



BOOK REVIEW

Fieldwork Is the Beginning and the End

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Lost Frogs & Hot Snakes. Herpetologists' Tales from the Field. 2024. Martha L. Crump (editor). Comstock Publishing Associates, Cornell University Press, Ithaca, New York, USA. xi + [3] + 304 pp. Paperback – ISBN 9781501774485; ePub – ISBN 9781501774508. \$26.95.

Forty-eight essays written by a diverse group of field herpetologists and arranged into six parts burst forth from the pages between the preface, the first line of which reads: “Fieldwork is the beginning and the end for many of us,” the introduction, essentially a tribute to fieldwork and field biologists, and parting thoughts, a brief but sobering statement regarding the need for fieldwork today.

In the preface, Martha Crump begins to explain the beguiling nature of fieldwork: “We are addicted to the thrill of discovery, the novelty of exotic landscapes and iconic species, and the allure and magic of the unknown. Fieldwork opens up whole new worlds, often exposing us to new cultures, expanding our perspectives on social and political issues, and increasing our sensitivity to diverse lifestyles, customs, and attitudes. Seeing the world through a different lens helps us to understand ourselves—who we are and who we want to be.” “Fieldwork is in our blood.” However, to be fair, she also acknowledges some of the less enticing attributes of this obsession: “... extreme temperatures, biting and stinging insects, cold showers (or lack thereof), bacterial and fungal ailments, and monotonous diet.” The preface ends with a tribute to Anna Botsford Comstock (1854–1940), who encouraged teachers to take students outside to study nature, “was a major proponent of the Nature Study Movement, whose mantra was ‘study nature, not books,’” and wrote a guide for teachers entitled *Handbook of Nature Study* published in 1911 by her husband’s publishing house, Comstock Publishing Company, now affiliated with Cornell University Press, and the publisher of this volume.

In the introduction, Crump describes field biologists as “a unique breed of scientists who study plants and animals in their natural environments,” who “often appear disheveled,” and are frequently “inexplicable to our friends and family

members.” She then more precisely addresses field herpetologists by noting simply that: “We are living our dreams.” The introduction continues by briefly describing what we “do in the field,” the motivation for this book, largely hoping that the essays will result in a better understanding of fieldwork and the “value of amphibians and reptiles we know to be so critical to the health of our planet” while inspiring “readers and early career biologists to explore the possibilities of fieldwork.” She concludes by explaining the organization of the



book, highlighting a few essays in each part, and collectively introducing the diverse group of contributors.

Part I The Thrill of Discovery begins with an essay by Robert E. Espinoza, whose opening statement, “There is no greater high for a scientist than discovery. It’s a cocktail of adrenalin and joy that imbues a pure sense of euphoria. ... And like many drugs, it’s often in short supply and addictive. Consequently, the brains of scientists crave it, so we are always on the lookout for opportunities to achieve our next dopamine-induced fix,” was cited by Crump in her introduction as a “teaser” for this section. He goes on to describe the events that led to his fascination with herps in kindergarten, a “childlike sense of wonder” that characterizes the experiences of many—but by no means all—budding herpetologists, pays tribute to Richard Etheridge, who became his mentor at San Diego State University, and reflects on what he learned during his first international trip, all of which led to collaboration with South American scholars and students that eventually revealed what had been a puzzle and which led to the recognition of nine cryptic species formerly considered geographic variants of *Liolaemus alticolor*.

The subsequent essays in Part I tell tales of how dogged fieldwork led to an understanding of the intimate relationship of Crawfish Frogs (*Rana areolata*, now *Lithobates areolatus*) and their burrows, dug by crayfish but appropriated by the frogs (by Michael J. Lannoo); insights into the behavioral antics of Brazilian Poison Frogs (*Ranitomeya vanzolinii*) responding to the inscrutable exhortation to reproduce (by Janalee Caldwell); experiencing an explosive reproductive event involving 15 species of frogs in the “magical Pantanal floodplain” of Brazil when “everything changed after the rain” (by Cynthia P.A. Prado); “memorable moments” while searching for the surprising nesting sites of Spotted Turtles (*Clemmys guttata*) in South Carolina and Ontario (by Jacqueline Litzgus); how a photo triggered the search for a “tiny, almost transparent turquoise frog with flashes of yellow along its side and curiously black soles on its feet” in the montane forests of Pu Hoat Nature Reserve in Vietnam, and whose bizarre calls created an “overall effect ... like being surrounded by dozens of tiny, excited, high-pitched birds” led to the description of Quang’s Treefrog (*Gracixalus quangii*) (by Jodi Rowley); revelations about the remarkable anuran community in the “frog pond” in Kubah National Park, Borneo, especially regarding “the natural history of their larval stages—with its quirks and outright strangeness” (by Indraneil Das); and how the Bog Frog (*Rana okaloosae*, now *Lithobates okaloosae* or *Aquarana okaloosae*) got its name (by Paul Moler).

