FINAL PERFORMANCE REPORT

Federal Aid Grant No. F13AP00235 (E-81-R-1)

Processing and Vouchering of Large-River Fish Samples Collected for Monitoring Listed and At-Risk Fish

Oklahoma Department of Wildlife Conservation

May 1, 2013 through April 30, 2014

State: Oklahoma   **Grant Number:** F13AP00235 (E-81-R-1)

Grant Program: Endangered Species Act Program

Grant Title: Processing and vouchering of large-river fish samples collected for monitoring listed and at-risk fish

Grant Period: May 1, 2013 – April 30, 2014

Report Period: May 1, 2013 – April 30, 2014

Project Leader: Shannon Brewer, PhD.

I.   **OBJECTIVE:**

   1. Enumerate and analyze all of the fish collections that are made by the U.S. Fish and Wildlife Service and the Oklahoma Department of Wildlife Conservation as part of their cooperative efforts to monitor the geographic distribution and relative abundance of the Arkansas River Shiner and associated cyprinid species in the Canadian and Cimarron river systems and the Prairie Speckled Chub and associated cyprinid species in the Red River system.

II.   **SUMMARY OF PROGRESS**

 A. **APPROACH**

Fish samples were brought to OSU for identification. Samples that were still in formalin were rinsed in water and transferred to 70% ethanol. Fish were identified using published keys and several other keys developed at the OSU lab.

We developed an Access database that includes fish count data and the physical attributes of each study site. We also provided directions to ODWC and USFWS on how to link the tables together in Access (see Appendix A). Data from previously identified fish (prior to 2011) were provided by the USFWS and also entered into the Access database for consistency. The sample ID indicates the year within the sample code (the first two numbers). For example, BAB**11**27 is a 2011 sample whereas BAB**12**07 is a 2012 sample.

 B. **RESULTS**

We identified 32 fish species from 2011-2013 samples (Figure 1). We also included three additional groups: 1) unknown, which generally contained cyprinids too small to identify with confidence 2) Pimephales spp, and 3) Carpiodes Spp. Red Shiner made up the majority of the catch. Abundance of Arkansas River Shiner, a federally threatened fish species, is summarized by location in Table 1. Site descriptions, with a common linking identifier, is provided in Table 2. Some data sheets were entered but did not have corresponding fish samples so were left blank (no zeros were entered in these instances as the values are unknown).

III.   RECOMMENDATIONS

We recommend this project continue until completion.

IV.   SIGNIFICANT DEVIATIONS

No significant deviations.

V.   EQIPMENT

No equipment purchased during this period.

VI.   PREPARED BY: Shannon Brewer
Oklahoma Cooperative Fish and Wildlife Research Unit,
Oklahoma State University Stillwater, Oklahoma

DATE: 1 May 2014

APPROVED BY: _____
Fisheries Division Administration
Oklahoma Department of Wildlife Conservation

_____
Andrea Crews, Federal Aid Coordinator
Oklahoma Department of Wildlife Conservation

VI.   REFERENCES

Table 1.- Summary of collections identified by OSU in 2013-2014 that contained the federally-threatened Arkansas River Shiner (ARS). The ID links back to a database that we created for the USFWS and ODWC that contains all identified fishes from these collections. These results include data collected from 2011, 2012, and a portion of 2013.

ID	State	County	Location	ARS (number)
BAB0701			South Canadian	1
BAB0702			South Canadian	47
BAB0703			South Canadian	35
BAB0704			South Canadian	12
BAB0705			South Canadian	21
BAB0706			South Canadian	51
BAB0707			South Canadian	23
BAB0708			South Canadian	104
BAB0709			South Canadian	89
BAB0710			South Canadian	161
BAB0711			North Canadian	0
BAB0712			North Canadian	0
BAB0713			South Canadian	68
BAB0714			South Canadian	45
BAB0715			South Canadian	0
BAB0716			South Canadian	0
BAB0717			South Canadian	491
BAB0718			South Canadian	733
BAB0719			Cimarron	0
BAB0720			Cimarron	0
BAB0721			Cimarron	0
BAB0722			Cimarron	0
BAB0723			Cimarron	0
BAB0724			Cimarron	0
BAB0725			Cimarron	0
BAB0726			Cimarron	0
BAB0727			Cimarron	0
BAB0728			Cimarron	0
BAB0729			Cimarron	0
BAB0730			Cimarron	0
BAB0731			Cimarron	0
BAB0732			Cimarron	0
BAB0733			Cimarron	0
BAB0734			Cimarron	0
BAB0801			South Canadian	4

