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## It's All About Fishing: Robert Ellis Jenkins (1940-2023) and His Life Among Freshwater Fishes of Virginia and the Redhorse Suckers

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## It's All About Fishing: Robert Ellis Jenkins (1940-2023) and His Life Among Freshwater Fishes of Virginia and the Redhorse Suckers

### Abstract

Robert (Bob) Ellis Jenkins passed away in Salem, Virginia, on Wednesday, July 12, 2023. Bob was born February 9, 1940 in Brooklyn, New York. As a child, Bob took an early interest in natural history, and was a particularly avid fisherman. He attended Roanoke College (Salem, VA) as an undergraduate and entered into a Masters degree program at Virginia Tech (Blacksburg, VA), only to leave before finishing for a position at the NOAA Systematics Lab based at the Smithsonian Institution's National Museum of Natural History. He eventually became faculty at his alma mater, Roanoke College, where he would spend virtually all of his career. It was at the Smithsonian that he began his lifelong friendship and collaboration with Ernie Lachner. He also met Edward Raney, who would become his Ph.D. advisor at Cornell University. Originally Bob was to work on the cyprinid genus *Nocomis*, but switched the focus of his dissertation to the catostomids of the genus *Moxostoma*. Bob published 38 peer-reviewed papers on a wide range of taxa (predominantly catostomids and leuciscids, but also ictalurids, percids, and centrarchids), as well as general zoogeography of fishes from the southeastern U.S. His research always emphasized taxonomy and distribution of fishes, but one of the roots of his love of this work on the diversity of fishes was his concern for the conservation of fishes and their habitats. Bob will perhaps be best remembered for his monumental book (with Noel Burkhead), *The Freshwater Fishes of Virginia*.

### Keywords

obituary, biography, Catostomidae, Cyprinidae, Percidae

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### Cover Page Footnote

Bob Jenkins was originally interviewed on May 19-20, 2013 at his home in Salem, Virginia, and then again on August 25-29, 2018 in Williamsburg, Virginia. I greatly appreciate Bob's unwavering candor and for his email correspondence thoroughly documenting a lot of his career. I thank Casey Dillman for access to Raney's field notes used in the introduction. Justin Mann and Hank Bart provided an image of *Percina jenkinsi*, Sandra Raredon provided images of *Nocomis* spp., and Joe Tomelleri allowed reproductions of his redhorse illustrations to be used, and I thank them all. I am grateful to Linda Angle Miller for providing images from the Roanoke College Archives. Thank also to Bob Jenkins, Katey Jenkins, Noel Burkhead, and Sarah Huber for providing additional images used in this paper.

On March 30, 1940, Edward C. Raney (1909-1984; Robins et al. 1992) and Ernest A. Lachner (1915-1996; Jewett and Collette, 1997) were collecting fishes in the North River, a tributary of the South Branch Shenandoah River, near the town of Mt. Crawford, Rockingham County, Virginia. Later that year, Lachner, who was employed as a high-school teacher in Pennsylvania but spent his summers as a field assistant, would begin his graduate training at Cornell under the guidance of Raney. These two luminaries of twentieth-century North American ichthyology made extensive collections throughout the eastern and southeastern portions of the United States during this period (Jewett and Collette, 1997). Based on Raney's field notes, that warm (64° F), clear spring afternoon, nestled in the heart of Virginia's Blue Ridge Mountains, was their first collection of the year. Among the fishes they collected at that site was a single juvenile specimen of *Hypentilium nigricans* (CUMV 8362), a member of Catostomidae, the Suckers. On February 9, 1940, just seven weeks before Raney and Lachner were collecting fishes in the streams of Virginia, about 350 miles away, in Brooklyn, New York, a future student of Raney's and a long-term collaborator and friend of Lachner's, was born. The name of that student, Robert Ellis Jenkins – Bob, or Jenks, to friends – would become intimately tied to both the family Catostomidae and the freshwater fish fauna of Virginia. Bob passed away in Salem, Virginia, on Wednesday, July 12, 2023. This obituary was originally written as a biography of Bob based on interviews conducted over the past several years, with his final edits and suggestions were made during the spring of 2023 but not received until after his passing. All quotes are from these interviews with Bob.

### **Family life and college years**

Bob's father, Ellis A. Jenkins (Figure 1A), was originally from Virginia and West Virginia, and worked as an auto mechanic, as well as a quality-control inspector in the manufacturing industry for defense mechanisms, including submarines, during World War II and onward through retirement on Long Island. Mabel A. Jenkins (Figure 1A) was a native to Brooklyn, where Bob was born, and the Jenkins lived there until they moved to East Rockaway, on Long Island, where Bob graduated from high school in 1957. Mabel was primarily a homemaker, although later she worked for the telephone company in part to help support Bob's college payments. Bob's sister, Peggy, is three years his junior. Bob married Diane Sims Jordan of Syracuse, New York in February, 1967 ("no relation to the ichthyologist from New York state with the same initials!"). Diane had been working as an assistant to Raney's secretary when she and Bob met, and although they remained good friends and lived in adjacent counties in southwestern Virginia, they divorced after 20 years of marriage and having two children together (Figure 1B, C), Glenn Robert Jenkins born in 1969, and Katherine "Katey" Suzanne Jenkins, born in 1973. Recounting the early days of their relationship, one memory that stood out, as Bob recalled, "I finally got a car – a new, type 2 Corvair – at the start of my second year at Cornell, because the fish collection and grad student offices moved three miles off campus. That car was totaled when I stopped at a red traffic light in Ithaca the morning after Diane and I wed, by a car behind us whose driver didn't notice the red light and sped directly into the Corvair at about 40 miles per hour. This occurred in front of the picture window of the motel where my relatives, up for the wedding, were gathered at the window for coffee and saw the crash. Diane and I luckily got only whiplash, but severely. The next morning, we were in Florida for our honeymoon, but we were hurting and could hardly move!"



**Figure 1.** Bob Jenkins and his family. A, Ellis and Mabel Jenkins, c. 1982. B, Bob and Glenn Jenkins, c. 1990. C, Bob and Katy Jenkins, and Diane Giessler (left to right), 2018.

Despite being born into an urban and suburban environment, Bob had an early exposure to nature. Two facets of this remained vivid to him throughout his life – his interest in keeping tropical fish aquaria, and observing wildlife in the tidal backwaters near his home, where he remembered capturing elvers of the American Eel, *Anguilla rostrata*. His parents were encouraging of his interest in natural history, and supplied him two books that he read continuously and several times: *Wildlife the World Over* (Boulenger, 1947) and *American Wildlife Illustrated* (Writers Program, 1947). His father also took Bob fishing “as soon as I was old enough to bait a hook.” Bob remembered catching his first fish at the age of four, and from then on, he greatly enjoyed fishing for alewife, skates, sea robins, puffers, and other fishes in the freshwaters, bays, and coast of the south shore of Long Island. In April 1954, after having received his first spinning rod for Christmas of 1952, Bob went on his first “trouting outing” with his father to Massapequa Creek on Long Island. It was there that he “got into the mud”. In the course of his trout fishing, he became intrigued by the variation in habitats and how this was reflected in the fish community. He began thinking that this could possibly be his career, and knew that he wanted to be a biology major focused on conservation of fishes in college. His parents encouraged him to keep detailed records of his fishing trips, which foreshadowed his approach to keeping highly detailed field notes, allowing him to recall clearly the events of catching specific fishes decades later.

Throughout high school, as far as his classes were concerned, he “did what I had to do,” and his school work was not often at the top of his list. Fishing was. His five summer jobs from after his junior year in high school until after he had been a junior in college was as a dishwasher and next a waiter at a small resort in the Shawangunk Mountains, foothills of the Catskill Mountains. It was not so much that he was enamored with the food service industry, but rather this job put him in close proximity to good trout streams, and he remembered fondly that he could fish for native Brook Trout, *Salvelinus fontinalis*, throughout the summer. He would also do odd jobs so that he could earn money to visit the American Museum of Natural History (New York City, NY). “Those trips kept me aware that waters hold many more kinds of fishes other than game species.”

Bob was the first in his family to go to college, and he applied to and was accepted by two colleges, Saint Lawrence University (Canton, NY) and Roanoke College (Salem, VA). The latter was only included in his application list because of a happen-chance meeting and conversation on a subway between his mom and the mother of Tom Maxwell, who attended Roanoke College and would later be Bob’s big brother in the Sigma Chi fraternity. Once Roanoke College was brought to his attention, this became the preferred college, due in part to being in a warmer environment than upstate New York. At the time it was not fully appreciated by Bob, but it would also offer close proximity to a diverse freshwater fish fauna. However, upon entering college, Bob found there to be very little time for fishing, with all the other activities he developed, including being his class vice president and engaging in a variety of campus organizations such as honor council and the editor for sports for the year book (Figure 2).

Upon graduation from Roanoke College in May, 1961 (Figure 3), Bob returned to Long Island where he worked as a New York State fishery aide for the summer, helping to conduct stream sampling and population surveys. At the start, he “was the guy that was made to go into the poison ivy. By the end of the summer, though, I was able to be in the canoe!” It was during this experience that Bob began to branch out from fishes in his appreciation of natural history, and

became interested in birds, which at one point he considered as the basis for his Ph.D. project. One of the disappointments that Bob had as a student during his time as a biology major at Roanoke



**Figure 2.** Bob Jenkins, as a student at Roanoke College (c. 1959). Image courtesy of Roanoke College.

College was that he only had one field course, which was in plant ecology. It was this course and his experience on the New York State survey crew after graduation that made him “wake up to field work.” This would change soon, as Bob was admitted to the master’s program at the Virginia Polytechnic Institute (Virginia Tech) as a student with the ichthyologist Robert D. Ross (1910-1983; Jenkins and Burkhead, 1994), who was an early student of Raney’s. At Virginia Tech, Bob had three advisers on his committee (Ross, as major advisor, as well as Perry C. Holt, 1910-1999, a branchiobdellidan systematist [Gelder, 2001], and Stuart E. Neff, 1926-2016, a limnologist [Knutson, 2017]), and all three regularly went into the field to conduct their research and collections; this approach – that of a field biologist – made a tremendous impact on Bob and his own approach to research. Bob remembered that in May 1961, while finishing at Roanoke College he was accepted into the Master’s program and was invited to join Ross (with whom he had just corresponded, but had not actually met) and his students taking his Vertebrate Natural History course. This field trip was the first time Bob pulled a seine, and he became fascinated (“blown away”) by the diversity of fishes that he encountered. He was also impressed by Ross’ ability to



name all the fishes being collected, calling out their scientific names without hesitation. Some of the details of that trip are lost to time and faded memory, and Bob was quick to add that this was the *only* time in the field in which collecting events were not recorded in his detailed field notes – it was before he became a Virginia Tech student. [Author note: I was very impressed during my interviews with Bob that when, having gotten stuck on details of some event he was telling me about, he would run to his basement office, returning shortly with a field book in his hands, which would have recorded all the details he was trying to recall. The amount of biology and history recorded in those field notes is staggering, and Bob’s notes provide a good example of the need and importance of taking detailed field notes, something I am still in the process of learning to do myself.]. Bob recalled his first field trip as a graduate student at Virginia Tech in September 1961, and seeing a large fish come up in the seine from a turbid pool at a site on Dan River. “Dr. Ross two-handed the fish, turning it over and over and closely checked the lips, and then tossed it hard back into the seine, saying perhaps scornfully: ‘It’s a redhorse sucker!’ This was a far cry from his instantly having scientifically named all the other species when plucked from the net, conveying a problem posed by the sucker.”



**Figure 3.** Bob Jenkins’ graduation from Roanoke College, May 1961 (left to right: Peggy Jenkins, Ellis Jenkins, Mabel Jenkins, and Bob Jenkins).

