



Wetlands Working Group

The Wildlife Society

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A New Year, New Decade, New Distance

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Howdy Wetlands Working Group! As I write this, I'm working from home like many of you likely are as well. For all the "Vision 2020" plans that various institutions had, I'm not sure any had envisioned what our spring of 2020 would actually look like as we all deal with COVID-19. For many of you, your field work may have been postponed or canceled. I hope first and foremost that you are able to stay healthy and then can redeem the time with new rhythms and habits as you work from a distance. Perhaps you'll take some time to read through this newsletter and be encouraged with the good work that continues when reading our feature article from Casey Setash on the importance of "working lands" for breeding waterfowl in the North Platte Basin in Colorado. In an ecosystem where water is the life-blood of the landscape, Casey's PhD work is evaluating how flood-irrigation practices for hay production may benefit both agricultural producers and nesting waterfowl. Be sure to read this great article!

Also, pay attention to our call for Vice-Chair and Treasury/Secretary position nominations as we gear up to elect new officers at the 2020 national conference, the week of September 27th, in Louisville, KY. Get your nominations in by May 31st! We are offering another invitation for student travel awards this year so be mindful of the same application deadline. See page 8 of the newsletter for more information!

We added a special feature in this newsletter! John Stanard, a long-time friend of Leigh Fredrickson and former co-owner/editor of a local Missouri newspaper, contributed an article about Leigh's keynote address at last year's AFS-TWS Annual Conference in Reno, NV. Also, be sure to read Leigh's article in the [March 2020 issue of the Wildlife Society Bulletin](#).

Finally, there's been quite a bit of interesting news articles involving wetlands. Be sure to view the "Wetlands in the News" section for informative reads. If you are interested in contributing articles or photos to the WWG newsletter, please contact Adonia at adoniarhenry@gmail.com. We'd love to highlight and share the great work by our WWG members.

Drew Fowler, WWG Chair



TWS Annual Conference
27 Sept. - 1 Oct. 2020

Visit the Conference Website for Updates
<https://wildlife.org/2020-conference/>

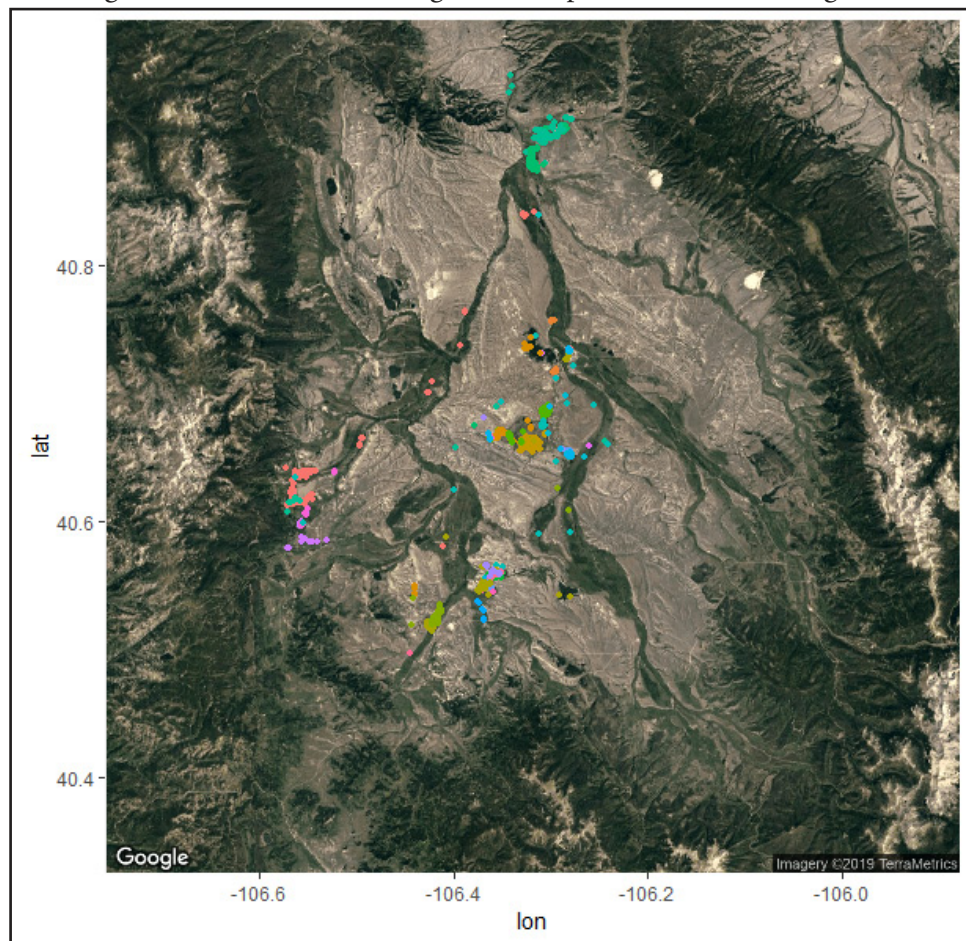
Cover Photos: A flood-irrigated hay meadow within the North Platte Basin, Colorado, by Casey Setash (top); Wilson's Snipe, by Bettina Arrigoni (left).

