



By Sam Matey, June 17 2019

Sam's Madagascar Volunteer Blog #5: Tena faly miasa ity (I am very happy working here).

Saturday and Sunday: the Mananjary Excursion

On the weekend of the 17th and 18th, the volunteers and graduate students of KAFS took a one-night, two-day excursion to the nearby seaside town of Mananjary. We traveled by taxi-brosse, the universal “buses” (in reality greatly overcrowded but surprisingly comfortable and highly individual vans) of Madagascar. More traveled volunteers than I noted similarities, in the improvised yet functional mode of mass transport, with the jeepneys of the Philippines and the guaguas of the Dominican Republic. We sent out biweekly reports (and I sent out my last blog) with the blessedly speedy local internet connection, restored our tissues with delicacies such as crepes and pizza, and savored the softness of beds, rather than sleeping bags, at the superb Hotel Sorafa. Sadly, we could not swim in the Indian Ocean, due to the local waters' probable high levels of fecal coliform and other impurities, but we could gaze upon its majestic waves and stroll along the sandy beaches. I furthermore greatly savored the opportunity of cataloguing some of the littoral life on iNaturalist. I had not earlier written of my preoccupation with iNaturalist, though those of my readers who know me in person will doubtless have heard me speak on the subject. It is a simply extraordinary and profoundly admirable citizen science platform, accessible through a free app available on Android and iOS, through which anyone may upload a photo of any life-form for the use of nature-lovers and scientists. It recently surpassed 25 million such observations, from around the world. In Mananjary, I added to their number observations of stately coconut palms, striking pink Chinese hibiscus, sea almond, the wizened and curious beach she-oak, and, last but not least, ghost crabs from the genus *Ocypode* (pictured). They were abundant on the beach and fascinating in their habits. They dug deep holes in the intertidal zone, wide enough to enclose a man's thumb, and were reticent of company, scurrying back into their demesnes when passersby strolled within a few meters. Yet I noticed the movement, and I walked between two of them and squatting down, holding my phone in a photo-ready attitude and





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endeavoring to remain as immobile as possible. Soon, they began to creep cautiously out of hiding, startling back down at any movement. I was entranced by their alien beauty, and seemed to see in them representatives of another civilization entirely, some science-fictional Silurian confederacy of malacostracans. I was gratified by the opportunity take a few decent photos and upload them as data points to the great scientific republic of iNaturalist.

Yet despite all this-despite sea breezes, interesting fauna, and the hotel's luxuries-I was not altogether happy in Mananjary. Indeed, it was overall perhaps the most stressful and trying time I have had in Madagascar so far. This is no fault of the hotel, the environment, or my companions, but the natural mental consequence of one of those little vicissitudes of travel that after the fact are deemed adventures but in the moment are infernal inconveniences. It happened as follows. All the volunteers had run through most of the ariary they had got at the airport (on paying for the taxi-brosse to bring us to Mananjary, street food in Kianjavato, etc.) and we all went to the bank Saturday morning to use the ATM. The first Mananjary bank's ATM would not accept my debit card, nor the cards of many the other volunteers, and we moved on to a second one. That ATM also did not answer, but this time I resolved-unwisely, oh so unwisely, as it turned out!-not to give up so easily. I entered and re-entered my PIN, selecting different amounts of money to withdraw each time, to see if that made a difference. Conceive of my astonishment and distress when after a few such trials, the ATM withdrew my card into its mechanical bowels and sent up the message "Your card has been locked." Upon inquiry within, with a helpful and commiserating English-speaking bank clerk, we learned that it was the customary security policy to annex any card which had been tried without success for three consecutive times, due to the high risk of fraud in the area. My card was already unusable in Madagascar, logged in the bank's system as part of some criminal endeavor. It had been locked and wiped, and would be sent back to the address encoded upon it-in America! There was no chance whatsoever of getting it back.

As I had withdrawn only 420,000 ariary or so at the airport (a seemingly prodigious sum, but only about \$120) and had spent most of that on hotels in Antananarivo in the first week, I was utterly bereft. I had only a few thousand ariary on my person-the merest small change-none at KAFS, and no means of acquiring more. For thirty or so dreadful minutes, I was in the position of being without money in a foreign land, where I must stay for the next eight weeks, and with no apparent means of acquiring more. I was grateful that meals at KAFS and my return ticket were prepaid, yet I agonized over the space of time in between. I couldn't have paid for my dinner at the Mananjary hotel, let alone the taxi-brosse back, or the hotel in Tana at the end of the trip, or any other expenditures which might arise. It is a most disturbing sensation to be, however temporarily, effectively penniless.

