KENNEDY ENDOWED PROGRAM

WATERFOWL & WETLANDS CONSERVATION • 2022-2023 • ANNUAL REPORT



MISSISSIPPI STATE UNIVERSITY_{TM} FOREST AND WILDLIFE RESEARCH CENTER





WATERFOWL & WETLANDS CONSERVATION 2022-2023

ANNUAL REPORT



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he important work of the James C. Kennedy Waterfowl and Wetlands Conservation Program at Mississippi State University spans North America's flyways from the Atlantic to the Pacific. This year's activities included vital multistate, long-term collaborative research that contributes to the future success of several waterfowl species.

Our wood duck recruitment study, along the Atlantic and Mississippi Flyways, now in its fourth year, operates in eight states stretching from Delaware across and down into Mississippi and Louisiana. Our ongoing work with game-farm and wild mallards in the lower Mississippi Flyway has also been revealing, further enhancing our understanding of the potential ecological implications of modified bill and other morphology differences within game-farm mallards. Another exciting study is occurring along the Atlantic Flyway, in South and North Carolina, which investigates waterfowl diets and winter foraging habitat in those regions. We're also part of a 26-year study of box-nesting Common Goldeneyes along the Chena River System around Fairbanks, Alaska. We have been fortunate to participate in this Alaska project since 2021, which originated in 1997 under the direction of the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and other partners. We hope you enjoy updates on these and other ongoing projects within this report.

Our team includes eight graduate and 12 undergraduate students in the Department of Wildlife, Fisheries and Aquaculture and two postbaccalaureate students not currently enrolled in the department. Two of our undergraduate students working in the Kennedy program recently were admitted into graduate programs, highlighting the value of these experiences for their future careers. In addition, our students gained professional development and networking skills by participating in conferences across seven states to deliver presentations on their research, including 23 oral and five poster presentations. Our team produced 16 peer-reviewed scientific publications, several popular press articles, podcasts, and reports on waterfowl ecology and habitat use. One of the most exciting parts of my job is to help award deserving students with scholarships to support their programs. I am pleased to share that the Waterfowl and Wetlands Conservation Program awarded 16 undergraduate and nine graduate students with CFR-related scholarships, while several graduate students garnered other awards, which are highlighted in the Accolades section of this report. Outreach and education regarding waterfowl and wetlands is an important part of our program. This season we assisted numerous private landowners and stakeholders in several states with habitat management and technical assistance. I am proud of our MSU chapter of Ducks Unlimited where students dedicated substantial time and effort toward conservation events this past fall and spring. Lastly, we successfully completed a second Delta Waterfowl University Hunt Program experience for approximately 22 students who enjoyed their first such experience and, hopefully, we recruited a new cadre of waterfowl enthusiasts.

In closing, we thank Mr. Jim Kennedy and all the waterfowl program supporters, including many state, federal, and non-governmental organizations that make our work possible. We are indebted to all of you and grateful for the time and resources you invest in our students and projects. We are especially indebted to Mr. Rance Moring, manager at Mr. Kennedy's York Woods property in the Mississippi Delta. Rance and his staff have been instrumental colleagues in the field, providing our team housing, coordination, instruction, and tours. We appreciate all of you.

Sincerely, J. BRIAN DAVIS

James C. Kennedy Professor of Waterfowl and Wetlands Conservation

NEW MEMBERS WELCOME TO THE WATERFOWL TEAM



Riley Porter

Riley Porter is a Master of Science student who is working on a 26-year extant project of nest box use by breeding Common Goldeneyes in the Chena River system near Fairbanks. The Athens, Georgia, native earned his Bachelor of Science in wildlife and wildlands conservation from Brigham Young University in 2021. His interests are waterfowl and wetlands ecology and management. He is a valuable member of his local county and the MSU chapter of Ducks Unlimited. His passion for waterfowl hunting has allowed him to travel the country. Porter's work is funded through the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers.





Dr. Melanie Boudreau

Special congratulations to **Dr. Melanie Boudreau** who has been promoted from postdoctoral research associate to assistant research professor in the Department of Wildlife, Fisheries and Aquaculture. Boudreau earned her bachelor's at the University of New Brunswick, master's at Mount Allison University, and her doctoral degree at Trent University.