Flood-Irrigation of Working Lands for Breeding Waterfowl in Colorado

by Casey Setash, PhD Student, Colorado State University

Both agricultural production and the sustainable management of waterfowl populations across the western United States inherently depend on limited water availability. Both endeavors are increasingly challenged by urban municipal demands for water, drought, and change in the seasonality of precipitation (Johnson et al. 2005). Healthy wetlands for wildlife can be sustained in conjunction with the needs of agricultural producers on working lands (Blevins 2015), but the multifaceted importance of water management is rarely quantified (Petrie et al. 2013). Information pertaining to the multiple benefits of water management practices can bring to light the larger societal importance of sound water management, thereby allowing natural resource managers to allocate resources more efficiently and effectively by directing them towards the practices with demonstrated advantages for both wildlife and agricultural producers.

The North Platte Basin (NPB) in north-central Colorado is a model system to evaluate benefits and trade-offs of hydrological manipulations that benefit agricultural producers, fish and wildlife, and possibly both simultaneously. Reminiscent of agricultural practices that were common 50-100 years ago, the NPB is one of the last remaining agricultural regions where producers do not use center-pivot irrigation, which has drastic effects on hydrological regimes, water tables, wetlands, and stream flows. Cereal grain agriculture has not replaced hay production, and the haylands are irrigated via flood irrigation. Although flood irrigation may lead to somewhat more evapotranspiration of water than center-pivot sprinklers (Brown 2008, Eldeiry et al. 2015, Lu et al. 2017), it more closely resembles natural stream and river flood regimes and is thought to be more beneficial for wildlife, water table recharge, cooling of return flow water, and has numerous other



Locations of 21 mallard (*Anas platyrhynchos*) and gadwall (*Mareca strepera*) hens from April to August 2019. GPS transmitter placement occurred opportunistically throughout the breeding season, so location data collection ranged from 16 to 68 days across individuals.

ecosystem benefits such as protection against encroachment by invasive plant species. Most important for the agricultural producer, flood irrigation could significantly enhance the quality and quantity of forage production for livestock while maintaining sustainable levels of soil moisture through drought years (Wallace 2000, Brown 2008).

The NPB serves as a truly unique venue for manipulating flood irrigation infrastructure and delivery to examine the relative benefits and trade-offs for waterfowl, agricultural production, and other ecosystem services within and across drainages. Approximately 84% of all wetland habitats in the NPB are privately owned, a majority of which are irrigated pastures and hayfields (Lemly and Gilligan 2012). Private organizations such as Ducks Unlimited have established partnerships with many landowners in the NPB and are continuing

Continued on page 3

Flood-Irrigation for Breeding Waterfowl (continued from page 2)

conservation initiatives focused on refurbishing irrigation infrastructure to benefit both waterfowl and agricultural producers. Without testing the efficacy of such initiatives, it is impossible to evaluate the benefits of such investments that could inspire larger-scale initiatives aimed at sustaining agricultural ways of life, food and fiber production, plus waterfowl populations.