In time, of course, we arrived at a solution. Dakota Wagner, one of my fellow volunteers, with great generosity of spirit offered to withdraw as much cash as I required from his personal account. I salute the man for his instinctive kindness



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and open-handedness, entirely in keeping with his essential nature. Resolving that he should not wait for repayment, I waited until the time zones were in alignment that afternoon, and texted my parents details of the situation. They had access to my account, and could wire money to Dakota's via Venmo in repayment. So Dakota withdrew several hundred thousand (a hundred thousand is *hetsy*, in Malagasy) ariary for me, was repaid via Venmo, and by the evening I was solvent in liquid currency again. Viewed in hindsight, the matter didn't even deserve the status of a problem, merely a temporary inconvenience. Yet it was a bad few minutes, a dreadful sinking feeling, and without a doubt, from my perspective, one of the most personally disturbing events that has yet occurred to me in Madagascar. Despite the pleasures of Mananjary, I was glad to return to the forest-driven rhythms of KAFS.

Monday: Yoda and the Kilasy Anglisy

Monday was a perfectly lovely day. After the worries of civilization, waking at 5:30 and sauntering through the forest by 7 had all the welcoming charms of a homecoming. We followed Yoda of the Northwest One group (I love the lemur names) in the forest that day. However, it took a while to home in on his signal, and before we found our follow individual, we were treated to the heartwarming sight of Ghost (of Northwest Two) grooming her mother, Phoenix. (Pictured above, with Ghost's pale fur mostly hidden from view). Family linkages among the varibolomavo, especially

between mothers and children, are strong, with much mutual grooming, playing, and feeding together. We tracked Yoda in the morning, and in the afternoon I taught another kilasy anglisy (English class), as I have done every Monday and Wednesday since my second week at KAFS. I teach "Basic English," for those who have little or no experience in the language, as I speak enough "Basic Malagasy" to make myself understood. Other volunteers teach advanced English





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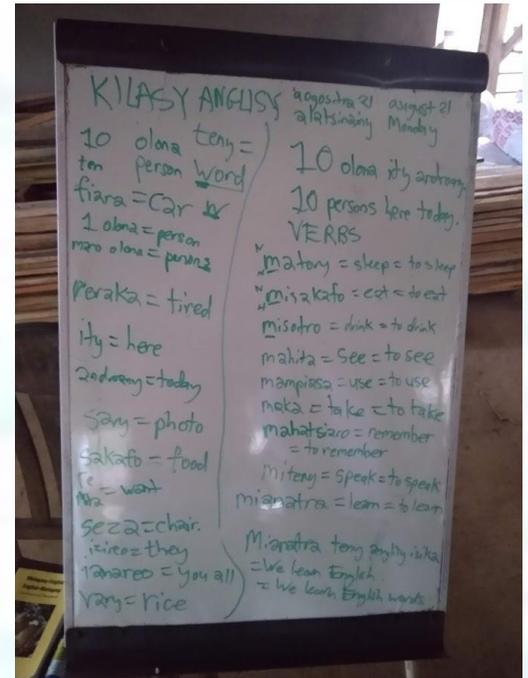


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classes later those afternoons. My mpianatra (students), are mostly KAFS staff: groundskeepers, nursery workers, and so on. I feel we are becoming friends, and I am always happy to see Gaston, Andre, Harango, Peta, Taddy, or any of my other longstanding students around during the course of the day.