BAB0802			South Canadian	50
BAB0803			South Canadian	14
BAB0804			South Canadian	92
BAB0805			South Canadian	44
BAB0806			South Canadian	29
BAB0807			South Canadian	168
BAB0808			South Canadian	175
BAB0809			South Canadian	27
BAB0810			South Canadian	3
BAB0811			South Canadian	13
BAB0812			South Canadian	29
BAB0813			South Canadian	0
BAB0814			South Canadian	0
BAB0815			Cimarron	0
BAB0816			Cimarron	0
BAB0817			Cimarron	0
BAB0818			Cimarron	0
BAB0819			Cimarron	0
BAB0820			Cimarron	0
BAB0821			Cimarron	0
BAB0822			Cimarron	0
BAB0823			Cimarron	0
BAB0824			Cimarron	0
BAB0825			Cimarron	0
BAB0826			Cimarron	0
BAB0827			Cimarron	0
BAB0901			South Canadian	0
BAB0902			South Canadian	0
BAB0903			South Canadian	6
BAB0904			South Canadian	16
BAB0905			South Canadian	13
BAB0906			South Canadian	14
BAB0907			South Canadian	48
BAB0908			South Canadian	93
BAB0909			South Canadian	98
BAB0910			South Canadian	53
BAB0911			South Canadian	51
BAB0912			South Canadian	6
BAB0913			South Canadian	65
BAB0914			South Canadian	6
BAB0915			Cimarron	0

BAB0916			Cimarron	0
BAB0917			Cimarron	0
BAB0918			Cimarron	0
BAB0919			Cimarron	0
BAB0920			Cimarron	0
BAB0921			Cimarron	0
BAB0922			Cimarron	0
BAB0923			Cimarron	0
BAB0924			Cimarron	0
BAB0925			Cimarron	0
BAB0926			Cimarron	0
BAB0927			Cimarron	0
BAB0928			Cimarron	0
BAB0929			Cimarron	0
BAB1001			Canadian @ U.S. 83, 1/2 mile N. of Canadian, TX	0
BAB1002			Canadian @ SH 70, 30 miles N. of Pampa, TX	0
BAB1003			Canadian @ U.S. 283, near Roll	49
BAB1006			Canadian @ U.S. 183, near Taloga	288
BAB1008		Caddo	Canadian @ OK/281 and Bridgeport	230
BAB1009			Canadian @ County Rd 2720 Caddo-jake Bridge, N of Cogar	109
BAB1010			Canadian @ Hwy 81, near Union City	96
BAB1011			Canadian @ I 35, near Norman	226
BAB1013			Canadian @ SH 102, 3 miles S. of Wanette	151
BAB1014			Canadian @ U.S. 377, near Byng	1
BAB1017			Cimarron @ N. 1510	0
BAB1018			Cimarron @ N. 1610, 8 miles NE of Knowles	0
BAB1020			Cimarron @ U.S. 64, 17 miles E of Buffalo	0
BAB1022			Cimarron @ 281, 4 miles S. of Waynoka	0
BAB1023			Cimarron @ U.S. 60, 1 mile S. of Cleo Springs	0
BAB1025			Cimarron @ County Rd near, Ames, OK	0
BAB1026			Cimarron @SH 51, 9 miles E. of Okeene	0
BAB1027			Cimarron @ Hwy 81, S. of Dover, OK	0
BAB1028			Cimarron @ Hwy 74, S.of Crescent	0
BAB1029			Cimarron @ Hwy 77, N. of Guthrie	0
BAB1030			Cimarron @ Hwy 33, near Coyle, OK	0
BAB1032			Cimarron @ Hwy 18, N. of Cushing	0
BAB1103	TX	Roberts	Canadian @ SH 70, 30 miles N of Pampa, TX	0
BAB1104	TX	Hamphill	Canadian @ Canadian TX, Hwy 83 1/2 mile N of Canadian, TX	39
BAB1105	OK	Ellis	Canadian off Co. Rd. 4 miles N, 1 mile W of Durham, OK	40
BAB1107	OK	Dewey	Canadian @ Ok 34, near Camargo	459