Bob was initially interested in pursuing a master’s degree on trout conservation, but this was quickly shot down by Ross. The topic assigned to Bob was a two-part study on the morphometric and meristic variation in the cyprinids of the upper Roanoke River drainage, emphasizing the South Fork Roanoke River, and delimiting the distribution of the fishes that lived in this river. The first part of this project quickly became boring to him and seemed to be of little, at least immediate, comparative value. The second component was of some interest to Bob, and involved both a lot of collecting and summarizing the knowledge of this fish fauna. However, with his interest in the assigned topic waning (and a growing interest in birds as a research topic), Bob was able to have his thesis research project changed to the taxonomy and zoogeography of the

nest-building species of the genus *Nocomis* in Virginia. This turned out to be a terrific change of topic, partly in that it led to a long and productive collaboration and friendship with Ernie Lachner (see below).

In midsummer of 1963, near the end of his time at Virginia Tech, Ross advised Bob that he needed to contact Lachner. Bob made an appointment for a Friday afternoon meeting. After he arrived by bus to D.C., he knocked on Lachner's office door, and was told "I'm in deep conversation with Ralph Taylor. Please wait." When he was able to meet with Lachner a while later, they introduced each other, and Bob explained how he had gotten into studying *Nocomis*. "Of course, Ross had told me about one and a half years earlier that Lachner was studying the taxonomy of *Nocomis*, so I was interloping, as permitted by Ross." Lachner said, point blank, "OK, Let's see what you have." Bob recalls nervously relating what he had discovered, and showed ample anatomical data, some summaries, some drawings, and conclusions on the populations and species." Lachner replied, "Now, let me show you what data I have" (Jewett and Collette, 1997: 651). In truth, though Lachner had little data to present, and none on the taxonomy of *Nocomis* worked out, in part due to pressures from his studies of gobies and other marine fishes, and darters, taking his time away from *Nocomis*, which had been the focus of his dissertation. "He laid on the table a low pile of terrific illustrations [drawn mostly by Carolyn Bartlett Lutz], then spread them out, like unstacking cards. At the time three species were recognized. Ernie said 'here they are, and now I have four new ones,' and he commented on their distinctions, and where they lived and where specimens were caught. That's when he said 'I see you like to work.'" Ending their meeting, Lachner suggested that they collaborate on *Nocomis* (then "*Hybopsis*"), and informed Bob that there was a technician position open "next door" at the National Marine Fisheries Service's Systematics Laboratory, housed at the U.S. National Museum (Smithsonian Institution), working for Daniel M. Cohen (1930-2018; Dunn and Pietsch, 2005). If he got that position, it would allow them closer proximity to work together on chubs.

In mid-August, 1963, Bob attended the 1963 International Congress of Zoology being held in Washington, D.C. This meeting was billed by its organizers as an opportunity to bring together the disparate fields of zoology, and to keep an emphasis on the organism in the light of the new and developing fields of genetics and cell biology (Johnson, 2009). Bob proudly kept and displayed the large bronze medallion (Figure 4) personally handed out to congress attendees by Alfred S. Romer (1894-1973; Colbert, 1982). This was also a particularly influential meeting for Bob. He was impressed by what he regards as a revolution in biogeography, having seen the presentation by George S. Myers (1905-1985; Cohen and Weitzman, 1986) in which he spoke on the adoption of plate tectonics and continental drift as an explanation for the distribution of characoids, cichlids, and other groups of fishes. It was also at this meeting that he was interviewed by Cohen, together with Bruce Collette (b. 1934; Hilton and Smith, 2014: figure 3), and was subsequently hired as a technician at the Systematics Laboratory.





**Figure 4.** Bob Jenkins' medallion from the International Congress of Zoology (Washington, D.C., 1963), handed out to all attendants by A.S. Romer. A, obverse, and B, reverse.

### The Smithsonian year

With this new job, Bob left his master's program in 1963 without finishing, although he brought with him to Washington, D.C. a wealth of data on *Nocomis* from Virginia, to grow the collaboration with Ernie Lachner. Bob remembered his first day on the job. Expecting some degree of formality – he was working in the hallowed halls of the Smithsonian, afterall! – he showed up in a suit and tie; Collette showed up with a large Yellowfin Tuna in a tub for Bob to skeletonize! During the day, Bob was to work on *Thunnus* under the direction of Collette and Gibbs, to assemble gadoid literature for Cohen, as well as to sort collections for cataloging. At 5:00 pm, he would change focus and work on *Nocomis*. Lachner had been interested in the taxonomy of the chubs for some time, as their life history was the focus of his dissertation research at Cornell under Raney (Lachner, 1946). Over the next 20 years, he would publish a few papers on the genus, but was busy with other projects (Jewett and Collette, 1997). After Bob arrived at the museum in 1963, Lachner was gone most of the fall, participating in the International Indian Ocean Expedition. However, that allowed Bob time to settle in and begin his nighttime and weekend studies of *Nocomis*, including sections of his thesis.

Bob and Lachner first collected together in the spring of 1964. They made a trip to Craig Creek (James River drainage, Virginia), with Lachner's son, Roger, in tow. Bob had the tendency to always carry a fly rod, with nuptial male *Nocomis* and *Semotilis* of high taxonomic value as particularly prized targets for his line. Bob arrived at the site in the evening and Lachner was not there, though he had been there earlier, and marked the nests with red driveway reflectors to aid in behavioral observations he was making. Conveniently, there was a low swinging bridge over the river that provided a good vantage point for both observations and fly-fishing. Bob recalled, "I couldn't resist taking two of the nuptial males that readily rose to artificial nymphs. The next morning, we met at the site and Ernie said something like, 'Hey Bob, look at these reflectors I

placed to help relocate and sneak up on nesting males. A local guy thought they were flowers in the stream! I don't understand why the nests were active yesterday and now they're not.' I said 'Huh' and didn't fess up until a few years later. The two specimens turned out to be the most valuable we had for thinking that our so termed 'atypical' *N. raneyi* apparently had migrated from the James River, whose population was considered morphologically modified by effluent from an upriver pulp-paper plant." It was also during this trip when Bob introduced Lachner to using polarized sunglasses to cut glare from the surface of the water. Bob was spotting fishes that Lachner could not see, which prompted the question, "How the hell are you seeing those fish!?" During Bob's last month at the Systematics Lab, he gave his first ASIH presentation, on the zoogeography of *Nocomis*, at the infamous 1964 Moorehead City, North Carolina meeting. He vividly remembered that the meeting occurred just after a hurricane passed through – grad students were housed on cots in the slightly flooded and still windy basement of the hotel for the meetings.

Bob recalled his time at the Smithsonian as inspiring, particularly for the exposure to visiting professional ichthyologists from other countries, as well as getting to know the group at the Smithsonian at the time, which (in addition to those already mentioned) included Stanley H. Weitzman (1927-2017; Smith, 2007), W. Ralph Taylor (1919-2004, Collette and Smith, 2005), Robert H. Gibbs, Jr. (1929-1988; Springer and Collette, 1989), and Victor G. Springer (b. 1928; Smith, 2005). The camaraderie of the characters involved provided some fond memories, and the infamous Friday night POETS (Piss On Everything, Tomorrow's Saturday) Club at the museum was always a catalyst. For instance, late one evening, after the group had left the bar, it was discovered that both Bob and Bruce Collette had been runners in college (see below), and there was a question of who was the fastest. Lachner egged the two on to have a race to the end of the block, with both participants finishing the race in hysterical laughter. While at the museum, Bob enjoyed taking lunch breaks wandering the exhibits, and remembered spending a lot of time looking at Martha, the last Passenger Pigeon. Perhaps the most important thing to come out of Bob's time at the Smithsonian was his friendship with Lachner. Even after they were no longer formally working together on projects their friendship persisted, with Bob being regarded by Lachner as an honorary uncle for his kids. He remembered his "travels with Ernie," particularly driving to ASIH meetings together, with great affection. Conversations in the car, usually Lachner's Cadillac with Bob smoking cigarettes and Lachner smoking cigars, lasted from start to finish of the trip, with the discussions including people and places, but mostly fish behavior and taxonomy. Usually they would split the driving duties, but Bob remembered driving the whole way to the ASIH meeting in Charleston, South Carolina, which would be Lachner's last meeting due to his declining health. This was particularly difficult as Bob had stayed up all night the night before to complete his presentation! About half way to the conference they stopped for food and Bob inquired about a motel. Ernie said "The hell with that, we're going all the way!" The last time these two friends saw one another was during a visit Bob paid to Lachner's home in the summer of 1995, about six months prior to his death. This visit was partly prompted by a phone conversation long before in which Lachner said "Jenks, you need to see friends before they die, not at the funeral!" One of the deepest regrets Bob had was not being able to attend Lachner's funeral, as classes at Roanoke College started the same day.

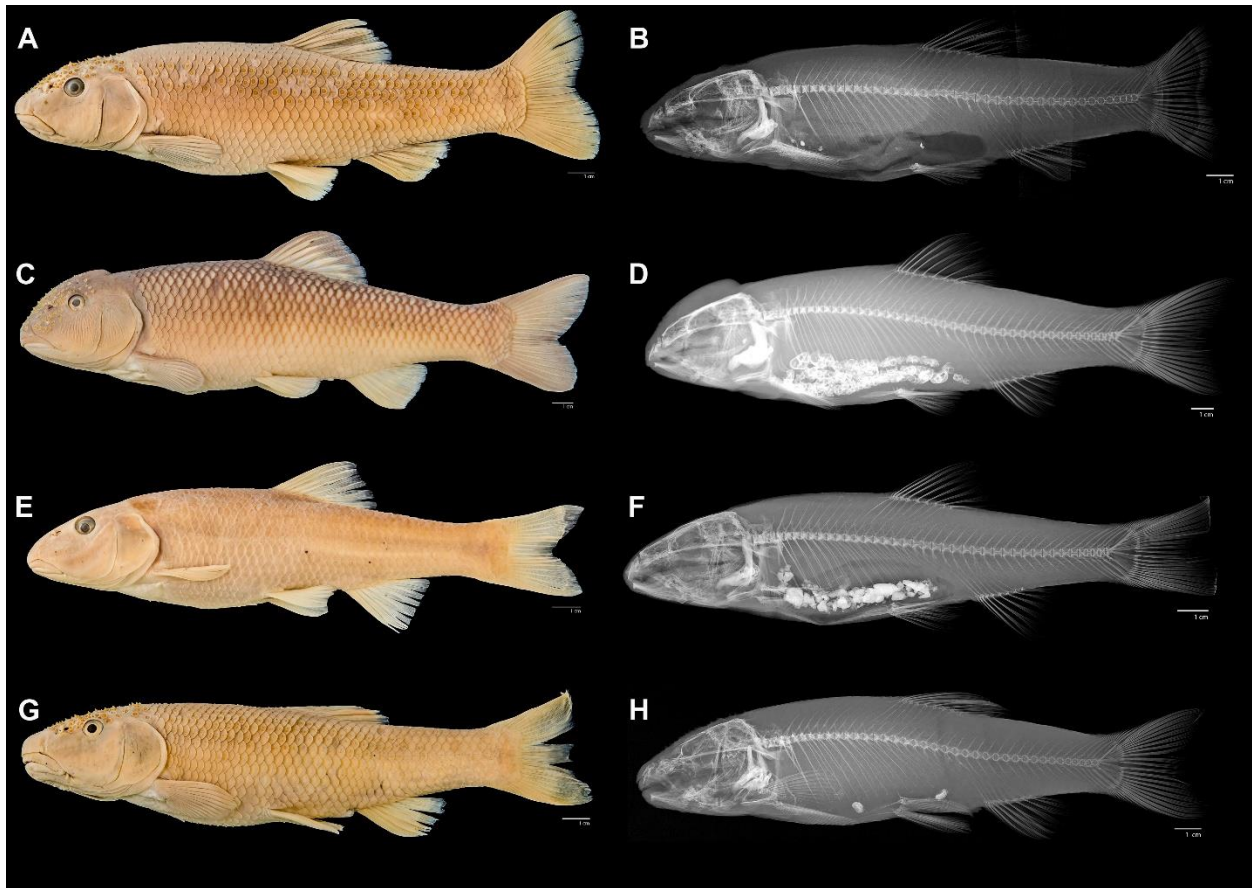
### **From the Smithsonian to Cornell**

Raney was among the ichthyologists that visited the Smithsonian during Bob's year at the Systematics Lab. Bob was encouraged by Raney to send him his academic records, as the two

discussed the possibility of Bob going to Cornell for a Ph.D. The reply from Raney was, “You will need to take the GREs again,” but some days later Raney phoned again and said, “You’re in with an assistantship – go ahead and apply.” Bob drove to Ithaca by way of Ann Arbor, Michigan to visit the University of Michigan Museum of Zoology to study *Nocomis* together with Lachner. It was on that visit that they found additional specimens of the fishes that they would name *Nocomis effusus* Lachner and Jenkins 1967 and *Nocomis asper* Lachner and Jenkins 1971, the Orangefin Chub and the Redspot Chub, respectively. Bob noted that he was still bugged that the ASF Names Committee changed the name of *N. effusus* to Redfin Chub, based “mainly on Reeve [M. Bailey’s; 1911-2011; Stewart and Smith, 2000] dicta from having a wrong notion of the fish’s coloration... Ernie was on the committee then, and should have argued that I knew much more about the fish and wrote the manuscript!” David A. Etnier (1939-2023) even wrote a letter to the Names committee suggesting that they reconsider their decision.

