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**Bushmaster: Raymond Ditmars and the Hunt for the World's Largest Viper.** D. Eatherley. 2015. Arcade Publishing. ISBN 9781628725117. 320 p. \$24.99 (hardcover).—Carl Linnaeus described the Bushmaster, naming it *Crotalus mutus* or the “silent rattlesnake” in 1766. As the largest venomous snake of the New World, attaining lengths of up to 4 m, Bushmasters (*Lachesis* spp.), now recognized as four species (Campbell and Lamar, 2004), command respect and have always had a fierce reputation. In many countries, their common name conjures images of death: in Costa Rica they are known as the “Ox-Killer,” while in Trinidad they are referred to as “the Silent Death of the Black Night” (Mole, 1894). Ditmars (1910) describes a man dying from the bite of a Bushmaster in less than ten minutes. Ditmars plays a much more prominent role in this book than do Bushmasters, so while those consulting this book to hunt for information about the world's largest viper might be disappointed, those

interested in reading about the life of Raymond L. Ditmars (1876–1942), an important historical figure of early herpetology, will enjoy a light, casual, and overall interesting read.

In *Bushmaster*, Dan Eatherley, “a writer, filmmaker, and environmental consultant” (dust jacket), follows the life, work, and journeys of Ditmars, the first curator of reptiles at the Bronx Zoo. The author eulogizes Ditmars as a showman, great popularizer of reptiles, and one of the most influential characters to zoos and herpetological research. Eatherley revisits the old stories of Ditmars, from his younger years in New York City's Central Park and the Museum of Natural History, where Ditmars obtained his first professional experience mounting an impressive collection of 250,000 moths and butterflies, to his Central and South American expeditions attempting to find *Lachesis* later in life—the latter accounts occurring much later in the book as well. In fact, the actual “hunt for the World's largest viper” does not really begin until chapter 13 (p. 230). Although Ditmars and colleague Arthur Greenhall fail to collect a Bushmaster, they are delighted to return with Vampire Bats (*Desmodus rotundus*). This makes the book's title somewhat of a misnomer. These historical anecdotes are enjoyable, however, and interspersed with Eatherley's own journeys as he conducts research at places like the New York Public Library and the Westchester County Archives and Records Center, or quite literally follows in Ditmars's footsteps. Eatherley visits various locations in New York City, travels an hour or so north of the city where timber rattlesnakes were common before agriculture and persecution resulted in population extirpations and declines, and visits the forests of Trinidad to search for Bushmasters, albeit unsuccessfully. Along the way, the reader meets many interesting characters of both past and present, none more so than the book's central figure.

Over the last century, few, if any, zoo herpetologists have made an impact on both the professional herpetological and zoological communities as great as Ditmars. Nothing less than a pioneer among zoo curators and herpetologists, many professionals in these fields have been significantly influenced by Ditmars and his early writings. I am one such case. Harry Greene affectionately introduces *Snakes: The Evolution of Mystery in Nature* (1997) with both Ditmars's and his own first encounters with Bushmasters. Peter Brazaitis claims to have sought a job at the Bronx Zoo after reading the works of Ditmars and becoming so enamored with animals that his mother told him that he belonged in the zoo (Brazaitis, 2003). Rom Whitaker, founder of the Madras Crocodile Bank, also became fascinated with Bushmasters and herpetology after becoming enthralled by *Thrills of a Naturalist's Quest* (Ditmars, 1932). Eatherley himself became absorbed into the life of this “illustrious figure” (p. xxiii) while working with Whitaker on “films about serpents for National Geographic Television” (p. xviii). Eatherley became captivated and sought more information about “the best-known snake man in the U.S.” (p. xxii), which led him to write this book.

Eatherley begins *Bushmaster* with the lively account of Ditmars's first interaction with a live Bushmaster. “The great moment had arrived. I was going to see a [Bushmaster]!” Ditmars introduces in his “episode of the Bushmaster” (1932:52). Eatherley simply, yet eloquently, retells Ditmars's account of the teen receiving a large Bushmaster of “about eight feet long” (p. xiii) at his family's home and the exciting

task of unpacking the colossal animal. Much of the book follows in a similar format as Eatherley transports the reader back in time alongside Ditmars. In a later passage, Eatherley reexamines the incident immediately following the Bushmaster episode in which Ditmars unpacks a *Boa constrictor* (in Ditmars's own words, "ten feet of serpent of loud pattern and colors" [Ditmars, 1932:57]) from the same shipment of animals while his "parents and sister looked on in horror as the constrictor" threatened to "live up to its name" (p. 62–63).

