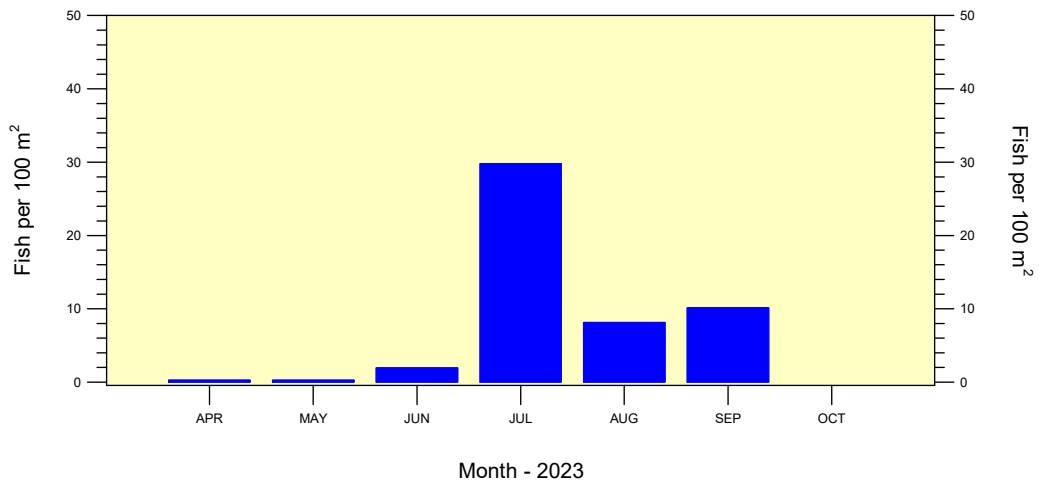
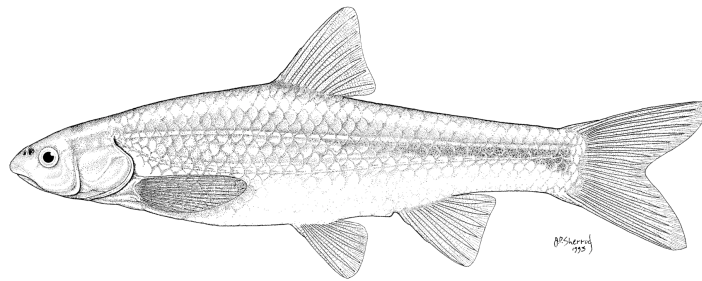


**RIO GRANDE SILVERY MINNOW POPULATION MONITORING DURING SEPTEMBER 2023**

**A U.S. BUREAU OF RECLAMATION FUNDED  
RESEARCH PROGRAM**



17 October 2023

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**Contract 140R4019P0048:**

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U.S. Bureau of Reclamation  
Albuquerque Area Office  
555 Broadway NE, Suite 100  
Albuquerque, NM 87102

Submitted to:

U.S. Bureau of Reclamation  
Albuquerque Area Office  
555 Broadway NE, Suite 100  
Albuquerque, NM 87102

Robert K. Dudley<sup>1,2</sup>, Steven P. Platania<sup>1,2</sup>, and Gary C. White<sup>1,3</sup>

<sup>1</sup> American Southwest Ichthyological Researchers (ASIR); 800 Encino Place NE; Albuquerque, NM 87102

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<sup>2</sup> Museum of Southwestern Biology (Fishes), UNM; MSC03-2020; Albuquerque, NM 87131

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<sup>3</sup> Department of Fish, Wildlife, and Conservation Biology, CSU; 10 Wagar; Fort Collins, CO 80523

17 October 2023

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## SUMMARY OF SEPTEMBER 2023 POPULATION MONITORING

The September 2023 population monitoring efforts were conducted at the 20 standard sites and two replacement sites. Five sites were in the Angostura Reach, six sites were in the Isleta Reach, and eleven sites were in the San Acacia Reach. For the 2023 monthly trends, data were based on all sites (i.e., standard, additional, and replacement sites) to maintain consistency across all monthly reports. A list of all collection localities is appended (Appendix A). Adult and juvenile fish were obtained by rapidly drawing a 3.0 m x 1.8 m small-mesh (ca. 5 mm) seine through discrete mesohabitats. Larval fish were collected with a 1.2 m x 1.2 m fine-mesh (ca. 1 mm) seine. All fishes were identified to species and enumerated. We used length-age relationships to assign ages (i.e., age-0, age-1, and age-2+) to all Rio Grande Silvery Minnow collected. Age-0 individuals are only present, however, after annual spring spawning (ca. April–June). Figures illustrating fish densities (i.e., fish per 100 m<sup>2</sup>) were prepared for the ten focal species to facilitate comparisons across reaches.

### ***Angostura Reach***

From 16 August to 15 September, provisional U.S. Geological Survey (USGS) mean daily discharge in the Angostura Reach (Albuquerque: USGS Gage-08330000) averaged 80 ft<sup>3</sup>/s and ranged from 41 to 185 ft<sup>3</sup>/s. Water temperatures ranged from 18.1 to 25.6 °C during the Angostura Reach sampling efforts (ca. 0830–1530 h). Secchi disk measurements of water clarity ranged from 12 to 56 cm.

Sampling for fishes in the Angostura Reach during September yielded 873 individuals with a cumulative fish density of 35.9 individuals per 100 m<sup>2</sup> sampled. The overall sampling effort in the Angostura Reach covered 2,433.3 m<sup>2</sup> (surface area) of water. Densities of all fish species combined ranged from 29.7 to 44.0 individuals per 100 m<sup>2</sup> at the different sampling sites. In September, there were 14 fish species collected in the Angostura Reach. Western Mosquitofish was the most abundant taxon (n = 266), followed by Red Shiner (n = 226), and Longnose Dace (n = 100). We collected Rio Grande Silvery Minnow (n = 52) in 25 of the 89 seine hauls that yielded fish, and its overall density was 2.14 (range = 0.00–4.16) individuals per 100 m<sup>2</sup>.

### ***Isleta Reach***

Provisional mean daily discharge in the Isleta Reach (Bosque Farms: USGS Gage-08331160), from 16 August to 15 September, averaged 33 ft<sup>3</sup>/s and ranged from 22 to 146 ft<sup>3</sup>/s. During the Isleta Reach sampling efforts (ca. 0930–1600 h), water temperatures ranged from 20.6 to 34.2 °C. Secchi disk measurements ranged from 10 to 50 cm during sampling.

Isleta Reach population monitoring efforts produced 2,780 individuals in September with a cumulative fish density of 95.4 individuals per 100 m<sup>2</sup> sampled. The total sampling effort in the Isleta Reach during September covered 2,915.2 m<sup>2</sup> (surface area) of water. Fish densities (all species combined) at the sampling sites ranged from 11.5 to 167.0 individuals per 100 m<sup>2</sup> sampled. There were 9 fish species collected in the Isleta Reach during September. Red Shiner was the most abundant taxon (n = 959), followed by Western Mosquitofish (n = 959), and Rio Grande Silvery Minnow (n = 527). We collected Rio Grande Silvery Minnow (n = 527) in 42 of the 104 seine hauls that yielded fish, and its overall density was 18.08 (range = 0.75–47.78) individuals per 100 m<sup>2</sup>.

## ***San Acacia Reach***

From 16 August to 15 September, provisional mean daily discharge at San Acacia (USGS Gage-08354900) was generally higher (average = 29; range = 17–59 ft<sup>3</sup>/s) than at San Marcial (USGS Gage-08358400) during the same period (average = 3; range = 0–65 ft<sup>3</sup>/s). Water temperatures in September for the San Acacia Reach ranged from 21.4 to 35.2 °C (ca. 0930–1600 h). Secchi disk measurements ranged from 6 to 91 cm during sampling.

Population monitoring efforts in the San Acacia Reach during September yielded 3,264 individuals with a cumulative fish density of 96.8 individuals per 100 m<sup>2</sup> sampled. Sampling in the San Acacia Reach covered an area of 3,373.4 m<sup>2</sup> of water. Fish densities (all species combined) ranged from 0.0 to 137.7 individuals per 100 m<sup>2</sup> at sites sampled in the San Acacia Reach. In September, there were 13 fish species collected in the San Acacia Reach. Western Mosquitofish was the most abundant taxon (n = 2,130), followed by Red Shiner (n = 420), and Rio Grande Silvery Minnow (n = 307). We collected Rio Grande Silvery Minnow (n = 307) in 42 of the 131 seine hauls that yielded fish, and its overall density was 9.10 (range = 0.00–50.29) individuals per 100 m<sup>2</sup>.

## ***Standard Sites***

During September, sampling covered 7,893.2 m<sup>2</sup> (surface area) of water and yielded 5,917 fish. There were two dry sampling sites. Cumulative fish density during September was 74.96 individuals per 100 m<sup>2</sup> sampled. The three most common species were Western Mosquitofish (n = 2,578), Red Shiner (n = 1,536), and Rio Grande Silvery Minnow (n = 885). The sampling sites yielded a total of 18 fish species.

Rio Grande Silvery Minnow was present in 108 of the 290 seine hauls that yielded fish and at 13 of the 20 sampling sites. Densities of unmarked and marked individuals were 11.21 (n = 885) and 0.00 (n = 0) individuals per 100 m<sup>2</sup> sampled, respectively. Densities of age-0, age-1, and age-2+ individuals were 10.96 (n = 865), 0.25 (n = 20), and 0.00 (n = 0) individuals per 100 m<sup>2</sup> sampled, respectively. Based on all September surveys since 1993, the overall density of Rio Grande Silvery Minnow averaged 5.56 (range = 0.01–26.32) individuals per 100 m<sup>2</sup> sampled. During September 2023, its overall density was 11.21 (n = 885) individuals per 100 m<sup>2</sup> sampled.

## ***All Sites***

During September, sampling covered 8,721.9 m<sup>2</sup> (surface area) of water and yielded 6,917 fish. There were two dry sampling sites. Cumulative fish density during September was 79.31 individuals per 100 m<sup>2</sup> sampled. The three most common species were Western Mosquitofish (n = 3,355), Red Shiner (n = 1,605), and Rio Grande Silvery Minnow (n = 886). The sampling sites yielded a total of 19 fish species.

