50th Annual Meeting

Short Program

14-18 November 2018
Furnace Creek,
Death Valley National Park, California, USA

Species in a bucket; recovery of Owens Pupfish, Fish Slough, 1969
## Overview and Event Locations

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday, 14 November 2018</td>
<td>Registration and Presentation Loading</td>
<td>Furnace Creek Visitor Center</td>
</tr>
<tr>
<td>16:00-21:00</td>
<td>Social Mixer</td>
<td>The Oasis Room</td>
</tr>
<tr>
<td>Thursday, 15 November 2018</td>
<td>Registration and Presentation Loading</td>
<td>Furnace Creek Visitor Center</td>
</tr>
<tr>
<td>08:00-18:00</td>
<td>Welcome</td>
<td>Furnace Creek Visitor Center Auditorium</td>
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<tr>
<td>09:00-11:30</td>
<td>Lee Simons: Advocate for Desert Fishes Symposium</td>
<td>Furnace Creek Visitor Center Auditorium</td>
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<tr>
<td>13:00-16:00</td>
<td>Standing Between Life and Extinction: Book Preview Symposium</td>
<td>Furnace Creek Visitor Center Auditorium</td>
</tr>
<tr>
<td>17:45-19:45</td>
<td>Poster Session</td>
<td>Furnace Creek Visitor Center Auditorium</td>
</tr>
<tr>
<td>Friday, 16 November 2018</td>
<td>General Session II</td>
<td>Furnace Creek Visitor Center Auditorium</td>
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<tr>
<td>08:30-12:00</td>
<td>Lunch</td>
<td>Furnace Creek Visitor Center Auditorium</td>
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<tr>
<td>13:30-17:00</td>
<td>General Session III</td>
<td>Furnace Creek Visitor Center Auditorium</td>
</tr>
<tr>
<td>17:15-18:15</td>
<td>Business Meeting</td>
<td>Furnace Creek Visitor Center Auditorium</td>
</tr>
<tr>
<td>Saturday 17 November 2018</td>
<td>Banquet</td>
<td>The Date Grove</td>
</tr>
<tr>
<td>08:30-12:00</td>
<td>General Session IV</td>
<td>Furnace Creek Visitor Center Auditorium</td>
</tr>
<tr>
<td>Sunday 18 November 2018</td>
<td>Field Trip</td>
<td>Amargosa River</td>
</tr>
</tbody>
</table>
We thank our generous hosts:

Cover artwork by Barbara Terkanian

Events are in Furnace Creek Visitor Center Auditorium unless otherwise specified.

Presenters, please load your presentation by 6:00 pm the day before your presentation.

Student award presentations are highlighted in gray.

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**Short Program Detail**

**Wednesday, November 14th**

16:00-21:00 Registration and Presentation Loading (Furnace Creek Visitor Center)

18:00-20:30 Social Mixer (The Oasis Room)

**Thursday, November 15th**

08:00-18:00 Registration and Presentation Loading (Furnace Creek Visitor Center)

08:30-09:00 Welcome (Chairs: Phil Pister and Krissy Wilson)

09:00-11:30 Session 1: Lee Simons: Advocate for Desert Fishes Symposium (Chair: Lesley Fitzpatrick)

09:00 Gary Scoppettone, Dean A. Hendrickson, Jon Sjoberg, David Syzdek and Paul Barrett. Remembrance of Dr. Lee H. Simons


09:15 Brandon Paulson and Craig Stockwell. The Direct Impacts of Non-Native Species on Pahrump Poolfish, *Empetrichthys latos latos*

09:45 Madison Snider, Brian Wisenden and Craig Stockwell. Antipredator Club Cell Evaluation in Insular Fishes

10:00 Christiana Manville, James Harter and Cody Anderson. Recovery on Private Land – Pahranagat Roundtail Chub Progress

10:15 Michael R. Schwemm, Brandon L. Senger and David J. Syzdek. History and Status of Fish Conservation on the Upper Muddy River, Nevada

10:30 David Syzdek. Ten Years of Restoration Projects for the Endangered Moapa Dace,
Moapa coriacea at the Warm Springs Natural Area, Clark County, Nevada

10:45 Ron Kegerries, Brandon Albrecht, Harrison Mohn, Ron Rogers and Aaron Ambos. Virgin River Long-Term Fish Community Monitoring


11:15 Duane Moser, Joshua Sackett, Brittany Kruger and Scott Hamilton-Brehm. Comparative Study of Microbial Biogeochemistry of Devils Hole and Ash Meadows Fish Conservation Facility

11:30-13:00 Lunch (on your own)

