

Pacific Northwest Native Freshwater Mussel Workgroup

Thursday, June 28th from 1:00 to 3:00 Pacific Time

Meeting Agenda

1. Emilie Blevins, Xerces Society— welcome and introductions
2. Emilie Blevins, Xerces Society— completed and upcoming mussel BMP workshops
3. Teal Waterstrat, USFWS— western pearlshell papillae discussion
4. Celeste Searles Mazzacano, CASM Environmental— update on FMCS chapter discussions
5. Emilie Blevins, Xerces Society— FMCS 2021 meeting, next steps
6. Torrey Rodgers, Utah State University— webinar presentation on western freshwater mussel eDNA research

Attendees: Kevin Aitkin, USFWS; Michelle Anderson, University of Montana Western, Emilie Blevins, Xerces Society; Emily Davis, Northwest Indian Fisheries Commission, Beth Glidewell, CTUIR, David Huebert, AECOM, Patty Morrison, USFWS retired; Frank Mullins; Miranda Plumb, USFWS; Jennifer Poirier, USFWS; Torrey Rodgers, Utah State University; Chris Sato, WDFW; Celeste Searles Mazzacano, CASM Environmental; Al Smith, ODFW retired; Evan Smith, Okanagan Nation Alliance; Cynthia Tait, USFS; Teal Waterstrat, USFWS.

Call Notes

1. Welcome
2. Update on completed Workshops: June 6 (Prineville BLM) and June 8 (Mid-Coast Watershed Council). There are additional upcoming workshops: Happy Camp, CA (August 21st), Stayton, OR (August 28th), Jasper, OR (September 5th), near McCall, ID (tentatively September 11/12th). These workshops provide an introduction to western freshwater mussels and the BMP document, *Conserving the Gems of Our Waters*. They are free and open to restoration and biologist professionals. Links to register have been provided via the Google Group list.
3. Teal: 2 notes in *Ellipsaria* on secondary papillae on western pearlshell, differences in structure depending on flow rates—interest in documenting this as we are out looking at mussels? Teal shared the following note after the meeting:

teal_waterstrat@fws.gov

Please read below for an opportunity to add to the growing body of information about secondary papillae on Margaritiferidae.

During research on the comparative anatomy of species assigned to the Margaritiferidae, we observed an unreported anatomical structure on the external mantle of some margaritiferid species (Lopes-Lima et al. submitted). We found papillae on the outside of the mantle adjacent to the incurrent and excurrent apertures in eight species of margaritiferids.-Bogan et al. 2018

attached: Bogan et al. is the first note, Klishko and Bogan is the follow up.

Our group has a large geographic scope and the pearlshells are living in many different habitat conditions which could allow us to greatly improve our understand of when, where, and maybe one day, why these newly described features are present. If you have any high resolution/clear images of pearlshell (or if you see anything on other genera that is interesting) mantles I would be interested in reviewing them.

(Please note this is just to get us started. I will try and formalize the submissions and qualitative data soon). Please sent them to Teal (teal.waterstrat@gmail.com) with the subject of "Mussel Mantle" or post on our [iNaturalist page \(https://www.inaturalist.org/projects/freshwater-mussels-of-the-western-u-s\)](https://www.inaturalist.org/projects/freshwater-mussels-of-the-western-u-s)

If possible please include:

Photo credit:

contact information:

date:

location: (state-province, Basin, watershed)

category of flow*: raging flow, pokey flow/near lentic, stillwater/lentic (fine sediment in/on substrate might help narrow this down....typically we are out looking at mussels around the lower flows of the year.

nearest flow gauge or temperature information (optional, but awesome)

Personal observations or notes that you wish to include:

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Thanks!

F. Teal Waterstrat

4. Celeste: FMCS is still looking into regional chapters and are aware of the PNW mussel workgroup. The following note was included in a recent FMCS email.

“Committee for the formation of Chapters: We are currently in the process of identifying: 1) groups that might want to pursue being a chapter of FMCS, and 2) individuals who would be willing to serve on the ad hoc committee to form the framework for chapter designation. THIS IS YOUR CHANCE TO CONTRIBUTE. Please contact Heidi Dunn at Hdunn@ecoanalysts.com if you are interested in being on the committee and/or your mussel group would be interested in forming a chapter. She and the ad-hoc committee look forward to hearing from you.”

5. Emilie asked about interest in PNW workgroup members to help with organizing a 2021 FMCS meeting in the region. Volunteers included Patty Morrison and Teal Waterstrat. Others are welcome to assist as well. More to come on this.

Celeste announced that on August 6-7, she will be teaching the 2-day PSU class on mussels, an elective in Environmental Professionals program.

6. Torrey Rodgers of Utah State University presented on his work as a research associate conducting work on western freshwater mussel eDNA developments. He shared a presentation in webinar format that discussed the methods involved in eDNA work:

mtDNA is collected and processed using the USFS eDNA protocol. Assays have been designed for western pearlshell, California floater, and Oregon floater, with current work on an assay for the western ridged mussels. qPCR methods are used to pick up a fluorescent signal and can be used to determine the number of DNA copies in a sample to look at relative abundance. Recent work includes publication of a study with Michael Young of the USFS Rocky Mountain Research Station, which had existing bull trout filter samples that were repurposed to look at western pearlshell distribution.

A workgroup member asked if there is a particular time of year when it is best to collect samples. Torrey responded that samples in Utah were collected in spring and fall, and they found that concentration was higher in fall when flows are low (even though after spawning). Perhaps detection has more to do with the concentration of water?

Another workgroup member asked about the cost to run samples and where the funding to do work came from. Torrey responded that some funding came from the USFS, some from Utah state, some from tribes. The approximate cost per sample is about \$75-100 for 24 samples. If multiple species are included in the same sample, this makes it a bit cheaper.

Someone else asked: how far away do you have to be to get a detection? Torrey responded that this is an important area of research that needs more work.

Torrey mentioned an interest in looking for convenient locations to sample both *Anodonta* clades.