Rio Grande Silvery Minnow was present in 109 of the 324 seine hauls that yielded fish and at 14 of the 22 sampling sites. Densities of unmarked and marked individuals were 10.16 (n = 886) and 0.00 (n = 0) individuals per 100 m<sup>2</sup> sampled, respectively. Densities of age-0, age-1, and age-2+ individuals were 9.93 (n = 866), 0.23 (n = 20), and 0.00 (n = 0) individuals per 100 m<sup>2</sup> sampled, respectively. Based on all September surveys since 1993, the overall density of Rio Grande Silvery Minnow averaged 5.56 (range = 0.01–26.32) individuals per 100 m<sup>2</sup> sampled. During September 2023, its overall density was 10.16 (n = 886) individuals per 100 m<sup>2</sup> sampled.

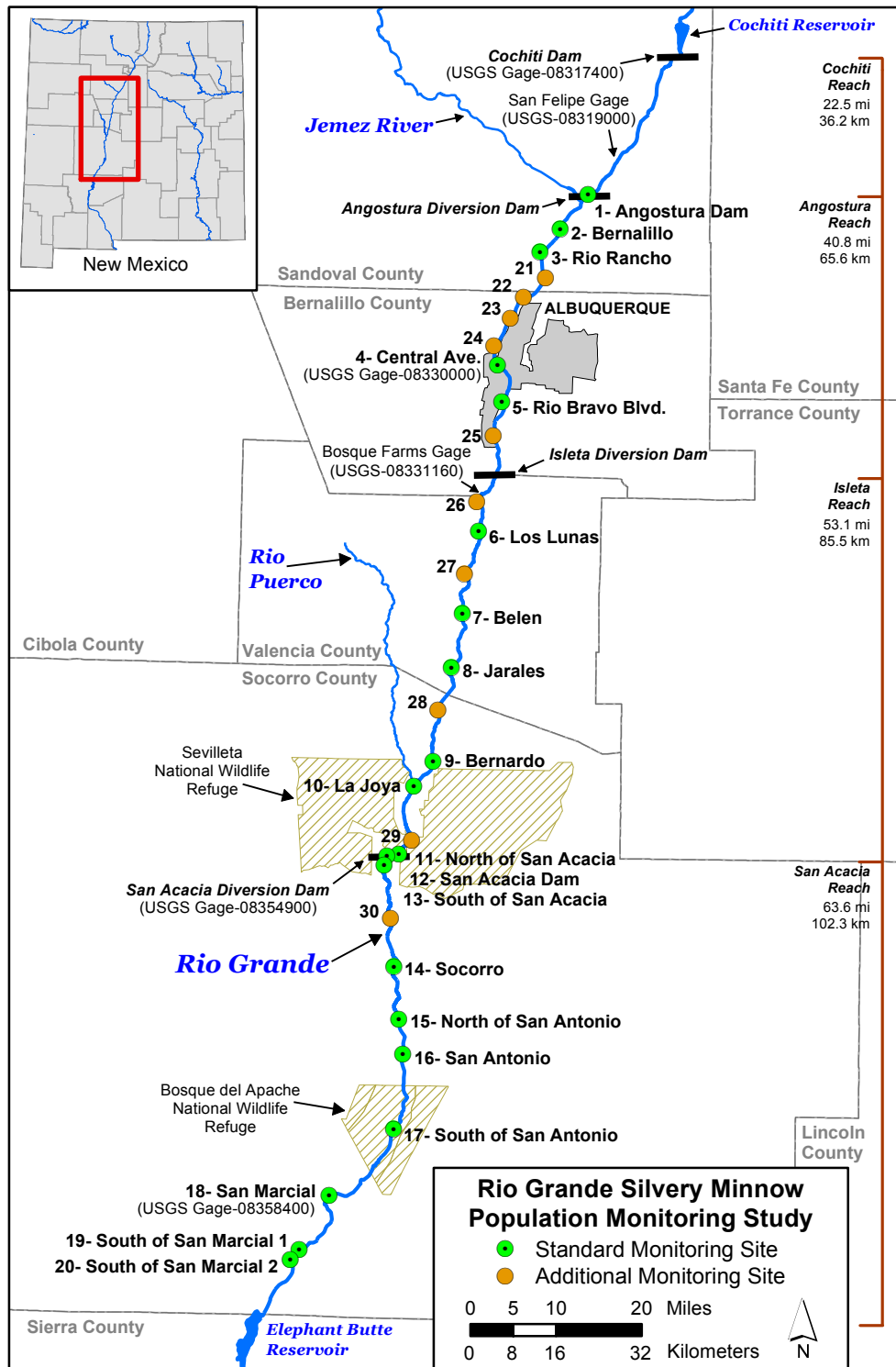


Figure 1. Map of the study area, standard sites, and additional sites for the Rio Grande Silvery Minnow population monitoring study. Sampling site descriptions are provided in Appendix A.

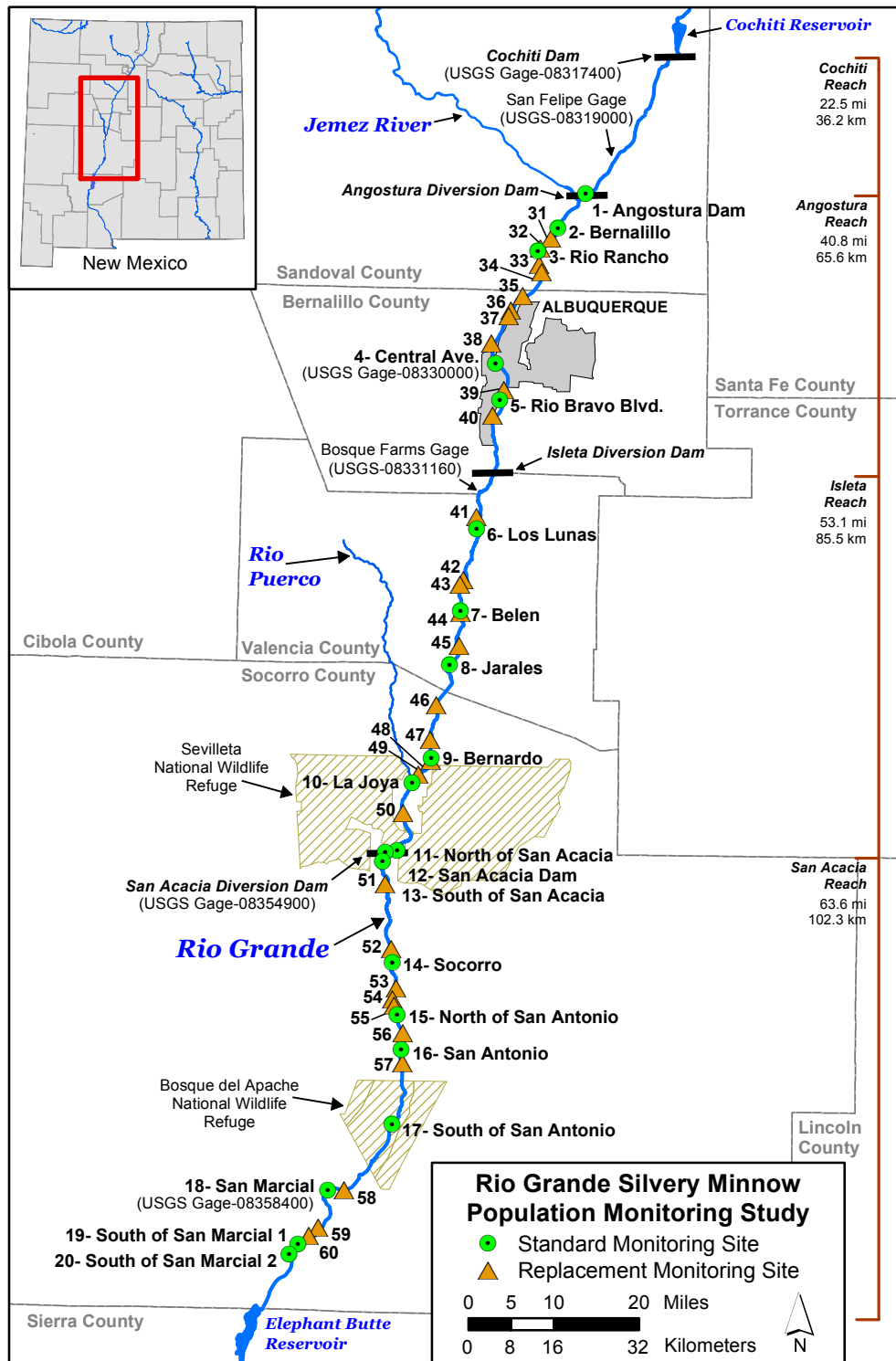


Figure 2. Map of the study area, standard sites, and replacement sites for the Rio Grande Silvery Minnow population monitoring study. Sampling site descriptions are provided in Appendix A.

