



## Marine Mammals of Rhode Island: The Historical Context

By **ROBERT D. KENNEY**

Some three-dozen species of marine mammals are known to occur in Narragansett Bay, Block Island Sound, Rhode Island Sound, and nearby coastal and continental shelf areas. Kathy Vigness-Raposa and I completed a detailed review of their occurrence in the region (and that of the sea turtles as well) in a technical report in support of the Rhode Island Ocean Special Area Management Plan (Ocean SAMP) (Kenney and Vigness-Raposa 2010). In 2013, I began a series of posts on the Rhode Island *Naturalist* blog. The plan was to create a set of abbreviated summaries—each focusing on one species or a couple of closely related species, briefly summarizing historical information, biology and life history, and what we know about current distribution and status. Now that *Rhode Island Naturalist* is returning as a more formal publication, we are going back to the beginning and running the same series in our re-born journal.

Before starting on the first species, however, I need to introduce both the range of historical sources of information on marine mammals in Rhode Island and the cast of characters involved. I will also provide full bibliographic information on those early sources for those who may want to dig deeper on their own. For the individual species accounts to follow in future issues, my plan is to minimize the citations to the literature, except perhaps for the occasional paper that might be the source for some critical point. In addition, for some species enough time has passed since the original Ocean SAMP report that significant updates or revisions will be necessary.

The first published list of the state's mammalian fauna was "The Native Mammals of Rhode Island," published in 1900 by Edgar Alexander Mearns (1856–1916), an

Army surgeon who was stationed at Fort Adams in 1899 and 1900 (Fig. 1). That paper was essentially a request for information toward the goal of developing a detailed catalog of the state's mammals, and included two simple listings—the 50 "wild mammals known to have inhabited the State of Rhode Island during the historic period" and another 32 species "whose occurrence ... may be looked for with some degree of probability."

The first listing included 11 marine species; the second added another 4. Major Mearns was a model of the self-trained amateur naturalist of the Victorian era; he had begun recording his observations of the local plants and animals around his boyhood home in New York's Hudson Valley around the age of ten, and was later one of the founders of the American Ornithologists Union. Wherever he was posted during his Army career—Arizona, Minnesota, Texas, Virginia, Yellowstone, the Philippines (twice), or Rhode Island—he took the opportunity to study the local flora and fauna and to collect thousands of specimens to ship back to the Smithsonian. While in Rhode Island, he scoured every possible source of local information, and also corresponded widely with the other naturalists and scientists working in the region at the time.

(continued on Page 4)

### In This Issue:

- \* Marine Mammals of RI: The Historical Context
- \* A Message from the Editors
- \* President's Corner
- \* Did I Just See a Coyote, a Dog, or a Wolf?
- \* 20th Century Naturalists I Have Known
- \* Rhode Island Collections:
  - The Audubon Society of RI's Geology Collection
- \* Executive Director's Journal
- \* Science News: The Songs They Are a-Changin'
- \* Posthumous Distinguished Naturalist 2020
- \* Absent Friends

R H O D E I S L A N D



NATURAL HISTORY SURVEY

*Providing Ecosystem Science and Information*

## A Message from the Editors:

WELCOME BACK! It has been too long since the last time *Rhode Island Naturalist* was published. With the increasing costs of printing, postage, and professional lay-out services, putting out regular issues became harder and harder. Our last printed issue was 13 years ago, in Summer 2007. We started on the following issue in 2008, and finally gave up on it 2 years later—still incomplete and with many of the articles obsolete by then. Technology has now made it much easier to publish digitally—with the advantage of including full-color photos and illustrations.

This issue includes two contributions left over from that never-seen 2008 issue. Unfortunately, the authors of both have passed away. One is Roland Clement's memoir about his life's work in natural history and conservation, which he developed from a talk at one of our meetings on the occasion of Al Hawkes being presented a Distinguished Naturalist Award. The other is Mike Kieron's article about the Audubon Society of Rhode Island's collection of geological specimens and fossils. Occasional articles about collections, either held in Rhode Island or containing substantial local components, are something we have included in the past and hope to include in future issues. There are two other science articles from that old issue that we may be able to include in the future, but given the amount of time that has passed, both need to be updated.

Other highlights of this issue of the re-born *Rhode Island Naturalist* include features that we expect to have in every issue—short notes from the board President and Executive Director, articles about science or research, short science news stories about interesting science being done elsewhere, and artwork or photography contributed by our members and readers. This issue also includes other types of articles that will not be in every one, including a profile of one of this year's group of Distinguished Naturalists, and articles about notable Survey members and friends who have recently passed away. Other types of articles we hope to offer in future issues include articles about community science projects (e.g., watch for the next issue for a longer story about our recent Backyard BioBlitz), "Focus On" stories featuring one of our organizational members, reviews of books that would be of interest to our readers (plants, animals, habitats, geology, hydrology, soils, etc.), informal field observations in "Notes from the Field," profiles of prominent Rhode Island naturalists—historical or contemporary, the history of natural history, or any other information you think would be pertinent to the Rhode Island natural history community. We'll also consider letters to the editors, or questions for the Survey staff or board. Send your contributions as email attachments to [RINaturalist@rinhs.org](mailto:RINaturalist@rinhs.org).

Co-editors:

Stephen S. Hale and Robert D. Kenney



Hummingbirds in flight by Frances Topping  
(watercolor)

## Rhode Island Backyard BioBlitz 2020

Good fun, great finds, less coffee, and more sleep are a few things we can report from our first ever Backyard BioBlitz, June 27 and 28. From all perspectives it was a huge success! 140 participating sites (125 in RI) and 295 participants (many first timers)—67 of whom were students (kindergarten to college). We have compiled most of the data sheets but it isn't too late to submit one if you haven't done it yet! We plan to have a total species count and event overview ready for late October—stay tuned! Til then, here is a little taste of Backyard BioBlitz inspired artwork.



Sawfly larva by Melissa Guillet  
(watercolor from photo)

# President's Corner . . . What a Year

---

“May you live in interesting times.” This apocryphal saying, often viewed as an ancient curse, certainly feels like it has come to inhabit 2020. Only a little more than half over—and it’s hard to imagine this year could continue on its current trajectory of weirdness much longer. Fingers crossed that everything from now on will be an improvement.

In January, as the stories of COVID-19 began to rise above the background noise of the daily news cycle, it was unimaginable that by the end of March, our world would be so changed. In April, the cancellation of the Survey’s monthly board meeting was only the beginning of a long string of cancellations, postponements, and multiple drastic changes in how we do everything to adapt to the new reality. Our annual meeting and Distinguished Naturalist Award presentations scheduled for April had to be postponed, but we managed to have a digital election of board members for the next year.

We were honored in late April to make the inaugural research grant awards from the “Henry and Theresa Godzala Research Fund.” There was a strong field of project proposals, and the three individual awards were the result of careful consideration given by the Ecological Science and Data Committee. I’m sure you will be seeing updates from the recipients in future issues of this publication.



Emilie Holland, President,  
Survey Board of Directors

Later in the spring, it became apparent we would need to postpone Rhode Island BioBlitz 2020, which had been planned for early June at Mercy Woods in Cumberland. Once we realized that, at 20 years and counting, ours was the longest continuously running BioBlitz in the country, there was no way we could let a meddling pandemic ruin our record. And thanks to the resiliency and creativity of the Survey’s dedicated staff, we did hold BioBlitz number 21—the first-ever “Rhode Island Backyard BioBlitz”—over the last weekend in June. Participation was amazing! Almost 300 of you spent at least part of the day sleuthing close to home, and the tally of species is still underway. You can still browse a gallery of finds on the event’s Project Page on iNaturalist. Watch for a complete summary in the Spring edition of *Rhode Island Naturalist*. And for all who have inquired, yes—we do still plan to hold a future BioBlitz at Mercy Woods.

Even though staff continue to work mostly from home, and board and committee meetings are still being conducted via videoconferencing, we have found ways to build connections with old and new friends, through events like our “Last Wednesday Teas.” These newly virtual get-togethers have turned out to be really interesting and well-attended. We are excited to be working on ways to incorporate new outlets like these in a continuing form, even into the post-pandemic future.

In spite of all of the uncertainty and hardship our community has faced this year, we have been humbled by the outpouring of support from longtime members and new friends. Thanks to everyone who participated in the 401 Gives challenge in April. Combined with generosity of so many, the assistance provided through the CARES Act has helped us avoid the need to consider any staff lay-offs. Fingers crossed again. So far it looks likely that the Survey will survive the year financially. Ditto.

It is so exciting to be bringing back the *Rhode Island Naturalist* after a long hiatus. I believe this will be a great way for the Survey to continue fulfilling our mission and to spark connections among our members and readers. A round of thanks to our co-editors—RINHS Vice President, Stephen Hale, and Secretary, Robert Kenney—for their dedication in making it happen; you would not be reading these words otherwise.

If you aren’t already signed up, the best way to keep track of happenings with the Survey is through our “News to Use” email newsletter. It does not show up in your email in-box often enough to be annoying, the information is always useful, and we promise not to share your contact information with anyone else. Send an email to [programadmin@rinhs.org](mailto:programadmin@rinhs.org) to sign up.

*Emilie Holland*

(continued from Page 1)

There were two Harvard-educated American naturalists of the Victorian era named “Allen” who both published major works on marine mammals. Joel Asaph Allen (1838–1921) was probably best known for his work on birds. He began his career as an assistant in ornithology at Harvard’s Museum of Comparative Zoology (MCZ), and was the first curator of birds and mammals at the American Museum of Natural History in New York. His major work on marine mammals was a monograph on North American seals, sea lions, and walrus in 1880. He also published a paper in 1908 reviewing information on North Atlantic right whales.