Not only do I have the gratification of sharing a valuable skill with local personnel, but it is an excellent opportunity for me to improve my Malagasy. The Malagasy language is in many ways more logical and easier to learn than the English. The primary point of difficulty is mastering their unusual verb-object-subject (VOS) sentence structure, completely different from English and Latin languages' subject-verb-object (SVO). In VOS, the thought that in SVO would be written "I eat rice" is expressed "Eat rice I," and "We saw lemurs" as "Saw lemurs we." Other aspects, such as verb tenses, are considerably more logical in Malagasy than in English. All verbs in the present tense start with "m", all in the past tense with "m," and all in the future tense with "h." Compare the English "ate, eat, will eat," with the Malagasy "Nisakafo, misafako, hisakafo," and it is easy to see which is the clearer and more memorable system of verb tenses. I felt almost apologetic



having to explain that there was no simple rule for designating a verb as past tense in English, and that you had to memorize such variable forms as "slept," "ate," "drank," and "used," for "sleep," "eat," "drink," and "use." For now, I'm mostly sticking with present-tense sentences in the class, to try to get a solid understanding of the main verb, which English speakers will recognize even if misused.

That Monday, however, I made a rather amusing blunder. I had asked Rasolo in the field that morning what was the Malagasy word for people ("people" in French). He said "vahoka," and I wrote it down, and used it on the whiteboard at the class, when I said we had "Folo vahoka ity androany." I thought this meant ten people here today, but it didn't. "Vahoka" in fact means "purple," which Rasolo had doubtless thought I meant. My class was too polite to inform me of the mistake, and I only found out later when I attempted to use the word in a different context. Rather than mystify them still further, I looked up the word I wanted-olona, for people-and used that at the Wednesday kilasy anglisy. We are now progressing fairly well with simple sentences of pronouns, numbers, and a few verbs, adjectives and nouns, along the lines of "We have twenty trees," or "You all use chairs" or "I want to drink." I hope to be able to impart a decent conversational vocabulary by the time I leave.



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(Nota bene: the pictures of the whiteboard and me with the class are from the English class I taught the following Wednesday, the 21st).

Tuesday: Orana ary Masoandro (Rain and Sun).

Tuesday the 20th, we woke to the sound of pounding rain, and a damp and dreary morning. Conversation at the breakfast table centered on our luck to have come during the dry season, when such days were a rarity, rather than during the wet, when this sort of weather could last for weeks. Once I joined the varibolomavo team in Kianjavato, we headed into the forest, doubtful about our chances of collecting any substantial amount of data. We walked through the foothills of Sangasanga for no more than two hours before calling it quits at 9 AM. The lemurs were doubtless all hidden under the massive leaves of the pothos vines (a favored refuge), immobile and invisible sheltering spheres of fur. We knew this from the start, but by 9 the lemurs would be settled in for their midmorning rest anyway. The faint hope of finding them in the rain, if they chose to be active, had dwindled to an inconsequentiality. We determined that “Tsy harita gidro isika androany, noho ny orana” (we weren’t going to see lemurs today, because of the rain), and returned to Kianjavato, then by MBP van to KAFS.

In the contrary way of the weather, no sooner than fifteen minutes after I had returned the clouds cleared to reveal a bright, sunny, warming day. The sun is masoandro in Malagasy, literally “day’s eye,” and a beautiful day is described as “Tsara ny andro.” I dried my clothes, and soon my spirits began to rise greatly, even above the level they had been at before the rain began. I had been plagued for the previous week by a horrible-sounding, hacking, incessant cough, a legacy from the brief but intense cold I was struck down with a few weeks ago. It did not interfere with my work (I did learn the new Malagasy word of “mikohaka,” “to cough,” as a consequence) but it gave me the disagreeable feeling of being run-down, a semi-invalid. My conscience also shackled me with the reminder that given the cough, it would be the prudent thing to take it easy, and exert myself as little as possible. I dislike taking things easy, and I prefer to exert myself as much as I possibly can. That Tuesday morning, once the sun had come out, I realized all of a sudden that the cough had entirely gone, and I felt perfectly healthy once





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more. I was so enthused and invigorated that I ran up the hill to my tent site (slowing quite a bit near the end, I admit) and did twenty or so push-ups on the spot, simply for the joy of being able to do so without “coughing up a lung.”

(Pictured: KAFS in the sunshine).

I spent the vast majority of that unexpectedly leisurely Tuesday in a hammock on the balcony of the KAFS main building, reading Patrick O’Brian’s *Post-Captain* on my Kindle. It is a magnum opus of a historical novel, a rich and thrilling five hundred-odd pages, and I read it in its entirety that day over the course of six or seven hours. It had a man disguised as a bear to escape from Napoleon’s soldiers in it, and Austen-esque Regency British social turmoil, and detailed naval battles, and a scientist character who catalogued the wildlife along the way. I heartily recommend it, and shall certainly read more from the same author once I return to the States. I also wrote a portion of this blog (the part dealing with Mananjary) that day, and eventually retired to my tent rested and refreshed.