The essays in **Part II Adventure and Exploration** tell of “firsts” while exploring a tepui (a table-top mountain in Venezuela) as part of the Tapirapécó Expedition in Venezuela (martial law with a curfew, meeting Kathy Phelps, who had

climbed tepuis, rides in a military transport plane and a helicopter, exposure to the indigenous Yanomami, bush meat, failure to communicate by radio with the Mavaca Base Camp, a helicopter salvaging bodies from a plane that had crashed in the forest, and a view of the Southern Cross) (by Maureen A. Donnelly); exploring subterranean ecosystems and their inhabitants now threatened by groundwater contamination and overextraction (by Danté Fenolio); “the exhilarating sense of adventure, the hilarious realization of how we screwed up, [and] the teamwork [needed] to extract ourselves” from potentially dangerous situations while failing to reach the Valle de Silencio, a high-elevation bog near the continental divide in Costa Rica, a “unique habitat in an unexplored biodiversity hotspot with abundant caecilians” about which the team “laughed for years about mystical places where caecilians are dripping from the trees and tapirs are prancing in the forest” (by Karen Lips); hunting frogs in Amazonian jungle near the equator in Ecuador, now covered by an oil palm plantation, raising the question “who knows how populations of tropical frogs vary through time?” and the lament “I cannot return to the past, but I hope the frogs have it figured out” (by Ronald Altig); eliciting admiration from camp workers by grabbing a South American Cane Toad (*Rhinella marina*), releasing Yellow-footed Tortoises (*Chelonoidis denticulatus*) held by workers as a live stock of meat, surviving an accident while transporting venomous snakes (*Bothrops atrox*) in plastic bags, and dealing with biting insects and chainsaw cuts while surveying the herpetofauna along the Xingu River of Brazil (by Célio F. B. Haddad and Marcelo Gordo); contending with leeches, being bumped in the dark by a Papuan Forest Wallaby, and discovering a new mode of parental care in male Wandolleck’s Landfrogs (*Liophryne schlaginhaufeni*, now *Sphenophryne schlaginhaufeni*) in Papua New Guinea (by David Bickford); and dealing with poverty and the threat of bandits during a presidential election on Madagascar while encountering geckos, chameleons, snakes, and even lemurs (by Phillip Skipwith).

The essays in **Part III Fascination and Love for the Animals** tell of adventures with Australian varanids, locally known as “goannas,” capable of considerable “goannamosity incarnate,” and smart—“It’s difficult to feel superior when you come back to your tent after a hike to find the side of the tent slashed open, a steamy pile of lizard poo on your sleeping bag, and a giant lizard slumbering on a tree limb several meters above the remains of your camping gear. Especially when the swollen belly of that lizard contains the steak that you had brought along for the night’s dinner” (by Rick Shine); the reality of giant geckos (*Rhacodactylus leachianus*) on New Caledonia, during the hunt for which images of “lost” species rediscovered or new species found became “stored snapshots” of something new, images that “recall that visceral sensation of discovery and fuel my enthusiasm for

the next field trip, and the next, and the next” (by Aaron M. Bauer); an infatuation with Mole Salamanders (*Ambystoma* spp.) triggered by being “bamboozled” by the sight of “an odd creature with smooth skin, four legs, and big floofy, feathery, bright red external gills” some 40 years ago (by Susan Walls); the privilege of finding a Fea’s Viper (*Azemiops feae*) on Gongshan Mountain in western China during an evening that “in the space of a minute” “had been transformed from an uneventful roadside stroll to an encounter with a mythical serpent” (by Alan H. Savitzky); dashing toward a swift-moving snake and diving “in the air,” stretching out “as far as possible to grab the fleeing snake,” and experiencing “the most delightful moment when I can feel the snake’s body in my hand while my body is touching down on the ground” (by Akira Mori); “the razor-edged excitement of stalking frogs that are so focused on sex that they don’t notice my invasion of their tiny black ocean” (by Erin Muths); when “neither isolation, solitude, nor the constant pouring rain” could diminish the excitement of “new discoveries of cool frogs” in the La Planada Reserve of Colombia, a site revisited some 30 years later, when “many species of frogs have disappeared . . . , and many of those that are extant are rare compared with 1986” (by Patricia A. Burrowes); how “sudden declines [of frogs], even in pristine and well-protected areas” in the Ecuadorean Andes led to a focus on conservation biology, founding “a Noah’s Ark for frogs, which in a couple of decades has evolved into the Arca de los Sapos program and a unique opportunity to revive a beloved and emblematic species,” the Jambato (*Atelopus ignescens*) (by Luis A. Coloma); studying the effects of forest-management strategies on survival of juvenile Wood Frogs (*Lithobates sylvaticus*) (by Julia E. Earl); contemplating the resiliency and fragility of desert life in the context of an encounter with a Western Diamondback Rattlesnake (*Crotalus atrox*) crossing a road in Arizona, “small disturbances can have big effects” (by Wolfgang Wüster); a SWAT team rescuing a Gopher Tortoise (*Gopherus polyphemus*) from a sinkhole in Florida (by Joan [Diemer] Berish); and studying amphibians and reptiles on military bases (by Robert Lovich).

