# Curriculum Vita

# Mark E. Clark

Department of Biology

University of Minnesota Duluth

11 Swenson Science Building

Duluth, MN 55812

218-726-8358

Fax: 218-726-8142

e-mail: meclark@d.umn.edu

**a. Education**

University of Tennessee Ecology Ph.D., 1996

University of Tennessee Mathematics M.S., 1989

University of Tennessee Mathematics B.A., 1987

**b. Professional Experience**

Present: Professor, Department of Biology, University of Minnesota Duluth

2018-2019: Professor, Department of Biological Sciences, North Dakota State University

2010-2017: Associate Professor, Department of Biological Sciences, North Dakota State University

2002-2009: Assistant Professor, Department of Biological Sciences, North Dakota State University

2000-2001: Postdoctoral Fellow, University of Montana, Wildlife Biology

1997-2000: Postdoctoral Fellow, Iowa State University, Animal Ecology

1996-1997: Postdoctoral Fellow, Oak Ridge National Laboratory, Ecology

**c. Teaching**

2002-Current: Evolution1, Senior Seminar1, Ichthyology1, Ornithology1, Graduate Seminar1, Analysis of Vertebrate Populations1, Population Biology, Fisheries Management, General Biology, Fish Biology, Conservation Biology. 1*Courses taught within last five years.*

**d. Publications**

Boertje, E. T., N. M. Snyder, W. L. Reed, J. D. Kittilson, and M. E. Clark. *In press*. Testosterone and Triiodothyronine in Franklin’s Gull (*Leucophaeus pipixcan*) eggs. Waterbirds.

Lackmann, A. R., A. H. Andrews, M. G. Butler, E. S. Bielak-Lackmann, and M. E. Clark. 2019. Bigmouth Buffalo *Ictiobus cyprinellus* sets freshwater teleost record as improved age analysis reveals centenarian longevity. Communications Biology 2:1-14. doi: 10.1038/s42003-019-0452-0

Horčičková, M., Š. Čondlová, N. Holubová, B. Sak, D. Květoňová, L. Hlásková, R. Konečný, F. Sedláček, M. Clark, C. Giddings, J. McEvoy, and M. Kváč. 2019. Diversity of Cryptosporidium in common voles and description of *Cryptosporidium alticolis* sp. n. and *Cryptosporidium microti* sp. n. (Apicomplexa: Cryptosporidiidae). Parasitology 146:220-233. doi: 10.1017/s0031182018001142

Wandrie, L. J., P. E. Klug, and M. E. Clark. 2019. Evaluation of two unmanned aircraft systems as tools for protecting crops from blackbird damage. Crop Protection 117:15-19. doi: 10.1016/j.cropro.2018.11.008

Clark, M. E., and J. J. DiMatteo. 2018. Age, nest initiation, and demographic characteristics of American White Pelicans (*Pelecanus erythrorhynchos*) breeding at Marsh Lake, Minnesota. The Wilson Journal of Ornithology 130:881-890. doi: 10.1676/17-090.1

DiMatteo, J. J., and M. E. Clark. 2017. Growth and Development of American White Pelican (*Pelecanus erythrorhynchos*) Chicks at Marsh Lake, Minnesota, USA. Waterbirds 40:207-220.

Stenger, B. L. S., M. Horčičková, M. E. Clark, M. Kváč, Š. Čondlová, E. Khan, G. Widmer, L. Xiao, C. W. Giddings, C. Pennil, M. Stanko, B. Sak, and J. McEvoy. 2018*.* *Cryptosporidium* infecting wild cricetid rodents from the subfamilies Arvicolinae and Neotominae. Parasitology 145:326-334.

Reed, W.L., and M.E. Clark. 2016. Timing of breeding determines growth and development in a long-distance migratory bird. Journal of Experimental Zoology Part A. 325:467-477. doi:10.1002/jez.2032.

Schmidt, J. E., A. E. Sirman, J. D. Kittilson, M. E. Clark, W. L. Reed, and B. J. Heidinger. 2016. Telomere correlations during early life in a long-lived seabird. Experimental Gerontology 85:28-32.

