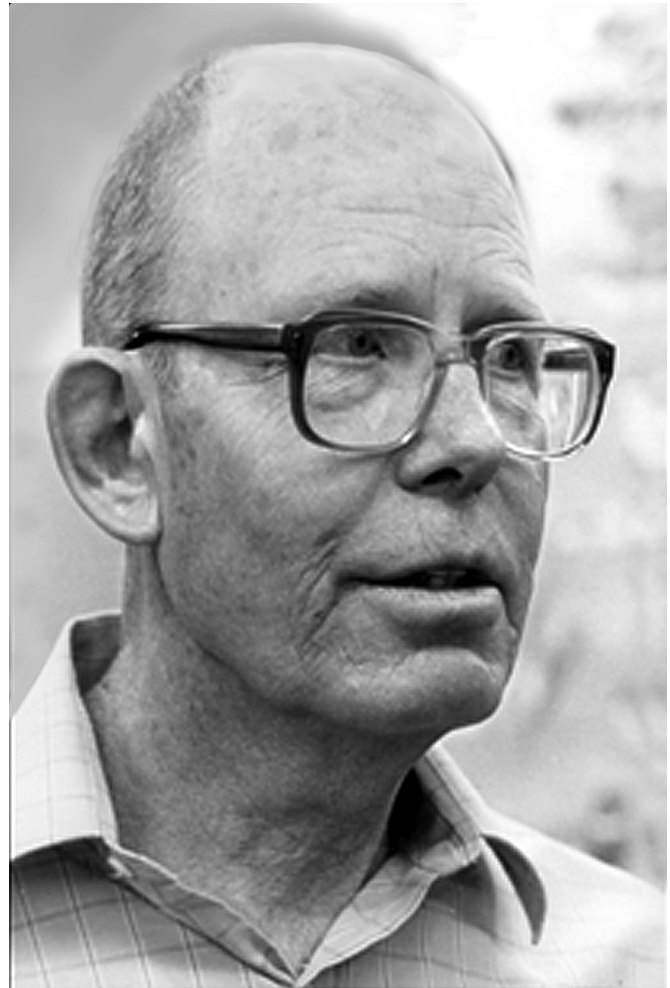




## Obituary: Terry A. Vaughan (1928–2022)

Dr. Terry A. Vaughan passed away at the age of 94 on 9 August 2022 at his home in Rimrock, Arizona, after suffering a stroke during his long convalescence from COVID-19. Terry left his mark in mammalogy as a scholar, author, educator, researcher, and in his service to the American Society of Mammalogists (ASM). He also had an expanded legacy as a wildlife artist, adventurer, and a mentor with a strong, straight, and true moral and ethical compass. Tall, lean, and strong in stature yet usually gentle and cheerful in his demeanor (but with ways that left no doubt when he signaled disapproval), Terry was one of the giants of mammalogy during the latter half of the mid-20th Century. His work helped bridge mammalogy through an era dominated by morphology-based taxonomy and limited natural history observations to more field-oriented comparative approaches and ecologically relevant life history studies. In 1979, he was the fourth person to be honored with the ASM's C. Hart Merriam Award, the Society's highest research, teaching, and service award. His service to ASM included intermittent terms on the Board of Directors (1968–1970, 1975–1980), two terms as Second Vice President (1976–77, 1980–82), and a term as sole Editor of Feature Articles for *Journal of Mammalogy* (*JM*, 1967–68). As a researcher, Terry's work emphasized bats and rodents using comparative analyses, well-designed field sampling, and supplemental laboratory experiments. His publications based on original research spanned 47 years (see accompanying Bibliography), with the majority appearing in *JM*. As an educator, his chief contributions were teaching of mammalogy and other university courses in zoology and evolution, mentorship of graduate students, and very importantly six editions of the comprehensive textbook *Mammalogy*. Throughout all his work, Terry enhanced his efforts with his insightful abilities as an observer, artist, and illustrator, and with his straightforward sense of honesty and modesty.

