



Newsletter of the Freshwater Mollusk Conservation Society

Vol. 25 – No. 3

ISSN 2689-2936

Winter 2024

Cover Story 1

Society News 2

Announcements 12

Upcoming Meetings..... 20

Contributed Articles 21

FMCS Officers 26

Committees 27

Parting Shots28

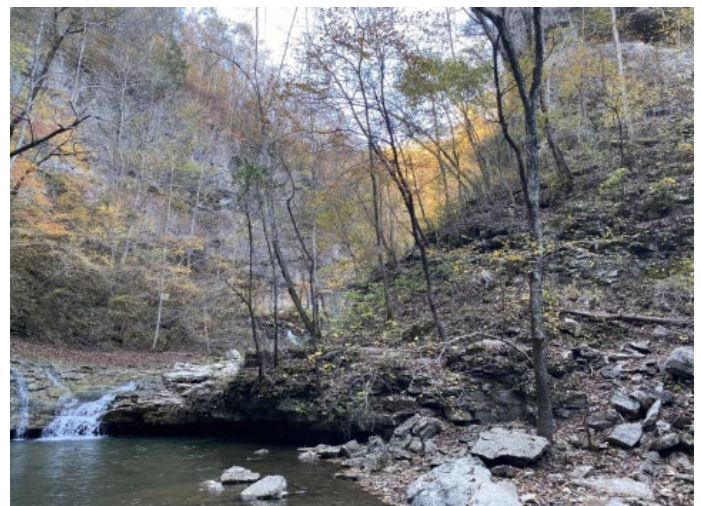


Photo Credit: US Department of the Interior

Dept. of the Interior establishes new national wildlife refuge in Tennessee: The "Paint Rock River National Wildlife Refuge" is located outside of Chattanooga, linking state and nonprofit conservation land in Tennessee and Alabama.

Author: WBIR Staff

Published: 4:14 PM EDT October 10, 2023

Updated: 5:24 PM EDT October 10, 2023

CHATTANOOGA, Tenn. — The U.S. Department of the Interior announced Tuesday that it established two new national wildlife refuges. One was in Wyoming, and the other was established in Tennessee.

The Paint Rock River National Wildlife Refuge is located outside Chattanooga and is meant to link nonprofit and state land in Tennessee and Alabama, helping conserve the Paint Rock River watershed

and one of the largest contiguous tracts of hardwoods remaining in eastern North America. The watershed drains into the Tennessee River.

In a release, the department said the refuge will also help protect threatened and endangered species like gray bats, Indiana bats, Tennessee cave salamanders and Alabama cave shrimp. The waters in the area are home to around 100 species of fish and around 50 kinds of freshwater mussels. Some of those species are not found anywhere else in the world, the department said.

The new refuge is also meant to protect water quality, water quantity and hydrology of the Paint Rock River. It is also meant to expand outdoor recreational opportunities, helping support local economies.

The newly-acquired tract is around 87 acres large and was donated by The Nature Conservancy and the Open Space Institute. Visitors at the refuge will be able to hunt, fish, hike and take photos, as long as it is compatible with refuge use policies.

Society News

Freshwater Mollusk Conservation Society

Fall 2023 Board Meeting

December 6th, 2023

10am CST

Minutes

Call to order, roll call for attendance, and declaration of quorum – Steve McMurray at 10:30AM CST.

In attendance: Becca Winterringer, Brian Carlson, Emilie Blevins, Jonathan Lopez, Steve McMurray, Amy Maynard, Daniel Symonds, Heidi Dunn, Susan Oetker, Matt Johnson, John Pfeiffer, Matt Ashton, Jesse Weininger, Megan Bradley, Alan Christian, John Harris, Dave Zanatta, Madi Polera, Lisie Kitchel, Nathan Eckert, John Harris, Sarah Veselka, and Martin Osterling.

A quorum was declared.

Approval of the Spring 2023 Board Meeting Minutes

A motion was made by Heidi Dunn to accept the Spring 2023 meeting minutes as reported, seconded by Lisie Kitchel, the motion carried.

Treasurer's Report – Alan Christian (see attached report)

The ExCom and Finance Committee made a request to the Board to increase all society due types by 20% beginning in 2025 to cover increased operating expenses.

A motion to approve this request as presented was made by Heidi Dunn, seconded by Rebecca Winterringer, the motion carried.

Secretary's Report – Sarah Veselka

The active number of FMCS members as of December 6, 2023, totals 492 including 13 author non-members, 11 contributing, 5 lifetime, 16 lifetime free, 348 regular, and 99 student / retirees.

A motion to approve the Secretary's Report as presented was made by Heidi Dunn, seconded by Amy Maynard, the motion carried.

Old Business**2024 proposed society budget-** Heidi Dunn

The Finance Committee presented a budget for 2024 (see attached Finance Committee report). In summary, Society dues will be used to cover operation expenses, 1/3 of Society funds will be kept in the Society bank accounts, 1/3 will be invested and kept for emergencies, and 1/3 will be used for committee specific projects. A motion to accept the 2024 Society budget as proposed by the Finance Committee was made by Steve McMurray, seconded by Heidi Dunn, the motion carried.

European Affiliates - Martin Osterling

An update on the meeting in Sweden was provided and will be printed in the December Ellipsaria.

2024 Workshop – Amy Maynard (see attached Symposia and Workshops committee report)

Final call for poster abstracts needs to be sent to membership.

Mussel App Status Update – Susan Oetker

Budget for future support needs to be provided to ExCom

Mollusk Certification Update – Becca Winterringer (see attached Professional Development committee report)**FMCS Oral History Project** – Rachel Muir (not in attendance)**CASS membership** – Steve McMurray**Future Sustainability** (Charter, Location) – Alan Christian**Digitizing/Shared Platform for ExCom** – Megan Bradley

Once developed, a budget will be provided to the ExCom and the Board

Elections/Establishing a Candidate Search Committee – Matt Johnson (no update currently)**Standard Operating Procedures Revision** – Heidi Dunn (in the works)**Student Welcome Awards** – John Pfeiffer

The ExCom is requesting a budget for these awards for upcoming years.

New Business**Incentives for officers** - Finance Committee voted yes in April

- Offer lifetime membership and/or,
- Waive registration for symposiums and workshops

A motion for the Finance Committee to further explore incentives to increase officer participation was made by Heidi Dunn, seconded by Lisie Kitchel, and the motion carried.

Funds would come out of the Society budget and would take effect at the next symposium when the next slate of officers is elected. There was discussion about offering travel expenses and if there should be a monetary cap. Heidi Dunn and Sarah Veselka will get together to explore survey options.

Committee Reports**Functional Committees:**

Outreach – see committee report

Awards – nothing to report currently

Regional Associations – nothing else to add

Diversity, Equity, and Inclusion – see committee report

Elections – no update

Finance – see committee report

Professional Development – see committee report

Publications – not in attendance, no report

Symposia and Workshops – see committee report

- 2026 Workshop - Matt Ashton – Propagation and Reintroduction Workshop to be held at NCTC.