STUDENT ABSTRACTS

STUDENT ACCOMPLISHMENTS -SCIENTIFIC ABSTRACTS

Several MSU Kennedy program students and faculty delivered oral or poster presentations in 2021-2022.





Waterfowl diets and winter foraging habitat in South Atlantic coastal and inland wetlands: Improving inputs for bioenergetics modeling for regional conservation planning



Clements, S. and J. B. Davis

Initiated in Fall 2021, this project is a multifaceted, applied research project assessing bioenergetics and foraging-habitat capacity for waterfowl and other waterbirds in south Atlantic coastal wetlands. We will integrate traditional and state-of-the-art techniques to examine food use and availability in managed and non-managed tidal coastal wetlands. We will assess hunter-harvested ducks from various locations in South and North Carolina, collecting excreta, blood, liver, and feathers from these birds. Field and laboratory work will continue through autumn-winter 2023–2024. Nemours Wildlife Foundation (Yemassee, SC), U.S. Fish and Wildlife Service, South Carolina Department of Natural Resources, Atlantic Flyway Joint Venture, and many private landowners support and collaborate on this project.

Regional examination of the contribution of nest boxes to wood duck recruitment in the Southeast and mid-Atlantic United States: 2020–2022 project update

Bauer, B., D. Bakner, T. Gibson, H. Mentges, J. Shurba, J. B. Davis, R. M. Kaminski, K. M. Ringelman, C. K. Williams, E. P. Wiggers, and P. Schmidt

Biologists who attended a waterfowl and wetlands workshop hosted by Nemours Wildlife Foundation, Yemassee, South Carolina, February 2018, ranked the status and management of wood duck (Aix sponsa) nest box programs a top-priority research question for the Southeastern and mid-Atlantic United States. To address this research need, we initiated a collaborative study beginning in 2020 across the mid- to south Atlantic and lower Mississippi Valley Flyways with study sites in Delaware, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, and South Carolina. We will estimate recruitment rates (i.e., females and their female offspring surviving to the next breeding season[s]) to assess the efficiency and economics of these nest box programs and their overall contribution to wood duck population dynamics across our regional study area. In 2020 and 2021, we sampled 1,272 and 1,437 nest boxes, respectively. Ducklings were marked with web- or PIT tags. Return rates of these marked individuals encountered as nesting females in subsequent years will be used to calculate recruitment estimates. Across states, box use was 73% (n = 1,272; 2020) and 79% (n = 1,437; 2021) with 1,902 (2020) and 2,051 (2021) individual nesting attempts resulting in an average of 45% nest success (> 1 duckling successfully hatching and exiting). Across states, we banded 747 (2020) and 479 (2021) nesting wood ducks and recaptured 366 and 646 previously banded females in 2020 and 2021, respectively. Of recaptured females, across states, we encountered 14 (2020) and 75 (2021) previously web- or PIT-tagged individuals with a mean return rate index of 2.70% across years. From 2020-2021 we marked 11,351 wood duck ducklings. As of 31 May 2022, we are sampling 1,391 nest boxes with 63% box use, 872 individual nesting attempts, and 45% nest success rate. During the 2022 nesting season, we banded 222 nesting females and encountered 449 previously banded females, including 78 web- or PIT-tagged individuals. Additionally, we have marked 3,414 ducklings. Data collection and mark-recapture efforts will continue through the 2023 nesting season. Our study is a coordinated partnership involving NGOs, state, and federal agencies, four universities, and private landowners that has yielded consistent and quality data across large spatial and temporal scales. We advocate this collaborative model for the duration of this and other future regional waterfowl studies.

Oral presentation at the Lower Mississippi Valley Joint Venture Waterfowl Symposium, Memphis, TN, October 4-6, 2022.

