

Figure 1
The Ridge-nosed
rattlesnake
(*Crotalus willardi*)
Photo by
Erik F. Enderson



III. *Crotalus willardi* (Meek, 1905) - Ridge-nosed Rattlesnake

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Ramsey Canyon, near Sierra Vista, was a cool, beautiful spot to be in mid-April of 2000. Here in the Transition Zone of the sky island known as the Huachucas, we were surrounded by Manzanita, Big-toothed maple, Arizona white and Emory oaks, Alligator juniper, and Chihuahuan and Apache pines. Nearby a frigid stream cascaded down the canyon. Could this really be Southern Arizona? On this day, I had accompanied John Porter, a local rattlesnake expert, to satisfy a snake-related obsession – finding and hopefully photographing an Arizona Ridge-nosed rattlesnake. A goal of moving to Arizona, after spending most of my life in the Midwest, had been to locate all of the rattlesnake species in the state in their natural habitat. This goal becomes more formidable each year, thanks to the taxonomic splitters (you know who you are), who keep elevating subspecies to species' rank.

The inveterate snake hunter, Carl Kaufield, entitled one chapter of his classic book, *Snakes and Snake Hunting*, "Huachuca Heaven," not only because of the diversity of snakes here, but because, in 1941, this was where he captured the only two Ridge-nosed rattlesnakes of his long career. Forty-one years following the capture of the type specimen

in Ramsey Canyon by Francis Cottle Willard in 1900, only a dozen specimens had been collected in total. Kaufield's were 13 and 14. Another noted rattlesnake collector, Howard Gloyd, had previously worked the Huachucas for months and not come across any (although one of his companions did). Kaufield's 1957 book not only inspired countless young snake hunters of my generation, but it also turned the Ridge-nosed into their Holy Grail. It certainly was the source of my obsession. This day I felt confident. One could not be in better company to find a Ridge-nosed in Ramsey Canyon than John Porter. John has studied and marked the rattlesnakes here for 21 years and, having marked 105 individuals, knows a good percentage of them personally.

My expedition with John began at 8 am at the Ramsey Canyon Visitor Center and we started out on the trail (including a section of the former toll road that once belonged to the canyon's namesake, Gardner Ramsey) that countless miner's traveled to reach the old Hamburg mining area in the late 1800s and early 1900s. Today the miners have been replaced by legions of birders, who traverse the trail looking for the exceptional variety of hummingbirds, Painted redstarts, Redfaced warblers, Strickland's woodpeckers, and, especially, Elegant trogons. We passed one of the ponds

that harbors remnants of a Ramsey Canyon leopard frog population that has suffered badly from the spread of chytrid fungus. Soon we left the trail, to scramble over loose rocks and to scale cliff faces looking for Banded rock and Black-tailed rattlesnakes that den up in the talus slopes for the winter. According to John, the Ridge-nosed stays in the forest floor habitat throughout the year and merely move up and down the canyon. At 9:35, John heard the rattle of a small Banded rock which crawled back into the rock crevices out of sight. We waited for awhile to see if it would reemerge. While waiting I watched Mountain spiny lizards scamper over the rocks and John shared some additional knowledge on the food habits of the species that we sought. Banded rocks feed heavily on the Mountain spiny lizards that abound on the talus. Ridge-nosed concentrate on small rodents (but will also eat birds, based on feather remnants in the stomach of the type specimen). The larger Black-tailed rattlesnakes feed on rock squirrels.

We finally gave up on waiting for the Banded rock to reemerge and continued to search the rock pile until 10:40. We heard one additional individual rattle but no snake was seen. Returning to the forested trail at an altitude of 6200 feet, we probably walked the same path that Frank Willard took as he climbed the mountain to a point just above Hamburg (ca. 7000 feet) and discovered the type specimen of the Ridge-nosed rattlesnake. As it turned out, we did not have to walk that far. John almost immediately spotted one of our quarry, basking in a patch of sunlight some 50' distant, blending in beautifully with the surrounding rocks, pine needles, oak and maple leaves. It was a 22" male (record size is 25.5") and one that John knew well, having found this individual every year since 1988. As it was an adult when first marked, he estimated the age to be 23 to 25 years old at this encounter. John had gotten to know this animal so well that he named it Dusty. Now looking at this animal through my binoculars, I could easily imagine the exhilarating thrill that Carl Kauffield must have felt on July 20, 1941 when he encountered his first Ridge-nosed rattler. Having now seen my first specimen, the next objective was to try for a decent photo. Would the snake disappear as I began to approach it? It was time to find out. Moving slowly forward while snapping shots through a 120 mm lens after each few steps, I made my approach. Nine shots later, I reached the point where he filled the frame, yet he still showed no sign of alarm. I stared for a few moments fascinated by the black and white striped face, the ridged nose, and the rich brown of the body. As I did so, Dusty crawled slowly and silently off into the litter and disappeared. My photos left something to be desired as, in most, his head was in shadow, his body was in the sun, and the tail was under debris. I have since taken better but, as these were my first of this species, they are special.

