



Newsletter of the Freshwater Mollusk Conservation Society
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To the FMCS Community:

I hope each and every one of you are staying safe and mentally engaged during these times of uncertainty. I know that restrictions can be taxing as you juggle professional objectives with parental duties and personal sanity. Personally, my wife and I, with our three children (3rd grade, 6th grade, and 9th grade), have had some interesting mornings. The first time we both had a simultaneous conference video, we did not hesitate to approve when our youngest asked if she could make a peanut butter and M&M sandwich for breakfast.

These times are unclear and, likely, confusing. The uncertainty of what it means for our research programs and daily tasks, and for those of our students and technicians, can be overwhelming but please remember that you are not alone. We are all struggling with the ambiguity of the COVID-19 pandemic. Please realize there are better days ahead and life will return to normal eventually.

The work we do – from conserving freshwater mollusks to showing the invaluable ecosystem services they provide – is among the most instrumental work now being conducted in freshwater science. Several of our members and colleagues, especially those with the US Army Corps of Engineers, have been encouraged to put projects on hold in order to go above and beyond the call of duty to serve in other ways during this time of pandemic.

This issue of *Ellipsaria* is unique in that it offers an opportunity for our members to share stories related to this pandemic, especially as we learn to adjust living and working in a time when our safety depends on our physical distance from one another. My wife and I have struggled with balancing dual careers while attempting to complete our children's lesson plans on a normal schedule. We have realized that "daddy-pedis" are okay at 10:30 am on a Tuesday. I'll be honest, delaying a math lesson to have my feet moisturized is totally worth it. My skin has never been so soft, nor have the smiles on my daughter's face been so delightful as she struggles with

being disconnected from her friends.

Please remember, as we go forward, not just as FMCS members but as humans, that, right now, our work might not meet our normal

expectations and that is okay. We need to remember that our families are just as important, if not more important, as our natural resources during these trying times. It's okay to dampen the expectations we have of ourselves, our colleagues, and our subordinates because these are not normal times. Our first priority should be to treat each other and ourselves with compassion and care.

Thank you for all the work you have done and the sacrifices you have made during the COVID-19 pandemic. Please stay strong, please stay enduring, and please stay supportive of one another. Together, we will be more resilient when these difficult times end. I look forward to seeing you in person in Portland next April and learning about the great research our members are conducting.

Jeremy Tiemann
FMCS President



Society News

Minutes of the Spring 2020 FMCS Teleconference Board Meeting Held on Thursday, April 9, 2020

The call to order and roll call for attendance were conducted by President Jeremy Tiemann. In attendance were Jeremy Tiemann, Janet Clayton, Becca Winterringer, Kevin Roe, Megan

Bradley, Susan Oetker, Dave Zanatta, Jennifer Archambault, Amy Maynard, Mickey Matthews, Emy Monroe, Braven Beaty, Ryan Schwegman, Steve McMurray, Emili Blevins, Madeline Pletta, Dave Berg, Jason Wisniewski, Alan Christian, John Jenkinson, Lisie Kitchel, Wendell Haag and Rachael Hoch. A quorum was established. Heidi Dunn joined later in the meeting.

Kevin Roe made a motion to approve the December 2019 Board Meeting Minutes (published in the March 2020 *Ellipsaria*). A second was provided by Braven Beatty and all approved.

Treasurer's Report -- Alan Christian.

As of February 8, 2020, we have a balance of \$118,096.82. A total of \$3550 has been received in support for the Tom Watters' memorial. Major expenses for the period included Symposium/Workshop (\$180,584.56) and Walkerana/FMBC (\$22,760.74) for a net loss of \$41,783.86 since last reporting.

Secretary's Report -- Janet Clayton.

We currently have 681 individuals on the mailing list, of which 404 are active members. Of those 404, 290 are regular members, 91 are student/retirees, 5 contributing, and 18 lifetime.

OLD BUSINESS

Restructuring of committees – Jeremy Tiemann and Heidi Dunn

Restructuring of the committees to align with the revised National Strategy continued to be discussed by the board. Any decision on changes was tabled to allow for further discussion through emailing and the board plans to finalize at the December board meeting.

Professional Development – Becca Winterringer

The Professional Development Committee has been very active the past few months working through a draft of the Mollusk Professional Certification Guidelines. We have had several conference calls and are currently working on the third iteration of the document. The next steps are to finalize the draft and initiate an internal testing of the process to iron out the kinks. We have defined three certification tiers and have determined a point ranking system for applicants in three overarching categories: Education, Professional Qualifying Experience, and Professional Performance. The Committee has engaged and will be seeking other FMCS members for input and third-party review. We expect the draft guidelines and certification ranking system to be ready for FMCS Executive Committee review by June 2020. We are working hard to meet our goal, which is to roll out the certification program at the 2021 Symposium. Committee members have dedicated and volunteered their time and expertise to this effort, and I want to give a great big thank you to Amanda Rosenberger (Co-chair), Nathan Click, Alan Christian, Art Bogan, Todd Morris, Janet Clayton, Josh Seagraves, Greg Zimmerman and Jeremy Tiemann for their patience and contribution to the Committee.

Chapter Formation – Emilie Blevins

The group working on Chapter formation met last Friday and have provided edits to chapter bylaws and several questions that should be answered by a lawyer. This is a first draft of bylaws for each chapter and they also drafted edits to the FMCS bylaws to address chapters. Plan is to reach out to the American Fisheries Society (AFS) and other societies for their expertise in forming chapters. There may be some issue with international groups which still needs investigated. There is another call scheduled for next week and an AFS member plans to join in with expertise and tackle some of the 501 C3 issues.

Update on JASM – David Zanatta

Dave noted that they were to have a site visit in May but it was delayed till October. There has been some discussion on photographing of speakers and posters. We are reaching out trying to find any available policies that have already been developed.

Scanning and Uploading of Sterkiana to FMCS website – Kevin Roe

Currently PDFs of the full issues of *Sterkiana* are available and can be accessed from a link from the publications page on the FMCS website or by visiting <https://www.iastatedigitalpress.com/sterkiana/>. Once there, click on “Issues,” click on a specific issue, and then click “Download Issue” in the right sidebar of the page. You will find as well. Breaking the issues out into individual articles is on the list of projects to still be completed. Iowa State University library staff was planning on hiring students to upload individual articles to the site, but that is delayed until students return to campus.

Scanning and Uploading of Malacological Data Net to FMCS website – Jeremy Tiemann

We have permission to move forward on scanning this serial as no copyright infringement will be incurred since no responsible party exists. We will begin scanning and uploading in the near future. Scanning and uploading of the Proceedings of the 1993 and 1997 UMRCC symposia to the FMCS website is also being conducted. You will find a link from the publications tab on the FMCS website as well.

Walkerana housed at INHS – Jeremy Tiemann

Due to the COVID-19 lock out at the University of Illinois, the deadline for disposing of the printed copies of *Walkerana* has been delayed. Anyone interested in a near complete run of *Walkerana* is encouraged to contact Jeremy-- SOON.

Webpage – Megan Bradley

The website has been updated with information provided by committee chairs. If you provided headshots and information, it should be updated. There are still many committees with no updates and no images. I won't name and shame but please check your committee page and let me know if I missed something or take 10 minutes and get me some new information and your picture. You and your dog/favorite mollusk or in your dive gear is fine. These updates include committee chair names, the Awards Committee and award recipients, the Diversity and Inclusiveness committee (still working on updating the front page pictures and captions with Sophie so they are random rather than the same order), the Names Committee has been coordinating the format for the updated list of species names and the mussel app information has been posted (Sophie will add a link to the app in app stores there, sometime soon).

Megan is looking to pass on the website coordination duties. She is in conversation with a couple of members of the Outreach Committee who have expressed an interest. She is now acting as Managing Editor for FMBC. She will continue to provide web support/coordination with Sophie as long as needed and will provide updated contact information for the website once a decision has been made. Hope to have everything up by the end of the week. If you don't see what was provided, contact Megan.

There is some interest in hosting the fish host database on the FMCS website. This may incur additional cost. Not sure that we can actually host a searchable database. Website update is needed for the 2021 Symposium. Hope to be able to upload abstracts to the website. By doing this, they then wouldn't have to go to an individual's email. John Jenkinson questioned about long-term access to abstracts. It may be possible to add another tab to the publications tab. Currently, they are embedded in each event's page.

NEW BUSINESS**Photo Policy at FMCS Events** – Jeremy Tiemann

Various other societies are starting to implement “opt-in or opt-out” photo policies at their conferences. There is a concern with people taking pictures and posting on social media. We should think about it now and decide by Portland symposium. We believe the main Issue is with data security and not simply a matter of taking pictures of presentations and or posters. The policy may be as simple as the session moderator notifying the audience prior to the presentation. Any speaker who doesn’t want slides shared should put a notification at the start of any particular slides during their presentation. Otherwise, people who pop in or miss the start of a presentation simply will not be aware.