Chelladurai, J.J., M.E. Clark, M. Kváč, N. Holubová, E. Khan, B.L.S. Stenger, C.W. Giddings and J.M. McEvoy. 2016. Cryptosporidium avian genotype VI and Cryptosporidium galli in North American red-winged blackbirds (*Agelaius phoeniceus*). Parasitology Research 115:1901-1906. doi:10.1007/s00436-016-4930-8.

DiMatteo, J.J., J.E. Wollenberg and M.E. Clark. 2015. Implications of spring water levels on the production of American white pelicans nesting at Marsh Lake, Minnesota. Journal of Wildlife Management 79:1129-1140. doi: 10.1002/jwmg.923.

Stenger, B.L.S., M.E. Clark, M. Kváč, E. Khan, C.W. Giddings, J. Prediger and J.M. McEvoy. 2015. North American tree squirrels and ground squirrels with overlapping ranges host different *Cryptosporidium* species and genotypes. Infections, Genetics and Evolution 36:287-293. doi:10.1016/j.meegid.2015.10.002.

Niner, M.D., G.M. Linz and M.E. Clark. 2015. Evaluation of 9,10 anthraquinone application to pre-seed set sunflowers for repelling blackbirds. Human-Wildlife Interactions 9:4-13.

Stenger, B.L.S., M.E. Clark, M. Kváč, E. Khan, C.W. Giddings, N.W. Dyer, J.L. Schultz and J.M. McEvoy. 2015. Highly divergent small subunit ribosomal RNA gene copies 1 in a *Cryptosporidium* genotype from eastern chipmunks (*Tamias striatus*) Infections, Genetics and Evolution 32:113-123. doi:10.1016/j.meegid.2015.03.003.

Kváč, M., A. Hořická, B. Sak, J. Prediger, J. Salát, J. Širmarová, T. Bartonička, M. Clark, J. Chelladurai, E. Gillam, and J. McEvoy. 2015. Novel *Cryptosporidium* bat genotypes III and IV in bats from the USA and Czech Republic. Parasitology Research 114:3917-3921. doi:10.1007/s00436-015-4654-1.

Kváč, M., J. McEvoy, B. Stenger, and M. Clark. 2014. Cryptosporidiosis in other vertebrates. Pages 237-326 in S. M. Caccio and G. Widmer, Editors. Cryptosporidium: parasite and disease. Springer, New York.

Herges, G., G. Widmer, M. E. Clark, E. Khan, C. Giddings, M. Brewer, and J. McEvoy. 2012. Evidence that Cryptosporidium parvum populations are panmictic and unstructured in the Upper Midwest United States. Applied and Environmental Microbiology 78:8096-8101. doi:10.1128/aem.02105-12.

Clark, M.E., and W.L. Reed. 2012. Seasonal interactions between photoperiod and maternal effects determine offspring phenotype in Franklin’s gull (*Leucophaeus pipixcan*). Functional Ecology 26:948-958. doi:10.1111/j.1365-2435.2012.02010.x.

Reed, W. L., and M. E. Clark. 2011. Beyond maternal effects in birds: responses of the embryo to the environment. Integrative and Comparative Biology 51:73-80. doi:10.1093/icb/icr032.

Clark, M. E., T.A. Boonstra, W.L. Reed and M.L. Gastecki. 2010. Intraclutch variation in egg conductance facilitates hatching synchrony of Canada geese. *Condor* 112:447-454. doi:10.1525/cond.2010.100004.

Boonstra, T.A., M.E. Clark and W.L. Reed. 2010. Position in the sequence of laying, embryonic metabolic rate, and consequences for hatching synchrony and offspring survival in Canada geese. *Condor* 112:304-313. doi:10.1525/cond.2010.090043.

Clark, M.E. 2009. Brood parasitism in a North American population of White-faced Ibis. *Prairie Naturalist* 41:133-134.