BAB1109	OK	Custer	Canadian @ OK 33, near Thomas	89
BAB1111	OK	Canadian	Canadian @ Co. Rd. N 2720 Caddo Jake Br., N of Cogar	44
BAB1112				23
BAB1113	OK	Grady	Canadian @ Ok 4, near Mustang	141
BAB1114				21
BAB1115				30
BAB1116				37
BAB1120	OK	Beaver	Cimarron @ Co. Rd. N 1380, 5 miles N of Forgan (Stateline)	0
BAB1121	OK	Beaver	Cimarron @ Co. Rd. N 1510, N of Knowles	0
BAB1122				0
BAB1124				0
BAB1125				0
BAB1126	OK	Harper	Cimarron @ Hwy 64, 17 mi E of Buffalo, OK	0
BAB1127	OK	Woods	Cimarron @ Hwy 50, 1 mile S of Freedom, OK	0
BAB1128	OK	Woods	Cimarron @ Hwy 281, 4 miles S of Waynoka, OK	0
BAB1129				0
BAB1130	OK	Major	Cimarron @ Hwy 58/8, S of Ringwood, OK	0
BAB1131	OK	Major	Cimarron @ Co Rd. 0550, 3 miles SW of Ames	0
BAB1205	TX	Olham	Canadian @ I-35, near Boys Ranch	1
BAB1206	TX	Potter	Canadian @ US 287, N of Amarillo	0
BAB1207	TX	Hutchinson	Canadian @ FM 2277, N of Borger	0
BAB1208	TX	Hutchinson	Dickson Creek (trib to Canadian) @ FM 2277, N of Borger	0
BAB1211	OK	Hemphill	Canadian @ US 83, Canadian, TX	0
BAB1213	OK	Ellis	Canadian @ US 283, near Roll	0
BAB1214	OK	Dewey	Canadian @ OK 34, near Camargo	0
BAB1216	OK	Custer	S. Candian @ Shwy 33, near Thomas, OK	0
BAB1219	OK	Hughes	Canadian @ US 75, 1 mile N of Calvin	4
BAB1220	OK	Pontotoc	Canadian, N of Ada Hwy 99, US 377	5
BAB1301	TX	Oldham	Canadian @ US 385, near Boys Ranch	0
BAB1302	TX	Potter	Canadian @ US 287	4
BAB1303	TX	Hemphill	Canadian @ US 383, near Canadian, TX	0
BAB1304	OK	Ellis	Canadian @ Co Rd N1710, 4 miles N of Durham	0
BAB1305	OK	Ellis	Canadian @ US 283, N of Roll	0
BAB1306	OK	Dewey	Canadian @ OK 34, near Camargo	2
BAB1307	OK	Dewey	Canadian @ US 183, near Taloga	0
BAB1308	OK	Custer	Canadian @ OK 33, near Thomas	0
BAB1309	OK	Caddo	Canadian @ US 281, near Bridgeport	0
BAB1310	OK	Grady	Canadian @ US 581, near Union City	1
BAB1311	OK	Cleveland	Canadian @ I-35, near Norman	7
BAB1312	OK	Pontotoc	Canadian @ US 377, near Ada	2
BAB1313	OK	Hughes	Canadian @ US 75, near Calvin	0

Table 2.- Latitude and longitude of field-survey locations. Habitat at location of sample is provided as a binary response: true indicates the sample was taken in that habitat whereas false indicates it was not.

