

- I. Project Title: **Identification and Curation of Larval Fish by Colorado State University Larval Fish Laboratory.**
- II. Principal Investigator(s): Darrel E. Snyder, Sean C. Seal, and Kevin R. Bestgen  
mail— Larval Fish Laboratory, Colorado State University, 1474 Campus Delivery, Fort Collins, CO 80523-1474  
e-mail — Darrel.Snyder@ColoState.edu, Fishseal@lamar.ColoState.edu, and Kevin.Bestgen@ColoState.edu  
phone — 970-491-5295 (DES), 970-491-6412 (SCS), and 970-491-1848 (KRB)  
fax — 970-491-5091
- III. Project Summary: This ongoing project provides for (1) the identification, processing, and cataloging of preserved fish collections for Project 22F (Yampa and Middle-Green Colorado Pikeminnow and Razorback Sucker Larval Abundance), (2) incidental taxonomic services and consultation, and (3) ongoing maintenance and management of the growing Upper Colorado River Basin (UCRB) portion of the LFL Collection, including controlled access to and use of collection holdings and data by UCRB and other researchers.
- IV. Study Schedule: Ongoing project. Project 22F collections are processed and the resultant data provided to the principal investigator as soon as logistically possible after the collections are received. General collection maintenance activities (e.g., fluid level and container checks) are conducted each fall or winter; other maintenance concerns are addressed as needed. Collection management, including response to requests for loans or collection holdings, and provision of limited other taxonomic services and consultation for other Recovery Program projects and researchers is ongoing as needed.
- V. 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 Project 22F collections contributes to Task V.A. (measure and document population and habitat parameters to determine status and biological response to recovery actions). The remainder of the 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 current Task V.A.1 (conduct interagency data management program to compile, manage, and maintain all research and monitoring data collected by the Recovery Program).
- VI. Accomplishments of FY 2004 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings: The FY 2004 goals and objectives of this ongoing project are being met. Some task items, as noted below, were not yet been completed as of September 30. No additional funding will be required for these time-delayed tasks.

Task 1, Taxonomic Services—For Project 22F, we processed 320 preserved 2003 drift-net collections from the Yampa and Green Rivers in Echo Park (1,005 lots, 4,217 specimens). Data for the Yampa River collections have been forwarded for analysis and reporting and the collections have been catalogued but not yet labeled and shelved pending resolution of a label printing problem. Submission of full results for the Green River portion of the collections for analysis and reporting, as well as the cataloguing of those collections, awaits resolution of the identity of questionable catostomid specimens, including some possible razorback sucker larvae. Incidental requests from UCRB researchers for taxonomic assistance or consultation on larval-fish sampling and collection handling matters were addressed as received.

Task 2, Ongoing Collection Maintenance and Management—As of September 30<sup>th</sup>, we have (1) worked on and resolved temperature control problems in our auxiliary collection storage room, (2) installed updates of, and worked on problems with, Specify, our collection catalogue and management program (some label related problems remain to be resolved and a new update awaits installation), (3) revised and resubmitted, with the curators of other Colorado State University collections, a National Science Foundation proposal to facilitate our planned, but currently tabled, consolidation of university natural history research collections in one specially renovated building, (4) made collection holdings and data available to UCRB researchers and other interested parties, and (5) added a total of 3,171 lots of fish (31,913 specimens) from UCRB collections or investigations to the catalogued collection. Appendix A lists the study-year sets of UCRB collections that were cataloged during FY 2004. We now maintain and manage 85,733 cataloged lots of fish (2,918,574 specimens), over 98% of which had been collected, reared, or used for UCRB investigations since 1975 (some collections used for UCRB investigations were reared or collected from elsewhere in the 1950s and 1960s). We had not yet begun our annual fluid level check, nor prepared and delivered our planned update of printed and *dBase* or *Access* versions of the collection catalog to the Interagency Database Management Program (IDMP).

If funded, the NSF project noted in item 3 above will not only cover the move of the LFL Collection, and other university collections, to new facilities with new compactor shelving, but help assure the permanency and usefulness of the collection by providing for the backlog cataloging of the more critical non-UCRB holdings and facilitating public access to selected (non-sensitive) collection catalog data over the Internet.