In 2019, in collaboration with the North Platte Basin Roundtable, NPB landowners, Colorado Parks and Wildlife, and Ducks Unlimited, we began evaluating methods of water allocation in a model ecosystem that can be applied to the remainder of the Intermountain



Mallard hen with a newly-placed GPS transmitter used to determine nest locations, habitat use, and movement patterns across flood-irrigated ranches. Photo by C. Setash.

West. Specifically, we are assessing the efficacy of irrigation infrastructure improvements conducted by Ducks Unlimited on private ranches in terms of the use and productivity of breeding waterfowl. These improvements range from simple drought mitigation (i.e., a water delivery backup plan in the event of a drought) to entirely new ditch systems that convert land to wet meadows. We are conducting a before-after-control-impact (BACI) study to test their success, which involves conducting waterfowl surveys in each habitat type associated with these projects (e.g., riparian areas, wet meadows, pre-converted sagebrush) as well as control sites both before and after project implementation. Our primary measures of productivity include nest survival, nest density, and brood survival of all breeding duck species. We are also evaluating changes in invertebrate biodiversity resulting from irrigation projects.



Gadwall ducklings in nest. Photo by Sarah Peterson, USGS.

In the first pre-treatment year (2019), we searched 17 randomly selected plots across four ranches and Arapahoe National Wildlife Refuge within areas that were going to be impacted by irrigation projects and 29 in control areas. Plots ranged from 1.31-16.42 hectares and we rope dragged on foot, searched systematically, or used a drone to locate duck nests. We also collected nektonic invertebrate samples in each flooded hay plot, pond, or riparian area searched using a D-net pulled horizontally through five randomly-selected one square meter sections of the water column from the substrate to the surface. In addition, we decoy trapped during the early part of the breeding season to place GPS transmitters on mallard hens before they nested. We are primarily interested in their movement patterns across the North Platte Basin and how irrigated lands impact those movements for birds with and without broods. We placed 10 transmitters on hens before nesting began or during incubation and 11 transmitters on birds with broods during banding operations in August. We located 26 nests across all plots, 7 of which were successful. All data are undergoing preliminary analyses and data collection for this project will continue through 2021. We will continue to locate nests, monitor broods, and sample invertebrates across habitat types in order to determine the most effective ways to manage water for agricultural producers and breeding waterfowl. This information will be summarized to create a set of best management practices for landowners and land managers throughout the region. *See literature cited on page 8.*



Taking an invertebrate sample in a basin wetland to determine differences in invertebrate abundance and species richness across treatment and wetland types. Photo by Melissa Marshall.

OFFICER ELECTION: CALL FOR NOMINATIONS

Want to join a fun team to advance the mission of the Wetlands Working Group?

The Wetlands Working Group (WWG) of the Wildlife Society is seeking nominations for positions of Vice-Chair and Secretary/Treasurer. The Vice-Chair will serve as such for the 2020-2021 term, succeed to Chair for 2021-2022, and then become Past Chair for the 2022-2023 term; a total service period of 3 years. The position of Secretary/Treasurer is a 2-year commitment that will span from 2020 to 2022. New terms begin following the election held at the WWG annual membership meeting during the TWS Annual Conference.

Officers develop content for the biannual newsletter, assist with organizing symposia, identify social media content applicable to the WWG's mission, and participate in other activities as needed to increase communication about wetland and wildlife-related issues among WWG members. Board Meetings are once a month by conference call (1 hour), so you can participate from anywhere! Including monthly meetings, time commitments average 2-4 hours/month for Vice-Chair, Past Chair, and Secretary/Treasurer, and 4-8 hours/month for Chair.