Field No	State	County	Locality	Lat	Long	Main Channel	Side Channel	Backwater	Pool	Riffle	Run
BAB1101	TX	Olham	Canadian @ US 385, near Boys Ranch			TRUE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1102	TX	Potter	Canadian @ US 287, N of Amarillo			TRUE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1103	TX	Roberts	Canadian @ SH 70, 30 miles N of Pampa, TX	35, 58' 11"	110, 51' 22"	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1104	TX	Hamphill	Canadian @ Canadian TX, Hwy 83 1/2 mile N of Canadian, TX			TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

BAB1105	OK	Ellis	Canadian off Co. Rd. 4 miles N, 1 mile W of Durham, OK	35, 54' 25"	99, 56' 33"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1106	OK	Ellis	Canadian @ US 283, near Roll	35, 52' 09"	99, 43' 40"	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1107	OK	Dewey	Canadian @ Ok 34, near Camargo	36, 00' 06"	97, 17' 26"	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE
BAB1109	OK	Custer	Canadian @ OK 33, near Thomas	35, 46' 17"	98, 40' 27"	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
BAB1111	OK	Canadian	Canadian @ Co. Rd. N 2720 Caddo Jake Br., N of Cogar	35, 27' 14"	98, 08 '57"	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE

BAB1113	OK	Grady	Canadian @ Ok 4, near Mustang	35, 19' 32"	97, 43' 27"	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
BAB1117	OK	Pontotoc	Canadian @ US 377, 7 miles N of Byng	34, 56' 50"	96, 41' 00"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1118	OK	Hughes	Canadian @ US 75, 1 mile N of Calvin	34, 58' 30"	96, 14' 28"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1119	OK	Pittsburgh	Canadian @ Indian Nation Turnpike, 2 miles N of Ulan	35,	95,	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE
BAB1120	OK	Beaver	Cimarron @ Co. Rd. N 1380, 5 miles N of Forgan (Stateline)	37, 00' 20"	100, 32' 06"	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE

BAB1121	OK	Beaver	Cimarron @ Co. Rd. N 1510, N of Knowles	36, 58' 32"	100, 18' 51"	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE
BAB1126	OK	Harper	Cimarron @ Hwy 64, 17 mi E of Buffalo, OK	36, 51' 07"	99, 18' 55"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1127	OK	Woods	Cimarron @ Hwy 50, 1 mile S of Freedom, OK			TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1128	OK	Woods	Cimarron @ Hwy 281, 4 miles S of Waynoka, OK			TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1130	OK	Major	Cimarron @ Hwy 58/8, S of Ringwood, OK	36, 16' 59"	98, 19' 09"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

BAB1131	OK	Major	Cimarron @ Co Rd. 0550, 3 miles SW of Ames	36, 13' 11"	98, 15' 10"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1132	OK	Kingfisher	Cimarron @ Hwy 51, E of Okeene			TRUE	TRUE	TRUE	FALSE	TRUE	TRUE
BAB1133	OK	Kingfisher	Cimarron @ Co. Rd. N 2830, W of Dover, OK	35, 58' 34"	97, 57' 40"	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE
BAB1134	OK	Logan	Cimarron @ Hwy 74, S of Crescent, OK	33, 53' 08"	97, 35' 24"	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE
BAB1135	OK	Caddo	Deer Creek @ Co Rd. N 2520, 2 miles E of Hydro	35, 32' 03"	98, 41' 42"	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE

BAB1136	NM	Quay	Canadian, 4 miles E of Logan, NM			TRUE	FALSE	TRUE	TRUE	TRUE	TRUE
BAB1137	TX	Oldham	Canadian, 24 miles N of Adrian on Canadian River Ranch			TRUE	TRUE	FALSE	TRUE	TRUE	TRUE
BAB1138	OK	Greer	Elm Fork of the Red River @ OK 6, 6 miles S of Granite, Ok			TRUE	TRUE	FALSE	TRUE	TRUE	TRUE
BAB1139	OK	Jefferson	Red @ OK 79, 6 miles SW of Waurika			TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1140	OK	Love	Red @ I-35	33, 43.6 01'	97, 09' 57.7"	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE

BAB1141	OK	Dewey	Canadian @ US 183	36, 03' 15"	95, 58' 08"	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
BAB1142	OK	Caddo	Canadian @ US 281, near Bridgeport	35, 32' 37"	98, 99' 03"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1143	OK	Cleveland	Canadian @ I-35	35, 11' 40"	97, 29' 05"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1144	OK	Pontotoc	Candian @ US 377, N of Ada	34, 56' 80"	96, 41' 00"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1146	OK	Hughes	Holdenville Lake			FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1201	OK	Roger Mills	Canadian @ US 283, near Roll	35, 52' 09"	99, 43' 40"	TRUE	FALSE	TRUE	TRUE	FALSE	FALSE
BAB1202	OK	Caddo	Canadian @ US 281, near Bridge Port	35, 32' 37"	98, 99' 03"	TRUE	FALSE	TRUE	TRUE	TRUE	TRUE
BAB1203	OK	Grady	Canadian @ US 81, near Union City	35, 21' 59"	97, 55' 45"	TRUE	TRUE	FALSE	TRUE	TRUE	TRUE

BAB1204	OK	Cleveland	Candian @ I-35, near Norman	35, 11' 40"	97, 29' 05"	TRUE	TRUE	FALSE	TRUE	TRUE	TRUE
BAB1205	TX	Olham	Canadian @ I-35, near Boys Ranch	35, 31' 13"	102, 15' 40"	TRUE	FALSE	TRUE	TRUE	TRUE	TRUE
BAB1206	TX	Potter	Canadian @ US 287, N of Amarillo	35, 28' 11"	101, 52' 47"	TRUE	FALSE	FALSE	TRUE	TRUE	TRUE
BAB1207	TX	Hutchinson	Canadian @ FM 2277, N of Borger	35, 44' 49.9"	101, 20' 49.0"	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE
BAB1208	TX	Hutchinson	Dickson Creek (trib to Canadian) @ FM 2277, N of Borger	35, 44' 36"	101, 20' 31"	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE

BAB1209	TX	Hutchinson	Dickson Creek (trib to Canadian) @ Hwy 152, E. of Borger, TX	35, 39' 55.3"	101, 21' 8.6"	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
BAB1210	TX	Roberts	Canadian, 30 miles N Pampa, TX	35, 58' 11"	100, 51' 22"	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE
BAB1211	OK	Hemphill	Canadian @ US 83, Canadian, TX	35, 56' 34"	100, 22' 39"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1212	OK	Ellis	Canadian @ Co. Rd., N of Durham, OK	35, 54' 39.8"	99, 56' 57.3"	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1213	OK	Ellis	Canadian @ US 283, near Roll	35, 52' 09"	99, 43' 40"	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
BAB1214	OK	Dewey	Canadian @ OK 34, near Camargo	36, 00' 06"	99, 17' 26"	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE

BAB1215	OK	Dewey	S. Canadian @ Hwy 183, N of Taloga, OK	36, 03' 15"	98, 58' 08"	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1216	OK	Custer	S. Candian @ SHwy 33, near Thomas, OK	35, 46' 17"	98, 40' 27"	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
BAB1217	OK	Caddo	S. Canadian @ Bridgeport, Hwy 281	35, 32' 37"	98, 99' 03"	TRUE	FALSE	TRUE	TRUE	FALSE	TRUE
BAB1218	OK	Canadian	S. Canadian @ Cado Jake Bridge	35, 27' 14"	98, 08' 57"	TRUE	FALSE	TRUE	TRUE	FALSE	TRUE
BAB1219	OK	Hughes	Canadian @ US 75, 1 mile N of Calvin	34, 58' 30"	96, 14' 28"	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE

BAB1220	OK	Pontotoc	Canadian, N of Ada Hwy 99, US 377	34, 56' 80"	96, 41' 00"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1221	OK	Grady	Canadian @ US 81-Union City	35, 21' 59"	97, 55' 45"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1222	OK	Grady	Canadian @ SH 4, near Mustang	35, 19' 32"	97, 43' 27"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1223	OK	Cleveland	Canadian @ I-35, near Norman	35, 11' 40"	97, 29' 05"	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE
BAB1224	OK	Cleveland	Canadian @ SH 102, S of Wanette	34, 55' 12"	97, 02' 58"	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1301	TX	Oldham	Canadian @ US 385, near Boys Ranch			TRUE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1302	TX	Potter	Canadian @ US 287			TRUE	FALSE	FALSE	FALSE	FALSE	FALSE