COMMITTEE REPORTS**Symposium** – Emilie Blevins, Steve McMurray

2021 Symposium Committee has been meeting monthly.

- The symposium will run April 11-15, 2021.
- The theme is “Mountains to the Sea and the Mollusks Between.”
- Contract was signed with Lloyd DoubleTree in Portland in December.

The PNW Workgroup had planned to hold a regional mussel meeting in March 2021 but postponed it to be a special session on Monday afternoon of our symposium. A daily rate is planned for those PNW members only attending the special session but it would also include the poster session and mixer. The hope is to allow regional Workgroup members to mix with FMCS and encourage further collaboration.

- Registration rates were proposed: Member-early \$415, Student/retiree member – early: \$275, Non-member- early: \$500, Single day PNW Workgroup member: \$40. Proposed rates fall between those of 2017 and 2019 symposia.
- Exploring a Sunday workshop on underwater filmography and photography. Any other workshop requests?
- Considering field trips to visit dam removal sites, points of interest in the Columbia Gorge, a visit to the Oregon coast, a Portland Passport/Point of Interest self-tour, and others.
- Given the current uncertainty, we are still considering potential plenary speakers and will be reaching out to them in the coming weeks. Any requests? Planning for 2 to 3 speakers.
- The budget for the meeting has been estimated for several levels of attendance. Anticipate breaking even at around 150 attendees.
- Cancellation deadlines for registration: Hotel requires all rooms to be reserved by March 12, 2021, or those rooms may be available to other groups or individuals. There will be a 100% refund up to March 12 and no refund after that.
- If next April turns out to be similar to this one, “Acts of God” are covered in our contract. We have also incorporated language regarding a government shutdown into contract.
- Key dates:
 - Registration Opens: Monday, November 2, 2020
 - Abstract Submission Deadline: Monday, January 25, 2021
 - Early Registration Ends: Monday, January 25, 2021

Lisie Kitchel volunteered to head the Auction and will reach out to Steve Ahlstedt and all the old Auction crew. She will need someone local to help coordinate, as well as new volunteers interested in helping.

The Awards Committee suggested having an extra session on Monday to ensure that all students have the opportunity to present prior to the judging deadline.

Guidelines and Techniques – Ryan Schwegman, Lisie Kitchel

Based on the discussion during a meeting on Friday March 27 the decision was made to postpone the 2020 Workshop and the following an email was sent out to the membership:

Because of the COVID-19 pandemic crisis, the FMCS ExCom has decided to cancel the 2020 Survey Guidelines and Techniques Workshop scheduled for August 10-13, 2020 in Tennessee. While we were excited about gathering on the beautiful Duck River, your safety is first and foremost. With the uncertainties in the containment of the pandemic, coupled with the various travel restrictions and travel approvals we will face, we felt it is in our best interest to cancel the meeting. At the upcoming Spring Board meeting, the FMCS Board will discuss having the Workshop in the Summer of 2021. More information will be shared at a later date.

If you have registered for the workshop, we will reach out to you about your fully-funded reimbursement. Given our remote working situation, please be patient as we process your requests.

Henry Horton State Park has been contacted and made aware of our decision. We have not received or requested our full refund, as those funds would be used to secure another alternative date if we so choose. The only date restrictions for 2021 are the following: April 25 to May 1 and June 9-13. Discussion and guidance from the board on what dates in 2021 should be reserved, will assist in the planning. August 9-12 in 2021 would provide a very similar timeframe (second week in August).

A questionnaire will be designed by Lisie Kitchel and Janet Clayton to send to members to get thoughts on whether we would have student and/or young professionals in attendance and what dates would be most appropriate for target audience. Is the August timeframe the best given that students are heading back to school and is in prime field season for professionals? There is also a potential issue for agency folks that are allowed to attend just one meeting per year; that issue should also be incorporated in the questionnaire.

Awards – Emy Monroe, David Hayes, Curt Elderkin, Susan Oetker

The proposal to create a new award to assist young professionals in attending society symposia was proposed to the committee and the Board during the December call. Curt Elderkin agreed to take the lead on this potential award and has joined the Awards Committee. A brief round of emails with Jeremy has approved inclusion of this award for the 2021 symposium, and it seems like we should use the Watters' Memorial fund to cover costs until it is used up, then the cost will be consumed by future symposia budgets.

Our current version of the proposal, which models that of the American Fisheries Society, is as follows (We did not get any other feedback):

The FMCS Early Career Travel Award. This award provides free registration for two new professionals (<5 years post-graduation) to encourage attendance at our biennial symposia (and/or workshops). Preference will be given to individuals presenting at the meeting, those involved in committees, and those needing financial assistance.

Any FMCS member within five years post-graduation, including agency biologists, postdoctoral associates, and university faculty/staff, are eligible to apply. The application should consist of the following:

1. Letter of interest describing:
 - a. Service to FMCS
 - b. Reasons for attending the meeting;
 - c. Financial need;

- d. Career goals (paragraph).
2. Current Curriculum Vita, including:
 - a. Degree(s);
 - b. List of publications and presentations;
 - c. Honors and awards.
3. Anticipated title and abstract of the paper(s) or poster(s) being presented.
Applications should be submitted as a single PDF file to Curt Elderkin, chair of the Early Career Travel Award

The Awards Committee would review applications and select two winners. Curt would coordinate with the society secretary, treasurer, and meeting organizers to ensure the winners have their registration covered. Based on discussion about this award in emails, we have a few questions for the Board (Answers since December):

1. Should it be for symposia only, or include workshops as well? **ANSWER: Symposia only.**
2. Should this be open to everyone as described? Award for any new young professional <5 years graduation including post-docs, assistant professors, and agency employees, or do we want to restrict it? **ANSWER: open to all, as described.**
3. Do we want to use some source of funding to pay our society the registration fee or waive it to avoid actual payment of funds? Depending on how this is handled, it will either add to the organizing committee's considerations or not. **ANSWER: Use Watters' fund until it is gone, and then incorporate it into future symposia budgets.**
4. It has been proposed that we name this award in Tom Watters' honor, and use donated funds to cover the award. If we waive the fee, and don't pay our society for the registrations, then we don't need to use the funds. But, then, can we name the award for Tom? **ANSWER: Since we can't sustain the award in Tom's name, I think we are leaving it named the "Early Career Travel Award".**

Outreach – Jennifer Archambault, Amy Maynard

Dan Symonds has taken charge of the Instagram account that currently has about 90 followers. The character limit makes posts challenging. We are now linked with Hootsuite, which links with all the other social accounts we now have lots of social media.

Someone questioned whether there were any hashtag#s that we should be using if linking with FMCS. #FMCS cannot be used as it is associated with another group. During the last symposium, they were using #FMCS 2019. Jeremy used #FMCSmollusk during initial use. Jennifer noted that twitter users typically will tag our handle. Standardizing a hashtag# may be something that the society needs to think about. Jeremy is currently the moderator for FMCS social media.

The mussel and gastropod posters are still being worked on.

Mussel App Update – Susan Oetker

The group talked about a future iteration consisting of zooming down geographically to what mussels should be in an area. Species information pages are needed. Discussion on format of page, actual fact sheets on the web, and still work on others. Lisie suggested to link to the Atlas project rather than create new fact sheets. Susan said that would be great when the Atlas is ready but, in the meantime, they are going with fact sheets. A first cut of the template fact sheet went around prior to the pandemic.

Gastropod Status and Distribution – Nathan Whelan, Wesley Daniel

Nathan Whelan, in collaboration with Paul Johnson, Gerry Dinkins, John Harris, and Megan Bradley created a draft web page for the gastropod and bivalve names list. These web pages will have the most recent list generated by the Names Subcommittees and information for submitting name change petitions to the subcommittees. The guidelines document that was approved by the Board for the subcommittees will also be available to the public on these web pages. Next steps include inserting a prominent link to the FMCS homepage and finalizing relatively minor aesthetic components of the pages.

Mussel Status and Distribution – Gerry Dinkins, Jason Wisniewski

We are continuing work to update website with names list.

Environmental Affairs – Braven Beaty, Mickey Matthews

Through the Consortium of Aquatic Science Societies (CASS), we signed onto a letter critical of the narrowing interpretation of Waters of the United States in the recent Clean Water Act rule change. We also joined a CASS letter with comments regarding state and tribal authority to establish Clean Water Act Section 401 Water Quality Certification standards that would preserve the ability to states to establish stricter standards than the federal criteria. And we participated in a CASS letter regarding National Environmental Policy Act regulatory changes that would limit the depth of Environmental Assessments and Environmental Impact Statements, reduce public comment opportunity, and limit the environmental effects consideration of the review process. In addition, we recruited John Harris to lead drafting FMCS comments on this issue.