Wood duck nest survival in Mississippi and Louisiana: The combined effects of partial clutch loss and nest parasitism

Bakner, D., J. T. Gibson, Z. J. Loken, H. E. Mentges, K. M. Ringelman, and J. B. Davis

Nest boxes for wood ducks (Aix sponsa) are used to provide additional nest sites on the landscape and increase nest survival (i.e., the probability a nest will survive to hatch ≥ 1 egg). Conspecific brood parasitism is common in wood ducks, especially in nest box populations as boxes are often highly visible. Additionally, blackbellied whistling-ducks (Dendrocygna autumnalis) will lay eggs in wood duck nests, and their distribution has recently expanded into the southeastern United States. Parasitism often results in abnormally large clutch sizes that are not incubated; therefore, our objective was to determine the influence clutch size has on wood duck nest survival. During 2020–2021, we monitored an average of 455 nest boxes in Mississippi (129 and 173 boxes, respectively) and Louisiana (283 and 325 boxes, respectively), and documented 1,164 nest attempts across both years. Our top-ranked model for nest survival included parameters for maximum observed clutch size and study site, and an interaction between them. That is, at some sites, high nest survival was associated with a larger maximum clutch size, but at other

Coming up short? Do mallard winter home ranges contain sufficient energy?

Boudreau, M. R., J. D. Lancaster, D. F. Adjaye, J. E. Dentinger, L. A. Dolan, G. N. Ripa, C. Ramirez-Reyes, C. A. Sklarczyk, B. S. Thornton, H. M. Todaro, R. M. Kaminski, and J. B. Davis

Habitat conservation planning for wintering waterfowl in North America typically aims to maximize energetic carrying capacity from a landscape-population perspective. However, because spatial and temporal configuration of resources can influence animal space use, there may be potential ramifications if conservation planning does not consider energetic availability from the individual's perspective. We demonstrated this possibility using three pieces of information for mallards *(Anas platyrhynchos)* located in the Mississippi portion of the Mississippi Alluvial Valley: (1) established energetic values for different landcover types (quantified as duck energy days; DEDs), (2) maps of landcover and water availability, and (3) home ranges created from location data of radiomarked birds. We first transformed landcover types into energetic carrying capacity using DED values, and then restricted the amount of energy accessible within mallard home ranges using water availability and DED decay rates. We



sites we observed the opposite effect. At sites where the effect was positive, wood duck nests experienced repeated partial clutch losses, primarily due to red-bellied woodpeckers (*Melanerpes carolinus*), so those nests benefited from parasitic egg-laying, because additional eggs buffered against total clutch loss and also reduced the risk of nest abandonment. For example, parasitic egg-laying allowed 32 nests to hatch at one Louisiana study site despite 72% of them losing ≥ 1 egg during incubation. At sites where partial clutch losses were uncommon, rampant parasitic egg laying eventually caused nests to be abandoned, thereby driving the negative relationship between maximum clutch size and nest survival. Our results suggest wood ducks may actually benefit from receiving additional eggs via brood parasitism when a portion of eggs are lost through partial clutch predation.

Oral presentation at the Lower Mississippi Valley Joint Venture Waterfowl Symposium, Memphis, TN, October 4–6, 2022.

found that relatively energy-rich landcover types, such as moist-soil wetlands and agricultural crops, were less likely to inundate, although mallards seemingly exploited these areas during flooding events. Mallard home range size was not associated with DEDs, and most home ranges met minimum winter energetic needs (i.e., 123 DEDs). However, 4% of individuals appeared not to meet the minimum DED requirements which may have ramifications at larger population scales. Further, the potential number of mallards with insufficient DEDs may be underestimated as we did not account for a variety of other factors that may limit energy acquisition. Our findings highlight the need for waterfowl habitat management to consider energetic capacity from the perspective of individual animal space use.

Oral presentation at the Lower Mississippi Valley Joint Venture Waterfowl Symposium, Memphis, TN, October 4-6, 2022.

