Williamsburg Bird Club

Wednesday, April 17, 2019

W&M Integrated Science Center, Room 1127, 7:00pm

Attendance: 33 No new members or visitors

President's Remarks: President Cheryl Jacobson welcomed the assembly and set the mood with a sound track of the exuberant sounds produced by 300 pairs of Purple Martins on a farm in Illinois.

She noted that Bill Vanzetta, the coordinator of the Purple Martin Project was not present but reported that Bill and Sherry Hancock have been monitoring the martin house at York River State Park and three martins have been showing an interest in it. She asked us to note any martin houses that are in disrepair and to report them to Bill Vanzetta because the club has designated funds for fixing them with the cooperation and permission of the land owners. Cathy Millar reported that one male returned on April 7th and five more arrived on April 16th to her martin house on the corner of S Henry St and Mimosa Dr.

Cheryl shared with us two thank you notes that the club had received from the VSO and Community Cloud Forest Conservation group for our donations to them.

Bird Counts/Walks: Chairperson, Jim Corliss, was absent. Cheryl announced that the Spring Bird Count will be Sunday, April 28th. She encouraged folks who want to participate and are not already on a team to contact Bill by email. Nancy Barnhart reported that the April 13th bird walk at Freedom Park started with light and then progressed to heavy rain. 24 species were noted before thunder cut the walk short.

Field Trips: Field Trip Coordinator George Martin reported the following:

- **Saturday, April 20th:** Great Dismal Swamp with leader, Bob Ake. Starting time is 7:30 am at the Jericho Ditch parking lot. Those who wish to carpool should meet at Colony Square Shopping Center for a 6:15 am departure.
- **Saturday, May 18th:** Surveying VABBA2 priority blocks in the Emporia area for which our club is responsible. George had sent out an email asking who would like to participate. Now he needs to know who is ready to commit so teams can be formed. The teams will consist of 2-3 people per car. It is a one to two hour drive to get to the priority blocks followed by at least two to three hours surveying. There are currently 4 teams with leaders Nancy Barnhart, Bill Williams, Cheryl Jacobson and Rexanne Bruno. Each team would cover a separate priority block. More info to follow.

Refreshments: Chairperson, Cathy Flanagan, reported that the treats were provided by Geoff Giles and Cathy Flanagan. The highlight was a cake to welcome Cheryl back after major surgery. Cheryl expressed her gratitude for all the support she's been getting during her recovery.

The Flyer: Chairperson, Melinda Cousins, reported that the due date for contributions to the newsletter is always the last Sunday of the month. This will be the last newsletter for the next three months. She

hopes to receive photos and articles about the Great Dismal Swamp field trip. Cheryl noted the excellence of the newsletters and expressed appreciation for the time Melinda puts into it.

Programs: Judy Jones, VP (Programs) reported on the following:

- **May 15th**: Bill Williams will report on the birds he saw on a recent trip to Guyana.
- **September 18th:** Chance Hines of the Center for Conservation Biology will talk about the feeding habits of migratory warblers in the autumn.
- **October 16th:** John Swaddle will give us an update on his 'acoustic lighthouse' project that prevents bird strikes.
- **November 20th:** Hoping to schedule Brian Taber to speak about the Coastal Virginia Wildlife Observatory which is celebrating its 25th anniversary.
- **December:** no meeting
- **January 15th:** Bob Schammerhorn will give a presentation about Alaska and its birds.

Program: Judy Jones, VP (Programs) turned the program over to Dan Cristol who introduced the three 2018 Ornithology research grant recipients who work with Dr. Cristol and Dr. Swaddle. Dan reported that the grants from our club combined with other grants have supported a lot of research and the publication of many research papers over the years.

The first master's student, Rachael Davis, was unable to attend as she was at North Dakota State University processing her samples in a lab. Rachael produced a PowerPoint for the meeting to present her research titled "The Impacts of Mercury Exposure on Cell Aging, as Measured by Telomere Length, in Zebra Finches". She explained that telomeres are protective caps on the ends of chromosomal DNA to protect coding sequences. They are important biomarkers of aging as they shorten as we age. Critically short telomeres result in abnormal tissue function. Her research is to test if the persistent pollutant mercury that is increasing in our environment may be causing telomeres to shorten faster and hasten aging. She is focusing on (1) Does lifetime mercury exposure impact telomere shortening in specific tissues at critical developmental age points? (2) Do these effects vary among different tissue types such as those that act as filters? (3) Within individual birds, are telomere lengths across these tissues correlated? (4) Can telomere loss be expected at an early age? She worked with zebra finches exposed to historically recorded levels of mercury and non-exposed finches. She tested blood and tissues (brain, kidney, heart and liver) from eggs that they laid; then as hatchlings at day 6; fledglings at day 18; independent from parents at day 35 and sexually mature at day 90. She is tracking telomere loss throughout the bird's lifetime. The finches are individually marked as they are allowed to fly freely around a room and choose their mates and nest boxes. She is expecting an acceleration of telomere length shortening in mercury-contaminated birds. Her research requires very sophisticated equipment and is ongoing. The research is relevant, as levels of mercury in our environment are increasing, and this has the potential to affect every organism whether on land or water. The study of telomeres is a very young field.

