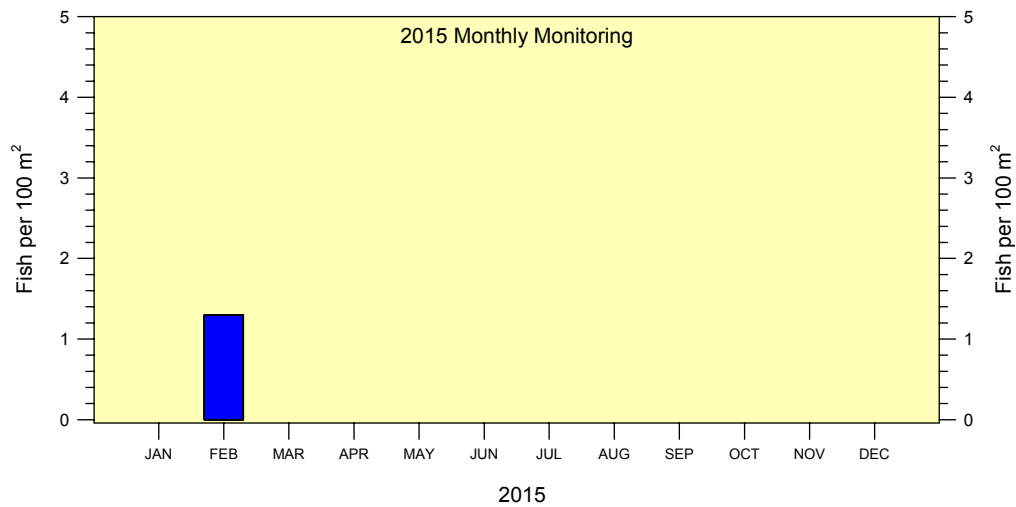
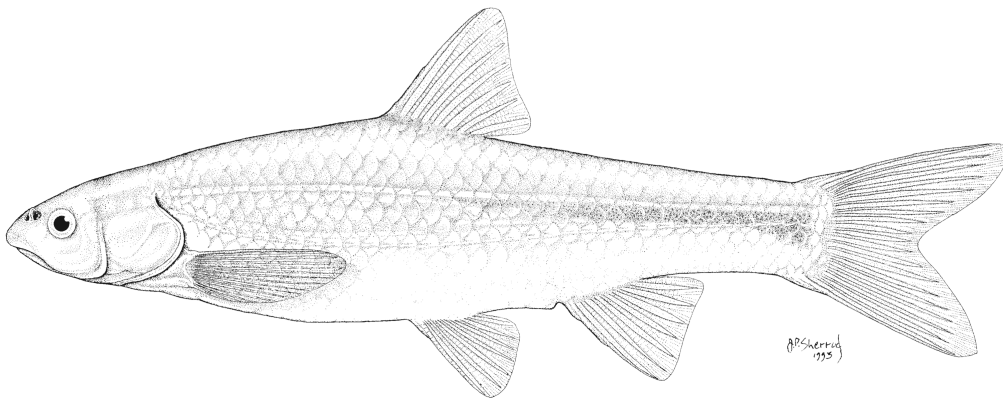


**SUMMARY OF THE RIO GRANDE SILVERY MINNOW
POPULATION MONITORING PROGRAM RESULTS FROM FEBRUARY 2015**

**A MIDDLE RIO GRANDE ENDANGERED SPECIES
COLLABORATIVE PROGRAM FUNDED RESEARCH PROJECT**



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20 March 2015

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prepared for:

MIDDLE RIO GRANDE ENDANGERED SPECIES COLLABORATIVE PROGRAM

under Contract GS-10F-0249X:

Order R14PD00314

U.S. Bureau of Reclamation
Albuquerque Area Office
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20 March 2015

SUMMARY OF OVERALL FEBRUARY 2015 POPULATION MONITORING EFFORTS

The February population monitoring efforts were conducted at 20 sites throughout the Middle Rio Grande. Five sites were located in the Angostura Reach, six sites in the Isleta Reach, and nine sites in the San Acacia Reach. A list of collection localities is appended (Table A-1).

Adult and juvenile fish were obtained by rapidly drawing a 3.1 m x 1.8 m small mesh (3/16th inch) seine through discrete mesohabitats. Larval fish are also collected with a 1.0 m x 1.0 m fine mesh (1/16th inch) seine in all seasons except winter. Rio Grande Silvery Minnow were counted and identified to age-class. Other fishes were identified to species and enumerated, but age-class was not determined. Figures illustrating fish densities (i.e., fish per 100 m²) were prepared for the ten focal species, including Rio Grande Silvery Minnow, to facilitate comparisons among reaches.

During February, sampling covered 11,623.8 m² (surface area) of water and yielded 2,411 fish. Cumulative fish density during February was 20.7 individuals/100 m² sampled. The three most common species were Red Shiner (n = 1,828), Flathead Chub (n = 195), and Rio Grande Silvery Minnow (n = 151). The 20 sampling sites yielded a total of 12 fish species. Rio Grande Silvery Minnow was present in 60 of the 247 seine hauls that yielded fish during February, as compared with 64 of the 253 seine hauls that yielded fish during December. The density of Rio Grande Silvery Minnow was 1.30 individuals/100 m² sampled (n = 151 {82% marked}) and this species composed 6.3% of the total number of fish collected during February.

SUMMARY OF FEBRUARY 2015 POPULATION MONITORING EFFORT BY RIVER REACH

Angostura Reach

Mean daily discharge in the Angostura Reach (Rio Grande at Albuquerque, NM; USGS Gauge 8330000) averaged 652.1 and ranged from 577 to 831 cfs from 16 January to 15 February. Water temperatures were modest and stable (range = 5.8–7.3 °C) during the Angostura Reach sampling efforts (ca. 0830–1530 h). The water clarity was modest throughout the reach; Secchi disk measurements ranged from 14 to 49 cm.

Sampling for fishes in the Angostura Reach during February yielded 250 individuals with a cumulative fish density of 8.7 individuals/100 m² sampled. The overall sampling effort in the Angostura Reach covered 2,878.0 m² (surface area) of water. Densities of all fish species combined ranged from 0.9 to 29.3 individuals per 100 m² at the five sampling sites. In February, species richness (n = 8) was modest in the Angostura Reach. Red Shiner was the most abundant taxon (n = 92), followed by Flathead Chub (n = 64), and Fathead Minnow (n = 53). Rio Grande Silvery Minnow was present in 13 of the 44 seine hauls that yielded fish during February. Densities of Rio Grande Silvery Minnow ranged from 0.0 to 1.7 individuals per 100 m² at the five sampling sites.

Isleta Reach

In the Isleta Reach, mean daily discharge (Rio Grande at Isleta Lakes near Isleta, NM; USGS Gauge 08354900) averaged 706.2 and ranged from 654 to 813 cfs from 16 January to 15 February. Water temperatures ranged from 6.9 to 9.9 °C throughout the sampling localities during the day (ca. 0930–1600 h). The water was turbid throughout portions of the reach; Secchi disk readings ranged from 8 to 14 cm during sampling.

Isleta Reach population monitoring efforts produced 1,010 individuals in February with a cumulative fish density of 28.4 individuals/100 m² sampled. The total sampling effort in the Isleta Reach during February covered 3,561.0 m² (surface area) of water. Fish densities (all species combined) at the six sites ranged from 11.4 to 45.1 individuals per 100 m² sampled. In February, species richness (n = 8) was modest in the Isleta Reach. Red Shiner was the most abundant taxon (n = 827), followed by Channel Catfish (n = 59), and Flathead Chub (n = 48). Rio Grande Silvery Minnow was present in 13 of the 92 seine hauls that yielded fish during February. Densities of Rio Grande Silvery Minnow ranged from 0.0 to 1.1 individuals per 100 m² at the six sampling sites.