Terry Alfred Vaughan was born on 5 May 1928 in Los Angeles, California, the sole child of Alfred Terry Vaughan, a high school teacher and printer, and Gladys Lucy Vaughan, a homemaker. His maternal grandparents were immigrants from England, and his paternal grandmother was Canadian. His paternal grandfather was a Methodist pastor who immigrated to the U.S. from Northern Ireland via Canada, and who told Terry little about the family in Ireland except that they were “rag-pickers.” Terry's primary and secondary education was through the Los Angeles public schools, with his childhood home about 2 km from the current Dodger Stadium to the



**Fig. 1.**—Dr. Terry A. Vaughan as a professor of zoology at Northern Arizona University in early middle age. Photograph courtesy of the Department of Biological Sciences, Northern Arizona University, Flagstaff, Arizona.

west and in view of the famous “Hollywood” sign to the east. Although Terry grew up in an urban setting, the guidance of his parents helped him to develop his appreciation of nature through outings and camping trips around California, and by instilling a lifelong love of birding and sketching of birds and other wildlife. One of the proudest possessions of his youth



**Fig. 2.**—Terry A. Vaughan (right), age 45, and Thomas J. O’Shea preparing bats at Bushwhackers Safari Camp along the Athi River in central Kenya in 1973. Photograph courtesy of Richard G. Bowker.

was his signed first edition (1941) of the Roger Tory Peterson *A Field Guide to Western Birds*; years later, in the second edition (1961), Peterson acknowledged Terry among the contributing internal reviewers. Terry’s early abilities as an artist also grew with time and were largely self-taught. His greatest early inspiration came from the paintings of birds by Louis Agassiz Fuertes. Later in life he also admired and learned from the broader wildlife works of Robert Bateman and especially Bob Kuhn of Arizona.

Even in the urbanizing environment of Los Angeles, young Terry found remnants of the natural world aplenty. In the conservation chapter of the *Mammalogy* text (fifth edition, p. 636; sixth edition, p. 608) he wrote that he “grew up in the 1930s on a hill in Los Angeles where colonies of ground squirrels remained, and burrowing owls and roadrunners were common. My neighborhood friends and I, after less than an hour’s bicycle ride, could be in ‘wild country,’ tracts of chaparral and oak woodland where there were deer, gray foxes, bobcats, the lovely California gray squirrel, and an occasional mountain lion. In an entirely natural way, my young friends and I came to revere and even to love this wild country. Children growing up today in the same neighborhood are completely cut off from what natural areas remain by multi-lane boulevards carrying heavy and dangerous traffic and often, more important, by an indifference toward or even fear of wild places.” During Terry’s teens, he continued his interests in nature and art, but he also developed abilities in music, played the clarinet, and was a fan of big band jazz and swing music. He also had slightly darker experiences, perhaps unavoidable for some youth in Los Angeles. He reminisced about racetrack visits with friends and catching glimpses of shady characters as well as Hollywood personalities among the crowds; he also told of a pal sneaking out with him to see the big pistol or “gat” kept in the glove box of a car owned by the pal’s mother’s gangster escort. Terry was too young to serve in World War II, but all his life was impressed by the national

solidarity for the war effort. Los Angeles was central to the military aircraft industry, and Terry recalled how he and his friends in their early teens watched with awe as the large, newly minted aircraft took flight overhead, right off the manufacturing lines. (Terry later was drafted into the U.S. Army for two years at the start of his Ph.D. research, serving mainly at Fort Detrick, Maryland.)

Like many in their late teens, Terry was unsure of his future goals, and at first attended the University of California at Los Angeles, but the large university atmosphere was dissatisfying. On the advice of a family friend, he switched to the Claremont post-secondary education system where he earned his B.S. degree in Zoology at Pomona College in 1950 and his M.S. degree in zoology at the Claremont Graduate School in 1952 (1; numbers in parentheses without a year refer to works in Terry’s accompanying bibliography). During his undergraduate years, he met Pomona College student Hazel Avis Orcutt of San Diego. Their early acquaintance began in a shared comparative anatomy class and blossomed into marriage in 1950. Terry’s M.S. thesis at Claremont, “A study of the mammals of the San Gabriel Mountains,” was published in the University of Kansas Natural History Museum series in 1954 (5). An ambitious in-depth extension of his youthful wanderings, the study area encompassed the entire mountain range adjacent to Los Angeles, from its lower slopes on the Pacific side over the crest to the Mojave Desert. The mammal survey entailed many field trips in his Model A Ford, many nights of camping, and preparation of many specimens for documentation. The published version in the University of Kansas (KU) series was reminiscent of the early U.S. Biological Survey reports on western mammals by pioneers such as Bailey, Cary, and Osgood. Unanticipated findings resulted in Terry’s first short publication in *JM* in 1953, a note describing hoary bats (*Lasiurus cinereus*) in migration (2). He remarked much later that the original submission was not well written, but that he was forever indebted

to the *JM* Editor and future ASM President, William H. Burt, for taking the time to advise him on scientific writing. Terry abided Burt's guidance for the rest of his career. Another highlight for Terry was being visited in the San Gabriel Mountains by eminent mammalogist Walter P. Taylor (then a former ASM President), who wanted to learn the technique of capturing bats by stretching fine wires across and slightly above the surface of ponds (bats were sampled in 1951, prior to the general use of mist nets by U.S. bat researchers). Of note, field work did not include summer months. Instead, Terry worked at seasonal positions in the Sierra Nevada Mountains at Yosemite National Park and the Plumas National Forest beginning at age 16. This work at natural resource agencies helped financially and provided practical experiences in conservation.

