Memoirs of a Chiropterologist

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Memoirs of a Chiropterologist

I walked along the top oftlle Venetian fortification walls sUlToundingthe most ancient part of the city until I approached the lone gravestone which sat on top of the south bastion. dEv EMiJ;w -rlJIO'to.. dE <pO~6:f.lo.L-rlJIO'ta. El~aL AE<jrrEpO~. "1 hope for nothing. 1 fear nothing. I am free." These are the words Nikos Kazantzakis, arguably the most important and most translated Greek writer of the 20th century, chose to be remembered by. I stared for a while at the words engraved into the stone, and hoped I might reach this same optimistic and enlightened mentality before coming to my own death. The sky was dimming when I looked up from the tombstone at the broken vista of the sea past the horrifically ugly buildings of old Herakleion, signaling that it was almost time to start my first day of field work.

Panagiotis, my boss for the summer, led me across the top of the fortification wall and we descended the stairs on the east side. Panagiotis was conducting his PhD research for the University of Crete Museum of Natural History, cataloguing the echolocation calls of all of the bat species on Crete. For three months I would be helping him catch the bats he needed to complete his thesis, an internship a professor had found me the previous winter which fulfilled the field experience credits I still needed for my environment major. After descending the stairs, we entered the old moat, which is now dry and serves as a park and walking area for city dwellers. We walked until we reached a small, abandoned building, and sat down about twenty meters away, waiting for darkness to set in. Panagiotis took his bat echolocation call detector out of his bag, put his head phones on, and pointed it at the building, hoping the recorder would detect a population of bats living inside. I put on the head phones, familiarizing myself for the

first time with the world of clicks and squeaks which surrounds us every night, yet is inaudible to the unaided ear.

A couple days later, I left the loud and smelly city to catch bats for the first time, a much-needed release from the physical and mental burdens imposed on me by urban living. Panagiotis and I drove for an hour and a half through the mountainous Cretan countryside, coming to a stop on the side of a dirt road at the edge of an olive grove. I got out of the old, beat up Fiat, and put on my boots and work clothes. We scaled the side of a steep gorge, one of the hundreds which exist in Crete, looking for an easy descent through the spiny vegetation. Phrygana is the Greek term for this semi-arid scrubland ecosystem consisting of spiny, drought-tolerant vegetation which covers much of the Mediterranean Basin. Exposed limestone bedrock provides the substrate for the shrubby growth, interspersed with the occasional short oak or carob tree. An abundance of aromatic plants such as thyme, mint, and oregano provide yet another dimension to the beauty of the landscape, delighting the senses with a diverse array of scents with every few steps. Beautiful as it is, phrygana is essentially a made-made ecosystem, an ecological anti-climax formed in response to intense grazing pressure and the original deforestation of the sparse shrubby oak forest for cultivation.

Across the gorge was the acropolis of a small ancient settlement. I watched it as we descended the gorge diagonally to the river, half walking and half sliding down the eroding rocks and dirt. At the bottom of the gorge we reached a narrow river. We walked upstream along its edge for about fifty meters until we came to a small, man-made tunnel dug into the steeply sloping ground about eight feet above the water level. We put on our helmets and headlamps, and went inside, Within seconds the cold, dark corridor filled with startled, flying bats, They

flew back and forth frantically, brushing past my hair and running into my chest and stomach. Every time a bat flew into me, it turned a full 180 degrees in the air with such great speed that I was sure that the impact with which it hit me had not harmed it at all.

Within minutes Panagiotis had caught five bats with his hand net, and gave me each of them to put into little cloth sacks which I then tied shut. The rest of the bats soon flew away, out into the night to forage amongst the nocturnal insects which occur in great abundance over the river. We left the tunnel and walked about a hundred meters downstream, in order to make an easier ascent up the gorge through an olive grove which was on a much shallower slope. The moon was full and the starry night sky was bright. I did not need my head lamp to see the detailed features of every obstacle in this typical Mediterranean landscape, every rock, every shrub, every olive tree.