The essays in **Part IV Mishaps and Misadventures** tell the reader of exactly that, through various recollections. In one such tale, the author is “accustomed to being on the receiving end of alligator ‘back-at-cha’ behavior,” “being no less dismayed than . . . in previous ignoble encounters with the country’s largest freshwater reptile” (by Whit Gibbons); the day the life of the author and that of a rattlesnake “collided ever so briefly” in New Mexico, with what “had not been a dry bite” (by Kelly Zamudio); an encounter with incredulous narcotráficos in Sinaloa, Mexico, who were amazingly tolerant of the “Gringos locos” hunting for snakes on the wrong road (by Robert W. Hansen); being rescued from having a truck barely balanced on a narrow road in Oaxaca, Mexico, the right rear tire dangling over a precipice while being ser-

enaded by breeding choruses of Mexican Treefrogs (*Smilisca baudinii*) erupting raucously “HA-HA-HA!” (by William W. Lamar); getting lost at night in a wet montane Peruvian grassland while hunting for aquatic frogs in the genus *Telmatobius* but ending on a positive note (by John E. Simmons); getting lost at night in remote Amazonian Ecuador hunting for Sumaco Horned Treefrogs (*Hemiphractus proboscideus*) and recalling a similar experience in Belem, Brazil, both of which also ended on positive notes (by Martha L. Crump); an angry mob in Chiapas, Mexico, assuming that the strangers were commercial collectors intending to steal a boatload of Central American River Turtles (*Dermatemys wawii*), changed their tune when told that the suspects had been sent by the authorities in Mexico City to study the turtles—although no one was willing to make the decision to let anyone actually examine them (by Oscar A. Flores-Villela); and complications imposed by typhoid fever and a terrifying ride down an eroded mountain road courtesy of illegal loggers while studying Rose-bellied Lizards (*Sceloporus variabilis*) in the uplands of Veracruz, Mexico (by Miriam Benabib and Justin Congden).

The essays in **Part V Dealing with the Unexpected** tell of a positive pregnancy test at the beginning of nine weeks of remote fieldwork in Western Australia leading to the question: “Is there some kind of safe limit to how many kilometers you can drive on horrible washboard roads before you scramble your baby’s developing brain?” (by Alison Davis Rabosky); complications during a long-term project on Hinchinbrook Island off the tropical Australian coast imposed by disposal of human waste, mosquitoes and sandflies (the latter with a positive twist in that they worked well as bait for catching secretive Black-throated Rainbow Skinks, *Carlia rostralis*), uncooperative managers who delayed permits and threatened the project, and, ultimately, premature termination as a consequence of a category 5 tropical cyclone (by Ross A. Alford); research taking a “sharply descriptive turn” after the excruciating failure of a beach-wrack experiment in Paracas National Reserve, Peru (by Alessandro Catenazzi); a study of an “escape-hatching” hypothesis of Red-Eyed Treefrog (*Agalychnis callidryas*) tadpoles at Corcovado Park, Costa Rica delayed for an entire month waiting for the usually reliable rains (by Karen M. Warkentin); and a long-anticipated trip to the continental divide of Panama altered dramatically by the chytrid-induced disappearance of frogs that “led to the unraveling of the entire food web” (by Emily Taylor).