Glover Morrill Allen (1879–1942) was the curator of mammals at the MCZ. In 1916 he published a 216-page monograph on baleen whales—“The Whalebone Whales of New England.” (J.A. Allen wrote a review in *Science* of G.M. Allen’s monograph, so there are two “Allen 1916” publications with the same title but different authors to forever confuse students doing whale research in the old

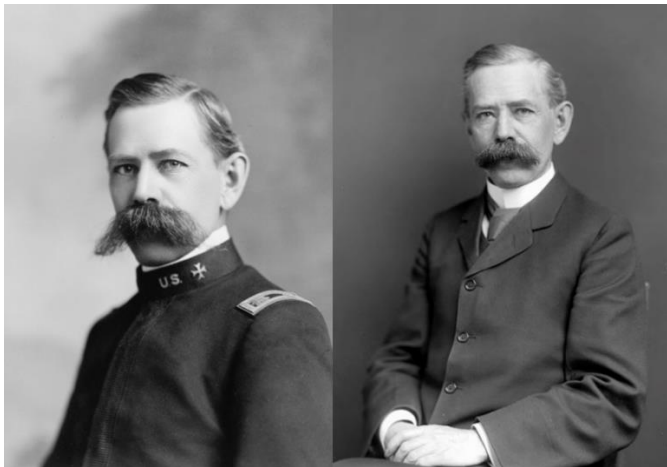


Figure 1. Edgar A. Mearns, U.S. Army Surgeon. Left: c. 1890, in uniform (Library of Congress catalog number 96502367, in the public domain), right: c 1900, when he was stationed at Fort Adams in Newport, Rhode Island (Smithsonian Institution archives, in the public domain). From a modern perspective, his spectacular mustache does not seem to be very military. However, according to Nathaniel Philbrick’s biography of George Armstrong Custer, there was a perfectly valid reason for an Army officer to sport such an adornment. In the days before SPF30 lip balm, a big mustache prevented sun-burned lips during long stretches in the hot sun, whether fighting a war or collecting biological specimens.

literature.) Because of their high economic value, the baleen whales historically have been the focus of substantially more scientific effort than other cetaceans. Allen exhaustively reviewed seemingly everything that had been written before him about baleen whales in New England, back to the earliest accounts from the colonial era. J.A. Allen’s 1908 right whale paper was an important

source for him. Many of the specific Rhode Island records included in the monograph were provided to Allen in letters from Major Mearns.

Frederick William True (1858–1914) was another well-known American biologist during the same period as Major Mearns and the two Allens. He worked at the Smithsonian Institution from 1881 until his death, and was the first head curator of biology at the United States National Museum. His research specialty was cetaceans (whales and dolphins). He published monographs on baleen whales in 1904 and on dolphins and porpoises in 1889. His baleen whale monograph was another important source for Allen (1916).

Returning to sources specifically dealing with Rhode Island, the second published mammal list following Mearns (1900) was published in 1952 by Roland C. Clement (see article on p. 9), then director of the Audubon Society of Rhode Island. It was simply a checklist, and included only terrestrial species. The third came a decade later in *The Mammals of Rhode Island* (first published in 1962, revised in 1968), by John M. Cronan and Albert Brooks. They rightly described their publication as “the first comprehensive study of the mammals of Rhode Island.” It did include marine mammals, and remains the only complete summary of information on all mammals known from the state at the time of publication. Two more checklists were published following Cronan and Brooks. The state Water Resources Board (WRB) published a checklist of all fish and wildlife species in 1976, but like Clement included only terrestrial mammals. August et al. (2001) published a checklist of the state’s mammals, including an up-to-date list of marine species, as a chapter in the vertebrate volume of RINHS’s *Biota of Rhode Island series*.

Turning to our neighboring states, James Ellsworth De Kay (1792–1841) published the first comprehensive review of the mammals of New York in 1842, although his treatment of the marine mammals was relatively incomplete and relied heavily on second-hand anecdotal sources. Paul F. Connor published a comprehensive review of the mammals of Long Island in 1971, including marine mammals, as one piece of a never-completed region-by-region review of the New York mammal fauna. Connor’s review summarized what was published in available historical sources, evidence from contemporary strandings and other specimens, and reliable reports from fishermen and others.

For Connecticut, Rev. J.H. Linsley (1842) published an early review of the mammals of Connecticut, including marine species. Some of his information drew on

correspondence with De Kay, whose treatise was published at about the same time. A century later, G.G. Goodwin (1935) relied heavily on Linsley and De Kay for his review of Connecticut mammals.

Joseph H. Waters and C. Jean-Jacques Rivard published a review of the mammals of Massachusetts in 1962, which was intended for a non-professional audience. The marine mammal accounts were relatively sparse and seemed to be based heavily on anecdotal information. They included a table of cetacean sightings and strandings since 1940 (also extending to Rhode Island). Their primary sources besides those recent occurrences were two checklists published just before their summary—one for all of New England (Grayce 1957) and one for New Hampshire (Carpenter and Siegler 1958), Allen (1916) for only the baleen whales, and a very small number of recent papers in the primary literature.

One final scientist whose efforts deserve mention is Dr. James G. Mead, a friend and colleague who retired some years ago as marine mammal curator from the Smithsonian's National Museum of Natural History. Besides being one of the world's top marine mammal systematists and an expert on the beaked whales, he and the Smithsonian were pioneers in the use of computers for organizing and archiving biological information. He oversaw the creation of a database of marine mammal occurrence records, which included painstakingly extracting and computerizing all of the occurrences noted in publications such as Allen (1916), Cronan and Brooks (1968), Connor (1971), and many others. The resulting database has been a "goldmine" of historical distribution data.

## Literature Cited

Allen, G.M. 1916. The whalebone whales of New England. *Memoirs of the Boston Society of Natural History* 8(2):107–322.

Allen, J.A. 1880. *History of North American Pinnipeds. A Monograph of the Walruses, Sea-lions, Sea-bears and Seals of North America*. Miscellaneous Publications, No. 12. U.S. Geological and Geographical Survey of the Territories, Washington, DC. 785 pp.

August, P.V., R.D. Kenney, and T.P. Husband. 2001. Mammals. Pp. 60–66 in: P.V. August, R.W. Enser, and L.L. Gould (eds). *Vertebrates of Rhode Island. Biota of Rhode Island*, volume 2. Rhode Island Natural History Survey, Kingston, RI.

Carpenter, R.G., 2nd, and H.R. Sigler. 1958. *A List of New Hampshire Mammals and Their Distribution*. New Hampshire Fish and Game Dept., Concord, NH.

Clement, R.C. 1952. *An Annotated Check-list of the Land Mammals of Rhode Island*. Audubon Society of Rhode Island, Providence, RI.

Connor, P.F. 1971. *The Mammals of Long Island, New York*. Bulletin 146. New York State Museum & Science Service, Albany, NY.

Cronan, J.M., and A. Brooks. 1968. *The Mammals of Rhode Island*. Wildlife Pamphlet no. 6. Rhode Island Dept. of Agriculture and Conservation, Division of Fish and Game, Providence, RI.

De Kay, J.E. 1842. *Zoology of New York; or, the New York Fauna; Comprising Detailed Descriptions of All the Animals Hitherto Observed Within the State of New York; With Brief Notices of Those Occasionally Found Near Its Borders, and Accompanied by Appropriate Illustrations. Part I. Mammalia*. W. & A. White and J. Visscher, Albany, NY.

Goodwin, G.G. 1935. *The Mammals of Connecticut*. Bulletin no. 53. State of Connecticut, State Geological and Natural History Survey, Hartford, CT.

Grayce, R.L. 1957. Checklist of New England Mammals. *Bulletin of the Massachusetts Audubon Society* 41(1):15–24, 26.

Kenney, R.D., and K.J. Vigness-Raposa. 2010. Marine mammals and sea turtles of Narragansett Bay, Block Island Sound, Rhode Island Sound, and nearby waters: An analysis of existing data for the Rhode Island Ocean Special Area Management Plan. Pp. 701–1037 in: *Rhode Island Ocean Special Area Management Plan. Volume 2 Appendix A: Technical Reports for the Rhode Island Ocean Special Area Management Plan*. Rhode Island Coastal Resources Management Council, Wakefield, RI. Available on-line at <http://seagrant.gso.uri.edu/oceansamp/pdf/appendix/10-Kenney-MM&T.pdf>.

Mearns, E.A. 1900. The native mammals of Rhode Island. *Circular of the Newport Natural History Society* 1:1–4.

True, F.W. 1889. *Contributions to the Natural History of the Cetaceans; A Review of the Family Delphinidae*. Bulletin no. 36. U. S. National Museum, Washington, DC.

True, F.W. 1904. The whalebone whales of the western North Atlantic. *Smithsonian Contributions to Knowledge* 33:1–332.

Waters, J.H., and C.J.-J. Rivard. 1962. *Terrestrial and Marine Mammals of Massachusetts and Other New England States*. Standard-Modern Printing Co., Brockton, MA.

WRB (Water Resources Board). 1976. *Fish & Wildlife: Inventory of Rhode Island's Fish and Wildlife*. Water and Related Land Resources Planning, task no. 10. State of Rhode Island, Water Resources Board, Providence, RI.

*Dr. Bob Kenney is an Emeritus Marine Research Scientist at the URI Graduate School of Oceanography specializing in marine mammal ecology and conservation, a board member of RINHS, and a co-editor of Rhode Island Naturalist.*

# Did I Just See a Coyote, a Dog, or a Wolf?

By ROBERT D. KENNEY

The coyote, *Canis latrans*, is becoming a more and more familiar inhabitant of Rhode Island's rural, suburban, and even urban landscapes. More people are seeing Coyotes more often, and many of them believe they have seen very big individuals that are significantly bigger than very large dogs. Some people even think that they may have spotted some sort of wolf. RINHS Executive Director David Gregg decided to deal with this common public misconception head-on and set the record straight. For a public program on Rhode Island mammals, he constructed a set of life-size plywood cut-outs of three species of canids for comparison—eastern coyote; gray wolf, *Canis lupus*; and domestic dog, *Canis lupus familiaris* (Fig. 1). For the size of each cut-out, he used the documented size of a large male of the species to be consistent, with the dog represented by the German shepherd breed. David's research came up with the following size data:

- Coyote—weight 18 kg (40 lb), length (nose to tail) 132 cm (52 in), height (at shoulder) 37 cm (15.5 in);
- German shepherd—weight 38.5 kg (85 lb), length 152 cm (60 in), height 66 cm (26 in);
- Gray wolf—weight 45 kg (99 lb), length 170 cm (67 in), height 73 cm (29 in).