Genetics – Kevin Roe, Dave Zanatta

We are still working on draft genetic sampling protocol.

Information Exchange – John Jenkinson, Wendell Haag, Dave Berg, Robert Bringolf, Megan Bradley***Ellipsaria***

John Jenkinson discussed a possible COVID-19 focus for the June issue of *Ellipsaria*. Board members suggested it could also include at least some uplifting material.

Freshwater Mollusk Biology and Conservation (FMBC)

Volume 22(2) was a special issue containing papers presented at the 2018 Freshwater Mollusk Health and Disease Workshop in La Crosse, Wisconsin. This issue, published in December 2019, had nine papers including the forward. Thanks to Megan Bradley and Diane Waller who helped out in several ways on this issue, and to all of the authors who contributed.

Volume 23(1) (March issue) was published last week—nearly on time! The issue had five papers.

Volume 23(2) (September issue) is well underway. We have four papers already in production at Allen Press, and there are several other papers that probably will be finalized in time to be included.

We would like to make “Early View” versions of papers available online as soon as proofs are finalized but before they are compiled into an issue for formal publication. Most journals do this now, and it will give our authors the ability to disseminate their work more quickly. We will probably need to do this on the FMBC page on the FMCS website. [You can now access papers in Early View on the website.]

During the last ExCOM meeting, we raised the idea of bringing a managing editor on board to handle production, billing, and other tasks. We are very pleased to announce that Megan Bradley has agreed to take on this role. Everyone is aware of Megan’s great history of service to FMCS. We’re thrilled to have her on board and appreciate her continued service.

Greg Cope has stepped down as editor after completion of the March issue. Greg was one of the original editors, and he has been instrumental in making FMBC what it is today. Thanks Greg. Robert Bringolf has agreed to take over for Greg. Robert is a top-notch researcher and educator, and he has extensive experience in publishing. We're thrilled to have him onboard as well and appreciate his service.

Greg Cope initiated contact with Clarivate Analytics in June 2019 to provide an Impact Factor for FMBC. We still have not had any word on this and will contact them again shortly. This may be dependent on FMBC having a presence on BioOne for a certain time. We have now been online with BioOne for a little over one year.

We continue to be pleased with the copy-editing service provided by Two Herons Consulting. After having worked with them on the last two issues, we've been able to fine-tune our copy-editing procedures, and this is now running smoothly and effectively.

Propagation – Rachael Hoch, Tim Lane, Maddie Pletta

Our committee is still trying to gather information on restoration best practices. We continue to maintain the database. Most hatcheries have become staff-reduced or even shut down during the pandemic. Megan would like a list of facilities to put on website. Tim is trying to make a map and list. The U.S. Fish and Wildlife Service wants a list of what species each facility is working on and, due to data sharing agreements, we thought best that this information comes directly from the facilities. Rachael notified the Board that she has hit her term limit and questioned the need to step down.

AD HOC COMMITTEES

Monetary Values of Mollusks – Megan Bradley, Janet Clayton

There are no updates on AFS/FMCS kill task force. There has been no contact from AFS or NCTC in quite some time. We believe it's time to proceed on our own projects.

Inclusiveness/Diversity – Tamara Smith

The committee has been working with Emily Blevins on the Portland symposium. They have been having quarterly conference calls.

Motion to Adjourn was made by John Jenkinson with a second by Heidi Dunn. All approved.

Respectfully submitted by Janet L. Clayton, Secretary

Survey Guidelines and Techniques Workshop Will Be Rescheduled

The tough decision to cancel the 2020 Survey Guidelines and Techniques Workshop scheduled for August 10-13, 2020, in Tennessee was made during a scheduled planning session on March 27. Given that our first and foremost priority is the health and safety of our members, it wasn't evident that we could host the event safely with so many unknowns. Additionally, multiple variables were considered in the decision process, including travel restrictions imposed by our membership employers and state and federal shutdowns. By making this decision early, we were able to save the time and effort of many of the volunteers and ensure full refunds for all expenses paid by the society and its membership.

We appreciate everyone's understanding and are happy to announce, based on the April FMCS Board meeting, that the Workshop will be rescheduled, and we still have our deposit at Henry Horton State Park on the Duck River! Details of the rescheduled event are still in the

works. Input from members will be gathered regarding interest in attendance and level of participation (beginning to more experienced), so stay tuned.

Get Ready for our Symposium in Portland, Oregon! April 11 – 15, 2021

The 12th Biennial FMCS Symposium will be held on April 11 -15, 2021, at the DoubleTree by Hilton Hotel in downtown Portland, Oregon, USA, easily accessible via public transportation from the airport. The Planning Committee is pleased to announce that our conference theme will be: **“From the Mountains to the Sea and Mollusks in Between.”** The goal for this Symposium is to highlight the unique natural history, mollusks, Tribal culture, and compelling river and landscape features in an area of the country where the Symposium has not previously been held. This Symposium will bring together researchers, resource managers, consultants, and enthusiasts in a forum that will allow for collaboration opportunities and information exchange. We anticipate two plenary presentations in addition to an engaging dinner speaker. There also will be a special session with members of the Pacific Northwest Native Freshwater Mussel Workgroup sharing their work and goals with a broader audience, with an open invitation to all FMCS attendees. In the coming months, more details about this Symposium will be provided on our page on the FMCS website:

https://molluskconservation.org/EVENTS/2021SYMPOSIUM/2021_FMCS-SYMPOSIUM.html

The Symposium rate for rooms at the DoubleTree will be \$157/night for a single queen, \$177 for a double queen, based on the government rates for the area. Much more information regarding travel, accommodations, registration, and the Symposium agenda will be posted on the 2021 FMCS Symposium page as it develops. Also, look for updates in the September 2020 issue of *Ellipsaria*.



*** Please be assured that we have thought about, and are continuing to carefully consider, our plans for the 2021 Symposium with regard to possible disruptions caused by the COVID-19 pandemic. Our current arrangement with the hotel allows us to cancel reservations and registrations up to one month before the event, so don't be afraid to make plans to attend. We will keep everyone updated as the Symposium gets closer.

Even more to get excited about!

A possible Sunday Workshop on underwater photography and filmography. Potential field trips include a visit to a dam removal restoration site, a tour of the scenic Columbia River Gorge (complete with waterfalls, Bonneville Dam tour, and a visit with Herman the Sturgeon), a trip to a Pacific Coast beach and brewery, and Passport to PDX – a self-guided tour of iconic Portland spots.

Start getting those abstracts polished!

The abstract submission deadline for the 2021 FMCS Symposium will be **Monday, January 25, 2021**. The Symposium format will include both oral and poster presentations. Oral

presentations will be limited to 20 minutes (including a 5-minute question and answer period). Poster size will be limited to 4' by 4'. The First Call for Abstracts will be emailed in August 2020 and detailed in the September 2020 issue of *Ellipsaria*.

Did we mention the world-famous auction?

Don't forget to start collecting items now and bring them to the Symposium. Past items have included rare and unusual things of interest, field equipment, rare books, T-shirts/clothing, art, photos, jewelry, fishing gear, foods, beverages, and more (including river booty). Proceeds go to FMCS student and young professional awards. Since many people will be flying, you can pack small items in your suitcase. Item too big to pack in your suitcase? Can't attend? You can still donate. If you have any questions give Lisie Kitchel a call at 608-220-5180 or e-mail Lisie.Kitchel@wisconsin.gov

Need more information?

If you need more information now about the 2021 Symposium, or want to make some sort of special request or offer, please contact Emilie Blevins at Emilie.Blevins@xerces.org or Steve McMurray at Stephen.McMurray@mdc.mo.gov.

FMCS Officer Nominations for 2021

We are seeking nominees for President-Elect, Secretary, and Treasurer of our Society. The President-Elect will serve two years in that position, then two years as FMCS President, then two years as Past President. Both the Treasurer and the Secretary serve 2-year terms. These positions will take office during the FMCS Mountains to Sea and the Mollusks Between Symposium in Portland, Oregon, in April 2021. Any member may nominate any other member. Nominees must be current FMCS members in good standing and agree to be nominated. Please consider yourself or another worthy member for these positions. This is an excellent opportunity to serve in FMCS.

The Nominations Committee will select the two candidates willing to run for each office who receive the most nominations for that office. We anticipate that position statements from the candidates will be posted in the December issue of *Ellipsaria* and on the FMCS website; and that voting will be done on the FMCS website.

Send your nominations to Wesley Daniel by email at wdaniel@usgs.gov. If you have any questions, please contact Wesley by email or call him at 352-264-3523. The deadline for nominations is **October 5, 2020**.