The essays in **Part VI The People We Meet, the Friendships We Forge, the Students We Influence** tell of fighting language barriers and learning lessons while trying to convince local residents in rural Mexico and Guatemala that someone came all the way from the United States to catch amphibians and reptiles (by Joseph R. Mendelson III); forming a long-term bond with a Taiwanese cargo ship captain

incarcerated in Panama for manslaughter (by Sinlan Poo); filming an episode of Mutual of Omaha's *Wild Kingdom* while working as a Peace Corps volunteer in Paraguay and meeting Marlin Perkins, who graciously called the author's mother to talk about his visit with her son in the days long before cellphones (by Lee A. Fitzgerald); a student holds a tiny, red Amazon Egg-Eater (*Drepanoides anomalus*) in the Peruvian rainforest and loses her lifetime fear of snakes, never expecting "that one minute with a little red snake would be so transformative" (by Tiffany Doan); a collaboration between "Team Snake" (students from Whitman College in Washington) and "Equipe Serpent" (a Congo-based research group) in Guinea (Africa) led to the implementation of a pitfall trap/funnel trap array that was new to the Guinean herpetologists and ended with "It's been a good day, j'ai la tête pleine de serpents" (= my head is full of snakes) (by Kate Jackson); unpleasant associations with ticks in the dry chaco of Argentina, a potentially frightening encounter with armed policemen who became interested in the project and came back with a bag full of Rococo Toads (*Rhinella schneideri*), and valiant attempts by the two young children of the author to assist with her project (by María Gabriela Perotti); meeting the indigenous Yanomami of Brazil and learning from one another, "what initially seemed otherworldly to us" led to an acknowledgment that "their most important priorities (child care, hunting, agriculture, safety) appeared no different from ours" (by Laurie Vitt); and an "ethnoherpetological" experience in Pará, Brazil that began "in the rabeta (canoe) of the pajé (witchdoctor)," included a guided tour led by "three little indigenous girls ... who showed [the author] the houses where they lived, the fruits, and what each plant was used for," an interview that became focused on a local lizard, the Tamaquaré (*Uranoscodon superciliosus*), and unsuccessful efforts "to teach the kids macramé knots" (by Beatriz Nunes Cosendey).

The organization of essays into the six parts lent some structure to the collection, but I found the assignments somewhat arbitrary. Although I could see justification for each placement, almost every essay included elements of every other part. Thrills, adventures, misadventures, and the unexpected were staples of essentially every tale, but no topics dominated to the extent of the fascination and love for the animals with which we are obsessed and the importance of making connections with people in various roles—all of which brought back memories of my first field trip to the cypress swamps of southeastern Missouri where I caught my first "official" snake (a Cottonmouth) (I was hooked!), a Mexican federale (Mexican federal policeman) who almost triggered a panic attack when he offered me a joint (all ended well), the Western Diamondback I discovered coiled under my tent in the very spot where my pillow had been, almost driving a van off a precipice on a rainy night in the Smokey Mountains, only to be rescued by a tow-truck driver who let

us "camp" in his shop, and the mentors, field companions, friends, colleagues, and students (many of whom fit into multiple categories) that facilitated my development as a scientist, teacher, field biologist, and person.

I have few quibbles with the book. Other than the clearly articulated theme of fieldwork and the topics of each part, the worldwide scope of the tales and their varied settings precluded any regional or historical focus, although amphibian declines and climate change reared their ugly heads on several occasions. Also, despite the mention of hot snakes in the subtitle, they were surprisingly underrepresented in the stories themselves, and the West Indies, where I've spent much of my life searching for frogs and lizards and the snakes that eat them, were overlooked altogether. Regardless, I really, really liked this book and hope to enjoy many more collections of tales with similar themes—of which all too few exist (see the appended list).

Finally, although I share with Crump the hope that these essays might inspire scientists to engage in fieldwork and better appreciate the animals we hold dear, I also have to say that they are exceedingly entertaining. Those of us who live for fieldwork and, in many cases, became herpetologists as a result of experiences such as those that animate the stories in this volume, recognize in almost every essay at least one incident that parallels a comparable event in our own maturation as field biologists who are "living our dreams."

Following is an incomplete selection of books published in English and dealing with some aspects of field herpetology. Only two (Henderson and Powell 2003 and Reaser 2009), which are listed first, are truly comparable to the edited volume by Martha Crump reviewed herein in that they provide multiple perspectives on the general topics of herpetology and field biology. The remaining titles, many of them autobiographical, instead provide one person's views of multiple related topics. This list was compiled with the help of Aaron M. Bauer, Robert W. Henderson, and the recently published booklet by C. Kenneth Dodd, Jr. (2025. *Beyond Herpetological Academics: History, Biographies, Memoirs, Outreach, and Other Interests*. Privately Published, Gainesville, Florida, USA).

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