11:30-13:00 Yaqui Catfish Meeting (auditorium or adjacent patio)

13:00-16:00 Session 2: Standing Between Life and Extinction: Book Preview Symposium (Chair: David Propst)

13:00 Jack Williams and David Propst. The next Chapter in the Battle Against Extinction


13:30 Gary Garrett, Megan Bean, Robert Edwards and Dean Hendrickson. Mining Hidden Waters: Groundwater Depletion, Aquatic Habitat Degradation and Loss of Fish Diversity in the Chihuahuan Desert Ecoregion of Texas

13:45 Brandon Albrecht, Ron Kegerries, Ron Rogers and Paul Holden. The Exotic Dilemma: Lessons Learned from Efforts to Recover Native Colorado River Basin Fishes

14:00 Jack Williams and Don Sada. Ghosts of Our Making: Extinct Aquatic Species of the North American Desert Region

14:15 Adam E. Cohen, Dean A. Hendrickson and Gary Garrett. The Value of Specimen Collections for Conserving Biodiversity

14:30 Mark Hausner, Kevin Wilson and Kevin Brown. The Devils Hole Pupfish: Science in a Time of Crisis

14:45 Peter Reinthal, Heidi Blasius and Mark Haberstich. Long-Term Monitoring of a Desert Fish Population Aravaipa Creek, Arizona.

15:00 David Propst, Thomas Turner, Jerry Monzingo, James Brooks and Dustin Myers. Conservation and the Historical Distribution of Gila Trout

15:15 Kevin Bestgen, Thomas Dowling, Brandon Albrecht and Koreen Zelasko. Large-River Fish Conservation in the Colorado River Basin: Progress and Challenges with Endangered Razorback Sucker

15:30 Christopher Norment. Politics, Imagination, Ideology, and the Realms of Our Possible Futures