Wednesday: Demeter, Tavy, Ala Madagasikara (Madagascan Forests).

On Wednesday the 21st, we tracked Demeter, of the Northwest Two group. She spent the hours of the follow in near-complete repose, resting with Juvenile Female, her daughter from the 2017 season, on a branch. They groomed each other rather sweetly on occasion, but barely moved from their appointed spots. We logged the fewest GPS coordinates that day than any other I can remember: I wrote “Same GPS” in my notebook again and again.

While the somnolent lemur dozed on, I pondered the broader importance of the dense wealth of vegetation I saw around me, reviewing in my mind my ecology classes at USM and all the extra reading I had done. Tropical forests are formed at equatorial latitudes due to the favorable climate (i.e. long-term temperature and moisture levels) and have an interesting and rather counterintuitive effect on the nutrient concentrations, or “richness” of the soil below. (Allow me now to digress into certain elementary ecological principles doubtless familiar to many of my readers). From a biological perspective, the truth wealth of a land is its nutrients—the chemical elements essential for life. The six elements that compose most of an Earthly life-form’s mass are carbon (C), hydrogen (H), nitrogen (N), oxygen (O), phosphorus (P) and sulfur (S): CHNOPS. (If you’re wondering how this squares with the oft-repeated factoid that the human body is mostly water, recollect that water is composed of H and O). Potassium (K) is also needed so critically that it is classified with N, P, and S as a “macronutrient.” Oxygen and carbon (in the form of carbon dioxide) are generally readily available from the air through respiration, and hydrogen (and some more oxygen) from water. Nitrogen, though making up seventy-one percent of Earth’s atmosphere, is not as readily available as oxygen (due to its having one fewer valence electron and thus a lower electronegativity: long story). Its primary source is nitrogen-fixing bacteria, which have evolved a



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symbiosis with certain plants, such as legumes, which feed and shelter the bacteria in their roots, in exchange for a share of their nitrogen harvest. Phosphorus, potassium, and sulfur are ultimately obtained only from minerals, from weathering of rocks. Liebig's Law of the Minimum states that the nutrient least available in a given ecosystem, the "limiting nutrient," is the one that will have the greatest effect on the structure of the resulting species community. If nitrogen, potassium, and so on are plentiful, most of the plant life will be competing for phosphorus, and the richest growth will be observed in patches of phosphorus-rich soil. If the limiting nutrient is no longer rare, the entire ecosystem will change. The classic example is of phosphorus-limited freshwater lakes: if phosphorus is added, perhaps from fertilizer runoff, it will soon become dominated by opportunistic algae. (I must also make note at this point of the vast array of micronutrients: elements also necessary for life, though in miniscule quantities. These range from calcium (Ca) to iron (Fe) to magnesium (Mg) to Zinc (Zn), with more elements being discovered to be biologically useful regularly. As so little of these micronutrients are needed, they are rarely-though not never-limiting nutrients).

With this as a background, we may look at the specific case of Madagascar. In tropical forests, thanks to the climactic conditions favoring great vegetative increase, most of the nutrients in the topsoil have long since been taken up by plants (and their mycorrhizal fungi partners) and incorporated into living organisms. Due to the great wealth of life and biodiversity in these ecosystems, death in the rainforest is but the first stage of rapid nutrient cycling. A corpse or a fallen log will be eaten by scavengers or detritivores or be colonized by parasites or new sprouts within an ecological eyeblink. In tropical forests around the world—from Brazil to the Congo to New Guinea—most of the nutrients of the ecosystem are not in the soil, but in the biota, the great glorious tangle of trees and vines and bushes and animals on top of the soil. The really fertile soils of the world, like the great breadbasket of central North America, arise from grassland ecosystems, where there is relatively little plant mass above the soil to absorb nutrients. Thus, around the world, when tropical forests are logged for conversion to farmland, it is an inherently wasteful and illogical practice (in addition to being wanton destruction of a valuable, oxygen-producing, species-rich, and beautiful ecosystem). All of the wealth of the land is carted off in lumber, and the remaining poor soils will only sustain a few years of farming before they'll require heavy artificial fertilizer inputs (nitrogen from the Haber-Bosch process, phosphorus from mines) to remain productive. And Madagascar has lost 90% of its original forest.