The efficacy of marsh terraces for enhancing and restoring Gulf coastal wetlands

McFarland, M., J. B. Davis, M. Woodrey, L. Reynolds, M. Brasher, and F. Vizcarra

Louisiana's coastal wetlands support millions of resident and migratory birds annually. However, Gulf states account for 85% of the total decrease in coastal wetland area in the conterminous United States, with Louisiana accounting for most of this loss. Marsh terracing is one technique used to combat coastal wetland loss. This restoration technique uses in situ sediment to construct segmented ridges in open water areas of coastal wetlands to dissipate erosive wave energy, reduce turbidity, increase submerged aquatic vegetation production, and provide habitat for a diversity of wildlife species. Despite widespread use of marsh terracing in coastal restoration efforts, past research and monitoring have provided limited results on their value as avian habitat across spatial and temporal scales. Using both ground and aerial surveys, our study evaluated avian use of marsh terraces across 24-paired sites (terraced and adjacent non-terraced sites) in coastal Louisiana. Avian surveys focused on two guilds of birds: breeding secretive marsh birds and wintering waterfowl. Results from field data collection indicated that: 1) terraced sites were used predominately by non-focal species such as red-winged blackbirds, 2) paired reference sites were used by a greater abundance and diversity of breeding secretive marsh birds than terraced sites, 3) generally, wintering waterfowl species abundances varied spatially and temporally across terraced and non-terraced sites. During our study, the vegetation communities of terraced and reference sites were significantly altered by two major hurricanes, especially in southwest Louisiana. Our results will better inform decisions on restoration techniques used to minimize marsh loss and improve avian habitat availability at local and regional scales.

Oral presentation at the State of the Coast meeting, New Orleans, LA June 2021, Society of Wetlands Scientists meeting, June 8, 2021 (online but originally Spokane, WA); and the Southeastern Association of Fish and Wildlife Agencies meeting, Roanoke, VA, October 19, 2021.

Stable isotopes and parasite community assemblages differentiate among waterbird groups

Sheehan, K. L., B. Dorr, S. Clements, T. Christie, S. Rush, K. Hanson-Dorr, and J. B. Davis

The feeding ecology of many species of wildlife has changed as humans have altered landscapes to enhance ecological services. Freshwater pond aquaculture modifies the quantity and arrangement of standing waters on the landscape, altering the amount of habitat available to predators that forage in them and concentrating prey while reducing the diversity of potential food sources for piscivores. Consequently, fish farms are frequently used by predators, like waterbirds, as feeding grounds. While feeding, these birds are exposed to parasitic infections that are often specific to the types of prey that they consume. Thus, by observing the parasite community, we can learn a great deal about the feeding ecology of waterbirds. The degree to which waterbirds forage in aquaculture ponds can influence their biogeochemical signatures too. Many aquaculture facilities supplement their stocks with C4-based feeds that can be differentiated chemically from phytoplankton-based food webs in the tissues of the fish, and their predators, using stable isotope analysis. Here, we compare the parasite communities of carnivorous (Double-crested Cormorants: *Phalacrocorax auritus*) and omnivorous (Lesser Scaup: *Aythya affinis*) waterbirds collected on and near aquaculture facilities in Arkansas and Mississippi. Our findings suggest stable isotope concentrations and bird body size can be used to differentiate between feeding types (fishponds) of waterbirds, and when combined with indexed information on their parasites, this differentiation increases in accuracy by approximately 10%. Biogeochemistry provided limited differentiation among bird sexes but was possible when parasite data was included in our models. We find promising evidence that the combination of parasitology and biogeochemistry can further elucidate predator behaviors.

Oral presentation (virtual) at the 19th Wildlife Damage Management conference, April 22, 2021; Oral presentation at the Lower Mississippi Valley Joint Venture Waterfowl Symposium, Memphis, TN, October 4-6, 2022.





