



NOTICE OF OPEN MEETING

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MAY 13, 2016 MEETING MINUTES

At this meeting, the following business may be considered and recommended for committee action:

1. Call to order.

Doyle Mosier called the meeting to order at 9:03 a.m.

2. Public comment.

Dianne Wassenich from San Marcos River Foundation presented a new book, The Fountains of St. Mark (Ron Coley), that was just published about the San Marcos system. She also mentioned the Cape's Dam removal project, stating that it would improve habitat for the endangered species and help remove a damaged dam that was dangerous. The City of San Marcos City Council voted in support of the removal. However, protesters have continued lobbying against the dam removal project, including a recent article in the local newspaper calling the City of San Marcos EAHCP staff "environmental terrorists." Wassenich called on the Science Committee to address falsehoods being disseminated about the dam removal project. She qualified her comments that since the EAHCP does not include the dam in its purview, she would understand if the Science Committee members did not feel it would be appropriate to intervene. Wassenich stated it would be a good opportunity to represent the larger scientific consensus concerning the dam, that other scientists support the initiative besides Dr. Thom Hardy, as has been reported in the media. Mosier asked if the City holds the permit for the dam, Dianne answered that given the age of the dam, she doubts whether it is permitted under the City of San Marcos. She added that the USFWS is the entity charged with handling the permitting to remove the dam. Mosier states he will check with TCEQ if they actually have the permits for the dam.

3. Approval of March 11, 2016 Science Committee meeting minutes (Attachment 1).

Conrad Lamon comments, item #12, "Lamon states we could run a model on DO," stated he would correct "we could calibrate a model based on the existing data." The Committee motioned to approve the minutes as amended.

4. Receive report from the Program Manager.

- **Introduction, Dr. Chad Furl, EAHCP Chief Science Officer**

Alicia Reinmund-Martinez introduced Chad Furl to the Science Committee, providing information about his academic and professional background. Chad was welcomed on board.

- **Texas Environmental Excellence Award to City of San Marcos & Texas State University**
Melani Howard and Eric Weeks provided information about the recent TCEQ award to Texas State University and the City of San Marcos for their riparian restoration efforts along the San Marcos River for the EAHCP, which they conducted through a significant amount of volunteer support.
- **Springflow and index well update**
Daniel Large provided a springflow and index well update to the Science Committee. Well levels and spring flows are up significantly in comparison with this time last year; they have also benefited from recent rains in the region.
- **EAHCP Biological and Water Quality Monitoring Program Work Groups**
Reinmund-Martinez presented an overview of the Work Groups and the meetings held. As Work Group members, Mosier commented that the Biological Monitoring Group is helping to simplify the program; Charlie Kreitler commented that the Water Quality Work Group is similarly helping to make that program more efficient as well.
- **Update on the development of Standard Operating Procedures for Comal Springs Riffle Beetle Sampling through the Cotton-lure Work Group**
Bob Hall provided an update on the Comal Springs Riffle Beetle Sampling Standard Operating Procedures Work Group which is designed to help researchers working with the CSRB to standardize the procedures and obtain the same data. He stated multiple individuals participated in the process. A reminder will be sent to the Work Group members to send in their final comments, and then the final draft for the Standard Operating Procedure will be posted for the next Science Committee meeting. Tom Arsuffi asked if any new ideas for standardizing the cotton-lure procedure emerged from the Work Group process; Chad Norris and Hall responded affirmatively, describing some of the procedural issues taken under consideration by the Work Group. These will be reflected in the final report.
- **Update on the Submerged Aquatic Vegetation Analysis & Recommendations Report**
Reinmund-Martinez provided an update concerning the evaluation currently being conducted on methodologies for the submerged aquatic vegetation restoration projects, emphasizing the purpose and expected deliverables from the report—to use the lessons learned in both systems to modify the methodologies, if needed, and to establish a timeline for achieving the Biological Goals between now and 2027. It is expected a final draft of the report will be received next month, at which time the report will be presented to the Science Committee for their review and possible endorsement before it is routed to the Implementing Committee for its approval and adoption of the report and revised Work Plans. Reinmund-Martinez stressed that the City of New Braunfels and City of San Marcos/Texas State University Work Plans were pending upon the results of this study. Arsuffi asked, the Committee has always asked for studies to include consideration of the broader scientific literature—will this review evaluate methods in the context of the broader literature? Reinmund-

Martinez stated that this is one of the intentions of the report—once it is made available, staff will be looking for this. Arsuffi says he feels it will be really helpful for the study; he hasn't looked into it, but he knows the data is there. Melani Howard comments that from the very beginning of the restoration project, literature had been consulted to inform the efforts from the ground-up, led by Robert Doyle and others, and she assumes that the report will take this under consideration as well.

