Appendix G
Aquatic Survey Results

No aquatic species afforded protection under the federal Endangered Species Act were collected during either the fall high flow or winter low flow collection surveys. As previously discussed, no suitable habitat for T&E aquatic species was observed in field surveys. Aquatic species collected during field surveys are listed in Table G-1 and G-2.

Table G-1 Aquatic Species Collected During Field Surveys

COMMON NAME	SCIENTIFIC NAME	CAPTURE LOCATION (TRANSECT SERIES)	
		September 2000	January 2001
Western mosquitofish	*Gambusia affinis*	DA, MDD	MDD
Channel catfish	*Ictalurus punctatus*	UR, H, DA, SC, SP, EP	EP, DA
Green sunfish	*Lepomis cyanellus*	DA	
Bluegill	*Lepomis macrochirus*	UR	
Longear sunfish	*Lepomis megalotis*	UR, SP, EP	
Largemouth bass	*Micropterus salmoides*	UR, H, DA	H, UR
Fathead minnow	*Pimephales promelas*	H, DA, EP, UR	BM, DA, SA
Bullhead minnow	*Pimephales vigilax*	MDD	EP, BM
Flathead catfish	*Pylodictis olivaris*	H, SC, SP, EP	
Red shiner	*Cyprinella lutrensis*	H	
Common carp	*Cyprinus carpio*	H	H
River carpsucker	*Carpiodes carpio*	UR	
BM = Black Mesa MU, DA = Doña Ana, EP = El Paso, G = Garfield, H = Hatch, LC = Las Cruces, MDD = Mesilla Diversion Dam, SA = Sierra Alta, SC = Seldon Canyon, UR = Upper Rincon,			

USFWS Mitigation Sites

USFWS mitigation sites (two vortex weirs, three embayments, and nine groins) provide the most diverse aquatic habitat in the RGCP. A brief description of each of the 14 mitigation locations is provided in Appendix F. Fish data are being collected on the mitigation sites by the USFWS New Mexico Fisheries Resource Office, Albuquerque. Fish species collected by USFWS are listed in Table 4.6.

Table G-2 Species Collected at USFWS Mitigation Sites

COMMON NAME	SCIENTIFIC NAME
Bluegill	*Lepomis macrochirus*
Bullhead minnow	*Pimephales vigilax*
Channel catfish	*Ictalurus punctatus*
Fathead minnow	*Pimephales promelas*
Gizzard shad	*Dorosoma cepedianum*
Green sunfish	*Lepomis cyanellus*
Largemouth bass	*Micropterus salmoides*
Longnose dace	*Rhinichthys cataractae*
Red shiner	*Cyprinella lutrensis*
Spotted bass	*Micropterus punctulatus*
Threadfin shad	*Dorosoma petenense*
Western mosquitofish	*Gambusia affinis*
White bass	*Morone chrysops*
Yellow perch	*Morone americana*

Table G-3 Morphological Characteristics for Each Aquatic Transect

MANAGEMENT UNIT	TRANSECT SERIES/ID	GPS UNIT	DEPTH (ft)	VELOCITY (ft/s)	SUBSTRATE	NOTES
El Paso	El Paso/EP1	1	East Bank			
		2	0.85	0.21	Sand	
		3	0.8	0.48	Sand	
		4	0.95	0.47	Sand	
		5	0.55	0.31	Sand	
		6	0.15	0	Sandbar	
		7	0	0	Sandbar	
		8	1.45	0.57	Sand/silt	
		9	1.65	0.69	Sand/silt	
		10	1.8	0.54	Sand/silt	Shifting substrate
		11	1.75	0.62	Sand/silt	
		12	3.4	0.66	Sand	
		13	4.3	0.52	Sand	
		14	3.4	0.38	Sand	
		15	West Bank			
El Paso	El Paso/ EP2	1	East Bank			
		2	2.5	0.14	Silt	Pool
		3	4.5	0.45	Sand/ Silt	
		4	2.4	0.15	Sand/ Silt	
		5	1.1	0.05	Sand/ Silt	
		6	0.9	0.04	Sand/ Silt	
		7	1.15	0.11	Sand/ Silt	
		8	1.3	0.19	Sand/ Silt	
		9	1.4	0.44	Sand/ Silt	