Keeping Diversity, Equity, and Inclusiveness in Your Thoughts ... as You Plan Meetings

I recently learned about a great resource for folks who may be planning scientific meetings that provides guidance in building the groundwork for an inclusive atmosphere (<https://www.rri-tools.eu/-/guide-to-organizing-inclusive-scientific-meetings-where-to-start>). If you are setting up a meeting - large or small, remote, or in-person (someday!), you may want to check this out for some useful tips. Some of the advice may even be applicable to your family Zoom calls!

Tam Smith, Diversity and Inclusiveness Committee

COVID-19 Notes

People all over the world have been, and are continuing to be, affected by disruptions caused by the COVID-19 pandemic. As this issue of Ellipsaria was being prepared, FMCS members were invited to submit short notes addressing one or more of the following three questions: How has your freshwater mollusk work been affected by the COVID 19 pandemic? Has this disruption changed your focus in any way? and What have you found that made you laugh or gave you hope for the future? As you read through these notes, I hope you will recognize how similar our experiences have been and just how much we are, truly, all in this together. JJJ



Cambridge, Cambridge, England

On Friday 20th March at 5pm, the University of Cambridge closed down due to COVID-19. From that moment, nobody from my research group was able to access the University buildings, including our laboratories. Four days later the United Kingdom went into 'lockdown' with all but essential travel banned. Fortunately, we sensed this impending closure and I managed to spend the preceding week conducting intensive fieldwork in the River Thames to finish off various pieces of fieldwork with PhD students facing submission deadlines. To my wife's horror, I also converted a room in our house into a laboratory (see picture). I am, therefore, maintaining my populations of mussels and taking care of my algal cultures on a daily basis. Once the national lockdown eases (hopefully in early May) my students will be able to start conducting some basic experiments in my new home laboratory. In the meantime, I'll be keeping myself busy looking after my *Unios*, coping with my home-schooling children, and getting all those papers written that I never thought I'd get around to! **David Aldridge, University of**

I find comfort in knowing that the mollusks remain unaffected by this pandemic that has turned our human lives upside down. The freshwaters continue to flow and provide particles for bivalves to filter and gastropods to graze. Me, on the other hand... well, this new "normal" has pushed most of my freshwater mollusk work to the back burner. Most of my focus has shifted to my preschool-aged children that are now without full-time childcare or schooling outside of the home. It's an understatement to say that it's been hard, but it has also given me a chance to experience the natural world through fresh, young eyes. Each day is a new challenge to keep everyone happy and engaged, but we are tracking time a little differently lately. Days are marked by a new plant flowering, a migratory bird sighting, or the promise of fresh veggies as a seed pokes up through the soil. Thankfully, rivers in my neck of the woods are still swollen from spring rains, so the mollusk work can wait (at least for a few more weeks). In the meantime, we'll be opening our eyes to the wonder around us and holding our breath for better days to come. **Alison Stodola, Illinois Natural History Survey**



While these are strange and uncertain times for all, here at the Freshwater Mussel Conservation Research Center, the mussels living in our raceways have been unaffected, filtering water as usual, happy as clams! Most non-mussel members of our team, however, have been working from home for the past couple of months. Many aspects of this



new schedule have been challenging and some of our summer plans have already been thwarted. For example, we had developed a brand new summer undergraduate research internship at our mussel facility, but these plans will have to wait until next year. The most difficult part may be living in the unknown – when will we step back into our offices? When will life resume its normal rhythms? Summer is typically the most productive season for those working with freshwater mussels in the field but this summer we plan on remaining focused on the fishes and mussels in our care and writing up completed projects for publication. We are also taking this time to redesign the setup of one of our raceways. Even during these difficult times, there are positive things to be grateful for. It's uplifting to know that the mussels in our facility are still receiving all the great care and luxury that they have grown accustomed to. Many thanks to Trisha Gibson, our essential employee, for taking time every day to feed and take care of the non-human members of our team! Although I miss my office and my coworkers, I am cherishing the extra time I get to spend with my husband and one-year-old daughter, and spending the weekends discovering many beautiful hiking trails close to home. **Ieva Roznere, The Ohio State University, Columbus, Ohio**

COVID19 has made my life a little more sporting than usual. The biggest adjustment is not diving, as there is a Zen to being underwater that is hard to find elsewhere. I started working at home and quickly learned that internet and cell phone meetings are not real practical in rural areas. With slow internet and limited cell service, I seemed to only hear half the meeting or conversation. So, I went back to the office and was the only one there for several weeks. Kind of eerie. With only office work to worry about, I could actually go home at a reasonable hour and have some free weekends. This has allowed me to slow down and literally smell the flowers. With no mussels to identify, I took to identifying spring wildflowers, mushrooms, and birds while taking walks and bike rides. Of course, this came with a few ticks and chiggers that reminded me why I am an aquatic biologist and not a terrestrial biologist. But learning new things and slowing the pace some does put a smile on my face. However, I am still mostly committed to mussels. I do worry that moving the economy forward will take precedence over regulations that protect mussels and other natural resources. I also worry about family members that are older and/or have health problems becoming infected. I also worry about getting back out in the field and being exposed to a lot of strangers. I am just glad I'm near retirement, as I am not sure what the future holds. **Heidi Dunn, EcoAnalysts, Inc., O'Fallon, Missouri**

Actually, my work on freshwater mussels has been affected **positively** by the COVID 19 pandemic. I'll begin writing my "swan song" book on a North American invasive species after I finish my searches through the North American and European/Asian literature. [To be honest, I started the literature reviews before the pandemic hit]. My focus has not really changed as far as Malacology is concerned; having to "home bound" ourselves, it's been a relatively easy transition to refocus back into publication mode. Pre-January 2019 will be the happiest (even with the downers) part of my life, and I will look back on it and say 'Remember when we could shake hands, hug, shop together, have parties, family dinners, etc.?' I'll no longer take life for granted. My hope is we have a COVID-19 vaccine that we can take annually, like a flu shot. What makes me laugh? *Trump bashing!* and all the toilet paper jokes. That reminds me, I'll add one more thing to my hope for the future, a *bidet!* **Gerry Mackie, Professor Emeritus, University of Guelph, Guelph, Ontario**

I used to take field work for granted, only disrupted by floods or injuries, but never by being house bound!! I sincerely miss being in the water, I realize how important it is to my soul. Not even being able to stand by stream or river or lake!! It feels alien not to get sampling in the spring, and being asked *how many can travel in a vehicle safely? A far cry from how many can ou cram in a vehicle safely? How far apart can you be in a boat? rather than how many can be in a boat and still meet Coast guard requirements? How to decontaminate dive tanks on the inside? How safe are motels to stay in?* [Now, I have stayed in motels of questionable nature but not questioned for this reason.] None of these are questions I have considered before, but they now form the basis for being allowed to do field work. I am sure it will all work out, just a whole new way of doing business. But I hear the mussels calling; I have informed my superiors that, at all times, I will be wearing my mask (and snorkel) in the field.

One thing I have REALLY enjoyed are all the mussel postings on Facebook. It seems folks are using their former field time to post lots of cool stuff about mussels. GO FOR IT! Keep them coming; people are reading those posts. Let's get the word out about how great mussels are!! **Lisie Kitchel, Wisconsin Department of Natural Resources**

Announcement

Update on the Status of the Freshwater Mussel Conservation and Research Center in Columbus, Ohio

The Freshwater Mussel Conservation and Research Center (FMCRC) is a research and educational facility dedicated to freshwater mussels and other aquatic organisms. This facility, located on the banks of the Scioto River adjacent to the Columbus Zoo and Aquarium, is the product of a collaboration



between The Ohio State University (OSU), Columbus Zoo and Aquarium, Columbus Recreation and Parks Department, and the Ohio Division of Wildlife, Ohio Department of Natural Resources. It was led by Dr. G. Thomas Watters from its establishment in 2002 until his death in October 2019. Effective July 2020, Dr. Ieva Roznere will become the new Science Director of FMCRC. Ieva is currently a research associate at OSU and earned her Ph.D. under the mentorship of Dr. Watters. She conducts research on freshwater mussels with a focus on health assessment, using molecular-based techniques such as metabolomics and transcriptomics. Most operations at the FMCRC facility will continue as in the past, involving projects ranging from fish host identification to *in vitro* propagation. The efforts at the FMCRC will continue Dr. Watters' goal to restore rare freshwater mussel populations in Ohio.