A motion to accept the 2026 workshop idea as presented was made by Alan Christian, seconded by Steve McMurray, the motion carried.

- 2024 Symposium – Dave Zanatta

Technical Committees:

Conservation and Restoration - see committee report

Environmental Quality and Advocacy – nothing reported

Field Studies and Ecosystem Services – nothing reported

Genetics – see committee report

Mollusk Status and Distribution – nothing reported

Motion to Adjourn

A motion to adjourn at 11:55 PM CST made by Lisie Kitchel, seconded by Alan Christian, and the motion carried.

**Fall 2023 FMCS Committee Reports
Submitted to FMCS ExCom**

Functional Committees

Awards Committee – no report submitted.

Chapters Committee – no report submitted.

Elections Committee – no report submitted.

Outreach Committee Report - Chairs meeting with Amy Maynard on 12/6/23 to get update on the website transition, and for Outreach to take over website integration responsibilities as outlined in the Committee Procedures. D. Symonds serving on the 2025 Symposium Planning Committee as a representative of the Outreach Committee, and will be handling the Student/Mentor Mixer. Outreach committee has been handling social media post requests as needed. Future meeting of the committee planned for January 2024 to incorporate students who expressed interest in Portland as well as begin planning for a Student/Mentor Program which was also discussed in Portland. Committee Chairs – Madi Polera & Dan Symonds

Finance Committee Report - January-October 2023 Financials

Profit-Loss Statement: For the January to October 2023 reporting period, FMCS reports a total income of \$207,058.0 and expenses totaling \$209,015.98. This results in a net income of -\$1,957.89. The major income categories, in order of reporting, are CD investments (\$56,510.00), Fundraising (\$7,852.12), Donations (\$298.09), Interest Income (\$3.07), Memberships (\$21,040.00), and Workshops and Symposiums (\$121,354.81). The major expense categories, in order of reporting, are CD Deposits (\$56,510.00), Initiatives (\$9,539.52), PPP&S(IRS)(\$111.15), Independent Contractors (\$4,540.00), Corporation Service Fees (\$2,592.00), Financial Service Fees (\$4,709.89), Office Expenses (\$438.13), Tax Expenses (\$100.85), Symposium/Workshop Expenses (\$124,790.52), and Walkerana/FMBC Costs (\$5,683.92).

	<u>Jan - Oct 23</u>
Income	
CD Investment	
Student Travel Fund Investment	8,000.00
General CD Investments	<u>48,510.00</u>
Total CD Investment	56,510.00
Fundraising	
Auctions	
Auction/raffle income	<u>7,852.12</u>
Total Auctions	<u>7,852.12</u>
Total Fundraising	7,852.12
Donations	
Network For Good	160.00
Amazon Smile income	<u>138.09</u>
Total Donations	298.09
Interest income	3.07
Memberships	
2023 Memberships	<u>21,040.00</u>
Total Memberships	21,040.00
Workshops and Symposiums	
2023 Symposium	
Sponsorship	10,400.00
Registration	<u>110,954.81</u>
Total 2023 Symposium	<u>121,354.81</u>
Total Workshops and Symposiums	<u>121,354.81</u>
Total Income	<u>207,058.09</u>
Gross Profit	207,058.09
Expense	
CD Deposit	
General CD Investment	48,510.00
Travel Fund Investment	<u>8,000.00</u>

Total CD Deposit	56,510.00
Initiatives	
DEI	730.00
Society Awards	344.52
Student and EC Award expenses	
Student Volunteers	800.00
Early Career Expense	465.00
Student award expenses	<u>7,200.00</u>
Total Student and EC Award expenses	<u>8,465.00</u>
Total Initiatives	9,539.52
PPP&S (IRS)	
Shipping	<u>111.15</u>
Total PPP&S (IRS)	111.15
Independent Contractors	
Webmaster Service Fees	<u>4,540.00</u>
Total Independent Contractors	4,540.00
Corporation Service Fees	
FMCS Website	<u>2,592.00</u>
Total Corporation Service Fees	2,592.00
Financial Service Fees	
Third-Party Reg. Pay. Process.	<u>4,709.89</u>
Total Financial Service Fees	4,709.89
Office Expenses	
Registered Agent	125.00
Annual registration fee	112.00
General Office Supplies	<u>201.13</u>
Total Office Expenses	438.13
Tax expenses	100.85
Symposium/Workshop expenses	
2023 Portland Symposium	
Field Trips	4,020.00
Office Supplies	418.06
Hospitality	3,721.46
Merchandise	4,096.18
Venue Expenses	100,963.82
2023 Portland Symposium - Other	<u>382.00</u>
Total 2023 Portland Symposium	113,601.52
2022 TN Workshop	662.00
Symposium/Workshop expenses - Other	<u>10,527.00</u>
Total Symposium/Workshop expenses	124,790.52
Walkerana/FMBC costs	
KGL Knowledge Works Global	2,533.92

BioOne	1,020.00
Editing	<u>2,130.00</u>
Total Walkerana/FMBC costs	<u>5,683.92</u>
Total Expense	<u>209,015.98</u>
Net Income	<u><u>-1,957.89</u></u>

Balance Sheet: For the reporting period between January and October 2023, FMCS reported a Total Asset value of \$145,543.96 and a Total Liabilities & Equity value of \$145,543.96. Our assets are distributed among three Bank of America 12 or 13-month CDs, a Bank of America Checking Account, and a Bank of America Savings Account. In terms of Equity, the retained earnings for this period are \$147,501.85, while the net income is -\$1,957.89.

	<u>Nov 28, 23</u>
ASSETS	
Current Assets	
Checking/Savings	
BoA 13M Flexible CD 5861	24,510.00
BoA 13M Flexible CD 5845	8,000.00
BoA 12M Flexible CD 5858	24,000.00
BofA savings	4,436.89
BofA checking	<u>84,597.07</u>
Total Checking/Savings	<u>145,543.96</u>
Total Current Assets	<u>145,543.96</u>
TOTAL ASSETS	<u><u>145,543.96</u></u>
LIABILITIES & EQUITY	
Equity	
Retained Earnings	147,501.85
Net Income	<u>-1,957.89</u>
Total Equity	<u>145,543.96</u>
TOTAL LIABILITIES & EQUITY	<u><u>145,543.96</u></u>

Dues Increase: The Finance Committee and Executive Committee recommend increasing the FMCS dues by 20% to take effect during the next symposium cycle (2025/2026 dues). This is because it has been several years since the last increase, while prices continue to rise. We want to keep our journal open access and maintain an up-to-date website, but these administrative costs have increased significantly. Our membership fees no longer cover our base operations costs. Additionally, we would like to plan for emergencies and have some money available for committees that want to take on worthwhile projects.

