

COLORADO RIVER RECOVERY PROGRAM
FY 2014 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: 15

I. Project Title: Identification and Curation of Larval and Juvenile Fish by Colorado State University Larval Fish Laboratory.

II. Bureau of Reclamation Agreement Number(s): R14AP00001

Project/Grant Period: Start date (Mo/Day/Yr): 10/01/13
End date: (Mo/Day/Yr): 09/30/18
Reporting period end date: 09/30/14
Is this the final report? Yes No

III. Principal Investigator(s): Kevin R. Bestgen (Project Manager), Darrel E. Snyder, and Sean C. Seal

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IV. Abstract: This ongoing project supports Larval Fish Laboratory (LFL) taxonomic, analytical, and curatorial services for specific Recovery Program projects, and as time allows, other incidentally requested taxonomic services and consultation (Task 1). It also provides for ongoing curation (maintenance and management) of the LFL Collection, including controlled access to and use of collection holdings and data by UCRB and other researchers (Task 2).

V. Study Schedule: Ongoing project since 1995. Collections from the following projects are identified, processed, and curated annually with the resultant data provided to the principal investigator as soon as logistically possible after the collections are received: Project 22F, LFL—preliminarily identified drift-net and light-trap samples from the lower Yampa, Middle-Green, and White Rivers to assess the larval abundance of Colorado Pikeminnow and Razorback Sucker (Task 1a); Project 158, Utah Division of Wildlife Resources (UDWR) and U. S. Fish and Wildlife Service (USFWS), Vernal offices—drift and backwater samples from the Middle-Green River to help assess factors contributing to the decline of age-0 Colorado Pikeminnow and simultaneously collected ISMP samples (Task 1b—backlog, study suspended in 2013); Project 160, UDWR, Moab—light-trap samples for age-0 razorback sucker and seine samples from the lower Green River (Task 1c); Project 163, USFWS, Grand Junction—samples associated with Gunnison River fish community monitoring (Task 1e); Project FR-164, USFWS, Vernal—samples associated with Green River Larval Trigger Study Plan monitoring in floodplain wetlands (Task 1f); and Project FR-165, UDWR, Vernal—samples associated with Green River Larval Trigger Study Plan monitoring in Stewart Lake floodplain (Task

1g). This project also supports work for Project 161, LFL—analysis of otoliths from age-0 smallmouth bass taken in the Colorado River (Task 1d), but no analysis was needed or funded for 2014. Incidental taxonomic services and consultation on early life-stage taxonomy, sampling techniques, and collection handling are addressed as needed and time allows (also Task 1). General collection maintenance activities (e.g., fluid level and container checks) are conducted annually; other maintenance and management concerns, including National Park Service inventory checks of cross-catalogued holdings are addressed as needed and newly deposited and backlog collections are cataloged as time permits (Task 2). Responses to requests for loans, collection use, or information on collection holdings are provided as needed (also Task 2).

VI. Relationship to RIPRAP: This project is related to General Recovery Program Support Action Plan V (monitor populations and habitat and conduct research to support recovery actions—research, monitoring, and data management). Identification and processing of collections for Projects 22F, 158, 160, 163, FR-164, and FR-165 and otolith analyses for Project 161 contribute to Tasks V.A (measure and document population and habitat parameters to determine status and biological response to recovery actions) and V.B (conduct research to acquire needed life history information). The remainder of this project specifically addresses Task V.E (provide for long-term care, cataloging, and accessibility of preserved specimens) and, in that preserved specimens are the ultimate natural history database, contributes to Task V.A.1 (conduct interagency data management program to compile, manage, and maintain all research and monitoring data collected by the Recovery Program).

VII. Accomplishments of FY 2014 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1, Taxonomic Services—We processed the following preserved collections for Task 1a (Project 22F): 131 razorback sucker light-trap collections taken in 2013 from the Green River (505 lots-12,603 specimens). For Task 1b (Project 158), we processed 33 (FWS/V) 2012 backwater collections from the middle Green River (319 lots-47,655 specimens). And for Task 1g (Project FR-165), we processed 55 light-trap collections taken in 2013 from Stewart Lake (139 lots-987 specimens). All processed specimens have been cataloged and shelved as part of the LFL Collection and the collection data forwarded to the responsible principal investigators (PIs) for analysis and reporting.