Contact information for Ieva: Ieva Roznere, Ph.D.; The Ohio State University; Department of Evolution, Ecology, and Organismal Biology; Museum of Biological Diversity; 1315 Kinnear Road, Columbus, Ohio 43212 roznere.1@osu.edu (614) 441-2140



Effective July 2020, Dr. Ieva Roznere will become the new Science Director of FMCRC. Ieva is currently a research associate at OSU



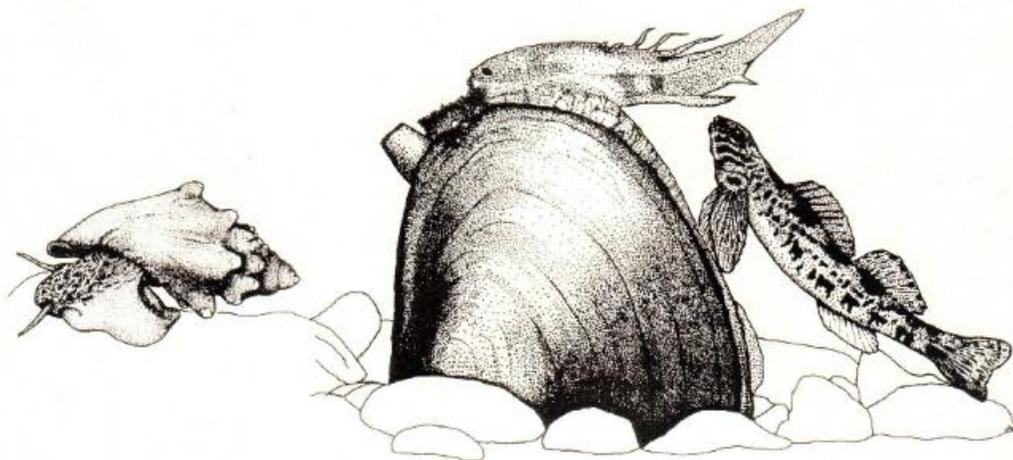
Regional Meeting

Chesapeake Bay Freshwater Mussel Workgroup Meeting

The Chesapeake Bay Freshwater Mussel Workgroup convened at the University of Maryland Center for Environmental Sciences Appalachian Laboratory in Frostburg, Maryland, on February 18, 2020. Meeting participants represented state and federal resource agencies, river basin commissions, non-profit organizations, consultants, and academia. The presentation topics included:

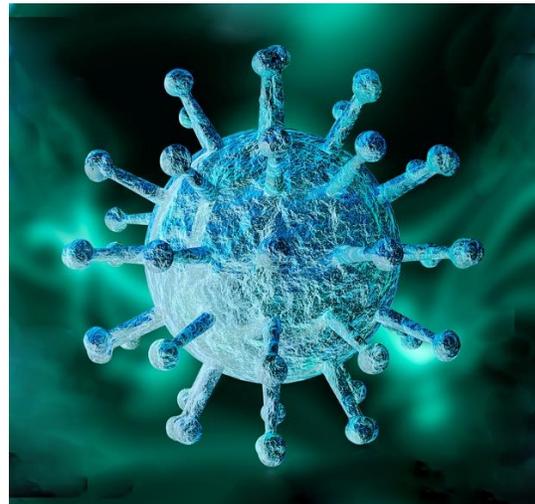
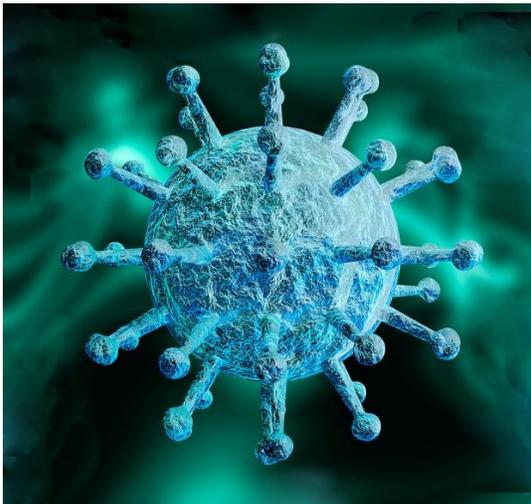
- Wastewater Treatment influences on mussel distribution and abundance
- Mussel propagation at Harrison Lake National Hatchery
- South Fork NRDAR mussel restoration
- Potomac River tributary mussel survey results in West Virginia
- Population demographic monitoring of *Parvaspina collina*
- Scientific Diving course offered by the National Conservation Training Center
- Mussel reintroduction and propagation activities and 2020 surveys in Maryland
- Smithsonian mollusk collection research opportunities
- Chesapeake Bay Program Science Technical Advisory Committee on mussels
- Brook Floater CompSWG project - Structured Decision Making
- Partnership for the Delaware Estuary's Mussels for Clean Water Initiative
- Species distribution modeling for *Elliptio lanceolata*
- eDNA applications in Potomac River basin streams
- Evidence of recruitment of *Elliptio complanata* in the Susquehanna River
- Survival and growth of juvenile *Lampsilis radiata* in the Anacostia River
- Phylogeography of Atlantic Slope *Elliptio* complex

Financial assistance for this regional meeting was graciously provided by FMCS through the Awards Committee, and by the Maryland Department of Natural Resources Natural Heritage Program, which supported refreshments and a working lunch for attendees.



Upcoming Meetings

- June 7 – 12, 2020** – Society for Freshwater Science and Association for the Sciences of Limnology and Oceanography Joint Meeting, Madison, Wisconsin, USA. Theme: *Sustaining Aquatic Ecosystems Under Global Change* - <http://sfsannualmeeting.org/> **CANCELLED**
- July 13 – 17, 2020** – American Malacological Society 86th Annual Meeting, Faro Blanco Resort, Marathon, Florida, USA <https://ams.wildapricot.org/FK-2020-Meeting> **CANCELLED**
- July 26 – 31, 2020** – Society for Conservation Biology North American Sectional Meeting, Denver, Colorado. Theme: *Crossing Boundaries: Innovative Approaches to Conservation* <http://scbnorthamerica.org/index.php/naccb-2020/> **Shifting to Virtual Format**
- August 10 – 13, 2020** – FMCS Survey Guidelines and Techniques Workshop, Henry Horton State Park, Tennessee, USA https://molluskconservation.org/EVENTS/2020WORKSHOP/2020_FMCS-Workshop.html **CANCELLED BUT WILL BE RESCHEDULED** - See related article on Page 9.
- August 30 – September 3, 2020** – American Fisheries Society 150th Annual Meeting, Columbus, Ohio, USA Theme: *Learning from the past, meeting challenges of the present, advancing to a sustainable future* . <https://afsannualmeeting.fisheries.org/> **Shifting to Virtual Format**
- September 5 – 9, 2020** – Ninth European Congress of Malacological Societies (EUROMAL 2@2@), Prague, Czech Republic www.euromal.cz. **New Dates**
- October 25 – 28, 2020** – Southeastern Association of Fish and Wildlife Agencies 74th Annual Conference, University Plaza Hotel, Springfield, Missouri, USA. <http://www.seafwa.org/conference/overview/> **Not Yet Cancelled or Rescheduled**
- March 21 – 26, 2021** – National Shellfisheries Association 113th Annual Meeting, Sheraton Charlotte Hotel, Charlotte, North Carolina, USA. <https://www.shellfish.org/annual-meeting>
- April 11 – 15, 2021** – FMCS 12th Biennial Symposium, Portland, Oregon, USA. Theme: *Mountains to Sea and Mollusks Between*. https://www.molluskconservation.org/EVENTS/2021SYMPOSIUM/2021_FMCS-SYMPOSIUM.html
- Spring ? 2023** – FMCS 13th Biennial Symposium, Michigan (?) [Dates, Location, and Theme not yet determined]



Contributed Articles

The following articles have been contributed by FMCS members and others interested in freshwater mollusks. These contributions are incorporated into *Ellipsaria* without peer review and with minimal editing. The opinions expressed are those of the authors.

Evidence for the Historic Presence of the Scaleshell Mussel (*Leptodea leptodon*) in Michigan

Joe Rathbun, retired aquatic biologist, rathbunj@sbcglobal.net

As currently recognized by the U.S. Fish and Wildlife Service (FWS), the geographic range of the Federally Endangered scaleshell mussel, *Leptodea leptodon* (Rafinesque, 1820), does not include any watersheds in Michigan or any other watersheds draining to the Great Lakes basin (Figure 1). Some museum collections, however, include specimens or records from Michigan locations, the species occurs on the Michigan list of native mussels, and it must be accommodated by permit applicants proposing instream projects in certain watersheds.

The University of Michigan Museum of Zoology (UMMZ) mussel collection contains two lots of scaleshells from Michigan (Figure 2). Identification tags indicate both lots were collected by R. J. Kirkland ((1856-1930) in the Grand River (Lake Michigan drainage) at unknown dates. The shells were eventually donated to UMMZ and that database lists the collection dates as “pre-1936.” The location coordinates associated with these two lots plot out near the city of Grand Rapids; however, the locations for specimens from donated collections might have been assigned when the shells were added to the UMMZ database.