The proposed increase would mean that regular members would pay \$100 every 2 years (up from \$80), while students/retirees would pay \$50 every 2 years (up from \$40). Lifetime membership would increase from \$800 to \$1000.

We believe this increase is necessary to cover administrative costs (including webpage, publications, and other operating expenses) with the membership fees. We can then use the money in the bank to cover any workshop/symposium losses (should they occur), and committee and other projects that benefit the society, freshwater mollusks, and our members.

Professional Development Committee Report - The Professional Development Committee (hereafter Committee) has been working on evaluating the volunteer applications to determine the efficacy of the Certification Guidance document and certification evaluation criteria. To recap, the goal of the pilot test was to ensure we are capturing ranking and scoring criteria effectively by appropriate certification tier level. The current Certification tiers are: Associate Mollusk Professional (AMP), Certified Mollusk Professional (CMP), Mollusk Professional – Emeritus (MP-E). Additionally, the pilot test aimed to identify areas within the guidance document that needed refinement such as instructions; directions on assessing one’s education, qualifying experience, and professional performance; and applicant documentation.

Summary of Pilot Test to Date

Committee members (Nathan Click, Dan Symonds, Becca Winterringer) developed reviewer guidance and methods to aid in evaluating the applications. Reviewer guidance aimed to streamline evaluations so that all evaluators were following the same methodology. Volunteers, pooled into the seven categories, are each receiving the following evaluation process:

1. Multiple committee members independently review the volunteer pools to generate two to three independent evaluations of an applicant. Evaluators (Becca Winterringer, Nathan Click, Dan Symonds, David Foltz, Alexa Maine, Heidi Dunn) review an applicant’s submitted materials with emphasis on cover letters, resumes, and the self-scoring form.
2. The applicant undergoes an independent evaluation by an evaluator who places review emphasis on the self-evaluation form tabs for education, qualifying experience, and professional performance. Cover letters and resume/CV’s are also consulted for validation and scoring for categories where needed.
 - a. The evaluator populates an independent score sheet and compares with the applicant’s self-scoring sheet, noting comments, significant differences, and/or areas better guidance.
 - b. Where and when needed, evaluators consult cover letters and resumes to cross check where categories were drastically different.
3. The evaluators’ scores and certification tier recommendations are noted in a tracking sheet as well as the applicant’s score and certification level, if requested.
4. A few commonly encountered issues among applicants where they did not limit professional performance indicators to the 5-year cap, over scored authorship, or included added courses points in addition to the degree points assigned.
5. General observations: some applicants did not consult the guidance document or did not provide all the requested information in the Call for Volunteers, the Guidance document needs detail added for categories and the score sheet working tabs need to be better detailed for expected content.

The Committee is currently engaged in application reviews as well as identifying update needs for the Guidance document and the self-evaluation form. Several sections of the Guidance document have been identified as needing updated and preliminarily include certification tier structure, continuing education, and term limitations on

professional qualifying experience categories. A report on the results of the Pilot Test is expected in early 2024 and targeting a report for the March 2024 *Ellipsaria*. A revised Guidance document and evaluation methodology will be provided to the FMCS Executive Committee and/or Board for review in early 2024; a summary of major changes will accompany the revised Guidance document.

Other Committee Activities

The Committee is also working on our procedures to support the updated FMCS Procedures Manual and is targeting submission by December 31.

Professional Development Committee	Contact Information
<i>Committee Email</i>	<i>fmcs.pdcomm@gmail.com</i>
Becca Winterringer – Chair (2019)	Beccawint6@gmail.com
Nathan Click – Co-Chair (2023)	Nathan.Click@ky.gov
Members	
David Foltz	dafoltz@edge-es.com
Art Bogan	arthur.bogan@naturalsciences.org
Daniel Symonds	Daniel.Symonds@stantec.com
Andrew Phipps	andrew_phipps@fws.gov
Heidi Dunn	heididunn005@gmail.com
Alexa Maine	AlexaMaine@ctuir.org
Mitchell Kriege	mdkriege@edge-es.com
Al Christian	alan.d.christian01@gmail.com

Publications – no report submitted.

Symposia and Workshops

2024 Environmental Tolerance and Ecophysiology Techniques Workshop – Jim Stoeckel, Kaelyn Fogelman, Susan Fuller and the sub-committees continue to work out details for the Summer 2024 Ecophysiology Workshop scheduled for March 4-8th at Auburn University, Auburn, AL. The venue has been locked in and we are currently working with the catering service. The budget and registration fees have been finalized. We have a preliminary program for talks and hands-on workshops. The program sub-committee is currently working on inviting speakers. General workshop announcements via the FMCS email list serve and social media first began in September. The website landing page was put up in October and includes workshop details such as registration prices, lodging options, abstract, and sponsorship information and we continue to update that as information becomes available. Two calls for abstracts for posters have gone out and registration went live on December 1st. The sponsorship committee is actively raising funds with several thousand already committed.

2nd Freshwater Mollusk Conservation Society Meeting in Europe - The meeting is scheduled for Karlstad in Sweden, with the theme “Linking the Quadrants of the Earth: A Worldwide Exploration of Freshwater Mollusk Study and Conservation”. The 1st European FMCS meeting was arranged in Verbania, Italy. The implementation of congresses outside of the American continent aims to expand the membership, share research and data with international

colleagues and foster collaboration. It is under this perspective that we want to introduce the upcoming 2024 meeting at Karlstad University in Sweden; the second of a series of FMCS sponsored international meetings. (See Announcement below)

We have a local Organizing Committee, and a Scientific committee consisting of international members (this committee can be extended). The 1st announcement was sent out in November, and a 2nd announcement will be sent out in December. We have pre-booked hotel rooms and conference auditorium in Karlstad, which was done with the help of a “conference eservice” here at Karlstad University. We are at the stage of discussing key-note speakers, and the plan is to ask them in December if they can participate at the meeting. A budget is under construction, and will be presented at a meeting on December 14th.

2025 Detroit Symposium –Daelyn Woolnough and Dave Zanatta- The 2025 Symposium is scheduled for Detroit Michigan May 12-16, 2025. We have had an initial meeting of the local planning committee in October 2023 with a brainstorming session about options for themes which has yet to be confirmed. In December 2023, we expect to receive bids and make a decision on the venue. Sub-committees have been formed within the local planning committee that include Program Committee, Keynote Speaker(s) Committee, Social Arrangements Committee, Field Trips, Auctions/Sponsorship Committee, and Exhibitors/Vendors Committee. The 2025 Symposium will have a hybrid component similar to the Portland 2023 Symposium.