The duties are outlined in the WWG Charter, and are summarized as follows:

VICE-CHAIR — The Chair-elect serves as the Vice-Chair and assume the duties of the Chair in the absence of the Chair and performs other duties as needed. Upon completion of a full term as Chair-elect, the Chair-elect succeeds to the position of Chair. The Chair is responsible for running all meetings of the Executive Board and membership. The Chair may represent the WWG or appoint alternate representatives to other Working Group, Chapter, Section, or Society boards, committees, or meetings, including The Wildlife Society Council. Upon completion of a full term as Chair, the Chair succeeds to the position of immediate Past Chair. In total, this is a 3-year term.

SECRETARY/TREASURER — The Secretary/Treasurer is responsible for maintaining the files, records, and funds of the WWG. Duties include recording the minutes of all meetings; receiving and dispersing funds; preparing and submitting an annual fiscal-year report and annual budget. This is a 2-year term.

Consider nominating yourself or a colleague who is committed to wetland conservation!

New and existing members are welcome to run for board positions.

Please submit all nominations to the Nominations Committee Chair, Drew Fowler via email, drew.fowler@wisconsin.gov by May 31, 2020.

Nominations should include name, contact information, and a brief bio.



Vernal pool, Sacramento National Wildlife Refuge. Photo by Adonia Henry.

Wetlands in the News

House passes

North American Wetlands Conservation Extension Act.

Flooded House Lots:

Forests, wetlands, or parks?

Chesapeake Bay

gets a \$12 million boost!

The National Aquarium

to create Floating Wetlands.

Preserved pollen

tells the history of floodplains.

New on-line tool

to optimize conservation of iconic river.

Climate Change: Methane pulse

detected from South Sudan wetlands.

Bringing the world's buried

wetlands back from the dead.

A mini-Mississippi River

may help save Louisiana's vanishing coast.

The magnificent and shrinking

Everglades:

a 'River of Grass'.

Unprecedented fires

ravage Brazil's Pantanal Wetlands.

New Publication

The influence of water depth on energy availability for ducks.

<https://wildlife.onlinelibrary.wiley.com/doi/abs/10.1002/jwmg.21811>

Click on the [light blue](#) hyperlinked text above for links to the original articles.

Honored Wetland Conservationist Addresses National Convention

by John Stanard, Former Daily American Republic co-owner/editor and outdoors columnist

Leigh Fredrickson giving 2019 Keynote Address.



A southeast Missouri man who was awarded America's most prestigious wildlife conservation honor was the keynote speaker at the 2019 joint convention of The Wildlife Society and the American Fisheries Society.

Dr. Leigh Fredrickson, a renowned wetland ecologist and retired University of Missouri professor, received the coveted Aldo Leopold Memorial Award.

That honor earned Fredrickson the keynoter slot at the last year's annual convention in Reno, Nev.

Fredrickson, 81, the long-time director of the Gaylord Memorial Wildlife Laboratory on the Duck Creek Conservation Area north of Puxico, MO, focused his remarks on the importance of biologists "seeing the big picture" and being aware of the total environment around them even though they may be concentrating on one particular site or species. Gaylord Laboratory was a joint venture of the University of Missouri-Columbia and the Missouri Department of Conservation.

"Hard work and patience, while focusing on the total environment on an annual basis," will produce the greatest results, Fredrickson said. The convention, attended by more than 4,000 of the nation's wildlife and fisheries biologists, was the first joint meeting of the two major organizations.

Famed biologist Aldo Leopold, namesake of Fredrickson's award, is considered to be the "father" of modern, science-based wildlife conservation. His son, Starker Leopold, was a key figure in developing Missouri's landmark Design for Conservation plan, which was implemented by the Missouri Department of Conservation after the state's citizens adopted the one-eighth-cent conservation sales tax in the 1970s.

