

Williamsburg Bird Club

Wednesday, April 21, 2021

Conducted via Zoom; Invited by Dean Shostak and presided by Cheryl Jacobson, 7pm

Attendance: 50

Program – Ornithology Grant Recipients: Dan Cristol introduced the four 2020 WBC Ornithology Grant Recipients who delivered their PowerPoint presentations via Zoom.

It's always inspiring to hear details of the latest research that our membership-supported ornithology grants help fund. It's also an opportunity for these budding scientists to practice engaging the understanding of the public in their work. Dr Dan Cristol noted that, usually within a year or two, their research is published for access by other scientists. The studies presented to us this year built upon the research of previous students from Dr. John Swaddle's team exploring how to prevent birds striking manmade structures and Dr. Dan Cristol's team on the effect of mercury poisoning in birds. All four experiments were conducted using Zebra Finches, which are native to Australia, in W&M's aviary and flight tunnel. Dan complimented the students finishing their studies in time despite the handicap of a tremendous amount of coordination required to avoid in-person contact due to Covid precautions.

Graduate student, Robin Thady, began by stating that every year, as many as one billion birds die from striking manmade structures. Most birds are vulnerable due to their eyes being widely spaced on the sides of their head so they are looking down and to the side when flying in a normal horizontal position which leaves a big blind spot directly in front of them. Also, these structures are only a tiny part of their long evolutionary history resulting in a lack of wariness. Investigating how birds perceive sound, Robin researched identifying which sound attributes make the most effective warning signals to avoid collisions. She tested two different frequency levels and two different oscillation patterns on 19 Zebra Finches resulting in hundreds of hours of videos in which she was able to identify each bird's velocity, how close it came to an obstacle, and when it changed course. She found that higher frequency sounds that oscillate in pitch were the most easily detectable from background noise, and that specifically a 4-6 kilohertz oscillating signal most consistently elicited avoidance behavior. She finished by noting that although human innovation has been a source of conflict with wildlife, it can also be used to devise solutions.

Graduate student, Lauren Emerson, explored a different aspect of the same problem: bird-window collisions and daytime lighting conditions as a risk factor. She noted that warblers, thrushes and sparrows are especially susceptible to window strikes. Her research focused on using two window treatments: one reflective and the other with reflectiveness dulled and how they were perceived by the finches in morning and afternoon light conditions. Mist nets were set in front of the windows to prevent actual injury. The finches collided more with the reflective window in the morning light, but to her surprise, they clearly collided more with the nonreflective window in the afternoon. This result may reflect birds' ability to see the ultraviolet portion of the spectrum or be related to polarization of light. There is no clear reason for this result and it will need further investigation. Not much is known about bird vision. Lauren concluded by listing what we can do to avoid window strikes: (1) Putting interior home lights on in the morning and off in the afternoon; (2) Applying window films; (3) Moving bird feeders closer to windows (about 3 feet) so that they see there is a window, and if startled, won't fly at the window at full speed; (4) Put a dazed victim in a shoebox and, when recovered, release it away from

windows, or if more injured take to a wildlife rehabilitator; and (5) Spread the word about the severity of this threat to birds.

Graduate student, Casey McLaughlin, studied what happened to finches who were fed a nonlethal dose of mercury and then exposed to an additional environmental threat to see how mercury effected the birds ability to respond. A lot is understood about how birds associated with a mercury polluted aquatic environment are impacted, but recently it's been found that songbirds which are not directly linked to the aquatic system are also being impacted. Sustained nonlethal levels of mercury have been found in a wide range of songbirds including Eastern Bluebirds, Tree Swallows, Carolina Wrens and Rusty Blackbirds. Casey divided the finches into four groups: (1) a control group that were not manipulated in any form; (2) a group that were given food at unpredictable times which mimicked the stress birds might experience in finding food in winter; (3) a group fed a level of mercury that was not enough to cause visual impairment and mimicked the level found in wild populations; and (4) a group that was fed the mercury diet and submitted to chronic food insecurity. The group that was submitted to both mercury and food stress showed significantly higher levels of stress hormone in their blood then the group who were exposed to only mercury, which, in turn, showed more stress hormone than the group exposed only to food limitations. There was also evidence that the response to immediate danger of the finches exposed to both stresses might have been suppressed, but further study is needed. Casey related the challenge of collecting blood samples for stress hormone baseline studies that required netting a free-flight bird, getting the needle, and taking the sample within three minutes of entering the enclosure! The finches also had distinct personalities with some being more compliant and others that were stubborn and escape artists.