Diversity, Equity and Inclusion (DEI) Committee



Brief Committee Report – 2023 Activities November 2023

- Committee: Tamara Smith (USFWS, Chair), Sara Craft (KY DOW), Jer Pin Chong (University of Illinois - Chicago), Mark Hove (U of MN), Xenia Rangaswami (Aquarium of the Bay), Chantelle Rondel (NC Wildlife), Alex Franzen (University of Oklahoma), Daelyn Woolnough (Central Michigan University), Kaelyn Fogleman (Auburn University), Jeremy Tiemann (ILNHS), Megan Bradley (USFWS - GNFH), Kentaro Inoue (Shedd Aquarium), John Pfeiffer (Smithsonian), Nora Straquadine, Traci DuBose (Oak Ridge Institute for Science and Education), Megan Michael (OHDOT), Brittany Trivisonno Muncy (ODOT), Erin McCombs (American Rivers), Curt Elderkin (TCNJ), Katherine Bockrath (USFWS), Amanda Goldsmith (TAMU), Jennifer Bronson-Warren (TPWD), and many others on our mailing list.
- The last full group meeting via phone call was November 8, 2023. The next meeting will be January 16th at noon Central Time. We try to meet monthly via calls/Teams/Zoom. All are welcome.

Committee Tasks (April – November 2023):

Most of our tasks prior to April focused on preparing for the 2023 symposium. Please see the April committee report for details. The committee took a summer hiatus as many folks were involved in field projects.

- Keeping DEI issues on the forefront.
 - Publish results of the recent DEI survey
 - Craft & Chong. 2023. Continued assessment of society demographics and attitudes towards diversity, equity, and inclusion. *Ellipsaria* 25(2): 32-40
 - Continue discussions around the special topic discussion on better common mollusk names for the FMCS symposium (point of contact – John Pfeiffer).
- Foster a welcoming environment for FMCS members (and other interested people)
 - DEI committee members solicited and acted as mentors for students receiving DEI travel awards to the 2023 FMCS Symposium
 - In 2023, the DEI committee meeting created the Student Welcome Award with help from FMCS Excom members and the Awards Committee. Award applications from diverse FMCS members were received and ranked, and two students were given awards. Two FMCS members served as student mentors during the Portland meeting. The award winners offered feedback for improving the award and FMCS.
 - Our committee has initiated discussion with FMCS Excom and meeting planners to determine if they would like to offer another Student Welcome Award for the 2025 symposium (points of contact - Mark Hove and Chantelle Rondel).
 - Participate in 2025 symposium local planning committee meetings (points of contact - Daelyn Woolnough and Tam Smith).
 - Continue to develop the DIVE Fellowship Program (See previous committee reports) (points of contact – Xenia Rangaswami, Sara Craft, and Kaelyn Fogelman).
 - Participate in DEI committees of other scientific societies to share resources and ideas.
 - DEI Committee members have been offering suggestions for improving the FMCS Code of Conduct to facilitate welcome meeting environments.
- Revisit our draft strategic plan and update our committee goals and actions
 - Revise strategic plan (points of contact Tam Smith and Traci DuBose)
 - Create a list of active and completed DEI committee projects (in process) that links back to the strategic plan goals, with points of contacts, to encourage more understanding, participation, and accountability.

Please see previous committee reports for additional items that this committee is working on.

FMCS Information Exchange Committee – no report submitted.

Technical Committees

Conservation and Restoration Committee – The Conservation and Restoration Committee met virtually on 5/23/2023. The virtual meeting was heavily attended with over 40 attendees present. The committee discussed facilities updates, website, data sharing ideas, and the possibility of hosting a workshop in 2026. The idea of hosting a workshop occupied the majority of the meeting time and several volunteers stepped up with ideas. Genetics Committee chair, Nathan Johnson, suggested a potential collaboration for the workshop as well. Additionally, Nathan Eckert was announced as the new

committee chair as Maddie Pletta has stepped down. Nathan is a long-time member and contribute to this committee and we look forward to where his leadership will take us.

Environmental Quality and Affairs – no report submitted.

Field and Ecosystem Services Committee – no report submitted.

Genetics Committee

Nathan Johnson (Chair, najohnson@usgs.gov)

Kentaro Inoue (Co-chair, kinoue@sheddaquarium.org)

- Discussions for developing a standardized genetic vouchersing protocol and possibly a joint workshop are underway among various FMCS members and chairs/co-chairs of both the Genetics and Restoration and Recovery committees.
- Next FMCS Genetics committee meeting planned for late Jan/early Feb 2024.
- Committee statement of purpose has been updated for the FMCS procedures manual.

Mollusk Status and Distribution Committee – no report submitted.

Report from the Scientific and Common Names Subcommittee – no report submitted.

Announcements

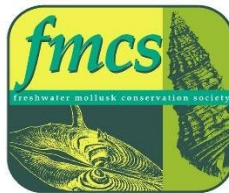
Submitted by Martin Österling – Karlstad University, Sweden

2nd Freshwater Mollusk Conservation Society Meeting in Europe

Linking the Quadrants of the Earth: A Worldwide Exploration of Freshwater Mollusk Study and Conservation

Karlstad, Sweden, 17th to 20th September, 2024

2nd ANNOUCEMENT



Scope

Mollusks are the second most species rich animal phylum on earth, and have a wide variety of adaptations and ecological niches in their terrestrial and aquatic environments. The freshwater mollusks provide many important ecosystem functions and services; however, their highly endangered status, mainly caused by

anthropogenic factors, means that their impact on the environment is in drastic decline. To combat this, conservation and reintroduction practices need to be developed and implemented to reduce and reverse their drastic population declines. Nonetheless, conservation strategies for freshwater mollusks are hampered by a lack of key information surrounding freshwater mollusk biology and ecology. In recent decades there has been an increased interest in studying these animals; integrating the knowledge from researchers and conservationists is a key for scientific progress. This conference aims to connect international freshwater mollusk researchers and conservationists to stimulate more international collaborations, and to help global policy makers establish policies and guidelines for future mollusk conservation efforts.

The Freshwater Mollusk Conservation Society (FMCS) is dedicated to the conservation of and advocacy of these animals but until now its activity has been mainly confined to North America. However, since freshwater mollusks are in global danger, there is a need to pursue the FMCS goals beyond geographic and political borders. This restricted consideration has prompted the idea of promoting FMCS in other continents, and in 2018 the 1st European FMCS meeting was arranged in Verbania, Italy. The implementation of congresses outside of the American continent aims to expand the membership, share research and data with international colleagues and foster collaboration. It is under this perspective that we want to introduce the upcoming 2024 meeting at Karlstad University in Sweden; the second of a series of FMCS sponsored international meetings.