Fredrickson, a native of Sioux City, Iowa, earned undergraduate, master's

and doctoral degrees from Iowa State University. Working summers in a meat-packing plant in his home town to help finance his college expenses, Fredrickson always has valued the role of ordinary citizens in appreciating and advocating conservation of natural resources.

"I had wonderful outdoor mentors as a child growing up in modest circumstances in rural Iowa," Fredrickson told the hundreds of conservation professionals attending his lecture. "Those folks included my parents, other older relatives, neighbors and family friends, who turned me on to the natural world.

"I continued to come in contact with great mentors in college and after I began my professional career at Gaylord Lab," Fredrickson said. During his tenure as director of the research facility (1967-2002), Fredrickson taught and mentored nearly 80 graduate student research projects that resulted in nearly 300 scientific publications on wetland and waterfowl science.

The lab, which was closed by the University for budgetary reasons in 2007 after Fredrickson's retirement, was a major training ground for wetland professionals. Many of those people rose to high-level positions in state and federal agencies, universities and private conservation organizations such as Ducks Unlimited. The list of former graduate students and associates trained by Fredrickson reads like a



Key mentors who helped shape Leigh's conservation vision (left to right, top row – Milton W. Weller; Paul L. Errington, Lucille F. Stickel, and Frank C. Bellrose; bottom row – Thomas S. Baskett, John P. Rogers, Ralph S. Palmer, and Leroy J. Korschgen). Photos courtesy of Leigh Fredrickson.

Honored Wetland Conservationist (continued from page 5)

Who's Who among today's professional waterfowl and wetland managers. Many of his students are themselves now retired.

Considered one of North America's leading authorities on wetland management, Fredrickson's work has taken him to more than 300 national wildlife refuges in all 50 states and several foreign countries, literally from the Arctic to Antarctica.

Known among some of his closest friends as "the blue collar scientist," the conservationist told the Reno convention audience that "the refuge employee who drives the heavy equipment on the land, or the old-timer who has hunted and fished the area all his life often are as knowledgeable as the area managers. Pay attention to what those people can tell you.

"I was especially fortunate to have been mentored by the best of the best during my college and early professional experiences. To receive the Aldo Leopold Award is a wonderful capstone to my life-long efforts to recognize and promote the importance of all intellects involved in land management, from the individuals who run the machinery and manipulate water control structures all the way up the chain to the top professionals in state and federal agencies. Many of those unrecognized lower-level workers are my heroes."

Notable among the research accomplishments emanating from Gaylord Lab were advances in "moist soil" management, where native plants and accompanying invertebrates provide waterfowl food; proper management of flooded bottomland hardwood trees on areas called "green tree reservoirs;" breeding ecology of native, cavity-nesting wood ducks and hooded mergansers; and wintering nutrition and habitat for waterfowl.

Over his career, Fredrickson traveled widely to inspect wetlands in different ecosystems on both private, state and federal lands, encountering "the very best and very worst land managers" along the way.

"I learned the repercussions about being bluntly honest about management. I was barred from one (multi-state) U.S. Fish and Wildlife Service region for a decade and occasionally from individual refuges

for being honest when my patience ran out with misdirected management," Fredrickson says proudly, muttering as an afterthought: "like trying to make water run uphill."

Among Fredrickson's "most satisfying successes" have been research he has conducted and directed concerning avian energetics (nutrition issues) in migratory waterfowl and other species and in



Key land management professionals who have shown great talent that enriched Leigh's wetland experiences and influenced his thinking (left to right, top row – Chadd Smith, John Taylor, and Regina DelloRusso; middle row – Dennis Vicente, Megan Goyette, Michael Silbernagle, and Nicole Walker; bottom row – T.J. Cooper, Ivan Archer, Jena Moon, and Jody Pagan). Photos courtesy of Leigh Fredrickson.

maintaining the nation's longest ongoing study (since 1962) of box-nesting wood ducks and hooded mergansers in the Mingo Swamp basin.