5. Presentation of the current status of the 2016 Applied Research projects.

Weston Nowlin presented on the current 2016 Applied Research Projects, consisting of: (1) long-term elevated temperature and dissolved oxygen; (2) the trophic level, and (3) life history studies on the Comal Springs Riffle Beetle (CSRB). Nowlin explained the elevated temperature study involves tests of different larval instars which are difficult to collect in the field; the life history project headways in larval production will help facilitate providing the needed instars for the elevated temperature project. In the trophic project, analysis of biofilms is getting started, with the team looking at logistical details, such as what primers to use. Under the life history project, Amelia Everett, a technician in Nowlin's lab, discussed the findings on sexing the CSRB. One area emerged as a distinguishing sexual anatomical feature, which was the length of the "sternite" at the tip of the beetles' abdomen—females had, on average, longer measurement of this feature in comparison to males. McLain Worsham, BIO-WEST, also presented on the research and findings. Being able to sex live beetles has helped the mating experiments to be successful in terms of effective pairings, and used as criteria for pairing selections. Nowlin emphasized that prior to this, the only way to sex the beetles had been to dissect them, which prohibited subsequent pairing of beetles for reproduction. Developmental stages were also presented, starting from deposited eggs, embryo development, to the first larval instar, which had never been definitively observed prior to this study. The Science Committee members asked a variety of questions concerning the researchers' findings and their methodologies.

6. Presentation and possible recommendation of the City of New Braunfels (CONB) 2017 Work Plan (Attachment 2).

Shaun Payne provided the Science Committee with an overview of the review and approval process to be followed for the 2017 EAHCP Work Plans. There were no comments or questions from the Science Committee on the process. Mark Enders provided a presentation of the CONB 2017 Work Plan elements for which Science Committee input is solicited, including dissolved oxygen (DO) management. Enders provided an overview of work conducted to date on the DO measure. Norris asked, do you think the areas of aeration are primary habitat? Enders responded no, probably not—Vallisneria thickets represent marginal habitat at best. Contractor comes out once/week to push floating vegetation mats downstream from Landa Lake. Enders asks if the Committee is aware of different sources of existing DO data. Arsuffi recommends consulting a lake model, citing BATHTUB (USACE) to proceed with this evaluation—look at parameters and scenarios to support management decisions. Mosier states, despite average turnover, there is considerable spatial heterogeneity in flow and corresponding oxygenation rates within the lake. Lamon recommended considering larger watershed influences in this analysis—lakes are generally a reflection of their watershed; citing litter and detritus inflows (during storm events), and urbanization impacts as advisable to take under consideration, since we've seen aerators are

not a whole-lake solution. Enders agreed that this would be good to look in to. Enders mentions EAA may begin operating and managing a water quality sonde in the lake to replace the system currently being used. Enders stated CONB would like for the contractor to predict DO concentrations under low-flow conditions and to recommend reasonable mitigation strategies given findings on low-flow DO concentration conditions. No further comments or questions on DO. Enders presented SAV restoration; no comments or questions of note. Enders presented the gill parasite measure; Norris asked if this project would be ongoing in perpetuity or if there were discrete timelines and decision/management points; Enders answered that the study is coming closer to conclusions to inform management decisions. Arsuffi asked about “snail infection prevalence” findings, and whether a correlation between infection prevalence and cercariae concentrations has been observed; Arsuffi concluded on the basis of the graph Enders presented that such a correlation has been observed. Enders presented bank stabilization; Jacquelyn Duke asked if woody or herbaceous species will be replanted; Mark says understory, which resolves Duke’s concerns about over shading the riverbed. Melani Howard offers to have a sit-down with Enders when this occurs, Enders replied that he would appreciate learning from the lessons the City of San Marcos and Texas State University have had with this measure. No further questions. Lamon suggests including calibration/verification in SOW for DO analysis project, given that the prior DO model was not calibrated, limiting the usefulness of that report. Reinmund-Martinez explains that some of the Work Plan elements will be presented to the Science Committee a second time due to possible revisions that will be occasioned by the pending submerged aquatic vegetation methodologies report. Duke motioned to approve the Work Plans as presented, Norris seconds, no opposition, motioned passed.

7. Presentation and possible recommendation of the City of San Marcos/Texas State University (COSM/TXST) 2017 Work Plan (Attachment 3).

Melani Howard provided an update on the City of San Marcos/Texas State University (COSM/TXST) 2017 Work Plan, starting updates on Texas Wild-rice Enhancement and Restoration and Control of Non-native Plant Species Conservation Measures. Norris asked if dam removal will help TWR downstream of IH-35; Howard responded that she is unsure. Glenn Longley recommended holding off efforts downstream until the dam situation is resolved. Jackie Poole asked what data will be used to determine compliance; conversation ensued concerning different actors’ methodologies for measuring TWR areal coverage Howard answered it will be BIO-WEST. Howard further stated that USFWS understands EAHCP is using BIO-WEST data. Arsuffi stated he is curious about strategies selected—from native plants, are we just planting something that will grow, and passing over others that won’t grow to achieve our goals? Howard said that’s part of what the ongoing submerged aquatic vegetation methodologies analysis is about. Arsuffi recommended consulting the literature on community assembly rules for aquatic ecosystems, which he has suggested in the past. A Science Committee member asked, do we know what Fountain Darter density is in Heteranthera? Lamon asked will this require the eco model, wouldn’t it? Eco model would be useful in helping quantify recommendations for new goals. Jackie Poole mentioned she seemed to recall that depth and flow niche overlaps between Heteranthera and Texas Wild-rice, might be some competition. Howard continued her presentation, touching on sediment removal—which has costed close to \$500K, she stated she is not sure it’s worth it, but after 2017, wants to maintain sediment operations using a “lean and mean” contractor given the