Goals

1. To bring together international experts in biology and conservation of freshwater mollusks that, through the present and forthcoming conferences and debates, will be able to create a network of knowledge with the final goal of developing collaborative projects and eventually global directives for the protection and conservation of this important faunistic group.
2. To provide an incentive for non-North American freshwater malacologists to become members of FMCS and participate in planned activities, symposia, publications and workshops.
3. To set up a subcommittee within the society of local malacologists - e.g. initially from Europe, but to be expanded to other continents around the world - to provide structure and communication about resources, lobbying, collaboration and outreach. This will facilitate answering key questions and developing techniques to address the same or similar problems encountered across freshwater molluscan research.
4. To arrange joint international meetings around the world. The first three international freshwater bivalve meetings (Bragança, Portugal, 2012; Buffalo, NY, 2015; and Verbania, Italy, 2018) were exciting and fun with a very good international participation. With the 2024 international meeting at Karlstad University in Sweden, we want to expand the focus on bivalves including all the freshwater mollusks and thereby further improve the building of an international network.

We have planned for three days of presentations on a variety of topics that cover all aspects of Malacology, targeting the latest research advances in both theoretical and applied issues. A number of internationally recognized keynote speakers will present the state of current research on these topics. This will spark debate and interest on research needs concerning the many ways mollusks affect ecosystems and society.

A more detailed list of sessions will be provided in forthcoming announcements, and for the moment, we count on everyone's enthusiasm to continue the ideas of bridging the gap and knowledge exchange between malacologists around the world that was initiated during the 1st FMCS meeting in Verbania, Italy.

DEADLINES

Early bird registration end: 15 May 2024

Regular registration end: 30 June 2024

Abstract submission: 15 May 2024

Organizing Committee

Martin Österling – Karlstad University, Sweden;

Sebastian Rock – Karlstad University, Sweden;

Magnus Lovén Wallerius – Karlstad University, Sweden;

Raviv Gal – Karlstad University, Sweden;

Lea D. Schneider – The Rural Economy and Agricultural Societies - Halland, Sweden;

Ted von Proschwitz – Gothenburg Natural History Museum, Sweden;

Niklas Wengström Swedish Anglers Association, Sweden;

Contact

fmcs.karlstad@kau.se

RivEM (River Ecology and Management Research Group): <http://www.nrrv.se/>

Address: Karlstad University, Universitetsgatan 2, 651 88 Karlstad, Sweden

Registration / Whova

Scientific Committee (tentative)

Martin Österling – Karlstad University, Sweden;

Nicoletta Riccardi – CNR – ISE, Italy;

Manuel Lopes Lima – CIBIO, Porto University, Portugal;

Tadeusz Zając – Institute of Nature Conservation, Polish Academy of Sciences, Poland;

Maria Urbanska – Poznan University of Life Sciences, Poznan, Poland;

Alexandra Zieritz – University of Nottingham Malaysia Campus, Malaysia;

Ronaldo Sousa – Minho University, Portugal;

Karel Douda – Czech University of Life Sciences Prague, Czech Republic;

Anna Łabęcka – Jagiellonian University, Kraków, Poland;

Paz Ondina – University of Santiago de Compostela, Spain;

Jouni Taskinen – University of Jyväskylä, Finland;

Jürgen Geist – Technical University of Munich, Germany;

Mary Seddon – IUCN, Mollusc Specialist Group;

Vincent Prie – Institute of Systematics, Evolution, Biodiversity (ISYEB);

Amy Maynard (president elect of the FMCS) – Neosho National Fish Hatchery, USA;

David Strayer – Cary Institute of Ecosystem Studies, USA;

Arthur Bogan – North Carolina Museum of Natural Sciences, USA;

John Pfeiffer – Smithsonian Institution, Natural Museum of natural History;

Carla Atkinson – University of Alabama, USA;

Megan Bradley (president of the FMCS) – Fish and Wildlife Service, USA;

Teresa Newton – U.S. Geological Survey in Wisconsin, USA;

Astrid Schwalb – Texas State University, USA;

Canadian Freshwater Mollusc Research Meeting

Submitted by Todd Morris, Great Lakes Laboratory for Fisheries & Aquatic Sciences

The 5th Biennial Canadian Freshwater Mollusc Research Meeting (*CFMRM 2023*) was held in Burlington, Ontario at the Canada Centre for Inland waters on November 15-16, 2023. Having grown from a small informal gathering of local malacologists to the largest national meeting of its kind in Canada, this year's hybrid meeting saw participation from our biggest group yet. With 85 in-person attendees and another 55 groups online the two-day gathering saw a full agenda with 30 platform presentations and a lively poster session featuring 11 poster presentations. Topics included general biology and ecology, ecotoxicology, sampling and distribution, threats and limiting factors, mitigation and recovery actions. In-person attendees gathered for a group dinner at the end of day 1 spawning many lively discussions well into the evening.

A proceedings document including all abstracts from the meeting will be available soon at www.cfmr2023.com. Abstracts from the first 4 meetings are already available on the site.

Be sure to join us for the 5th biennial CFMRM in 2025!



FMCS Bivalve and Gastropod Scientific and Common Names Subcommittee's

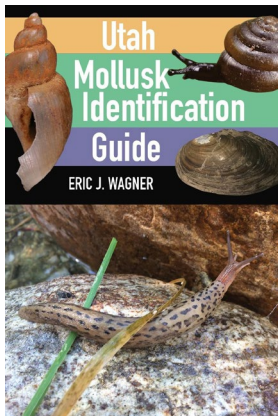
Submitted by John Harris and Paul Johnson

Note the FMCS Gastropods and Bivalves Name Lists have been updated!

(as of October 2023). The new checklists are now available to download from the FMCS web page.

<https://www.molluskconservation.org/Library/Gastropods/2023%20FMCS%20Gastropod%20Subcommittee%20Provisional%20Checklist.pdf>

https://www.molluskconservation.org/Library/Committees/Names/Appendix_1_Bivalves_Revised_Names_List_20230928_draft.pdf

**Utah Mollusk Identification Guide**

Submitted by Eric J. Wagner

“The first update of Utah mollusks since the 1929 Chamberlin and Jones volume. This book will unify the taxonomy in Utah and adjacent regions of aquatic and terrestrial mollusks and their habitat, a necessity for intermountain biological diversity and for conservation assessments.”

—Peter Hovingh, retired biologist, expert on western mollusks

“Wagner’s guide is a much needed, monumental contribution to mollusk conservation in Utah. Readers will find the comprehensiveness of this guide incredibly helpful, and it will become the new go-to resource for anyone interested in Utah mollusks.”

—Kate Holcomb, Statewide Mollusk Specialist, Utah Division of Wildlife Resources

The most up-to-date and comprehensive guide available for identifying snails, slugs, and bivalves in Utah and neighboring areas

The *Utah Mollusk Identification Guide* offers up-to-date information for identifying aquatic and terrestrial snails, slugs, clams, and mussels within the state of Utah, providing comparative tables, taxonomic keys, and more than 230 images, including many type specimen images published for the first time. Amateur naturalists and biologists alike will benefit from detailed information regarding size, type, specimen location, junior synonyms (including taxonomy notes), original descriptions for each of the 139 species, and comments to help differentiate similar species.