Shortcomings— For Task 1a (Project 22F), 2013 Yampa and Green River drift-net and seine collections are have been fully processed, but not yet cataloged. For Task 1c (Project 160), the processing of 2013 lower Green River light-trap and seine collections is nearly completed. And for Task 1e (Project 163), the identification and processing of 2011 and 2012 Gunnison River collections is well underway; a partial set of 2013 collections for that project has been received and awaits processing. Work on these collections is continuing in FY 2015.

Task 2, Ongoing Collection Maintenance and Management—We: (1) added, as of 30 September, a total of 1,929 lots of fish (135,561 specimens) from UCRB collections or

investigations to the cataloged collection (Appendix A), (2) submitted an updated *Access* database version of our catalog records through FY 2014 (selected fields, flat file) to the Interagency Database Management Program (IDMP) archive, (3) made collection holdings and selected data available to UCRB researchers and other interested parties, including specimens used for developmental study of cyprinid larvae for Project 149 and inventory checks requested by the NPS, (4) responded to incidental requests from UCRB researchers for taxonomic assistance or consultation on larval-fish sampling and collection handling matters, (5) corrected incidentally found errors in our catalog database, (6) installed and tested the latest version of our collection database and management program, *Specify 6*, and (7) conducted an annual fluid level and condition check of our holdings. As of 30 September 2014, we maintain and manage 119,840 lots of cataloged fish (3,952,560 specimens) collected from the UCRB or used for UCRB Recovery Program investigations. These holdings represent just over 95% of all LFL cataloged lots (96% of cataloged specimens).

No significant progress was made in FY 2014 towards plans for housing the LFL Collection and other natural history collections on campus together as a university natural history museum. The museum facility awaits adequate development-grant funding.

Shortcomings—Cataloging of some backlog collections remains to be done.

- VIII. Additional noteworthy observations: Reports of such observations are appropriately deferred to the PI's to whom the processed collection data has been submitted.
- IX. Recommendations: We recommend continued annual support of Project 15 with sufficient funds for processing newly preserved collections covered by this project, incidental taxonomic services and consultation, and on-going maintenance and management (curation) of all UCRB specimens held by LFL.
- X. Project Status: On-track and ongoing.
- XI. FY 2014 Budget Status
- | | | |
|----|-----------------|-----------|
| A. | Funds Provided: | \$233,279 |
| B. | Funds Expended: | \$98,393 |
| C. | Difference: | \$134,886 |
- Explanation: Additional work remains to accomplish 2014 tasks; see Section VII.
- D. Percent of FY 2014 work completed and projected costs to complete: about 42% of work completed; funds are sufficient to complete tasks.
- E. Recovery Program funds spent for publication charges: \$0
- XII. Status of Data Submission (Where applicable): 2013 collection data for Project 22F (Task 1a) was internally submitted to Kevin Bestgen. 2013 collection data for Project FR-165 (Task 1g) and 2012 collection data for Project 158 (Task 1b), were submitted to respective PI's. An updated *Access* database version of our LFL Collection catalog for UCRB holdings (selected fields, flat file) through FY 2014 was submitted to the IDMP archive.

XIII. Signed: Darrel E. Snyder _____ Date
Principal Investigator

Signed: Sean C. Seal _____ Date
Principal Investigator

Signed: Kevin R. Bestgen _____ Date: 15 November 2014
Principal Investigator,
Project Manager

APPENDIX A:

Study-year sets of Upper Colorado River Basin collection-species lots cataloged as part of the Colorado State University Larval Fish Laboratory Collection from October 1, 2013 through September 30, 2014 (1,929 lots; 135,561 specimens).

Catalog No.	Field Numbers	Description of Sample Sets
121480-485	FWS/V-12GR-BW06 to BW32*	12 SN, Green R, UT
124065-367	LFL-12YA-SBF101 to SBF817; LFL-12WH-SBF1 to SBF206	12 EL, Yampa R and White R, CO
124368-680	FWS/V-12GR-BW01 to BW33	12 SN, Green R, UT
124681-684	(blank)	
124685-823	UDWR-13GR-SL01 to SL55	13 LT, Green R, Stewart Lake Eval, UT
124824-5486	LFL-12GR-LW001 to LW049, LWHN1, LWHN2	12 SN and HN, Green R, Lodore-Whirlpool, CO, UT
125487-991	FWS/V-13RZ-012 to 219	13 Larvae, RZ LT, Green R, Vernal, UT

* Separately cataloged portion of previously cataloged set of collections.