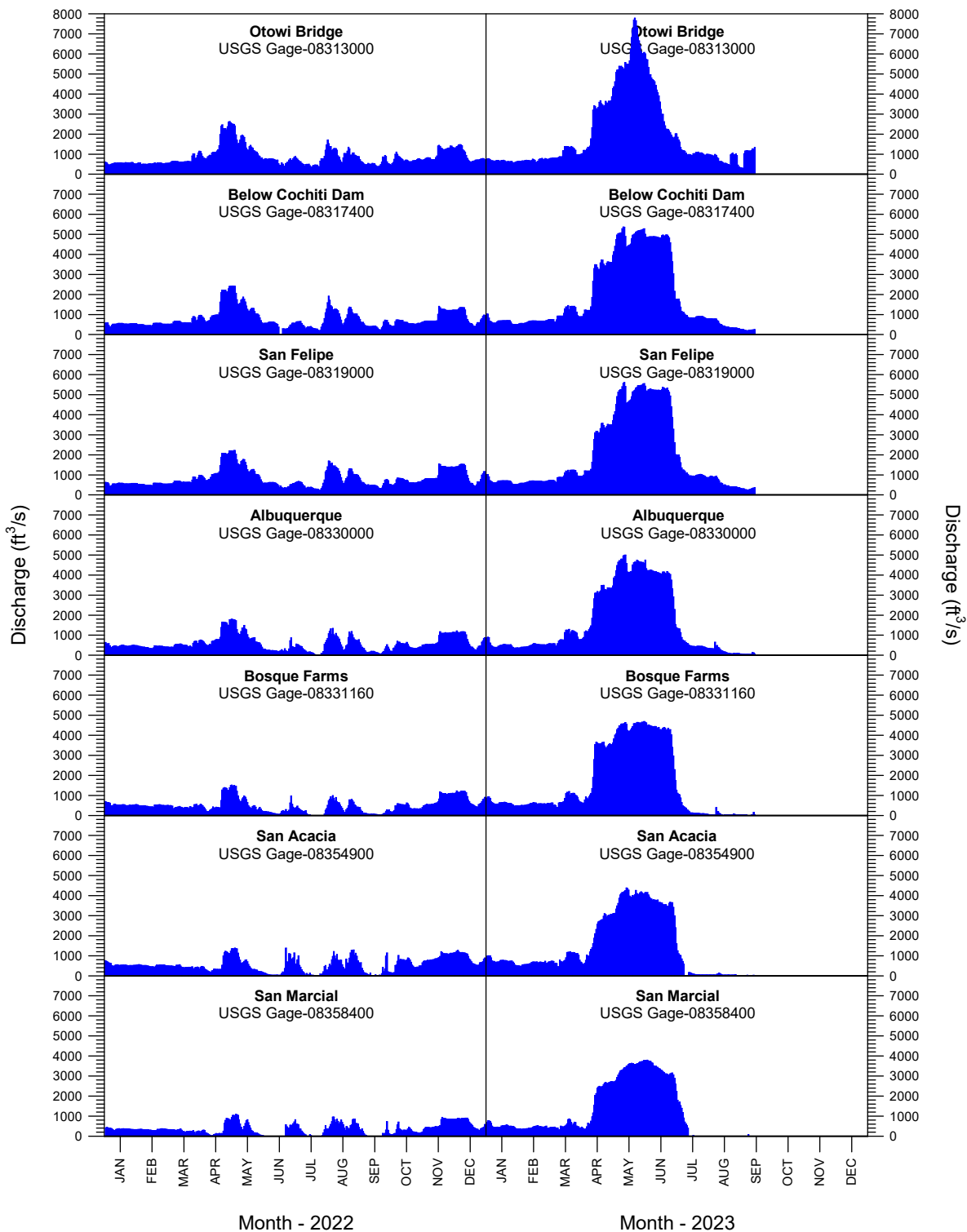


Figure 3. Rio Grande mean-daily discharge, by USGS gaging station, from 1 January 2022 to 15 September 2023. All discharge data are provisional and subject to change.

Table 1. Scientific names, common names, and species codes of fishes collected in the Middle Rio Grande since 1993.

Scientific Name	Common Name	Species Code
<b>Order Clupeiformes</b>		
<b>Family Clupeidae</b>		<b>herrings</b>
<i>Dorosoma cepedianum</i> .....	Gizzard Shad	(DORCEP)
<i>Dorosoma petenense</i> .....	Threadfin Shad	(DORPET)
<b>Order Cypriniformes</b>		
<b>Family Cyprinidae</b>		<b>carps and minnows</b>
<i>Campostoma anomalum</i> .....	Central Stoneroller	(CAMANO)
<i>Carassius auratus</i> .....	Goldfish	(CARAUR)
<i>Cyprinella lutrensis</i> .....	Red Shiner <sup>1</sup>	(CYPLUT)
<i>Cyprinus carpio</i> .....	Common Carp <sup>1</sup>	(CYPCAR)
<i>Gila pandora</i> .....	Rio Grande Chub	(GILPAN)
<i>Hybognathus amarus</i> .....	Rio Grande Silvery Minnow <sup>1</sup>	(HYBAMA)
<i>Notemigonus crysoleucas</i> .....	Golden Shiner	(NOTCRY)
<i>Pimephales promelas</i> .....	Fathead Minnow <sup>1</sup>	(PIMPRO)
<i>Pimephales vigilax</i> .....	Bullhead Minnow	(PIMVIG)
<i>Platygobio gracilis</i> .....	Flathead Chub <sup>1</sup>	(PLAGRA)
<i>Rhinichthys cataractae</i> .....	Longnose Dace <sup>1</sup>	(RHICAT)
<b>Family Catostomidae</b>		<b>suckers</b>
<i>Carpodes carpio</i> .....	River Carpsucker <sup>1</sup>	(CARCAR)
<i>Catostomus commersonii</i> .....	White Sucker <sup>1</sup>	(CATCOM)
<i>Ictiobus bubalus</i> .....	Smallmouth Buffalo	(ICTBUB)
<b>Order Siluriformes</b>		
<b>Family Ictaluridae</b>		<b>North American catfishes</b>
<i>Ameiurus melas</i> .....	Black Bullhead	(AMEMEL)
<i>Ameiurus natalis</i> .....	Yellow Bullhead	(AMENAT)
<i>Ictalurus furcatus</i> .....	Blue Catfish	(ICTFUR)
<i>Ictalurus punctatus</i> .....	Channel Catfish <sup>1</sup>	(ICTPUN)
<i>Pylodictis olivaris</i> .....	Flathead Catfish	(PYLOLI)
<b>Family Loricariidae</b>		<b>suckermouth armored catfishes</b>
<i>Pterygoplichthys disjunctivus</i> .....	Vermiculated Sailfin Catfish	(PTEDIS)
<b>Order Esociformes</b>		
<b>Family Esocidae</b>		<b>pikes and mudminnows</b>
<i>Esox lucius</i> .....	Northern Pike	(ESOLUC)



Table 1. Scientific names, common names, and species codes of fishes collected in the Middle Rio Grande since 1993 (continued).

Scientific Name	Common Name	Species Code
<b>Order Salmoniformes</b>		
<b>Family Salmonidae</b>		
	<b>trouts and salmons</b>	
<i>Oncorhynchus mykiss</i> .....	Rainbow Trout	(ONCMYK)
<i>Salmo trutta</i> .....	Brown Trout	(SALTRU)
<b>Order Cyprinodontiformes</b>		
<b>Family Poeciliidae</b>		
	<b>livebearers</b>	
<i>Gambusia affinis</i> .....	Western Mosquitofish <sup>1</sup>	(GAMAFF)
<b>Order Perciformes</b>		
<b>Family Moronidae</b>		
	<b>temperate basses</b>	
<i>Morone chrysops</i> .....	White Bass	(MORCHR)
<i>Morone saxatilis</i> .....	Striped Bass	(MORSAX)
<b>Family Centrarchidae</b>		
	<b>sunfishes</b>	
<i>Lepomis cyanellus</i> .....	Green Sunfish	(LEPCYA)
<i>Lepomis macrochirus</i> .....	Bluegill	(LEPMAC)
<i>Lepomis megalotis</i> .....	Longear Sunfish	(LEPMEG)
<i>Micropterus dolomieu</i> .....	Smallmouth Bass	(MICDOL)
<i>Micropterus salmoides</i> .....	Largemouth Bass	(MICSAL)
<i>Pomoxis annularis</i> .....	White Crappie	(POMANN)
<i>Pomoxis nigromaculatus</i> .....	Black Crappie	(POMNIG)
<b>Family Percidae</b>		
	<b>perches and darters</b>	
<i>Perca flavescens</i> .....	Yellow Perch	(PERFLA)
<i>Percina macrolepida</i> .....	Bigscale Logperch	(PERMAC)
<i>Sander vitreus</i> .....	Walleye	(SANVIT)
<b>Family Sciaenidae</b>		
	<b>drums and croakers</b>	
<i>Aplodinotus grunniens</i> .....	Freshwater Drum	(APLGRU)

<sup>1</sup> = Focal taxa were typically the 10 most abundant species collected during October.

Table 2. Rio Grande Silvery Minnow abundance, by reach, site, and mesohabitat, during September 2023. Marked and unmarked individuals were included. Blank cells indicate site-specific mesohabitats that were unavailable for sampling.

Reach	Site	Locality	BW	PO	RU	SHPO	SHRU	Total
Angostura	1	Angostura Dam	0	0	0	0	0	0
Angostura	2	Bernalillo	0	0	1	0	2	3
Angostura	3	Rio Rancho		2	1	1	10	14
Angostura	4	Central Ave.		0	16	1	5	22
Angostura	5	Rio Bravo Blvd.	11	0	0	2	0	13
<i>Angostura Totals</i>			11	2	18	4	17	52
Isleta	6	Los Lunas			80	0	212	292
Isleta	7	Belen		1		53	0	54
Isleta	8	Jarales	0	1	11	0	71	83
Isleta	9	Bernardo	0	0	0	0	79	79
Isleta	10	La Joya	0		2	0	14	16
Isleta	11	North of San Acacia	0	1	2	0		3
<i>Isleta Totals</i>			0	3	95	53	376	527
San Acacia	12	San Acacia Dam	4	27	68	107	19	225
San Acacia	13	South of San Acacia	0	7	13	11	25	56
San Acacia	14	Socorro	5	2	1	2	15	25
San Acacia	15	North of San Antonio		0				0
San Acacia	16	San Antonio						0
San Acacia	17	South of San Antonio						0
San Acacia	18	San Marcial		0				0
San Acacia	59	Site 59		1	0	0	0	1
San Acacia	60	Site 60		0	0	0	0	0
San Acacia	19	South of San Marcial 1	0	0	0	0	0	0
San Acacia	20	South of San Marcial 2	0	0	0	0	0	0
<i>San Acacia Totals</i>			9	37	82	120	59	307
<b>Monthly Totals</b>			<b>20</b>	<b>42</b>	<b>195</b>	<b>177</b>	<b>452</b>	<b>886</b>

Table 3. Rio Grande Silvery Minnow abundance, by reach, site, and month, during 2023. Marked individuals are shown in parentheses, as a subset of the site-specific total. Blank cells indicate months when a site was not visited or will not be visited.