In contrast to older guides, this book includes data on the external and internal anatomy of mollusks. Taxonomic names are updated to incorporate the latest information available. Family descriptions and miscellaneous data on

ecology, life history, and genetics are also presented. Distribution data are based on historical articles, museum records, personal observations, and collections. Although the focus is on Utah mollusks, many species are widely distributed and the data, images, references, and taxonomy details within the guide will be of interest to many outside the state.

Eric J. Wagner recently retired from the Utah Division of Wildlife Resources, where he worked for 30 years conducting fisheries and aquaculture research and monitoring aquatic invasive species. He has authored numerous research articles on aquaculture and *A Guide to the Identification of Tailed Myxobolidae of the World*, an open-access textbook and guide to a group of fish parasites in the phylum Myxozoa.

**THE UNIVERSITY OF UTAH PRESS**J. WILLARD MARRIOTT LIBRARY | THE UNIVERSITY OF UTAH **To Order:**

phone: 800-621-2736

fax: 800-621-8476

email: orders@press.uchicago.edu online: www.uofupress.com**For publicity inquiries:**

contact Hannah New, Marketing Manager

801-585-9786 or hannah.new@utah.edu

400 pp., 6 x 9

336 color illustrations

ISBN 978-1-64769-088-5

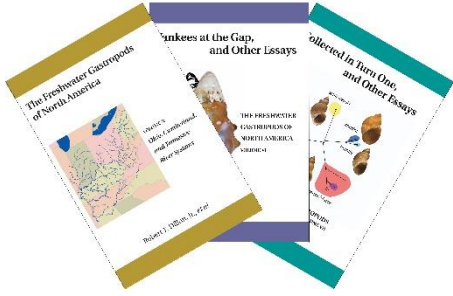
Paperback \$44.95

Submitted by Rob Dillion

Now Available!

Freshwater Gastropods of North America, Volumes 5 – 7

It is our great pleasure to announce the publication of Volumes 5, 6, and 7 in the FWGNA Series, extending our coverage from U.S. Atlantic drainages into the Ohio, Cumberland and Tennessee River systems of the American interior. These three important new references are now available from all the usual online outlets, and directly from the print shop at a substantial discount.



Volume 5, by Dillon, Kohl, Winters, Pyron, Reeves, Watters, Cummings, Bailey and Whitman, reports the scientific results of a freshwater gastropod survey covering all or part of 14 U.S. states, a total study area of over 200,000 square miles. We provide full-color figures, a dichotomous key, range maps, and natural history notes for all 80 species and 19 subspecies of freshwater snails recovered, updating the

taxonomy to modern standards. A new continent-scale biogeographic analysis is offered, and the objective system of abundance ranking by incidence categories we proposed in Volume 1 is expanded and updated. Three new species of cave-dwelling hydrobioid gastropods are described in the appendix.

Accompanying the Volume 5 survey are two volumes of essays intended to support the scientific findings, offering additional evolutionary, ecological, and systematic notes for the fauna. Volume 6 collects 32 essays on the systematics and evolution of the pleurocerid and hydrobioid snails, and Volume 7 comprises 36 essays on the ampullariids, viviparids, and pulmonates. All three volumes are available for a package price of \$99.95 from the FWGNA publications page:

www.fwgna.org/publications.



2024 13th Biennial FMCS Workshop ENVIRONMENTAL TOLERANCE AND ECOPHYSIOLOGY TECHNIQUES WORKSHOP

In-Person Workshop Seat Limits and Unlimited Remote Access: *Please note that this workshop has a limit of 100 in-person seats available.* However, we will be providing unlimited remote access through Whova and Zoom meetings, which will allow you to access the first two days of daytime talks, as well as a virtual poster session viewing. Please be aware that remote access will not include access to any social events, meals, live poster sessions or hands-on activities on the third day.

Early Bird and Regular Registration Dates:

Remote access ticket sales will run from December 1, 2023, through March 1, 2024.

Early Bird discounted registration will run from December 1, 2023, through February 1, 2024.

Regular registration will run from February 2, 2024, through March 1, 2024.

Membership Registration Notes:

To register for the workshop, we will use Whova Stripe registration, which is not directly integrated with the FMCS WildApricot membership portal. To ensure you can access the member benefits, we will upload the active membership status information from FMCS WildApricot into the Whova Stripe registration database on December 1, 2023. This means active members' emails will be used to authenticate their Lifetime, Regular, and Student/Retiree membership status as of December 1, 2023, in the Whova Stripe registration. In addition, any new or overdue renewal registrants (registering as non-members) will be added as members to FMCS's WildApricot database shortly after the 2024 workshop, which is scheduled for April 2024. Therefore, if you are a member (Lifetime / Contributing / Regular / Student / Retiree) and wish to register for the 2024 Workshop, please make sure to use the email address associated with your FMCS membership account as of December 1, 2023.

If you have any questions or concerns, please don't hesitate to contact:

Treasurer Alan D. Christian at achristian@ursinus.edu
or, if necessary, treasurer@molluskconservation.net

To Register, please go to our registration page at:

https://whova.com/portal/registration/multi2_202305/ Or click on the tab at the top of the page.

https://www.molluskconservation.org/EVENTS/2024WORKSHOP/2024Workshop_Registration.html

Upcoming Meetings

January 17, 2024 – Ohio Valley Unified Malacologists. Carnegie Museum of Natural History. Pittsburgh, Pennsylvania.

January 23-24, 2024 – Tennessee Endangered Mollusc Committee. Cumberland Mountain State Park Recreation Lodge, Crossville, TN.

March 3-7, 2024 – 9th World Fisheries Congress. Organized through the World Council of Fisheries Societies, every four years delegates from around the world meet to exchange ideas and perspectives about new research, emerging issues, scientific breakthroughs, and governance related to fisheries science, industry, conservation, and management. Seattle, Washington, USA.

June (23-28) 2024 – Society for Conservation Biology North American Sectional Meeting, 7th biennial North American Congress for Conservation Biology. Vancouver, BC. <https://scbnorthamerica.org/>

September (17-20) 2024 – 2nd Freshwater Mollusk Conservation Society Meeting in Europe. Linking the Quadrants of the Earth: A Worldwide Exploration of Freshwater Mollusk Study and Conservation. Karlstad, Sweden. <http://www.nrrv.se/>

May (12-16) 2025 – FMCS Biennial Symposium, Detroit, Michigan, USA. [Theme and other details yet to be announced. If you wish to volunteer to help with this event please email Daelyn Woolnough (wooln1d@cmich.edu) and Dave Zanatta (zanat1d@cmich.edu)]

Contributed Articles

The following article was contributed by FMCS members and others interested in freshwater mollusks. Contributions like this are incorporated into *Ellipsaria* without peer review and with little editing. The opinions expressed are those of the authors.