The UMMZ mussel database also lists two additional scaleshell occurrences from Michigan but the specimens are not present in the shell collection:

- In 1926, an unknown number of scaleshells were collected from “various localities” in Newaygo County, Michigan (Lake Michigan drainage). These specimens are presumably lost.
- At an unknown date -- probably in the early 1900s -- scaleshells were collected from the River Raisin (Lake Erie drainage) and donated to what is now the Grand Rapids Public Museum as part of a large collection of natural history artifacts. UMMZ staff are currently cataloging this collection but have not yet found any scaleshells.

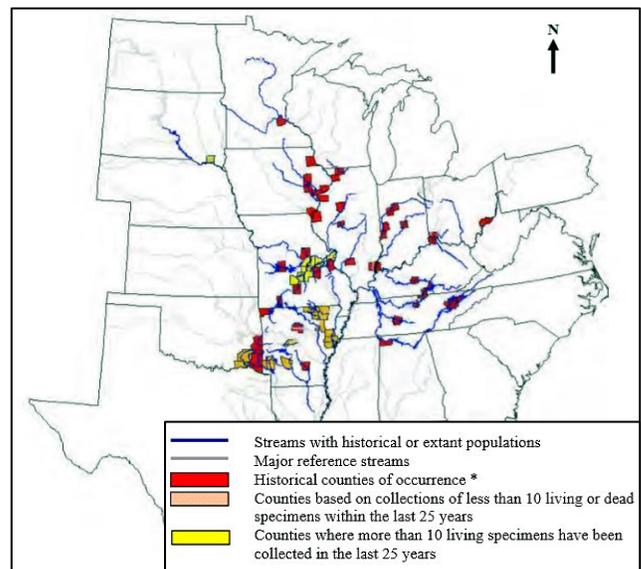
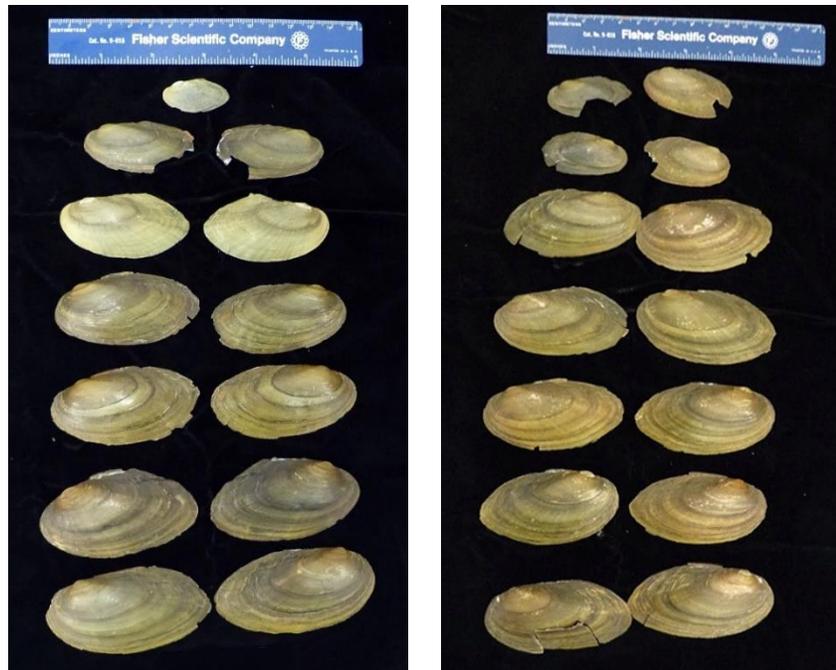


Figure 1. Historic and current range of the scaleshell mussel as currently recognized by the U.S. Fish and Wildlife Service in the species recovery plan (FWS, 2010).

Figure 2. The two lots of scaleshell mussels from Michigan in the UMMZ mussel collection: Lot Number 83041 (left) and Lot Number 163058 (right). Both lots have labels indicating they were collected in the Grand River.



The Digitized Biocollections website (idigbio.org) lists a pair of scaleshells collected in the Grand River, Michigan, at an unknown date (Figure 3). These shells were eventually deposited in the Delaware Museum of Natural History (DMNH) in 1972. The DMNH specimen label states that the shells were collected in the Grand River, Michigan, and the collection location reported on the idigbio.org website probably was assigned to the specimens by a DMNH employee (Dr. Alex Kittle, DMNH, personal communication).



Figure 3. Scaleshell shells from Grand River, Michigan, now in the Delaware Museum of Natural History.

On March 2, 2020, the scaleshell shells from UMMZ lot 83401, plus photographs of the other shells including the DMNH specimen, were shown to members of the Michigan Mussel Committee, a group of about two dozen Michigan-based mussel researchers and environmental regulators. The results of these discussions were as follows:

- The available shells appear to be correctly identified.
- The collection location information associated with at least some of the lots is likely questionable.
- Mussel communities in the Grand River, Muskegon River, and the River Raisin have been surveyed dozens of times during the last 100 years and the only scaleshells known to have been found are those reported here.

- The origin of the scaleshell populations in Michigan is very problematic since none of the watersheds in its current or historic range drain to the Great Lakes basin.
- Though its origin is unknown, the scaleshell apparently did occur in Michigan for a brief period in the late nineteenth or early twentieth century, reproduced for a few years, but is now extirpated.
- The scaleshell should remain on the list of Michigan mussel species until such time that the Michigan Mollusk Technical Advisory Committee concludes it should be removed.

This information will be included in the upcoming FWS five-year review of the scaleshell listing, and its historical range will be updated as appropriate once that analysis is complete. That review is expected to be completed during 2021 (Andrew Roberts, FWS, personal communication).

Acknowledgements:

Dr. Taehwan Lee of the University of Michigan's Museum of Zoology provided access to that museum's shell collection and Dr. Alex Kittle of the Delaware Museum of Natural History provided photographs and background information on that museum's scaleshell specimen.

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Population Genetic Survey of *Lithasia geniculata* in the Duck River, Tennessee

Robert T. Dillon, Jr., Freshwater Gastropods of North America Project,
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Among Calvin Goodrich's greatest contributions to science was his 1934 discovery that populations of *Lithasia* previously referred to the nominal taxa *pinguis* (Lea 1852), *fuliginosa* (Lea 1841), and *geniculata* (Haldeman 1840) were shell variants of a single biological species clinally arrayed down the length of the Duck River in Middle Tennessee (Goodrich 1934). This observation presaged our understanding of cryptic phenotypic plasticity (CPP) in the North American Pleuroceridae (Dillon 2011, 2014; Dillon et al. 2013) by 80 years. Here I report on a 2002 survey of genetic variation at three polymorphic allozyme-encoding loci across seven Duck River populations of *Lithasia geniculata* that reinforce and augment Goodrich's 1934 insight.

The samples analyzed here were collected incidentally during a 2000-02 survey of the Duck River unionid mussel fauna by Ahlstedt and colleagues (2017), transmitted to us by P. D. Johnson, whose assistance is gratefully acknowledged. Two populations of *L. geniculata pinguis* were sampled: pinA from the Little Duck River in Manchester (TNC84, 35.4836, -86.0808) and pinB in the main Duck River at Old Fort State Park (TNC101, 35.4842, -86.1089). They also sampled two populations of *L. geniculata fuliginosa*: fulC from the Duck adjacent to US41A (TNC70, 35.4629, -86.3574) and fulG from the Buffalo River at the Gilmer Bridge (35.7846, -87.7737). And they sampled three populations of *L. geniculata* from the main Duck River: genD from the Fountain Ck confluence (TNC94, 35.5695, -86.9682), genE from Wright Bend (TNC110, 35.8267, -87.6657), and genF at the Watered Hollow boat launch (35.9322, -87.7475). See Figure 1.

I initially screened ten individuals from pinA and ten individuals from genE for polymorphism in 17 enzyme systems (21 nominal loci) on horizontal starch gels with four buffer systems, using the methods of Dillon (1982, 1985, 1992). Allozyme variation interpretable as the product of codominant Mendelian inheritance was discovered at just three loci: mannose phosphate isomerase (Mpi) on buffers TrisCit6 and TEB8, octopine dehydrogenase (Odh) on buffers TrisCit6 and Poulik, and hexanol dehydrogenase (Hexdh) on buffers TEB8 and Poulik. Genetic variation was subsequently assessed at these three loci only for the remainder of the populations and individuals.

Figure 1. The Duck River drainage of Middle Tennessee, showing the sample sites for *Lithasia geniculata* collected in 2000-02. Shell length of pinA is 14.7 mm; the other shells are presented to scale.