**Figure 1.** Comparing the sizes of three taxa of *Canis*, each represented by a large adult male (left to right): eastern coyote, German shepherd dog, and gray wolf (photo by R. D. Kenney).

The bottom line is that coyotes are substantially smaller than German shepherds, and gray wolves are bigger than

either of them. What is also true is the coyotes in Rhode Island, or in the eastern U.S. generally, are larger on average than coyotes in the West. Investigating why that might be the case tells us some very interesting things about the recent history of coyote distribution in eastern North America. It also will take us deep into the taxonomic weeds.

Coyotes were able to expand into eastern North America because gray wolves had been extirpated throughout much of their range as human settlement expanded (Paquet and Carbyn 2003). As they moved east, they hybridized with wolves; the question is—which wolves? Several studies have shown that coyotes in the East have a mixture of genes from western coyote, gray wolf, eastern wolf (*Canis lycaon*), and dog, with the percentages differing between locations (Wilson et al. 2009, Way et al. 2010, Monzón et al. 2014, Way and Lynn 2016). What does that make eastern coyotes—a species, a subspecies, a variety, or something else? An exchange of two essays in 2015 and 2016 in *The Conversation*, an on-line, non-profit, news and discussion forum, is a perfect illustration of the complexity. The two writers were Roland Kays, North Carolina Museum of Natural Sciences and North Carolina State University, and Jonathan G. Way, Clark University. The bibliography includes links to both articles, so interested readers can investigate the details for themselves.

Kays (2015) was objecting to the trending use of the name “coywolf”—on a PBS special, in the *Economist*, and in multiple Facebook posts. Yes, they are hybrids, but none of them are just coyote and wolf, and the percentages differ regionally, so they are not one consistently recognizable thing everywhere. Coyotes in the Northeast are 60–80% coyote, 8–25% wolf, and 8–11% dog; while the percentages are closer to 85/2/13 in Virginia and 91/4/5 in the Deep South. “Coywolf” implies equivalent contributions from both, but some have almost no wolf ancestry at all.

Way (2016) responded that what many were calling the eastern coyote should be classified as a fully separate species, and that it should be considered neither as coyote nor wolf, but as a hybrid between the two that would best be called coywolf. Way and Lynn (2016) had suggested the scientific name *Canis oriens*. (Whether their paper constitutes the valid publication of an official species name depends on whether they met all the conditions required under the International Code of Zoological Nomenclature—beyond our scope here).

Other vernacular names that have been used are coydog, tweed wolf, brush wolf, new wolf, northeastern coyote, and eastern coyote. Way's chief argument was that the animals in question are, on average, recognizably different from the parental species in appearance, genes, and behavior and therefore should have a different name. In a short journal article, Kays and Monzón (2017) disagreed—pointing out that if coywolf was a valid species, it should be isolated sufficiently that there is no gene flow across species boundaries, but that hybridization appeared to be still occurring.

The “bible” of mammalian taxonomy is *Mammal Species of the World: A Taxonomic and Geographic Reference*, edited by Don Wilson and DeeAnn Reeder. The third edition (usually referred to as *MSW3*) was published in 2005 (Wilson and Reeder 2005). *MSW4* is expected soon. Most “official” lists of mammals, e.g., the American Society of Mammalogists list of U.S. mammals, are based on *MSW3*. The value of any major compendium like *MSW3* is not that it represents the most up-to-date conclusions, but that it provides a consensus across the research community at the time of publication. According to *MSW3*, only two species of *Canis* are found in North America, the gray wolf and the coyote. There are 19 subspecies of coyote listed, all in North or Central America—not including a separate taxon for eastern coyotes. For gray wolf, there are 37 different subspecies, although they occur around the world in the Northern Hemisphere. The North American subspecies listed in *MSW3* include a number of gray wolf varieties, plus *Canis lupus lycaon*, eastern wolf; *C. l. rufus*, common red wolf; *C. l. floridanus*, Florida red wolf; *C. l. grigoryi*, swamp (red) wolf; and *C. l. familiaris*, domestic dog.

To make the whole picture even more complicated, a relatively recent paper by vonHoldt et al. (2016) based on whole-genome sequences reported that both red wolves and eastern wolves possessed genes from both gray wolves and coyotes, with significant proportions of the latter in both of them. I guess that would make them all “coywolves” of one sort or another. The evolutionary divergence of the gray wolf and coyote lineages was recent enough that hybridization can be common. Westfall (2016) went so far as to suggest that even the coyote might not be a separate species, but possibly should be considered as another subspecies of gray wolf. In addition to raising new taxonomic questions, all of this also has ramifications for conservation actions. vonHoldt et al. point out that the U.S. Fish and Wildlife Service (USFWS) recognizes the red wolf as an endangered species, but is using their recent recognition of the eastern wolf as a separate species to justify removing the gray wolf from the endangered species list from almost its

entire range. Their claim is that the wolf that was extirpated from broad areas was the eastern wolf, although they are not planning to add it to the list of endangered species. (The issue of how political considerations impact endangered species listings might be a topic for another day.)

The evolution of North American *Canis* species is a complicated story of three interacting processes—geographic isolation, natural selection, and hybridization. Gray wolves were widespread in both the Old and New Worlds. Some North American population(s) became isolated and under natural selection in different habitats differentiated into what we would recognize as coyotes. But hybridization between wolf and coyote was still possible, and was more likely whenever a very small population of one lived near the other species. Think of it as a mate availability issue; if the numbers of both species in a local area are relatively high, animals generally mate with others of their own species. It is only when one is very scarce that mating between species becomes likely. Populations that might constitute eastern wolves, red wolves, or other wolf or coyote subspecies were geographically isolated and evolved, with still more hybridization events. Then the first Native Americans migrated into North America from Asia, bringing their dogs with them and a source of new genes. The black coloration that appears in both coyotes and wolves is believed to have come from those Asian dogs (Anderson et al. 2009). Eventually European colonists came, bringing both their own dogs and a distinct dislike of wolves. Wolves were extirpated from much of North America, especially in the East. Coyotes from the West were able to expand into vacated territory. About 100 years ago, in the region north of the Great Lakes, some mated with eastern wolves. Then about 50 years ago, dog genes with European bloodlines were incorporated, probably in the region around far northern New York. Since then, coyotes have continued their range expansion, with occasional hybridization events on the frontiers of that expansion. The end result is what we see today—multiple species or subspecies of coyotes and wolves throughout North America and extreme variation in the gene frequencies in the coyotes in the East, whatever name might be applied to them.

So, for the time being, “eastern” coyotes are not recognized on the official list of mammals, while eastern wolves, red wolves, and domestic dogs are all considered as a subspecies of gray wolf. On the other hand, USFWS considers coyotes and the three wolves as four separate species. It is important to remember, however, that taxonomic classifications are scientific hypotheses, subject to falsification or revision with new and/or better data.

Evolution is a messy and complicated process, populations exist along a continuum of evolutionary change, and taxonomy is our way of sorting out nature into categories that both make sense to us and reliably represent evolutionary histories. Science will never “prove” that one classification or another is true, and there will always be the same tension between the lumpers and the splitters. We just have to wait for *MSW4* to see if there will be changes to the consensus taxonomy of North American *Canis* species, and there is no reason to expect that it will not change again in *MSW5*.

## Literature Cited

- Anderson, T.M., B.M. vonHoldt, S.I. Candille, M. Musiani, C. Greco, D.R. Stahler, D.W. Smith, B. Padhukasahasram, E. Randi, J.A. Leonard, C.D. Bustamante, E.A. Ostrander, H. Tang, R.K. Wayne, and G.S. Barsh. 2009. Molecular and evolutionary history of melanism in North American gray wolves. *Science* 323:1339–1343.
- Kays, R. 2015. Yes, eastern coyotes are hybrids, but the “coywolf” is not a thing. <https://theconversation.com/yes-eastern-coyotes-are-hybrids-but-the-coywolf-is-not-a-thing-50368>. Accessed 28 March 2020.
- Kays, R., and J. Monzón. 2017. Northeastern coyote cannot be a distinct species without isolation: A response to Way and Lynn. *Canid Biology and Conservation* 20(2):5–6.
- Monzón, J., R. Kays, and D.E. Dykhuizen. 2014. Assessment of coyote-wolf-dog admixture using ancestry-informative diagnostic SNPs. *Molecular Ecology* 23:182–197.
- Paquet, P., and L.W. Carbyn. 2003. Gray wolf *Canis lupus* and allies. Pp. 482–510 in: G.A. Feldhamer and J.A. Chapman (eds). *Wild Mammals of North America: Biology, Management, and Conservation*. Johns Hopkins University Press, Baltimore, MD.
- vonHoldt, B.M., J.A. Cahill, Z. Fan, I. Gronau, J. Robinson, J.P. Pollinger, B. Shapiro, J. Wall, and R.K. Wayne. 2016. Whole-genome sequence analysis shows that two endemic species of North American wolf are admixtures of the coyote and gray wolf. *Science Advances* 2:e1501714.
- Way, J.G. 2016. Why the eastern coyote should be a separate species: The “coywolf.” <https://theconversation.com/why-the-eastern-coyote-should-be-a-separate-species-the-coywolf-59214>. Accessed 28 March 2020.
- Way, J.G., and W.S. Lynn. 2016. Northeastern coyote/coywolf taxonomy and admixture: A meta-analysis. *Canid Biology and Conservation* 19:1–7.
- Way, J.G.; L. Rutledge, T. Wheeldon, and B.N. White. 2010. Genetic characterization of eastern “Coyotes” in eastern Massachusetts. *Northeastern Naturalist* 17:189–204.
- Westfall, S. 2016. *Canis oriens* is not a good species. <https://retrieverman.net/2016/08/25/canis-oriens-is-not-a-good-species/>. Accessed 28 March 2020.

Wilson, D.E., and D.M. Reeder (eds). 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference*, 3rd edition, 2 volumes. Johns Hopkins University Press, Baltimore, MD.