Eggshell strength in three cavity-nesting ducks in Mississippi

Gibson, T., H. Mentges, I. Poudel, P. Adhikari, and J. B. Davis

Wood ducks (Aix sponsa), hooded mergansers (Lophodytes cucullatus), and black-bellied whistling ducks (Dendrocygna autumnalis) are sympatric secondary cavity-nesting duck species in the southeastern United States. Interspecific clutches are common, eggs accumulate in nests from parasitic laying, and strife between females may occur, potentially subjecting eggs to breakage. Understanding the durability of eggs of these species is important for explaining variation in nest and egg hatching success. Our prediction was that eggshell breaking strength (EBS) of hooded merganser eggs would be the greatest among the three species. We collected a total of 67 fresh eggs of the species from nest boxes at two sites in Mississippi in spring-summer 2021. We measured eggshell strength using an Instron Universal Testing Machine (Model 3345; Instron Inc., Norwood, MA) and eggshell thickness using a micrometer (Ames, IA). We measured EBS (Newtons) at the equators of all eggs. We used Tukey's pairwise comparison to test for differences in eggshell strength among species. Mean EBS differed among all species (P < 0.0001) and was greatest in hooded merganser, followed by blackbellied whistling duck and wood duck. The EBS was 120.05 (SD = 12.03, n = 7) for hooded merganser, 52.44 (SD =10.04, n=30) for black-bellied whistling duck, and 32.95 (SD =3.90, n = 30) for wood duck. Eggs of hooded merganser had the highest EBS, likely attributed to greater eggshell thickness among these species. Our results are preliminary, and further analyses will explore if eggshell strength correlates inversely with egg breakage in our study.

Poster presentation at the Southeastern Association of Fish and Wildlife Agencies meeting, Roanoke, Virginia, October 19, 2021. Mentges also presented the poster at the Undergraduate Research Symposium, April 13-14, 2022, MSU campus and at the Mississippi Academy of Sciences, Summer Science and Engineering Symposium, MSU campus, June 8, 2022.

Assessing native bee (Hymenoptera: Apoidea) diversity in natural wetland plant communities of the Mississippi Delta

Taylor, S., J. B. Davis, K. Parys, and M. Lashley

The Mississippi Alluvial Valley (MAV) once contained nearly 9.7 million hectares of bottomland hardwood forest and associated habitats, including herbaceous and scrub-shrub wetlands. Over 80% of the MAV forest was eliminated or modified for agriculture, flood control, and urban expansion. Fragmentation/loss of herbaceous and riparian-forested plant communities of the region could negatively impact native bee populations. Wetland plant communities adjacent to agricultural croplands likely provide vital nesting and foraging resources for native bees, but virtually no historical documentation exists for bees in these MAV landscapes. This study measures native bee species abundance and richness in wetlands enrolled in the Wetlands Reserve Program (n=14, WRP) and on National Wildlife

Refuges (n=4, NWR) of the Mississippi Delta, June-November 2017. Three standardized collection methods were used at each site that included bee bowls, malaise traps, and vane traps. Traps were placed along a line transect, located within 1,200 meters from designated wetland types. Approximately 25,000 specimens were collected across 18 research sites; an estimated 3,500 specimens were captured in bee bowls. On average, bee bowls at WRP sites captured a greater number of native bees than those on NWRs. *Halictidae* represent most of the native bees captured with bee bowls. Specimen and data processing are ongoing but indicate that the number of native bees captured in traps located within wetlands increases with habitat complexity and floral availability.

A prototype decision support tool for evaluating water level management to achieve competing objectives in a multiple use reservoir

Starnes, V., M. E. Colvin, J. B. Davis, L. E. Miranda

Water levels at Bluff Lake in Mississippi are managed to achieve objectives related to waterfowl, waterbirds, fish, anglers, and Paddlefish (*Polyodon spathula*). The reservoir undergoes a ninestage seasonal drawdown and re-inundation to improve waterfowl habitat. Weekly discharges are also released from the water control structure to encourage paddlefish spawning and migration in the spring, but additional discharges throughout the year may provide additional passage opportunities. In this study, multiple discharge states were evaluated to identify optimal water releases during each drawdown period given reservoir objectives. First, a hydro-dynamic model was developed to predict daily changes in lake volume. Functional relationships between lake elevation and management objectives were defined. Daily utilities were calculated that scaled management objectives from 0-1. These were equally weighted and summed for each date. Cumulative daily utilities were calculated for each drawdown period. The optimal water level management strategy depended on drawdown period and varied throughout the timeframe. In period one, the lake could sustain 14.125 m³/s weekly in the first week, however, as at low lake elevations a 11.3 m³/s discharge became optimal. This approach can be used to evaluate tradeoffs between management objectives to identify optimal water releases for a multiuse reservoir.

Master of Science thesis defense, August 2021.