Reach	Site	Locality	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Angostura	1	Angostura Dam	0	0	0	0	0	0	0	0
Angostura	2	Bernalillo	0	0	0	9(0)	62(0)	3(0)	0	74
Angostura	3	Rio Rancho	0	0	0	2(0)	19(0)	14(0)	0	35
Angostura	21	Site 21	0						0	0
Angostura	22	Site 22	2(0)						0	2
Angostura	23	Site 23	0						0	0
Angostura	24	Site 24	0						0	0
Angostura	4	Central Ave.	0	0	57(0)	81(0)	23(0)	22(0)	0	183
Angostura	5	Rio Bravo Blvd.	4(4)	0	8(0)	358(0)	21(0)	13(0)	0	404
Angostura	25	Site 25	0						0	0
<i>Angostura Totals</i>			6	0	65	450	125	52	0	698
Isleta	26	Site 26	1(1)						0	1
Isleta	6	Los Lunas	1(1)	0	8(0)	317(0)	13(0)	292(0)	0	631
Isleta	27	Site 27	0						0	0
Isleta	7	Belen	0	0	1(0)	488(0)	104(0)	54(0)	0	647
Isleta	8	Jarales	0	0	1(0)	159(0)	12(0)	83(0)	0	255
Isleta	28	Site 28	0						0	0
Isleta	9	Bernardo	0	0	4(0)	132(0)	10(0)	79(0)	0	225
Isleta	10	La Joya	0	0	2(0)	278(0)	7(0)	16(0)	0	303
Isleta	29	Site 29	0						0	0
Isleta	11	North of San Acacia	0	0	0	3(0)	2(0)	3(0)	0	8
<i>Isleta Totals</i>			2	0	16	1,377	148	527	0	2,070
San Acacia	12	San Acacia Dam	4(2)	0	0	1(0)	117(3)	225(0)	0	347
San Acacia	13	South of San Acacia	1(1)	1(1)	7(1)	2(0)	153(0)	56(0)	0	220
San Acacia	30	Site 30	3(3)						0	3
San Acacia	14	Socorro	0	0	0	4(0)	0	25(0)	0	29
San Acacia	54	Site 54					5(0)		0	5
San Acacia	15	North of San Antonio	0	0	0	31(0)	1(1)	0	0	32
San Acacia	16	San Antonio	2(2)	3(2)	13(1)	72(0)	0	0	0	90
San Acacia	17	South of San Antonio	0	0	0	6(0)	32(0)	0	0	38
San Acacia	18	San Marcial	1(1)	0	0	2(0)	1(0)	0	0	4
San Acacia	59	Site 59						1(0)	0	1
San Acacia	60	Site 60						0	0	0
San Acacia	19	South of San Marcial 1	2(2)	0	29(0)	195(0)	96(0)	0	0	322
San Acacia	20	South of San Marcial 2	0	0	0	0	0	0	0	0
<i>San Acacia Totals</i>			13	4	49	313	405	307	0	1,091
<b>Monthly Totals</b>			<b>21</b>	<b>4</b>	<b>130</b>	<b>2,140</b>	<b>678</b>	<b>886</b>	<b>0</b>	<b>3,859</b>

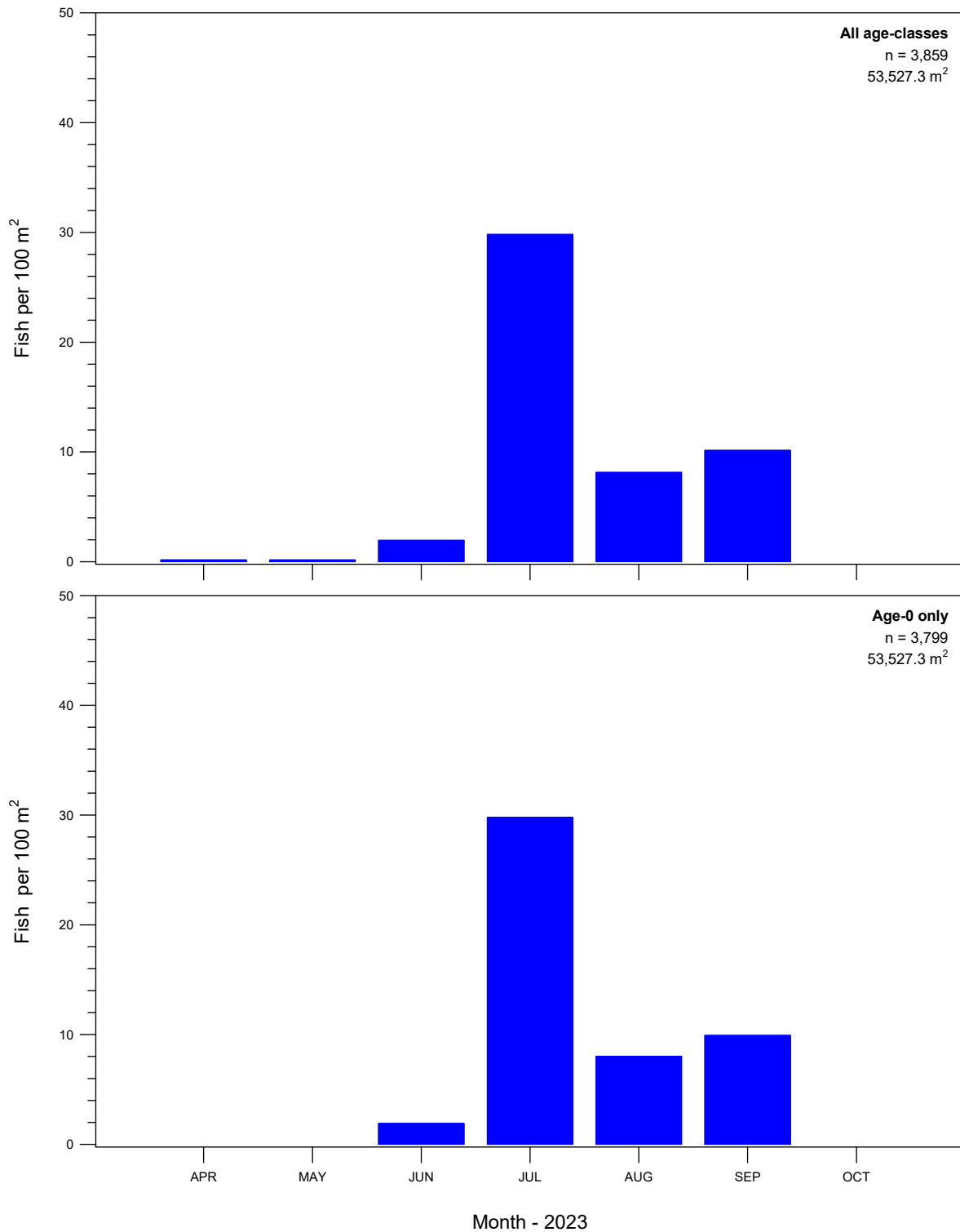


Figure 4. Rio Grande Silvery Minnow densities based on all sites, by age-class and month, during 2023. Marked and unmarked individuals were included.

Table 4. Ichthyofaunal summary based on standard sites, by species, during September 2023. Marked and unmarked Rio Grande Silvery Minnow were included. Dashes (-) indicate species that were absent during sampling.

Family	Common Name	Residence Status <sup>1</sup>	Total Number of Individuals	Percent (%) of Total	Frequency of Occurrence <sup>2</sup>	% Frequency of Occurrence <sup>2</sup>
Clupeidae	Gizzard Shad	N	27	0.46	2	10.00
Clupeidae	Threadfin Shad	I	-	-	-	-
Cyprinidae	Central Stoneroller	I	-	-	-	-
Cyprinidae	Goldfish	I	-	-	-	-
Cyprinidae	Red Shiner	N	1,536	25.96	17	85.00
Cyprinidae	Common Carp	I	393	6.64	16	80.00
Cyprinidae	Rio Grande Chub	N	-	-	-	-
Cyprinidae	Rio Grande Silvery Minnow	N	885	14.96	13	65.00
Cyprinidae	Golden Shiner	I	-	-	-	-
Cyprinidae	Fathead Minnow	N	83	1.40	9	45.00
Cyprinidae	Bullhead Minnow	I	1	0.02	1	5.00
Cyprinidae	Flathead Chub	N	114	1.93	8	40.00
Cyprinidae	Longnose Dace	N	100	1.69	4	20.00
Catostomidae	River Carpsucker	N	36	0.61	6	30.00
Catostomidae	White Sucker	I	57	0.96	5	25.00
Catostomidae	Smallmouth Buffalo	N	-	-	-	-
Ictaluridae	Black Bullhead	I	-	-	-	-
Ictaluridae	Yellow Bullhead	I	9	0.15	4	20.00
Ictaluridae	Blue Catfish	N	1	0.02	1	5.00
Ictaluridae	Channel Catfish	I	88	1.49	13	65.00
Ictaluridae	Flathead Catfish	N	-	-	-	-
Loricariidae	Vermiculated Sailfin Catfish	I	-	-	-	-
Esocidae	Northern Pike	I	-	-	-	-
Salmonidae	Rainbow Trout	I	-	-	-	-
Salmonidae	Brown Trout	I	-	-	-	-
Poeciliidae	Western Mosquitofish	I	2,578	43.57	17	85.00
Moronidae	White Bass	I	4	0.07	3	15.00
Moronidae	Striped Bass	I	-	-	-	-
Centrarchidae	Green Sunfish	I	2	0.03	2	10.00
Centrarchidae	Bluegill	N	-	-	-	-
Centrarchidae	Longear Sunfish	I	-	-	-	-
Centrarchidae	Smallmouth Bass	I	-	-	-	-
Centrarchidae	Largemouth Bass	I	2	0.03	2	10.00
Centrarchidae	White Crappie	I	1	0.02	1	5.00
Centrarchidae	Black Crappie	I	-	-	-	-
Percidae	Yellow Perch	I	-	-	-	-
Percidae	Bigscale Logperch	I	-	-	-	-
Percidae	Walleye	I	-	-	-	-
Sciaenidae	Freshwater Drum	N	-	-	-	-
<b>Monthly Total</b>			<b>5,917</b>	<b>100.00</b>		