Eatherley transports the reader to the origins of the famous zoo in the Bronx. In 1887, Theodore Roosevelt and George Bird Grinnell, founder of the first Audubon Society, co-founded "North America's first wildlife conservation organization" (p. 79), the Boone and Crockett Club, a movement aimed at preserving large game. This organization led to the overdue creation of a first-rate zoo in New York, a local scientific, education, and conservation center promoting the scientific study of zoology. On 26 April 1895, thanks to Roosevelt, his committee, and its champions, the New York Zoological Society (NYZS) and its heralded Bronx Zoo were born. Eatherley takes us back to the origins of the Bronx Zoo when the collection amounted to "a bear cub, wolf pup, and one snapping turtle in a tin bathtub" (p. 88) and the facilities were still being constructed. From this modest beginning, the Bronx Zoo and its governing Society has had a core mission of conserving wildlife. More than 100 years later, Eatherley visits the Bronx Zoo and its Center for Global Conservation, where over a hundred staff work towards global wildlife conservation. The Zoo and the Society, now called the Wildlife Conservation Society, remain key players in wildlife conservation, devoted to saving species and natural habitats across the globe.

The first director, Dr. William Temple Hornaday, was a primary force in building the institution and would run the Zoo for 30 years with critical figures like William Beebe and Raymond Ditmars at his side. Ditmars, like the NYZS and Bronx Zoo, was devoted to educating people about animals, primarily snakes and other "lowly" creatures, while working to conserve them. On 17 July 1899 at just 23 years, he was handed a world of responsibility by Hornaday when he became the first reptile curator, managing a collection of 78 species, including "16 alligators, 37 amphibians, 71 lizards, 94 turtles, and almost 300 snakes" (p. 92) in his new "reptile" house, many of the snakes coming from his personal collection. It was from this personal menagerie, a vast collection of serpents that had been housed in the top floor of his parent's brownstone in the Bronx, that Ditmars gained most of his experiences prior to his distinguished zoo career.

Ditmars's devotion to educate people about animals also led him to seek the role of stage performer. Like modern-day animal shows common at many zoos, Ditmars took the stage with live animals at many locations, including the Waldorf-Astoria Hotel. His intent was to inspire the audience to become passionately interested in the animals he so cherished. Ditmars also produced numerous educational films, including *The Book of Nature*, which ran for a record-breaking 37 weeks on Broadway. Often Ditmars would incorporate the completed film into his live stage performances.

Eatherley also discusses snake antivenin production, which captured Ditmars's attention after Albert Calmette developed the world's first antivenin in 1894 (Calmette, 1896). In Ditmars's early days, "cures" for venomous

snakebite (e.g., cutting "the wound down to the bone" [p. 152], sucking venom, "liberal doses of alcohol" [p. 153], etc.) usually did more harm than good. After Calmette's serum proved ineffective on a bite from a Western Diamond-back Rattlesnake (*Crotalus atrox*) suffered by a reptile keeper, Ditmars collaborated with Dr. Vital Brazil of the Instituto Soroterápico in Butantan and Afrânio do Amaral of the Antivenin Institute of America. After all, according to Ditmars, there was "no reason why the men of the Reptile House should be in danger every time a poisonous snake 'goes bad'" (p. 212). Ditmars soon found himself dispensing the zoo's stock of the antidote across the northeastern USA. Many zoos play an identical role today in supplying foreign-produced snake antivenin to the medical community when bites from exotic species occur within the private sector.

The combination of curiosity and a desire to make a despised and misunderstood group of animals more favorably regarded prompted Ditmars to further examine potential curative effects of snake venom. He worked with Japanese scientist Hideyo Noguchi and researchers from the city's College of Physicians and Surgeons to investigate potential healing properties of snake venom. Similar work continues today with venom of various snakes demonstrating important pharmaceutical benefits. For example, studies on the venom of *Bothrops jararaca* led to the development of ACE inhibitors (Ondetti et al., 1971), and a derivative of proteins found in the venom of *Agkistrodon contortrix* slows the growth of breast cancer tumors (Swenson et al., 2004).

Ditmars would go on to work with more than just amphibians and reptiles. In 1901, he became the unofficial curator of the zoo's mammals and, years later, officially receive dual titles of curator of mammals as well as reptiles (inclusive of the amphibians). *Bushmaster* also highlights Ditmars's work with non-herp taxa. Most interesting are his training sessions with higher primates, using "kindness, perseverance, and infinite patience" (p. 176). Ditmars had adopted modern-day positive-reinforcement techniques almost 100 years before Pryor (1999) popularized these methods for animal-care professionals. Investigating the close kin of *Homo sapiens*, including gorillas, orangutans, and chimpanzees, pleased Ditmars and, to him, asserted their great intelligence and the conviction that they "had their own language" (p. 176). This interest would lead to a close relationship with anthropologist Richard Lynch Garner, who would frequent the monkey house at the Bronx Zoo for behavioral observations and research.