BAB1303	TX	Hephill	Canadina @ US 383, near Canadian, TX			TRUE	FALSE	TRUE	TRUE	TRUE	TRUE
BAB1304	OK	Ellis	Canadian @ Co Rd N1710, 4 miles N of Durham	35, 54' 25"	99, 56' 30"	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE
BAB1305	OK	Ellis	Canadian @ US 283, N of Roll			TRUE	TRUE	TRUE	FALSE	FALSE	FALSE
BAB1306	OK	Dewey	Canadian @ OK 34, near Camargo	36, 00' 06"	97, 17' 26"	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE
BAB1307	OK	Dewey	Canadian @ US 183, near Taloga	36, 03' 15"	95, 58' 08"	TRUE	TRUE	FALSE	TRUE	TRUE	TRUE
BAB1308	OK	Custer	Canadian @ OK 33, near Thomas			TRUE	TRUE	TRUE	FALSE	FALSE	FALSE

BAB1309	OK	Caddo	Canadian @ US 281, near Bridgeport			TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1310	OK	Grady	Canadian @ US 581, near Union City			TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1311	OK	Cleveland	Canadian @ I-35, near Norman			TRUE	FALSE	FALSE	FALSE	TRUE	TRUE
BAB1312	OK	Pontotoc	Canadian @ US 377, near Ada			TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
BAB1313	OK	Hughes	Canadian @ US 75, near Calvin			TRUE	FALSE	FALSE	TRUE	FALSE	TRUE
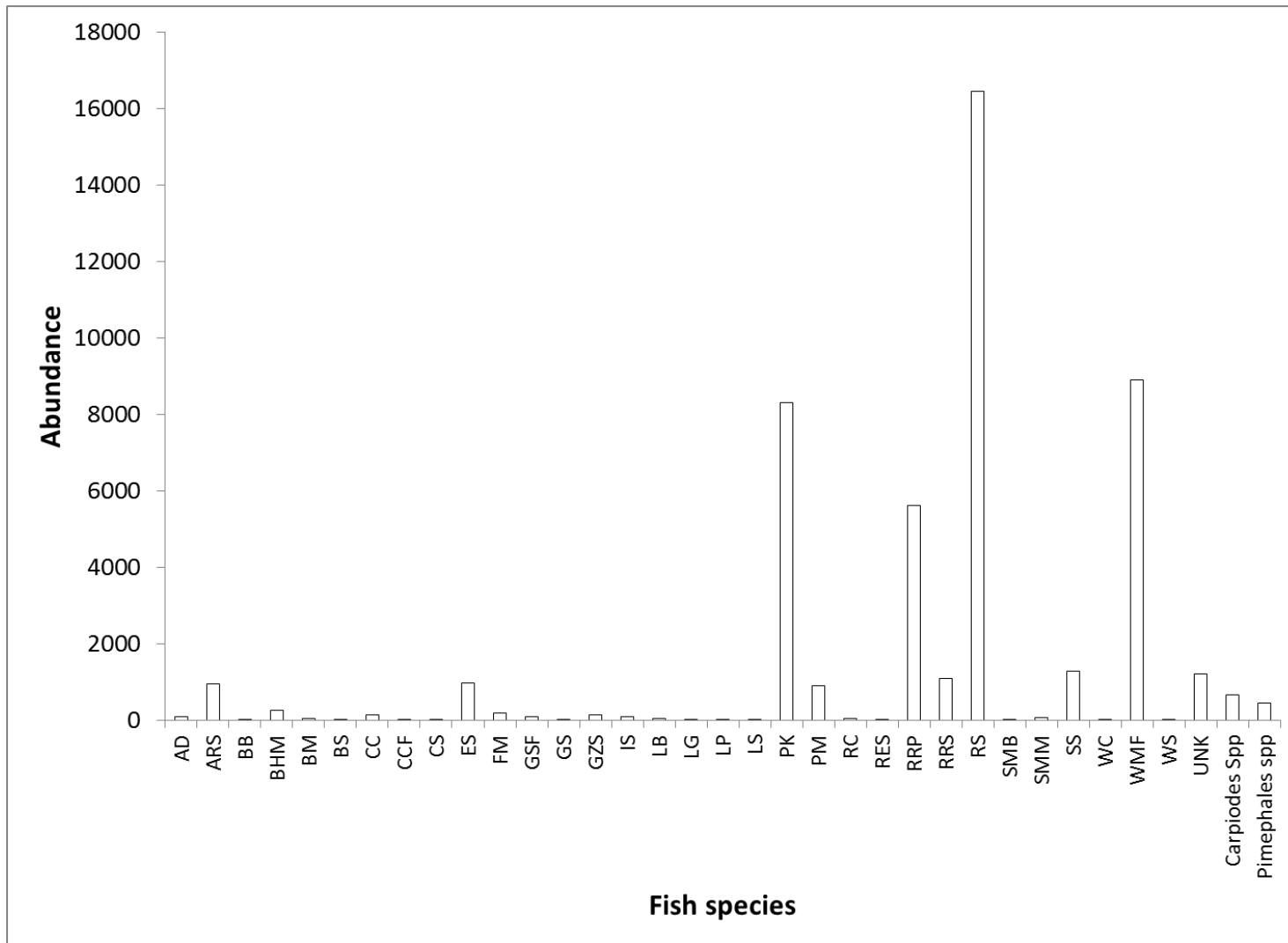
Figure 1.- Abundance of fish species identified from USFWS and ODWC sample collections. This figure only reflects samples identified in the OSU lab (2011- early 2013 samples). Fish species abbreviations are defined in 'design view' of the Access Database (see instructions in Appendix A).