Wilson, P.J., S.K. Grewal, F.F. Mallory, and B.N. White. 2009. Genetic characterization of hybrid wolves across Ontario. *Journal of Heredity* 100:580–589.

*Dr. Bob Kenney is an Emeritus Marine Research Scientist at the URI Graduate School of Oceanography specializing in marine mammal ecology and conservation, a board member of RINHS, and a co-editor of Rhode Island Naturalist.*



Diamondback terrapins (*Malaclemys terrapin*) photographed from a kayak in Hundred Acre Cove, Barrington, RI (photos by Peter Muir)





# 20th Century Naturalists I Have Known

By **ROLAND C. CLEMENT**

Although I was born in Fall River, Massachusetts, in 1912, I claim that I experienced all of the 20th Century. Many historians call it a “short century,” beginning in 1914 when World War I marked the end of the Victorian Age. During those years, I came to know many of the naturalists who left their marks on Rhode Island and the Northeast.

It is noteworthy that, although I discovered birds at age 8 at a family summer cottage on South Watuppa Pond, I did not meet anyone else interested in birds until I joined the Boy Scouts six years later. About 1930, however, Mrs. Alice Hall Walters, stalwart president of the Audubon Society of Rhode Island (one of the initial group of state Audubon societies, organized in 1888) invited me to give the society’s spring lecture at the Roger Williams Park Museum of Natural History. The society then had only about 400 members. Maribelle Cormack was then on the museum’s staff; she was their director from 1947 to 1972. The Emerson family of Providence introduced their son David, then about 13, who became a life-long friend.

In 1934 I spent less than a month banding birds at the O.L. Austin Ornithological Research Station on outer Cape Cod, with Maurice Broun who later became famous as director of Hawk Mountain Sanctuary. Roger Tory Peterson published his first *Field Guide to the Birds* that autumn. I soon joined the American Ornithologists’ Union, then contacted Alfred L. Eynon of Lonsdale, Rhode Island, who had published a note in *The Auk* on the occurrence of Ring-necked Ducks. Eynon introduced me to Harry S. Hathaway of Cranston, a retired banker who was then the state’s preeminent field ornithologist. Hathaway owned one of the big summer “cottages” at Quonochontaug Beach, and I was invited to weekend a few times, so that we might walk the salt marshes together. He carried a cane-gun, his tie to the bird-collecting era that essentially ended with the Migratory Bird Treaty Act in 1918.

The Rhode Island Ornithological Club (RIOC) was organized in 1939. I was not a founding member because I had gone back to school to try to professionalize my interest in birds. A 2-year stint in wildlife management and forestry at the University of Massachusetts–Amherst ended in 1940. In addition, I audited a course by William

Gould Vinal, who devised nature-guiding programs for the National Park Service. Earlier, while teaching at the Rhode Island College of Education, he said that the best environments in Providence were reserved for the mentally ill and the dead, referring to the grounds of Butler Hospital and Swan Point Cemetery.

The early RIOC was a tight-knit group, built around Bill Dean, Dave Emerson, Dick Bowen, Bill Drury, Bev Ridgely, Harold Gibbs, and Carlos Wright; with Doug Kraus in far-away Kingston. Gibbs, our elder-statesman, had interests far transcending bird-life. He had been a lobster fisherman out of Sakonnet Point, studied Narragansett Bay’s winter plankton while a warden of its oyster leases, introduced fly-rod fishing for striped bass, became fish and game director for the state, and was an early carver of bird miniatures.

In 1942 I edited the *New England Bulletin of Bird-Life*, being mentored in this by Ludlow Griscom of Harvard, whom Roger Peterson called “the court of last recourse” in bird identification. We met monthly and often went birding with the Harvard Ornithological Club on weekends.

World War II followed, and I became an Air Force weatherman, with service in coastal Louisiana, the Rocky Mountains of Colorado, and the Labrador Peninsula of Canada, all like government-financed expeditions for this naturalist. I revisited central Labrador for W.E. Clyde Todd of the Carnegie Museum in 1957 and 1958 (with James Baird of the Norman Bird Sanctuary, and John Weske in 1958), and our field data were published in Todd’s big book, *Birds of the Labrador Peninsula* (1964). This field work also enabled Baird and me to publish separate accounts in Arthur Cleveland Bent’s *Life Histories of North American Birds*.

The “G.I. Bill” enabled me to matriculate at Brown University and get a proper degree. I joined George L. Church, professor of botany, on a trip around the Gaspé Peninsula of Quebec to check polyploidy in grasses of the genus *Puccinellia*. While at Brown, I also joined the summer staff of a short-lived Rhode Island Conservation Workshop organized by Harold L. Madison at Goddard Park. John W. Aldrich of the U.S. National Museum spent a session introducing us to small mammals. Elmer Palmatier and Irene Stuckey of URI led several botany field trips. Earlier I had met John J. Lynch of Newport who studied the winter food habits of Black Ducks with Charles Fish at the Rhode Island College of Education. Lynch later became director of food habits research on the Gulf Coast for the U.S. Fish & Wildlife Service, and introduced me to that country. Dr. Fish and his wife

Marie were pioneers in deciphering the cacophony of marine organisms for the U.S. Navy, and founded the Narragansett Marine Lab, which eventually became the URI Graduate School of Oceanography.

From 1950 to 1958 I was the first full-time Executive Director of the Audubon Society of Rhode Island (ASRI). This was the decade when birds attracted a wider public, thanks to good post-World War II binoculars and the Peterson field guides. Even so, support for groups like Audubon remained precarious, and Bill Dean, upon becoming president, had to rescue my tenure in mid-stream, by increasing the dues to \$5. In the 1960s, academic ornithology became esoteric because of the new focus on cell biology. So birders took off on their own tangent, exploring the world for its fascinating birds. Meanwhile, bird populations were in world-wide decline.

Intent on conservation, I tried to introduce Rhode Islanders to the whole landscape, first by subscribing to National Audubon's "Screen Tour" lectures, then by offering a broad field trip program. Dick Ferren and Bob Ridgely cut their teeth on these outings. Elizabeth Dickens of Block Island was such a model teacher that we organized our own Block Island Weekends, to see that phenomenal migration stop-over for ourselves. I had my own prime-time, half-hour television shows every week for a whole year. We called it "Wildlife in Rhode Island," and it became so popular that I had to take my name out of the phone book. Tragically, because I was not salesman enough, it did not occur to the public who so enjoyed that show that ASRI was barely surviving.

Fortunately, we had hired Alfred L. Hawkes (Fig. 1) to do school programs for us. When the National Audubon Society invited me to come work at their New York City headquarters, I accepted, mostly to make ends meet. Al, who succeeded me, could do everything I had done, and somehow also knew how to cajole people into funding ASRI's growth. Indeed, shortly after I left, someone came to the ASRI office and plunked down a \$1,000 check. "Now that Clement is gone ..." he said. He had, it seems, been dissatisfied with my identification of an immature eagle on some long-ago field trip, but had not challenged me while we could recheck the details together.



Even the sciences are now coming back to natural history, so there is a growing need for RINHS and ASRI to act as go-betweens with the public. Conserving nature first depends on getting to know it enough to value it. But the task then becomes politico-economic, a different ball-park with its own language. Even good naturalists then need interpreters. I recommend a short chapter, "Ecology and Capitalist Costs of Production: No Exit," in economic historian Immanuel Wallerstein's 1999 book, *The End of the World as We Know It*.



**Figure 1.** Alfred Hawkes, Lawrence Taft, and Roland Clement (from left to right)—the second, fourth, and first Executive Directors of the Audubon Society of Rhode Island—following Roland's March 2008 Survey lecture on the URI Kingston campus (photo by Erik Endrulat).

*Roland Clement was the first full-time Executive Director of the Audubon Society of Rhode Island, and later Vice President of the National Audubon Society. He is the author of American Birds, Nature Atlas of America, The Living World of Audubon, and many scientific and popular articles.*

*Editors' Note: This memoir was adapted from Roland's lecture for the Natural History Survey in March 2008, and was written for an issue of Rhode Island Naturalist that was never completed. Roland passed away in March 2015, and was honored with a posthumous RINHS Distinguished Naturalist Award later that year.*

*Besides himself, Clement's article mentions ten other individuals who also became RINHS Distinguished Naturalists. If you can identify all ten of them, you'll win a Rhode Island Natural History Survey ball cap. Email your list to [RINaturalist@rinhs.org](mailto:RINaturalist@rinhs.org) with "Clement" in the subject line. Make sure you give us your name and address so we know where to send your award.*

# Rhode Island Collections: The Audubon Society of Rhode Island's Geology Collection

By **MICHAEL W. KIERON**

Eugenia Marks, Senior Director of Policy for the Audubon Society of Rhode Island, contacted me in July 2006 for help in organizing a collection of rocks, minerals, and fossils held by the Audubon Society at its headquarters in Smithfield. Knowing only of the bowenite and cumberlandite by the front door, I was seriously intrigued. The collection had been stored in several dozen cardboard boxes since the move from the old Bowen Street headquarters in 1987—the contents still securely encased in bubble-wrap. There were no labels and during the move the original catalog was lost. Eugenia asked me if the collection was worth keeping as I unwrapped a few promising specimens. When a beautiful ammonite with part of its nacreous shell intact rolled out, it was a definite “yes.” Thus, began the labor-intensive work of identifying the four hundred rocks, minerals, and fossils and attributing localities as best I could.

The rock and mineral collection was straightforward with no surprises, but the fossil collection was another matter. The work in identifying the bulk of the fossil collection was facilitated by one of the two copies of Shrimmer and Shrock's *Index Fossils of North America* found in the Audubon Society's Hathaway Library. However, the less common fossils and updated nomenclature required research through my own library. Once the identification was completed, I generated a simple Excel database from the new handwritten catalog containing the ID number, scientific name, age, formation, locality, and donor for all the specimens. The database was further refined by July Lewis, Policy Assistant for the Audubon Society, who also assigned box numbers to all the specimens, generated individual labels, and printed catalog cards.