Later that day we encountered another smaller male (18"). So in one memorable day, I encountered as many Ridge-nosed rattlesnakes as Carl Kauffield did in his career. Two days later, on a Roger Repp led expedition, to the opposite side of the Huachucas, with Erik Enderson and Hans Werner, I got to see a third individual of this elusive species, thus leaving Carl in the proverbial oak leaf litter.

Francis Cottle Willard, the man who collected the type specimen of the Ridge-nosed rattlesnake, was born April 30, 1874 in Leipzig, Germany while his parents were traveling abroad. They returned home to Galesburg, Illinois where his father was a professor of Greek and German and later served as acting president and dean at Knox College. Frank also attended Knox from which he graduated in 1896. Shortly thereafter, he moved to Tombstone, AZ where he worked in his Uncle's general store and taught in a village school while he pursued his avocation of collecting and studying birds and their eggs. During the 20 years that he lived in Tombstone, he amassed a wealth of knowledge on southwestern birds and a large collection of their eggs. He published a variety of notes in the Auk, the Oologist, and the Condor on their nesting habits.

Like most naturalists of Willard's era, Frank did not confine his interests to a single group. He also collected herps in his travels around the Tombstone area and sent a small collection of these to the Field Museum in Chicago. Lizards included: *Cnemidophorus* sp., *Coleonx variegatus*, *Cophosaurus texanus*, *Crotaphytus collaris*, *Elgaria kingi* (6), *Eumeces callicephalus*, *Gambelia wislizenii*, *Hobrookia maculata* (3), *Phrynosoma douglassii*, *Sceloporus clarkii*, *S. jarovii* (5), *S. magister*, *S. scalaris*, and *Urosaurus ornatus* (2). Snakes included: *Crotalus lepidus* (2), *C. pricei* (3), *C. willardi* (1), *Hypsiglena torquata* (3), *Lampropeltis pyromelana*, *Masticophis flagellum*, *Salvadora grahamiae*, and *Tantilla nigriceps*. His collection contained but a single amphibian, *Hyla arenicolor*. Most of these specimens were collected in the summers of 1899 and 1900 but a few were taken in 1909. All were labeled Tombstone, even though many obviously came from higher altitudes. Presumably, most of these came from the Huachucas, Willard's favorite spring and summer hiking area.

Willard returned east in 1916 where he became a partner with another uncle in the Willard Sand and Gravel Company in Farmingdale, Long Island. He married in 1923 and had three children. Willard died suddenly of a heart attack in February 21, 1930. After leaving Arizona, Willard returned for at least one more field trip, on April 26, 1922 with the

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noted ornithologist A. C. Bent, to spend several weeks collecting and observing bird life.

Crotalus willardi was described in a 1905 publication by Seth Meek, Assistant Curator of Zoology at the Field Museum. Although Meek was best known for ichthyological studies, over his career he published a number of papers on amphibians and reptiles, including several on Western U.S. species, such as the aforementioned 1905 publication that described *Crotalus willardi* and *Crotalus viridis helleri*, the Southern Pacific rattlesnake. Meek's description of the Ridge-nosed rattlesnake cited Tombstone as the type locality. H. S. Swarth of the University of California, recognizing that the locality was likely in error, wrote to Willard to check. He was informed that a more precise locality for the specimen was the Huachucas and that Willard recollected finding it "a short distance above Hamburg in the middle branch of Ramsey Canyon." Swarth published this correction in *Copeia* in 1921.

Hence this small, attractive, difficult-to-find rattlesnake found a name and a type locality. The celebrity that it gained for rarity now seems less deserved as this little rattlesnake of the oak woodlands is not nearly as uncommon as Kaufield believed. Nevertheless, an encounter with a Ridge-nosed rattlesnake will likely remain a great thrill for any modern-day herper. It still is for John Porter, and he has seen more than anyone else that I know.

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CAN A SNAKE WALK?

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Six modes of snake locomotion have been described (Cundall 1987), two of which (lateral undulation and slide pushing) have no static points of contact with the substrate, whereas static contact occurs with the other four (rectilinear, concertina, sidewinding and saltation). Herein we report a fifth type of static locomotion.

On the evening of 29 May 2002, the authors encountered a 40-cm Western diamond-backed rattlesnake (*Crotalus atrox*) stretched out on Apache Pass Rd., Cochise County, AZ. As we approached the animal on foot it loosely coiled its body. We noticed loose folds of skin on the sides of the body, which indicated that the specimen might be emaciated and/or dehydrated. Considering that southern Arizona was in the midst of a severe drought, the authors decided to offer the snake some water by pouring small amounts of it on the animal's dorsum. When the water came in contact with it, the snake drew its body into a tighter basket-shaped coil. We had expected it to begin drinking water droplets from the top of its body because rattlesnakes have been observed to drink water in this manner in captivity. Instead, the snake retreated from us in novel fashion. Maintaining the tight coils, it wobbled away from us by alternately pushing off with the left and right sides of the body coil in contact with the ground. As one side contacted the ground the other was lifted slightly and pulled backwards. It appeared that only two zones of contact occurred during this unidirectional motion, which appeared deliberate and was repeated for several 'steps' until the snake had moved several feet away from us. The snake directly faced us during this process. This motion appeared to us to be as close as a limbless vertebrate can come to walking.

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