

DUCKS UNLIMITED
S C I E N C E
PUBLICATIONS
2 0 2 4





PEER-REVIEWED ARTICLES BY DUI STAFF

- Beach, C.R., C.N. Jacques, **J.D. Lancaster**, D.C. Osborne, A.P. Yetter, R.A. Cole, H.M. Hagy, and A.M.V. Fournier. 2024. Lessons learned from using wild-caught and captive-reared lesser scaup (*Aythya affinis*) in captive experiments. [Translational Animal Science 8:txae076](#).
- 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. Torado, R.M. Kaminski, J.B. Davis. 2024. An alternative approach to evaluating the energetic carrying capacity of the landscape for mallard wintering in the Mississippi Alluvial Valley. [Wildfowl 74:113–131](#).
- Graham, K.A.**, M.P. Vrtiska, D.D. Humburg, L.A. Powell, A.H. Raedeke, P.K. Devers, and C.J. Chizinski. 2024. Exploring the population dynamics of waterfowl hunters using a mark-recapture approach. [Journal of Wildlife Management 88:e22553](#).
- Jung, J., L. Moss, T.J.B. Carruthers, D.R. Di Leonardo, K. DeMarco, M. Whalen, **M. Brasher**, and J. Dijkstra. 2024. Modeling potential benefits of fragmented marsh terrace restoration in Terrebonne Bay, Louisiana: sediment processes interacting with vegetation and potential submerged aquatic vegetation habitat. [Frontiers in Environmental Science 12:1432732](#).
- Lancaster, J.D.**, M.R. Boudreau, R.M. Kaminski, G.M. Street, A.E. Mini, K.D. Nelms, and J.B. Davis. 2024. Mallard winter use of conservation program and nonprogram lands in Mississippi. [Wildlife Society Bulletin 48:e1545](#).
- Larson, L.D., C.N. Jacques, **J.D. Lancaster**, H.M. Hagy, M.J. Anteau, and A.M.V. Fournier. 2024. True metabolizable energy of foods consumed by lesser scaup (*Aythya affinis*). [Wildlife Society Bulletin 48:e1548](#).
- McDuie, F., C.T. Overton, A.A. Lorenz, E.L. Matchett, A.L. Mott, D.A. Mackell, J.T. Ackerman, S.E.W. De La Cruz, V.P. Patil, D.J. Prosser, J.Y. Takekawa, D.L. Orthmeyer, M.E. Pitesky, S.L. Díaz-Muñoz, B.M. Riggs, J. Gendreau, E.T. Reed, **M.J. Petrie**, C.K. Williams, J.J. Buler, M.J. Hardy, B.S. Ladman, P. Legagneux, J. Bêty, P.J. Thomas, J. Rodrigue, J. Lefebvre, and M.L. Casazza. 2024. Mitigating risk: predicting H5N1 avian influenza spread with an empirical model of bird movement. [Transboundary and Emerging Diseases 2024:5525298](#).
- Osborne, D.C., R.J. Askren, S.D. Phelps, T.L. Osborne, **J.R. Henson**, and C.A. Nicolai. 2024. Diurnal and nocturnal movements of wintering dabbling ducks in the Mississippi Alluvial Valley. [Wildlife Biology 2024:e01309](#).
- Thompson, M.F., S.C. Pennings, J.P. Schubauer-Berigan, **E.R. Herbert**, G. Costomiris, and C.B. Craft. 2024. Resistance and resilience: Tidal freshwater marsh response and recovery to acute and chronic saltwater intrusion. [Estuarine, Coastal and Shelf Science 307:108911](#).
- Verheijen, B.H.F., E.B. Webb, **M.G. Brasher**, and H.M. Hagy. 2024. Long-term changes in autumn–winter harvest distributions vary among duck species, months, and subpopulations. [Ecology and Evolution 14:e11331](#).



PEER-REVIEWED ARTICLES FROM DUI-SUPPORTED RESEARCH

- Blake-Bradshaw, A.G., N.M. Masto, C.J. Highway, A.C. Keever, P.T. Link, J.C. Feddersen, H.M. Hagy, D.C. Osborne, and B.S. Cohen. 2024. Caught out in the cold: *Anas platyrhynchos* (Mallard) survival decreased during an extreme climatic event. [Ornithological Applications 126:duae025](#).
- Brown, J.D., A. Black, K.H. Haman, D.G. Diel, V.E. Ramirez, R.S. Ziejka, H.T. Fenelon, P.M. Rabinowitz, L. Stevens, R. Poulson, and D.E. Stallknecht. 2024. Antibodies to H5N1 avian influenza in waterfowl hunting dogs. [Emerging Infectious Diseases 30:1271–1274](#).