When we reached the car, Panagiotis took out his bat identification key to teach me how to ID the species we had caught. *Pipistrellus kuhlii, Myotis emarginatus, Pipistrellus pipistrellus.* After identification, we took DNA samples for lab analysis on the genetics of bat populations by removing a piece of skin from the center of each wing with a small, circular punch, and placing the little skin flaps into tiny vials containing alcohol. We then took morphometric measurements of each bat for Panagiotis' records. Finally, Panagiotis taught me to conduct the main part of his research, which was to help him obtain recordings of bat echolocation calls from individual, identified bats. I stood about ten meters away from him with each bat sack, and he faced me with the bat detector. I took out the first bat, waited for his signal, and threw it at him like a baseball. The throw needs to be hard enough to get the bat to

fly toward the person with the recorder, so that a good recording can be taken. If the bat is only lightly tossed, it may fly in the opposite direction and not provide a good recording,

Two days later, our next destination was a large cave with a colony of hundreds of bats, just outside ofthe city, Due to Crete's location at the center ofa series of highly active geological fault lines, it consists of a chain of alternating mountains and valleys which span across its entire length from west to east. The mountain of Giouchtas juts up out of a rolling agricultural plain seventeen kilometers south of Herakleion. It is the site of the ancient Minoan settlement of Myrtia, and according to mythology is said to be the burial place of Zeus.

Although the mountain is visible from Panagiotis' house, it took over an hour to drive around it until we reached the base of a cliff on the opposite side, In Panagiotis' anticipation of a big catch that evening, we came with four other people in two cars, We pulled off on a tiny dirt road and parked the cars on the outside of a gated fence, which was closed in order to keep goats within an area surrounding part of the mountain. After gathering our gear, we walked through the gate, closing it behind us. The slope of the eroded ground increased as we approached the base of the cliff, so we had to climb over some large, craggy boulders in order to reach the cave entrance which sat about ten feet above us, There are 5,000 recorded caves in Crete, and it is estimated that there may be up to_twice that number. This one, however, was the largest I had ever seen; Panagiotis told me he once spent ten hours exploring it and still had not seen the whole thing,

It was not yet dark, and there was some time to kill before the bats would emerge, I entered the cave with a Cypriot graduate student. We turned on our head lamps and crawled deep into the cave, exploring tunnels so small that I could only squeeze through them if I was

lying on my stomach. After a half an hour of exploring we again reached the cave entrance. After went back outside, I took a few paces back into the cave by myself and crawled up a hole through some boulders directly above my head. I emerged to find myself at another, higher entrance to the cave, covered in mud and wet limestone. I stood and watched the horizon as the sun set behind the mountains across the valley dotted with grape vines, olive groves and phrygana, turning the exposed rock throughout the landscape to a subtle shade of pinkish purple. The silence was pure and uninterrupted, the landscape still and captivating, reminding me of a quote I had once read that has never escaped my memory. "The twilight is the crack between the worlds."l As the pink sky faded to darker shades of blue and grey, I descended through the opening in the boulders and returned to the rocky outcropping where the rest of the group was waiting for me.

We set up two mist nets, one at each of two entrances to the cave. Soon after, the first bat was caught in our net. Minutes later, waves of bats began exiting the cave, becoming tangled in the nets at a faster rate than we could remove them. All six of us worked as fast as we could, trying to untangle bats as they fluttered, squealed, and screamed frantically, their futile efforts at escape only entangling them more in the net. For an hour and a half we removed them and tied them into the little cloth sacks, the jQb made harder by the gloves we needed to protect our skin from being punctured by the sharp and pointy teeth of the larger, stronger species. The largest ones had a look of fury in their small, black eyes unmatched by even the most vicious of dogs. As we handled them they thrashed, bit, and hissed with intense anger in their last resort attempts at escape, unwilling to cooperate until we tied them into the little sacks. When the bats had all

[1] Castaneda, Carlos. The Teachings of Don Juan: AYaqui Way of Knowledge. Berkeley: U of Cali fomi a P, 1998: 155.

left the cave for the night, we took morphometric measurements, DNA samples, and echolocation recordings of each of them. I threw them like a baseball once again at Panagiotis and his bat detector, one after the other until they had all been released. That night, we caught sixty-five bats representing five different species.