In September 1963, Bob had his first meeting with Raney the day after he had arrived in Ithaca. Raney immediately asked, “So, what are you going to study and who is going to be on your committee?” Bob, taken aback by the speed with which he had to ponder such topics, suggested to Raney, that “I was thinking to take on – and take apart – ‘*Hybopsis*,’ the genus in which *Nocomis* and numerous other non-close relatives had been lumped. Nearly all of my research in the first two years at Cornell was a *start* on ‘*Hybopsis*’ and a *continuation* on *Nocomis*, and my first collecting trip in September was for *Nocomis* chubs in Virginia.” Things changed and it was in fall 1964 that he decided his dissertation research to be on redhorse suckers, and Raney agreed. Indeed, Bob focused on *Nocomis* to a large degree while at Cornell, and came to regard Lachner as his mentor, rather than Raney. This was due, in part, to their close relationship, and their ability to disagree and argue yet stay friends and resolve their issues amicably. For instance, Bob recalled one argument about the status of what was to become the Bigmouth Chub *N. platyrhynchus*, an endemic to the New River drainage (Figure 5). Lachner was convinced based on tuberculation that seemed to support this taxon was more closely related to another new species from the central Atlantic slope they were to describe, the Bull Chub, *N. raneyi*, and regarded the Bigmouth as a subspecies of *N. raneyi*. Bob on the other hand thought that the specimens from the New River more closely resembled the River Chub, *N. micropogon*, of the Central Appalachians in terms of overall morphology and coloration and favored calling it a subspecies of *N. micropogon*. “Like a bomb, on a Saturday morning of work on *Nocomis* specimens, when Ernie entered the office, even before coffee, he effusively stated something like, ‘Bob, I resolved our disagreement on the status of *platyrhynchus* – we’ll call it a species!’ I thought it’s no use to further argue, and that others may conclude differently.” Indeed, based on genetics, Nagel and Simons (2012) suggested that *N. platyrhynchus* could be a synonym of *N. micropogon*, supporting Bob’s original conclusion. The arguments didn’t end with the taxonomy, however. “I also pleaded with Ernie for us to call the ‘Bigmouth Chub’ the ‘New River Chub’ for endemism to that drainage, and because its mouth size is not so large – it’s intermediate between that of *micropogon* and *raneyi*. I lost that argument too...” Raney facilitated this collaboration, and gave Bob freedom to work and write papers with Lachner, knowing that his friend and former student was ready for promotion at the Smithsonian and needed to get more papers out. The collaboration certainly was productive, leading to several papers and monographs on the taxonomy and biology of *Nocomis* (Lachner and Jenkins, 1967, 1971a, b, Jenkins and Lachner, 1971), in addition to those with others (Lachner and Wiley, 1969); two others that were planned (Lachner and Jenkins, 1971a: 2), however, were never completed, as from 1983-1992 Bob was on intense research and writing for the manuscript of the *Freshwater*

*Fishes of Virginia* (Jenkins and Burkhead, 1994; see below), and in 1992 returned to long delayed work on suckers.



**Figure 5.** Photos (left) and radiographs (right) of the four species of *Nocomis* (Leuciscidae) described by Ernie Lachner and Bob Jenkins. A, B, *Nocomis effusus* Lachner and Jenkins 1967, holotype, USNM 221444-F6. C, D, *Nocomis raneyi* Lachner and Jenkins 1971, holotype, USNM 194633. E, F, *Nocomis platyrhynchus* Lachner and Jenkins 1971, holotype, USNM 194817. G, H, *Nocomis asper* Lachner and Jenkins 1971, holotype, USNM 204851. Photos and radiographs by Sandra Raredon (USNM).

In terms of his early course work at Cornell, Bob did poorly, including in Raney’s Biology of Fishes course during his first semester. The course had two lecture exams, and Bob knew that he had done poorly on both, primarily because he felt stymied as a poor writer, so by trying to clearly articulate his answers he ran out of time and left several essay questions unanswered, “despite the fact I knew the stuff!” He also knew that Raney didn’t grade both exams until about two weeks before the end of the semester, in part because Raney hadn’t returned the exams. One day, near the end of the term, Bob got a note on his desk, “See me – E.C.R.” Tentatively, Bob went to Raney’s office, and Raney told him, “This is terrible – if I had done these earlier, you would have been out!” Bob had expected that reaction, and had already started revising his graded exam to complete it!

“*Hybopsis*” was to be the focus of Bob’s dissertation, including the taxonomy of the genera and subgenera of the group and their osteology and external morphology. That began to change

with the last collection of his first field trip for *Nocomis* as a graduate student in September, 1964. In seine hauls in the most downstream pool and a nearby delta channel of Catawba Creek, Bob caught, respectively, “the best collection of ‘odd-ball’ *Nocomis*” and the first two known specimens of any redhorse sucker from the entire James River drainage! Bob remembered back to his first collecting trip with Ross’ Virginia Tech class, which perhaps subconsciously piqued his interest in redhorse suckers. He also had difficulty in both the field and lab identifying *Moxostoma* species from the Neuse River. The stars were aligning, and now with the first records of the genus from the James River, which impressed Raney, Bob went to his advisor and said “I want to do Redhorses.”

The next three years, although Bob had made the switch from cyprinids to catostomids, he continued to invest more time on the Chub projects with Lachner than on his dissertation research. He used these collection trips to broaden his views of North American fishes generally, but it ended up causing delays in his dissertation. His ideas certainly were being heard. Raney was applying for a grant for work on southeastern fishes in the fall of 1965, and he approached Bob, likely through instigation from Lachner, and asked if he would write a section on *Moxostoma*. The grant was successful, and Gibbs, who had reviewed the proposal, later told Bob that it was the section on catostomids that saved the grant, which was fitting as it funded Bob’s last two years of his dissertation and travel to collections.

Raney has been remembered for his strong support of his graduate students. “He always seemed to know whether praise or fear was the required force to stimulate a student to resolve a problem or failure of the moment” (Robins et al. 1992: 1145). In Bob’s case, fear was the motivating factor. He struggled with fitting in all the field work, museum work (including extensive trips visiting the Royal Ontario Museum, National Museum of Canada, Academy of Natural Sciences of Philadelphia, North Carolina State Museum, U.S. National Museum, among others, all during 1967, with even more the following year), as well as working on specimens at Cornell. Still, the lack of progress became a source of tension with Raney. In June, 1968, Bob approached Raney about travel funds for presenting his work on the break-up of “*Hybopsis*” at the ASIH meeting that summer in Michigan. Raney flatly said no. Bob took this as an insult, as Raney was funding other students to go to the meetings off the grant that Bob had helped write. Bob submitted the abstract anyway, figuring he would pay for the meeting himself. This earned him yet another “See me – E.C.R.” note on his desk. “We had a discussion, at the end of which he clearly said something like, ‘you’re off grant funds at the end of the summer – get a job.’”

At the 1968 ASIH meetings, a note appeared on the message board: “Bob Jenkins, call Harry Holloway,” who was the chair of the Biology Department at Roanoke College. A job opening was about to be announced at the college, and they wanted Bob to apply. Even though he had not finished his dissertation and Roanoke was eager to hire at the Ph.D. level, Bob was hired. They asked when he could be done with his dissertation, and he, naively, said by the end of the summer. He was among seven all-but-dissertation candidates that the college hired at that time, and at the end of the first year none had completed their degree; in their rehire letter, all were warned that they would be let go if they had not finished their Ph.D. by the end of the second year. In Bob’s case, a moderately heavy teaching load, the arrival of his first child, and his involvement in “taking on the Army Corp of Engineers” over their plans on damming Craig Creek (which was ultimately stopped) further delayed his progress. However, with this added motivation (i.e., that of



unemployment), Bob successfully finished his dissertation in June 1970; none of the other six finished and were let go. Bob's dissertation was titled "Systematic Studies of the Catostomid Fish Tribe Moxostomatini" (Jenkins 1970), and was 799 pages in length, bound in two volumes. Bob suspects that one of his committee members, the bird ethologist William C. Dilger (1923-2015, Anonymous, 2015), did not read any of it, in part because he commented to Bob and the committee that the dissertation "passes by weight alone."

### **Back home to Roanoke**

Upon the completion of his Ph.D., Roanoke College promoted Bob from a lecturer to a tenure-track professor. Being back in southwestern Virginia allowed him ready access to the fishes he knew and loved. One of the collection stories that jumped to mind in remembering the early days of his professorship at Roanoke College was a trip to Copper Creek, in southwestern Virginia on October 10, 1969, which was partly recorded in Ernie Lachner's obituary. Taylor, who was working on the genus *Noturus*, was convinced that the Yellowfin Madtom, *N. flavipinnis* Taylor 1969, was extinct. Taylor (1969) had based his description of *N. flavipinnis* based on old, faded specimens, and the live coloration of specimens identified as this new species is not mentioned in the early literature. Lachner and Bob asked him more than once about how he knew to describe the species as having yellowish dorsal, adipose, and caudal fins. "Ralph would simply smile, and never answered the question." In the spring of that year, Bob and Noel Burkhead had caught a single adult madtom in a Copper Creek backwater. Bob did not recognize the species, but thought it may be among the numerous new species being described in Taylor's thesis, which was in press at that time. "I brought the specimen to Ralph, and he said it was *N. flavipinnis*;" and represented a rediscovery of the species. "Ernie thought it would be interesting to seek the fish at night, and to gain a concept of its abundance. Taylor, Lachner, and Bob went out to the creek during the day to scope a site (Figure 6). They went to have a big dinner and drink some beer before returning to the river at 10:00 pm. Lachner had the lantern and bucket and gave directions, Taylor and Bob were on the seine. Bob recalled Taylor getting frustrated with Lachner's directions for the seiners: "Jenkins is six inches taller than me – when you say left, the water flows down the net and into my boots!" Among the 44 species collected that night, they were able to add the rediscovery of the Yellowfin Madtom (Taylor et al. 1971). "We found it in good numbers in the two Copper Creek sites we collected at night and had a blast doing so." Through this experience, Bob also learned a good life lesson from Lachner: See your objective, and then go for it!