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
		10	1.35	0.51	Sand/ Silt	
		11	1.4	0.51	Sand/ Silt	
		12	1.5	0.56	Sand/ Silt	
		13	1.6	0.45	Sand/ Silt	
		14	2.1	0.06	Sand/ Silt	Pool
		15	West Bank			
Lower Mesilla	Mesilla Valley/ MDD1	0	East Bank			
		1	0	0	Sandbar	
		2	0.1	0.04	Sand	
		3	0.1	0.01	Sand	
		4	0	0	Sandbar	
		5	0	0	Sandbar	
		6	0	0	Sandbar	
		7	0.5	0.21	Sand	
		8	2	0.7	Sand	
		9	1.6	0.25	Sand	
		10	0	0	Sandbar	
		11	0	0	Sandbar	
		12	1	0.34	Sand	
		13	1.6	0.55	Sand	
		14	West Bank			
Lower Mesilla	Mesilla Valley/ MDD2	0	West Bank			
		1	1.5	0.05	Sand	
		2	3.5	0.23	Sand	
		3	1.8	0.48	Sand	
		4	0.8	0.27	Sand	
		5	0.6	0.25	Sand	
		6	0.7	0.36	Sand	
		7	0.5	0.17	Sand	
		8	0	0	Sandbar	
		9	0	0	Sandbar	
		10	0	0	Sandbar	
		11	East Bank			
Lower Mesilla	Mesilla Valley/ MDD3	1	East Bank			
		2	1	0.3	Sand	
		3	0.1	0.08	Sand	
		4	0	0	Sandbar	
		5	0	0	Sandbar	

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
		6	0.4	0.06	Sand	Wind pushing water upstream
		7	0.3	0.01	Sand	
		8	0	0	Sandbar	
		9	0.2	0.06	Sand	Wind pushing water upstream
		10	0.8	0.41	Sand	
		11	1.5	0.6	Sand	
		12	1.9	0.61	Sand	
		13	1.6	0.45	Sand	
		14	West Bank			
Lower Mesilla	Black Mesa/ BM1	1	East Bank			Some gravel on bank.
		2	1.8	0.46	Sand	
		3	1.5	0.59	Sand	
		4	1.3	0.62	Sand	
		5	0.9	0.54	Sand	
		6	0.95	0.51	Sand	Flow is from east to west
		7	1.1	0.56	Sand	
		8	1.3	0.2	Sand	
		9	1.25	0.65	Sand	
		10	1.4	0.53	Sand	
		11	1.5	0.55	Sand	
		12	1.25	0.45	Sand	
		13	0.85	0.46	Sand	
		14	1.6	0.54	Sand	
		15	1.75	0.59	Sand	
		16	2.6	0.57	Sand	
		17	3.9	0.53	Sand	
		18	4.5	0.42	Sand	
		19	1.9	0.25	Cobble	
		20	West Bank			
Lower Mesilla	Black Mesa/ BM2	1A	West Bank			West side bank, very swift- unable to get point near shore
		1B	1.75	0.19	Sand	