<sup>1</sup> = Native (N) or introduced (I) species

<sup>2</sup> = Based on standard sites

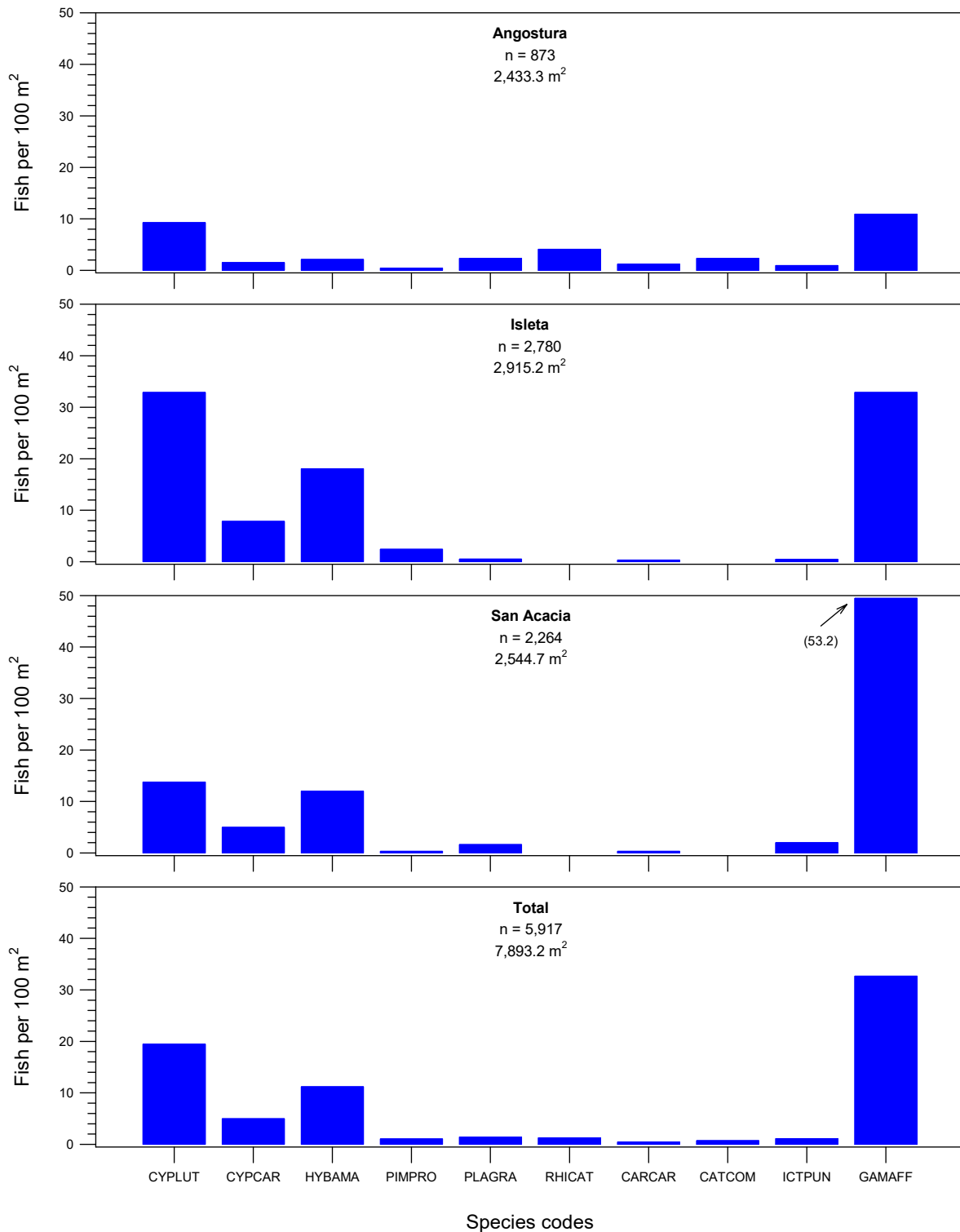


Figure 5. Fish densities based on standard sites, by reach and focal taxa, during September 2023. Marked and unmarked Rio Grande Silvery Minnow were included.

Table 5. Ichthyofaunal summary based on all sites, by species, during September 2023. Marked and unmarked Rio Grande Silvery Minnow were included. Dashes (-) indicate species that were absent during sampling.

Family	Common Name	Residence Status <sup>1</sup>	Total Number of Individuals	Percent (%) of Total	Frequency of Occurrence <sup>2</sup>	% Frequency of Occurrence <sup>2</sup>
Clupeidae	Gizzard Shad	N	58	0.84	4	18.18
Clupeidae	Threadfin Shad	I	-	-	-	-
Cyprinidae	Central Stoneroller	I	-	-	-	-
Cyprinidae	Goldfish	I	-	-	-	-
Cyprinidae	Red Shiner	N	1,605	23.20	19	86.36
Cyprinidae	Common Carp	I	438	6.33	18	81.82
Cyprinidae	Rio Grande Chub	N	-	-	-	-
Cyprinidae	Rio Grande Silvery Minnow	N	886	12.81	14	63.64
Cyprinidae	Golden Shiner	I	-	-	-	-
Cyprinidae	Fathead Minnow	N	83	1.20	9	40.91
Cyprinidae	Bullhead Minnow	I	1	0.01	1	4.55
Cyprinidae	Flathead Chub	N	114	1.65	8	36.36
Cyprinidae	Longnose Dace	N	100	1.45	4	18.18
Catostomidae	River Carpsucker	N	36	0.52	6	27.27
Catostomidae	White Sucker	I	57	0.82	5	22.73
Catostomidae	Smallmouth Buffalo	N	-	-	-	-
Ictaluridae	Black Bullhead	I	-	-	-	-
Ictaluridae	Yellow Bullhead	I	9	0.13	4	18.18
Ictaluridae	Blue Catfish	N	77	1.11	2	9.09
Ictaluridae	Channel Catfish	I	88	1.27	13	59.09
Ictaluridae	Flathead Catfish	N	-	-	-	-
Loricariidae	Vermiculated Sailfin Catfish	I	-	-	-	-
Esocidae	Northern Pike	I	-	-	-	-
Salmonidae	Rainbow Trout	I	-	-	-	-
Salmonidae	Brown Trout	I	-	-	-	-
Poeciliidae	Western Mosquitofish	I	3,355	48.50	19	86.36
Moronidae	White Bass	I	4	0.06	3	13.64
Moronidae	Striped Bass	I	-	-	-	-
Centrarchidae	Green Sunfish	I	2	0.03	2	9.09
Centrarchidae	Bluegill	N	-	-	-	-
Centrarchidae	Longear Sunfish	I	-	-	-	-
Centrarchidae	Smallmouth Bass	I	-	-	-	-
Centrarchidae	Largemouth Bass	I	2	0.03	2	9.09
Centrarchidae	White Crappie	I	1	0.01	1	4.55
Centrarchidae	Black Crappie	I	-	-	-	-
Percidae	Yellow Perch	I	-	-	-	-
Percidae	Bigscale Logperch	I	1	0.01	1	4.55
Percidae	Walleye	I	-	-	-	-
Sciaenidae	Freshwater Drum	N	-	-	-	-
<b>Monthly Total</b>			<b>6,917</b>	<b>100.00</b>		

<sup>1</sup> = Native (N) or introduced (I) species

<sup>2</sup> = Based on all sites

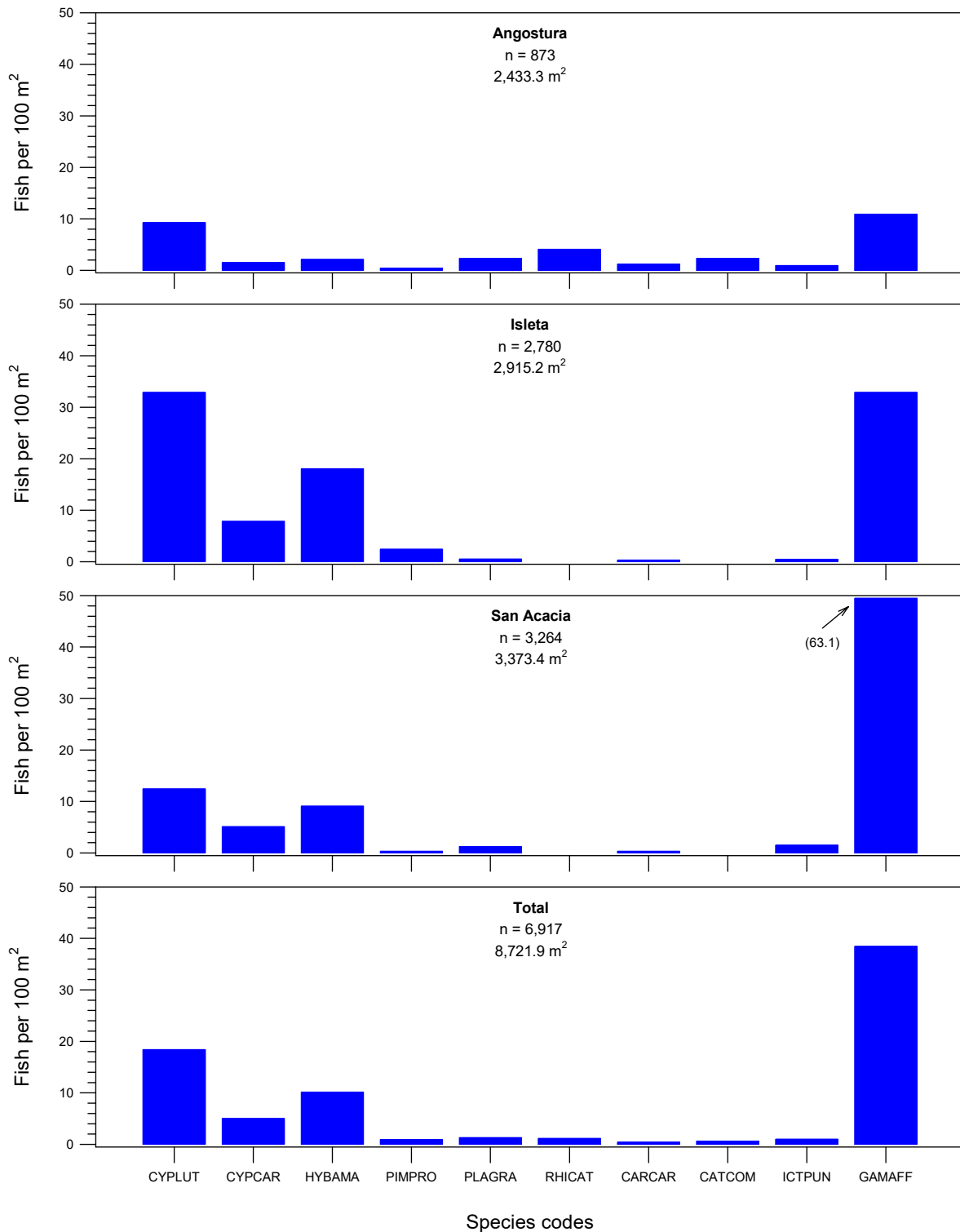


Figure 6. Fish densities based on all sites, by reach and focal taxa, during September 2023. Marked and unmarked Rio Grande Silvery Minnow were included.