Nearly the entire collection is from Mr. Alfred Wales of Providence and was donated around 1968. With almost no original labels, it is impossible to ascertain what percentage of the collection was purchased or personally collected but I suspect it is about 50/50. In the collection there are minerals from Lincoln to Afghanistan and fossils from Pawtucket to Germany.

*RINaturalist@rinhs.org* Most of the minerals come from classic New England localities in Rhode Island, Maine, New Hampshire, Massachusetts, and Connecticut. The most important specimens from Rhode Island are some small, dark-green beryl crystals encrusted with mica from Smithfield. Beryl crystals like these were found in a mica schist ledge in Spragueville during the 1960s and 1970s. I searched for this locality in the early 1990s but was never able to locate the ledge in the overgrown vegetation. From Providence, probably the Manton Avenue quarry, there is piece of calcite with phlogopite. Phlogopite is a fairly common variety of biotite mica but is very rare from within Rhode Island. The quarry became the site for the Hartford Avenue apartment complex in 1952, making it an even rarer local mineral. Rounding off the Rhode Island collection are specimens of bowenite, calcite, dolomite, and manganese oxide dendrites from the Conklin quarry in Lincoln, as well as jasper from Diamond Hill in Cumberland.

Massachusetts is represented by slices of the chiastolite from a famous locality in Lancaster. Chiastolite is a variety of the aluminum silicate andalusite that contains black cross-shaped inclusions of graphite. Mr. Wales also visited the Revolutionary War-era Manhan Lead-Silver Mine, where he collected a number of quartz crystals. He also collected at some of the classic localities in Maine, where he found pink lepidolite mica overgrowing silvery muscovite mica from Mt. Apatite in Auburn, elbaite tourmaline from the Black Mountain quarry in Rumford, and vesuvianite from Sanford.

Rounding out New England are specimens from New Hampshire: beryl from Beryl Mountain, bottle-green fluorite from the Wise mine in Westmoreland, and smoky quartz from Moat Mountain in Bartlett. The sole piece from Connecticut is a small piece of quartz from Lantern Hill in North Stonington.

The collection also contains many minerals from around the world. The most beautiful are a vibrant pink rhodochrosite (a manganese carbonate mineral) from Argentina and deep blue lazurite from Afghanistan. From Poland there is a chrysoprase, a grass-green variety of quartz, and white sprays of hemimorphite, a zinc silicate, from Durango, Mexico.

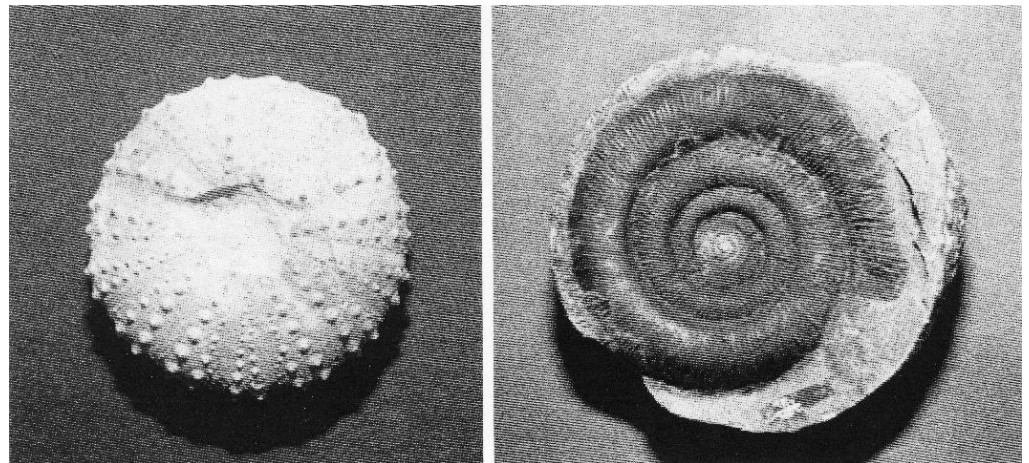
The real heart of the Audubon Society collection is its fossils. Most of the familiar periods are represented along with terrestrial and marine environments. The three major components of the paleontology collection are petrified wood, the Hamilton Group of New York, and the Western Interior Seaway.

There are about 40 lots of petrified wood in the collection from the western and Gulf states. Most of the specimens are aesthetically replaced by agate and opal.

Unfortunately, I could not identify most of the pieces to species or locality due to the sparse literature and generic nature of the fossils. The few that are identifiable are palm wood, probably from Texas or Louisiana, and *Araucarioxylon arizonicum*, a forerunner of the Monkey-puzzle tree, from the Triassic Chinle Formation of Arizona. The sheer amount of small pieces of *Araucarioxylon* indicates that Mr. Wales collected them himself, while the rest were professionally slabbed and polished. As a side note, several of the *Araucarioxylon* pieces have coatings of the bright yellow uranium mineral, carnotite. Prospectors during the Colorado Plateau uranium boom of the 1950s would look for large concentrations of petrified wood as indicators for potential mine sites.

The Hamilton Group of western New York comprises several marine formations from the Middle Devonian Period. During that time, a shallow sea teemed with corals, sponges, cephalopods, and trilobites. The collection contains a number of *Favosites*, *Heliophyllum*, *Pachyphyllum*, *Alveolites*, and *Hexagonaria* corals. From the Ludlowville Shale (part of the Hamilton Group) of Alden, New York, there is a tiny nautiloid, *Tornoceras uniangulare*, and a brachiopod, *Sinochonetes lepidus*, preserved in golden pyrite.

From the Western Interior Seaway, which dominated the middle of North America during the Cretaceous, come the collection's most spectacular fossils (Fig. 1). Retaining vestiges of their original shells are ammonites from the Pierre Shale of South Dakota. The most striking are the straight-shelled ammonites, *Baculites compressus*. A few have their outermost shell while others retain their iridescent, nacreous inner layer. The same is true of a number of the spiral-shelled ammonites, *Jeletzkytes*, in the collection. What they lack in beauty, the ammonites from the Fredericksburg Group in Texas make up in size. The largest in the collection is 20 cm (8 inches) wide. Along with the large ammonites, Mr. Wales donated specimens from the Cretaceous marine community in which they lived. Included are the sea urchins, *Phymosoma texanum* and *Heteraster texanus*, a squid-like cephalopod, *Belemnitella americana*, and the oysters, *Exogyra costata* and *Texigryphaea* sp.



**Figure 1.** Left: *Phymosoma texanum*, a Lower Cretaceous echinoid from the Fredericksburg Group, Texas. Right: *Dactylioceras tenuicostatum*, a Lower Jurassic ammonite from the Lias of Yorkshire, England (photos by M. Kieron).

*This article was written around 2008 for an issue of Rhode Island Naturalist that was never completed. At that time Michael Kieron was Assistant Curator at the Museum of Natural History, Roger Williams Park, Providence; he later became a member of the R.I. Natural History Survey Board of Directors. Mike passed away unexpectedly in April 2018, and was honored with a posthumous RINHS Distinguished Naturalist Award later that year.*

# Executive Director's Journal: A Robin By Any Other Name

By DAVID W. GREGG

I've been dubious about the wisdom of personifying animals, plants, and other things in Nature—giving an animal a name seems like the gateway to inappropriately ascribing human emotions, motivations, or reactions to them, and we all know where that could end up. But I am sympathetic to the idea that names create attachment and attachment motivates conservation, which is a good thing. Lately, I've realized a new benefit from giving names to wild animals we see around.

A little drama unfolded on our lawn during the coronavirus emergency. If we hadn't been stuck at home we'd never have noticed it. This is the story of Hoppy the Robin . . . the American robin (*Turdus migratorius*), that is. One cold, rainy day in early April, we were having breakfast at the dining room table, which overlooks the front lawn, when I noticed something unusual. A robin out there was keeping very still, kind of hunkered down, but occasionally he would just topple over. He'd shift or move forward slightly and start to wobble, he'd flail his wings around, apparently for balance, and then most of the time he'd go over onto the ground—right or left or often face first. At that point he'd right himself, stand looking pathetic for a while, and then it would happen again. He hung pretty close to the cover of the forsythia bush; he definitely wasn't up to flying.

I say Hoppy was a "he" because, among robins, males are, generally speaking, more richly colored than females, and this robin was noticeably more strongly colored than many of his compatriots on the lawn at the time. In early spring, many robins aren't looking so hot, but when we first saw Hoppy he had a very nice, deep rust-red breast, slatey back, and dark, charcoal-colored head. He was plump, too, and looked like he'd prospered during the winter . . . except for the falling over part.

As I watched this robin, I could see he was only using his right leg, holding his left leg off the ground, useless. His left wing appeared to be hanging a little cocked, although I was unsure whether his wing was really injured or he was holding it out for balance. And there was a small

clump of feathers on Hoppy's right breast that were oddly askew.

I assumed this robin was a goner. The neighborhood is packed with foxes, coyotes, owls, fishers, weasels, and even a bobcat—as well as a Cooper's Hawk that hangs around the bird feeder. If one of these didn't get him, the cold, damp weather was bound to. I was hesitant even to point him out to the kids because I knew he'd die and I didn't want them to worry about him (or make me go out and catch him and bring him to wildlife rehabilitator Dr. Bird, down the road). But at one point Teri, my wife, said, "Have you noticed there's something wrong with that robin?" and I knew his travails were so obvious that we all knew about him already.

And so, the robin-watch began. The yard has several robins at all times, so reliably that you hardly notice them. But now that we had a way to tell one robin from the rest, we wanted to see what he was doing. Every morning at breakfast, the most important question was, is the injured robin still there? No, not that robin . . . and not that robin . . . oh, there he is, near the stone wall . . . falling over and looking pathetic. He made it through one night and then two and three. And the longer he lived, the more time we had to watch him.

If you watch the gait of robins, they usually run, moving on alternate feet. They certainly can hop, on two feet, and they do so when the grass is tall or if they're just shifting a short distance. Generally speaking robins are runners. But our robin was a hopper: with only one working leg and an apparently bum wing, to move he had to hop. When he was making headway, he really bobbed up and down. And that's how we came to call him Hoppy.