Three days later, we left the city early for the mountains. Mount Ida is Crete's highest summit. It lies in the midst of the Psiloreitis Mountain chain east of Herakleion, and contains the large cave where Zeus was said to have been reared. The Amari Valley lies below it, surrounded on all sides by the tops of the Psiloreitis Mountains. According to Panagiotis, the plain was fonned by a series of ancient caves which eroded so much that they finally collapsed, fonning a flat alpine plain between the high mountain peaks. It is both the site of an expansion of the ancient Minoan settlement at Phaistos and the location of the Battle of Crete during World War II.

We drove through the plain until we reached the edge ofa mountain with a view of the southern coast and the Libyan Sea. It was mid-afternoon when we got out ofthe car. This time, our mission was to hike to a large cave and retrieve an electronic data collector that Panagiotis had left deep inside a year before in order to monitor temperature and humidity. It was a site of seasonal bat activity, too high upjn !he mountains for the bats to stay during winter. We hiked for an hour and a half on a rocky trail through the sparse alpine Quercus forest, interspersed with the occasional shepherd's stone hut. The Quercus forests of Crete are not like the forests ofthe midwest, but consist of widely spaced, small oak trees growing straight out of the rock, no more than ten or fifteen feet tall, with very little underbrush.

The elevation of the trail remained fairly constant until we reached a small plateau under the cave, where we ascended steeply about 100 meters. The arching cave entrance must have been about thirty feet high and fifty feet across. We entered the cave and descended into the cold, wet darkness. After a thorough search Panagiotis retrieved the data collector, and reported the current temperature at 8 degrees Celsius. Mission accomplished, we exited the cave, back into the sweltering heat of the Mediterranean sun. We delayed a few moments to take in the scenery; the southern Libyan Sea shone bright and blue far below us. As we hiked the hour and a halfback to the Amari Valley, I realized what I could not put into words until I saw it in a book I would read a year later. "The best thing about travel... is that it's difficult to be consumed by the past against the backdrop of a fresh landscape."2

When we reached the car, I hiked to the top of one of the smaller mountain peaks. The limestone rocks between the Quercus trees were all very flat and stacked on top of one another, forming natural steps which I walked up like a set of stairs. On top of the peak I could see the mountains in all directions and a glimpse of the sea to the south, and I stood there for a few moments in silence. When Panagiotis called my name, I ran back down the rocky steps to his car. We drove for about two hours through the mountains to a river in the Quercus forest of Rouvas, one of the largest intact fore_sts on the island, where we met a group of three Czech biologists who were waiting for us there. As we set up four mist nets over the river, the pink evening sky cast its daily light purple color on the montane landscape. There was no sound but the trickle of running water and the strong winds rushing forcefully through the short, stubby trees. After catching eleven bats, we started a fire and indulged the night in the typical Cretan

2 Harrison, Jim. Returning to Earth. New York: Grove Press, 2007. Print.

way, stuffing ourselves with fire-cooked pork and wine which Panagiotis' parents had made. That night, I slept under the stars, on top of a picnic table near the river.

A few days later, Panagiotis decided he wanted to investigate a cave and a warehouse which supposedly contained some bats in Agridia, the hometown of an acquaintance named Dimitris. Panagiotis and I waited in the car on the side of the road in Herakleion for Dimitris, who he knew through the speleology club. When his car pulled up, we followed him up the windy mountain road deep into the heart of Psi lore itis. When we arrived at his house in Agridia, he got out of the car with a dreadlocked friend named Stavros. He went into his house and brought out some fresh peaches and apricots that his family had grown, which I ate happily. After eating my fill we got back into our cars and drove to the summit of a nearby mountain, upon which sat a 17th century monastery. We walked into a beautiful courtyard with a few lemon and olive trees. No one was there, not even the priest. lance again found myself in a position to have a beautiful 360 degree view of the mountainous Cretan landscape. Around the courtyard there were some buildings which housed monks in past times; some were being restored and others were still in ruins. I walked into the small church on the opposite side of the courtyard. Inside there were candles lit on a small table, upon which also sat some brochures about the history of the monastery. 8ecause they were written in the old Katharevousa dialect I could not understand much of what they said, but I took a few anyway.

