



JOHN BINNS

A contemplative Sandy Echnacht.

## P R O F I L E

# Sandy Echternacht: A Lifetime of Herpetology

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Even as a toddler, Sandy Echternacht wasted no time in demonstrating an apparently innate affinity for reptiles. “I have no idea what originally attracted me to reptiles, but I’ve always known exactly what I wanted to do.” Sandy tells of how, as a child, despite his mother’s distaste of lizards and snakes, he took to them readily, distinguishing himself as the family herpetologist as early as the age of two while on family trips to various parks in the southwestern United States. On the earliest of these trips to the Grand Canyon, still in his mother’s arms, Sandy was already exhibiting the symptoms of what would become a lifetime habit, happily touching and investigating any snake offered by the park’s rangers.



A one-year-old Sandy and his mother near the Grand Canyon in 1940. Near here, he snatched a snake out of the hands of a park ranger and thereby, according to his mother, became hooked on reptiles. He appears to have weighed about the same then as he does now. Photograph courtesy of Arthur P. Echternacht.

While growing up in Iowa, Sandy delivered newspapers in order to keep himself supplied with lizards, snakes, and even bats. As his collection grew, he was forced to move into the attic of the family home for fear that his collection would invade the rest of the house. His mother had a habit of destroying snakes by chopping them into pieces whenever she came across them, so this move could be considered Sandy’s first contribution to conservation.

Sandy’s interest in collecting and keeping animals soon became more academic. In an effort to learn more about the natural history and taxonomy of the species in his collection, he wrote a letter to a biologist at Arizona State University. To Sandy’s amazement, the professor sent a letter back and, within no time at all, the two had become herpetological pen pals. They corresponded through Sandy’s junior and senior high school years. While still in high school, Sandy was offered a job in the professor’s lab upon his graduation. In 1957, he moved from his hometown in Iowa to Tempe, Arizona to begin his formal studies. Unfortunately, the relationship he once had on paper with the professor dwindled, and Sandy returned to Iowa to attend University and complete his bachelor’s degree in general sciences.

In 1961, Sandy was again drawn to Arizona State University, this time to work on a master’s degree in zoology. In the following year, Sandy was finally able to go on his first formal collecting trip for the Arizona State Museum with his advisor, the ichthyologist Dr. W. L. Minckley. They traveled to New Mexico, México, and back through Texas on what, as Sandy describes it, was one of the most memorable trips of his career — no small claim for someone who has regularly spent time in the Caribbean, South and Central America, Africa, and the Pacific. Sandy’s master’s thesis was a comparative study of unisexual and sexually-reproducing species of *Cnemidophorus* (Whiptail Lizards) in the Santa Rita Mountains of southern Arizona.

Upon completion of his master’s research in 1963, Sandy moved back to the Midwest, but to Kansas this time, to begin his doctoral research with the eminent herpetologist, Dr. William Duellman, at the University of Kansas. Duellman’s interests at that point were in Central America and México, and he was in the midst of collecting data for his monograph on the hylid frogs of Middle America. This provided Sandy with the perfect opportunity to begin his own research in Central America — and he jumped at the chance. Interested in studying geographic variation throughout the region and using the lizard genus *Ameiva* as

<sup>1</sup> Written with input from Todd Campbell, William Duellman, Glenn Gerber, Rachel Goodman, and Justin Walgumary.



SUSAN E. RECHERT

Sandy and shy new friend in Makokou, Gabon, equatorial West Africa, March 1982.



Sandy dwarfed by logs at a “green” logging operation near Itacoatiara, Amazonas, Brazil (ca. 160 km east of Manaus on the northern bank of the Rio Amazonas).



SUSAN E. RIECHERT

Near Makokou, Sandy tried to become familiar with the objects of his interest, communing closely with an unidentified chameleon.

a study group, Sandy devoted more than a year reviewing all available museum specimens.