Appendix A. Directions for linking the tables of fish samples and data in Microsoft Access. These data have been provided to USFWS and ODWC.

Using Microsoft Access
1. After you have opened the database double click either field info or fish counts to open whichever table you would like to view (located on the left-hand side of the page) To close the table you are viewing right click the tab above the table (it has the table name on it) and click close.
2. To obtain further information about either the field info or the fish counts, open the table you wish to view and click the picture of a pencil and ruler above where it says view (located in the top left-hand corner under file).
   a. This is where the abbreviations on the fish count table are defined.
3. If there is any need to change the column headers that can be done by right clicking on the header and choosing whatever option you like.
   a. This should bring up options such as sorting the field, field width, renaming the field, etc.
4. Linking tables will allow you to take some or all of the data from either table and put it together in a single table.
   a. To link the tables click database tools (located on the top of the page by file, home, etc.) and then click relationships, a pop-up box will appear.
   b. Click field info, then click add. Do the same for fish counts, then click close.
   c. There will be a box for field info and a box for fish counts.
      i. In those boxes field no. should have a key by it, click on field no. in one box and drag it to field no. in the other box, a pop-up box will appear.
      ii. Choose the option that says join type, select option three, then click create.
5. To use the information from both tables to make a new table choose the create option (located at the top of the page by file, home, etc.).
   a. Click query wizard, a pop-up box will appear to guide you through the wizard.
   b. Select simple query wizard, then click ok.
   c. There will be an option that says tables/queries and under that should be a drop-down box.
      i. If you click the down arrow that is on the box under that it will allow you to select which information you want to pull from each table.
   d. As an example I will create a table with the field no, Arkansas River shiner counts, the longitude and the latitude.
      i. Choose field info in the drop-down box.
      ii. Select field no. in the options under available fields.
      iii. Click the top button located between available fields and selected fields. (a single angle bracket pointing toward the right of the screen)
      iv. Choose latitude and do the same thing.

           v.   Same for longitude. (The button located under the one we are using allows you to select all the data from whichever table you are using.)

      e.   Now go back to the drop-down box and select fish counts.

           i.   Choose ARS (Arkansas River Shiner)

      f.   Select finish.

6. Now you have a new table with the field number, latitude, longitude, and the count for Arkansas River shiners. You can make tables using any combination of information you like; you can even import other tables made in access or excel, link those to the already linked tables, and use information from them.