Unfortunately, due to certain characteristics of Malagasy history and geology, this island-continent nation has its own unique problems, in addition to the general rapacity affecting tropical forests worldwide. From the perspective of surficial geology, Madagascar may be seen a great unbaked brick studded with occasional outbreaks of harder rock. Red clay underlies the topsoil seemingly everywhere. Personally, I see it daily: in road cut-throughs, heavily trodden trails, even inch-deep holes, red clay peeps through. This isn't particularly a nutrient rich type of soil to start with. Since it's a



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clay, meaning that the soil particles are below a certain specified size, there's barely any pore space between the particles, so it can't hold much water either. Wide pore-space gravel or organics-rich humus will soak up water, but pour it onto clay and most of it will wash right off. The thin topsoil, and much of the clay, are held together by plant life in the manner of plant life everywhere. Roots serve as the broad skeleton holding the soils in place, the mycorrhizal fungi partners that extend the roots' reach for nutrients tenfold are a nerve system threading through the land, sticky glycoproteins secreted by roots act as an organic glue (and incidentally sequester quite a lot of carbon, a valuable consideration in the Anthropocene), and bacteria and archaea teem along the lot. A handful of proper soil, from a healthy forest or meadow or scrubland, is an ecosystem in its own right. In Madagascar, this life-giving layer is painfully thin to start with, a beret of bountifulness enclosing a clay head and body. It's not the ideal location for widespread agriculture, and a few events in the twentieth century have pushed this situation to the breaking point.

Tavy is the Malagasy term for slash-and-burn farming, the practice cutting and burning down forest, and using the land (and the nutrients left in the ash) to grow crops. Under the right circumstances, this can work, as a sort of mimic of wildfire disturbance regimes, though it's far from ideal. It requires a low population and-vitality-ceasing to use the resulting plots after a few years, carving out new ones instead, and letting them grow back into forest. For without trees and roots and regenerating biodiversity, the crops will use up the poor residue of nutrients left in no time, and the lightest rain will wash the topsoil away. For centuries, the vast majority of the Malagasy people sustained themselves

with tavy, as many still do today—over 70% of the population, the highest proportion in the world, are classed as “subsistence farmers.” By the side of the road in every part of rural Madagascar I have seen, from the outskirts of Antananarivo to Kianjavato, there are always, always, rice paddies, and often as not denuded hills in the distance, overused tavy plots of the past. (Pictured: land recovering from tavy in the foothills of Vatovavy. Picture taken on Friday).





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The big difference now is that there are a lot more Malagasy than there used to be. In the twentieth century, advances in medical technology, from vaccines to antibiotics, transformed human life, and the trickling down of even the basics to Madagascar has reduced infant mortality immensely. This is of course inherently good, laudable, and noble. But the Malagasy culture (mostly Catholic, and still very respectful of traditional practices) is rather resistant to birth control, and the culture has not yet shifted in favor of smaller families as it has done in Brazil, India, South Korea, and other countries that underwent similar transformations. This has led to a population explosion, from a few million in the 20th century to ten million in 2000 to an astounding twenty-five million today. As Madagascar is still a least developed country by world standards, many of these people are fed through tavy, and there simply isn't enough land to allow regrowth. Thus, the destruction of the rainforest. The result of this incredible denuding has been erosion, erosion omnipresent and massively consequential. After every rain, the rivers of Madagascar run red with soil (and nutrients!) being lost. For the last few decades, after major storms or sometimes just in the normal course of events, you can see red leaking out to sea from Madagascar on satellite photos, making it look like the island's lifeblood is bleeding out- which in a very real way, it is.