reduced budget allocation provided for this measure in future years through 7.1. Kreitler asked to go back over the sediment removal, sounds like it's not working effectively, is it on the table to stop doing this? Norris joined, stating, it was pointless to mitigate sediment in some areas given recurrence of sediment deposition. Wassenich points out that in many respects they have made a lot of progress, island at University Drive done, City Park removal helped clear impenetrable areas of Hydrilla, providing clearance for recreation where previously the channel had been blocked—there has been a huge change. Arsuffi moved to approve the Work Plans as written with the understanding that Texas Wild-rice and Control of Non-native Plant Species measures would return to the Science Committee a second time, pending possible revisions; Longley seconded, no opposition.

8. Presentation of the 2015 Applied Research results: Suspended sediment impacts on Texas Wild-rice & other aquatic plant growth characteristics & aquatic macroinvertebrates study

Reinmund-Martinez informed the Science Committee that the Hardy study was delayed by the October 2015 floods; Hardy was unable to attend this meeting, as not feeling well.

9. Presentation and possible endorsement of the 2017 Applied Research Projects strategy.

Reinmund-Martinez presented the strategy for 2017 Applied Research projects recommended in the Applied Research Work Group Report, as well as providing an overview of the larger review process for applied research.

Lamon expressed concern that, related to the two projects on statistical analysis of existing EAHCP data, the system memory/disturbance ecology project should not be differentiated from species analyses—a thorough species analysis should be tied to system/disturbance dynamics—and analyses that do not acknowledge this linkage will be of limited usefulness. Floyd Weckerly argued that he saw the differentiation as being useful, since they each implicate slightly different focuses.

*Howard suggested expanding the SAV as FD habitat study to look at whether *Heteranthera* competes with TWR. Daniel Large suggested that the existing literature should be consulted with regards to this question. Arsuffi joined that a literature review on existing published data should support a determination being made with respect to the potential for competition.*

*Norris expressed concern that a study on competition related to *Heteranthera* would be very important if restoration activities will begin including this plant. Janis Bush recommended that the restoration teams should hold off on planting *Heteranthera* until this issue is clarified.*

Arsuffi moved to rank statistical analysis of existing EAHCP data on system memory/disturbance ecology as priority #1; statistical analysis of existing EAHCP data on Covered Species as priority #2; and effects of sedimentation on CSRB as priority #3. Janis Bush seconded the motion; the motion passed. Lamon objected to the motion, reiterating that he felt it was counterproductive to separate Covered Species from system analyses.

Norris motioned that if there are remaining funds once the priority three projects are funded, to include a Heteranthera competition study, either as a literature review or a full study, if there are funds remaining. Poole seconded the motion; the motion passed. Lamon stated he abstained from voting in this motion.

10. Presentation and possible recommendation of the Edwards Aquifer Authority (EAA) 2017 Work Plan (Attachment 4).

Hall provided a brief overview of the Work Plan elements being presented to the Science Committee and the process to be followed for review of amended Work Plans at a later date. Mosier motioned to approve the Work Plans as written, pending later presentation of revised Work Plans related to the monitoring programs and applied research, Bush seconded the motion, with no opposition.

Norris asked about the status of the pending contract for the long-term refugia project; Reinmund-Martinez answered that EAHCP is in negotiations with one proposer for a contract, with the goal to have the contract executed by the end of the year.

11. Presentation on the EAHCP Database Management progress, program timeline, and approach.

Jared Morris provided a presentation to the Science Committee updating them on the development of a data management system for the EAHCP, current status, and next steps to be taken in this project. The Science Committee members asked a variety of questions concerning the data management plan; overall, they were receptive of the information presented.

12. Consider future meetings, dates, locations, and agendas. – Science Committee Meeting, June 10, 2016, San Marcos Activity Center (Room 1):

- Final Report of the EAHCP Biological Monitoring Program Work Group
- Final Report of the EAHCP Expanded Water Quality Monitoring Work Group
- Submerged Aquatic Vegetation Analysis & Recommendations Report
- Revised CONB, COSM/TXST, and EAA Work Plans
- Solicitation of Key Elements for the 2017 Applied Research Projects
- Standard Operating Procedure for Sampling the Comal Springs Riffle Beetle

Reinmund-Martinez commented that the June 10 meeting will be cancelled; staff will send out a Doodle survey on Monday. The Science Committee asked that, for scheduling purposes, this survey be sent out as soon as possible.

13. Questions and comments from the public.

None.

14. Adjourn.

12:24 p.m. Mosier adjourned the meeting.