Nesting ecology of Common Goldeneye and other cavity-nesting waterfowl in interior Alaska

Porter, R. D., E. J. Taylor, and J. B. Davis

This project continues a 25-year extant investigation of the ecology and life history of the Common Goldeneye (*Bucephala clangula*) and other cavity-nesting ducks amid the Chena River system of central Alaska. We monitored 148 nest boxes from April-July 2021. Common Goldeneye, Bufflehead (*Bucephala albeola*), and Common Merganser (*Mergus merganser*) combined for 114 nests (77% nest box use). We also found 12 nests of Boreal Owls (*Aegolius funereus*). For 69 successful nests of Common Goldeneye, mean clutch size was 8.6 and we detected 25 (36%) parasitized nests (i.e. >9 eggs/ nest), with 76% being intraspecific. We found 25 nests with mixed clutches of common goldeneye (n = 18) bufflehead (n = 6) eggs, and Common Merganser (n = 1) where mean clutch size across all shared nests was 11.2 (+ 2.09 SE). These results are merely exploratory as the lead author is currently developing research hypotheses and analytical paths using this long-term dataset as part of his Master of Science degree program.

Poster presentation at the Spring 2022 Graduate Research Symposium.

Determining the impact of Post-harvest water management on invertebrate communities, agrochemical availability, and potential trophic biomagnification

Thomas, M., B. Baker, J. B. Davis, and J. Taylor

This is a collaborative project to determine the impact of postharvest water management on macroinvertebrate populations and agrochemical biomass resulting from different post-harvest water management strategies. We also seek to determine the potential risk of agrochemical biomagnification through macroinvertebrate transport to shorebirds under different post-harvest water management strategies. Collaborators include the EPA, University of Mississippi, Delta Wind Birds, USDA, MSU's Delta Research and Extension Center, and private landowners.

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STUDENT PROFESSIONAL DEVELOPMENT

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Outdoor labs and field trips provide valuable experiential learning for graduate and undergraduate students. In both the Waterfowl and Wetlands classes in 2021 and 2022, students had the opportunity to engage in various activities including a rapid assessment method that estimates moist-soil plant types and seed abundances through visual observations of plant communities. Rapid assessment approaches were adapted and derived from previous methods that involved intensive and expensive soil coring to estimate waterfowl food abundance.



York Woods, property owned by James Kennedy, is a popular field trip for the Waterfowl Ecology and Management class. Andy Wright, MSU alumnus, discusses the ecology and management of bottomland hardwood forests.



The Waterfowl Ecology and Management class had a unique experience visiting the Ducks Unlimited, Inc. headquarters (NHQ) in Memphis, Tennessee in the fall of 2021. Students heard from various scientists and program leaders, including Dr. Ellen Herbert (bottom right), about the organization's conservation mission and volunteer heritage.





Dr. Eric Taylor (seated, right), U.S. Fish and Wildlife Service, Anchorage, Alaska, began the study of Common Goldeneyes breeding along the Chena River in central Alaska in 1997.

Cody Martin instructing students in Wetlands Ecology and Management on rapid assessment techniques in seasonal wetlands at Noxubee National Wildlife Refuge, fall 2022.



Dr. Heath Hagy, U.S. Fish and Wildlife Service and MSU alumnus, instructing students in Waterfowl Ecology and Management on rapid assessment techniques in seasonal wetlands, fall 2021.

MSU alumna Molly Kneece, Waterfowl Coordinator for the South Carolina Department of Natural Resources, driving the team around South Carolina wetlands conducting rapid assessments of wetlands for the research project of doctoral student Stephen Clements (in back center in brown shirt).



Students of Wetlands Ecology and Management learning about soils and wetland delineation. Dr. Courtney Siegert of CFR and Will Piggott, WFA alum and current wetland specialist for the U.S. Army Corps of Engineers, assisted with this field trip.



STUDENT EXPERIENCES

Undergraduate Student Internships and Research Field Experiences

Through internships and research field experiences, students discover their passion for waterfowl and wetlands conservation and often pursue life-long interests working in or studying these systems. Together with Dr. Leslie Burger, Department of Wildlife, Fisheries and Aquaculture undergraduate coordinator, and Lanna Miller, student services coordinator in the College of Forest Resources, the team placed students into various internship and summer positions working on waterfowl, wetlands, and various related projects in 2021-2022.