Submitted by: Jackson Roe

New Population of Scaleshell Mussels in Central Arkansas

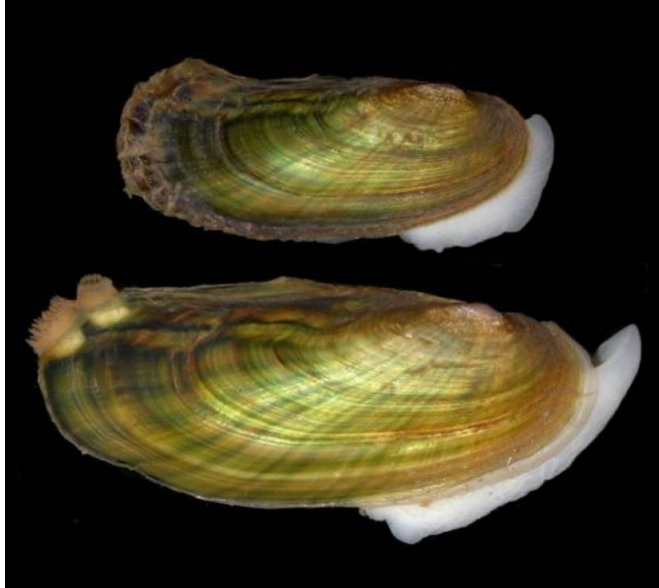


Photo: Dr. M.C. Barnhart

Leptodea leptodon is a small mussel species that has suffered a massive decline across its former range. It is now only rarely found in 14 rivers/streams. Here I document a 15th population discovered in central Arkansas. The discovery of a female scaleshell relic occurred on October 28th, 2023 by Jackson Roe (the author) in the central portion of the Fourche LaFave River near the town of Aplin. The shell had been worn, and according to several experts was likely a year or two old. The lifespan of the scaleshell is said to be approximately 5 years. Female scaleshells are quite underrepresented in the known populations. Most surveys have found male scaleshells outnumber females by about five to one. The fact that a female scaleshell was discovered indicates there must be a decent number of *L. leptodon* at this site.



The only reliable place to find scaleshells today is in three river systems in Missouri. Even there, the species is suffering a decline. A high percentage of *L. leptodon* had low levels of fertilized glochidia, indicating difficulties with population density even in Missouri. According to John Harris, the Fourche LaFave River was surveyed three times for mussels. He discovered a scaleshell in the South Fourche LaFave (a different river system) in 1991 (Harris 1992). A follow up survey that observed 2,600 mussels failed to locate even one *L. leptodon* (Stoeckel and Moles 2002). However, it seems the mussel surveys did not target the area where the author found the scaleshell. The reason for the lack of surveys might be the area's difficulty in accessing. It is very steep to get to the river, and very shallow for boats to reach it from elsewhere. The habitat is rocks in areas, with a mixture of sand, mud and rock in others. This substrate hosts many mussel species, including a dense population of *Lampsilis satura*.

The full mussel inventory discovered by the author is as follows (common names):

Sandbank pocketbook; maple leaf; threeridge; deertoe; pimpleback; Wabash pigtoe; fragile papershell; paper pondshell; mucket; yellow sandshell; white heelspittler; bleufer; pistolgrip

It seems a dense mussel population (especially when *fragilis* and *Utterbackia* are present) is a good indicator that the habitat is suitable for *leptodon*. A several mile stretch of the river seems to be prime habitat, elsewhere seems unsuitable.



The female leptodon relic was found among reeds, apparently washed down from upstream.



The scaleshell is reported to be difficult to locate due to its tendency to stay buried in the substrate. Its small size and naturally low population density also make it difficult to locate even where it is “reliably” known. The discovery of this female relic in the Fourche LaFave River gives a glimmer of hope that perhaps a viable population exists in a new river system.

Submitted by Dakota Raab

Pennsylvania Fish and Boat Commission | Resource Extraction Section

595 E. Rolling Ridge Drive | Bellefonte, PA 16841

Office: 814.359.5117 | Fax: 814.359.5175

Pennsylvania freshwater mussel surveys result in range expansion or reconfirmation of historic occurrences

The Pennsylvania Fish and Boat Commission (PFBC) is charged with protecting, conserving, and enhancing freshwater mussel resources. The mussel communities of many Pennsylvania watersheds are unknown, under assessed, or have not been assessed in the last century. Staff routinely sample unassessed streams, understudied stream reaches, and reaches where historical species occurrence has not been confirmed by contemporary surveys. Since 2020, PFBC mussel surveys have resulted in range expansions, or reconfirmation of occurrence for several freshwater mussel species (Fig. 1).

Honeoye Creek

Honeoye Creek drains a 132 km² watershed in Potter County, before flowing into Oswayo Creek in the northern headwaters of the Allegheny River watershed. Previous surveys have identified federally endangered Rayed Bean (*Paetulunio fabalis*) in the Allegheny River upstream of Allegheny Reservoir and Oswayo Creek (internal data); however, the mussel community of Honeoye Creek was not previously assessed. Four qualitative surveys resulted in the collection of 11 species, including one fresh-dead *P. fabalis* and several PA species of greatest conservation need (SGCN; Table 1). This collection represents a new Pennsylvania locality for Rayed Bean.

Tioga River

The Tioga River flows north from Pennsylvania into the Chemung River, a New York tributary to the Susquehanna River. Despite the intriguing glacial history of this region, freshwater mussel resources were only previously assessed by A.E. Bogan in the 1990s with observation of *Elliptio complanata* and *Lampsilis cariosa* (Bogan 1996, unpublished data). In 2023, qualitative surveys were completed on the Cowanesque and Tioga Rivers. Seven species were collected including three SGCNs (Table 2). The collection of Eastern Lampmussel (*Lampsilis radiata*) represents the fifth locality for contemporary occurrence of live individuals within Pennsylvania's Susquehanna River watershed.

West Branch Susquehanna River

The freshwater mussel community in the 386 km-long West Branch Susquehanna River has been historically understudied with the exception of surveys completed by the Western Pennsylvania Conservancy (Walsh and Meyer 2012, unpublished data) and earlier surveys by A.E. Bogan (1996, unpublished data). Historical mining, logging, and industrial pollution contributed to the defaunation of much of the West Branch. PFBC staff completed 45 qualitative surveys across 73 river kilometers. Nine species of freshwater mussel were collected including the Green Floater (*Lasmigona subviridis*) which is proposed for listing under the Endangered Species Act as threatened (Table 3). The *L. subviridis* collection extends

the known range within the river by 50 kilometers. No live mussels or shells of any species have been collected in the West Branch Susquehanna River upstream of a low head dam in Lock Haven, PA suggesting that aquatic organism passage is hindering recolonization despite water quality improvements.