At first Hoppy'd fall over almost every hop. It was also apparent that sometimes when he fell over forwards he was actually trying to feed. He'd lunge at a worm or something, as he normally would, but without his usual faculties he'd end up face down with his wings flailing. After the first couple days, Hoppy's hopping improved. He still kept his left leg up but maybe his right leg was getting stronger, or maybe he was getting used to his new balance. He also seemed to be able to fly a few yards from one part of the lawn to another. He couldn't perch on anything as precarious as a branch.

Hoppy kept living and day in and day out we watched him and learned all kinds of things about robins that we'd never really bothered to notice before, even though robins

were literally right outside the front door. We got to see what he was finding to eat (beetles, caterpillars, and worms). We could see that he preferred the front yard, whereas other robins seemed to claim the side and back yards. There were all sorts of territorial cues that passed amongst them, including a little bit of active chasing.

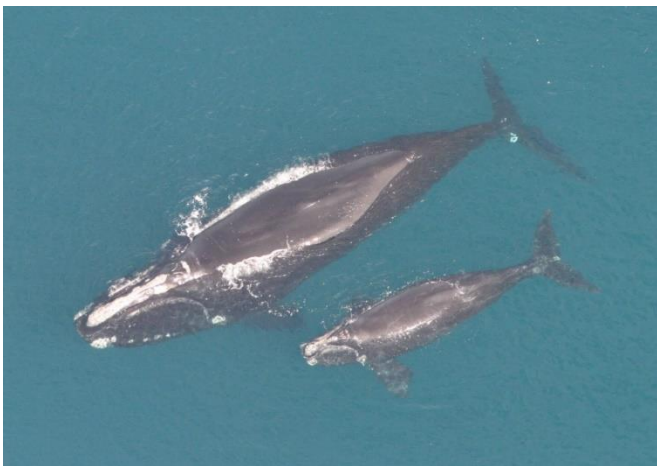
Hoppy gradually improved. By June he was putting a little weight on his left foot. He did some two-legged limping, and he was able to fly up and perch as long as the branch was big and the spot had good clearance around it from twigs and leaves. It's interesting to notice what parts of trees robins choose to perch in. Hoppy was becoming part of the family and we even figured the feeling was mutual, because he'd watch us come in and out of the driveway, he'd perch on the woodshed and look into the back room, or he'd circulate around us when we were sitting out on the lawn. But Hoppy still did a lot of hopping, and it was always pretty comical to see him bobbing along while the other robins smoothly ran. He was a lot skinnier, too. By July, Hoppy was getting hard to tell from the other robins (Fig. 1). Pretty soon he'll move on, or maybe we'll imagine he's moved on even though he's still with us but just unrecognizable. Maybe we'll go back to not noticing robins and their lives.

The ability to distinguish individual animals has been enormously powerful in natural history, allowing consideration of all sorts of questions specific to the life of individuals such as age; mating; and territoriality, dispersal, and migration. Bird banding has been all about recognizing individual birds, and it revolutionized ornithology since banding began around the turn of the 20th century. In the bigger picture, the beneficial power of distinction is the origin of natural historians' concern for taxonomy: naming an individual animal to species based on characteristics that distinguish it from individuals of other species.



**Figure 1.** By late July, Hoppy the robin had found a mate and was raising a family in the sweet gum in front of the house (photo by D. W. Gregg).

The need to follow the story of Hoppy the robin led me to observe robins, or birds generally, in a way I never would have otherwise. I didn't really appreciate the difference between walking and hopping birds, for example, until I had to watch a group of robins move to recognize Hoppy and make sure he'd made it through the night. Once we started the story of Hoppy, we felt a need to follow it, and that story was both a product of and made possible by our ability to distinguish him from all other robins. Giving our robin a name rendered a common sight distinctive and so maybe naming animals is okay after all.



**The North Atlantic right whale (*Eubalaena glacialis*)** will be the subject of the next installment of Marine Mammals of Rhode Island in the Spring 2021 issue. This is a species where most of our current understanding of their biology is because we can repeatedly recognize individuals. The New England Aquarium maintains a photographic catalog of known whales that currently includes 761 animals and is accessible on-line at <http://rwcatalog.neaq.org/#/about>. The photo here is catalog #1245, named "Slalom," with one of her calves. She was born in 1982, the calf of catalog #1140, and was last seen in 2019. She gave birth to calves of her own in 1996, 2001, 2005, 2008, and 2011 (photo courtesy of the Georgia Dept. of Natural Resources).

# Science News: The Songs They Are a-Changin’

By **ROBERT D. KENNEY**

We were recently alerted by friend of the Survey Bill Betty about an interesting story he’d read in *The Atlantic*. By the next day the story was trending on many of the on-line new feeds and was featured on the “All Things Considered” afternoon news broadcast on National Public Radio. A story by *Atlantic* staff writer Sarah Zhang (2020) described the results of a newly published scientific paper by a team of Canadian researchers (Otter et al. 2020). They had discovered white-throated sparrows (*Zonotrichia albicollis*) in one area of British Columbia singing a different song than anywhere else, which spread relatively rapidly across the continent. White-throated sparrows are one of my favorite songbirds. I think they are exceptionally handsome (Fig. 1). I also look forward to hearing their familiar song when they return to my backyard and feeders each fall, even though it reminds me that winter is on its way. Has the new song arrived in Rhode Island? We would like to pose a couple of challenges to our readers and members.

The research team who published the new paper includes Ken Otter and Alexandra Mckenna from the University of Northern British Columbia in Prince George, British Columbia; Stefanie LaZerte, an independent researcher and consultant from Brandon, Manitoba; and Scott Ramsay from Wilfred Laurier University in Waterloo, Ontario. The typical white-throated sparrow song is comprised of a couple of clear whistles, followed by a series of triplets. The usual mnemonic for remembering it is “Oh Sweet Canada-Canada-Canada” north of the border, and “Poor Sam Peabody-Peabody-Peabody” in the U.S. In the early 2000s, Otter and Ramsay were studying chickadees around Prince George when they first heard white-throated sparrows singing a variant dialect that ended with doublets instead of triplets—“Oh Sweet Cana-Cana-Cana.” You can listen to the two song types by going to the Zhang (2020) article in *The Atlantic* on-line using the link in the bibliography, or by going to the “All Things Considered” podcast at <https://www.npr.org/2020/07/03/887128890/canada-canada-cana-da-researchers-spot-change-to-white-throated-sparrows-song>.

Once they realized that white-throated sparrows around Prince George were singing a different song, Otter and

Ramsay began a long-term, expanded study—collaborating with other researchers and citizen-scientists and making use of archived recordings and recordings that had been uploaded by birders to sites like eBird. They concluded that the doublet dialect began in western Canada and expanded from there. The new song spread eastward across Canada and southward into the United States. By 2019, it had almost completely replaced the typical triplet song across most of North America, and had reached as far east as Quebec and Virginia and as far south as California, New Mexico, and Tennessee. By tagging individual birds and tracking their migrations, they found that 8 of 9 birds tagged in British Columbia crossed the Rockies and used wintering grounds in the southern Great Plains—in Texas, Oklahoma, Arkansas, and Kansas. That habitat overlaps the known wintering grounds of birds from east of the Rockies, suggesting that eastern sparrows were learning the doublet song variant during the winter.



**Figure 1.** White-throated sparrow *Zonotrichia albicollis* (from Wikimedia Commons, [https://commons.wikimedia.org/wiki/File:White-throated\\_sparrow\\_\(14311568533\).jpg](https://commons.wikimedia.org/wiki/File:White-throated_sparrow_(14311568533).jpg); original photo by russimages posted to Flickr, licensed under the Creative Commons Attribution 2.0 Generic license).

So far, the doublet version of the song has not been recorded in New England. The map in Otter et al. (2020) shows that, as of 2019, the nearest recordings of doublet songs were in southeastern Quebec, far western New York, and eastern Virginia. This brings us to community scientist Challenge #1—we ask you to start monitoring white-throated sparrow songs to help us detect if and when the doublet song arrives in Rhode Island. Beginning this fall when the birds begin to arrive from their summer habitats farther north, listen for the song and tell us

which version you heard. The Audubon Society of Rhode Island checklist says their expected occurrence is from the second week of September through the third week of May. Send an email to [raturalist@rinhs.org](mailto:raturalist@rinhs.org) with “peabody” in the subject line, and including the date, location (latitude/longitude from your GPS or smart phone, street address, or a precise description), and whether you heard the triplet or doublet version (or both). Make sure that you are hearing complete songs before you decide. You don’t need to send an email for every song that you hear; once per day and location is sufficient. If you do hear a doublet song, it would be good to record it for documentation (simple in theory, since everyone but me has a smart phone). Watch for a progress report in the Fall 2021 issue of *Rhode Island Naturalist*.

Challenge #2 is to come up with a better mnemonic for the doublet variant of the song. “Poor Sam Peabo-Peabo-Peabo” does not seem very satisfying. The doublet part of the song is very rhythmic, with a strong accent on the second syllable of each doublet (go and listen to it again). Email your suggestions to the same address given above. There will be a prize for the best suggestion, with bonus points for one that works on both sides of the border.