- Jonathan Dew: Summer internship, Barker Ranch, Pasco, Washington, summer 2021
- Kevin Doran: Summer internship, Pinola Conservancy, Shreveport, Louisiana, summer 2021
- Mattie Graham: James C. Kennedy Waterfowl Program intern, summer 2021 and 2022
- Makeriah Hampton: Summer internship, Robbie Russell Wildlife and Farm Ranch, Bells, Tennessee, summer 2021
- Hayley Kolmetz: Summer internship, Robbie Russell Wildlife and Farm Ranch, Bells, Tennessee, summer 2021
- Brandon Kugle: James C. Kennedy Waterfowl Program intern, summer 2021 and 2022
- Josh Kuhstoss: Summer internship, Pinola Conservancy, Shreveport, Louisiana, summer 2021
- **Skylar Liner:** Admitted to master's program, Louisiana State University, fall 2021
- Thera Mullen: James C. Kennedy Waterfowl Program intern, summer 2022
- **Sarah Scott:** Assisted in her achieving a USDA-NRCS Natural Resources Specialist position, 2022
- Emily Stolz: Summer internship, NOAA Fisheries, Pelagic Observer Program, Miami Laboratory, summer 2021
- Evie Von Boeckman: Admitted to master's program, lowa State University, summer 2021









Two wildlife, fisheries and aquaculture students gain acceptance into wetlands related graduate programs: Skyler Liner, MS program at Louisiana State University, and Evie Von Boeckman, MS program at Iowa State University.



TECHNICAL ASSISTANCE

Comprised of waterfowl ecologists and conservationists, part of the Kennedy Endowed Program's mission is to help private landowners and public entities improve their resources for waterfowl and other wildlife. Below is a brief snapshot of these extension engagements.

- Provided Dr. Luke Macaulay, Wildlife Management Specialist, University of Maryland Extension, with discussions and publications on monitoring wood duck nest boxes and collecting demographic data from wood ducks, 2021.
- Advice on installing and managing wood duck nest boxes in 2021-2022 to Christopher Flores, New Orleans, LA; Craig Rozier, Rozier Construction, Greenwood, MS; Tom Terry, Olympia, Washington.
- Corresponded with Emmett Eaton, Arkansas, on wetland management for waterfowl, 2021.
- Visited Michael Crowder, the Barker Ranch, Pasco, Washington, and viewed wetland management practices and offered insight, November 2022.
- Provided technical assistance to PJ Tranum, Lyle Machinery of Columbus, MS, on chiwapa millet and wetland management.
- Provided information on management of corn and seasonal wetlands for wintering waterfowl to John Wilson, Urich, Missouri.
- Provided technical information on black rails to Brandon Wieme, Environmental Services, BGE, Inc., Houston, TX.
- Provided wetland management advice to Mason Thomas, Tunica, MS.
- Discussed management of water in bottomland hardwood forests with Josh Pelletier, Greenville, North Carolina.
 Follow-up to Brian Davis's Mossy Oak Podcast appearance.
- Discussed sanctuaries and waterfowl hunting with Bill Wells, Arkansas.
- Discussed wetland management, hunting, and feeding the hungry with wild game with Joey D'Amico of Tekton Game Calls, South Carolina.



AWARDS-ACCOLADES

Undergraduate Students:

- Lucas Evanko: The Paul and Susan Meng and Dr. Rick Kaminski Endowed Undergraduate Scholarship, 2022.
- Mattie Graham: The Paul and Susan Meng and Dr. Rick Kaminski Endowed Undergraduate Scholarship, 2021.
- Nathan Hartsell: The Avery Wood Scholarship, 2021.
- Hunter Lister: The Avery Wood Scholarship, 2022.
- Hunter Mentges: The Paul and Susan Meng and Dr. Rick Kaminski Endowed Undergraduate Scholarship, 2021.
- Katelyn Skelton: The Paul and Susan Meng and Dr. Rick Kaminski Endowed Undergraduate Scholarship, 2022.
- Jessica Tomasi: The Mark A. Schmoll Memorial Endowed Scholarship, 2021.
- Patrick Whitington: The Paul and Susan Meng and Dr. Rick Kaminski Endowed Undergraduate Scholarship, 2021.