Bob's work with Lachner and others always emphasized taxonomy and distribution of fishes, but one of the roots of Bob's love of this work on the diversity of fishes was his concern for the conservation of fishes and their habitats. He worked extensively to help block constructions of dams and other impacts to the fragile habitats in the Central Appalachians, but also more directly he helped evaluate the conservation status of species. In 1974, soon after Jim Williams took lead of the Office of Endangered Species at the U.S. Fish and Wildlife Service in Gainesville, FL, he convened a meeting of more than forty ichthyologists to evaluate southeastern freshwater fishes for listing. For five days, these experts, including Bob, met at a hotel in Tallahassee, Florida and went through a list of fishes species by species, discussed each, their distribution, and their status. From this meeting, the Snail Darter, *Percina tanasi*, emerged as a test case for listing, with Etnier taking lead on its petition. Bob took lead on three species: the Orangefin Madtom, *Noturus gilberti*, the Rustyside Sucker, *Moxostoma (Thoburnia) hamiltoni*, and the Roanoke Logperch, *Percina rex*. Bob's work on these species and others in the area was supported by several grants from the U.S.



Forest Service, USFWS, and the U.S. Office of Endangered Species. He surveyed national forests and other areas in Virginia, North Carolina, and Tennessee for rare fishes. From these studies, Bob recommended the Orangefin Madtom and Rustyside Sucker be listed as special concern and the Roanoke Logperch listed as Threatened. The Orangefin Madtom is currently listed as Threatened under the U.S. Endangered Species Act (ESA), and the Roanoke Logperch was eventually listed as Endangered in 1989 (see Jenkins and Burkhead, 1994: 490, 556-557, and 798 for discussion of the conservation status of these three fishes). Bob’s work on evaluating the status of freshwater fishes of the region, including the Yellowfin Madtom (see above) and several minnows (e.g., the Slender Chub, *Erimystax cahni*), continued and his knowledge, thoughts, and advice were continued to be sought on these issues right up to his passing.



**Figure 6.** In the field in Virginia. A, Ralph Taylor (left) and Ernie Lachner (right) at swinging bridge over Copper Creek, Scott County, VA (10–11 October 1969; REJ 348). Taylor looks downstream into the section of river with the imperiled, then undescribed Duskytail Darter (*Etheostoma percnum*) while Lachner points to that of syntopy with its cognate the Fantail Darter (*E. flabellare*). This site was seined mainly at night for three hours, with 44 fish species captured, including the targeted Yellowfin Madtom (*Noturus flavipinnis*), which had been rediscovered that spring. B, C, Lachner setting up and photographing specimens of *Nocomis*. D, a tuberculate male *Nocomis*.

“Life was good,” Bob recalled, with solid employment back at his *alma mater*, and a growing and happy family. Still, Bob kept looking for another job. “I wanted to do research with

grad students or in a museum environment.” He interviewed for several positions, including at the Academy of Natural Sciences of Philadelphia (ANSP) and Cornell University (for Raney’s position). Both of these positions were particularly attractive because of their holdings of North American fishes, and especially the ANSP owing to its collection of South American fishes, which Bob believed he would like to move into researching. However, he did not land either of these positions. That didn’t keep him from looking throughout the 1970s, and he applied to positions at both Southern Illinois University and Virginia Commonwealth University (VCU), and was offered both. He decided to accept the VCU position in part because he could have graduate students with a slightly lower teaching load, but mostly because it was in Virginia and he had already invested much in his *Freshwater Fishes of Virginia* book project (see below). Soon after his move to Richmond, though, he began having second thoughts for a variety of reasons, including a longer commute in an urban environment and substantial new forms of red tape to navigate at a state institution. Mostly though, he and Diane missed their friends in Salem, and Bob missed the trout streams of the Virginia Blue Ridge. Serendipitously, Bill Matthews (b. 1946), who replaced Bob at Roanoke College, had decided to move to another position after a year. The department chair at Roanoke called Bob and asked if he would be interested in his old position. Talking it over with Diane, they decided, “Yeah, let’s go back.” So, in 1978, Bob returned to the hills and streams surrounding Salem, Virginia.

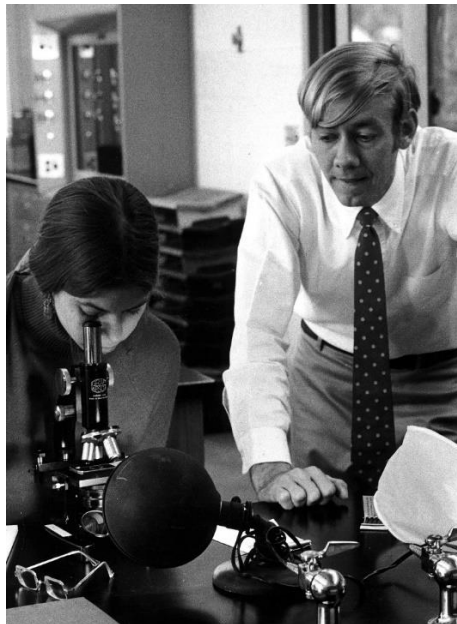


**Figure 7.** Holotype of the Conasauga Logperch, *Percina jenkinsi* Thompson 1985 (Percidae; TU 106075), one of the rarest North American freshwater fishes. Photo by Justin Mann (TU).

During Bob’s extensive museum visits, he didn’t just look at the species of interest, but browsed generally, keeping his eye open for variation. A good example of this concerns the darter genus *Percina*. The Blotchside Logperch, *Percina burtoni*, had long been considered a variant of the Logperch, *P. caprodes*, and Henry W. Fowler (1878-1965; Conant, 1966) formally recognized it as a subspecies, *P. caprodes burtoni*. Bob however recognized its distinctive morphology and color patterns, as well as the fact that the two taxa were syntopic and lacked interbreeding. This led Bob, together with Tim Zorach, to suggest that *P. burtoni* should be elevated to a distinct species; this was adopted unanimously by the AFS Names Committee (Jenkins and Burkhead, 1994). Bob had examined a lot of logperch specimens. He was particularly proud that when he presented this study at the 1976 ASIH meeting, Carl L. Hubbs (1894-1979, Miller et al., 1979), notorious for being critical and asking difficult questions at meetings, stood up and remarked after Bob’s talk something to the effect, “That is a fine study of unrecognized diversity, and is long needed.” Bob breathed a sigh of relief. Remembering a difference in specimens of *Percina* that he

simply noted in the Tulane collection, Bob let Bruce Thompson know of the potential taxonomic differentiation. Thompson, who was at the time a student of Royal D. Suttkus (1920-2009; Bart, Jr. 2010) working on the genus *Percina*, investigated further and named the species the Conasaugua Logperch, *Percina jenkinsi* Thompson 1985, in honor of Bob (Figure 7).

In reflecting on his time as a professor at Roanoke College, where he became Professor Emeritus in 2007, one aspect of Bob's career that brought him great satisfaction was his involvement and interaction with students (Figure 8). The courses he taught were numerous and wide ranging, going from General Zoology and Introductory Biology, to Human Anatomy, Vertebrate Morphogenesis, and, of course, Field Biology of Fishes, among others. A frequent theme of courses was getting the students into the field (Figure 9), both locally and farther afield (e.g., the Florida Keys and Eleuthera, in the Bahamas). In the early 1990s he had developed a May-term course in Field Biology that he taught every other year in which he would lead students sampling in all the different habitats Virginia had to offer, from the barrier islands of the Eastern Shore working their way west through the Coastal Plain and Piedmont ending in the Ridge and Valley. He also involved a total of 43 students in research in his lab, seven of which authored or co-authored peer reviewed papers, including several chapters included in *Freshwater Fishes of Virginia*. Bob's research and particularly his care and involvement of students in research are among the reasons for Bob's several accolades, including the Thomas Jefferson Medal for Outstanding Contributions to Natural Science (1989, awarded by the Virginia Museum of Natural History), the Sesquicentennial Distinguished Alumnus of Roanoke College and the Professional Achievement Award of Roanoke College (both awarded in 1992), and the establishment of the Robert E. Jenkins Undergraduate Scholarship by the Virginia Chapter of the American Fisheries Society, which has been awarded annually since 2003.



**Figure 8.** Bob Jenkins, 1975, with an unidentified student at Roanoke College working at a microscope. Image courtesy of Roanoke College.





**Figure 9.** Bob Jenkins in the field with students. A, Bob Jenkins and Noel Burkhead joining the VIMS “Roanoke Roundup” in 1973. (Left to right: Labbish Chao, Noel Burkhead, Bob Jenkins, Charles Wenner [in the foreground], Doug Markle [next to Jenkins], unidentified student [background], unidentified student [background], unidentified student [background], Edward Lawler [with hat], Linda Pushee Mercer, Ken Able [mostly obscured]. Image courtesy of Noel Burkhead. B, Bob Jenkins (center) with Roanoke College students (unidentified, left; Brian Kopia, right), May 1991. Image courtesy of Roanoke College.

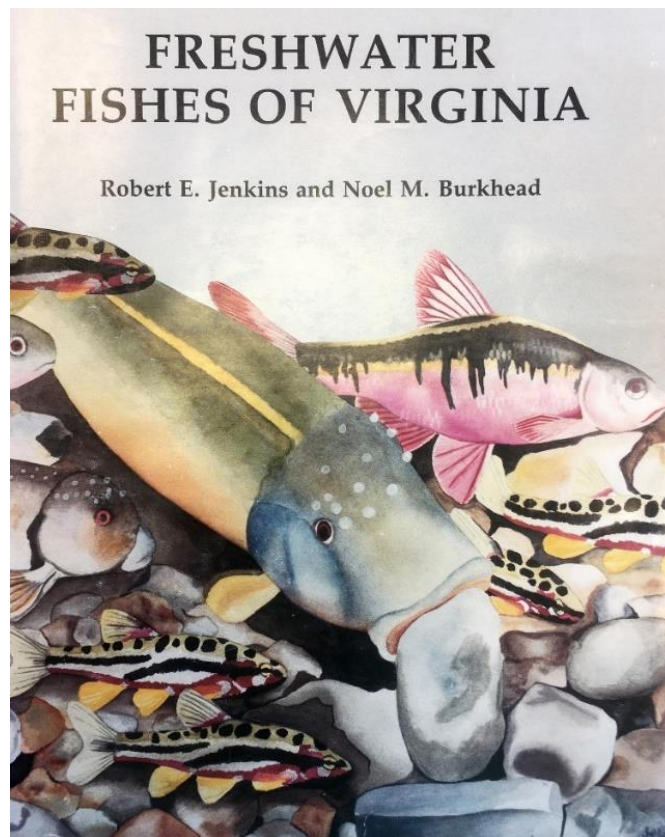
### **Freshwater Fishes of Virginia**

A brief history of *Freshwater Fishes of Virginia* was outlined in the Preface of the book (Jenkins and Burkhead, 1994: xix-xxi), but as with all such projects, the history of the final product is often not revealed within the product itself. Further, it is clear to anyone who has attempted to compile an authoritative text on a particular subject, few endeavors are as challenging, and the time and workload involved can expand to decadal time frames. The development of *Freshwater Fishes of Virginia* is one such endeavor, which Bob traced to his father’s approach of “Don’t do anything unless you do it well.” Bob’s initial conception and compiling distributional and other data for this book began in 1964 while he was working at the U.S. National Museum (Smithsonian Institution), which became the basis of an unpublished annotated checklist of freshwater fishes of Virginia completed in 1967 while he was a student at Cornell.