TECHNICAL PLANS & REPORTS BY DUI STAFF

Howerter, D., M. Anderson, **D. Eggeman**, K. Fleming, D. Smith, M. Vrtiska, B. Wilson, B. Avers, K. Bianchini, **M. Brasher**, A. Don Carlos, A. Glick, D. Gordon, A. Gramza, H. Hagy, C. Hamel, A. Hanson, H. Harshaw, K. Hick, **J. Lancaster**, J. Leafloor, K. Mazur, J. Messerli, S. Meyer, J. Moon, E. Reed, T. Roberts, K. Sainsbury, E. Silverman, J. Scott, **S. Stephens**, J. Vest, and C. White. 2024. Technical report in support of the 2024 update to the North American Waterfowl Management Plan.

Lancaster, J.D., M.G. Brasher, and B.C. Wilson. 2024. Guidance for temporally anchoring regional population abundance objectives to migration chronology. [North American Waterfowl Management Plan Science Support Team Technical Report 2024-01.](#)

Lancaster, J.D., and B.C. Wilson. 2024. Guidance for selecting between autumn and winter regional duck abundance objectives for conservation planning. [North American Waterfowl Management Plan Science Support Team Technical Report 2024-02.](#)



POPULAR ARTICLES AUTHORED BY DUI STAFF

Brasher, M., J. Coluccy, and S. Stephens. 2024. [DU special report: 2024 status of waterfowl](#). Ducks Unlimited Magazine, November/December:40–52.

Brasher, M., and N. Ratchford. 2024. [Avian influenza update](#). Ducks Unlimited Magazine, September/October:34–36.

Brasher, M., B. Verheijen, L. Webb, and H. Hagy. 2024. [Ducks on the move](#). Ducks Unlimited Magazine, November/December:28–30.

Coluccy, J.M. 2024. [Return of the trumpeters](#). Ducks Unlimited Magazine, March/April:26–27.

Tunstall, A., V. Musni, **M. Brasher**, and P. Lavretsky. 2024. [Disentangling duck DNA](#). Ducks Unlimited Magazine, May/June: 28–30.



PEER-REVIEWED ARTICLES BY DUC STAFF

Alisauskas, R.T., D.K. Kellett, G. Samelius, and **S.M. Slattery**. 2024. Geese as keystone species in the Low Arctic of central Canada: The Karrak Lake Research Station. [Arctic Science 10:778–798.](#)

Cohen, A.L., **J.H. Devries**, and P. Galpern. 2024. Wetland cover in agricultural landscapes is positively associated with bumblebee abundance. [Insect Conservation and Diversity 17:112–127.](#)

Dillon, R.M., **J.E. Paterson**, P. Manorome, K. Ritchie, L. Shirose, E. Slavik, and C.M. Davy. 2024. Effects of ophidiomycosis on movement, survival, and reproduction of eastern foxsnakes (*Pantherophis vulpinus*). [Scientific Reports 14:4948.](#)

Dong, D., **P. Badiou**, T.R. Moore, and C. von Sperber. 2024. Litter decomposition and nutrient dynamics of four macrophytes in intact, restored, and constructed freshwater marshes of Canada. [Restoration Ecology 32:e14135.](#)

Dyson, M.E., S.M. Slattery, and B.C. Fedy. 2024. Effects of oil and gas development on duck nest survival in the Western Boreal Forest. [Avian Conservation and Ecology 19:12.](#)

Frei, B., A.R. Cox, A. Brown, **M.E. Dyson**, S. Meyer, A. Hanson, K. Hick, S.G. Gilliland, C. Lepage, M. Tétreault, and C. Roy. 2024. Uncovering habitat associations and thresholds – Insights for managing breeding waterfowl in Eastern Canada. [Landscape Ecology 39:150.](#)