Perhaps because of his early fondness for birds, Terry became keenly interested in how bats fly and how differently natural selection acted on their flight characteristics and anatomy. This was largely unexplored territory when Terry started his doctoral studies on the functional morphology of bats, which led him to become a global expert on the topic for at least the next 25 years (9, 10, 21, 27–32, 36, 43, 46). Terry began his doctoral research at the University of Kansas in 1953 (soon interrupted by military service) where he joined a cadre of future leaders in mammalogy who worked under Professor E. Raymond Hall. Terry published work with his fellow graduate students J. Knox Jones, Jr., James S. Findley, and Philip H. Krutzsch (3, 7, 8, 11) on projects related to Hall's main interests in the systematics and distribution of North American mammals, but Terry's interests in bat flight were well outside of Hall's areas of expertise. This allowed him considerable independence in his chosen research. Returning to the field in southern California, he took a decidedly comparative approach based on careful direct observations and detailed anatomical studies of three species of bats with very distinctive styles of flying and foraging (*Myotis velifer*, *Macrotus californicus*, and *Eumops perotis*). Sixty days were spent in the field in 1953–57 finding roosts and observing flight and foraging, adding much to the natural history knowledge of these species in the process. The field observations supplemented the aerodynamic measurements and his meaty descriptions of comparative myology and osteology based on original dissections. Results included 67 hand-drawn osteological and myological illustrations with detailed labelling accompanying his dissertation publication (10). He took great delight in discovering and describing a muscle new to science that he termed the *Musculus tensor plagiopatagii*; it maintains the tautness of the plagiopatagium when the wings are spread (10).

While at KU Terry was strongly influenced by paleontologist Dr. Robert W. Wilson and paleontology graduate student Mary Dawson. Through these contacts, Terry developed a strong lifelong interest in vertebrate paleontology, which he incorporated strategically into his *Mammalogy* text and his teaching. The summer of 1958 was spent collecting fossil mammals in the White River Oligocene badlands of Colorado and Eocene of Wyoming with Dr. Wilson and Ronald H. Pine, who was then an undergraduate student at KU. Their summer fieldwork was formally a KU class in which Ron was the single student who was enrolled for credit, Terry was paid as the "cook," and Dr.



**Fig. 3.**—Stephen's woodrat (*Neotoma stephensi*), a species that Terry worked extensively on for several years. Adapted from a black ink wash that Terry painted to introduce the chapter on rodents in the 4th and subsequent editions of his textbook *Mammalogy*. (Used with permission of Matt Vaughan and Marti Burbridge).

Wilson the instructor. Summer field courses were a mechanism the faculty used to obtain funding from the university for their fieldwork and were a popular way to get students experienced in fieldwork. In his early 90s, Terry recalled (*in litt.* to Jill Jones) that "Dr. Wilson was my finest teacher. He was quiet and scholarly; his outstanding vertebrate paleontology courses were not embellished by theatrics but by frequent references to recent literature and by dedication to his subject. The summer I spent collecting fossils in the White River Oligocene badlands of Colorado were among the happiest and most important times of my life. I was Dr. Wilson's field assistant. Under his influence, I finally became a serious scholar. Dr. Wilson and I became close friends. Dr. Wilson, his wife Jerry, and Hazel and I had bag lunches together most days of the week." That summer, Wilson, Terry, and Pine made significant contributions to our understanding of Eocene and Oligocene mammals and to the research collections in vertebrate paleontology at KU.

Following graduate school, Terry filled a position as full-time research scientist at the Colorado Agricultural Experiment Station and the Department of Range Science at Colorado State University (CSU) in Fort Collins (1958–1967). Major responsibilities involved investigating the ecology of small mammals (particularly pocket gophers) on rangelands using a variety of field sampling designs and laboratory experiments (12–20, 22–26, 35, 44) resulting in several landmark publications. During this same period, Terry and Hazel began their family, which consisted of children Matthew P. Vaughan, Anthony T. Vaughan (deceased), and Marti A. (Vaughan) Burbridge. Although a productive research experience, the position at CSU did not include significant teaching components. Terry's major accomplishments as an educator began when he joined the Department of Biological Sciences faculty at Northern Arizona University (NAU).