Undergraduate, Jasmine Whelan, who is a junior, addressed a question that arose from Casey's work: the effect of mercury on feather quality. The feathers on the same four groups of finches in Casey's experiment were studied. She sampled 112 feathers by plucking the first primary on each wing and then the regrown feather 25 days later. She examined the color, wherein lower brightness might indicate the feather being less structurally sound, making flight more difficult, and the growth rate. A lower growth rate could imply lower ability to deal with stress. The feathers of the finches that endured both food and mercury stress were significantly less bright than those of the control group. There wasn't a significant difference in the growth rate between the four groups.

All four students and Dan Cristol were effusive in expressing their gratitude for our club's continued interest and support. The sophistication of their research is impressive and this is only an outline. For more details, the full program is available until our May meeting via the following link:

https://us02web.zoom.us/rec/share/isOF1LPHvIng534gOI738I5RwlBow2Uquuh-jBK7V5m3jdJOyzSMXrJwT2x03EeT.aGx4gxhbY1q4xx_I Passcode: HCMe=u\$9

President's Remarks: President Cheryl Jacobson welcomed everyone. She reported that another bird club had seen on our website that we give grants for ornithology research by W&M graduate and undergraduate students and that they want to do so as well. Cheryl has put them in touch with Dan Cristol.

She also noted, with pleasure, that bird walks and field trips have resumed.

She alerted the membership to monitor their emails for information from the club since we will not be meeting in June and July.

Field Trips – George Martin: Committee Chairperson: George reported that there were 16 WBC members that attended the field trip led by Dave Youker at Newport News Park, April 17th, and that 51 species were observed, including first-of-the-season warblers.

George has sent the membership an email to research interest in a field trip to a local AWARE wildlife rehabilitation site for birds as a possible May field trip.

Cheryl added that, due to Covid restrictions, field trips that are closer to home are being planned where there is adequate parking so carpooling won't be needed.

Bird Walks – Scott Hemler: Scott, NQP bird walk leader, noted that there was a maximum turnout within Covid restrictions for the March NQP bird walk and that 30+ species were observed.

Next NQP bird walk will be Saturday, April 24th at 8am. There still is space for participants. Please notify Cathy Flanagan if interested.

Programs – Dean Shostak: Co- Vice President: Dean reported that our May 19th membership meeting will feature Dr Amanda Gallinat who will speak about climate change and its effect on food for migrating birds in the autumn.

Spring Bird Count – Jim Corliss: Bird Counts Chairperson: Jim was not present so Cheryl Jacobson reported that this year's Spring Bird Count is May 2nd. She asked that folks, who want to be involved and are not already enrolled in a sector, email Jim. Because this bird count was created by the WBC, Covid protocol (social distancing, wearing masks, etc.) determined by the board of directors will be followed. There will be no meeting to compile data. But since many members are now vaccinated, carpooling will be allowed but limited to small groups where the driver and passengers are mutually comfortable. For the Christmas Bird Count, participant eBird check lists were shared directly with Jim, putting it on his account. For this count, he has requested that folks email their eBird checklist to him. The list will therefore be in taxonomic order making it easier for Jim to compile. Cathy Flanagan will be working with feeder watchers.

The Flyer – Mary Ellen Hodges: Vice President, Editor: Mary Ellen reported that the deadline for submissions to the next newsletter is April 28th. She hopes there will be pictures of spring migrants.

Purple Martin Project: Cheryl reported that we continue to wait for purple martins to show up at the four WBC sponsored martin gourd houses. Purple Martins have been arriving in our area.

Cheryl adjourned the meeting at 8:32 pm

Respectfully submitted,

Cathy Millar, Secretary

Williamsburg Bird Club

April 25, 2021