- Gutowsky, S.E., M.L. Mallory, **N.R. McLellan**, G.J. Robertson, K. Connor, and S.G. Gilliland. 2024. Severe declines in numbers of male American common eiders (*Somateria mollissima dresseri*) during spring counts over the past two decades in the southwestern Bay of Fundy. [Wildfowl 74:165–178](#).
- Houle, C., A. Turcotte, **J.E. Paterson**, G. Blouin-Demers, and D. Garant. 2024. A step-by-step method to quantify coloration with digital photography. [MethodsX 12:102648](#).
- Kutby, R., B. Baer-Imhoof, **S. Robinson**, L. Porter, and B. Baer. 2024. The effect of hive type on colony homeostasis and performance in the honey bee (*Apis mellifera*). [Insects 15:800](#).
- Ma, S., I.F. Creed, and **P. Badiou**. 2024. New perspectives on temperate inland wetlands as natural climate solutions under different CO₂-equivalent metrics. [NPJ Climate and Atmospheric Science 7:222](#).
- Merchant, M.A.**, M.J. Battaglia, N. French, **K. Smith**, **H. Singer**, **L. Armstrong**, **V.B. Harriman**, and **S. Slattery**. 2024. Species abundance modelling of Arctic-Boreal Zone ducks informed by satellite remote sensing. [Remote Sensing 16:1175](#).
- Neame, T., **S.V.J. Robinson**, and P. Galpern. 2024. Proximity to non-crop vegetation increases estimates of predation frequency but not beetle numbers. [Agriculture, Ecosystems, and Environment 373:109133](#).
- Paterson, J.E.**, **L.E. Bortolotti**, **P.D. Kowal**, **A.J. Pidwerbesky**, and **J.H. Devries**. 2024. Predicting the effects of land cover change on biodiversity in Prairie Canada using species distribution models. [Biological Conservation 298:110754](#).
- Porter, E., **J.E. Paterson**, and C.M. Davy. 2024. Testing ‘bigger is better’ and maternal effects hypotheses in hatchlings of the sexually dimorphic spiny softshell turtle (*Apalone spinifer*). [Biological Journal of the Linnean Society 141:520–528](#).
- Rabaey, J.S., M.A. Holgerson, D.C. Richardson, M.R. Andersen, S. Bansal, **L.E. Bortolotti**, J.B. Cottner, D.J. Hornbach, K.T. Martinsen, E.K. Moody, and O.F. Schloegel. 2024. Freshwater biogeochemical hotspots: High primary production and ecosystem respiration in shallow waterbodies. [Geophysical Research Letters 51:e2023GL106689](#).
- Richardson, J.L., A.R. Desai, J. Thom, K. Lindgren, M. Peichl, M. Nilsson, A. Campeau, J. Järveoja, P. Hawman, D.R. Mishra, D. Smith, B. D’Acunha, S.H. Knox, D. Ng, M.S. Johnson, J. Blackstock, S.L. Malone, S.F. Oberbauer, M. Detto, K.P. Wickland, I. Forbrich, N. Weston, J.K.Y. Hung, C. Edgar, E.S. Euskirchen, S. Bret-Harte, J. Dobkowski, G. Kling, E.S. Kane, **P. Badiou**, M. Bogard, G. Bohrer, T. O’Halloran, J. Ritson, A. Arias-Ortiz, D. Baldocchi, J. Shahan, and M. Matsumura. 2024. On the relationship between aquatic CO₂ concentration and ecosystem fluxes in some of the World’s key wetland types. [Wetlands 44:1](#).
- Stewart, D., M. Lievesley, **J.E. Paterson**, D. Hennigar, R. Ingham, R. Knight, B. Mason, and **E. Balke**. 2024. Factors influencing the resilience of created tidal marshes in the Fraser River Estuary, British Columbia. [Wetlands 44:53](#).
- Soued, C., M.J. Bogard, K. Finlay, **L.E. Bortolotti**, P.R. Leavitt, **P. Badiou**, S.H. Knox, S. Jensen, P. Mueller, S. Ching Lee, D. Ng, B. Wissel, C.N. Chan, **B. Page**, and **P. Kowal**. 2024. Salinity causes widespread restriction of methane emissions from small inland waters. [Nature Communications 15:717](#).
- Vrtiska, M.P., J.A. Dubovsky, and **M.G. Anderson**. 2024. The North American Trumpeter Swan Survey: Retain or find something new? [Wildfowl Special Issue 7:57–75](#).
- Weegman, M.D., **J.H. Devries**, R.G. Clark, **D.W. Howerter**, D. Gibson, J.P. Donnelly, and T.W. Arnold. 2024. Ecological and anthropogenic drivers of waterfowl productivity are synchronous across species, space, and time. [Ecological Applications 34:e2979](#).
- Wijewardena, T., N.E. Mandrak, **J.E. Paterson**, C.M. Davy, C.B. Edge, A.M. Lentini, and J.D. Litzgus. 2024. Effects of release method on the survival, somatic growth, and body condition of headstarted turtles. [Journal of Wildlife Management 88:e22505](#).
- Wrubleski, D.A.**, **R.B. Emery**, **P.D. Kowal**, and **L.M. Armstrong**. 2024. Fish assemblage responses to the exclusion of invasive common carp (*Cyprinus carpio*) from a large freshwater coastal wetland, Delta Marsh, Manitoba. [Wetlands 44:16](#).