Terry was hired as an Associate Professor of Zoology at NAU in 1967 where he remained until his retirement 20 years later as Full Professor. There he collaborated in expanding the vertebrate museum collection for both teaching and research, served as a graduate and undergraduate student advisor, and taught

courses in general zoology, vertebrate biology, evolution, and mammalogy. During his tenure at NAU, Terry advised the following graduate students, nearly all studying mammals: Marcie M. Bateman (M.A.T. 1983), Margaret H. Bowker (Ph.D. 1978), Richard G. Bowker (Ph.D. 1978), Peng-Kwei Chang (M.S. 1980), John E. Cornely (Ph.D. 1980), Nicholas J. Czaplewski (Ph.D. 1987), Anita L. Davis (M.S. 1987), Kenneth P. Dial (Ph.D. 1984), John L. Fisher (Ph.D. 1986), David D. Hanson (M.S. 1979), Donald B. Hoagland (M.S. 1980), Trudi Ingram (M.S. 1987), David M. Kuch (M.S. 1969), Spike C. Jorgensen (M.A.T. 1968), Thomas J. O’Shea (M.S. 1973/Ph.D. 1977), Debbie D. Paulson (M.S. 1981), Larry R. Pyc (M.S. 1984), O. J. Reichman (Ph.D. 1974), Roger B. Smith (M.S. 1971), Steven T. Schwartz (M.S. 1979), Kent M. Van De Graaf (Ph.D. 1975), Sheila Ward (M.S. 1984), and Richard M. Warner (M.S. 1981). It is notable that some of Terry’s original research publications are co-authored with graduate students and colleagues, but none is based on the doctoral research of his students—he considered that dissertation research should be solely original work and declined offers of co-authorship on such manuscripts. His mentorship style often followed this practice. His door was always wedged open for consultation with doctoral students, he made sure that they had a mission and were following it, and helpfully critiqued their writing, but he sometimes seemed to consider his M.S. students and advanced undergraduates more in need of his time. He enjoyed helping them along to try to uncover those who in his words might be potential “diamonds in the rough.” While in mid-career at NAU, Terry’s personal life underwent a major change. He and Hazel parted ways in the late 1970s. Subsequently, Terry met Rosemary Purdy through her daughter Jill Varnum (later Jones), who was a graduate teaching assistant in his vertebrate zoology course. Terry was interested in Stephen’s woodrat (*Neotoma stephensi*) and Jill knew of a population near her home in Winslow, Arizona, where Rosemary taught fourth grade. Rosemary was also an artist, lover of nature, international traveler, and had lived abroad. Jill introduced them to each other during a study area reconnaissance trip. Terry and Rosemary soon fell in love and married in 1981. They remained devoted to each other for the next 40 years.

In developing his course in mammalogy at NAU, Terry later wrote privately that he was dissatisfied with the limited breadth of the few available textbooks, so he simply decided to write one himself. The first edition of *Mammalogy* was published in 1972 (34), and was well-illustrated with original drawings by Terry. Book reviews in general will point out even minor flaws as well as major virtues and his text was no exception. Nonetheless, he must have been proud when the review of the first edition in the *JM* was penned by William H. Burt, who 20 years earlier had given Terry well-heeded tips on scientific writing. Burt concluded his review with: “*Mammalogy*, by Terry A. Vaughan, is in my estimation the best text available in the field at present” (Burt 1973:305). Over the next 50 years, *Mammalogy* became widely used globally in the education of many thousands of students. It has been updated through six editions, the last three in collaboration with James M. Ryan and Nicolas J. Czaplewski.

The review in *JM* of the most recent (2015) edition (66), like Burt’s review of the very first, concluded: “At the end of the day, the 6th edition of *Mammalogy* is again an excellent vehicle for communicating the sense of wonder at mammalian biology and diversity that mammalogists share.... *Mammalogy*, by Vaughan et al. retains its leading place as an excellent text for courses on the biology of mammals” (Sullivan 2015:246–248). The original artwork for illustrations that appeared throughout each edition of the book were precise, clearly demonstrative of mammalian features, and deserve special recognition. The review of the 4th edition by Charles Long (2000:919) included a critique of the woodrat illustration that also is depicted here (Fig. 3): “This final suggestion is made to future teachers: photocopy the illustration on page 292, give copies to the students, and tell them a critic noticed a masterpiece.” For an additional, very positive review of the text in its fifth edition that also appeared in *JM* see Freeman (2011), who noted (p. 478) it was “a pure pleasure” and that reading through it was like spending time with old friends. Freeman’s review included a notable quote from Vaughan et al. that “Modern mammalogy is a dynamic and exciting field in need of curious minds.”