Dan introduced the second master's student, Jasmine Parham, whose research is titled: "The Dietary Transfer of Methylmercury in the South River Floodplain." Jasmine will be pursuing her PhD at Duke University where she will continue her research on mercury pollution possibly in the Amazon.

Jasmine reviewed how mercury was used by Du Pont in Waynesboro as a catalyst in synthetic fiber production between 1929 and 1950. Strict storage and disposal regulations were nonexistent. In the 1970s serious mercury contamination of the South River, a head water tributary of the Shenandoah River, was discovered from Waynesboro to Front Royal. Fish still have mercury levels extremely elevated above safety guidelines. She is studying why birds like wrens that are not eating insects or fish near the river but are living further out in the plain that occasionally is contaminated by floods. She noted that spiders comprise 30% of the breeding birds' diet and deliver 70% of the mercury to those birds. Most of the previous studies have been about web building spiders that build their webs over water. Jasmine is studying wolf spiders that are ground dwelling with no webs and form a large proportion of spider ingestion by birds. They are large insects that can live 3 years or more and will eat anything smaller than them. She is interested in finding how as terrestrial spiders they are getting the mercury. Are they eating more aquatic insects contaminated directly from the river or terrestrial insects contaminated by mercury deposits in the flood plain? She is using a technique called stable isotope analysis which traces the flow of nutrients through the food web and can inform her as to whether the spiders have eaten food with an aquatic or terrestrial isotope signature. She collected wolf spiders 100 meters from the river.(Dan later added that contaminated spiders have been identified 3-400 meters from the river). She also collected terrestrial as well as aquatic plants and insects to see where they fall on the food chain so she can map them on a graph and get a good picture of the whole entire invertebrate food web. She has precise GPS coordinates of each sample so she can see the impact of distance from the river. She is now awaiting the mercury and isotope analysis reports. The resulting data will inform any recovery efforts on the South River, as funds have been allocated for cleaning the river, but her research may show that the contaminated flood plain is also a problem. Her studies will also show how pollutants move through ecosystems as there are many contaminated rivers worldwide.

Dan introduced the third grant recipient, Robert Galvin, whose research is titled: "Comparing Wading Bird Use between 'Living Shoreline' Restoration Projects and Natural Marshes". Bob is interested in what the differences are, if any, of bird use between living shorelines and natural fringing marshes. He noted that sea level rise in the Chesapeake Bay is having a large impact, as it is about twice as high as the global average. Land owners are reporting up to a foot of loss of shoreline per year from erosion. This has stimulated efforts to study ways to protect people's property while integrating protection of natural ecosystems. Bob described natural fringing marshes as narrow bands of vegetation along the coastline that are nurseries for fish and crabs and many smaller life-forms, and that birds use for feeding and shelter. This is a habitat that has received very little study. They protect from erosion and can even trap sediment, providing further protection. Where natural fringing marshes are gone, the typical solution has been to armor shorelines with impermeable structures like concrete that reduce wave action but do not provide habitat and long term land value to the owners. The 'living shoreline' is a management approach that mimics the function of a natural fringe marsh. They take a variety of forms. The type that Bob has been monitoring has a slightly offshore rock sill that deflects wave energy and that is back filled with sand and marsh vegetation. They are gaining in popularity but there have been limited studies of how they compare with natural fringing marshes. He has been monitoring 13 pairs of living shoreline and a nearby fringe marsh that both have a similar level of wave action in both urban and rural areas. He has been setting up 25 GoPros to get video footage of the types of birds using them and what they are doing. This summer will be the second of the planned two years of sampling. To date

he has documented 5 species: Great Egret, Great Blue Heron, Green Heron, Spotted Sandpiper and Yellow-crowned Night Heron. The data so far suggests that smaller birds are more abundant and spending more time at 'living shorelines' which aligns with his hypothesis that the rock sill might support the presence of more prey items for birds. He's also using audio recorders to identify what birds are around the marsh that may not be directly using it. Bob's research will help determine whether or not 'living shorelines' are a viable alternative or whether more needs to be done to integrate the biological side of management.

Their presentations were followed by a question and answer session. All three students expressed their gratitude to our club for the financial support from our grants.

Virginia Society of Ornithology Annual Meeting: Rexanne Bruno reported that there are very few rooms still available at Mountain Lake Lodge for this May 3rd and 4th. High elevation migrants are a highlight of birding in the area. That segued to our hosting next year's VSO Annual Meeting here in Williamsburg May 1-3rd. She reported that the committee has selected a place and speaker. Decisions will soon be made about banquet food so we can determine ticket prices. Help will be needed for manning registration tables and leading field trips.

Cheryl ended the meeting with an installment of more alternatives to the use of single-use plastics and showed us a new product she's been trying. Rather than using and discarding plastic detergent bottles, she's been using a product called Dropps which are pods of laundry detergent that within one week of use are changed to carbon dioxide and water by microorganisms and is completely non-polluting in the river. She included some in the raffle.

At the end of the meeting a free raffle was held.

Cheryl Jacobson adjourned the meeting at 8:40 pm.

Respectfully submitted,
Cathy Millar, Secretary Williamsburg Bird Club,
April 27, 2019