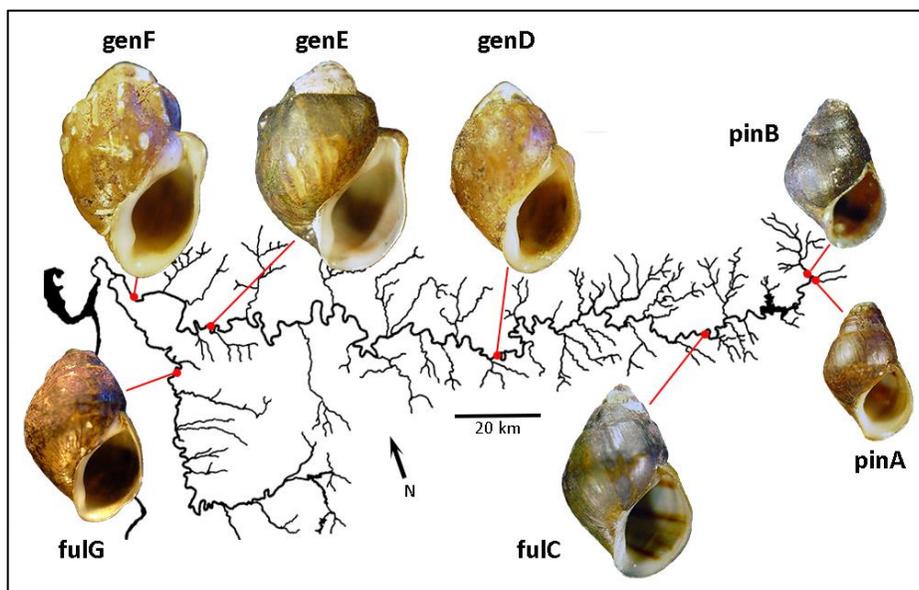


Table 1 shows an apparently fixed difference at the Mpi locus and a nearly-fixed difference at the Odh locus between populations pinA and pinB, a morphologically-indistinguishable pair of samples separated by just four river kilometers. This section of the river includes a series of dramatic waterfalls, currently preserved in Old Fort State Park. Dillon (1988) reported a similar (although much less striking) discontinuity in gene frequencies at a 25 cm cascade created by a culvert in a population of *Pleurocera proxima* inhabiting Naked Creek, Wilkes County, North Carolina.

Table 1. Gene frequencies at three allozyme-encoding loci in seven populations of *Lithasia geniculata* sampled from the Duck River.

Loci	Duck River Basin Populations						
	pinA	pinB	fulC	genD	genE	genF	fulG
Odh (N)	(41)	(28)	(36)	(32)	(49)	(33)	(35)
112	1.0	0.054	0.264	0.547	0.582	0.561	0.914
109	0.0	0.946	0.736	0.453	0.418	0.439	0.086
Mpi (N)	(41)	(28)	(36)	(32)	(49)	(33)	(35)
97	0.0	0.0	0.0	0.0	0.0	0.015	0.0
94	0.0	1.0	1.0	1.0	0.867	0.667	1.0
91	1.0	0.0	0.0	0.0	0.133	0.318	0.0
Hexdh (N)	(34)	(28)	(36)	(25)	(41)	(33)	(35)
99	0.015	0.161	0.042	0.0	0.012	0.015	0.0
93	0.985	0.839	0.958	1.0	0.988	0.985	1.0

Significant gene frequency differences were also detected at the Odh locus between samples pinB, fulC, and genD. The values of contingency chi-square for these comparisons were 9.8**, 11.3*** and 33.6*** for pinB/fulC, fulC/genD, and pinB/genD, respectively, with one degree of freedom (df), where two asterisks indicate significance at the p = 0.01 level, and three asterisks indicate significance at the p =

0.001 level. Samples genD, genE, and genF were not different at the Odh locus, but demonstrated significant differences at the Mpi locus. Values of contingency chi-square were 9.2**, 8.6** and 24.7*** genD/genE, genE/genF, and genD/genF comparisons, respectively, with 1 df, lumping rare alleles. Sample fulG differed statistically from genF at both the Odh and Mpi loci (chi-squares = 22.2*** and 27.8***, respectively, with 1 df, lumping rare alleles). Differences on these scales are clearly attributable to isolation by distance, analogous to the situation in *P. proxima* through the remainder of Naked Creek as detailed by Dillon (2020).

Whelan et al. (2019) have suggested that the absence of a correlation between shell shape differences and genetic patterns in pleurocerid populations should constitute evidence of ecophenotypic plasticity in the former. Our observation that the maximum pairwise genetic divergence in the Duck River *Lithasia* population corresponds to the smallest degree of shell morphological difference would appear to satisfy the criterion of Whelan and colleagues.

Minton and Lydeard (2003) uncovered no CO1 sequence divergence among any of their Duck River *Lithasia* samples, regardless of subspecific designation, across six populations (16 individuals). They did uncover a 4.3% difference between the common Duck River sequence and an individual *L. geniculata fuliginosa* sampled from Garrison Fork (an upper tributary of the Duck) and a 2.8% sequence difference between the Duck sequence and two *fuliginosa* individuals sampled from the Buffalo River. This latter observation prompted Minton (2013) to describe the Buffalo *Lithasia* as a new species, *L. bubala*. The allozyme data presented here do not support that hypothesis.

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**First Geographical Record of the Native Limnic/ Freshwater Clam Cyrenidae
Cyanocyclus limosa (Maton, 1809) in the Itajaí River Basin Valley, Santa
Catarina State/ SC, Central Southern Brazil**

A. Ignacio Agudo-Padrón and **Francisco Carneiro**, Project “Avulsos Malacológicos - AM”, P.O. Box 010, 88010-970 Centro, Florianópolis, Santa Catarina/ SC, Brazil – ignacioagudo@gmail.com; febio@gmail.com; <http://noticias-malacologicas-am.webnode.pt/>

Until now, the freshwater clam family Cyrenidae has been represented in the geographic territory of Santa Catarina State/ SC by five nominal species (Agudo-Padrón 2017, 2018a:57-Table 1, 2018b). Three of these species are exotic invasive forms of the genus *Corbicula* Megerle, 1811 and two are native forms in the genus *Cyanocyclus* Blainville, 1818, being *Cyanocyclus limosa* (Maton, 1809) the first known representative of its genus in the State, previously reported for the Western malacological region (Agudo-Padrón 2010:10, 2018a:58-Fig. 1), with vouchers deposited in the Augusto Rushi Zoobotanical Museum – MUZAR, scientific institution located in the neighboring State of Rio Grande do State/ RS (Agudo-Padrón 2012).

In April 2020, the second author of this report (F.C.) forwarded for determination some photographs of two young limnic clams, regrettably the bigger of which was accidentally damaged during handling (Figure 1). These specimens were collected in a small unnamed stream, a direct tributary to the Itajaí-Açu River located in Mulde, a neighborhood of the Indaial Municipal District (Figure 2), domain of the Itajaí River Basin Valley in the Blumenau Micro-region -- 26°50'48.54"S & 49°13'35.28"W, Malacological Region Number 6 of Santa Catarina State/ SC, Central Southern Brazil. These clams were found with the aid of Surber Sampler for Benthos in a section of the stream with sandy/ clayey substrate, rock outcrops and some organic matter, presenting few sediments in its central rapids area, during a biotic sampling campaign.

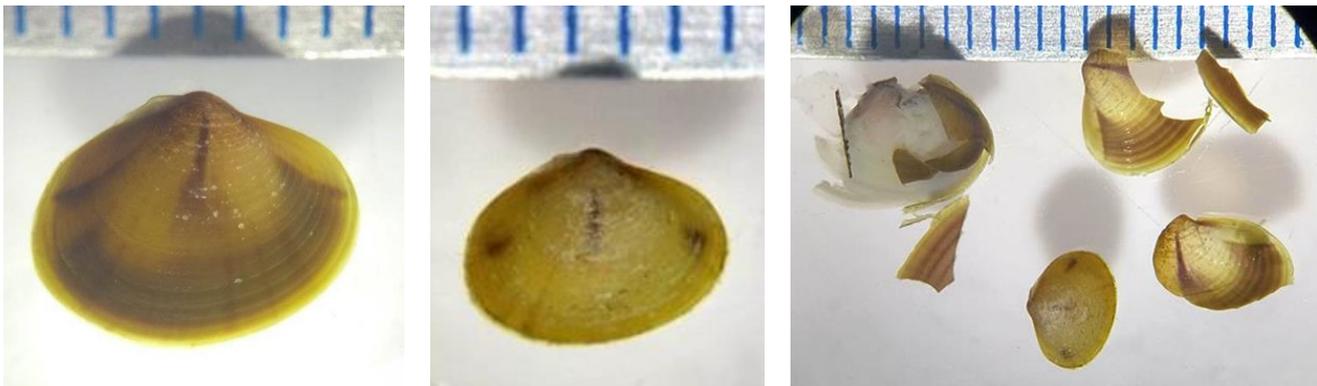


Figure 1. The two young specimens (left, bigger; middle, smaller; and damage to bigger, right) of native limnic/ freshwater clam Cyrenidae *Cyanocyclus limosa* (Maton, 1809) found in riverside environment of small unnamed stream tributary to the Itajaí-Açu River.