### Literature Cited

Otter, K.A., A. Mckenna, S.E. LaZerte, and S.M. Ramsay. 2020, in press. Continent-wide shifts in song dialects of White-Throated Sparrows. *Current Biology* (early on-line) 30:1–5.  
<https://doi.org/10.1016/j.cub.2020.05.084>

Zhang, S. 2020. The birdsong that took over North America. *The Atlantic* (2 July 2020).  
<https://www.theatlantic.com/science/archive/2020/07/bird-song-sparrows/613768/>

*Dr. Bob Kenney is an Emeritus Marine Research Scientist at the URI Graduate School of Oceanography specializing in marine mammal ecology and conservation, a board member of the Natural History Survey, and a co-editor of Rhode Island Naturalist.*

## Rhode Island Natural History Survey Board of Directors

Peter V. August, Professor Emeritus, URI - Department of Natural Resources Science  
Scott Buchanan, Herpetologist, RI Department of Environmental Management, Division of Fish & Wildlife  
Kim Gaffett, The Nature Conservancy - RI, Ocean View Foundation Naturalist  
Sarah Gaines, Coastal Resources Center, URI - Graduate School of Oceanography  
Howard S. Ginsberg, Research Ecologist, USGS Patuxent Wildlife Research Center  
Stephen S. Hale, Research Ecologist, USEPA Atlantic Ecology Division, Retired  
Emilie Holland, Environmental Protection Specialist, Federal Highway Administration  
Nancy Karraker, Associate Professor, URI - Department of Natural Resources Science  
Robert D. Kenney, Marine Research Scientist Emeritus, URI - Graduate School of Oceanography  
Keith T. Killingbeck, Professor Emeritus, URI - Department of Biological Sciences  
Hugh Markey, Teacher, Pilgrim High School, Warwick; Journalist/Writer  
Bryan Oakley, Associate Professor, Eastern Connecticut State University, Department of Environmental Earth Science  
Lou Perrotti, Director of Conservation Programs, Roger Williams Park Zoo  
Malia Schwartz, Assistant Director for Research, URI - Graduate School of Oceanography  
Jonathan Scoones, Refuge Manager, Audubon Society of Rhode Island  
Dennis Skidds, Data Manager, National Park Service, Northeast Coastal and Barrier Network  
Stan Tragar, Principal, Stan Tragar CPA, Ltd.  
Marty Wencek, Wetlands Supervisor, RI Department of Environmental Management - Office of Water Resources

### Executive Committee:

Emilie Holland, President  
Lou Perrotti, President-Elect  
Stephen S. Hale, Vice President  
Robert D. Kenney, Secretary  
Stan Tragar, Treasurer

### Staff:

David W. Gregg, Executive Director  
Amanda Freitas, Wildlife Action Plan Liaison  
Nancy Fullerton, Librarian (volunteer)  
Kyle Hess, Assistant Wildlife Biologist  
Thomas Kutcher, Wetlands Scientist  
Hope Leeson, Botanist (contract)  
Kira Stillwell, Program Administrator

### RI Naturalist Bulletin Editors:

Stephen S. Hale & Robert D. Kenney

*Rhode Island Naturalist* © 2020

The bulletin of the Rhode Island Natural History Survey, Inc., is published twice yearly.  
RINHS, P.O. Box 1858, Kingston, RI 02881–1858





In Spring 2019, the Natural History Survey facilitated construction (top) of artificial breeding pools in Richmond for the state endangered spadefoot toad (*Scaphiopus holbrookii*). Project partners included Richmond Rural Preservation Land Trust, URI, USDA-NRCS, U.S. Fish & Wildlife, Rhode Island DEM, Massachusetts Audubon, and The Nature Conservancy, among others. Later in the season URI faculty and students and other partners and volunteers (below) watched the release at the site of toad metamorphs that had been headstarted by Roger Williams Park Zoo (photos by B. Buffum and D. Gregg).

# Mary Jo Murray

(1921–2019)

## RINHS Distinguished Naturalist 2020 (Posthumous Award)

By **ROBERT D. KENNEY**

Mary Jo Murray, dedicated birder and life-long educator, is the recipient of the 2020 posthumous Rhode Island Natural History Survey Distinguished Naturalist Award. She passed away on 17 October 2019, at age 98. She retired from one decades-long career, and then started a second one, almost as long, spreading her enthusiasm for birds and the natural environment all across Rhode Island.

In 1938, at the age of 17, Mary Jo began a teaching career in a one-room schoolhouse in Advance, Missouri. In 1978 she retired after 40 years as a reading teacher in Dansville, New York. She had also earned a Master's degree in Education from the University of West Virginia. After her husband Merrill, an education professor at SUNY Geneseo, also retired, they moved to Rhode Island to be closer to their grandchildren.

She had always been an avid birder, so once in Rhode Island she immediately started birding around South County. On one of those forays she met Doug Kraus (RINHS Distinguished Naturalist in 1998, now deceased). Doug convinced her to join the Kimball Advisory Committee, a group of volunteers who did all of the public programming for the Audubon Society of Rhode Island's Kimball Wildlife Refuge in Charlestown. She joined the group in the spring of 1990. She was an active participant in the committee from the very beginning, taking over the publicity sub-committee.

At a point in her life when you might think she would start slowing down, she did the opposite. Not long after joining the committee, she suggested that we offer regular mid-week birding programs. At first they were every other Thursday morning, but by the spring of 1992 they had become weekly. In September of that year she moved them to Tuesday, and the "Tuesday Morning Bird Walks" had been born. For the next 15 years and more, a dedicated group of birders met at the Mini-Super in Charlestown at 8:00 AM on Tuesday, then headed off to whatever destination Mary Jo had picked for that week. Sometimes they stayed close to home in familiar spots in

South County, while other days they might go as far afield as Monomoy Island off Cape Cod, Block Island, or Hammonasset State Park in Connecticut. She would skip two months every year, but it wasn't the frigid mid-winter months that you might expect—it was June and July, when the birds are busy raising chicks and not very visible. She resisted every suggestion over the years to charge any fee, even a very small one, or even to ask the regulars to make an occasional donation. Instead she insisted that keeping the program free was the best way to get people to come and to keep spreading the word about birds and environmental conservation issues.



Mary Jo Murray in 2015 (photo by Thomas J. Tetzner).

Eventually she decided that it was becoming too much for her, so she convinced Phil Budlong, another member of the Kimball Committee, to take over. But she kept going every week—it was the planning that had gotten too much, not the birding. After Phil passed away, the Tuesday morning walks were adopted as an official program by the Audubon Society, so the free weekly bird walks continued under the leadership of Laura Carberry from the Fisherville Brook refuge—but now on Wednesdays. Audubon further expanded what she started, and was offering a free bird walk somewhere in the state every day during May until coronavirus interfered.

Mary Jo's birding groups tended to be heavily weighted toward seniors and retirees, just because of the timing at

8:00 on a week-day, but plenty of younger people re-arranged a schedule (or maybe even skipped a half a day in the office) to go along. The program was originally advertised as targeted at beginners, but eventually that became impossible, since the “regulars” learned way too much from her (once a teacher, always a teacher) and got much too experienced. We had to revise the publicity to say that “birders of any ability are encouraged to join in.”

Mary Jo is remembered around South County for a number of things. She was incredibly patient with explaining how to locate or identify a bird. Countless people credit her for developing their interests in birds and the rest of the natural world. She was always full of good spirits and provided lots of encouragement. The Audubon Society of Rhode Island presented her with their Volunteer of the Year award in 2008, and in 2015 the Friends of the National Wildlife Refuges of Rhode Island installed a bench in her honor at one of her favorite spots in the Trustom Pond refuge.

One of the things people remember most about her was what she said whenever there was any question about

whether it was OK to go onto some particular property—“Don’t worry, I’ve got permission.” Whether or not it was true has to remain a matter of speculation.

An important part of our quality of life in South County and the rest of Rhode Island is the natural environment around us. To keep it that way we need to leave some areas relatively undeveloped. By getting so many people interested in birds, bird-watching, and the natural world over the years, Mary Jo Murray single-handedly created a group of citizens who are dedicated to preserving as much as possible of whatever natural environment we have left in Rhode Island.

*Dr. Bob Kenney was a member of the Kimball Advisory Committee from 1986 until it was dissolved in 2014 and was its chair from 1990 on. Mary Jo’s nomination for the Distinguished Naturalist Award was endorsed by 7 former members of that committee, the entire Audubon Society of Rhode Island staff and board, and nearly 30 others who knew Mary Jo from her Tuesday bird walks.*



Sunrise in North Woods, Kingston, Rhode Island, on June 28, 2020, during Rhode Island Backyard BioBlitz (photo by Jim Wright).

# Absent Friends

## **STAN COBB**

(1942–2020)

*“Lobsters are remarkable beasts. They are large, ecologically important, and tasty.”*—Stan Cobb

John Stanley “Stan” Cobb passed away on 24 April 2020 in Mitchellville, Maryland, after a long battle with Parkinson’s Disease and a short one with COVID-19. Stan was the recipient of the RINHS Distinguished Naturalist Award in 2013, in recognition of his long and distinguished career in teaching and research. He was widely known as a pioneer and preeminent researcher in the field of crustacean biology, especially lobster ecology and management.

Stan was born in Boston, and spent a great deal of time as a boy near the ocean with his grandparents in Cotuit, Massachusetts, and Deer Isle, Maine. Being on and near the water was forever a joy to him. Stan graduated from the Groton School in 1960, and from Harvard University with a B.S. in biology in 1964. He went on to the URI Graduate School of Oceanography, where he earned his Ph.D. in biological oceanography in 1969, studying with Professor Howard E. Winn. He started right in on his life’s work; the title of his dissertation was “Activity, growth and shelter selection of the American lobster.” He followed that with a postdoc at the Smithsonian, studying fish brains.

In 1970, Stan returned to URI on the faculty of the Zoology Department, which eventually was merged with Botany as the Biological Sciences Department. There he stayed for the rest of his career as a professor of marine biology and ecology, until retiring after 35 years in 2005. He started the undergraduate degree program in Marine Biology, one of the largest majors on campus with 300–350 students, and was the program coordinator for ten years. He also served two terms as department chair—eight years in all. After his retirement he continued to serve in his field, volunteering as a science advisor in the Paul Cuffee School in Providence and with the development of a marine science program on Hurricane Island, Maine.

Stan loved teaching and his students—both undergraduate and graduate. As he wrote himself when we asked for a short bio before his Distinguished Naturalist Award presentation—“I taught Marine Biology, served on more committees than I care to remember, and did research. My scientific pursuits resulted in more than 75 papers,

books, and articles, on topics from deep-sea fish brains to the behavior of mute swans, but mostly I focused on lobster ecology and fisheries. International work included 15 months of lobster research in West Australia; two and a half years in La Paz, Bolivia where Laurie ran a large community development program; leading Earthwatch research at the Barrier Reef of Belize; and six months in England preparing to write a book. For about 10 years I consulted on issues of institutional development for coastal resource management, helping to start a successful institute at Prince of Songkla University in southern Thailand. I also helped to bring change to programs in Indonesia, the Philippines, Sri Lanka, and Ecuador.”