15:45 Christopher Hoagstrom, Kevin Bestgen, David Propst and Jack Williams. Searching for Common Ground Between Life and Extinction
<table>
<thead>
<tr>
<th>Time</th>
<th>Session 3: General Session I (Chair: Kaleb Smith)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td>Casey Pennock, Michael Farrington and Keith Gido. Feeding Ecology of Co-Occurring Early Life Stage Suckers in a Regulated River</td>
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<td>16:15</td>
<td>Catherine Devlaming and Kevin Bestgen. Laboratory Experiments to Determine Effectiveness of Light Traps to Detect Razorback Sucker Larvae</td>
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<tr>
<td>16:30</td>
<td>Mark Grover and Chris Crockett. The Influence of Groundwater Fluctuations on the Distribution and Habitat Associations of Two Cyprinid Fishes in a Desert Spring Complex</td>
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<td>16:45</td>
<td>Mandi Finger and Alyssa Benjamin. Fine-Scale Analysis of Population Structure in the Relict Dace Using RAD Sequencing</td>
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<td>17:00</td>
<td>David L. Rogowski and Jan K. Boyer. Hope in a Highly Regulated River: Native Fish Recovery in the Colorado River</td>
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<tr>
<td>17:15</td>
<td>Heidi Blasius and Jeff Conn. Efficacy of Mechanical Removal of Nonnative Fish from Closed Systems; an Update on Bonita and Aravaipa Creeks</td>
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<tr>
<th>Time</th>
<th>17:45-19:45 Session 4: Poster Session</th>
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<tbody>
<tr>
<td>17:45</td>
<td>Christopher Hoagstrom, Derek Houston and Norman Mercado-Silva. Biodiversity, Biogeography, &amp; Conservation of North American Desert Fishes I: Areas of Endemism</td>
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<tr>
<td>17:45</td>
<td>Christopher Hoagstrom, Derek Houston and Norman Mercado-Silva. Biodiversity, Biogeography, &amp; Conservation of North American Desert Fishes II: Faunal Assembly</td>
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<td>17:45</td>
<td>Anthony Echelle and Alice Echelle. Restoration of Aquatic Habitats and Native Fishes in the Desert: Some Successes in Western North America</td>
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<td>17:45</td>
<td>Dean Hendrickson, Gary Garrett, Lloyd T. Findley and Edwin P. Pister. Fifty Years of Desert Fishes Council Proceedings as a Resource for Retrieving Otherwise Lost Knowledge and Control of Shifting Baselines</td>
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<td>17:45</td>
<td>Lesley Fitzpatrick. Lower Colorado River Area Report</td>
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<td>17:45</td>
<td>Alton Livingstone. See the Light: Construction of a Collapsible Larval Fish Light Trap Using a Low-Power LED Light Source</td>
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<td>17:45</td>
<td>Maria De L Vilano, Armando J. Contreras-Balderas, Gorgonio Ruiz-Campos and Maria E. Garcia-Ramirez. Current Conservation Status of Some Freshwater Fishes and Their Habitats in Mexico</td>
</tr>
<tr>
<td>17:45</td>
<td>Ronald Rogers, Brandon Albrecht, Ronald Kegerries, Harrison Mohn, Mark McKinstry, Brian Healy and Robert Schelly. Native Fish Dominance in the Grand Canyon, Arizona</td>
</tr>
<tr>
<td>17:45</td>
<td>Chuck Minckley and Alon Berman. Report on the Development of a Refuge Pond for the Sonoyta River Form of the Longfin Dace at the CEDO Research Station, Rocky Point, Sonora, Mexico</td>
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<td>17:45</td>
<td>Chuck Minckley and Alton Livingstone. Summary of Pond Construction of a Holding Pond for the Endangered Yaqui Catfish</td>
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<td>17:45</td>
<td>Harrison Mohn, Brandon Albrecht, Ronald Rogers, Ron Kegerries and David Syzdek. Long-Term Perspective of Native Fishes Within the Muddy River, Nevada</td>
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<td>17:45</td>
<td>Chris Crookshanks, Jon Sjoberg, Jeri Sjoberg, Kevin Wheeler, John Wullschleger, Deb Koziol, Laurel Saito, Cynthia Tait, Eric Miskow and Sandra Brewer. Conservation</td>
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<td>17:45</td>
<td>Agreement and Strategy for Springsnails in Nevada and Utah</td>
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<td>17:45</td>
<td>Black Canyon City Heritage Park Native Fish Refuge Population Update</td>
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<td>Broodstock Density Mediates Larval Production of Captive-Spawned Loach Minnow and Spikedace</td>
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<td>Comparing and Contrasting Pupfish, Headwater Catfish, and Northern Largemouth Bass</td>
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<td>Water Quality and Sediment Chemistry of Selected Habitats of the Mohave Tui Chub, Mojave National Preserve, California, 2018</td>
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<td>17:45</td>
<td>Laughlin Lagoon Avian Predation Monitoring</td>
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<td>Spatial and Temporal Variation in Benthic Macroinvertebrate Assemblages Structure in Salinized Reaches of the Pecos River</td>
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<td>17:45</td>
<td>Freshwater Mollusk Water Quality Tolerances and Observations About the Effects of Dams in the Middle Snake River Sub-Basin, Southern Idaho</td>
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<td>Beaver-Mediated Ponds Provide Cold Water Refugia in a Degraded Desert Stream</td>
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<td>Nevada Area Report</td>
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<td>17:45</td>
<td>Mitchell Stanton, Olin Feuerbacher, Jennifer Gumm, Corey Lee and Javier Linares-</td>
</tr>
</tbody>
</table>
Casename. Predacious Diving Beetle (Dytiscidae) Dynamics Within a Refuge Tank Ecosystem for the Endangered Devils Hole Pupfish (Cyprinodon diabolis).

17:45 Andrea Roth-Monzón and Jerald B. Johnson. Multispecies Character Displacement in Mexican Freshwater Fish Communities

17:45 Paul Badame. Upper Colorado Basin Area Report

17:45 Megan Bean, Gary Garrett and Russell Martin. Desert Fishes Research and Management in Texas: Rio Grande, Pecos, and Devils Rivers

17:45 Yvette Paroz. The Aquatic eDNA Atlas and Applications for Desert Fish

19:45-21:45 Student Networking Session (Chair: Heidi Blasius)

Friday, November 16th
08:30-12:00 Session 5: General Session II (Chair: Anthony Robinson)

08:30 Earyn McGee, Rezwana Islam, Noel Hamideh and Michael Bogan. Demographics of Riparian Lizards in the Chiricahua Mountains in Relation to Water Availability and Emerging Aquatic Insects as a Potential Food Source

08:45 Pilar Wolters and Dave Rogowski. Should One Age a Warmwater Fish in a Coldwater System?