Table 6. Ichthyofaunal summary based on all sites, by species and month, during 2023. Marked and unmarked Rio Grande Silvery Minnow were included.

Family	Common Name	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Clupeidae	Gizzard Shad	0	5	0	0	35	58	0	98
Clupeidae	Threadfin Shad	0	0	0	0	0	0	0	0
Cyprinidae	Central Stoneroller	0	0	0	0	0	0	0	0
Cyprinidae	Goldfish	0	0	0	0	0	0	0	0
Cyprinidae	Red Shiner	981	169	101	719	1,958	1,605	0	5,533
Cyprinidae	Common Carp	3	155	258	1,487	1,414	438	0	3,755
Cyprinidae	Rio Grande Chub	0	0	0	0	0	0	0	0
Cyprinidae	Rio Grande Silvery Minnow	21	4	130	2,140	678	886	0	3,859
Cyprinidae	Golden Shiner	0	0	0	0	0	0	0	0
Cyprinidae	Fathead Minnow	6	0	6	87	100	83	0	282
Cyprinidae	Bullhead Minnow	0	0	0	0	0	1	0	1
Cyprinidae	Flathead Chub	239	39	66	97	139	114	0	694
Cyprinidae	Longnose Dace	27	24	14	40	69	100	0	274
Catostomidae	River Carpsucker	0	0	1	26	282	36	0	345
Catostomidae	White Sucker	3	2	57	121	123	57	0	363
Catostomidae	Smallmouth Buffalo	0	0	14	2	0	0	0	16
Ictaluridae	Black Bullhead	0	0	0	9	2	0	0	11
Ictaluridae	Yellow Bullhead	0	0	1	0	4	9	0	14
Ictaluridae	Blue Catfish	0	0	13	10	0	77	0	100
Ictaluridae	Channel Catfish	130	10	4	1	199	88	0	432
Ictaluridae	Flathead Catfish	0	0	0	0	0	0	0	0
Loricariidae	Vermiculated Sailfin Catfish	0	0	0	0	0	0	0	0
Esocidae	Northern Pike	0	0	0	0	1	0	0	1
Salmonidae	Rainbow Trout	0	0	1	0	0	0	0	1
Salmonidae	Brown Trout	16	9	7	0	0	0	0	32
Poeciliidae	Western Mosquitofish	0	0	0	191	2,831	3,355	0	6,377
Moronidae	White Bass	0	0	0	15	1	4	0	20
Moronidae	Striped Bass	1	6	0	0	0	0	0	7
Centrarchidae	Green Sunfish	0	0	0	1	1	2	0	4
Centrarchidae	Bluegill	0	0	0	2	0	0	0	2
Centrarchidae	Longear Sunfish	0	0	0	0	0	0	0	0
Centrarchidae	Smallmouth Bass	0	0	0	1	0	0	0	1
Centrarchidae	Largemouth Bass	0	0	0	6	13	2	0	21
Centrarchidae	White Crappie	0	0	0	4	11	1	0	16
Centrarchidae	Black Crappie	0	0	0	0	0	0	0	0
Percidae	Yellow Perch	0	0	0	0	0	0	0	0
Percidae	Bigscale Logperch	0	0	0	0	0	1	0	1
Percidae	Walleye	0	0	0	0	0	0	0	0
Sciaenidae	Freshwater Drum	0	0	0	0	1	0	0	1
<b>Monthly Totals</b>		<b>1,427</b>	<b>423</b>	<b>673</b>	<b>4,959</b>	<b>7,862</b>	<b>6,917</b>	<b>0</b>	<b>22,261</b>

## **APPENDIX A (Sampling Sites)**

### **Middle Rio Grande Fish Sampling Sites**

Table A1. Sampling reaches and standard sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande.

Reach and Site	Locality
<b>Angostura Reach</b>	
1	New Mexico, Sandoval County, Rio Grande, just downstream of Angostura Diversion Dam, Algodones. River Mile: 209.9; UTM Easting: 363665; UTM Northing: 3916331; Zone: 13; Datum: NAD83
2	New Mexico, Sandoval County, Rio Grande, at US HWY 550 bridge crossing, Bernalillo. River Mile: 203.9; UTM Easting: 358457; UTM Northing: 3909887; Zone: 13; Datum: NAD83
3	New Mexico, Sandoval County, Rio Grande, ca. 4.0 mi downstream of US HWY 550 bridge crossing, Rio Rancho. River Mile: 199.9; UTM Easting: 354728; UTM Northing: 3905587; Zone: 13; Datum: NAD83
4	New Mexico, Bernalillo County, Rio Grande, at Central Ave. bridge crossing (US HWY 66), Albuquerque. River Mile: 183.4; UTM Easting: 346719; UTM Northing: 3884331; Zone: 13; Datum: NAD83
5	New Mexico, Bernalillo County, Rio Grande, at Rio Bravo Blvd. bridge crossing (NM State HWY 500), Albuquerque. River Mile: 178.4; UTM Easting: 347468; UTM Northing: 3877400; Zone: 13; Datum: NAD83
<b>Isleta Reach</b>	
6	New Mexico, Valencia County, Rio Grande, just upstream of NM State HWY 6 bridge crossing, Los Lunas. River Mile: 161.7; UTM Easting: 343149; UTM Northing: 3853187; Zone: 13; Datum: NAD83
7	New Mexico, Valencia County, Rio Grande, ca. 1.0 mi upstream of NM State HWY 309 bridge crossing, Belen. River Mile: 150.8; UTM Easting: 340105; UTM Northing: 3837722; Zone: 13; Datum: NAD83
8	New Mexico, Valencia County, Rio Grande, ca. 2.2 mi upstream of NM State HWY 346 bridge crossing, Jarales. River Mile: 143.2; UTM Easting: 338020; UTM Northing: 3827545; Zone: 13; Datum: NAD83
9	New Mexico, Socorro County, Rio Grande, at US HWY 60 bridge crossing, Bernardo. River Mile: 130.6; UTM Easting: 334578; UTM Northing: 3809921; Zone: 13; Datum: NAD83
10	New Mexico, Socorro County, Rio Grande, ca. 3.7 mi downstream of US HWY 60 bridge crossing, Bernardo. River Mile: 126.8; UTM Easting: 330946; UTM Northing: 3805307; Zone: 13; Datum: NAD83
11	New Mexico, Socorro County, Rio Grande, ca. 1.2 mi upstream of San Acacia Diversion Dam, San Acacia. River Mile: 117.3; UTM Easting: 328152; UTM Northing: 3792564; Zone: 13; Datum: NAD83

Table A1. Sampling reaches and standard sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande (continued).

Reach and Site	Locality
<b>San Acacia Reach</b>	
12	New Mexico, Socorro County, Rio Grande, just downstream of San Acacia Diversion Dam, San Acacia. River Mile: 115.6; UTM Easting: 325960; UTM Northing: 3792182; Zone: 13; Datum: NAD83
13	New Mexico, Socorro County, Rio Grande, ca. 1.5 mi downstream of San Acacia Diversion Dam, San Acacia. River Mile: 114.1; UTM Easting: 325390; UTM Northing: 3790397; Zone: 13; Datum: NAD83
14	New Mexico, Socorro County, Rio Grande, ca. 0.5 mi upstream of Socorro Low Flow Conveyance Channel bridge crossing, Socorro. River Mile: 99.6; UTM Easting: 327231; UTM Northing: 3771432; Zone: 13; Datum: NAD83
15	New Mexico, Socorro County, Rio Grande, ca. 4.5 mi upstream of US HWY 380 bridge crossing, San Antonio. River Mile: 92.0; UTM Easting: 328151; UTM Northing: 3761487; Zone: 13; Datum: NAD83
16	New Mexico, Socorro County, Rio Grande, at US HWY 380 bridge crossing, San Antonio. River Mile: 87.8; UTM Easting: 328907; UTM Northing: 3754926; Zone: 13; Datum: NAD83
17	New Mexico, Socorro County, Rio Grande, east of Bosque del Apache NWR headquarters, San Antonio. River Mile: 79.0; UTM Easting: 327219; UTM Northing: 3740906; Zone: 13; Datum: NAD83
18	New Mexico, Socorro County, Rio Grande, at San Marcial Railroad bridge crossing, San Marcial. River Mile: 68.3; UTM Easting: 315091; UTM Northing: 3728487; Zone: 13; Datum: NAD83
19	New Mexico, Socorro County, Rio Grande, ca. 8.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 60.1; UTM Easting: 309441; UTM Northing: 3718309; Zone: 13; Datum: NAD83
20	New Mexico, Socorro County, Rio Grande, ca. 10.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 58.5; UTM Easting: 307767; UTM Northing: 3716360; Zone: 13; Datum: NAD83

Table A2. Sampling reaches and additional sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande.