In 1968, the first day that Bob began his position back as a lecturer at Roanoke College, Noel M. Burkhead (b. 1950), who also just began his freshman year, came to his office door and said “The department chair says you’re interested in field work, and I am too, so let me know if you need any help.” This was a bit of happen-chance, as Burkhead, a native Californian, was planning to attend University of California Davis with a focus on comparative anatomy or predators or the biology of bats. However, the day after his high-school graduation, his family moved to Virginia following his father’s transfer to the Pentagon as an Air Force officer. Burkhead wanted to stay in California, but was told by his father, “Since you’re apparently not going to college east of the Mississippi where we can keep an eye on you, I expect you will get a job and move east by August.” Burkhead instead applied to “eastern” schools, and as it turns out, the first and only one to accept him at such a late date was Roanoke College. Burkhead recalls that “Before classes began, I was seining in the Roanoke River with Bob and still remember catching my first *Percina rex* and the glee of popping it into a formalin jar where it began life as a specimen for all eternity. We soon spent about two weekends a month seining Copper Creek and the Clinch looking for suckers and a new darter endemic to Copper Creek. Our trips included long discussions on evolution, zoogeography, fish diagnostic characters, collecting techniques, and any other question I could think of.” Thus began a long collaborative relationship. After Burkhead graduated from Roanoke College in 1973, he was hired full time at Roanoke College for a short period before he went to the University of Tennessee for a Master’s degree under Etnier. Compiling of information continued through the 1970s and 1980s. Burkhead would return to Roanoke College from 1979-1981 supported by a grant from the Virginia Water Control Board specifically for researching and writing the book.

A short, semi-popular article for the journal *Virginia Wildlife*, published by the Virginia Department of Game and Inland Fisheries (VDGIF) in 1976, hinted at the publication of the book in a figure caption depicting collection sites for a fish inventory of the state (“to be published in book form, probably titled ‘The Fishes of Virginia’) was written with the authorship of Jenkins, Burkhead, and Jenkins (Jenkins et al., 1976). The University of Virginia Press agreed to publish the book, although it was not until 1983 that major funding, particularly by VDGIF (in excess of \$200,000 between 1982 and 1986), as well as smaller grants from the Virginia Environmental Endowment (\$9000, 1982), Virginia Power Company (\$20,000, 1982), and private donations (\$25,000, 1982 from John A. Mulheren, a Roanoke College alumnus, to use as “starter money”) supported the work on this book. This period of writing the text was rife with delays, however, in part due to additional field work and the difficulties presented by some groups, such as *Cottus*, which they recognized had at least three undescribed species represented. With the delays, tensions between Bob and VDGIF became strained. VDGIF had been promised to have the manuscript completed by the end of 1984, which marked two years of support by the agency. However, Bob negotiated a one year extension, but at the end of 1985, the manuscript was still incomplete. Another one-year extension was granted by VDGIF, but with stipulations: they withheld salary portions of the grant, and the agency threatened to sue Roanoke College if the manuscript was not produced on schedule by January 1987. Jenkins and Burkhead completed the first draft of the manuscript, although it was still being collated in February of that year, and Bob continued to revise and expand some of the text through the spring of April 1988, especially the biogeography section.

Late in 1987, following the death of the executive editor, who was a champion for publishing this project, the University of Virginia Press pulled out as the publisher of the book (citing that it was too large of a project), which caused a scramble for a replacement publisher. VDGIF approached the American Fisheries Society (AFS) to publish the book. AFS agreed following a meeting between Clyde Voigtlander (Technical Editor for AFS), Bob Kendall (Executive Editor of AFS), and Noel Burkhead, who although by that time was employed by the USFWS in Gainesville as an endangered species biologist, was expecting to assist with the known revisions of the manuscript that would need to be made. The switch of publishers enacted changes of style, including headings hierarchy, which AFS required to be made. Some of these still irked Bob, such as having common names in lower case (vs. Bob's preferred, and now ironically AFS Style, to have them in upper case), and adding "the" before the names of rivers. Bob had "told AFS that I had devised a layout system using a representative species account [that of the Tangerine Darter, *Etheostoma aurantiaca*]. They told me to bug off, that AFS does the layout. I held off fussing, until about a year later I showed my preference, which included the AFS headings hierarchy. They liked and adopted it." One of the major victories Bob claimed is the adoption of having all of the photographs reproduced at two-thirds page width (vs. the AFS proposed half page), with the captions positioned next to them on the page.



**Figure 10.** Dust jacket of *Freshwater Fishes of Virginia* (Jenkins and Burkhead, 1994). It was Bob's idea for this as the cover of the book. He wanted native, non-game fishes on the cover, departing from the usual game fishes on the covers of state fish books. The Bluehead Chub, featured prominently in this water color by artist Lora Giessler, is a keystone species in many streams, as its gravel-mound nests are spawned upon by numerous other species of cyprinid fishes.



After AFS agreed to publish the book, the time it took for the Technical Editor to process the manuscript provided Bob some time to continue revising sections, with the permission of the AFS editors. Between 1988 and 1991, there were two rounds of revising and editing that were completed. Bob took a sabbatical during the fall of 1991. In reviewing the entire electronic draft in October 1991, Bob found extensive issues. He revised a sample and sent back to the AFS editor with the request to review the entire manuscript again, to which the Technical and Executive editors agreed. The remainder of Bob's sabbatical and part of the spring 1992 was spent completing his reviews of the final manuscript, which had grown to over 2400 manuscript pages. AFS began production planning late in 1991, with page proofing and publication slated for late 1993. Bob offered to index the page proofs during winter break, and he did so. Printing was delayed and it was not until April 1994 that *Freshwater Fishes of Virginia* was published. The error on the copyright page, listing 1993 as the publication date in the suggested citation format is unfortunate and has confused many; "Copyright 1994" is also on the same page, and the actual release of the book was 1994 (Burr and Warren, 1995). While the authorship of the book is Jenkins and Burkhead, Bob is quick to acknowledge that others too were involved with the production of the book in the late 1970s and early 1980s, including several of Bob's students and colleagues who wrote or co-authored family chapters for the book. Of these collaborators, his wife Diane, who had been intermittently supported as a part-time assistant and handled the initial computer summary of the distributional data, and William H. Haxo, who coauthored the Percidae chapter and was a former Roanoke College student, were particularly close collaborators on the book project at various points in its history.

In the end, *Freshwater Fishes of Virginia* (Figure 10) comprised 1080 printed pages (including 86 pages of references, including unpublished reports and references to other hard to find grey literature!), 322 black and white photos of fishes, 144 color photos of fishes, 14 photos of habitats, 83 line illustrations showing parts of fishes, and 192 distributional range maps. It contained detailed accounts of 210 species of fishes, extensive chapters on the history of ichthyology in Virginia (including details of Cope's and Jordan's early collections, which continued to be interest of Bob's; Tracy and Jenkins, 2021), almost 75 pages on the hydrology, physiography, aquatic habitats, and biogeography of Virginia, among others. *Freshwater Fishes of Virginia* was (and remains) a much needed guide to the fishes, not only of Virginia, but of the entire Atlantic slope and central Appalachian regions. The scale of the book, in its final form, was reflected in the book reviews that followed. "Numerous books covering the fish of a given state have appeared in the past thirty years, with extreme variation in quality. Those of us who have watched for three decades the conception, gestation, and finally the delivery of Jenkins and Burkhead's monumental work will surely recognize it as one of the best" (Hastings, 1996: 283). "On occasion, a book is written and published that far exceeds the standards that have guided others writing similar texts. This is one of those books" (Daniels, 1995: 283). Finally, Burr and Warren, Jr. (1995: 259) open their review with "This impressive volume is one of the most, if not the most, comprehensive state fish books to appear to date and is an outstanding contribution to our knowledge of North American freshwater fishes." This book, from its layout to its content, continue to be influential to others writing or revising faunal books on fishes (Henry Robison, pers. comm., and Robert Hrabik, pers. comm.). All reviewers commented on the mastery with which this book was produced, with the volume filling a void of fish fauna books for the Atlantic slope, the utility of the book's keys and illustrations, and the value of the interweaving of published and unpublished data. The dedication and resolve to see such a project through was not lost on these

reviewers: “We cannot articulate adequate appreciation to the authors and publisher for having made a truly monumental contribution to North American ichthyology. The energy, knowledge, talent, editorial skill, dedication, and psychological will that were expended on this volume are nearly overwhelming to contemplate” (Burr and Warren, Jr., 1995: 262). Bob’s colleague and friend Henry Robison notes that it “is a testimony to [Bob’s] brilliance as an ichthyologist and remains my ‘go to’ state fish book when I need an answer on Fishes! It is a true classic.” Indeed, it was a labor of love.

### Continued adventures with *Moxostoma*

In 1992, once the final manuscript of the *Freshwater Fishes of Virginia* was delivered to the editors, Bob set his mind to once again take up his studies of redhorse suckers (Figure 11). In the intervening years, this series of studies, in collaboration and on his own, stem directly from his dissertation research, and over the years, have swelled to more than 15 working titles for the manuscripts, not including the three papers on species of *Moxostoma* that have been published



**Figure 11.** Bob Jenkins at work in the lab. A, c. 1972. B, 1993, examining a specimen of redhorse (*Moxostoma*). C, 2006, examining a specimen of Sicklefins Redhorse (*Moxostoma* sp.). Images courtesy of Roanoke College.

since (Branchaud and Jenkins, 1999; McAllister et al. 2009; Tracy et al. 2013). This set of planned papers ran the gamut from methods papers (e.g., aging techniques), detailed morphological and taxonomic revisions, and observational life history studies (e.g., spawning behaviors). Of course, the roots of his renewed interest ran deep to Bob's dissertation work, completed some 20 years earlier. However, these roots also were cultivated by the experience and knowledge related to these fishes generally that was gained over time. Bob realized that he needed more museum visits to look at additional preserved samples to complete these studies in the manner and level of detail that he wanted. Further, additional new collections would be important to better identify ontogenetic changes (including young-of-the-year, juvenile, and adult samples to base descriptions upon) and to further develop a specimen base for rare or poorly sampled taxa, including the growing number of undescribed taxa. Bob developed a painstaking field protocol for fixing specimens of redhorses (Figure 12), basically following the thought that the more carefully the specimens were preserved in the field, the more useful the specimens would ultimately be for



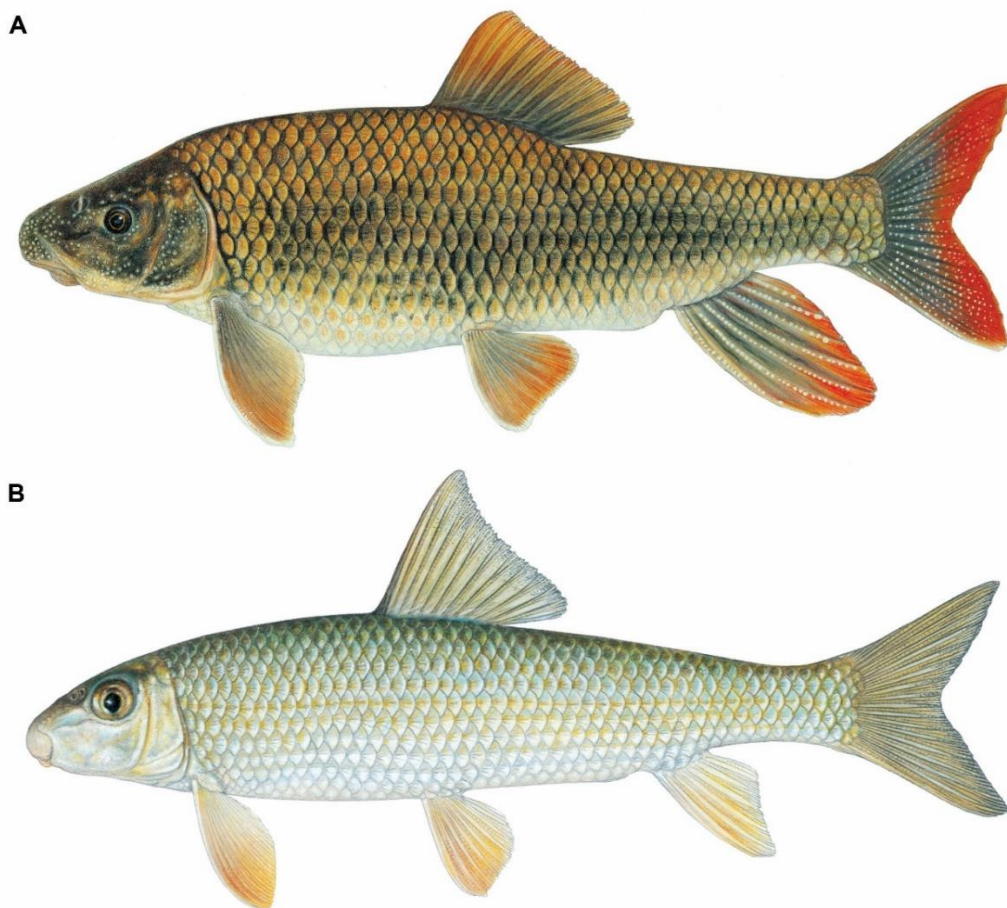
**Figure 12.** Collecting Sicklefin and other redhorse suckers with TVA biologists from the Valley River, at Konahete Park, in Murphy, North Carolina (March 9, 2000). Fixing a specimen, with coolers and trays in the background. Bob developed a method of fixation of most redhorse specimens such that he would hold the head in position so that the lips were in the ideal position for study (jaws not pushed into the mouth but also not gaped), and the body preserved completely straight. He would then hold the specimen straight with fins alternately erected so that they fixed in that position. He would then often inject the body of the specimen at up to 36 points with 10% formalin, and fill the body cavity with a higher percentage. To transport the specimens while fixing he would surround them with towels beneath the fins, taking care not to damage their tips. This process allowed Bob to acquire perfect “phototypes,” a term he and Noel Burkhead came up with to describe the specimen they would use to illustrate a species for the *Freshwater Fishes of Virginia*.