Figure 2. Location of the Indaial Municipal District in the Itajaí Basin Valley region of Santa Catarina State/ SC (map – red color), general views of the small unnamed stream, and procedure used to collect in the area where the little clams were found.

The specimens were identified as native limnic/ freshwater clams Cyrenidae *Cyanocyclus limosa* (Maton, 1809) and are properly separated waiting to be deposited in the Malacological Collection of the Regional University Foundation of Blumenau - FURB, Blumenau/ SC (~ voucher FURB MO ???). This is the first geographical record of occurrence of this native freshwater clam in the Itajaí River Basin Valley, and the second confirmed record of this nominal species for the geographical territory of Santa Catarina State/ SC.

Five other limnic/ freshwater mollusk species were found at the same locality: native little operculated gastropods Tateidae *Potamolithus catharinae* (Pilsbry, 1911) and *Potamolithus lapidum* (d'Orbigny, 1835), native pulmonate snails Chiliniidae *Chilina parva* (Martens, 1868), native mussel/ naiad Hyriidae *Diplodon delodontus* (Lamarck, 1819), and the exotic invasive Asian clam Cyrenidae *Corbicula largillierti* (Philippi, 1844). All of them had been previously verified in the State territory (Agudo-Padrón 2018a).

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New Geographical Record of the Native Freshwater Mussel/ Naiad *Mycetopoda siliquosa* (Spix, 1827) (Unionoida, Mycetopodidae) in Venezuela

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The non-marine mollusks present in Venezuela have been modestly studied by the AM Project since 2014 with the invaluable participation, assistance, and support from local researchers, naturalists, environmental photographers, and informal field collaborators (Agudo-Padrón 2020:35), principally the forms occurring in Sucre State. We have been developing some as yet, unpublished, basic taxonomic and bioecological surveys of the freshwater/ limnic species (Table 1, with 18 species confirmed ~ 15 gastropods and three bivalves). We have been using as a main regional bibliographic reference (among others) the monographic contribution of Pontier (2015), who conveniently described the main geographical and environmental aspects of the Venezuelan territory (Pontier 2015:11-15).

Table 1. Freshwater mollusk species present in Sucre State, northeast Venezuela, as reported in Pontier (2015).

GASTROPODA	BIVALVIA
Ampullariidae <i>Marisa cornuarietis</i> (Linnaeus, 1758) <i>Pomacea diffusa</i> Blume, 1957 <i>Pomacea glauca</i> (Linnaeus, 1758)	Mycetopodidae <i>Mycetopoda siliquosa</i> (Spix, 1827)
Thiaridae <i>Melanoides tuberculata</i> (Müller, 1774) <i>Tarebia granifera</i> (Lamarck, 1816)	Hyriidae <i>Castalia ambigua</i> Lamarck, 1819
Cochliopidae <i>Aroapyrgus vivens</i> (Baker, 1930) <i>Pyrgophorus parvulus</i> (Guilding, 1828)	Sphaeriidae <i>Eupera bahiensis</i> (Spix, 1827)
Lymnaeidae <i>Galba cubensis</i> (Pfeiffer, 1839)	
Physidae <i>Aplexa</i> (- <i>Stenophysa</i>) <i>marmorata</i> (Guilding, 1828) <i>Physa acuta</i> (- <i>cubensis</i>) Draparnaud, 1805	
Planorbidae <i>Biomphalaria kuhniana</i> (Clessin, 1883) <i>Biomphalaria prona</i> (Martens, 1873) <i>Drepanotrema surinamensis</i> (Clessin, 1884) <i>Helisoma duryi</i> (Wetherby, 1879)	
Planorbidae (- Ancyliidae) <i>Gundlachia radiata</i> (Guilding, 1828)	

One of these featured species is the remarkable native mussel/ naiad Mycetopodidae *Mycetopoda siliquosa* (Spix, 1827) (Figure 1), a typical South American species cited and illustrated in the correspondent malacological literature available (Cummings and Mayer 1997; Martinez *et al.* 2003; Simone 2006:286-288; Lasso *et al.* 2009:72; Graf and Cummings 2013; Pontier 2015:178-180). Most of the referenced authors list the species under the synonymic names *Mycetopoda pittieri* Marshall, 1927 and/ or *Mycetopoda siliquosa pittieri* Marshall, 1928.

On March 10, 2020, Richard Asten, a local professional ichthyologist and aquaculture businessman, reported the occurrence of this species in two new nearby localities in Miranda State, Venezuela: Mamporal (10°22'N 66°08'W) and Laguna de Tacarigua (10.250°N 65.833°W), with voucher specimens originally found on December 12, 2011 (Figure 1). This general collection site was not among the ten geographical records indicated on the published distribution map (Pontier 2015:180 Fig. 105) (Figure 2) and represents an important new record for the species in the country.



Figure 1. Location of the new geographical record for *Mycetopoda siliquosa* (Spix, 1827) in Miranda State, Venezuela (map – black point in red color), and some of the specimens found there on 12/12/2011. Photographs by Richard Asten.



Figure 2. Previously known localities for *Mycetopoda siliquosa* (Spix, 1827) in Venezuela (Pontier 2015:180) and specimens found in Sucre State, the isolated right red locality on the northeast side of the map. (Photograph from Graf and Cummings 2013).

Additional information:

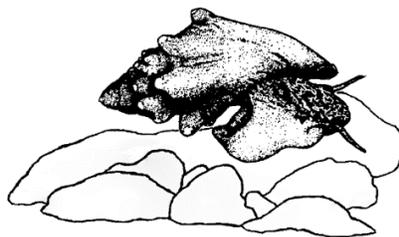
According to researcher and local farmer Mikel Alberto DeElguezabal (05/03/2020, pers. comm.) this species occurs abundantly in the local agricultural irrigation field system associated with Reservoir Clavellinos in Sucre State (Figure 3), where it may have arrived as lasidium larvae on the gills of purposefully introduced cachamas fishes (tentatively *Colossoma macropomum* Cuvier, 1818). DeElguezabal reported seeing large numbers of this bivalve during the last ten years, arranged in patches everywhere in the locality (farm), buried vertically in mud and presenting brawny/ muscular feet.



Figure 3. Two views of the Reservoir Clavellinos in Sucre State, Venezuela, and the piscicultural activity practiced on it (in right photograph).

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Ellipsaria is posted on the FMCS web site quarterly: around the first of March, June, September, and December. This 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>).

Information for possible inclusion in *Ellipsaria* should be submitted via e-mail to the editor, John Jenkinson, at jjjenkinson@hotmail.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. Please limit the length of informal articles to about one page of text. Note that submissions are not peer-reviewed but are checked for clarity and appropriateness for this freshwater mollusk newsletter. Feel free to contact the editor with questions about possible submissions or transmission concerns.

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Parting Shot

This picture of a displaying female Golden Riffleshell (*Epioblasma aureola*) was sent to U.S. Fish and Wildlife Service Biologist Megan Bradley by Tim Lane, with the Virginia Department of Game and Inland Fisheries (VDGIF). The picture arrived one day in March 2020 when Megan was feeling discouraged about all of the conservation work that she was not going to accomplish this year because of the COVID-19 pandemic. The Golden Riffleshell, a U.S. federal endangered species, has been dangling on the brink of extinction for the last two decades following a toxic spill that instantly killed the majority of its members in the Clinch River in Virginia. Tim's message told Megan that this particular mussel was one she had helped transform on fish at the Aquatic Wildlife Conservation Center (AWCC) in Marion, Virginia, back in 2013. Since then, it has been cared for by numerous biologists and AWCC staff as part of an Ark population for the species. The mussel she helped transform has matured to adulthood, successfully spawned, and produced progeny AWCC staff hope to raise and add to the conservation effort for the species.



The picture reminded Megan that it typically takes a series of small steps, one after another, to produce major accomplishments. As part of the preparations for this issue of *Ellipsaria*, Megan shared this story and her view that disruptions in plans such as those caused the COVID-19 pandemic make us both more resilient and more likely to take the steps necessary to overcome the barriers to our contributions to freshwater mollusk conservation. Photograph by Tim Lane, VDGIF.

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 jjjenkinson@hotmail.com.