San Acacia Reach

Mean daily discharge at San Acacia (Rio Grande Floodway at San Acacia, NM; USGS Gauge 08354900) from 16 January to 15 February was generally higher (average = 737.7; range = 633 to 813 cfs) as compared to San Marcial (Rio Grande Floodway at San Marcial, NM; USGS Gauge 08358400) during the same period (average = 517.4; range = 435 to 664 cfs). Water temperatures in February for the San Acacia Reach ranged from 6.7 to 10.5 °C (ca. 0930–1600 h). Water clarity was low throughout the reach (Secchi disk range = 5 to 8 cm).

Population monitoring efforts in the San Acacia Reach during February yielded 1,151 individuals with a cumulative fish density of 22.2 individuals per 100 m² sampled. Sampling in the San Acacia Reach covered an area of 5,184.8 m² of water during February. Fish densities (all species combined) ranged from 3.9 to 72.9 individuals per 100 m² at the nine sites sampled in the San Acacia Reach. In February, species richness (n = 9) was modest in the San Acacia Reach. Red Shiner was the most abundant taxon (n = 909), followed by Rio Grande Silvery Minnow (n = 111), and Flathead Chub (n = 83). Rio Grande Silvery Minnow was present in 34 of the 111 seine hauls that yielded fish during February. Densities of Rio Grande Silvery Minnow ranged from 0.2 to 9.0 individuals per 100 m² at the nine sampling sites.

CONCLUSIONS

The addition of large numbers of hatchery-reared Rio Grande Silvery Minnow in the autumn of 2014 (ca. 268,000; Thomas P. Archdeacon, New Mexico Fish and Wildlife Conservation Office, pers. comm.) resulted in relatively high densities of this species in February 2015. With the addition of large numbers of hatchery-reared Rio Grande Silvery Minnow, there should presumably be adequate numbers of individuals available in the river for spawning during 2015. However, the total overwinter mortality for the current population of Rio Grande Silvery Minnow, which is composed almost entirely of hatchery-reared individuals, will likely result in substantial losses of individuals by spring 2015 as it has in past years. In light of this recurring pattern, there may be merit in evaluating the possibility of stocking fish during early spring, prior to spawning, as a means of reducing this annual mortality of stocked individuals. Rio Grande Silvery Minnow was present at 18 of the 20 sampling sites and there were 0 age-0 individuals (out of 151 total) collected during sampling efforts in February 2015. An assessment of the conservation status of Rio Grande Silvery Minnow in 2014 (based on the autumnal occurrence and abundance of wild individuals) indicated little change since 2012.

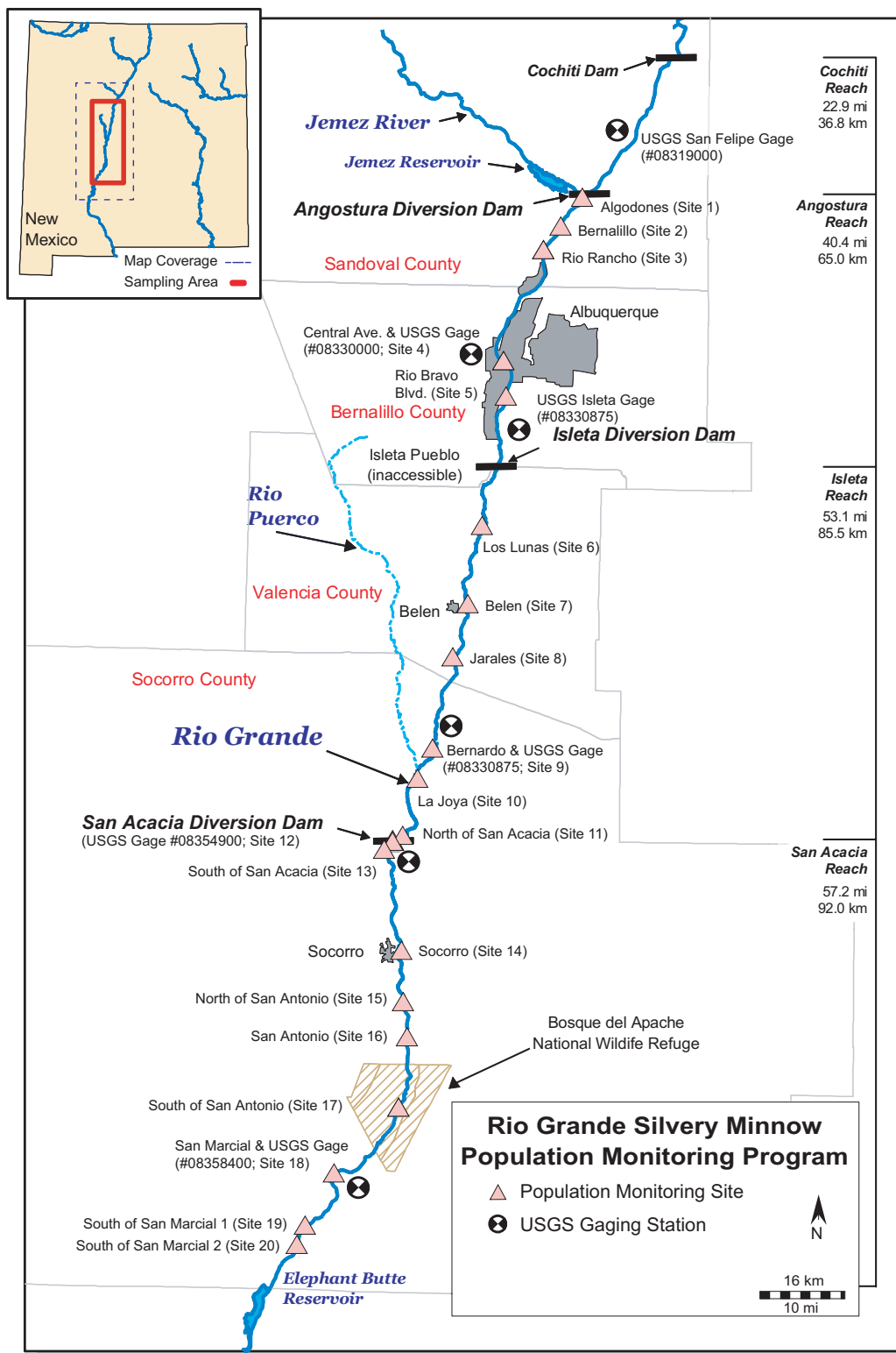


Figure 1. Map of the study area and sampling localities (numbered) for the Rio Grande Silvery Minnow population monitoring program. Sampling locality information that corresponds with the numbered localities is provided in Appendix A (Table A-1).

