



IN MEMORIAM

## Mary Bomberger Brown, 1957–2019

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Published December 30, 2019

Mary Bomberger Brown, an ornithologist, conservation biologist, and behavioral biologist at the University of Nebraska-Lincoln (UNL), passed away in her home from complications after a long battle with cancer on August 24, 2019. Mary had served as Editor for the *Wilson's Journal of Ornithology*, and was an Elective Member (2008) and Fellow (2013) of the American Ornithologists' Union (AOU) (now the American Ornithological Society).

Mary was born on April 11, 1957, in Lincoln, Nebraska, to Donald and Ruth Bomberger. Early family trips to Colorado inspired Mary's interest in ornithology. She attended UNL, where she received her BS (1979) and MS (1982) in Biological Sciences. She was influenced during her undergraduate years by interactions with Paul Johnsgard, who served as advisor for her MS thesis on the breeding biology of Wilson's Phalaropes. She received her PhD in Natural Resource Sciences (Applied Ecology) in 2011 from UNL.

Mary served as a research associate on a long-term Cliff Swallow project with Charles R. Brown, beginning in 1982. Over the next 25 yr, she held positions related to the Cliff Swallow work at Princeton University, Yale University, and the University of Tulsa. Charles and Mary were married from 1984 to 2007. Their investigations of these unique birds nesting in colonies on cliffs and under bridges provided the foundation for what is known about tradeoffs of organisms breeding colonially. After moving to UNL in 2007, Mary became the Coordinator of the Tern and Plover Conservation Partnership. In 2012, she was named Research Assistant Professor and as Professor of Practice in 2017.

Mary co-authored 4 books, including one with almost 500 citations that she co-authored with Charles based on their work in western Nebraska, *Coloniality in the Cliff Swallow: The Effect of Group Size on Social Behavior* (University of Chicago Press, 1996). She once noted that the breadth and scope of scholarly products resulting from the Cliff Swallow project demonstrated the value of a thorough study on a single species. Mary authored more than 160 scientific papers on Cliff Swallows, Least Terns, Piping Plovers, Greater Prairie-Chickens, and other species based



Mary Bomberger Brown (courtesy of the University of Nebraska-Lincoln).

on her work with numerous collaborators. The breadth of topics included behavioral ecology, sociobiology, natural selection and evolution, morphology, climate change, demography, endocrinology, disease ecology, conservation and management, natural history, and parasitology. Her research was featured in over 200 articles, news releases, television stories, and nature documentaries. She served as an official adviser and mentor to 24 undergraduate students, graduate students, and postdoctoral research associates.

Mary's numerous awards include the Elliott Coues Award from the AOU (2009) for lifetime achievement, which she shared with Charles, Conservationist of the Year from the Nebraska Bird Partnership (2013), the Nebraska Natural Legacy Award (2019), and the Harry R. Painton Award (1999) from the Cooper Ornithological Society for best paper published in *The Condor*. She also received an award (1992) from the American Alliance of Museums for an exhibit in Yale University's Peabody Museum of Natural History.

Mary's long-time collaborator, Charles Brown, related that Mary was the consummate field biologist during their work on Cliff Swallows. She was never reluctant to do anything that the research required, including tedious physical labor, personal sacrifices involved in relocating to the field site for 3 mo every year, and learning new techniques on her own. One of her principal contributions to the project involved constructing from scratch a massive mark–recapture dataset, which eventually contained over 230,000 individual birds and over 400,000 captures and recaptures. Beginning with a personal computer (PC) that had one of the largest hard drives of any at Yale University (with a whopping 40 megabytes!), Mary managed this dataset first on magnetic tape on Yale's mainframe computer and then later on hundreds of floppy discs required for backups (one year she read most of *Moby Dick* while patiently waiting for the files to transfer from tape to floppies). With multiple incarnations of PCs and continual software and operating system transitions, it was a testament to Mary's foresight in building the dataset and to her care in nurturing it that no part of it was ever lost or had to be reconstructed, and the same dataset is still being used for analyses 35 yr after she created it.

In 1996, the Nebraska Cliff Swallow population experienced a weather-related mortality event in which over 50% of the population died during a 6-day period due to cold weather and resulting starvation. Charles and Mary documented intense natural selection on morphological traits such as wing, tail, and tarsus length, bill dimensions, and degree of fluctuating asymmetry. In part because of the insight into rapid evolution that the climatic event provided, the next year they realized the importance of routinely measuring the morphometrics of Cliff Swallows. However, because of variation in measurements among different people, Mary assumed the role of sole measurer of all birds, a task that she continued until she left the project. During this 10-yr period, she measured over 25,000 live birds. This dataset eventually became the cornerstone for her doctoral work, in which she documented continued long-term change in morphometric traits even after the weather event.

Charles and Mary collected over 1,800 dead Cliff Swallows during the 1996 weather event. Mary prepared study skins of these specimens, doing all of them in just a few months. She was particularly proud when she prepared 26 skins in a single day. She also prepared many of the specimens from other years, and the current collection of over 2,400 Cliff Swallow skins across 38 yr has enabled study of long-term temporal change in morphometrics such as head size, wing length, and coloration. Mary's diligence in preparing specimens of every dead Cliff Swallow each summer allowed a study of how road-kill mortality changed over time, a finding that generated worldwide media attention. Whenever anyone commented on how pretty her specimens from 1996 were and especially how the feathers were so free of soiling due to fat, she always

quipped in her typical self-effacing way, "Well, they're only here to begin with because they didn't have any fat."

The Cliff Swallow project is one of Mary's important legacies. She remained a collaborator on the project until her death. She not only was instrumental in the discoveries reported in the many scientific papers that resulted, she also created long-term datasets and a specimen collection that will provide unparalleled opportunities to study temporal ecological change well into the future.

At UNL, Mary built a career based on conservation and management of species of concern. Her work with the Tern and Plover Conservation Partnership aimed to bridge the gap between sand and gravel miners and state and federal regulatory agencies, and to the collection of data to support conservation of Piping Plovers and Least Terns in the Platte River Valley and beyond. Mary banded plovers and terns, and was delighted when she received reports and photos of plovers from Nebraska on their wintering beaches to the south. Mary also contributed to work on secretive marsh birds and investigations of the effects of wind energy generation on Greater Prairie-Chickens. These projects informed the management and planning efforts for the Nebraska Game and Parks Commission, while serving to increase our understanding of mating behaviors and communication in prairie-chickens at leks. Mary's innovation, creativity, leadership, and productivity were demonstrated on the prairie-chicken project, which resulted in 14 publications from only 3 yr of fieldwork. Mary also reached out to the public, supporting after-school programs at elementary schools and collaborating with the Platte River Time Lapse Project to document dynamics in the watershed that affect species of conservation concern.

Mary often commented that one of her greatest joys was the opportunity to serve as a mentor, and she was a tireless supporter of young scientists. She mentored over 100 field technicians during her career with research on Cliff Swallows, terns, and plovers. Through her editorial work, she encouraged many young scientists and international scientists, as well as ecologists working with little-known species. She helped found the UNL's chapter of the Association of Women in Science, and was asked to serve on the Chancellor's Commission on the Status of Women.

Mary was an avid bicyclist and was an annual participant with friends in the Bike Ride Across Nebraska and other road biking events. She loved spending time with friends, and was known for her daily rounds through the building to visit with students, staff, and other teachers and researchers. Perhaps her most lasting achievements are the professional and personal communities that she supported with grace, dedication, and devotion.

Mary is survived by her brother David Bomberger, his wife Candy, and one niece.

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