09:00 Eric Moody, Ellen Albright, Katie Cope, Rachel Fleck, Haley Grigel, David Ortiz and Grace Wilkinson. Severely Understudied Impacts of Fishes in North America’s Arid Land Aquatic Ecosystems

09:15 Susan Washko, Phaedra Budy, Brett Roper and Trisha Atwood. A Comparison of Riffle and Beaver Pond-Dwelling Trout in Northeastern Utah

09:30 Drew Eppehimer, Kelsey Hollien, Zach Nemec, Hamdhani, Larissa Lee, David Quanrud and Michael Bogan. Implications of Using Treated Wastewater as Habitat for Desert Fishes


10:00 Jane Rogosch and Julian Olden. Trophic Ecology of Roundtail Chub, Gila robusta, Along a Gradient of Invasion

10:15 Zach Nemec and Scott Bonar. Stream-Specific and Generalized Habitat Suitability Criteria for Four Native Desert Fishes

10:30 Christopher Martin. How Old Is the Devils Hole Pupfish and Why Should We Care?


11:00 Kerry A Gold, Ambre L Chaudoin, Jeffrey A Goldstein, Kevin P Wilson and Josh Hoines. Restoring the Terrestrial Connections of Devils Hole

11:15 Larissa Lee and Scott Bonar. Go with the Flow: Flow Regime and Fish Populations in Four Arizona Streams

11:30 Taylor Ulrich and Scott Bonar. Cryptic but Reel: Using Social Psychology Principles in Educational Videos to Acquaint the Public with Cryptic Fishes

11:45 Kelsey Hollien and Michael Bogan. Differences in Aquatic Invertebrate Diversity and
Community Composition in Perennial Systems of the Rio Sonoyta Basin, Arizona and Sonora

12:00-13:30 Lunch (on your own)

13:30-17:00 Session 6: General Session III (Chair: David Rogowski)

13:30  David Ward. Forgotten Secrets of Invasive Fish Eradication

13:45  Natalie Constancio, Sophie Dunkelberger, Lauren Musial, Gaby Ortiz, Elizabeth von Ruden and Kate Boersma. Drought Cues Induce Dispersal in an Aquatic Beetle, *Haliplus punctatus* (Coleoptera: Haliplidae)

14:00  Betsy Grube, Peter Reinthal, Jessica Gwinn and Elizabeth Arnold. Biogeochemical Analyses of Airborne Deposition of Lead (Pb) Contamination in Aravaipa Creek, Arizona

14:15  Hamdhani, Drew Eppehimer, David Quanrud and Michael Bogan. Effect of Diurnal Flow Variability on Water Quality Dynamics in the Effluent-Dependent Santa Cruz River

14:30  Arcadio Valdes Gonzalez and Maria Elena Angeles Villeda. Chichencanab, a Catastrophic Ecosystem?

14:45  Crosby Hedden, Skyler Hedden, Keith Gido and James Whitney. Intraspecific Response of Sonora Suckers to Consecutive Wildfire Disturbances

15:00  Alexsandre Gutiérrez-Barragán, Carlos Alonso Ballesteros-Córdova, Gorgonio Ruiz-Campos, José Manuel Grijalva-Chon and Alejandro Varela-Romero. Comparative Morphometrics Analysis Among Refuge and Wild Populations of Sonoyta Pupfish *Cyprinodon eremus* Miller & Fuiman, 1987 (Teleostei: Cyprinodontidae)

15:15  Laura Tennant, David Ward and Alice Gibb. Effects of Body Size on Vulnerability to Predation in Juvenile Roundtail Chub Stocked in the Upper Verde River, Arizona

15:30  Stephen Ross, Tim Modde and Derek Ross. Comparison of Aging Structures and Life History Aspects of an Historical Population of the Roundtail Chub, *Gila robusta* (Cyprinidae), in the Yampa River Canyon, Colorado

15:45  Aaron Ambos, Raymond Saumure, Thomas O'Toole and Zane Marshall. A New Las Vegas Home for the Pahrump Poolfish, *Empetrichthys latos*

16:00  Hannah Moore and Howard Whiteman. Does Increasing Food-Web Stability Mediate the Effects of Cattle Grazing in Aquatic Desert Ecosystems?

16:15  Chad Teal, Scott Bonar and Dan Schill. Developing YY Males to Control Nuisance Fish Populations in the Southwest

16:30  Kelbi Delaune-Trotter and Allison Pease. Ecological Traits of Non-Native *Fundulus grandis* in the Pecos River: Implications for Impacts on Native Species

16:45  Daniel Kimball, Owen Kyle, Michael Minicozzi and Alice Gibb. Bonytail, the Arizona Tuna? Convergence in Muscle and Tendon Anatomy in Scombrids and *Gila cypha*

17:15-18:15 Business Meeting (Chair: Krissy Wilson)
19:15-21:15 Banquet (Location: The Date Grove)

Saturday, November 17th
08:30-12:00 Session 7: General Session IV (Chair: Pilar Wolters)