What societies need to do in situations like this, of course, is change agricultural practices, like American farmers (with the help of FDR's Soil Conservation Service) did after the Dust Bowl. Crop rotation, letting land lie fallow, keeping trees along riverbanks as buffers against erosion, avoiding farming on steep erosion-prone hillsides, use of nitrogen fixing plants to prepare the ground for crops, and so on. I don't pretend to be any sort of agricultural expert, but I know enough to know that there are a lot of options beyond "go out and burn down another piece of forest." Unfortunately, tavy is more than an agricultural practice to the Malagasy, it's a national symbol. When Madagascar was ruled by the French, colonial administrators tried to ban the practice of tavy, in order to ensure a ready supply of forced corvee labor for their indigo, vanilla, and rubber plantations. The right to tavy was one of the major causes of the failed Malagasy Rebellion of 1947, and after independence in 1960 tavy, from what I can gather, attained a "motherhood and apple pie" status that made it politically untouchable.

All of this makes Madagascar sound hopeless, but that, as I can state with authority, it most evidently is not. For one thing, it's an impressively unitary, peaceful place. That rebellion in 1947 was the last major outbreak of violence on the island-most African countries have had a dozen civil, ethnic, and international wars in that time span. For a second part, Madagascar recognizes-really recognizes, not just at the government level but at the town and individual level-that wildlife and wild ecosystems are valuable, not just intrinsically but as nuclei for ecotourism development. The great conservation sites of the island-Andasibe National Park, Ranomafana National Park, the Berenty Reserve-are also richer areas, where the locals gain money, status, and jobs as guides, hoteliers, handcrafters, and so on. Kianjavato is well on



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its way to becoming one of these meccas: MBP alone employs dozens of people in its nurseries, as guides, and at KAFS, and pays hundreds more for participation in planting events. As tourism grows, ancillary businesses in the region will prosper too. Joseph's, a bakery and general store near KAFS, is already a coveted destination for volunteers. And many, many Malagasy I have worked with, from Fredo, Theoluc, and Rasolo to young Peta in my English class, are deeply committed conservationists who want to protect their country's heritage and build its future through restoring its land and preserving its wildlife. There's amazing stuff happening in Madagascar, and an incredible amount at stake. To circle back to my thoughts as I watched the dozing Demeter, I know already that I'll be coming back to this country.

Thursday: Telo Karazana Hidro! (Three Lemur Species!).

August 22nd was a red-letter day of lemur-watching. I had previously only followed the West One/Two, Northwest One, and Northwest Two varibolomavo groups, and that day I asked Theoluc to join the researchers following the East Two group, on the other side of Sangasanga. We saw some more beautiful country on the saunter after their radio signal, and once we homed on the collar of Max, the dominant male for East Two, we were treated to a truly astounding sight. Within ten or so trees, in the same immediate area, we could see not only *Prolemur simus*, but a visiting group of *Eulemur rufifrons*, and-seizing my breath in shock-a male and a female of that shy and little-seen species, *Eulemur rubriventer*. Three species of these unique primates in the same field of view, by all the gods! One of them, the rubriventer, was a new species for me. And, amazingly, there was no animosity, no angry territorial chattering, just everybody keeping to their own bit of tree and watching the others. It was a peaceful mixing of groups from three species, going about their business.





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So might humans, Neandertals, and Denisovans have met and mingled, traveling across the steppes and forests of Pleistocene Eurasia.

(Pictured: the male of the *Eulemur rubriventer* pair looking at me, both *E. rubriventer* in a tree).

Later at KAFS, I told anyone who would listen that “Nahita telo karazana gidro izahay androany!” We (exclusive) had seen three species of lemur today. I added in French “A le meme lieu, a le meme temps!” (at the same time, at the same place!) to underscore the unusualness of the experience.

Our focal animal for that day was Hopper, a female who had a baby with her. Not all the time, though: shortly after the three-species mixing, before the varibolomavo fully broke off to go their own way, I spotted Hopper and another female, Marie, on their own on a branch. Their babies were off a little ways, and the two females could just spend time grooming each other, having a little “mom moment.” I remembered a similar scene last week, when Juno, Moira,



and Stella of West One-Two ate jackfruit together, their babies safely ensconced among the bamboo a little walk away. As an aside, the females of East Two are named after famous women scientists: the two I observed grooming each other evoked computer genius and Navy pioneer Admiral Grace Hopper and double Nobel laureate and discoverer of radioactivity Marie Curie. (Pictured: Hopper, I think).