While at Kansas, Sandy held a teaching assistantship in the Department of Zoology and took an array of courses in the department. He also became closely associated with other graduate students in the Division of Herpetology in the Museum of Natural History where he had an office. Among those students were several who were working on some aspect of Neotropical herpetology, namely John D. Lynch, Charles W. Myers, and Linda Trueb. Sandy and John Lynch were the “bad boys” in the division, and usually were responsible for various pranks, such as littering the professor’s office with innumerable Coke cans and “filing” cut-outs of *Playboy* nudes throughout Duellman’s 3 x 5 card catalog of his reprints.

In the summer of 1965, Sandy piled equipment and survival necessities into a VW bus and headed out of Lawrence, Kansas, with the goal of reaching Panamá while collecting and seeing as much as possible along the way. As Sandy tells it, the two most important pieces of equipment on this trip were a five-gallon bucket for pickling and a bag full of rubber bands (Sandy has a well-deserved reputation, among all who know him, as a crack shot with a rubber band). During the following summer, Sandy collected at remote sites along the Caribbean coast of Honduras and Nicaragua, and on several off-shore islands. His last fieldwork on *Ameiva* was with Duellman and Richard Montanucci in Ecuador in 1971.

After completing his dissertation research, Dr. Arthur C. Echternacht (“Only my mother and telemarketers call me ‘Arthur’,” claims Sandy) joined the faculty of Boston University and soon thereafter became a Research Associate at Harvard. Then, on Columbus Day in 1973, a friend from the University of Tennessee



Sandy processing the fruits of his labors in Loja, Ecuador in 1971.



GLENN P. GERBER

Adult male Little Cayman Rock Iguanas (*Cyclura nubila caymanensis*) are often quite approachable, especially if baited, during the breeding season. In dense thorn scrub forest, the most efficient way to catch them is just to (carefully) pile on.

called to inform him of a job opening there. He applied and was offered the position on a Friday, but on Monday was notified that the funding for the position had disappeared. Two years later, he was offered another job with the University of Tennessee without even applying. Sandy accepted the position in the Department of Zoology, ascended the ranks to full Professor, and served as department head for 13 years. Today, 31 years and countless graduate students later, Sandy continues to be an active member of the department, now called Ecology and Evolutionary Biology.

Sandy had his first experience with Rock Iguanas (genus *Cyclura*) on Grand Cayman in the late 1980s, while vacationing on Little Cayman Island. "I was really entranced by *Cyclura nubila caymanensis* because they were very abundant and out in the open." Sandy took several "vacations" to Little Cayman after that, including one on which he suffered a compound fracture of his ankle while exploring the jagged karst interior on his own. As the story goes, Sandy found two empty Coca Cola bottles (no Pepsi for this man!) to protect his hands from the jagged rocks, and using these dragged himself through the karst and thick underbrush to the edge of Booby Pond. From there he hollered for help, eventually attracting the attention of a local, and was carried out of the bush on a board and taken by boat to Cayman Brac, where he received medical attention. Despite this experi-



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Sandy with AJ Gutman and *Ctenosaura bakeri* at the International Iguana Society (IIS) meeting on Isla de Utila, Honduras in 1999.

ence — or perhaps because of it, Sandy's enthusiasm for *Cyclura* continued to grow.

While he and Glenn Gerber were working on Glenn's dissertation research on the interactions between Grand Cayman's endemic anole (*Anolis conspersus*) and the introduced Cuban Brown Anole (*A. sagrei*), Sandy took Glenn to Little Cayman to take a look at the *Cyclura*. Glenn was equally entranced and, with Sandy's encouragement, initiated a year-long autecological study of the iguanas on Little Cayman. He has since gone on to investigate other Caribbean iguanas.