PEER-REVIEWED ARTICLES FROM DUC-SUPPORTED RESEARCH

- Naojee, S.M., A. LaRocque, B. Leblon, G.S. Norris, M.A. Barbeau, and M. Rowland. 2024. Monitoring saltmarsh restoration in the Upper Bay of Fundy using multi-temporal Sentinel-2 imagery and random forests classifier. [Remote Sensing 16:4667](#).
- Ozsanlav-Harris, L., G.M. Hilton, L.R. Griffin, A.J. Walsh, L. Cao, M.D. Weegman, and S. Bearhop. 2023. Differing drivers of decline within a migratory metapopulation has implications for future conservation. [Ecology and Evolution 13:e10281](#).



TECHNICAL PLANS & REPORTS BY DUC STAFF

- Ducks Unlimited Canada. 2024. [Yukon wetland field guide](#). Ducks Unlimited Canada, Edmonton, Alberta, Canada.
- Wilson, S., P. Smith, E. Kenchington, M. Ballard, R. Buxton, K. Bobiwash, S. J. Marshall, E. Gilmore, É. Abergel, J. Allison, D. Arbuthnott, S. Avery-Gomm, N. C. Ban, K. F. Beazley, J. R. Bennett, E. Bennett, A. D. Binley, L. K. Blight, **L. E. Bortolotti**, D. Browne, E. K. Cameron, K. M. A. Chan, C. Chisholm, C. Chu, S. J. Cooke, F. Di Palma, D. Duplisea, C. Edge, B. Frei, L. W. Gomes, C. Hart, S. Hayne, M. Houde, A. L. Jacob, S. Javorek, H. Kharouba, D. R. Lapen, T. G. Martin, M. Mitchell, I. Naujokaitis-Lewis, E. A. Nyboer, M. O'Connor, A. Olive, S. Otto, B. Pickering, R. Pither, G. Pritchard, C. Raudsepp-Hearne, J. Rice, D. G. Roche, E. Rubidge, M. Ryckman, J. M. Saarela, K. D. Sadler, C. Shulman, I. Siboo, K. A. Solarik, F. Soulard, C. Sponarski, D. Stralberg, E. Ubalijoro, A. Ventimiglia, and C. D. Ziter. 2024. [Science and knowledge needs to support Canada's implementation of the Kunming-Montreal Global Biodiversity Framework](#). Environment and Climate Change Canada, Ottawa, Ontario, Canada.