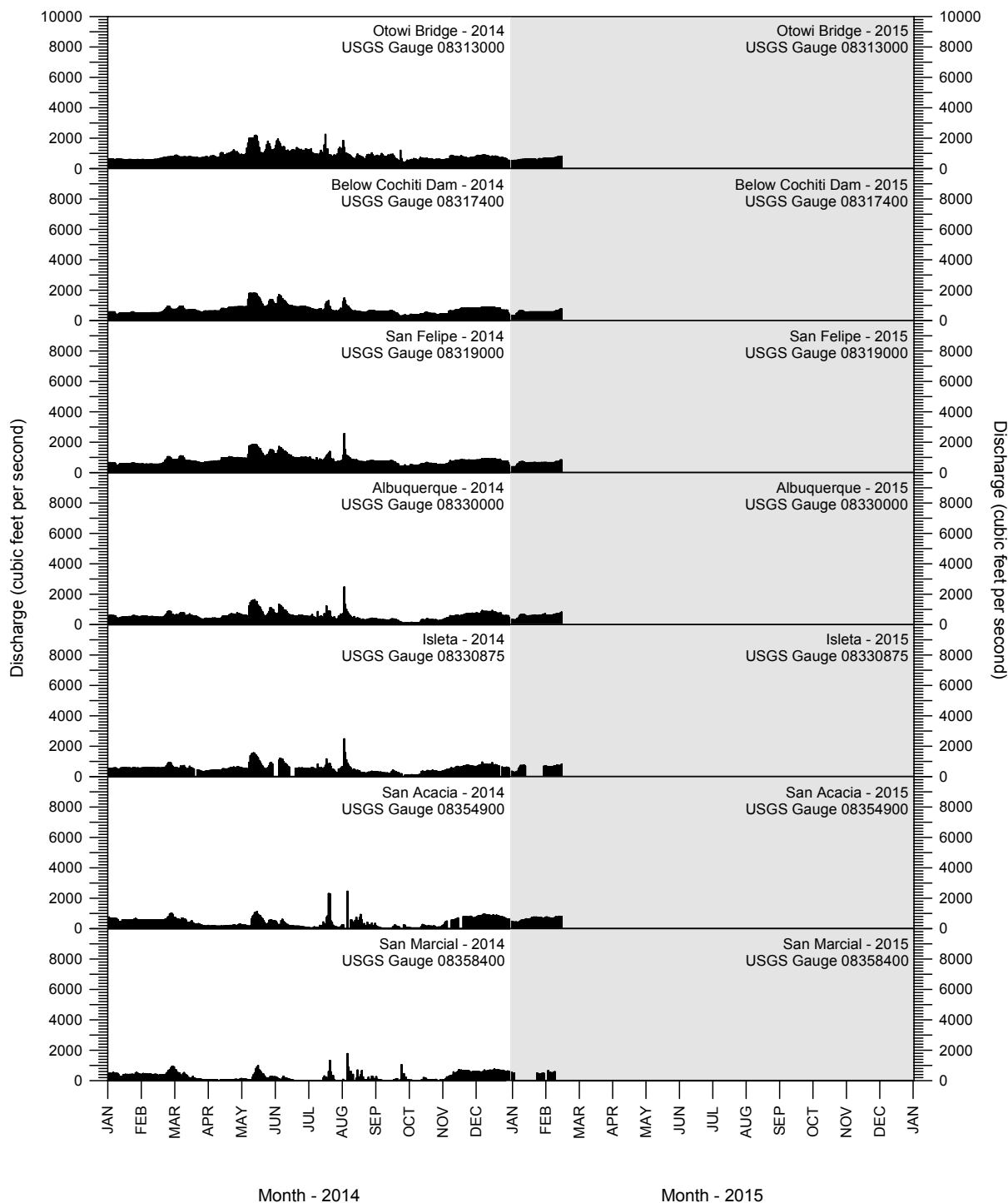


Figure 2. Discharge in the Rio Grande from 1 January 2014 through 15 February 2015 as recorded at seven U. S. Geological Survey (USGS) gauge stations. The Otowi Bridge gauge site is outside of the study area (ca. 25.5 river miles upstream of Cochiti Dam) and provided for reference. **Discharge data are provisional and subject to change.

Table 1. Scientific and common names and species codes of fish collected in the Middle Rio Grande during the Rio Grande Silvery Minnow population monitoring program (since 1993).

Scientific Name	Common Name	Code
Order Clupeiformes		
Family Clupeidae	herrings	
<i>Dorosoma cepedianum</i>	Gizzard Shad	(DORCEP)
<i>Dorosoma petenense</i>	Threadfin Shad	(DORPET)
Order Cypriniformes		
Family Cyprinidae	carps and minnows	
<i>Campostoma anomalum</i>	Central Stoneroller	(CAMANO)
<i>Carassius auratus</i>	Goldfish	(CARAUR)
<i>Cyprinella lutrensis</i>	Red Shiner ¹	(CYPLUT)
<i>Cyprinus carpio</i>	Common Carp ¹	(CYPCAR)
<i>Gila pandora</i>	Rio Grande Chub	(GILPAN)
<i>Hybognathus amarus</i>	Rio Grande Silvery Minnow ¹	(HYBAMA)
<i>Notemigonus crysoleucas</i>	Golden Shiner	(NOTCRY)
<i>Pimephales promelas</i>	Fathead Minnow ¹	(PIMPRO)
<i>Pimephales vigilax</i>	Bullhead Minnow	(PIMVIG)
<i>Platygobio gracilis</i>	Flathead Chub ¹	(PLAGRA)
<i>Rhinichthys cataractae</i>	Longnose Dace ¹	(RHICAT)
Family Catostomidae	suckers	
<i>Carpodes carpio</i>	River Carpsucker ¹	(CARCAR)
<i>Catostomus commersonii</i>	White Sucker ¹	(CATCOM)
<i>Ictiobus bubalus</i>	Smallmouth Buffalo	(ICTBUB)
Order Siluriformes		
Family Ictaluridae	North American catfishes	
<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 ¹	(ICTPUN)
<i>Pylodictis olivaris</i>	Flathead Catfish	(PYLOLI)
Order Salmoniformes		
Family Salmonidae	trouts and salmons	
<i>Oncorhynchus mykiss</i>	Rainbow Trout	(ONCMYK)
<i>Salmo trutta</i>	Brown Trout	(SALTRU)

Table 1. Scientific and common names and species codes of fish collected in the Middle Rio Grande during the Rio Grande Silvery Minnow population monitoring program (since 1993).

Scientific Name	Common Name	Code
Order Cyprinodontiformes		
Family Poeciliidae	livebearers	
<i>Gambusia affinis</i>	Western Mosquitofish ¹	(GAMAFF)
Order Perciformes		
Family Moronidae	temperate basses	
<i>Morone chrysops</i>	White Bass	(MORCHR)
<i>Morone saxatilis</i>	Striped Bass	(MORSAX)
Family Centrarchidae	sunfishes	
<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)
Family Percidae	perches	
<i>Perca flavescens</i>	Yellow Perch	(PERFLA)
<i>Percina macrolepida</i>	Bigscale Logperch	(PERMAC)
<i>Sander vitreus</i>	Walleye	(SANVIT)

¹ Focal taxa represent the most abundant species present in recent Middle Rio Grande collections; these species are illustrated in monthly plots of data.

Table 2. Summary of the February 2015 Rio Grande Silvery Minnow population monitoring program results (species list is based on fish collected since 1993).