Later, when the greater bamboo lemur group fed on their eponymous bamboo, I snapped a photo of the species they were eating and uploaded it to iNaturalist. Conceive my surprise when the app informed me that the species, golden bamboo (*Bambusa vulgaris*) was in fact native to China! Although MBP research has shown that the staple food of the Kianjavato greater bamboo lemurs is *Valiha diffusa*, a different bamboo species, many species of bamboo are present in the area. I mentally docketed it as another example of immigrant species benefiting the endemic lemurs.



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Later, we stood on a trail chatting and watching East Two feeding from a different patch of bamboo, Rasolo related to me the story of one of the group's males, the radio-collared Dobby. I reproduce it here, as it captures something of the flavor and variety that can occur in a varibolomavo's life. Dobby had been born in one of the Western groups, probably before they united, the son of a female named Tonks (now deceased). Later (I'm not sure, but I think after his mother died), he lost a fight with Lando, the dominant male of the newly formed West One-Two, and dispersed to find a new group. He eventually settled in on the other side of Sangasanga as a subordinate male of East Two, under Max. While here, he lost his right eye in a cyclone, perhaps to a jutting branch or flying debris. I didn't get a picture of him, but he presented an eye-catching almost piratical aspect, with his empty eye socket, lively living eye, and antenna'd radio collar. With such material-politics, journeys, cyclones, predators such as hawks and fossa-I feel that the lives of these lemurs deserves a literary epic, something like the existing *Watership Down* for rabbits or *Frightful's Mountain* for peregrine falcons.

Friday: Snow and Tsi-Tsidy

On August 23rd, instead of joining two of the Sangasanga-focused Malagasy researchers (Rasolo, Hery, Mamy, and Marolahy) as I usually do, I was directed to the foothills of Vatovavy to join Berthin and Delphin. This "Woman Rock" mountain is the highest in the immediate vicinity, breathtakingly beautiful, and lends its name to the local district of "Vatovavy Fitovinany." (Pictured: Vatovavy, with ravenalas in the foreground). I should love to climb it sometime during my stay, but on this day I stayed low, among the ravenalas



and golden bamboo groves that are the favorite haunt of the varibolomavo. The collared *Prolemur simus* in the area of Vatovavy have been given the names of *Game of Thrones* characters (readers will remember that in my first week we



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were looking for Tyrion's group). On that Friday, we were following Snow, patriarch and sole adult male of Snow's Group. We found him very quickly, in the forest on the fringes of some open land that was recovering from tavy. In addition to Snow himself, his group consists of his three mates, Arya, Olenna, and Brienne, their three infants, and a few juveniles. Possibly due to the presence of fewer other lemurs in the immediate vicinity, Snow's group seemed remarkably cohesive. They did not mix with any other groups or species while we watched, and a cursory review of the data revealed that they were regularly to be found at their full strength, all members present, a rarity for the constant splitting and re-melding Sangasanga groups. The family feasted on bamboo and vohampika leaves, and drank heartily from ravenala flowers, as was customary for *Prolemur simus* groups in the early morning. After a period of rest in mid-morning, they woke again around noon.

In due course, the group was feeding in a little grove of bamboo, with ravenala and other trees around the exterior and the lemurs spread across fifteen meters or so of branches and stalks. Berthin, Delphin, and I stood watching them all, with Snow, our focal animal, high in a tree. Out of nowhere, two of the babies-



think Olenna's Baby and either Brienne or Arya's Baby-jumped to a stalk of bamboo barely ten feet in front of me to get a better look at these strangers (pictured). Olenna's Baby came first, spent two minutes or so just looking at me, twisting its head around the stalk to get a better look. Once he (or she) left, the other baby took over, curious what its (probable) half-sibling had seen that occupied it so.