PEER-REVIEWED ARTICLES FROM DU FELLOWSHIP SUPPORT

- Clements, S.J., B.M. Ballard, J.P. Loghry, and M.D. Weegman. 2024. Habitat and environmental drivers of American Avocet (*Recurvirostra americana*) energy expenditure at two sites within a conservation region. [Waterbirds 47:1-12](#).
- Johns, D.W., **J.H. Devries**, and R.G. Clark. 2024. Survival of northern pintail ducklings in grasslands and croplands: Implications for fall-seeded cereals. [Journal of Wildlife Management 88:e22558](#).
- Masto, N.M., A.G. Blake-Bradshaw, C.J. Highway, A.C. Keever, J.C. Feddersen, H.M. Hagy, and B.S. Cohen. 2024. Human access constrains optimal foraging and habitat availability in an avian generalist. [Ecological Applications 34:e2952](#).
- Masto, N.M., H.M. Hagy, A.G. Blake-Bradshaw, C.J. Highway, J.C. Feddersen, A.C. Keever, and B.S. Cohen. 2024. Comparing winter distribution and harvest rates of transmitter-marked and banded-only mallards in western Tennessee. [Wildlife Society Bulletin 48:e1554](#).
- Masto, N.M., A.C. Keever, C.J. Highway, A.G. Blake-Bradshaw, J.C. Feddersen, H.M. Hagy, and B.S. Cohen. 2024. Proximity among protected area networks promotes functional connectivity for wintering waterfowl. [Scientific Reports 14:17527](#).
- Schindler, A.R., A.D. Fox, C.K. Wikle, B.M. Ballard, A.J. Walsh, S.B.A. Kelly, and M.D. Weegman. 2024. Differential responses to weather and land-cover conditions explain spatial variation in winter abundance trends in a migratory bird of conservation concern. [Journal of Applied Ecology 61:2924-2935](#).
- Schindler, A.R., A.D. Fox, C.K. Wikle, B.M. Ballard, A.J. Walsh, S.B.A. Kelly, L. Cao, L.R. Griffin, and M.D. Weegman. 2024. Energetic trade-offs in migration decision-making, reproductive effort and subsequent parental care in a long-distance migratory bird. [Proceedings of the Royal Society B 298:20232016](#).

Setash, C.M., A.C. Behney, J.H. Gammonley, and D.N. Koons. 2024. Riding the wetland wave: Can ducks locate macroinvertebrate resources across the breeding season? [Ecology and Evolution 14: e11568](#).

Setash, C.M., A.C. Behney, J.H. Gammonley, L. Pejchar, M.A. Reddy, and D.N. Koons. 2024. Agricultural mosaics offer nesting habitat to dabbling ducks in the arid Intermountain West of the United States. [Ecosphere 15:e70072](#).



THESES & DISSERTATIONS FROM DU-SUPPORTED RESEARCH

Carpenter, M. 2024. [Multi-objective wetland design for water quality and habitat](#). Thesis, University of Georgia, Athens, Georgia, USA.

Charles, S. 2024. [Impact of controlled overtopping on flood mitigation and waterfowl feeding areas within wetlands](#). Thesis, University of Georgia, Athens, Georgia, USA.

Luukkonen, B.Z. 2024. [Movement and population dynamics of Great Lakes mallards](#). Dissertation, Michigan State University, East Lansing, Michigan, USA.

McFarland, M.B. 2024. [An evaluation of avian use of marsh terraces in Gulf Coastal wetlands of Louisiana](#). Thesis, Mississippi State University, Starkville, Mississippi, USA.

Mitchell, C.J. 2024. [Quantifying waterfowl use and habitat characteristics following wetland restoration in Lake Ontario coastal wetlands at Braddock Bay Wildlife Management Area](#). Thesis, State University New York Brockport, Brockport, New York, USA.

Naojee, S.M. 2024. [Monitoring saltmarsh restoration in the Upper Bay of Fundy using multi-temporal Sentinel-2 imagery and random forests classifier](#). Thesis, University of New Brunswick, Fredericton, New Brunswick, Canada.

Schindler, A.R. 2024. [Quantifying population- and individual-level processes in Greenland white-fronted geese \(*Anser albifrons flavirostris*\) for holistic conservation planning](#). Dissertation, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Sinnott, K.A. 2023. [Overcoming barriers to aquatic plant restoration: Addressing gaps in species identification and planting techniques in the Intermountain West](#). Thesis, Utah State University, Logan, Utah, USA.

Sinnott, K. and K. Kettenring. 2023. [Floating and submerged plants of Utah: Pocket field guide](#). Utah State University Wetland Ecology & Restoration Laboratory, Logan, Utah, USA.

Sonnleitner, J. 2024. [Importance of demographics and vital rates to cavity-nesting waterfowl in the lower Saint John River of New Brunswick, Canada](#). Thesis, University of New Brunswick, Fredericton, New Brunswick, Canada.

Von Boeckman, E.R. 2024. Evaluating bird use of constructed and restored wetlands in an intensively farmed landscape. Thesis, Iowa State University, Ames, Iowa, USA.



THREE COMPANIES WITH A SHARED MISSION:

Ducks Unlimited conserves, restores and manages wetlands and associated habitats for North America's waterfowl. These habitats also benefit other wildlife and people.