FAMILY	SPECIES COMMON NAME	RESIDENCE STATUS ¹	TOTAL NUMBER OF SPECIMENS	PERCENT (%) OF TOTAL	FREQUENCY OF OCCURRENCE ²	% FREQUENCY OCCURRENCE ²
Clupeidae	Gizzard Shad	N	-	-	-	-
Clupeidae	Threadfin Shad	I	-	-	-	-
Cyprinidae	Central Stoneroller	I	-	-	-	-
Cyprinidae	Goldfish	I	-	-	-	-
Cyprinidae	Red Shiner	N	1,828	75.82	19	95
Cyprinidae	Common Carp	I	1	0.04	1	5
Cyprinidae	Rio Grande Chub	N	-	-	-	-
Cyprinidae	Rio Grande Silvery Minnow	N	151	6.26	18	90
Cyprinidae	Golden Shiner	I	-	-	-	-
Cyprinidae	Fathead Minnow	N	103	4.27	9	45
Cyprinidae	Bullhead Minnow	I	1	0.04	1	5
Cyprinidae	Flathead Chub	N	195	8.09	18	90
Cyprinidae	Longnose Dace	N	4	0.17	2	10
Catostomidae	River Carpsucker	N	10	0.41	5	25
Catostomidae	White Sucker	I	7	0.29	3	15
Catostomidae	Smallmouth Buffalo	N	-	-	-	-
Ictaluridae	Black Bullhead	I	-	-	-	-
Ictaluridae	Yellow Bullhead	I	-	-	-	-
Ictaluridae	Blue Catfish	N	-	-	-	-
Ictaluridae	Channel Catfish	I	102	4.23	14	70
Ictaluridae	Flathead Catfish	N	-	-	-	-
Salmonidae	Rainbow Trout	I	-	-	-	-
Salmonidae	Brown Trout	I	-	-	-	-
Poeciliidae	Western Mosquitofish	I	8	0.33	4	20
Moronidae	White Bass	I	1	0.04	1	5
Moronidae	Striped Bass	I	-	-	-	-
Centrarchidae	Green Sunfish	I	-	-	-	-
Centrarchidae	Bluegill	N	-	-	-	-
Centrarchidae	Longear Sunfish	I	-	-	-	-
Centrarchidae	Smallmouth Bass	I	-	-	-	-
Centrarchidae	Largemouth Bass	I	-	-	-	-
Centrarchidae	White Crappie	I	-	-	-	-
Centrarchidae	Black Crappie	I	-	-	-	-
Percidae	Yellow Perch	I	-	-	-	-
Percidae	Bigscale Logperch	I	-	-	-	-
Percidae	Walleye	I	-	-	-	-

¹ N = native; I = introduced

² Frequency and % frequency of occurrence are based on 20 sample sites.

Table 3. Summary of the monthly catch of all fish species during 2015 (species list is based on fish collected since 1993).

FAMILY	SPECIES COMMON NAME	F	A	M	J	J	A	S	O	D	T
		E	P	A	U	U	U	E	C	E	O
		B	R	Y	N	L	G	P	T	C	T
											A
											L
Clupeidae	Gizzard Shad	-	-	-	-	-	-	-	-	-	0
Clupeidae	Threadfin Shad	-	-	-	-	-	-	-	-	-	0
Cyprinidae	Central Stoneroller	-	-	-	-	-	-	-	-	-	0
Cyprinidae	Goldfish	-	-	-	-	-	-	-	-	-	0
Cyprinidae	Red Shiner	1,828	-	-	-	-	-	-	-	-	1,828
Cyprinidae	Common Carp	1	-	-	-	-	-	-	-	-	1
Cyprinidae	Rio Grande Chub	-	-	-	-	-	-	-	-	-	0
Cyprinidae	Rio Grande Silvery Minnow	151	-	-	-	-	-	-	-	-	151
Cyprinidae	Golden Shiner	-	-	-	-	-	-	-	-	-	0
Cyprinidae	Fathead Minnow	103	-	-	-	-	-	-	-	-	103
Cyprinidae	Bullhead Minnow	1	-	-	-	-	-	-	-	-	1
Cyprinidae	Flathead Chub	195	-	-	-	-	-	-	-	-	195
Cyprinidae	Longnose Dace	4	-	-	-	-	-	-	-	-	4
Catostomidae	River Carpsucker	10	-	-	-	-	-	-	-	-	10
Catostomidae	White Sucker	7	-	-	-	-	-	-	-	-	7
Catostomidae	Smallmouth Buffalo	-	-	-	-	-	-	-	-	-	0
Ictaluridae	Black Bullhead	-	-	-	-	-	-	-	-	-	0
Ictaluridae	Yellow Bullhead	-	-	-	-	-	-	-	-	-	0
Ictaluridae	Blue Catfish	-	-	-	-	-	-	-	-	-	0
Ictaluridae	Channel Catfish	102	-	-	-	-	-	-	-	-	102
Ictaluridae	Flathead Catfish	-	-	-	-	-	-	-	-	-	0
Salmonidae	Rainbow Trout	-	-	-	-	-	-	-	-	-	0
Salmonidae	Brown Trout	-	-	-	-	-	-	-	-	-	0
Poeciliidae	Western Mosquitofish	8	-	-	-	-	-	-	-	-	8
Moronidae	White Bass	1	-	-	-	-	-	-	-	-	1
Moronidae	Striped Bass	-	-	-	-	-	-	-	-	-	0
Centrarchidae	Green Sunfish	-	-	-	-	-	-	-	-	-	0
Centrarchidae	Bluegill	-	-	-	-	-	-	-	-	-	0
Centrarchidae	Longear Sunfish	-	-	-	-	-	-	-	-	-	0
Centrarchidae	Smallmouth Bass	-	-	-	-	-	-	-	-	-	0
Centrarchidae	Largemouth Bass	-	-	-	-	-	-	-	-	-	0
Centrarchidae	White Crappie	-	-	-	-	-	-	-	-	-	0
Centrarchidae	Black Crappie	-	-	-	-	-	-	-	-	-	0
Percidae	Yellow Perch	-	-	-	-	-	-	-	-	-	0
Percidae	Bigscale Logperch	-	-	-	-	-	-	-	-	-	0
Percidae	Walleye	-	-	-	-	-	-	-	-	-	0
MONTHLY TOTALS		2,411	0	0	0	0	0	0	0	0	2,411

Table 4. Summary of the monthly catch of Rio Grande Silvery Minnow, by site and reach, during 2015. All marked individuals at a site are shown in parentheses (subset of the total).

REACH	SITE #	SITE NAME	F E B	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	D E C	T O T A L
Angostura	1	Angostura Dam	-	-	-	-	-	-	-	-	-	0
Angostura	2	Bernalillo	8(5)	-	-	-	-	-	-	-	-	8
Angostura	3	Rio Rancho	3(2)	-	-	-	-	-	-	-	-	3
Angostura	4	Central Ave.	2(2)	-	-	-	-	-	-	-	-	2
Angostura	5	Rio Bravo Blvd.	10(10)	-	-	-	-	-	-	-	-	10
Angostura Totals			23	0	0	0	0	0	0	0	0	23
Isleta	6	Los Lunas	6(1)	-	-	-	-	-	-	-	-	6
Isleta	7	Belen	3(3)	-	-	-	-	-	-	-	-	3
Isleta	8	Jarales	3(1)	-	-	-	-	-	-	-	-	3
Isleta	9	Bernardo	4(3)	-	-	-	-	-	-	-	-	4
Isleta	10	La Joya	-	-	-	-	-	-	-	-	-	0
Isleta	11	North of San Acacia	1(1)	-	-	-	-	-	-	-	-	1
Isleta Totals			17	0	0	0	0	0	0	0	0	17
San Acacia	12	San Acacia Dam	5(0)	-	-	-	-	-	-	-	-	5
San Acacia	13	South of San Acacia	1(0)	-	-	-	-	-	-	-	-	1
San Acacia	14	Socorro	52(52)	-	-	-	-	-	-	-	-	52
San Acacia	15	North of San Antonio	15(15)	-	-	-	-	-	-	-	-	15
San Acacia	16	San Antonio	11(7)	-	-	-	-	-	-	-	-	11
San Acacia	17	South of San Antonio	1(1)	-	-	-	-	-	-	-	-	1
San Acacia	18	San Marcial	5(5)	-	-	-	-	-	-	-	-	5
San Acacia	19	South of San Marcial 1	18(15)	-	-	-	-	-	-	-	-	18
San Acacia	20	South of San Marcial 2	3(1)	-	-	-	-	-	-	-	-	3
San Acacia Totals			111	0	0	0	0	0	0	0	0	111
MONTHLY TOTALS			151	0	0	0	0	0	0	0	0	151