I exited the church and walked around to the back of the largest building, where I found a newborn puppy in a cardboard box with a small bowl of cheese and yogurt inside. It was scared of me at first, but soon wanned up. I played with it for a while until I thought I heard my name called, when I put it back in its box and returned to the court yard. Dimitris had picked an

artichoke, and was looking for a lemon to eat it with. We sat down at the small stone table in the corner of the courtyard, and ate the artichoke with some salt and olive oil that Dimitris had taken from inside the church. He took four shot glasses and a plastic bottle full of raki, the typical Cretan distilled grape liquor, from his bag. I thought we were at the monastery for bats, but apparently it was just a touristic side~trip, which Panagiotis was less than pleased about. After we were significantly buzzed from the raki, we got up and descended the road to the cave which Dimitris had said contained the bats. It was a small cave, and the most interesting thing we found inside was a pile of some human skulls and bones, with only a couple bats flying around.

The sun was below the mountains when Panagiotis left the cave to record bats outside the entrance, most of which he said did not come from inside. He was only able to record for about ten minutes before Dimitris pressured us to go down to his house for dinner. I guess Panagiotis has an even harder time with confrontation than I do, so we spent the next couple hours stuffing ourselves and getting drunk off raki and wine. Every time I finished a chicken leg there was another placed on my plate; every time I finished my drink I was poured another one. The family's Cretan dialect was extremely difficult to understand; their hospitality was nonetheless communicated through the constant flow of food and drink which they more or less forced upon me for over two hours. While Panagiotis grumbled about his lack of data collection that night on the drive back to Herakleion, referring to it as a scientific failure, I marveled in my drunkenness at the string of events which had just presented itself to me. The pristine beauty of the view from the monastery, the playful little puppy, the archaic human remains, the fruitless attempt at a scientific endeavor. Despite Panagiotis' complaints, I didn't care that we never made it to the warehouse that day.

It was not until weeks later, toward the end of the summer, that the significance of my summer internship came to fruition in my mind. My Greek professor from the University of Michigan, a biologist who studies lizards in the islands of the Aegean, invited me to take a break from bats to go to a five-day herpetology conference on the island of Lesvos. After spending a week on Lesvos, he asked if I wanted to delay my return to Crete for yet a few more days in order to help him catch lizards in the Sporades archipelago in the northern Aegean. Two days later, we were on the island of Alonissos in the Sporades, preparing to catch lizards for his ongoing research.

The National Marine Park of Alonnisos Northern Sporades is the first established national marine park in Greece and the largest marine protected area in Europe. Piperi, the easternmost island of the Sporades, has no inhabitants and is the most strictly protected island of the park. Access is completely prohibited without special pennission. This is due to the fact that it is prime habitat for the highly endangered Mediterranean monk seal, *Monachus monachus,* which nests in the wave-cut caves carved into the rocky cliffs that drop over a hundred meters straight down into the sea. We left Alonnisos in a speed boat at 4;30 in the morning the day after arriving, and two and a half hours later pulled into a small bay of Piperi. There was no beach, just cliffs raising straight up out of the water all the way around the island. We climbed a steep dirt path that ascended laterally along a more traversable ledge of the cliff W1tilwe reached the more shallowly sloping ground of the island, which is completely forested with pine trees.

I caught lizards with my professor all morning, until the bright Aegean sun became too hot for them to be active. As my professor took measurements and recorded data of the lizards we had caught, I took a nap on the forest floor. My own level of activity that day was in synch

with that of the lizards, just as it had been with that of the bats all summer long in Crete. This was a new, more specific type of connection with nature that I had never before realized until that moment, that summer. I was no longer working for the credits I would get the next fall for my internship, which had nothing to do with lizards. I had not even graduated, yet my environment major had already provided me with the means to go where I want, and do what I want in the world. As I lay there in the bed of pine needles on the forest floor of the island of Piperi, I for once in my life felt free of the need to hope or fear anything, confident that I had found my place in the world of science.

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