"The energetics work we began with breeding wood ducks started a continental wave of (similar) investigations," Fredrickson recalls. "This was important to me because it enabled land managers to understand what foods were needed at various points in the annual life cycle."

"This information on energetics was foundational in identifying and understanding cross-seasonal effects for large-bodied migratory birds (such as waterfowl

Honored Wetland Conservationist (continued from page 6)

and shore birds),” the wetland ecologist explained. For example, scientists now know that “puddle ducks,” such as mallards and pintails, require a diet of aquatic invertebrate animals such as beetles and snails during the spring migration to ensure success in laying viable eggs on their return to the nesting grounds in the north.

In the book *Waterfowl Hunting and Wetland Conservation in Missouri: a Model of Collaboration*, published in 2014 by the Missouri Conservation Heritage Foundation, Fredrickson’s former student, Dr. Mickey E. Heitmeyer, who lives near Greenbriar in Bollinger County, said of his mentor: “He created a legacy of excellence in student training, quality research, professional education, and bridging the gap between hard science and applied wetland/waterfowl management.”

That book was dedicated to Dr. Fredrickson and three other notable Missouri waterfowl management pioneers: Ted Shanks, Mike Milonski and Dick Vaught.

Fredrickson’s earliest recollection of the outdoors was accompanying his father, a cooper, near his home town on the Missouri River to collect the cattail leaves he used as a sealant between the staves of his barrels. That, and other similar childhood experiences, eventually stimulated a strong interest in a profession involving an outdoor setting.

As a freshman engineering student at Iowa State University, a professor screened a film produced by a major oil company that showed bulldozers shoving down giant cypress trees.

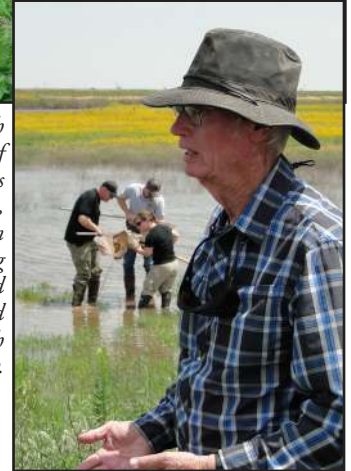
“I left that engineering class, went to my advisor and switched my major to the Fish and Wildlife Management curriculum, which I had just heard about. I never regretted that decision and never looked back. Instead, I was determined to fight the ideology pushed by Shell Oil Co. for the rest of my life,” the scientist recalls.

Later, as a graduate student at Iowa State University, Fredrickson connected with Professor Milton Weller, a marsh and wetland expert who would become an admired and cherished mentor of Dr. Fredrickson over the rest of his long career.

“As director of the Gaylord Lab, I tried to pass on



Leigh Fredrickson and Keith Cordell, Missouri Department of Conservation, monitoring nest boxes at Duck Creek Conservaiton Area, Puxico, MO (top); Leigh Fredrickson with workshop participants sampling aquatic invertebrates (right) and examining characteristics of wetland soil (bottom). Photos courtesy of Leigh Fredrickson and Adonia Henry.



what I call the Weller tradition for students and land managers across the nation, in combination with the Missouri Model for (scientific) Conservation,” Fredrickson says. “I used Weller’s principles that served me so well. They included education by example, attention to quality and detail, embracing a wide spectrum of intellects and talents, a healthy skepticism about professional societies, tolerance for other perspectives, patience for the naïve, and a great sense of humor.”

After retiring, and despite various health challenges, Fredrickson continues to conduct workshops for conservation land managers across the nation. He



lives on his own “wildlife management area” with his wife, Judy, on a finger of Crowley’s Ridge east of Duck Creek Conservation Area in Puxico, MO. Their daughters, Nicole and Jill, live in Colorado Springs and Chicago, respectively. Both, as you might imagine, are avid conservationists.

Meet our new Vice-Chair!