demonstrating the characters of the species (e.g., the lips of the suckers). All of these planned manuscripts, however, reflect Bob's basic principle of not skimping on detail: “I'm going to do it right.” Doing it right, however, does not mean doing it all. “I'm not going to publish a phylogeny,” noting that there are others that are better equipped to working on this aspect of catostomid biology. With the specter of mortality sinking in, in 2022 Bob realized the need to pass along his data to those in position to complete some of those projects on catostomids for which he outlined and collected data. Among these, Jon Armbruster at the Auburn University Museum of Natural History



is taking lead on species descriptions and parsing data to researchers that need it. It is a treasure trove of data that can be used for all kinds of ecological, morphological, and ecological studies. There are many near to complete to complete manuscripts in the collection, and Jon will be looking for people to help get them into publication. If there is some aspect of Redhorse morphology or ecology that you have an interest in, there is probably a head start in all of the work that Bob had completed. If you helped Bob with a paper, Jon will either be tracking you down, or track him down and he can help you get it into publication.

Among the redhorses that are of particular interest for Bob are the Robust Redhorse and the Harelip Sucker (Figure 13). Both of these fishes, in addition to being beautiful members of this clade in their own right, are interweaved with a rich ichthyological history related to their discovery and description. The Robust Redhorse, *Moxostoma robustum* (Cope 1870) is found along the



**Figure 13.** Illustrations of moxostomatid suckers (Catostomidae). A, Robust Redhorse (*M. robustum*) and B, Harelip Sucker (*M. lacerum*). While acknowledging the weak evidence for the taxonomic recognition of *Lagochila* as a synonym of *Moxostoma*, in all of his correspondence Bob still used the original and descriptive genus name *Lagochila* for the Harelip Sucker (“One may mourn the burial in *Moxostoma* of the splendid generic name *Lagochila*” Jenkins, in Jenkins and Burkhead, 1994: 523). Although recognizing the Harelip’s many trophic autapomorphies, Bob believed the fish is sister to the *Moxostoma anisurum* group, a well corroborated plesiomorphic clade of redhorse suckers. Images copyright Joseph R. Tomelleri, and used with permission.

Atlantic Slope from the Pee Dee drainage in North Carolina to the Altamaha drainage in Georgia, and is listed as Endangered on the IUCN Red List (NatureServe 2013). This is a *M. carinatum*-like (River Redhorse) species, in that it has molariform pharyngeal teeth. Because of confusions regarding the type specimens of Cope's species, its taxonomic status was unclear. Those that Henry W. Fowler, who had worked through the Cope material, identified as the types were much smaller (in his defense, Fowler, 1913 had included a question mark on the identification as type material, and it was Robins and Raney, 1956 that designated the lectotype and paralectotype; one of the specimens is now lost, and the other represents *M. macrolepidotum*). Bob identified specimens captured in the 1980s as matching Cope's description of *M. robustum*, thereby bringing back the lost name after 110 years (Jenkins and Burkhead, 1994: 491)! The Harelip Sucker, *M. laceerum* (Jordan and Brayton, 1877), has a similar air of ichthyological intrigue, being a large, extinct member of the North American ichthyofauna that has been difficult to place systematically, due in part to having apparently gone extinct before 1900 (last known collections occurred in 1893), with very few surviving specimens. Bob pointed out that this fish also has presented a systematic difficulty because of numerous autapomorphies (e.g., non-protractile jaws, unique cleft lower lip, and very delicate pharyngeal teeth, a keratinized pad on a large mandibular shelf; Jenkins in Jenkins and Burkhead, 1994; Fink and Humphries, 2010). In his account in Jenkins and Burkhead (1994: 523), Bob identified many gaps in knowledge of this fish, concluding "The extinction of the harelip sucker is particularly regrettable for lost opportunities to understand its unique adaptations. It would have been a neat fish to know."

### **Sometimes we live no particular way but our own**

Despite the titular allusion to Bob's life being devoted to fishes and fishing, which was adapted from his own description of his home's wall décor (including a Joe Tomelleri print of *M. robustum* and an original Tomelleri of the Sicklefins Redhorse, a print of the original artwork for *Nocomis effusus* Lachner and Jenkins 1967, a framed copy of North Carolina Naturalist featuring his friend and colleague Wayne C. Starnes (b. 1945) on the cover, and the very first fishing creel he owned), Bob had several interests outside of ichthyology. These hobbies were approached with the same attention to detail and the tendency for perfectionism that Bob brought to his research and teaching. All in all, however, these passions contributed to the life that Bob lived, and at one time or another, had been all-consuming.

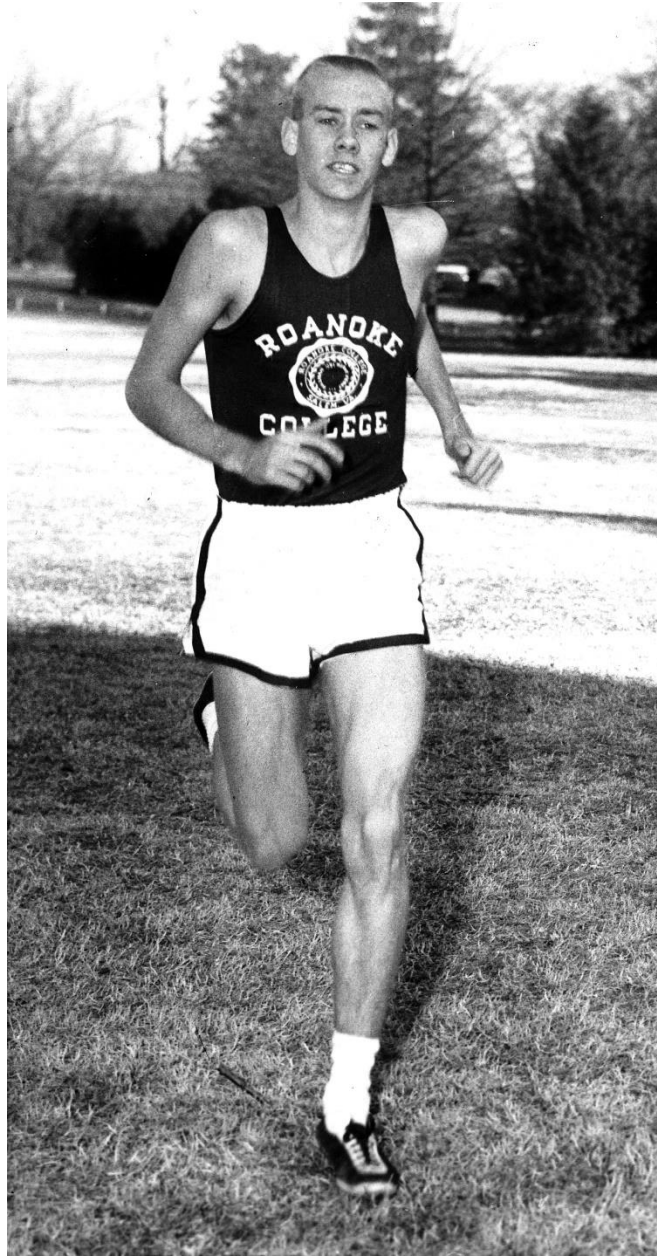
Perhaps the most dominant theme through his non-ichthyological life was sports. More often than not, when the television was on it was tuned to a sporting event. Bob was an avid road cyclist, and raced during a two-year period in the 1970s, and annually watched the Tour de France among others around the world. At the time, he assembled a bicycle based on a Woodrup frame, to which he added top-of-the-line components as he could afford them, over the period of about a year and a half. His bicycle racing was relatively short: "I was getting dropped in races and didn't like it." After a near 25-year hiatus in riding competitively, Bob was inspired after watching the Tour de France, and "I went for it, a new bike. I wanted to see and feel how recently designed, expensive components rode, in mind with getting in shape and age-group racing." That bike, which he still owned but had not ridden for a few years, is based on a DeRosa framed racing bicycle that has a "magnificent, glossy glowing frame color: the top tube is copper atop, gold-yellow below, with this pattern analogously repeated on the head, down, and seat tubes. A few years later I wondered, 'why did I pick this frame and colors over potentially many thousands out there?' The reasons were the good name of DeRosa, and the frame was beautiful. Finally, it dawned on me –

it has redhorse sucker body colors which in most species are iridescent coppery dorsally, and yellowish or golden laterally.”

In college, Bob began running in his sophomore year on Roanoke College’s cross country team (Figure 14). Bob led the Roanoke track team for many victories, although as he recounted in Arrington (2009), “In those days, I was running just to run. I was good in the sense that I had the physiology and structure for running. But I wasn’t out to improve as much as I could...I could have pushed myself so much harder. But I didn’t. And I didn’t get too disappointed when I didn’t win. I just had a lot of pushes and pulls on my time and energy – with biology and chemistry courses and a fraternity life. So Homer [Bast; coach of the Roanoke College cross-country and track teams], realizing this, never really pushed me to reach my potential” (Arrington, 2009: 585). After a short hiatus, Bob began running again. During his time at VCU, he joined faculty in VCU’s Athletic Department in training for the first Richmond Marathon, held in 1978. Although this was his first marathon, he ran it in two hours and 53 minutes, which qualified him to run in the Boston Marathon (the VCU faculty members in the Athletic Department did not qualify!). In his seven-year, second running career, Bob ran 15 marathons, including Boston, Philadelphia, Bermuda, and Cleveland. He became sponsored by Adidas, was highly to top ranked by runner’s magazines, in the Masters 40 and older, division in 1981-1982, and accumulated trophy after trophy, which were proudly displayed on his mantle and a long shelf. His personal best time (2:24:08) occurred at the New York City Marathon in October 1982, in which he was the first American in the Masters. As a result of his success as a runner, in 1980 Roanoke College inducted Bob into their Athletic Hall of Fame, the second individual to be inducted for post-graduate competition. When he graduated from Roanoke College and his running career was over he remembers being relieved, as it was a very time-consuming endeavor to keep training. In reflecting on this part of his life, Bob noted that, although he dropped out of running after college, he sometimes would ponder “what could I have done if I kept running?” Once he began training for marathons, and when he qualified for his first Boston Marathon, this changed: “I no longer thought, ‘What could I have done? Now it was ‘What can I do now?’” Bob, in a reflective tone, felt that this was a good example for his children: never give up and if you keep going, you can keep getting better. However, he recognizes that his training for 5 km to 26.2 mile races, eventually reaching the level of training 75 to 80, rarely 100, miles per week (all fastidiously recorded in his runner’s journal with the same precision and detail of his field notes), had a substantial cost on his research. As the pressures of his book project on the fishes of Virginia began to increase, however, his running career had to give way in 1983. Although it was time consuming, running also gave him focus and a more regular schedule, which although it prolonged the timeline of finishing large projects such as *Freshwater Fishes of Virginia*, that rigor and schedule may have been what was necessary for completing them at all. For more details on this part of Bob’s life, including entertaining accounts of the antics, led by Bob, following major victories for Roanoke College the reader is referred to the account of his running careers outlined in Arrington (2009).