Terry’s other publications during his tenure at NAU featured original research contributions based mainly on his field-oriented studies of bat and woodrat behavioral ecology. This work also had an impact in mammalogy and was well respected. Consistent with his artistic eye, Terry was an exceptionally skilled observer. Twenty-nine of his 60 other career publications were in *JM*, including 15 short notes and 14 feature articles, with five of the latter as lead-in first articles of their respective issues. Although productive for his time, Terry did not have great ambitions for adding long lists of papers to his name nor for racking up large dollar amounts of multiple competitive grants. Instead, he simply loved being in the field studying mammals. He never seemed more exuberant than when he was packing up gear and embarking to his study areas. Throughout his career Terry’s field work often was conducted in interesting, enviable, and sometimes very challenging locations, appealing to both his sense of adventure and his appreciation of remarkable landscapes. At CSU, his study areas ranged from the wind-swept shortgrass prairies and sandhills of the eastern part of the state to high subalpine valleys and meadows of the Rocky Mountains. At NAU, Terry worked at locations in Mexico, Arizona, and Africa, usually including students and colleagues as collaborators. Work in Mexico with Gary C. Bateman and NAU students Roger B. Smith, Spike Jorgensen, and Thomas R. Huels included collections made in Nayarit for the NAU vertebrate museum, as well as studies of mormoopid bats (27, 36) and other vertebrates in tropical deciduous forest in the Sierra Madre Occidental of Sinaloa. Ecological studies on the large endemic subspecies of the desert woodrat (*Neotoma lepida latirostra*) took place on the uninhabited, rocky, and precipitous Isla Danzante in the Sea of Cortez (with students Steven Schwartz, John L. Fisher, Buzz Hoagland, and others). In Arizona, his studies took place among ancient Sinagua Indian ruins in the Upper Sonoran Desert, at the Kofa Wilderness and Kofa National Wildlife Refuge in the far southwestern corner

of the state, and in the high deserts of the Colorado Plateau near Sunset Crater and Wupatki National Monuments.

His research in wild places with remarkably diverse mammalian faunas in Kenya provided perhaps his most exciting adventures. There the work centered on the behavioral ecology of three species of large bats that, like flycatchers, foraged from regularly used perches in trees and shrubs. Research on the heart-nosed bat (*Cardioderma cor*) and striped leaf-nosed bat (*Macronycteris vittatus*) took place over a 14 month stay at a remote camp (Bushwhacker's Safari Camp) at Masalani along the Athi River during a sabbatical leave in 1973–1974 (Fig. 2), whereas work focused on the foliage-roosting yellow-winged bat (*Lavia frons*) took place over somewhat shorter stays during 1982–1983 at Roberts Camp along the edge of Lake Baringo. The work at Lake Baringo included Rosemary Vaughan and students Ken Dial and Jill Varnum (Jones). During these studies in Kenya, Terry also served in courtesy positions as a Visiting Professor in the Department of Zoology at the University of Nairobi and as a Research Associate at the National Museums of Kenya.

The longer NAU expedition in 1973–1974 consisted of Terry and his family (Hazel, Matt, Tony, and Marti), Sherry O'Shea as tutor to the Vaughan children, and graduate students O'Shea (bats), Dick Bowker (reptiles and amphibians), Margie Bowker (dik-diks), and recent graduate Tom Huels (birds). All lived in three separate sisal-stalk walled, thatch-roofed huts and a tent. The NAU group was later joined by Galen B. Rathbun, then a graduate student at the University of Nairobi, who had found the area to provide an abundant population of sengis, his chief subjects of study. Bushwhackers was at a site previously used by former big game hunting guides Hugh and Jane Stanton as a camp for capturing rhinos (*Diceros bicornis*) during the 1950s and 1960s (very abundant at the time) for zoos around the world. The camp was in dense deciduous thorn scrub and bushland penetrated by the Athi River at the western border of Tsavo East National Park. Rainfall was highly seasonal and the long dry season markedly arid. Hugh and Jane opted to be Kenyan citizens after independence in 1963, retiring from hunting and trapping to operate Bushwhackers as a guest camp mainly for local nature lovers and others from Nairobi (about 210 km distant) who wanted experiences "roughing it." Amenities were minimal. The nearest telephone was 26 km away at the tiny post office in the little town of Kibwezi (about a one-hour slow drive through the bush) and often did not work. Simple pit latrines were used as toilets. Water for washing and general use was unheated gravity-fed river water treated with alum, likely insufficient as a biocide. Two small gas refrigerators were shared, and separate two-burner gas stoves used to prepare meals independently at each banda. One diesel generator was operated between 1800–2200 h each night to provide electricity for the dim lights of the camp. The mammalian wildlife in the thick bush was spectacular and diverse, although seldom easily visible. As examples, at least 13 species of Carnivora in five families were noted at Bushwhackers, ranging in size from group foraging dwarf mongooses (*Helogale parvula*) to leopards (*Panthera pardus*) and lions (*Panthera leo*), and