As part of item 4 above, we assisted the National Park Service (Melissa Trammell) with identification of holdings taken from within selected southwestern National Park units that serve as voucher for the fishes present in those Parks. In a separate in-house project funded by the National Park Service, we are cross-cataloging all our holdings of specimens from within three National Park units in the UCRB with the Park Service's own collection catalog. For another in-house project, funded by the Bureau of Reclamation in Phoenix, UCRB specimens from the collection were examined and analyzed to supplemental existing descriptive information for a guide to the larvae of cypriniform fishes in the Gila River Basin. Also, requests from outside researchers for specimens or data were addressed as received, including one that is still pending for the loan of just-hatched protolarvae of some UCRB species for comparison with other taxa.

VII. Recommendations: We recommend continued annual support of Project 15 with sufficient funds for processing newly preserved collections covered by this project (currently collections from Project 22F, Yampa and Middle-Green Colorado Pikeminnow and Razorback Sucker Larval Abundance ), incidental taxonomic services and consultation, and on-going maintenance and management (curation) of all UCRB specimens held by LFL.

VIII. Project Status: On-track and ongoing.

IX. FY 2004 Budget Status

- A. Funds Provided: \$45,678
- B. Funds Expended: \$26,265 (as of October 15)
- C. Difference: \$19,413 (Logistical delays—see Section VI, Paragraph 1)
- D. Percent of the FY 2004 work completed, and projected costs to complete:  
58%, \$19,413
- E. Recovery Program funds spent for publication charges: \$0

X. Status of Data Submission (Where applicable): Data for Project 22F collections will be submitted under that project. Preparation of updated printed and *dBase* or *Access* versions of the LFL Collection catalog (selected fields) and submission of same to IDMP has been delayed until FY2005.

XI. Signed:	<u>Darrel E. Snyder</u> Principal Investigator	<u>November 8, 2004</u> Date
Signed:	<u>Sean C. Seal</u> Principal Investigator	<u>November 8, 2004</u> Date
Signed:	<u>Kevin R. Bestgen</u> Principal Investigator	<u>November 8, 2004</u> Date

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, 2003 through September 30, 2004 (3,171 lots, 31,913 specimens).

Beginning Cat. No.	Field Numbers	Description of Sample Sets
82547	(non-UCRB collections)	
82642	FWS/V-02RZ-001 to 093	02 Larvae, RZ, LT, Green R., Vernal, UT
82981	LFL-02YA-6181 to 8043	02 Larvae, DR, Yampa R., Echo Pk, DNM, CO
83443	LFL-CULT-UT87-01 to 82	87 Utah sucker study series, reared, CSU, CO
83577	LFL-CULT-MT81-01 to 20	81 Mountain sucker study series, reared, CSU
↓	LFL-WC/WG 81	81 Mt. suckers, Willow Ck & Ways Gulch, CO
↓	UDWR-SFR85, PR82, & PR83	81-85 Mt suckers, Span. Fk & Provo R, UT*
83657	FWS/RENO-TR73, TR80-1 to 3	73 & 80 Mt. suckers, Truckee R., NV*
↓	FWS/RENO-PL80-1 to 3	80 Mt. Suckers, Pyramid Lake, NV*
83666	WJH-RC67, MR66-1 to 3, FC66	66-67 Mt. Sucker, various rivers, MT*
↓	WJH-CULT-MT66-01 to 03	66 Mountain sucker series, reared, MT*
83690	(non-UCRB collections)	
83714	FWS/GJ-GU03-001 to 121	03 Larvae, RZ, SN & LT, Gunnison R., CO
84114	LFL-02GR-6212 to 8042	02 Larvae, DR, Green R., Echo Pk, DNM, CO
84338	LFL-95UGR-7071 to 8153	95 Larvae, Drift Net, Green R., Jensen, UT
84944	FWS/V-03RZ 001 to 083	03 Larvae, RZ, LT, Green R., Vernal, UT
85215	LFL-03YA-6291 to 8181	03 Yampa DR, Yampa Echo Pk, DNM, CO

\* Collected mountain sucker larvae used in developmental study for Upper Colorado River Basin guide to catostomid larvae.