Graduate Student Awards:

- Madelyn McFarland: Wildlife Section of Society of Wetland Scientists' Student Travel Award, 2021.
- Madelyn McFarland: The Thomas A. Plein Scholarship, 2021.
- Hunter Mentges: The Thomas A. Plein Scholarship, 2022.
- Riley Porter: The Thomas A. Plein Scholarship, 2022.
- Kevin Tillinghast: The Thomas A. Plein Scholarship, 2022.

Other Accolades

Madelyn McFarland won the following awards and was featured in the following publications:

- The 2021 SWS Best Student Oral Presentation Award. She presented her paper virtually at the annual SWS meeting in Spokane, Washington.
- The Best Student Presentation, Southeastern Association of Fish and Wildlife Agencies (SEAFWA), 2021.
- Recognized in the Jan/Feb. 2022 Southeastern Section TWS Newsletter for Best Student Presentation: Avian Use of Marsh Terraces in Gulf Coastal Wetlands of Louisiana.
- Featured as a graduate research assistant in the 2021 Forest and Wildlife Research Center Annual Report.
- Featured in MSU's Graduate School Newsletter, Issue 11, August 2021.

Riley Porter won Best Poster Presentation for his poster titled, "Nesting Ecology of Common Goldeneye and other Cavity-Nesting Waterfowl in Interior Alaska," at the Spring 2022 Graduate Research Symposium, representing the Colleges of Forest Resources and Veterinary Medicine, MSU.

J.B. Davis served as committee member for Matt McLanahan (University of Tennessee-Knoxville) who received Outstanding Wildlife Technical Paper, The Wildlife Society and Southeastern Association of Fish and Wildlife Agencies, October 2022, as lead author of "Effects of alligatorweed control in seasonal wetlands managed for waterfowl."

J.B. Davis was renominated for adjunct associate professor, University of Tennessee-Knoxville, Institute of Agriculture.

James C. Kennedy Scholarship in Waterfowl and Wetlands Conservation

We are proud to have provided these Kennedy program financial scholarships to eight undergraduate and two graduate students in 2021 and 2022. We thank Tuplagum Farms, LLC, of Georgia for making these gifts possible!

Undergraduate Students:

- Jaden Akers
- Madison Gnoose
- Camille Green
- Kylie Labelle

- Lily Langstaff
- Hunter Mentges
- Thomas Rovery
- Patrick Whitington

Graduate Students:

- Emily Bedwell
- Stephen Clements

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PRESENTATIONS

(students in bold)

Oral Presentations _

Bakner, D., Gibson, J. T., Loken, Z. J., Mentges, H. E., Ringelman, K. M., and Davis, J. B. 2022. Wood duck nest survival in Mississippi and Louisiana: the combined effects of partial clutch loss and nest parasitism. Lower Mississippi Valley Joint Venture Waterfowl Symposium, Lower Mississippi Valley Joint Venture, Memphis, TN. October 2022.

Bauer, B., **Bakner, D., Gibson, T., Mentges, H., Shurba, J.**, Davis, J. B., Kaminski, R. M., Ringelman, K. M., Williams, C. K., Wiggers, E. P., Schmidt, P. 2022. Regional examination of the contribution of nest boxes to wood duck recruitment in the southeast and mid-Atlantic United States: 2020–2022 project update. Lower Mississippi Valley Joint Venture Waterfowl Symposium, Lower Mississippi Valley Joint Venture, Memphis, TN. October 2022.

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Who-or What-Eats Wood Ducks?

Podcast with Ramsey Russell, of "It's always duck season somewhere." (May 30, 2022). https://podcasts.apple.com/us/podcast/ who-or-what-eats-wood-ducks/id1503110007?i=1000564513752.

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On the Lighter Side

Graduate students at work

Hunter Mentges was interviewed by the staff of Mossy Oak Productions for a podcast at the Sam D. Hamilton Noxubee National Wildlife Refuge. He discussed his work on the collaborative, eight-state wood duck recruitment study.

Taylor Gibson demonstrates the challenges of using bait traps to capture wood ducks in Mississippi. Gibson is doing his part to protect the ducks.



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