8
	Crayfish	<i>Pacifasticus sp.</i>	Non-Native	3	26-43	32.7
			Total	86		
Middle Reach	Hitch	<i>Lavinia exilicauda</i>	Native	168	36-135	62.9
	Sacramento sucker	<i>Catostomus occidentalis</i>	Native	22	62-165	86.6
			Total	190		
Upper Reach	Hitch	<i>Lavinia exilicauda</i>	Native	445	37-106	60.4
	Sacramento sucker	<i>Catostomus occidentalis</i>	Native	32	25-254	94.9
	Crayfish	<i>Pacifasticus sp.</i>	Non-Native	1	25	25.0
			Total	478		