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
		1	3.9	0.65	Sand	Deep channel with swift moving water.
		2	3.35	0.71	Sand	
		3	3.5	0.55	Sand	
		4	2.1	0.43	Silt	
		5	1.3	0.16	Sand	
		6	1.25	0	Sand	
		7	0	0	Sandbar	
		8	0.6	0.26	Sand	
		9	0.45	0.34	Sand	
		10	0.75	0.52	Sand	
		11	0.95	0.47	Sand	
		12	0.95	0.51	Sand	
		13	1.1	0.52	Sand	
		14	1.15	0.45	Sand	
		15	East Bank			
Upper Mesilla	Doña Ana/ DA1	1	East Bank			
		2	2.3	0.33	Cobble/sand/silt	
		3	3.5	0.63	Sand	
		4	1.75	0.73	Sand	
		5	1.35	0.44	Sand	
		6	0.65	0.35	Sand	
		7	0.8	0.38	Sand	
		8	0	0	Sandbar	
		9	0.4	0.34	Sand	
		10	0.25	0.31	Sand	
		11	1.45	0.59	Sand	
		12	1.65	0.7	Sand	
		13	1	0.49	Sand	
		14	1.35	0.69	Sand	
		15	2.45	0.7	Sand	
		16	3.6	0.69	Sand	
		17	2.95	0.29	Sand	
		18	4.2	0.19	Sand	
		19	2	0.12	Sand	
		20	West Bank			
Upper Mesilla	Doña Ana/ DA2	1A	West Bank			
		1B	West Bank			
		2	0.95	0.27	Gravel	

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
		3	2.15	0.53	Sand	
		4	2.55	0.68	Sand	
		5	2	0.56	Sand	
		6	1.35	0.58	Sand	
		7	1.3	0.57	Sand	
		8	2.21	0.41	Gravel	
		9	2.35	0.44	Sand	
		10	1.15	0.15	Sand	
		11	0.85	0.47	Sand	
		12	1.1	0.6	Sand	
		13	1.25	0.64	Sand	
		14	2.55	0.64	Sand	
		15	East Bank			
Las Cruces	Las Cruces/ HEP1	1	West Bank			
		2	1	0.97	Sand/cobble	
		3	0.3	0.62	Sand	
		4	0.1	0.22	Sand	
		5	0.6	0.43	Sand	
		6	2.3	0.27	Sand	
		7	0	0	Sandbar	
		8	0	0	Sandbar	
		9	0.6	0.21	Sand	
		10	0.3	0.37	Sand	
		11	1.6	0.67	Sand	
		12	1.1	0.51	Sand	
		13	0.8	0.41	Sand	
		14	0.6	0.5	Sand	
		15	East Bank			
Las Cruces	Las Cruces HEP2	1	East Bank			
		2	1.8	0.65	Sand	
		3	3	0.5	Sand	
		4	2	0.44	Sand	Flow is from west to east
		5	0.5	0.46	Sand	Flow is from west to east
		6	1.1	0.46	Sand	
		7	1.5	0.57	Sand	
		8	2.2	0.43	Sand	
		9	West Bank			

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
Seldon Canyon	Seldon Canyon/ SC1	1	East Bank			
		2	3.1	0.38	Silt	
		3	5.1	0.52	Silt	
		4	5.11	0.39	Silt	
		5	5.7	0.34	Silt	
		6	3.4	0.47	Silt	
		7	2.3	0.6	Sand	
		8	2.3	0.58	Sand	
		9	2.2	0.37	Sand	
		10	2.5	0.4	Sand	
		11	2.4	0.52	Sand	
		12	2.3	0.68	Sand	
		13	2.6	0.78	Sand	
		14	West Bank			
Seldon Canyon	Seldon Canyon/ SC2	1	East Bank			
		2	1.6	0.33	Silt/Sand	
		3	1.3	0.23	Sand	
		4	1.9	0.18	Sand	
		5	2.4	0.12	Sand	
		6	0.7	0.15	Sand	
		7	2.4	0.54	Sand	
		8	3.7	0.82	Sand	
		9	2.9	0.47	Sand	
		10	1.3	0.19	Sand	
		14	West Bank			No GPS point taken, no satellites
Lower Rincon	Sierra Alta/ SA1	1	East Bank			
		2	0	0	Sandbar	
		3	1	0.6	Gravel	
		4	1.8	0.79	Gravel	
		5	3.2	0.74	Gravel	
		6	3.6	0.91	Gravel	
		7	2.9	0.52	Sand	
		8	1.5	0.1	Sand/Silt	Shifting substrate
		9	West Bank			
		10	West Bank			