During the course of research trips to Grand Cayman, Sandy met Fred Burton (at that time working for the Mosquito Research and Control Unit and helping to establish the Cayman Islands National Trust). Fred was initiating a captive-breeding program for the critically endangered Grand Cayman Blue Iguana, *Cyclura nubila lewisi* (now *C. lewisi*). Sandy, of course, found these lizards fascinating. He and Fred arranged for Bridget Donaldson, who had just completed her Master's degree working with Sandy on box turtle ecology, to initiate a radio-telemetry study of *C. lewisi*. By then, Fred had quit his job at the National Trust and had founded the Blue Iguana Recovery Program. Sandy's student Rachel Goodman expanded this work with a Master's project that examined the home ranges, behavior, activity patterns, and diet of these iguanas in a protected botanic park on Grand Cayman. Sandy also is active in iguana conservation efforts through his involvement with the International Reptile Conservation Foundation, where he serves on the editorial board, the International Iguana Society, where he served as Treasurer for two years, and by being a member of the IUCN Iguana Specialist Group.

In the past few years, Sandy's interests in iguanids have again been sparked after a trip to the small island of Utila, which is located just off the Caribbean coast of Honduras. This island has been of interest to herpetologists for some time, in large part because it is home to the threatened iguana, *Ctenosaura bakeri*. This island endemic with a very narrow distribution is faced with the all-too common threats of habitat destruction and over-harvesting. However, it is also faced with the threat of extinction by hybridization with its more widely ranging congener, *C. similis*. The most recent addition to the Echternacht lab, Stesha



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Sandy and Rachel Goodman on Grand Cayman in 2001.

Pasachnik, has begun to investigate the degree and direction of this hybridization using a slew of molecular markers. A small-scale phylogeny of the *C. melanosterna* clade, the Honduran type series of which was collected by Sandy during one of his early trips through Central America, will also be constructed in hopes of elucidating the colonization events that led to the speciation we see in the Bay Islands today.

In addition to his work with iguanas, Sandy and his students (Mark Wilson, Dan MacDonald, Ed Michaud, Jim Minesky, David Bishop, and Rachel Goodman) have for almost 20 years

been studying the natural history of the Green Anole, *Anolis carolinensis*, in the southeastern United States, including latitudinal aspects of body size, reproduction, and genetics and long-term studies of thermoregulation in several populations living on south-facing cliffs in Tennessee, near the northern range limit of this species. As a logical extension of his expertise with this species, he is also studying the “natural” history of Green Anoles where they have been introduced on islands in the South Pacific. Since the late 1980s, he and his students have been investigating the introduced Cuban Brown Anole, *A. sagrei*, in the southeastern U.S.



TODD CAMPBELL

Sandy plying the tools of his trade, noosing a lizard on a spoils island in the Florida Intracoastal Waterway.



TODD CAMPBELL

Accustomed to the rigors of fieldwork, Sandy seeks a shaded retreat from which to record data on anoles on a spoils island in the Florida Intracoastal Waterway.



TODD CAMPBELL

Accompanied by an inevitable Coca Cola, Sandy marks an anole on a spoils island in the Florida Intracoastal Waterway.

This line of inquiry has attracted the interest and efforts of nearly a dozen graduate students, the work of whom has spanned levels of investigation from physiology and morphology through behavior and reproduction to population dynamics. Early efforts to substantiate anecdotal reports of Green Anole declines following Brown Anole invasion and to implicate direct interspecific male-male aggression in these territorial animals produced surprising results that suggested simple answers would be inadequate in explaining the interaction. Subsequent research included outdoor enclosure experiments with students Glenn Gerber, Todd Vincent, and Justin Walguarnary. An experimental manipulation with student Todd Campbell of whole populations of Green and Brown anoles on dredge spoil islands in the Florida Intracoastal Waterway to simulate invasions has clarified a pattern in which niche partitioning, reproductive interference, and even intraguild predation have a combined negative effect on Green Anoles. Most recently, Sandy and his student Nathan Turnbough have been investigating effects of Brown Anoles on food webs in an effort to explain how these lizards might influence whole communities.

In the end, although Sandy has (for good reason) focused his attention mainly on lizards, his work has made significant contributions to many fields of biology. Powered mainly by Coca-Cola, fine pipe tobacco, and nearly inedible lunchtime snacks, Sandy's energy in the field is infectious, and his effect on students, colleagues, and the general public has been lasting and profound. We can only hope that his enthusiasm for the study of basic natural history of all kinds of organisms has rubbed off on the next generation of scientists.