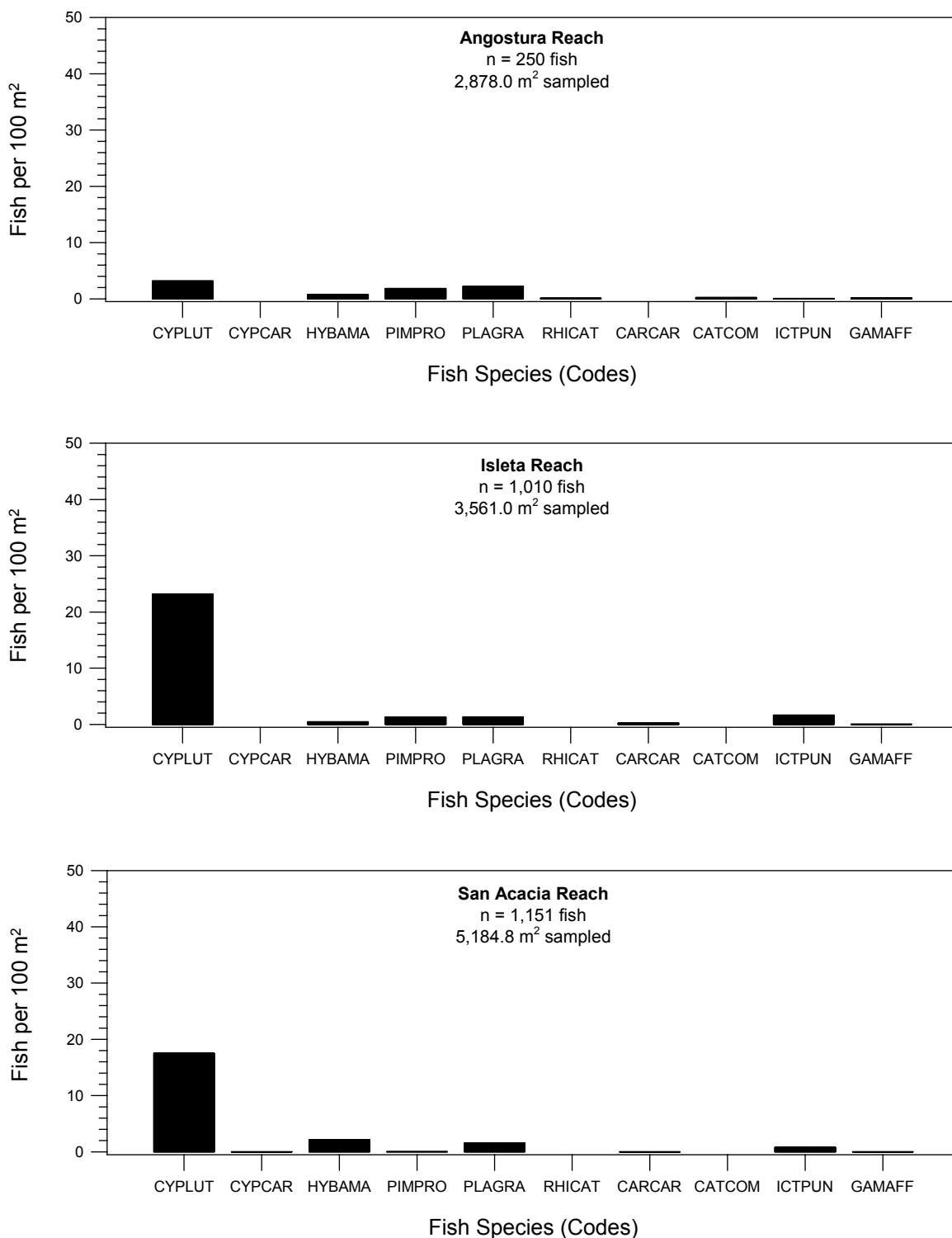


Figure 3. Fish densities from February 2015 for each focal species in the three reaches of the Middle Rio Grande (see Table 1 for fish species codes).

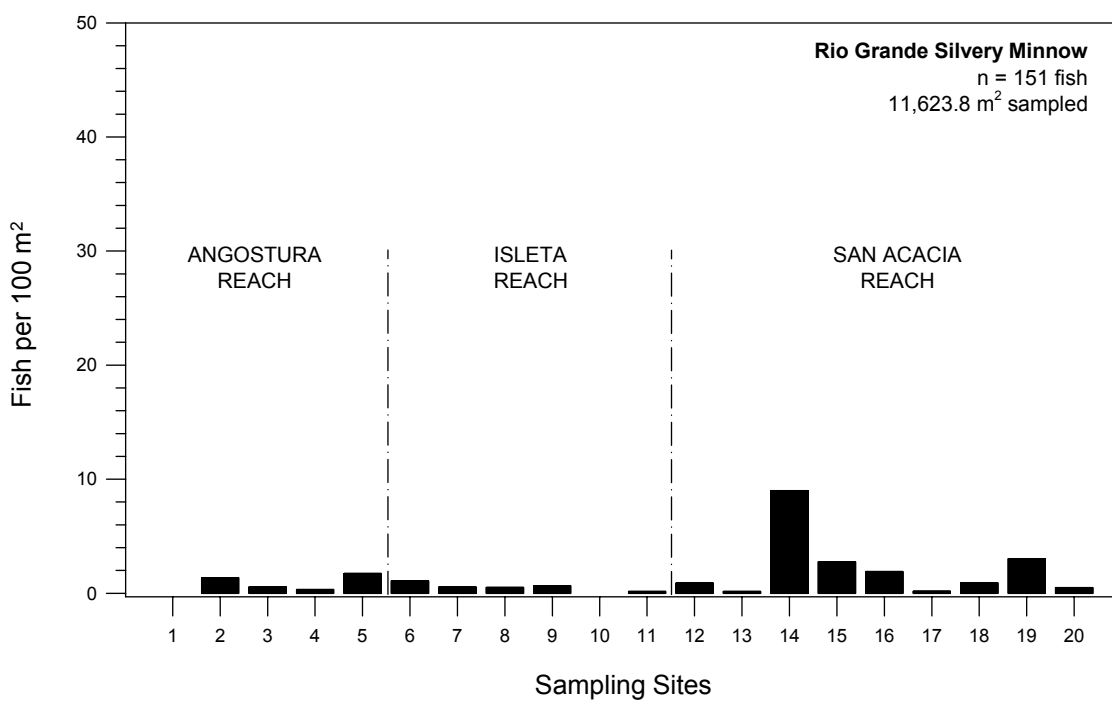
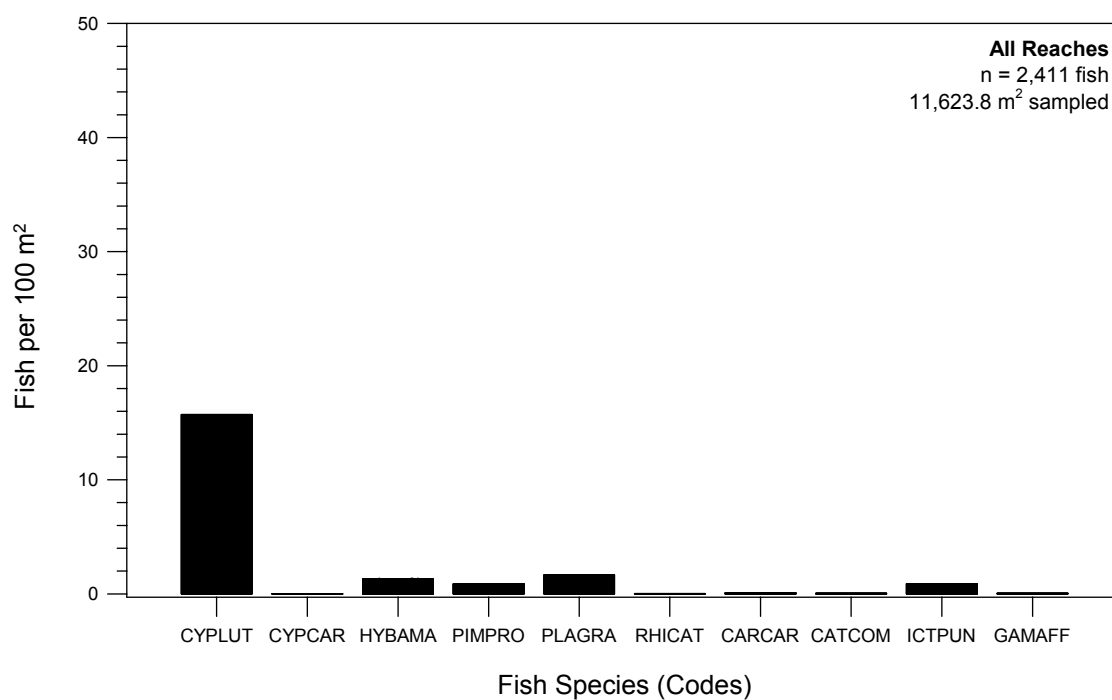