Delaware Estuary

The Delaware Estuary in Pennsylvania represents a unique riverine habitat due to its tidal influence. Dredging and industrialization have undoubtedly impacted the freshwater mussel community of the Delaware Estuary. Data available from contemporary surveys showed that three species found in or just above the estuary a century ago remained undetected as of 2020 (Kreeger et al. 2020). From 2020 to 2022, PFBC staff completed 57 qualitative surveys in the 46 km reach between the Richmond Power Plant (River mile 104.87) and the Trenton-Morrisville Railroad Bridge (River mile 133.25) and documented seven species of freshwater mussels (Table 4). Collection of *L. radiata* at two sites represented the first confirmed Pennsylvania occurrences in the Delaware Estuary and the first in the Pennsylvania portion of the basin since the early 1900s (Ortmann 1919).

Literature Cited

- Kreeger, D. A., M. Walsh, K. M. Cheng and R. L Thomas. 2020. The Distribution and Population Status of Tidewater Mucket (*Leptodea ochracea*), in the Delaware Estuary Watershed. PDE Report No. 20-02. 62 p.
- Ortmann, A. E. 1919. Monograph of Naiades of Pennsylvania Part III. Systematic Account of the Genre and Species, 343+ pp. Memoirs of the Carnegie Museum.

FMCS Officers

President

Megan Bradley

U.S. Fish and Wildlife Service
322 North East Avenue
Viroqua, Wisconsin, USA 54665
megan_bradley@fws.gov

Secretary

Sarah Veselka

BioSurvey Group
PO Box 593
Morgantown, WV 26507
sarah@biosurveygroup.com

Past President

Stephen McMurray

Missouri Department of Conservation
3500 East Gans Road
Columbia, Missouri, USA 65201-8992
stephen.mcmurray@mdc.mo.gov

President Elect

Amy Maynard

U.S. Fish and Wildlife Service
520 Park Street
Neosho, MO 64850
amy_maynard@fws.gov

Treasurer

Alan Christian

Ursinus College
99 E. Ninth Avenue
Collegeville, PA 19426
adchristian@ursinus.edu

Ellipsaria is posted on the FMCS web site three times a year: around the first of January, April, and September of each year. The newsletter routinely includes Society news, meeting notices, pertinent announcements, and informal articles about ongoing research concerning freshwater mollusks and their habitats. Anyone may submit material for inclusion in *Ellipsaria* and all issues are accessible to anyone on the FMCS website (<http://molluskconservation.org>).

Articles contributed to *Ellipsaria* should be preliminary or initial observations of note (e.g., natural history observations, meaningful new distribution records, interesting finds, etc.) concerning freshwater mollusks, their habitats, and/or their conservation. Articles that include quantitative analyses, draw conclusions based on analyses, or propose taxonomic revisions should not be submitted to *Ellipsaria* and, instead, should be submitted to a peer-reviewed journal such as *FMBC*. Please limit the length of contributed articles to about one page of text (i.e., excluding pertinent tables, figures, and references).

Information for possible inclusion in *Ellipsaria* should be submitted via e-mail to the editors, Bob Anderson and Don Hubbs, at Ellipsaria@gmail.com. Contributions may be submitted at any time but are due by the 15th of the month before each issue is posted. MSWord is optimal for text, but the editor may be able to convert other formats. Graphics should be in a form that can be manipulated using Photoshop. Note that submissions are not peer-reviewed but are edited for clarity and checked for appropriateness for posting in this freshwater mollusk newsletter. Feel free to contact the editor with questions about possible submissions or transmission concerns.

FMCS Committees and Their Chairs/Co-chairs

If you are interested in participating in committee activities, please contact one of the appropriate chairs.

Functional Committees

Awards

Curt Elderkin - elderkin@tcnj.edu
David Hayes - david.hayes@eku.edu
Susan Oetker - susan_oetker@fws.gov

Chapters

Emilie Blevins - emilie.blevins@xerces.org
Manuel Lopes-Lima -
manuelplmlopeslima@gmail.com

Diversity, Equity and Inclusion

Tamara Smith - tamara_smith@fws.gov

Elections

Matt Johnson -
matthew_s_johnson@fws.gov
Brian Carlson - brian.carlson85@gmail.com

Finance

Heidi Dunn - Heididunn005@gmail.com

National Strategy

[vacant at present]

Outreach

Madi Polera - mpolera2@ncsu.edu
Dan Symonds - Desymonds@edge-es.com

Professional Development

Rebecca Winterringer -
beccawint6@gmail.com
Nathan Click nathan.click@ky.gov

Publications

Wendell Haag - wendell.haag@usda.gov

Regional Associations

Emilie Blevins - emilie.blevins@xerces.org
Manual Lopes-Lima -
lopeslima.ciimar@gmail.com

Symposia and Workshops

Amy Maynard - amy.maynard@fws.gov

Technical Committees

Common and Scientific Names

Paul Johnson Gastropod sub-committee
paul.johnson@dcnr.alabama.gov
John Harris Bivalve sub-committee
Omibob1@gmail.com

Conservation and Restoration

Maddie Pletta -
maddeline.pletta@state.mn.us
Tyler Hern - tyler_hern@fws.gov
Jesse Weinzinger -
jesse.weinzinger@wisconsin.gov

Environmental Quality and Advocacy

Braven Beaty - bbeaty@tnc.org

Mickey Matthews -

mickey.matthews@ardot.gov

Field Studies and Ecosystems

Lisie Kitchel - lisie.kitchel@wi.gov
Carla Atkinson - carlatatkinson@gmail.com

Genetics

Nathan Johnson - najohnson@usgs.gov
Kentaro Inoue kinoue@sheddaquarium.org

Mollusk Status and Distribution

Jason Wisniewski -
jason.wisniewski@tn.gov
Wesley Daniel - wdaniel@usgs.gov

Ad-Hoc Committees

[None at present]

Parting Shots

The U.S. Fish and Wildlife Service approves a conservation agreement for lower Colorado River Basin Mussels. The agreement will protect four species of freshwater mussels in Central Texas: Texas fawnsfoot (*Truncilla macrodon*), Texas fatmucket mussel (*Lampsilis bracteata*), Texas pimpleback (*Cyclonaias petrina*), and Balcones spike (*Fusconaia iheringi*). USFWS has approved a 20-year agreement with the Lower Colorado River Authority (LCRA) and LCRA Transmission Services Corporation (LCRA TSC) to conserve four freshwater mussel species in the lower Colorado River basin of Texas. <https://www.fws.gov/press-release/2023-12/conservation-agreement-approved-lower-colorado-river-basin-mussels>.



Texas fatmucket mussel (*Lampsilis bracteata*)
Photo credit USFWS Austin Ecological Services Field Office

If you would like to contribute a freshwater mollusk-related image for use as a **Parting Shot** in *Ellipsaria*, e-mail the picture, informative caption, and photo credit to Ellipsaria@gmail.com.