Most of Ditmars's life would pass before we arrive at his 1934 expedition for Bushmasters, which proved fruitful only because one awaited his arrival on the desk of Dr. Friedrich William Urich in Port of Spain, Trinidad. This animal was transported to the Bronx Zoo where it was named "Lecky" and placed on exhibit. Dubbed "the Mahatma Gandhi of reptiles" (p. 252) by *Los Angeles Times*, the snake was responsible for an estimated 100,000 additional guests at the zoo and a 60% increase in visitors at the American Museum of Natural History's reptile hall. Like other captive Bushmasters at the time, Lecky would not survive long, but proved that herps could increase attendance. Along with Lecky, Ditmars returned to New York with "an unparalleled menagerie of tropical beasts" (p. 248), which had also been assembled before his expedition began. Still, the media sensationalized the curator's travels, reporting it as a successful journey.

While Eatherley has produced numerous natural history documentaries, it is apparent that he is not a trained herpetologist. According to Eatherley, negative responses towards reptiles are, “of course, the norm for most of us” (p. 11). He continues, “why did [Ditmars] love snakes when disgust, hatred, and above all, fear of the cold-blooded seems hard-wired in humans?” (p. 11). Most professional herpetologists have been asked similar questions. As Eatherley spends more time with reptiles and individuals so riveted by them, he too seems to develop more of an appreciation of and fascination for these awe-inspiring animals.

There are some grammatical errors and awkward sentence structures found in *Bushmaster*. Yet, these cause only minimal distractions to the reader and do not detract from the story. It is generally a pleasurable read, particularly the old tales of Ditmars during his glory days and his 40 years devoted to the Bronx Zoo. *Bushmaster* is not intended for the scientific audience seeking new biological information, but it is an interesting book for those intrigued by the history of the Wildlife Conservation Society, the Bronx Zoo, and Raymond Ditmars. And yes, the reader could choose to look at Ditmars’s autobiographical library outlining the “countless entertaining vignettes from his colorful career, which [continue] to delight readers” (p. 173), but there are other pleasures in Eatherley’s *Bushmaster*. Perhaps the most satisfying message is that an author, untrained, possibly even naive in herpetology, can develop a stronger appreciation for reptiles and those of us so intrigued by developing a specific interest in Ditmars. By following in his footsteps, Eatherley effortlessly understands how a “ridiculous obsession with reptiles [can] lead to a dream career” (p. 65), a lesson learned by many of us earlier in our lives. I count myself fortunate to be in this profession, and I am humbled to think that men like Ditmars paved the way.

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#### Perú: Cordillera Escalera-Loreto. Rapid Biological and Social Inventories Report 26.

N. Pitman, C. Vriesendorp, D. Alvira, J. A. Markel, M. Johnston, E. Ruelas Inzunza, A. Lancha Pizango, G. Sarmiento Valenzuela, P. Álvarez-Loayza, J. Homan, T. Watcher, A. del Campo, D. F. Stotz, and S. Heilpern (Eds.). 2014. The Field Museum. ISBN 9780982841945. 554 p. \$30.00 (soft cover).—For the Field Museum’s 26<sup>th</sup> Rapid Biological and Social Inventory, researchers from the Field Museum and several Peruvian institutions traveled to Cordillera Escalera, a sub-Andean mountain range separating the foothills of the Andes from the lowland Amazon basin. Cordillera Escalera, whose name refers to a portion of the range that resembles a staircase (which translates as *escalera* in Spanish) is a heterogeneous and biologically rich mosaic of landscape features including floodplains with meandering rivers, salt deposits, sandstone ridges, cliffs, and waterfalls. It is home to diverse and unique organisms including the globally Critically Endangered Yellow-tailed Woolly Monkey (*Lagothrix flavicauda*). The authors consider Escalera and other western Amazon sub-Andean cordilleras to be “Andean tepuis” (p. 267) because of the similarity of their ridges with the sandstone tablelands of the Guiana Shield.

The team visited the eastern portion of the cordillera, which lies within the political region of Loreto. The Field Museum has conducted other rapid inventories in this region (Pitman et al., 2004, 2011, 2013; Gilmore et al., 2010), which have contributed to the establishment of several protected areas. Rapid inventories promote the conservation of threatened regions of high biological and cultural diversity and uniqueness. Technical reports such as the one reviewed here summarize the main findings of biological, cultural, and social importance gathered during short (typically <1 month) field inventories. In addition to contributing to the knowledge of the geology, biodiversity, and natural history of organisms in poorly studied regions, these reports include management recommendations for local, regional, and national stakeholders, which benefit the conservation of exceptionally rich natural and cultural systems, as well as the lives and social cohesion of local human communities.

The organization of the book emphasizes the findings of greatest scientific and conservation relevance, which are highlighted in the executive summaries and description of conservation target at the beginning of the volume, as well as in the corresponding technical chapters that comprise the bulk of the text. The technical chapters cover geology, hydrology and soils, vegetation, fishes, amphibians and reptiles, birds, and mammals for the biological inventory, and ethnohistory, social and cultural assets, traditional ecological knowledge, and archaeology of the Shawi people for the social inventory. The principal results point to a rich geological, biological, and cultural landscape in mountains that harbor endemic and endangered fauna, a large number of