Stan in Glacier Bay, Alaska

In his letter nominating Stan for the Distinguished Naturalist Award, Prentice Stout (RINHS Distinguished Naturalist, 2000) wrote: “I have thought about a number of people who would be good recipients for the Distinguished Naturalist Award. I keep coming back to Stan Cobb. I have known him since my days at GSO and

have kept in some touch. Just recently one of my fellow instructors at the YMCA Camp Fuller summer marine studies program was awarded a grant from the Stan Cobb Biology Endowment. This has brought me back in better touch with him. It is my belief that Stan has excelled in the three areas addressed in [the call for nominations]. Over the years I have known this fine man, he has been a real mentor to me and to those who have had the honor of working with him. In all regards, he is a gentleman and a scholar. I strongly recommend him to your serious consideration for the Award.”

Stan Cobb is survived by his wife of nearly 55 years, Laurel, two children, their spouses, two grandchildren, and three siblings. He is also survived by the very much larger number of students, colleagues, and mentees who carry on his legacy. Donations in his memory may be given to the Stan Cobb Endowment for Marine Biology at URI in Kingston (mentioned in Prentice’s nomination letter). It provides awards to URI students to support experiential education in marine biology at URI, under the supervision of URI faculty. For information go to <https://web.uri.edu/marbio/stan-cobb-field-courses/>.

The day after his passing, his family sent an email with the news to his former students—“For most of his last year he watched hummingbirds out of his window, celebrated holidays and birthdays with joy, and, over time, became more and more unhappy at his limitations. He was ready to go this spring. When this time is over and we can be together again we will have a celebration of Stan’s life. There will be music and stories and beer. Maybe we’ll eat lobsters. In the meantime, since we can’t be together, we have set up a memorial website where we can remember, tell stories, and share photos. Please visit: <https://www.forevermissed.com/jstanley-cobb/about>, and share something about the Stan you knew.”

## **JOAN E. PILSON**

(1933–2020)

*“Her loss dims our world at a time when we need all the light we can get.”*—Veronica Berounsky

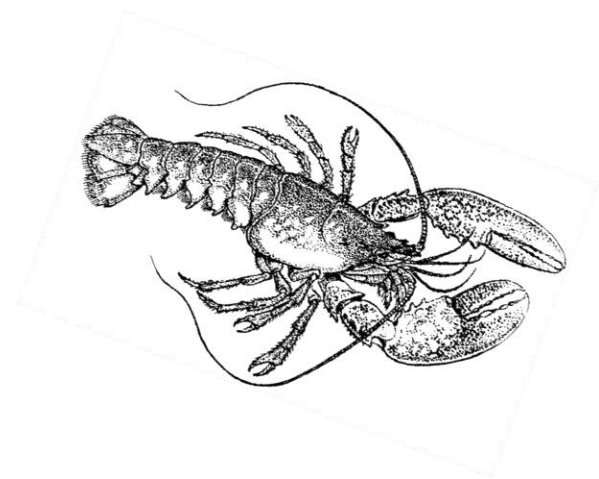


Joan & Michael Pilson

Joan E. (Johnstone) Pilson passed away on 21 May 2020 of Alzheimer’s disease, after months of failing health that began with a case of the flu in February. She was the beloved wife for 63 years of Professor Emeritus Michael E. Q. Pilson, URI Graduate School of Oceanography. Joan and Michael were Survey members and regular donors since March 1995, attended many of our events, and were well-known in the Rhode Island environmental community. RINHS board member Keith Killingbeck commented when hearing the sad news—“Joan was a ‘force of nature’ when it came to natural history in general, and plants in particular. She and Michael were steadfast supporters of the Survey from our early days onward and Joan almost always had a pertinent question or two to ask at our annual meetings.”

Joan was born in Halifax, Nova Scotia, where she attended Dalhousie University. She graduated with a BSc from McGill University in Montreal, Quebec, and with an MS from the University of Rhode Island. She and Michael married while they were both working at MacDonald College of McGill University, lived in San Diego while Michael was working on his Ph.D. at Scripps, and then settled down in Saunterstown when Michael joined the GSO faculty.

Joan was an accomplished gardener and a long-time member and past President of the Rhode Island Wild Plant Society. She was also a Lifetime Member of the Saunterstown Yacht Club, an active tennis player, and a member of the Environmental Council of Rhode Island.



Michael and Joan were among the early members of Narrow River Preservation Association.

Joan spent her career as a physical education teacher, beginning in 1955 at MacDonal College. From 1971 to 1981, she taught at North Kingstown High School, where she was also the girls' cross country, volleyball, and track & field coach. She retired in 1990 as an elementary P.E. teacher in North Kingstown. She was President of the Rhode Island Association of Health, Physical Education, and Recreation; and the Director of the Rhode Island Association of Women's Gymnastics Judges.

Being a women's libber in the 1970's, Joan was a believer in gender equality. After she realized that coaches of girls' teams were paid less than coaches of boys' teams, she

asked the ACLU to represent her in a Title IX complaint in 1975 against the North Kingstown School Committee. When she and the ACLU won her case, not only did she receive \$2600 in back pay, but girls' and boys' coaching stipends were equalized across the state. She later became the Athletic Director at North Kingstown High School, the first female high school athletic director in the state of Rhode Island.

In addition to Michael, Joan is survived by two children, two grandchildren, three nieces, and a nephew. Donations in Joan's honor can be made to the Rhode Island Wild Plant Society, P.O. Box 888, North Kingstown, RI 02852, or <https://riwps.org/>.

*Adapted from an email by Veronica Berounsky, URI Graduate School of Oceanography, sent to the GSO community to notify everyone of Joan's passing.*



**Woodland Blooms** (oil painting)  
by artist and Survey member,  
Ann E. Bianchi,  
who shares  
"Creating art every day is my passion!"  
View Ann's work at  
<https://annebianchi.com/>



With over 18,000 species of animal and plant possible in Rhode Island, who can tell which are really here?



A lot of people know a little about Rhode Island's animals and plants. How can we add those facts up to gather a rich knowledge of our environment?



How can we encourage young people to develop interests in wild animals and plants?



How can we conserve our natural resources if we don't know what or where they are?

Four basic questions, one important mission for the Rhode Island Natural History Survey

There are as many ways to build our knowledge of Rhode Island's animals, plants, and natural systems as there are people willing to help. ANNUAL MEMBERSHIP in the Rhode Island Natural History Survey helps conservationists and managers, funds public events, and gives you a stake in the success.



Striped killifish (Fundulus majalis); male (left), female (right) Narrow River, Narragansett, RI. Photo: G. Lentini



## Yes! I Want to Join The Survey



I Can Help Connect People with Knowledge about Rhode Island's Animals, Plants, Geology and Ecosystems.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Email: \_\_\_\_\_

If you would like to receive our e-newsletter and get timely news and useful information on biodiversity and conservation in Rhode Island while saving paper and postage, please provide your email address. We never share member email addresses.

Enclosed Check: \_\_\_\_\_

To Pay Securely with Major Credit Card or PayPal Visit:

<https://rinhs.org>

It is easy to join online using our secure shopping cart. Visit [www.rinhs.org](http://www.rinhs.org) and click the JOIN button.

Make checks payable to RINHS and send to P.O. Box 1858, Kingston, RI 02881

\*The IRS has determined that Rhode Island Natural History Survey is a 501(c)(3) non-profit. Your entire membership contribution may be tax deductible as allowed by law. Gifts of Stock or Other Securities Can Provide Additional Tax Advantages. Contact Us to Find Out How to Give Securities.

Amount Enclosed: \$ \_\_\_\_\_

Membership—

- \$25: Individual Member
- \$40: Family Member
- \$15: Student/Senior
- \$100: Organization

\$ \_\_\_\_\_ Additional Gift To Support the Survey's Mission

## Our Mission

The Rhode Island Natural History Survey is an independent, member-supported non-profit, founded in 1994, that connects people knowledgeable about Rhode Island's animals, plants, and natural systems with each other and with those who can use that knowledge for research, education, and conservation.

For environmental conservation there are fewer resources than ever...but with zoonotic diseases, climate change, invasive species, and habitat loss all accelerating, the natural world isn't getting any less complicated. We need good science and we need everybody to work together to make the most of our combined knowledge and experience.

The Natural History Survey manages data documenting the state's species and natural communities, publishes books and articles, facilitates science projects that have diverse partners or complex funding, and hosts events bringing people together, including conferences and the annual Rhode Island BioBlitz. The Survey is not a state agency or university department: it is embodied in members and friends who make generous gifts of time, money, and expertise to do this important work.

## Wanted: Book Reviewers

One type of article that was often included in previous issues of *Rhode Island Naturalist* was reviews of books with natural history or related themes. We would like to do that again, but we need your help. We will be keeping track of newly published books where reviews in our pages would be appropriate (see below). If you are willing to review one of these (or another new book that you know about), send us an email to [RINaturalist@rinhs.org](mailto:RINaturalist@rinhs.org) to volunteer. We can usually request a review copy from the publisher if we promise a published review.

Mark Bertness, *A Brief Natural History of Civilization: Why a Balance Between Cooperation & Competition Is Vital to Humanity*, Yale University Press, 2020 (Mark Bertness is a Professor at Brown University)

Todd McLeish, *Saving Narragansett Bay: How People, Passion, and Perseverance Made All the Difference*, Save the Bay, 2020 (Todd McLeish is a Rhode Island-based writer and a former member of the RINHS board of directors)

Eric Sala (Introduction by Edward O. Wilson), *The Nature of Nature: Why We Need the Wild*, National Geographic, 2020

## To Contact Us . . .

Rhode Island Natural History Survey  
P.O. Box 1858  
Kingston, RI 02881  
Tel: 401.874.5800  
[www.rinhs.org](http://www.rinhs.org)  
[info@rinhs.org](mailto:info@rinhs.org)

Visit us in person at Bldg. #14 on URI's East Farm  
1 East Farm Road, Kingston, RI 02881