Reach and Site	Locality
<b>Angostura Reach</b>	
21	New Mexico, Sandoval County, Rio Grande, ca. 4.4 miles upstream of Alameda Blvd. (NM State Hwy. 528) bridge crossing, Corrales. River Mile: 196.6; UTM Easting: 355531; UTM Northing: 3900626; Zone: 13; Datum: NAD83
22	New Mexico, Sandoval County, Rio Grande, ca. 1.1 miles upstream of Alameda Blvd. (NM State Hwy. 528) bridge crossing, Corrales. River Mile: 193.1; UTM Easting: 351562; UTM Northing: 3897190; Zone: 13; Datum: NAD83
23	New Mexico, Bernalillo County, Rio Grande, ca. 1.0 miles downstream of Paseo del Norte Blvd. (NM State Hwy. 423) bridge crossing Albuquerque. River Mile: 190.0; UTM Easting: 349214; UTM Northing: 3893063; Zone: 13; Datum: NAD83
24	New Mexico, Bernalillo County, Rio Grande, ca. 1.1 miles upstream of I-40 bridge crossing, Albuquerque. River Mile: 186.1; UTM Easting: 346011; UTM Northing: 3887973; Zone: 13; Datum: NAD83
25	New Mexico, Bernalillo County, Rio Grande, ca. 1.5 miles upstream of I-25 bridge crossing, Isleta. River Mile: 174.0; UTM Easting: 345900; UTM Northing: 3870990; Zone: 13; Datum: NAD83
<b>Isleta Reach</b>	
26	New Mexico, Valencia County, Rio Grande, ca. 4.1 miles upstream of NM State Hwy. 6 bridge crossing, Los Lunas. River Mile: 165.2; UTM Easting: 342799; UTM Northing: 3858637; Zone: 13; Datum: NAD83
27	New Mexico, Valencia County, Rio Grande, ca. 6.2 miles upstream of NM State Hwy. 309 bridge crossing, Belen. River Mile: 156.0; UTM Easting: 340647; UTM Northing: 3845146; Zone: 13; Datum: NAD83
28	New Mexico, Socorro County, Rio Grande, ca. 6.3 miles upstream of U.S. Hwy. 60 bridge crossing, Bernardo. River Mile: 137.1; UTM Easting: 335554; UTM Northing: 3819543; Zone: 13; Datum: NAD83
29	New Mexico, Socorro County, Rio Grande, ca. 1.5 miles upstream of confluence with the Rio Salado, San Acacia. River Mile: 120.1; UTM Easting: 330498; UTM Northing: 3795053; Zone: 13; Datum: NAD83
<b>San Acacia Reach</b>	
30	New Mexico, Socorro County, Rio Grande, ca. 2.6 miles upstream of Pueblitos Rd. bridge crossing, Escondida. River Mile: 107.1; UTM Easting: 326303; UTM Northing: 3781123; Zone: 13; Datum: NAD83

Table A3. Sampling reaches and replacement sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande.

Reach and Site	Locality
<b>Isleta Reach</b>	
44	New Mexico, Valencia County, Rio Grande, ca. 1.0 mi upstream of NM State HWY 309 bridge crossing, Belen. River Mile: 150.5; UTM Easting: 340084; UTM Northing: 3837308; Zone: 13; Datum: NAD83
<b>San Acacia Reach</b>	
51	New Mexico, Socorro County, Rio Grande, ca. 5.0 mi downstream of San Acacia Diversion Dam, San Acacia. River Mile: 110.8; UTM Easting: 325855; UTM Northing: 3786216; Zone: 13; Datum: NAD83
52	New Mexico, Socorro County, Rio Grande, ca. 2.2 mi. downstream of Pueblitos Rd. bridge crossing, Escondida. River Mile: 101.7; UTM Easting: 327091; UTM Northing: 3773950; Zone: 13; Datum: NAD83
53	New Mexico, Socorro County, Rio Grande, ca. 3.1 mi downstream of the Socorro Low Flow Conveyance Channel bridge crossing, Socorro. River Mile: 96.0; UTM Easting: 327933; UTM Northing: 3766570; Zone: 13; Datum: NAD83
54	New Mexico, Socorro County, Rio Grande, ca. 4.7 mi. downstream of Socorro LFCC bridge crossing, Socorro. River Mile: 94.2; UTM Easting: 327288; UTM Northing: 3764453; Zone: 13; Datum: NAD83
56	New Mexico, Socorro County, Rio Grande, ca. 2.1 miles upstream of San Antonio bridge crossing, San Antonio. River Mile: 89.3; UTM Easting: 329188; UTM Northing: 3758027; Zone: 13; Datum: NAD83
58	New Mexico, Socorro County, Rio Grande, ca. 1.8 mi. upstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 70.1; UTM Easting: 318083; UTM Northing: 3728535; Zone: 13; Datum: NAD83
59	New Mexico, Socorro County, Rio Grande, ca. 5.1 mi. downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 63.3; UTM Easting: 313269; UTM Northing: 3721434; Zone: 13; Datum: NAD83
60	New Mexico, Socorro County, Rio Grande, ca. 6.4 mi. downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 61.8; UTM Easting: 311422; UTM Northing: 3719873; Zone: 13; Datum: NAD83

### **APPENDIX B (Site-Specific Population Monitoring Data)**

Site-specific data, collected in September 2023, as part of the  
Rio Grande Silvery Minnow Population Monitoring Program  
(Any blanks in this database output indicate null data)

\*\* Data are provisional and should be verified by direct inspection of field data \*\*

**Rio Grande Silvery Minnow Population Monitoring  
 September 2023**

NEW MEXICO: SANDOVAL County, RIO GRANDE Drainage  
 Rio Grande, just downstream of Angostura Diversion Dam, Algodones.  
 Site Number: 1 River Mile: 209.9  
 UTM Easting: 363665 UTM Northing: 3916331 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-129**

08 September 2023  
 USGS Quad: San Felipe Pueblo  
 Effort: 455.3 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	17
76	<i>Platygobio gracilis</i>	4
76	<i>Rhinichthys cataractae</i>	36
81	<i>Catostomus commersonii</i>	12
93	<i>Ameiurus natalis</i>	2
212	<i>Gambusia affinis</i>	96
283	<i>Morone chrysops</i>	2
294	<i>Lepomis cyanellus</i>	1

NEW MEXICO: SANDOVAL County, RIO GRANDE Drainage  
 Rio Grande, at US HWY 550 bridge crossing, Bernalillo.  
 Site Number: 2 River Mile: 203.9  
 UTM Easting: 358457 UTM Northing: 3909887 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-130**

08 September 2023  
 USGS Quad: Bernalillo  
 Effort: 478.8 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	7
76	<i>Cyprinus carpio</i>	4
76	<i>Hybognathus amarus*</i>	3
76	<i>Pimephales promelas</i>	1
76	<i>Platygobio gracilis</i>	12
76	<i>Rhinichthys cataractae</i>	60
81	<i>Carpionodes carpio</i>	1
81	<i>Catostomus commersonii</i>	12
93	<i>Ameiurus natalis</i>	2
93	<i>Ictalurus punctatus</i>	3
212	<i>Gambusia affinis</i>	37

**\*Hybognathus amarus (age-classes):**

age-0	3
age-1	
age-2+	



**Rio Grande Silvery Minnow Population Monitoring  
 September 2023**

NEW MEXICO: SANDOVAL County, RIO GRANDE Drainage  
 Rio Grande, ca. 4.0 mi downstream of US HWY 550 bridge crossing, Rio Rancho.  
 Site Number: 3 River Mile: 199.9  
 UTM Easting: 354728 UTM Northing: 3905587 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-131**  
 08 September 2023  
 USGS Quad: Bernalillo  
 Effort: 507.0 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	90
76	<i>Cyprinus carpio</i>	4
76	<i>Hybognathus amarus*</i>	14
76	<i>Rhinichthys cataractae</i>	2
81	<i>Catostomus commersonii</i>	19
93	<i>Ameiurus natalis</i>	3
93	<i>Ictalurus punctatus</i>	13
212	<i>Gambusia affinis</i>	38

**\*Hybognathus amarus (age-classes):**  
 age-0 14  
 age-1  
 age-2+

NEW MEXICO: BERNALILLO County, RIO GRANDE Drainage  
 Rio Grande, at Central Ave. bridge crossing (US HWY 66), Albuquerque.  
 Site Number: 4 River Mile: 183.4  
 UTM Easting: 346719 UTM Northing: 3884331 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-128**  
 08 September 2023  
 USGS Quad: Albuquerque West  
 Effort: 529.1 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	82
76	<i>Cyprinus carpio</i>	20
76	<i>Hybognathus amarus*</i>	22
76	<i>Pimephales promelas</i>	4
76	<i>Platygobio gracilis</i>	36
76	<i>Rhinichthys cataractae</i>	2
81	<i>Carpiodes carpio</i>	6
81	<i>Catostomus commersonii</i>	8
93	<i>Ictalurus punctatus</i>	3
212	<i>Gambusia affinis</i>	48
283	<i>Morone chrysops</i>	1
294	<i>Lepomis cyanellus</i>	1

**\*Hybognathus amarus (age-classes):**  
 age-0 21  
 age-1 1  
 age-2+

**Rio Grande Silvery Minnow Population Monitoring  
 September 2023**

NEW MEXICO: BERNALILLO County, RIO GRANDE Drainage  
 Rio Grande, at Rio Bravo Blvd. bridge crossing (NM State HWY 500), Albuquerque.  
 Site Number: 5 River Mile: 178.4  
 UTM Easting: 347468 UTM Northing: 3877400 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-127**  
 08 September 2023  
 USGS Quad: Albuquerque West  
 Effort: 463.3 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	30
76	<i>Cyprinus carpio</i>	9
76	<i>Hybognathus amarus*</i>	13
76	<i>Pimephales promelas</i>	6
76	<i>Platygobio gracilis</i>	5
81	<i>Carpiodes carpio</i>	23
81	<i>Catostomus commersonii</i>	6
93	<i>Ictalurus punctatus</i>	4
212	<i>Gambusia affinis</i>	47
283	<i>Morone chrysops</i>	1
294	<i>Pomoxis annularis</i>	1

**\*Hybognathus amarus (age-classes):**  
 age-0 12  
 age-1 1  
 age-2+

NEW MEXICO: VALENCIA County, RIO GRANDE Drainage  
 Rio Grande, just upstream of NM State HWY 6 bridge crossing, Los Lunas.  
 Site Number: 6 River Mile: 161.7  
 UTM Easting: 343149 UTM Northing: 3853187 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-126**  
 07 September 2023  
 USGS Quad: Los Lunas  
 Effort: 611.1 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	454
76	<i>Cyprinus carpio</i>	33
76	<i>Hybognathus amarus*</i>	292
76	<i>Pimephales promelas</i>	4
76	<i>Platygobio gracilis</i>	15
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	31