Phillip Stephenson is the new Vice-Chair for the Wetlands Working Group (WWG). Phillip is a wildlife biologist with the U.S. Fish and Wildlife Service in Oklahoma at Sequoyah National Wildlife Refuge. Phillip has worked in Kentucky, Florida, Mississippi, and Arkansas banding various waterfowl species and manipulating vegetation for wetland dependent species. His master's project documented native bee communities using emergent wetlands in the Lower Mississippi Alluvial Valley of Arkansas. He has previously worked with multiple student chapters and the student development working group, and is excited to be transitioning into a leadership role with the WWG. He is an Associate Wildlife Biologist and hopes to become a Certified Wildlife Biologist one day.



STUDENT TRAVEL AWARD

Apply Now!

In order to increase student awareness and participation in the Wetlands Working Group (WWG), we will fund early registration conference fees for one student member of the WWG to attend the Annual TWS Conference. New and existing student members are encouraged to apply! Students interested in being considered for this award should email a CV and a brief cover letter discussing their interest in wetland research, management, and conservation, *as a single pdf file*, to Drew Fowler (drew.fowler@wisconsin.gov) by May 31, 2020. Students will be notified if they are selected for this award by June 21st and will be reimbursed early registration costs for the 2020 TWS Conference in Louisville, KY. Applicants must be a member of the WWG by the application deadline. Attendance at the WWG annual meeting is recommended so that recognition of award receipt can occur.

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North Park, Colorado. Photo by Casey Setash.

Training Opportunities & Upcoming Conferences

Association of State Wetland Managers
Calendar of events for webinars, trainings, & special events

2020

MAFWA 87th Director's Annual Meeting
28 June-July 1, 2020, Custer, SD

Ecological Society of America Annual Meeting
2-7 August 2020, Salt Lake City, UT

WAFWA Summer Meeting & Conference
9-14 July 2020, Park City, UT
21-24 September 2020, Big Sky, MT

The Wildlife Society Annual Meeting
27 Sept.-1 Oct. 2020, Louisville, KY

SEAFWA 74th Annual Conference
25-28 October 2020, Springfield, MO

Entomological Society of America Annual Meeting
15-18 November 2020, Orlando, FL

2021

13th International Symposium on
Biogeochemistry of Wetlands
22-25 March 2021*, Baton Rouge, LA
*rescheduled from 2020 due to COVID-19

NEAFWA Annual Conference
April 2021

Society of Wetland Scientists Annual Meeting
19-24 June 2021*, Quebec City, Canada
*rescheduled from 2020 due to COVID-19

7th International Seaduck Conference
Postponed, click here to check website for updates

Click on the [light blue](#) hyperlinked text above for conference information.

A Note from the Editor

I helped Leigh Fredrickson format some images for his article in the Wildlife Society Bulletin. Of course, not all the photos could be published due to space. Because Leigh has been one of the most influential mentors in my life, I thought it was important to share some of those images here. I hope they inspire others to be mentors and continue the land conservation ethic that Leigh embraced. Enjoy some wetlands this spring (while social distancing)!

Adonia Henry, WWG newsletter editor.

Newsletter formatted and edited by Adonia Henry.



King Eider. Photo courtesy of Sea Duck Joint Venture.

2020 Board Members

Drew Fowler, Chair

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Phillip Stephenson, Vice-Chair

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Kelly Chinnereiss, Treasurer/Secretary

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Johanna Duffy, Past Chair

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Casey Setash, Student & Social Media

At-Large Representative

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How to Join WWG

When you renew your TWS membership, sign up for the Wetlands Working Group!

If you're already a member of TWS, you can add membership in the Wetlands Working Group at any time by logging into your account at

<http://wildlife.org/>.

Membership dues are only \$5 annually, which helps support activities at meetings, student travel awards, and outreach events.

Support the WWG

**Reusable Chico Bags
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(free shipping)

Contact Adonia at
adoniarhenry@gmail.com
to get yours today!