Figure 4. Catch rates for ten focal species from all reaches combined, including Rio Grande Silvery Minnow, during February 2015 at Rio Grande Silvery Minnow population monitoring program collection sites (see Table 1 for fish species codes).

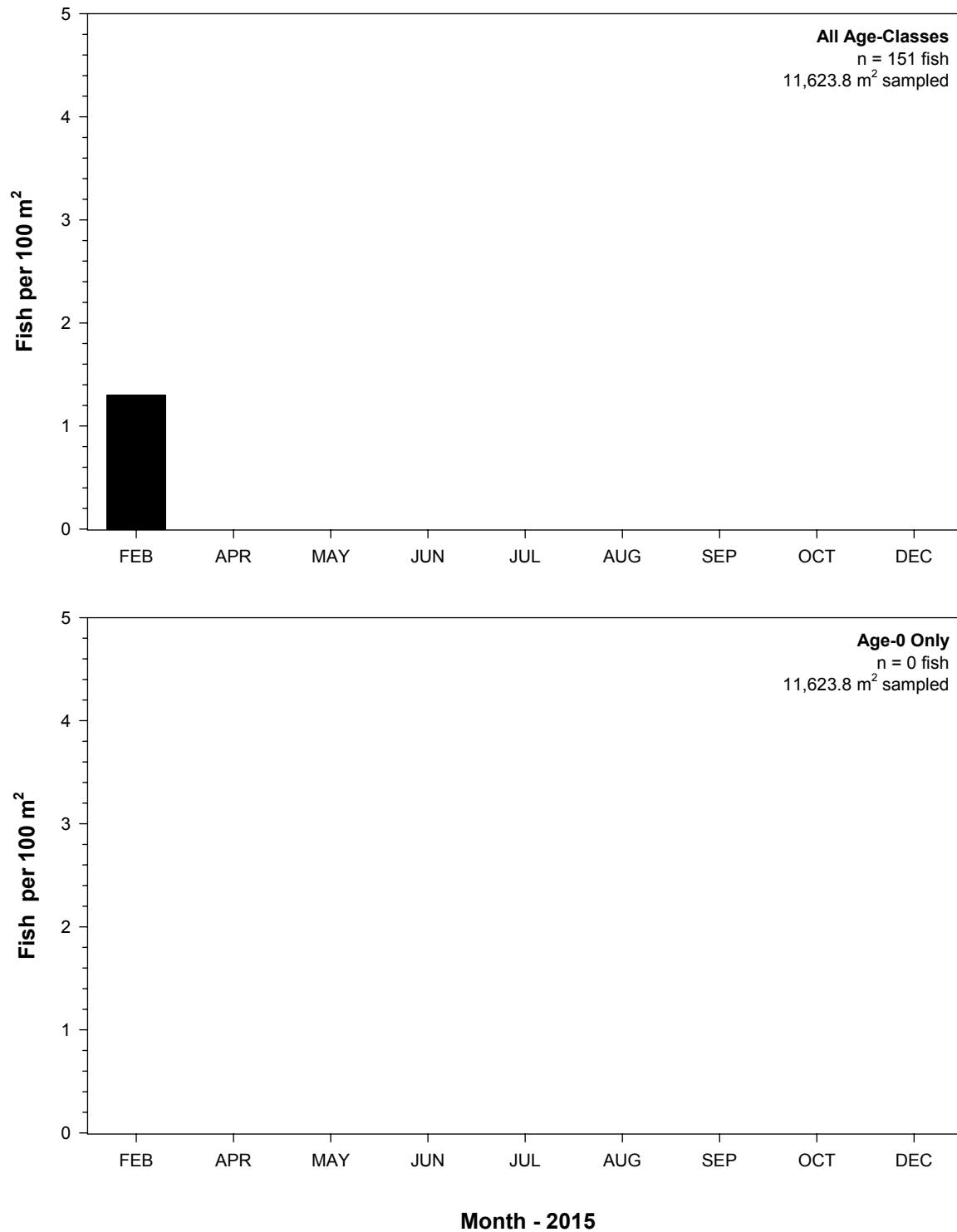


Figure 5. Inter-month fluctuations in densities of Rio Grande Silvery Minnow (all age-classes and age-0 only) during 2015.

APPENDIX A.

Collection localities of the Rio Grande Silvery Minnow population monitoring program.

Table A-1. Collection localities of the Rio Grande Silvery Minnow population monitoring program.

Site #	Site Locality
ANGOSTURA REACH SITES	
SITE #	
1	New Mexico, Sandoval County, Rio Grande, downstream of Angostura Diversion Dam, Algodones.
2	New Mexico, Sandoval County, Rio Grande, upstream of US Highway 550 bridge crossing, Bernalillo.
3	New Mexico, Sandoval County, Rio Grande, ca. 4.0 miles downstream of US Highway 550 bridge crossing, at Rio Rancho Wastewater Treatment Plant, Rio Rancho.
4	New Mexico, Bernalillo County, Rio Grande, upstream of Central Avenue (US Highway 66) bridge crossing, Albuquerque.
5	New Mexico, Bernalillo County, Rio Grande, upstream of Rio Bravo Boulevard bridge crossing, Albuquerque.
ISLETA REACH SITES	
SITE #	
6	New Mexico, Valencia County, Rio Grande, ca. 0.3 miles upstream of Los Lunas (NM State Highway 49) bridge crossing, Los Lunas.
7	New Mexico, Valencia County, Rio Grande, ca. 1.0 miles upstream of NM State Highway 309/6 bridge crossing, Belen.
8	New Mexico, Valencia County, Rio Grande, ca. 2.2 miles upstream of NM State Highway 346 bridge crossing (near Transwestern Natural Gas Pipeline crossing), Jarales.
9	New Mexico, Socorro County, Rio Grande, upstream of US Highway 60 bridge crossing, Bernardo.
10	New Mexico, Socorro County, Rio Grande, ca. 3.5 miles downstream of US Highway 60 bridge crossing, La Joya.
11	New Mexico, Socorro County, Rio Grande, ca. 0.6 miles upstream of San Acacia Diversion Dam, San Acacia.
SAN ACACIA REACH SITES	
SITE #	
12	New Mexico, Socorro County, Rio Grande, downstream of San Acacia Diversion Dam, San Acacia.