**\*Hybognathus amarus (age-classes):**  
 age-0 289  
 age-1 3  
 age-2+

**Rio Grande Silvery Minnow Population Monitoring  
 September 2023**

NEW MEXICO: VALENCIA County, RIO GRANDE Drainage  
 Rio Grande, ca. 1.0 mi upstream of NM State HWY 309 bridge crossing, Belen.  
 Site Number: 7 River Mile: 150.8  
 UTM Easting: 340105 UTM Northing: 3837722 Zone: 13 USGS Quad: Tome  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-125**  
 07 September 2023  
 Effort: 403.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	210
76	<i>Cyprinus carpio</i>	109
76	<i>Hybognathus amarus*</i>	54
76	<i>Pimephales promelas</i>	48
81	<i>Carpiodes carpio</i>	4
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	248

**\*Hybognathus amarus (age-classes):**

age-0	54
age-1	
age-2+	

NEW MEXICO: VALENCIA County, RIO GRANDE Drainage  
 Rio Grande, ca. 2.2 mi upstream of NM State HWY 346 bridge crossing, Jarales.  
 Site Number: 8 River Mile: 143.2  
 UTM Easting: 338020 UTM Northing: 3827545 Zone: 13 USGS Quad: Veguita  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-124**  
 07 September 2023  
 Effort: 544.0 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	113
76	<i>Cyprinus carpio</i>	44
76	<i>Hybognathus amarus*</i>	83
76	<i>Pimephales promelas</i>	5
93	<i>Ictalurus punctatus</i>	10
212	<i>Gambusia affinis</i>	114
294	<i>Micropterus salmoides</i>	1

**\*Hybognathus amarus (age-classes):**

age-0	70
age-1	13
age-2+	

**Rio Grande Silvery Minnow Population Monitoring  
 September 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage  
 Rio Grande, at US HWY 60 bridge crossing, Bernardo.  
 Site Number: 9 River Mile: 130.6  
 UTM Easting: 334578 UTM Northing: 3809921 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-123**

07 September 2023  
 USGS Quad: Abeytas  
 Effort: 484.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	128
76	<i>Cyprinus carpio</i>	18
76	<i>Hybognathus amarus*</i>	79
76	<i>Pimephales promelas</i>	6
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	141
294	<i>Micropterus salmoides</i>	1

**\*Hybognathus amarus (age-classes):**

age-0	77
age-1	2
age-2+	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage  
 Rio Grande, ca. 3.7 mi downstream of US HWY 60 bridge crossing, Bernardo.  
 Site Number: 10 River Mile: 126.8  
 UTM Easting: 330946 UTM Northing: 3805307 Zone: 13  
 Collector(s): Dudley, R.K.; Damron, T.D.; Keller, R.C.

**RKD23-122**

07 September 2023  
 USGS Quad: Abeytas  
 Effort: 473.2 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	52
76	<i>Cyprinus carpio</i>	9
76	<i>Hybognathus amarus*</i>	16
76	<i>Pimephales promelas</i>	8
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	400

**\*Hybognathus amarus (age-classes):**

age-0	16
age-1	
age-2+	

**Rio Grande Silvery Minnow Population Monitoring  
 September 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage  
 Rio Grande, ca. 1.2 mi upstream of San Acacia Diversion Dam, San Acacia.  
 Site Number: 11 River Mile: 117.3  
 UTM Easting: 328152 UTM Northing: 3792564 Zone: 13  
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

**RKD23-121**

06 September 2023  
 USGS Quad: La Joya  
 Effort: 398.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	2
76	<i>Cyprinus carpio</i>	16
76	<i>Hybognathus amarus*</i>	3
212	<i>Gambusia affinis</i>	25

**\*Hybognathus amarus (age-classes):**

age-0	3
age-1	
age-2+	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage  
 Rio Grande, just downstream of San Acacia Diversion Dam, San Acacia.  
 Site Number: 12 River Mile: 115.6  
 UTM Easting: 325960 UTM Northing: 3792183 Zone: 13  
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

**RKD23-120**

06 September 2023  
 USGS Quad: San Acacia  
 Effort: 447.4 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	51
76	<i>Cyprinus carpio</i>	62
76	<i>Hybognathus amarus*</i>	225
76	<i>Platygobio gracilis</i>	33
93	<i>Ictalurus punctatus</i>	5
212	<i>Gambusia affinis</i>	240

**\*Hybognathus amarus (age-classes):**

age-0	225
age-1	
age-2+	

**Rio Grande Silvery Minnow Population Monitoring  
 September 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage  
 Rio Grande, ca. 1.5 mi downstream of San Acacia Diversion Dam, San Acacia.  
 Site Number: 13 River Mile: 114.1  
 UTM Easting: 325390 UTM Northing: 3790397 Zone: 13  
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

**RKD23-119**  
 06 September 2023  
 USGS Quad: Lemitar  
 Effort: 524.5 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	1
76	<i>Cyprinella lutrensis</i>	173
76	<i>Cyprinus carpio</i>	27
76	<i>Hybognathus amarus*</i>	56
76	<i>Platygobio gracilis</i>	1
81	<i>Carpiodes carpio</i>	1
93	<i>Ameiurus natalis</i>	2
93	<i>Ictalurus punctatus</i>	30
212	<i>Gambusia affinis</i>	202

**\*Hybognathus amarus (age-classes):**

age-0	56
age-1	
age-2+	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage  
 Rio Grande, ca. 0.5 mi upstream of Socorro Low Flow Conveyance Channel bridge crossing, Socorro.

Site Number: 14 River Mile: 99.6  
 UTM Easting: 327231 UTM Northing: 3771432 Zone: 13  
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

**RKD23-118**  
 06 September 2023  
 USGS Quad: Loma de las Canas  
 Effort: 519.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	30
76	<i>Cyprinus carpio</i>	8
76	<i>Hybognathus amarus*</i>	25
76	<i>Pimephales vigilax</i>	1
76	<i>Platygobio gracilis</i>	8
81	<i>Carpiodes carpio</i>	1
93	<i>Ictalurus punctatus</i>	15
212	<i>Gambusia affinis</i>	171

**\*Hybognathus amarus (age-classes):**

age-0	25
age-1	
age-2+	

### Rio Grande Silvery Minnow Population Monitoring September 2023

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-117**  
Rio Grande, ca. 4.5 mi upstream of US HWY 380 bridge crossing, San Antonio.  
Site Number: 15 River Mile: 92.0 06 September 2023  
UTM Easting: 328151 UTM Northing: 3761487 Zone: 13 USGS Quad: San Antonio  
Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S. Effort: 2.9 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
	No Fish Collected	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-116**  
Rio Grande, at US HWY 380 bridge crossing, San Antonio.  
Site Number: 16 River Mile: 87.8 06 September 2023  
UTM Easting: 328907 UTM Northing: 3754926 Zone: 13 USGS Quad: San Antonio  
Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S. Effort: sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
	Site Dry	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-115**  
Rio Grande, east of Bosque del Apache NWR headquarters, San Antonio.  
Site Number: 17 River Mile: 79.0 05 September 2023  
UTM Easting: 327219 UTM Northing: 3740906 Zone: 13 USGS Quad: San Antonio SE  
Collector(s): Urioste, A.D.; Keller, R.C.; Winter, S. Effort: sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
	Site Dry	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-114**  
Rio Grande, at San Marcial Railroad bridge crossing, San Marcial.  
Site Number: 18 River Mile: 68.3 05 September 2023  
UTM Easting: 315091 UTM Northing: 3728487 Zone: 13 USGS Quad: San Marcial  
Collector(s): Urioste, A.D.; Keller, R.C.; Winter, S. Effort: 54.0 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	6
76	<i>Cyprinus carpio</i>	8
212	<i>Gambusia affinis</i>	23

### Rio Grande Silvery Minnow Population Monitoring September 2023

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-133**  
Rio Grande, ca. 5.1 mi downstream of San Marcial Railroad bridge crossing, San Marcial  
Site Number: 59 River Mile: 63.3 05 September 2023  
UTM Easting: 313269 UTM Northing: 3721434 Zone: 13 USGS Quad: Paraje Well  
Collector(s): Urioste, A.D.; Keller, R.C.; Winter, S. Effort: 383.6 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	23
76	<i>Cyprinella lutrensis</i>	42
76	<i>Cyprinus carpio</i>	41
76	<i>Hybognathus amarus*</i>	1
93	<i>Ictalurus furcatus</i>	76
212	<i>Gambusia affinis</i>	325
295	<i>Percina macrolepida</i>	1

**\*Hybognathus amarus (age-classes):**

age-0	1
age-1	
age-2+	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-132**  
Rio Grande, ca. 6.4 mi downstream of San Marcial Railroad bridge crossing, San Marcial  
Site Number: 60 River Mile: 61.8 05 September 2023  
UTM Easting: 311422 UTM Northing: 3719864 Zone: 13 USGS Quad: Paraje Well  
Collector(s): Urioste, A.D.; Keller, R.C.; Winter, S. Effort: 445.2 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	8
76	<i>Cyprinella lutrensis</i>	27
76	<i>Cyprinus carpio</i>	4
212	<i>Gambusia affinis</i>	452

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-113**  
Rio Grande, ca. 8.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial.  
Site Number: 19 River Mile: 60.1 05 September 2023  
UTM Easting: 309441 UTM Northing: 3718309 Zone: 13 USGS Quad: Paraje Well  
Collector(s): Urioste, A.D.; Keller, R.C.; Winter, S. Effort: 497.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	30
76	<i>Cyprinus carpio</i>	4
76	<i>Pimephales promelas</i>	1
93	<i>Ictalurus furcatus</i>	1
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	345



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**Rio Grande Silvery Minnow Population Monitoring  
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NEW MEXICO: SOCORRO County, RIO GRANDE Drainage

**RKD23-112**

Rio Grande, ca. 10.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial.

Site Number: 20

River Mile: 58.5

05 September 2023

UTM Easting: 307767

UTM Northing: 3716360

Zone: 13

USGS Quad: Paraje Well

Collector(s): Urioste, A.D.; Keller, R.C.; Winter, S.

Effort: 498.6 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	26
76	<i>Cyprinella lutrensis</i>	61
76	<i>Cyprinus carpio</i>	18
212	<i>Gambusia affinis</i>	372