08:30 Rollie White, Jason Dunham, Chris Allen, Bruce Marcot and Dan Shively. The Conservation Landscape: Finding Success at the Intersection of Ecological, Social, and Institutional Dimensions

08:45 Aaron Burgad, Brian Kesner and Paul Marsh. Long-Term Patterns of Fish Community Structure in Lake Mohave, Arizona-Nevada

09:00 Melinda Bennion and Richard Fridell. Limiting Factors and Recovery of Woundfin in the Virgin River

09:15 Kristopher Stahr. An Evaluation of Three Artificial Structures to Reduce Predation on Hatchery-Reared Bonytail and Razorback Suckers

09:30 Skyler Hedden, Keith Gido, Bobby Duran, Scott Durst, Nathan Franssen, Eliza Gilbert, Crosby Hedden, Brian Hines, Mark McKinstry and Casey Pennock. Quantifying the Predatory Threat of a Nonnative Fish on Native Fishes in the San Juan River

09:45 Keith Gido, Webster Jordan, Sky Hedden, James Whitney and David Propst. Spatial and Temporal Variation of Aquatic Macroinvertebrates in the Upper Gila River, New Mexico and Response to Drought, Wildfire and Monsoonal Flooding

10:00 Alan Mauer, Brian Sidlauskas, Marci Schreder, Paul Divine and Justin Miles. Oregon / Northern California Area Report, November 2018

10:15 Brian Hickerson. Factors Influencing Successful Mechanical Removal of Green Sunfish

10:30 Christi Kruse, Jon Shurin, Jeff Holmquist, Natalie Jones, Steve Parmenter and Nick Buckmaster. Potential for a Multi-Species Refuge: Investigating Competition Between Historically Co-Occurring Cyprinids

10:45 Geoff Moret, Erin Orozco and Michael Schwemm. A Resurvey of Springsnails in and near Ash Meadows National Wildlife Refuge 31 Years Later

11:00 David Lytle, Jonathan Tonkin, Julian Olden, David Merritt, Lindsay Reynolds and Jane Rogosch. Do “Designer Flows” for Native Fish Also Protect Aquatic Insects and Riparian Plants?


11:30 Brian Kesner, Aaron Burgad and Paul Marsh. Assessment of Razorback Sucker Monitoring in the Lower Colorado River Basin

11:45 Jacob Rennert, Jon Shenker, Aaron Adams and Jorge Angulo-Valdez. Age, Growth, and Age at Maturity of Bonefish (Albula Species) Among Cuban Habitats

12:00-13:30 Lunch (on your own)

13:30-17:00 Session 8: General Session V (Chair: Julie Carter)

13:30 Nicholas Buckmaster, Rosa Cox, Leah Botelho, Christi Kruse and Steve Parmenter. Distribution of Fishes and Fish Assemblages in the Northern Owens Valley

13:45 Chance Broderius. Comparisons of the Age Structure of Several Populations of
Bonneville Bluehead Sucker

14:00  Sharon Keeney. Challenges in Desert Pupfish Management in Salt Creek and San Felipe Creek, Riverside and Imperial Counties of California

14:15  Chase Ehlo. Post-Stocking Fate of Razorback Sucker in Topock Marsh, AZ

14:30  Dave Speas, Peter MacKinnon, Jim White, Dan Keller and Zane Olsen. Use of the Lower Dolores River by Endangered Fishes, 2013-2017

14:45  Rosa Cox, Leah Botelho, Steve Parmenter and Nick Buckmaster. Response of Macroinvertebrate Communities to High Flows in the Owens River Gorge

15:00  Sarah Robertson. A Multi-Disciplinary Approach to Protecting Instream Flows and Endemic Species in the Devils River, Texas


15:30  Charles Nate Cathcart, Casey Pennock, Christopher Cheek, Mark McKinstry, Peter MacKinnon, Mary Conner and Keith Gido. Waterfall Formation at a Desert River-Reservoir Delta Isolates Endangered Fishes

15:45  Cassie Mellon and Kevin Wheeler. Prescribed Fire as a Tool to for Sensitive Species Conservation

16:00  Michael Partlow, Matthew Breen and Garrett Tournear. Submersible PIT Antennas Document a New Spawning Location for Colorado Pikeminnow, Ptychocheilus lucius, in the Green River, Utah


16:30  Jennifer Gumm, Kristina Ayers, Vance Imhoff and Gene Wilde. Genetic and Morphological Analysis of Hybridization Between Native and Invasive Pupfishes (Cyprinodon)

Sunday, November 18th

08:00-13:00 Field Trip: Amargosa River (led by Mike Schwemm)