Table A-1. Collection localities of the Rio Grande Silvery Minnow population monitoring program (continued).

Site #	Site Locality
SAN ACACIA REACH SITES (continued)	
SITE #	
13	New Mexico, Socorro County, Rio Grande, ca. 1.5 miles downstream of San Acacia Diversion Dam, San Acacia.
14	New Mexico, Socorro County, Rio Grande, ca. 0.5 miles upstream of the Low Flow Conveyance Channel bridge, east and upstream of Socorro Wastewater Treatment Plant, Socorro.
15	New Mexico, Socorro County, Rio Grande, ca. 4.0 miles upstream of US Highway 380 bridge crossing, San Antonio.
16	New Mexico, Socorro County, Rio Grande, upstream of US Highway 380 bridge crossing, San Antonio.
17	New Mexico, Socorro County, Rio Grande, directly east of Bosque del Apache National Wildlife Refuge headquarters, San Antonio.
18	New Mexico, Socorro County, Rio Grande, downstream of the San Marcial railroad crossing, San Marcial.
19	New Mexico, Socorro County, Rio Grande, at its former confluence with the Low Flow Conveyance Channel and 16 miles downstream of the southern end of the Bosque del Apache National Wildlife Refuge, San Marcial.
20	New Mexico, Socorro County, Rio Grande, ca. 10.0 miles downstream of the San Marcial Railroad Bridge crossing, San Marcial.

APPENDIX B.

Ichthyofaunal composition of the February 2015 Rio Grande Silvery Minnow population monitoring efforts

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

**Rio Grande Silvery Minnow Population Monitoring
February 2015**

NEW MEXICO: SANDOVAL Co., RIO GRANDE Drainage
Rio Grande, directly below Angostura Diversion Dam, Algodones.

RKD15-018

Site Number: 1 River Mile: 209.7 05 February 2015
UTM Easting: 363811 UTM Northing: 3916006 Zone: 13 Quad: San Felipe Pueblo
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 566.3 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Platygobio gracilis</i>	4
76	<i>Rhinichthys cataractae</i>	1

NEW MEXICO: SANDOVAL Co., RIO GRANDE Drainage
Rio Grande, at US HWY 550 (formerly NM State HWY 44) bridge crossing, Bernalillo.

RKD15-019

Site Number: 2 River Mile: 203.8 05 February 2015
UTM Easting: 358543 UTM Northing: 3909722 Zone: 13 Quad: Bernalillo
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 583.0 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	9
76	<i>Hybognathus amarus</i> *	8
76	<i>Platygobio gracilis</i>	8

* *Hybognathus amarus* by age class:

age-0:
age-1: 5
age-2: 3

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NEW MEXICO: SANDOVAL Co., RIO GRANDE Drainage **RKD15-020**

Rio Grande, ca. 4.0 miles downstream of US HWY 550 (formerly NM State HWY 44) bridge crossing, at Rio Rancho Wastewater Treatment Plant, Rio Rancho.

Site Number: 3 River Mile: 200.0 05 February 2015
UTM Easting: 354772 UTM Northing: 3905355 Zone: 13 Quad: Bernalillo
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 533.3 sq. m

<u>FAMILY</u>	<u>N</u>
76 <i>Cyprinella lutrensis</i>	43
76 <i>Hybognathus amarus</i> *	3
76 <i>Pimephales promelas</i>	52
76 <i>Platygobio gracilis</i>	49
76 <i>Rhinichthys cataractae</i>	3
81 <i>Catostomus commersonii</i>	1
212 <i>Gambusia affinis</i>	5

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 2
age-2: 1

NEW MEXICO: BERNALILLO Co., RIO GRANDE Drainage **RKD15-017**

Rio Grande, at Central Avenue bridge crossing (US HWY 66), Albuquerque.

Site Number: 4 River Mile: 183.4 04 February 2015
UTM Easting: 346840 UTM Northing: 3884094 Zone: 13 Quad: Albuquerque West
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 618.5 sq. m

<u>FAMILY</u>	<u>N</u>
76 <i>Cyprinella lutrensis</i>	36
76 <i>Hybognathus amarus</i> *	2
76 <i>Platygobio gracilis</i>	2
81 <i>Catostomus commersonii</i>	5
93 <i>Ictalurus punctatus</i>	1

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 2
age-2:

**Rio Grande Silvery Minnow Population Monitoring
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NEW MEXICO: BERNALILLO Co., RIO GRANDE Drainage **RKD15-016**
Rio Grande, at Rio Bravo Blvd. Bridge crossing (NM State HWY 500) crossing, Albuquerque.

Site Number: 5 River Mile: 178.3 04 February 2015
UTM Easting: 347554 UTM Northing: 3877163 Zone: 13 Quad: Albuquerque West
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 577.0 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	4
76	<i>Hybognathus amarus</i> *	10
76	<i>Pimephales promelas</i>	1
76	<i>Platygobio gracilis</i>	1
81	<i>Catostomus commersonii</i>	1
93	<i>Ictalurus punctatus</i>	1

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 9
age-2: 1

NEW MEXICO: VALENCIA Co., RIO GRANDE Drainage **RKD15-015**
Rio Grande, at Los Lunas Bridge crossing (NM State HWY 49), Los Lunas.

Site Number: 6 River Mile: 161.4 03 February 2015
UTM Easting: 342898 UTM Northing: 3852531 Zone: 13 Quad: Los Lunas
R.K. Dudley, J.L. Kennedy, S.L. Clark Barkalow Effort: 550.0 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	225
76	<i>Hybognathus amarus</i> *	6
76	<i>Pimephales promelas</i>	5
76	<i>Platygobio gracilis</i>	8
81	<i>Carpoides carpio</i>	4

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 1
age-2: 5

**Rio Grande Silvery Minnow Population Monitoring
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NEW MEXICO: VALENCIA Co., RIO GRANDE Drainage
Rio Grande, ca. 1.0 miles upstream of NM State HWY 309/6 bridge crossing, Belen.

RKD15-014

Site Number: 7 River Mile: 151.5
UTM Easting: 339972 UTM Northing: 3837061 Zone: 13 Quad: Tome
R.K. Dudley, J.L. Kennedy, S.L. Clark Barkalow

03 February 2015

Effort: 555.5 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	169
76	<i>Hybognathus amarus</i> *	3
76	<i>Pimephales promelas</i>	7
76	<i>Platygobio gracilis</i>	1
212	<i>Gambusia affinis</i>	1

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 3
age-2:

NEW MEXICO: VALENCIA Co., RIO GRANDE Drainage
Rio Grande, ca. 2.2 miles upstream of NM State HWY 346 bridge crossing, Jarales.