Reed, W.L., M.E. Clark and C.M. Vleck. 2009. Maternal effects increase within-family variation in offspring survival. American Naturalist 174:685-695. doi:10.1086/605962*.*

Boonstra, T.A., M.E. Clark and W.L. Reed. 2009. Allocation of maternal resources across the laying sequence in Canada geese. Journal of Avian Biology 40:520-528. doi:10.1111/j.1600-048X.2008.04505.x

Clark, M.E., K.A. Rose, J.A. Chandler, T.J. Richter, D.J. Orth, and W. Van Winkle. 2008. Water level fluctuation effects on centrarchid reproductive success in reservoirs: a modeling analysis. North American Journal of Fisheries Management 28:1138-1156. doi:10.1577/m07-106.1.

Clark, M.E., and T.E. Martin. 2007. Modeling tradeoffs in avian life history traits and consequences for population growth. Ecological Modelling 209:110-120. doi:10.1016/j.ecolmodel.2007.06.008.

Clark, M.E., B.J. Danielson, M.V. Santelmann, J.I. Nassauer, D. White and K.E. Freemark. 2007. Impacts on mammal communities: a spatially explicit model. Pages 115-138 in J. I. Nassauer, M. V. Santelman and D. Scavia, Editors. From the Corn Belt to the Gulf: Societal and Environmental Implications of Alternative Agricultural Futures. RFF Press, Washington, D. C. 223 pp.

Reed, W.L., M.E. Clark, P. G. Parker, S.A. Raouf, N. Arguedas, D.S. Monk, E. Snajdr, V. Nolan Jr., and E.D. Ketterson. 2006. Physiological effects on demography: A long term experimental study of testosterone’s effects on fitness. American Naturalist 167:667-683. doi:10.1086/503054.

Santelmann, M.V., D. White, K. Freemark, J.I. Nassauer, J.M. Eilers, K.B. Vache, B. J. Danielson, R.C. Corry, M.E. Clark, S. Polasky, R.M. Cruse, J. Sifneos, H. Rustigian, C. Coiner, J. Wang, and D. Debinski. 2004. Assessing alternative futures for agriculture in Iowa, U. S. A. Landscape Ecology 19:357-374.

Bronikowski, A.M., M.E. Clark, H. Rodd, and D.N. Reznick. 2002. Population-dynamic consequences of predator-induced life-history variation in the guppy (*Poecilia* *reticulata*). Ecology 83:2194-2204. doi:10.1890/0012-9658(2002)083[2194:pdcopi]2.0.co;2.

Clark, M.E., K.A. Rose, D.A. Levine, and W.W. Hargrove. 2001. Predicting global change effects on brook and rainbow trout in southern Appalachian streams: combining GIS and individual-based modeling. Ecological Applications 11:161-178.

Santelmann, M., K. Freemark , D. White, J. Nassauer, M. Clark, B. Danielson , J. Eilers, R. Cruse, S. Galatowitsch, S. Polasky , K. Vache, J. Wu. 2001. Applying Ecological Principles to Land-Use Decision Making in Agricultural Watersheds. Pages 226-252 in V. H. Dale and R. A. Haeuber, editors. Applying Ecological Principles to Land Management. Springer-Verlag, New York, New York.

Rose, K.A., J.H. Cowan, Jr., M.E. Clark, E.D. Houde, and S.B. Wang. 1999. An individual-based model of bay anchovy population dynamics in the mesohaline region of Chesapeake Bay. Marine Ecology Progress Series 185:113-132.

Clark, M.E., K.A. Rose, J. A. Chandler, T.J. Richter, D.J. Orth, and W. Van Winkle. 1998. Simulating smallmouth bass reproductive success in reservoirs subject to water level fluctuations. Environmental Biology of Fishes 51:161-174. doi:10.1023/a:1007489627887.

Clark, M.E., and K.A. Rose. 1997. Factors affecting competitive dominance of rainbow trout over brook trout in southern Appalachian streams. Transactions of the American Fisheries Society 126:1-20.