multiple species of large herbivores ranging in size from Kirk's dik-dik (*Madoqua kirkii*) up to rhinos, hippos (*Hippopotamus amphibius*), giraffes (*Giraffa camelopardalis*), and elephants (*Loxodonta africana*). Terry was ebullient.

With time and experience on the narrow trails in the dense vegetation (including encounters with poachers armed with poisoned arrows, charges from cape buffalo (*Syncerus caffer*) during the day, and minor run-ins with rhinos at night) most of the biologists opted to conduct their research close to camp. True to his nature, Terry's investigations took him the farthest into the bush. His first order of business at Bushwhackers was to locate diurnal roosts of heart-nosed bats as previously gleaned from the literature. This entailed searching for very sparsely distributed hollow baobab trees (*Adansonia digitata*) via the many game trails in the area, initially in the company of a Wakamba tribesman with whom he communicated non-verbally. Several roosts were located among the many baobab trees searched—fortunately none housed the territorial black mambas (*Dendroaspis polylepis*) that also can inhabit them. Bats at the roosts soon revealed their audible communication calls. This led Terry to discover their use by the bats to signal territorial boundaries as they foraged by hanging at low levels in shrubs and trees scanning for prey (39). He spent 140 nights observing foraging and behavior patterns and mapping exclusive areas of these bats aided by a night viewing device, usually remaining low to the ground in the dark himself—puff adders (*Bitis arietans*), mambas, and spitting cobras (*Naja nigricollis*) notwithstanding. The observational study of the second species (40), the striped leaf-nosed bat, came serendipitously when it was discovered that they migrated into the area with the rainy season to forage from high trees. At the time Terry was sickened, either from schistosomiasis or the antimony-based medicine used to treat it (most of the group contracted this disease, hookworm infections, and malaria or other fevers). Although ill, he found that he could observe these bats while seated in a field chair that he occupied for multiple nights during his recovery. At other times, when the water was low, he, O'Shea, and others sampled the bat fauna (47) using mist nets set across the Athi River while keeping track of the red eye-shine of nearby Nile crocodiles (*Crocodylus niloticus*) in their headlamp beams.

Between the two long trips to Kenya, Terry and students focused on the ecology, behavior, and life histories of poorly known woodrats in Arizona and on Isla Danzante in the Sea of Cortez. In northern Arizona, Stephen's woodrat (Fig. 3) was found to have a relictual distribution from their more widespread occurrence during the Holocene, and were restricted to zones with juniper woodland; most of the diet consisted of select juniper foliage, with individual trees and portions of trees varying in their palatability and digestibility, as well as in the concealment they provided woodrats from predators. Stephen's woodrats were found to be central place foragers that did not move widely, returning to dens to consume gathered sprigs of junipers (45, 49, 51). Compared to other species of woodrats, life history adaptations to this specialized diet include litter sizes of one, slow growth rates, prolonged lactation, and reduced survival of females (longevity of about one year for

most) (52). In contrast, individuals of the endemic Danzante Island subspecies of the desert woodrat (*Neotoma lepida latirostra*) also were dependent on mainly one species of plant but had fewer predators than on the mainland. These woodrats were found to be about twice the size of mainland counterparts, sexually dimorphic in size, territorial with male resource defense polygyny, spent much time foraging away from dens, and female longevity was at least 2.5 years (45).