Another interest Bob carried with him is his love of certain music, including a lot of folk and early rock and roll from the 1950s and 1960s, including the Kingston Trio, The Weavers, Joan Baez, and John Denver. Two bands that Bob cited as having the greatest influence on him are Pink Floyd and the Grateful Dead, both of which, although having formed in the 1960s, Bob did not really get into until the late 1980s following his divorce. The Dead, Pink Floyd, and others were mainstays on the radio in his car, since he rarely listened to music in the house. It was his son,





**Figure 14.** Bob Jenkins, 1960, as the Roanoke College Cross Country team captain. Image courtesy of Roanoke College.

Glenn, who bought him a ticket to his first Grateful Dead concert at the Roanoke Civic Center on July 7, 1987, though he did not really know what he was about to enter into. Bob recalled that the day before he had been in New Jersey for a Moody Blues concert, and then drove to Richmond on his way back to Roanoke to plead with VDGIF staffers for summer salary so that he could add an account of a recently recognized, undescribed species, now *Chrosomus tennesseensis* (Starnes & Jenkins, 1988), to the manuscript of the *Freshwater Fishes of Virginia*. After his meeting, while driving on Interstate 81 between Richmond and Roanoke, he started seeing tie-dye, and this became more and more ubiquitous the closer he got to Roanoke Civic Center. He remembered the concert as a “total sensory overload” and loved it, for being “a different atmosphere” that provided

escape from the pressures of other parts of his life. He became hooked, and in September of that year, he introduced his daughter Katey, aged 14 at the time, to the Grateful Dead by taking her to a concert in Washington D.C.

These interests were a form of therapy for Bob, and combined with his lifelong passion for recreational fly fishing and its associated fly-tying (Figures 15, 16). Fishing with friends and family offered him a release of mind and pressures, and served as inspiration. With a sparkle in his eye, Bob recalled a trip to Cabo San Lucas, Baja California Sur, arranged by and journeyed with his daughter Katey to celebrate his 70<sup>th</sup> birthday. During a half-day fishing, he recalls, “I had my fly rod out with a fly from Dave Neeley that was tied for musky, so it was large. I had it out with a streamer as the panga we were in was going along, and wham, a 20-pound dorado (*Coryphaena hippurus*) hit that thing and was off, and I yelled ‘yahoo!’ All the other boats in the area saw my fly rod bent over and that fish jumping way the hell out there. I looked down and had only about ten turns left on my line, and thought to myself I need to get going on this. I imagine half the people saw me with my fly rod thinking to themselves, ‘what is that fool doing?’ and the other half thinking, ‘man, is he having fun!’” Indeed he was.



**Figure 15.** Bob Jenkins with Roanoke College former students and colleagues. A, Flyfishing for wild Brown Trout in the Smith River, 1986; left to right: Bill Haxo, Bob Jenkins, Steve McIninch, and Noel Burkhead. B, Meeting up in the field during the annual Virginia Institute of Marine Science (VIMS) “Roanoke Round-Up” in 2016 at the Little River (Floyd County, Virginia); left to right: Bob Jenkins, Eric Hilton, Jack Musick; photo by Sarah K. Huber.

### Final reflections

Many academics and scholars suffer to some degree from perfectionism; not being able to let go of a project that one has nurtured from a mere idea or question. In the case of ichthyologists (and zoologists generally) this is often manifest in the perception that for a study to truly be comprehensive, there is always another taxon to include or there are always more specimens to examine for a study. This is not done out of anything more than the desire for a project to be the best that it can be. Bob published 38 peer-reviewed papers on a wide range of taxa (predominantly catostomids and cyprinids, but also ictalurids, percids, and centrarchids, as well as general zoogeography of fishes; see Appendix) and is an author on two monumental books (Lee et al., 1980; Jenkins and Burkhead, 1994), which is a modest research output for a professional career that spanned nearly 50 years. Right up to the time of his death, Bob, now more than 50 years after completing his dissertation, was still working on the papers derived from that study. He was still making the study, in his mind, comprehensive. Bob was not alone in this trait. For instance, his friend and colleague at the Smithsonian during the 1960s and 1970s, Ralph Taylor suffered from this (Collette and Smith, 2005), and therefore left a large amount of unpublished data when he passed away. Every rigorous scientist, at least to some degree, struggles with this. The great challenge is to determine when enough specimens have been measured, when enough fin rays have been counted, and when enough pharyngeal teeth have been examined to be able to share it with the community at large. Bob noted that he had several opportunities to publish his entire dissertation as a monograph, being solicited for the manuscript by several colleagues offering their institution's publications as a venue, including Carter R. Gilbert at the University of Florida, Donn E. Rosen at the American Museum of Natural History, and Herbert T. Boschung at the University of Alabama. However, Bob, with a hint of sadness in his voice, related, "but I just wasn't finished." In reflecting upon his career, Bob noted that this aspect of his personality and research should serve as a warning to younger zoologists – be scrupulous in the level of detail and rigor for your studies, but learn to call it complete; don't let things linger.



**Figure 16.** Bob Jenkins with a 12-inch wild Rainbow Trout, fly fishing the Jackson River, June 2006. Photo by Jack Musick, and courtesy of Noel M. Burkhead.

However, impact and influence cannot be measured by publications alone. Although Bob was working still on his dissertation papers, both his impact and influence have secured him a place in the history of ichthyology of the southeastern United States, alongside the historical greats – Cope, Jordan, Raney, Lachner, Robins, and others – that he had come to admire in their pursuit of knowing better the diversity of fishes.

### LITERATURE CITED

- Anonymous. 2015. William C. Dilger. Ithaca Journal. October 12, 2015.
- Arrington, L.W. 2009. The Bast Boys: A Remarkable Story of the Small-College Professor and the Athletes He Coached On Some of the Best Cross Country and Track Teams in the Nation. Outskirts Press, Inc.
- Bart, Jr., H.L. 2010. Royal Dallas Suttkus (1920-2009). *Copeia* 2010: 341-345.
- Boulenger, E.G. 1947. *Wildlife the World Over*. Wise and Co., Inc. New York, New York.
- Burr, B.M., and M.L. Warren, Jr. 1995. [Review of] *Freshwater Fishes of Virginia*. *Copeia* 1995: 259-262.
- Cohen, D.M., and S.H. Weitzman. 1986. George Sprague Myers 1905-1985. *Copeia* 1986: 851-853.
- Colbert, E. H. 1982. Alfred Sherwood Romer. *Biographical Memoirs of the National Academy of Sciences* 53: 264-294.
- Collette, B.B. and D.G. Smith. 2005. William Ralph Taylor 1919-2004. *Copeia* 2005: 709-711.
- Cope, E.D. 1870. A partial synopsis of the fishes of the freshwaters of North Carolina. *Proceedings of the American Philosophical Society* 11: 448-495.
- Conant, R. 1966. Henry Weed Fowler, 1878-1965. *Copeia* 1965: 628-629.
- Daniels, R.A. 1995. [Review of] *Freshwater Fishes of Virginia*. *Transactions of the American Fisheries Society* 124: 283-284.
- Dunn, J.R., and T.W. Pietsch. 2005. Daniel Morris Cohen. *Copeia* 2005: 693-700.
- Fink, W.L., and J. H. Humphries. 2010. Morphological description of the extinct North American sucker *Moxostoma lacerum* (Ostariophysi, Catostomidae), based on high-resolution x-ray computed tomography. *Copeia* 2010: 5-13.
- Fowler, H.W. 1913. Notes on catostomid fishes. *Proceedings of the Academy of Natural Sciences of Philadelphia* 65: 45-60.

- Gelder, S.R. 2001. Professor Perry C. Holt, PhD (1910-1999). *Hydrobiologia* 463: xxi-xxiii.
- Hastings, R.W. 1996. [Review of] *Freshwater Fishes of Virginia*. *The Quarterly Review of Biology* 71: 283-284.
- Hilton, E.J., and D. G. Smith. 2014. The second 50 years of the American Society of Ichthyologists and Herpetologists: Personal reflections on the society by Bruce B. Collette. *Copeia* 2014: 372-380.
- Jenkins, R.E. 1970. Systematic studies of the catostomid fish tribe Moxostomatini. Ph.D. Dissertation, Cornell University, Ithaca, New York.
- and N.M. Burkhead. 1994. *Freshwater Fishes of Virginia*. American Fisheries Society, Bethesda, Maryland.
- N.M. Burkhead, and D.J. Jenkins. 1976. An ichthyologist looks at Virginia. *Virginia Wildlife* 37(7): 20-22.
- and E.A. Lachner. 1971. Criteria for analysis and interpretation of the American fish genera *Nocomis* Girard and *Hybopsis* Agassiz. *Smithsonian Contributions to Zoology* 90: 1-15.
- Jewett, S.A., and B.B. Collette. 1997. Ernest A. Lachner 1915-1996. *Copeia* 1996: 650-659.
- Jordan, D.S., and A.W. Brayton. 1878. Contributions to North American ichthyology, based primarily on the collections of the United States National Museum. III. A. On the distributions of the fishes of the Alleghany region of South Carolina, Georgia, and Tennessee, with descriptions of new and little known species. *Bulletin of the United States National Museum*. 12: 7-95.
- Johnson, K. 2009. The return of the phoenix: The 1963 International Congress of Zoology and the American zoologists in the twentieth century. *Journal of the History of Biology* 42: 417-456.
- Knutson, L.V. 2017. In remembrance of Stuart Edmund Neff 3 October 1926-29 October 2016. *Fly Times* 58:32-33.
- Lachner, E.A. 1946. Studies on the biology of the chubs (genus *Nocomis*, family Cyprinidae) of the northeastern United States. Cornell University, Ithaca, New York.
- and R.E. Jenkins. 1967. Systematics, distribution, and evolution of the chub genus *Nocomis* (Cyprinidae) in the southwestern Ohio River basin, with the description of a new species. *Copeia* 1967: 557-580.
- and —. 1971a. Systematics, distribution and evolution of the chub genus *Nocomis* Girard of eastern United States, with descriptions of new species. *Smithsonian Contributions to Zoology* 85: 1-97.