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
Lower Rincon	Sierra Alta/ SA2	1	East Bank			
		2	1	0.07	Cobble	
		3	1.3	0.53	Gravel	
		4	1.7	0.49	Gravel	
		5	2.1	0.8	Gravel	
		6	2.3	0.9	Gravel	
		7	3	0.76	Gravel	Large submersed fallen tree log.
		8	3.3	0.85	Gravel	
		9	2.9	0.59	Gravel	
		10	2.6	0.65	Gravel	
		11	1.6	0.49	Gravel	
		12	1.4	0.39	Cobble	
		13	1.2	0.32	Cobble	
		14	West Bank			
Lower Rincon	Hatch/ H1	1	0	0		Edge of Cattails
		2	0	0		Mudbar
		3	0.2	0.23	Sand/gravel	
		4	0.4	0.32	Gravel	
		5	0.85	0.53	Sand/gravel	
		6	1.8	0.83	Gravel	
		7	2.2	0.51	Gravel	
		8	3.45	1.12	Gravel	
		9	3.2	1.26	Gravel	Could not stand between point 9 and 10.
		10	3.1	0.97	Gravel	
		11	East Bank			
Lower Rincon	Hatch/ H2	1	East Bank			
		2	0	0		
		3	0	0		
		4	0.6	0.01	Silt	
		5	0	0	Mudbar	
		6	0.7	0.11	Silt	
		7	1.5	0.28	Gravel/silt	
		8	2.8	0.38	Silt/Sand	
		9	3.3	0.64	Gravel	
		10	3.8	0.76	Gravel	
		11	3.1	0.79	Gravel	Could not get to west bank

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
Upper Rincon	Upper Rincon/ UR2	1	East Bank			
		2	0.5	0	Gravel	
		3	0.8	0.02	Gravel	
		4	1.4	0.01	Gravel	
		5	4	0.3	Gravel	
		6	4.2	0.53	Gravel	
		7	3.3	0.4	Gravel	
		8	2.3	0.5	Gravel	
		9	0.75	0.16	Gravel	
		10	West Bank			
Upper Rincon	Upper Rincon/ UR3	1	East Bank			
		2	1.1	0.01	Sand/Gravel	
		3	4.5	0.41	Sand/Gravel	
		4	4.6	0.61	Sand/Gravel	
		5	4.2	0.31	Sand/Gravel	
		6	3.5	0.8	Sand/Gravel	
		7	2.4	0.52	Sand/Gravel	
		8	2.4	0.06	Sand/Gravel	
		9	1.1	0.28	Sand/Gravel	
		10	West Bank			
Upper Rincon	Upper Rincon/ UR4	1	East Bank			
		2	2.1	0.03	Sand/Gravel	Some vegetation overhang
		3	4.8	0.26	Sand/Gravel	
		4	3.6	0.39	Sand/Gravel	
		5	3.8	0.23	Gravel	
		6	3.6	0.03	Silt	
		7	West Bank			
Upper Rincon	Garfield/ G1	1A	West Bank			
		1	2.3	0.75	Cobble	
		2	2.9	1.14	Cobble	
		3	2.4	1.42	Cobble	
		4	2.6	0.65	Cobble	
		5	1.7	0.81	Cobble	
		6	1.1	0.27	Cobble	
		7	1.1	0.47	Cobble	
		8	0.57	1.2	Cobble	
		9	1.1	0.24	Silt	
		10	East Bank			

Table G-3 (Continued)

Management Unit	Transect Series/ID	GPS Unit	Depth (ft)	Velocity (ft/s)	Substrate	Notes
Upper Rincon	Garfield/ G2	1	West Bank			
		2	3.3	0.63	Cobble	
		3	3.1	1.05	Cobble	
		4	1.3	0.54	Cobble	
		5	0.6	0.19	Cobble	
		6	1.2	0.36	Cobble	
		7	2.25	0.61	Cobble	
		8	1.8	0.01	Cobble	
		9	East Bank			