Clark, M.E., and K.A. Rose. 1997. An individual-based modeling analysis of management strategies for enhancing brook trout populations in southern Appalachian streams. North American Journal of Fisheries Management 17:54-76.

Clark, M.E., and K.A. Rose. 1997. Individual-based model of stream-resident rainbow trout and brook char: model description, corroboration, and effects of sympatry and spawning season duration. Ecological Modelling 94:157-175.

Clark, M.E., and L.J. Gross. 1990. Periodic solutions to nonautonomous difference equations. Mathematical Bioscience 102:105-119.

**e. Research Grants**

2017 United States Geological Survey, Great Plains Cooperative Ecosystems Studies Unit (CESU) Effects of movement, nest site selection and habitat dynamics on reproductive success of Piping Plovers and Least Terns in the Northern Great Plains, $48,600

2016 National Sunflower Association, Evaluation of two unmanned aerial system platforms as tools for protecting sunflower crops from Blackbird damage, $10,000

2014 United States Geological Survey, Great Plains Cooperative Ecosystems Studies Unit (CESU) Movement of Northern Leopard Frogs in Landscapes of the Northern Plains, $50,000

2014 Minnesota Department of Natural Resources, Impact of the 2010 Gulf Oil Spill on egg constituents of American White Pelicans breeding in Minnesota, $16,000

2011 United States Geological Survey, Great Plains Cooperative Ecosystems Studies Unit (CESU) Cooperative/Joint Venture Agreement NDSU and Northern Prairie Wildlife Research Unit, $500,000

2011 Minnesota Department of Natural Resources, Impact of the 2010 Gulf Oil Spill on egg constituents of American White Pelicans breeding in Minnesota, $34,000

2010 Minnesota Department of Natural Resources, Population dynamics and management implications for American white pelicans breeding at Marsh Lake, Lac Qui Parle Wildlife Management Area, $22,000

2009 North Dakota Department of Game & Fish, Relationships among landscape composition, nesting density, chick condition, adult condition and reproductive success in Franklin’s gull, $71,154

2008 United States Department of Agriculture, Source, fate and transport of Cryptosporidium in a rural Midwestern watershed, $300,000

2007 NDSU AES-CSM Collaboration Grants, Dispersal of Cryptosporidium by an urban population of Canada geese, $10,000

2007 United States Fish & Wildlife Service, Effects of nest density and yolk resources on offspring performance in Franklin’s gull, $2,200

2005 National Science Foundation, Linking population states to individual behavior and physiology in the American coot, $100,000

2005 United States Department of Agriculture, Compensatory effects of density in nesting Red-winged blackbirds. $30,000

2004 Delta Waterfowl Foundation, Mechanisms underlying hatching synchrony in Canada Geese, $8,000

2002 NDSU Grant-in-Aid, Assessing natal philopatry in American coots and Redhead ducks, $5,000

**f. Synergistic activities**

2003-2008: Associate Editor, *Transactions of the American Fisheries Society*

2002-Present: ND representative, North Central Regional Aquaculture Center

2007-2010: Service & Outreach Committee, College of Science & Mathematics, NDSU

2008-Present: Library Liaison, Department of Biological Sciences, NDSU

2012-2014: Graduate Affairs Committee, Department of Biological Sciences, NDSU

2014: Chair Evaluation Committee for Department of Statistics, College of Science & Mathematics, NDSU

2012-2015: Faculty Senate, NDSU

2012-2016: Institutional Animal Care & Use Committee (Alternate member), NDSU

2013-2014: Promotion, Tenure & Evaluation Committee, College of Science & Mathematics, NDSU

2014-2015: Undergraduate Affairs Committee, Department of Biological Sciences, NDSU

2015-Present: Curriculum Committee (Alternate member), College of Science & Mathematics, NDSU

2016-2017: Chair, Undergraduate Affairs Committee, Department of Biological Sciences, NDSU

2017-2019: Public Relations Committee, Department of Biological Sciences, NDSU

2017-2019: Institutional Animal Care & Use Committee, NDSU

2017-2019: Service & Outreach Committee, College of Science & Mathematics, NDSU