- and —. 1971b. Systematics, distribution, and evolution of the *Nocomis biguttatus* species group (family Cyprinidae: Pisces) with a description of a new species from the Ozark Upland. *Smithsonian Contributions to Zoology* 91: 1-28.
- and M.L. Wiley. 1971. Populations of the polytypic species *Nocomis leptcephalus* (Girard) with a description of a new subspecies. *Smithsonian Contributions to Zoology* 92: 1-35.
- Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer. 1980. *Atlas of North American Freshwater Fishes*. North Carolina State Museum of Natural History, Raleigh, North Carolina.
- Miller, F.H., C. Hubbs, and E.L. Hubbs. 1979. Carl L. Hubbs. *Copeia* 1979: 756.
- Nagel, B.C. and A.M. Simons. 2012. Rapid diversification in the North American minnow genus *Nocomis*. *Molecular Phylogenetics and Evolution* 63: 639-649.
- NatureServe. 2013 *Moxostoma robustum*. The IUCN Red List of Threatened Species 2013: e.T202257A19033267. <http://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T202257A19033267.en> (Accessed 28 August 2018).
- Robins, C.R. and E.C. Raney. 1956. Studies on catostomid fishes of the genus *Moxostoma*, with description of two new species. *Memoir Cornell University Agricultural Experiment Station* 343: 1-56.
- Robins, T.W., B.B. Collette, and C.R. Robins. 1992. Edward C. Raney 1909-84. *Copeia* 1992: 1143-1150.
- Smith, D.G. 2005. Victor Gruschka Springer. *Copeia* 2005 431-439.
- . 2007. Stanley and Marilyn Weitzman. *Copeia* 2007: 1030-1045.
- Springer, V.G., and B.B. Collette. 1989. Robert H. Gibbs, Jr. 1929-1988. *Copeia* 1989: 245-251.
- Stewart, M.M., and G.R. Smith. 2000. Reeve Maclaren Bailey. *Copeia* 2000: 1118-1124.
- Taylor, W.R. 1969. A revision of the catfish genus *Noturus* Rafinesque with an analysis of higher groups in the Ictaluridae. *Bulletin of the U.S. National Museum of Natural History* 282: 1-315.
- , R.E. Jenkins, and E.A. Lachner. 1971. Rediscovery and description of the ictalurid fish *Noturus flavipinnis*. *Proceedings of the Biological Society of Washington* 83: 469-476.
- Tracy, B. H. and Jenkins, R. E. 2021. Professor Edward Drinker Cope's Travels Through North Carolina, August–December 1869: Insights from the Transcriptions and Annotations of Letters to His Father and His Contributions to North Carolina Ichthyology. *Southeastern Fishes Council Proceedings* 61: 74-135.



Writer's Program of the Work Projects Administration in the City of New York, New York). 1947. American Wild Life Illustrated. Wise and Co. New York City, New York.

## APPENDIX

Chronological list of peer-reviewed publications by Robert E. Jenkins. Not listed are reports to U.S. Office of Endangered Species and other survey reports.

Lachner, E.A., and R.E. Jenkins. 1967. Systematics, distribution, and evolution of the chub genus *Nocomis* (Cyprinidae) in the southwestern Ohio River basin, with the description of a new species. *Copeia* 1967: 557-580.

Jenkins, R.E., and T. Zorach. 1970. Zoogeography and characters of the American cyprinid fish *Notropis bifrenatus*. *Chesapeake Science* 11: 174-182.

Jenkins, R.E. 1971. Nuptial tuberculation and its systematic significance in the percid fish *Etheostoma (Ioa) vitreum*. *Copeia* 1971: 735-738.

Jenkins, R.E., and E.A. Lachner. 1971. Criteria for analysis and interpretation of the American fish genera *Nocomis* Girard and *Hybopsis* Agassiz. *Smithsonian Contributions to Zoology* 90: 1-15.

Lachner, E.A., and R.E. Jenkins. 1971. Systematics, distribution and evolution of the chub genus *Nocomis* Girard of eastern United States, with descriptions of new species. *Smithsonian Contributions to Zoology* 85: 1-97.

Lachner, E.A., and R.E. Jenkins. 1971. Systematics, distribution, and evolution of the *Nocomis biguttatus* species group (family Cyprinidae: Pisces) with a description of a new species from the Ozark Upland. *Smithsonian Contributions to Zoology* 91: 1-28.

Taylor, W.R., R.E. Jenkins, and E.A. Lachner. 1971. Rediscovery and description of the ictalurid fish *Noturus flavipinnis*. *Proceedings of the Biological Society of Washington* 83: 469-476.

Jenkins, R.E., and C.A. Freeman. 1972. Longitudinal distribution and habitat of the fishes of Mason Creek, an upper Roanoke River drainage tributary, Virginia. *Virginia Journal of Science* 23: 194-202.

Jenkins, R.E., E.A. Lachner, and F.J. Schwartz. 1972. Fishes of the Central Appalachian region: Their distribution and dispersal, p. 43-117. *In*: The distributional history of the biota of the southern Appalachians. Part 3: Vertebrates. P. C. Holt, editor. Research Division Monograph, Virginia Polytechnic Institute and State University, Blacksburg.

Snelson, F.F., and R.E. Jenkins. 1973. *Notropis perpallidus*, a cyprinid fish from south-central United States: Description, distribution and life history aspects. *Southwestern Naturalist* 18: 291-304.

- Hambrick, P.S., R.E. Jenkins, and J.H. Wilson. 1975. Distribution, habitat and food of *Phenacobius teretulus*, a cyprinid fish endemic to the New River drainage. *Copeia* 1975: 172-176.
- Jenkins, R.E., and N.M. Burkhead. 1975. Distribution and aspects of life history and morphology of the cyprinid fish *Notropis semperasper* endemic to the upper James River drainage, Virginia. *Chesapeake Science* 16: 178-191.
- Jenkins, R.E., and N.M. Burkhead. 1975. Recent capture and analysis of the Sharphead Darter, *Etheostoma acuticeps*, an endangered percid fish of the upper Tennessee River drainage. *Copeia* 1975: 731-740.
- Jenkins, R.E., L.A. Reville, and T. Zorach. 1975. Records of the Blackbanded Sunfish, *Enneacanthus chaetodon*, and comments on the southeastern Virginia freshwater ichthyofauna. *Virginia Journal of Science* 26: 128-134.
- Jenkins, R.E. 1976. A list of undescribed freshwater fish species of continental United States and Canada, with additions to the 1970 checklist. *Copeia* 1976: 642-644.
- Jenkins, R.E., N.M. Burkhead, and D.J. Jenkins. 1976. An ichthyologist looks at Virginia. *Virginia Wildlife* 37: 20-22.
- Petrimoulx, H.J., and R.E. Jenkins. 1979. The last stand of the Roanoke Bass. *Virginia Wildlife* 40: 4-6. [Title changed from the authors' original by the editor without consent or notification of authors]
- Kott, E., R.E. Jenkins, and G. Humphreys. 1979. Recent collections of the Black Redhorse, *Moxostoma duquesnei*, from Ontario. *Canadian Field-Naturalist* 93: 63-66.
- Stauffer, J.R., R.F. Denoncourt, C.H. Hocutt, and R.E. Jenkins. 1979. A description of the cyprinid fish hybrid, *Notropis chrysocephalus* x *Notropis photogenis*, from the Greenbrier River, West Virginia. *Natural History Miscellanea, Chicago Academy of Science*, 204: 1-6.
- Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer. 1980. *Atlas of North American freshwater fishes*. North Carolina State Museum of Natural History, Raleigh, North Carolina.
- Burkhead, N.M., R.E. Jenkins, and E.G. Maurakis. 1980. New records, distribution and diagnostic characters of Virginia ictalurid catfishes with an adnexed adipose fin. *Brimleyana* 4: 75-93.
- Etnier, D.A., and R.E. Jenkins. 1980. *Noturus stanauli*, a new madtom catfish (Ictaluridae) from the Clinch and Duck rivers, Tennessee. *Bulletin Alabama Museum of Natural History* 5: 17-22.

- Jenkins, R.E., and D.J. Jenkins. 1980. Reproductive behavior of the Greater Redhorse, *Moxostoma valenciennesi*, in the Thousand Islands Region. *Canadian Field-Naturalist* 94: 426-430.
- Jenkins, R.E., and J.A. Musick. 1980. Freshwater and marine fishes, p. 319-373, *In: Endangered and threatened plants and animals of Virginia*. D. W. Linzey (ed). Virginia Polytechnic Institute and State University, Blacksburg, Virginia
- Cashner, R.C., and R.E. Jenkins. 1982. Systematics of the Roanoke Bass, *Ambloplites cavifrons*. *Copeia* 1982: 581-594.
- Matthews, W.J., R.E. Jenkins, and J.T. Styron, Jr. 1982. Systematics of two forms of Blacknose Dace, *Rhinichthys atratulus* (Pisces: Cyprinidae) in a zone of syntopy, with a review of the species group. *Copeia* 1982: 902-920.
- Stauffer, J.R., B.M. Burr, C.H. Hocutt, and R.E. Jenkins. 1982. Checklist of the fishes of the central and northern Appalachian Mountains. *Proceedings of the Biological Society of Washington* 95: 27-47.
- Jenkins, R.E., and R.C. Cashner. 1983. Records and distributional relationships of the Roanoke Bass, *Ambloplites cavifrons* in the Roanoke River drainage, Virginia. *Ohio Journal of Science* 83: 146-155.
- Jenkins, R.E., and N.M. Burkhead. 1984. Description, biology and distribution of the Spottfin Chub, *Hybopsis monacha*, a threatened cyprinid fish of the Tennessee River drainage. *Bulletin of the Alabama Museum of Natural History* 8: 1-30.
- Hocutt, C.H., R.E. Jenkins, and J.R. Stauffer. 1986. Zoogeography of the fishes of the Central Appalachian region and Coastal Plain, p. 161-211. *In: Zoogeography of the freshwater fishes of North America*. C. H. Hocutt and E. O. Wiley (eds.) John Wiley & Sons, New York.
- Maurakis, E.G., W.S. Woolcott, and R.E. Jenkins. 1987. Physiographic analysis of the longitudinal distribution of fishes in the Rappahannock River, Virginia. *ASB [Association of Southeastern Biologists] Bulletin* 34: 1-14.
- Jenkins, R.E. 1988. Review of: The inland fishes of New York State, by C. L. Smith. *Copeia* 1988: 323-325.
- Starnes, W.C., and R.E. Jenkins. 1988. A new cyprinid fish of the genus *Phoxinus* (Pisces: Cypriniformes) from the Tennessee River drainage with comments on relationships and biogeography. *Proceedings of the Biological Society of Washington* 101: 517-529.
- Burkhead, N.M., and R.E. Jenkins. 1991. Fishes, p. 321-409. *In: Virginia's endangered species*. K. A. Terwilliger (ed.) Woodward and McDonald Publishing Company, Blacksburg, Virginia.

- Jenkins, R.E., and N.M. Burkhead. 1994. *Freshwater Fishes of Virginia*. American Fisheries Society, Bethesda, Maryland.
- Cochran, P.A., and R.E. Jenkins. 1994. Small fishes as hosts for parasitic lampreys. *Copeia* 1994: 499-504.
- Branchaud, A., and R.E. Jenkins. 1999. Pierre Fortin (1823-1888) et la première description scientifique du chevalier cuivré, *Moxostoma hubbsi*. *Canadian field-Naturalist* 113: 345-358.
- Jenkins, R.E. 2000. Review of: The Bone Sharp. The life of Edward Drinker Cope, by J. P. Davidson. *Bios* 71: 59-60.
- Blanton, R.E., and R.E. Jenkins. 2008. Three new darter species of the *Etheostoma percnurum* species complex (Percidae, subgenus *Catonotus*) from the Tennessee and Cumberland river drainages. *Zootaxa* 1963: 1-24.
- McAllister, C.T., W.C. Starnes, H.W. Robison, R.E. Jenkins, and M.E. Raley. 2009. Distribution of the Silver Redhorse, *Moxostoma anisurum* (Cypriniformes: Catostomidae), in Arkansas. *Southwestern Naturalist* 54: 514-518.
- Tracy, B.H., R.E. Jenkins, and W.C. Starnes. 2013. History of fish investigations in the Yadkin-Pee Dee River Drainage of North Carolina and Virginia with an analysis of nonindigenous species and invasion dynamics of three species of suckers (Catostomidae). *Journal of the North Carolina Academy of Science*. 129: 82-106.
- Tracy, B. H. and Jenkins, R. E. 2021. Professor Edward Drinker Cope's Travels Through North Carolina, August–December 1869: Insights from the Transcriptions and Annotations of Letters to His Father and His Contributions to North Carolina Ichthyology. *Southeastern Fishes Council Proceedings* 61: 74-135.