During the second expedition to Kenya in 1982–83, Terry and Rosemary occupied a large tent at Lake Baringo in more open acacia woodland. The site was near the roosts of the monogamous, territorial yellow-winged bats among the thin crown foliage of nearby flat-topped umbrella-thorn acacias (*Vachellia tortilis*). Working together and keeping a watchful eye for crocodiles and night-foraging hippos, they made detailed descriptions of foraging and roosting behavior, social interactions, parent–offspring behavior, and perch site characteristics of this unique sit-and-wait predator. Monogamous pairs occupied male-defended territories, foraged opportunistically under crepuscular as well as nocturnal conditions using vision and echolocation, and showed extended maternal care of their singleton young (53, 55, 57). It was during this study that Terry became permanently blind in one eye. He had jumped down after checking a thermistor in an acacia tree and suffered a detached retina. This incident would have been life-changing in major ways for many, but Terry continued to produce and improve his artwork and illustrations, including those in his textbook, as well as to observe wildlife, travel widely, and read and write scholarly works for the next three decades. The continued zeal for his profession and his passion for an active life after this setback to his vision was typical of Terry’s character.

Although he continued with revisions to the textbook through 2015, Terry retired from NAU in 1987 at the early age of 59. Rosemary and Terry had many adventures yet to come and spent the next 30 years together traveling to camp, going birding, visiting friends and family, practicing photography, and drawing and painting in wonderful places. They volunteered on mammal surveys in Western Australia and lived in small camper vans during lengthy excursions in southern Africa, where they especially loved their experiences in Namibia. They also travelled extensively in North America, driving their modest camper van to wild places throughout most of the western states as far as interior Alaska, where Terry also exercised his lifetime interests in fishing and hunting. For many years they traveled the west in a birding group of like-minded retirees, led by long-time friend and retired U.S. Fish and Wildlife Service (USFWS) big game biologist Les Robinette, typically ending along the southwestern border of Arizona in spring. In addition to artwork, during times spent indoors they were avid readers of genres including American standards like the works of Steinbeck, the popular works of James Herriot cast in England, the *No. 1 Ladies’ Detective Agency* series set in Botswana, and non-fiction such as Olson and Cloud’s chronicle of the gallant ex-patriate Polish fighter pilots who served in the Royal Air Force to defend Britain during World War II. The Vaughans were active correspondents with family, friends, colleagues,

and former students, with Terry including childhood friends in his letters well into his 90s. Terry was very keen on the writings of Stephen Jay Gould and other contemporary thinkers in his fields, especially new books on vertebrate evolution and paleontology. They watched television sparingly but enjoyed various PBS series. Terry also viewed televised major sports and continued to be a fan of basketball at all levels, especially the women’s teams. He once admitted that many years earlier when he was a doctoral student preparing for his comprehensive exams, the only nights he strayed from diligently studying was when he attended live home basketball games at KU to watch All-American legend Wilt Chamberlain play for the Jayhawks.

Although practically impossible to emulate, those who knew Terry respected him for his principles and high standards as well as his abilities. He did not make misogynistic, homophobic, ethnically or racially bigoted remarks; he used profanity so rarely that it was startling, yet he never uttered a word below the criteria used for PG-rated films. Terry lived healthily and without overindulgence (chocolate cake perhaps an exception, Fig. 4), enjoyed the exercise that came from working hard in the field, and continued walking and regular home exercises into his 90s. He did not smoke and limited use of alcoholic beverages to an occasional glass of wine or one or rarely two beers. One evening in 1972, O’Shea and Terry came back to a lounge in Flagstaff after netting bats with the late mammalogists Clyde Jones and Bob Fisher, both then of the USFWS National Fish and Wildlife Laboratory at the U.S. National Museum. Terry had two beers and went home to his family. Clyde turned to O’Shea and asked, “Is Terry really as strait-laced as he seems?” With admiration, the response was “Absolutely.”

Terry and Rosemary’s active life diminished only in their final years. Rosemary lost her mobility after a fall in 2018, and her cognitive abilities also began to decline. She needed help frequently, but Terry insisted she spend her entire remaining life at home and gave much of himself to her care until her death at 97 in December 2020. Terry developed pulmonary hypertension at around age 90, likely from the schistosomiasis infection in Kenya, limiting his daily walks. Unfortunately, despite following precautions, he suffered from COVID-19 in September 2021. He was hospitalized, spent many long weeks in rehabilitation facilities, but recovered enough to return home in early November to the watchful eye of his much-appreciated daily care workers. He was optimistic about his continuing recovery but realistic about its extent. In February 2022, he wrote O’Shea “I weighed 147 lbs., a bit below my fightin’ weight.”.. but that with his care-workers’ “fine cooking I’m gaining weight.” He was thankful to be at home again, adding “How wonderful it is to be back with the birds and deer.” In a subsequent letter to O’Shea dated 18 April 2022 he wrote, “I still depend on my wheelchair, and I’m still doing various exercises to get my strength back. My lack of balance is making working my way back to walking slow. The reality is that I’ll probably never walk without the walker.”

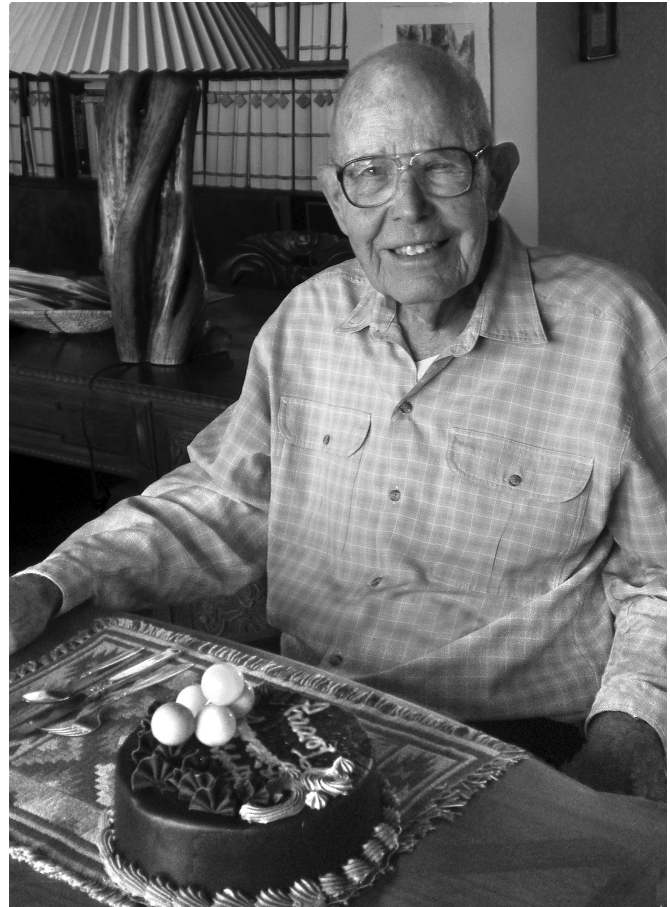
Looking far ahead to their elder years, soon after his retirement Terry and Rosemary designed and built their one-story home in a small enclave atop a mesa at Rimrock, Arizona. The

home featured a bank of large north-facing windows that let full light into their study and studio. Inside the living area of the home were many books, paintings by both Rosemary and Terry, noteworthy objects and mementos from their lives abroad, phonograph album collections, and some noteworthy osteological specimens. The bison statuette that accompanied the ASM Merriam Award and a cast of the original fossil specimen of the Pliocene *Neotoma vaughani*, with its image carved in matte board by Nick Czaplewski, held prominent positions in the bookshelves facing the windows. Outside against the bank of windows, the Vaughans had designed an adjacent space with a low rock wall and semi-open area bordered with junipers and other southwestern shrubs. This area held feeders and watering places often frequented by birds and other wildlife. Beyond the windows and the nearby Upper Sonoran Desert, the Mogollon Rim stretched across the far horizon, including the red rocks near Sedona. From those windows one could watch the antics of ravens, the rising dark clouds of summer monsoons, and the dustings of winter snow above the Rim. Still confined to a wheelchair in summer 2022, Terry spent time here during his very last days, content with his life and under hospice care, sitting at the window observing the local wildlife and the breadth of the landscape before him.

Terry A. Vaughan lived a long and wonderful life and remained intellectually active to the end. In addition to his accomplishments, knowledge, and experience, at times he also showed the intangible gift of wisdom. Although most mammalogists are very well tuned to conservation, it would do well for us all to remember Terry by heeding his thoughtful words in the second (p. 472) and subsequent editions of *Mammalogy*, “The need for the human race to set its own house in order is basic both to our own survival and to the perpetuation of the biological richness of the world....Clearly, our ability to solve social problems and the future of wildlife are tightly linked. People not under the pressures and stresses occasioned by high populations and limited resources, and at peace with one another, can work towards saving the biotas of the world—fearful people with empty stomachs make poor conservationists.”

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**Fig. 4.**—Terry Vaughan at his 89th birthday at the home he and Rosemary built atop a mesa near Rimrock, Arizona. Photograph courtesy of Sherry O’Shea.

their review of an earlier version of this manuscript, which added significant clarity to several points.

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