the weekly anthropocene



dispatches from the wild, weird world of humanity and its biosphere

By Sam Matey, June 17 2019

There is an incredible quality to viewing greater bamboo lemurs in the wild that I have not yet been able to adequately define with words. Every moment spent with them seems to be on a higher plane, a different sort of experience altogether, than ordinary life. It is the same feeling I get when deeply entranced in the observation of any life-form, from a red oak to a glossy ibis to a common eastern bumblebee, but raised to a higher degree by the lemurs' complex, angry, and loving social behavior, their status as humanity's evolutionary cousins, and the simple expressiveness in their eyes. There is a leaping in the heart, a song in the soul, when viewing them, a consciousness that these are special moments that will come again all too rarely, and should be treasured. It's different from seeing pictures or reading even the most descriptive and vivid of books: there is something staggering to a mind used to CGI movie-monsters about the tangible realness, the incontestable actuality, of these elfin lemur-folk, these dryads in the flesh. These sort of moments, when one of the painfully adorable and enchantingly curious babies come to look at you, bring this feeling to the highest pitch. Wishing to share some of this specialness, this near-sacred exceptionality, with the outside world, I sacrificed precious seconds of eye contact with the lemur-babes to take a few photos, but made sure to hoard a few moments for myself, a little mutual contemplation that no others would share. And then some twig cracking under my foot or threatening movement of my body scared them off, and in sequence they bounded off to shroud themselves from view in a veil of delicious bamboo leaves once more.

That afternoon and evening I spent entering six follows' worth of behavioral, census, and social *Prolemur simus* data, and in so doing I noticed that I had not written of one important facet of varibolomavo behavior: scent marking. Every so often, one of the lemurs, almost always the dominant male, marks a tree with his scent, using glands on the chest, tail area, or arm. We log the GPS of all of these occasions, and I am sure that somewhere on a computer back in the States a map is taking shape of the olfactory "territorial markers" of the Kianjavato-area varibolomavo. I hope to see it sometime.

Another fascinating event that Friday occurred in the morning in less than a minute, while the three of us were sauntering after the canopy-traversing lemurs. Berthin pointed towards a stalk of bamboo in the distance, and said "Mouse lemur." Excitement even beyond my normal enthused state during varibolomavo-tracking pervaded my being at once. A mouse lemur, of the family Cheirogaleidae, the group including the smallest primates in the world! I knew what to look for. The Kianjavato region's local species of mouse lemur was is *Microcebus jollyae*, named after the great primatologist, lemur conservationist, and author Alison Jolly, and is orange furred. Sure enough, I saw a rusty orange chipmunk-sized form scurrying down the bamboo stalk towards the ground-and my heart leapt as I noticed a second such form following. "Roa tsi-tsidy!" I cried. Two mouse lemurs! Berthin grinned and nodded. I only saw them for half a minute or so, and didn't get a picture, yet I feel blessed with a fragment more of insight into these extraordinary



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creatures. It was the sixth species of wild lemur I had seen (after *Prolemur*, *Varecia*, the two *Eulemur*, and the aye-aye), and the third day in a row that I could proudly use one of my favorite Malagasy utterances: “Tena faly aho, nahita gidro betsaka isika andorany.” (I am very happy, we saw many lemurs today!).

Saturday

The 24th was a day off, spent entirely at the Kianjavato Ahmanson Field Station. Rather more restful, at least for me, than the last weekend’s Mananjary trip. The volunteer cohort, Dana, Soumaya, Claire, Dakota, and myself, spent most of the day on the balcony of the KAFS building. To use the French expression, we had “la flemme,” a general disinclination for work. (The expression takes its name from the medieval idea of the four humors, with phlegm being the humor of laziness). We passed the time in reading, entering a little leftover data, writing this blog (in my case), knitting and sewing (in others’ cases, as I seem to lack the manual dexterity required for those arts) and talking about each other’s lives, careers, and experiences past present and future. I logged a Madagascar bulbul (*Hypsipetes madagascarensis*) on

iNaturalist. It was sipping nectar from the same ravenala tree overlooking the balcony on which we had photo’d a stunning Madagascar green sunbird (*Cinnyris notatus*) a week or so earlier (pictured).

Other common birds of KAFS include crested drongos (*Dicrurus forficatus*), instantly recognizable as the only all-black birds in Madagascar, and the Madagascar magpie-robins (*Copsychus albospecularis*), adorable little passerines black save for a white belly and wing-stripe. We also, of course, were entertained by multitudes of



striped day geckos, sunbathing on any available out-of-the-way surface. At night on this balcony, there are almost always pale, spotted Farquhar two-toed geckos (*Hemidactylus mercatorius*) clinging to the walls in their unending quest for insect nourishment. At KAFS, one barely needs to leave one’s hammock to see a little cross-section of the nation’s biodiversity.