RKD15-013

Site Number: 8 River Mile: 143.2
UTM Easting: 338136 UTM Northing: 3827329 Zone: 13 Quad: Veguita
R.K. Dudley, J.L. Kennedy, S.L. Clark Barkalow

03 February 2015

Effort: 593.0 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	234
76	<i>Hybognathus amarus</i> *	3
76	<i>Pimephales promelas</i>	12
76	<i>Platygobio gracilis</i>	1
81	<i>Carpoides carpio</i>	1
93	<i>Ictalurus punctatus</i>	1

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 1
age-2: 2

**Rio Grande Silvery Minnow Population Monitoring
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NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, at US HWY 60 bridge crossing, Bernardo.

RKD15-012

Site Number: 9 River Mile: 130.6
UTM Easting: 334604 UTM Northing: 3809726 Zone: 13 Quad: Abeytas
R.K. Dudley, J.L. Kennedy, S.L. Clark Barkalow

03 February 2015
Effort: 601.8 sq. m

<u>FAMILY</u>	<u>N</u>
76 <i>Cyprinella lutrensis</i>	70
76 <i>Hybognathus amarus</i> *	4
76 <i>Platygobio gracilis</i>	1
81 <i>Carpoides carpio</i>	2
93 <i>Ictalurus punctatus</i>	7
283 <i>Morone chrysops</i>	1

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 2
age-2: 2

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, ca. 3.5 miles downstream of the US HWY 60 bridge crossing, Bernardo.

RKD15-011

Site Number: 10 River Mile: 127.0
UTM Easting: 331094 UTM Northing: 3805229 Zone: 13 Quad: Abeytas
R.K. Dudley, J.L. Kennedy, S.L. Clark Barkalow

03 February 2015
Effort: 612.5 sq. m

<u>FAMILY</u>	<u>N</u>
76 <i>Cyprinella lutrensis</i>	119
76 <i>Pimephales promelas</i>	3
76 <i>Platygobio gracilis</i>	2
93 <i>Ictalurus punctatus</i>	45
212 <i>Gambusia affinis</i>	1

**Rio Grande Silvery Minnow Population Monitoring
February 2015**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, ca. 0.6 miles upstream of San Acacia Diversion Dam, San Acacia

RKD15-010

Site Number: 11 River Mile: 116.8 02 February 2015
UTM Easting: 327902 UTM Northing: 3792603 Zone: 13 Quad: La Joya
R.K. Dudley, M.A. Farrington, J.L. Kennedy Effort: 648.3 sq. m

<u>FAMILY</u>	<u>N</u>
76 <i>Cyprinella lutrensis</i>	10
76 <i>Hybognathus amarus</i> *	1
76 <i>Pimephales promelas</i>	20
76 <i>Platygobio gracilis</i>	35
81 <i>Carpoides carpio</i>	2
93 <i>Ictalurus punctatus</i>	6

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 1
age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, directly below San Acacia Diversion Dam, San Acacia.

RKD15-009

Site Number: 12 River Mile: 116.2 02 February 2015
UTM Easting: 326162 UTM Northing: 3791977 Zone: 13 Quad: San Acacia
R.K. Dudley, M.A. Farrington, J.L. Kennedy Effort: 557.0 sq. m

<u>FAMILY</u>	<u>N</u>
76 <i>Cyprinella lutrensis</i>	8
76 <i>Hybognathus amarus</i> *	5
76 <i>Platygobio gracilis</i>	5
93 <i>Ictalurus punctatus</i>	4

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 1
age-2: 4

**Rio Grande Silvery Minnow Population Monitoring
February 2015**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, ca. 1.5 miles downstream of San Acacia Diversion Dam, San Acacia.

RKD15-008

Site Number: 13 River Mile: 114.6
UTM Easting: 325263 UTM Northing: 3790442 Zone: 13 Quad: Lemitar
R.K. Dudley, M.A. Farrington, J.L. Kennedy

02 February 2015
Effort: 614.8 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	21
76	<i>Hybognathus amarus</i> *	1
76	<i>Platygobio gracilis</i>	56
93	<i>Ictalurus punctatus</i>	4

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 1
age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, east of Socorro, 0.5 miles upstream of Socorro Low Flow Conveyance Channel
bridge and east just upstream of Socorro Wastewater Treatment Plant, Socorro.

RKD15-007

Site Number: 14 River Mile: 99.5
UTM Easting: 327097 UTM Northing: 3771043 Zone: 13 Quad: Loma de las Canas
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy

04 February 2015
Effort: 578.3 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	105
76	<i>Cyprinus carpio</i>	1
76	<i>Hybognathus amarus</i> *	52
76	<i>Platygobio gracilis</i>	13

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 52
age-2:

**Rio Grande Silvery Minnow Population Monitoring
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NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, ca. 4.0 miles upstream of U.S. 380 bridge crossing.

RKD15-006

Site Number: 15 River Mile: 91.7 02 February 2015
UTM Easting: 328140 UTM Northing: 3761283 Zone: 13 Quad: San Antonio
R.K. Dudley, M.A. Farrington, J.L. Kennedy Effort: 543.3 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	42
76	<i>Hybognathus amarus</i> *	15
76	<i>Platygobio gracilis</i>	1
93	<i>Ictalurus punctatus</i>	3

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 15
age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, at US HWY 380 bridge crossing, San Antonio.

RKD15-005

Site Number: 16 River Mile: 87.1 04 February 2015
UTM Easting: 328914 UTM Northing: 3754471 Zone: 13 Quad: San Antonio
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 579.5 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	30
76	<i>Hybognathus amarus</i> *	11
81	<i>Carpoides carpio</i>	1
93	<i>Ictalurus punctatus</i>	1

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 11
age-2:

**Rio Grande Silvery Minnow Population Monitoring
February 2015**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, directly east of Bosque del Apache National Wildlife Refuge Headquarters.

RKD15-004

Site Number: 17 River Mile: 79.1 05 February 2015
UTM Easting: 327055 UTM Northing: 3740839 Zone: 13 Quad: San Antonio SE
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 566.8 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	38
76	<i>Hybognathus amarus</i> *	1
93	<i>Ictalurus punctatus</i>	2

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 1
age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, at San Marcial Railroad Bridge, San Marcial.

RKD15-003

Site Number: 18 River Mile: 68.6 05 February 2015
UTM Easting: 315284 UTM Northing: 3728347 Zone: 13 Quad: San Marcial
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 549.8 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	390
76	<i>Hybognathus amarus</i> *	5
76	<i>Pimephales vigilax</i>	1
76	<i>Platygobio gracilis</i>	3
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	1

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 5
age-2:

**Rio Grande Silvery Minnow Population Monitoring
February 2015**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, ca. 8 miles downstream of the San Marcial railroad bridge crossing

RKD15-002

Site Number: 19 River Mile: 60.5 05 February 2015
UTM Easting: 309487 UTM Northing: 3718178 Zone: 13 Quad: Paraje Well
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 594.3 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	136
76	<i>Hybognathus amarus</i> *	18
76	<i>Pimephales promelas</i>	1
76	<i>Platygobio gracilis</i>	4
93	<i>Ictalurus punctatus</i>	3

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 18
age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, ca. 10 mi downstream of the San Marcial railroad bridge crossing

RKD15-001

Site Number: 20 River Mile: 58.8 05 February 2015
UTM Easting: 307846 UTM Northing: 3716150 Zone: 13 Quad: Paraje Well
W.H. Brandenburg, S.L. Clark Barkalow, J.L. Kennedy Effort: 601.3 sq. m

<u>FAMILY</u>		<u>N</u>
76	<i>Cyprinella lutrensis</i>	139
76	<i>Hybognathus amarus</i> *	3
76	<i>Pimephales promelas</i>	2
76	<i>Platygobio gracilis</i>	1
93	<i>Ictalurus punctatus</i>	23

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 3
age-2: