Sinharaja | Ian Lockwood

Posts Tagged ‘Sinharaja’

From Reef to Rainforest Part 2 (Sinharaja)

with one comment

OSC's annual Geography IA field study combines face-to-face interviews in the Kudawa area with biodiversity encounters in and around Sinharaja's rainforest. Students worked in small teams to interview a broad range of respondents and learn about their home gardens, and lives in a challenging economic situation. The emblematic Sri Lanka Blue Magie (*Urocissa ornata*) is a species that we saw at our guest house (Martin's Jungle Lodge) and heard on the edges of the forest boundary during the course of the fieldwork.

Within a week of returning from the Maldives (see previous post) I was in the field again- this time in the northwestern edges of Sri Lanka's Sinharaja rainforest. This was the 19th OSC group that I have brought here (not including DofE teams). Villagers and Forest Department officials protecting the World Heritage Site are familiar with OSC groups and our studies are based on these relationships. Four of the students who had been on the Maldives field study were also in the Geography class, so the five of us were really immersed in field-based experiential education in May! Our goal was to conduct a household survey that would help students write individual internal assessment reports. This year's cohort included six students with the support of three adults. Desline Attanayake was back again providing key logistical support and helping the students to make bridges with the community. Our friend Sushma Sen, a former KIS & Woodstock teacher who has been working in the OSC math department for the last two years, joined us. This year's field study was characterized by solid data collection (we ended up with 58 complete surveys), relatively good weather (with almost no rain during the days) and rich encounters with a variety of people and rainforest creatures.




SINHARAJA

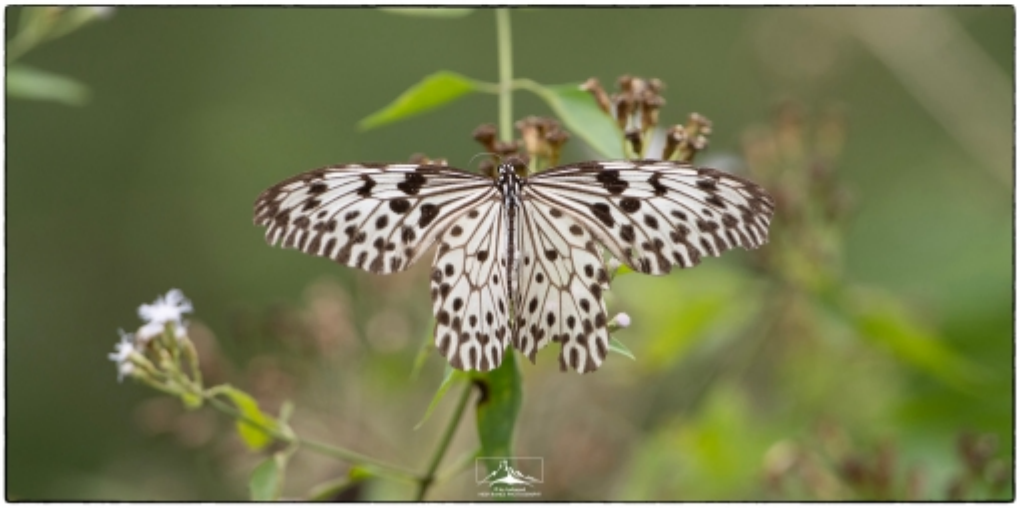




Portraits from Kudawa (clockwise from upper left): Desline and Mali on the trail to the Sinharaja research center, the artist Iresha and her husband at Kudawa bridge, guide Ranjit sporting a new Sinahraja t-shirt, Sushma going to see Sri Lanka frogmouths, the author and the six Class of 2024 students, Inoka the granddaughter-in-law of Martin Wijesinghe, Indramanaya cooking up (exceedingly delicious) *pol-rotis* on a granite slab, owner at the spurfowl home at Katala Patala. Bottom: A classic home garden scene with a traditional adobe house (the owners have moved into a cement block home while keeping the older structure intact).

Setting the Course

I usually try to visit Sinharaja and stay at Martin's once or twice in the months preceding our Geography field study. This year I went in February and was accompanied by several friends including Nirosha, Rumeth & Priyanath. This spring trip was more personal and allowed me to focus on getting pictures of birds, amphibians and other species. It is also a time when migrants are sound and there is potential to see and photograph rarities. Many of the species from this post were photographed on that visit. It was surprisingly wetter in February than May-the complete opposite of what you would normally expect.



Sinharaja amphibians and butterflies (taken in February). From top: Long-snouted tree frog (*Taruga longinasus*), Purple Mormon (*Papilio polymnestor*), Ceylon tree nymph (*Idea iasonia*) Hallow snouted shrub frog (*Pseudophilautus cavirostris*)

Primary forest on the Moulawella trail.

Primary forest ground level on the Moulawella trail.

Agrostistachys hookeri sapling on the Moulawella trail.

Sri Lanka Green Pigeon (Treron pompadora) on furiting fig tree above Kudawa.

Crimson-fronted barbet (Psilopogon rubricapillus) on fruiting fig tree above Kudawa.

Square-tailed bulbul (Hypsipetes ganeesa), a regular visitor at Martin’s verandah.

Giant-wood spider (Nephila pilipes) on a roadside trail in Sinharaja. Note the minuscule male at the center of the image.

Common Survey Analysis & Findings (thus far)

My approach to gathering sufficient quantitative data for the Geography IA continues to involve using a common survey with a variety of questions that help each student answer their own fieldwork (research) question. We now have a pool of standard questions that stay the same every year -this allows longitudinal analysis. Students then add their own questions focusing on themes of energy, overall wealth, education, health and resources. There were significant findings from the 2023 survey. Firstly, students gained an appreciation for the hard work and challenges of running a home garden in Sri Lanka. Secondly, we saw that there had been a spike in electricity costs mirroring national trends. Tourism to Sinharaja is still recovering and visitor numbers are not yet back to pre-pandemic levels. Further analysis is underway as the students crunch the numbers over the summer. They will hand in rough drafts that I give feedback on before the final IA is submitted in October.

Examples of the home gardens near Kudawa. Virtually every plant in the garden serves some useful purpose that helps farmers be close to self-sufficiency in terms of food needs.

Lara and Shinara interview the artist Iresha at her shop in Kudawa.

Maya and Chirath explore a disused traditional adobe home. Most houses are now made of concrete bricks with asbestos roofs.

Hand-painted t-shirts with Blue Magpies created by the artist Irehsa and sold at her shop in Kudawa.

Collecting data on the Survey 123 app. We didn't have cell phone reception during most of the fieldwork but data was stored and then loaded up when we got back to Colombo. Students also kept a written record of each interview.

Woodfire at Martin’s. Most families rely on wood as their primary energy source. Dead wood can be collected sustainably and this frees them from relying on relatively expensive natural gas.

Home gardens are small private holdings where families practice a combination of subsistence and (small-scale) commercial agriculture. The home of Kudawa almost all depend on tea, grown on relatively small plots (1 -2 acres). Families are versatile and creative with other crops that they grow (manioc, banana, cinnamon, papaya, coconut etc.). Self-sufficiency in a time of economic challenge is a benefit but home gardens struggle to stay out of poverty. The 2019 import ban on key inputs (fertilizers and pesticides) greatly affected yields- something that our results showed. Several families now have one or two members that work as Forest Department employees or as private guides. This collage shows a work shed of a home garden near Katala Patala.

VIDEO INTERVIEWS

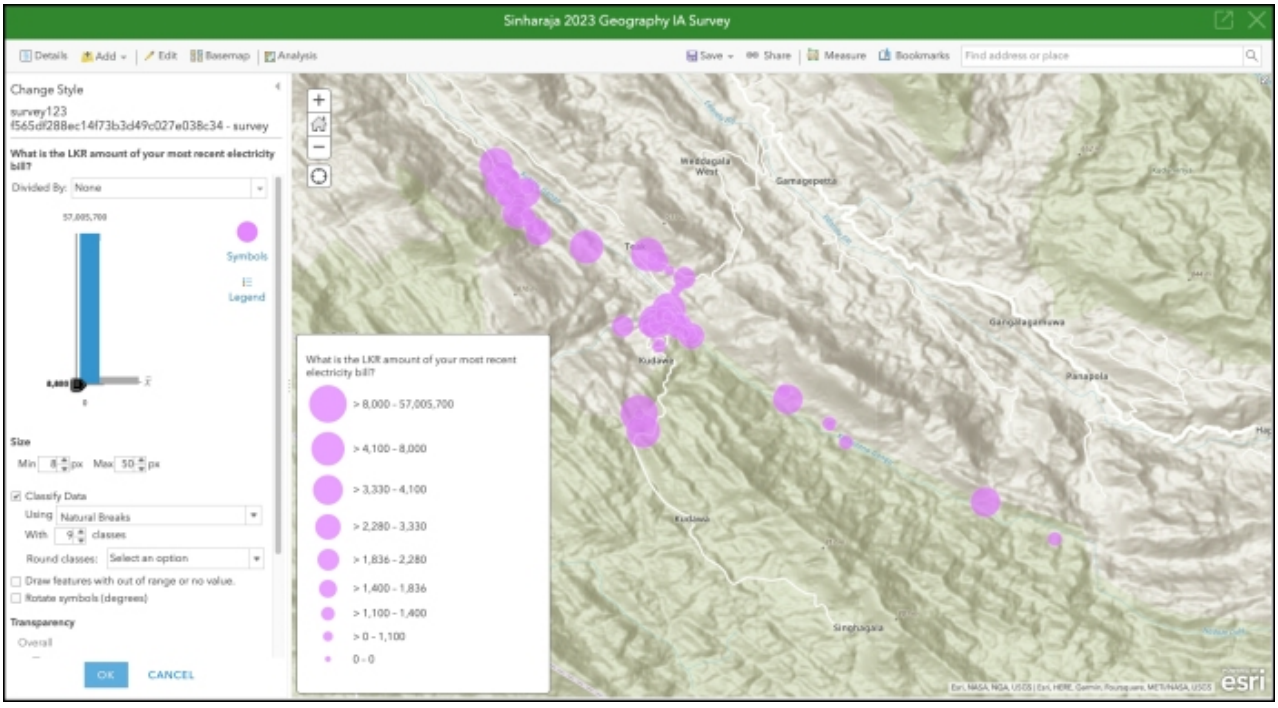
Watch Video At: https://youtu.be/zh7VEIjKzJ8

Watch Video At: https://youtu.be/JSSNZyVuqY8

Watch Video At: https://youtu.be/gpNOe00wHiU

Watch Video At: https://youtu.be/3A9-IEgFrPU

Watch Video At: https://youtu.be/h413usEyr_8



Map from ESRi's Survey 123 showing responses from the IA survey on electricity usage in 2023.

MAP OF 2023 WALKS

https://www.google.com/maps/d/u/0/edit?mid=1Lu6WJfXJlcK8_gNKtjcFds06YvhLYNg&usp=sharing

2023 OSC Geography class with their teachers, Chandralatha, her sister & Chamara the guide at Martin's Lodge.

PAST BLOG POSTS ON SINHARAJA IA

Geography IA Trip 2007

Geography IA Trip 2008

Geography IA Trip 2009

Geography IA Trip 2012

Geography IA Trip 2013

Geography IA Trip 2014

Geography IA Trip 2015

Geography IA Trip 2016

Geography IA Trip 2017

Geography IA Trip 2018

Geography IA Trip 2019

Geography IA Trip 2020

Geography IA Trip 2021 (Cancelled because of COVID)

Geography IA Trip 2022

General Sinharaja Reflections

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Written by ianlockwood

2023-06-26 at 9:57 am

Posted in Around Sri Lanka, Biodiversity Hotspot, Birds of Sri Lanka & the Western Ghats, School work, Sinharaja

Tagged with IB DP Geography, Overseas School of Colombo, Sinharaja

Remembering Martin Wijesinghe (a Personal Narrative)

leave a comment »

Martin Wijesinghe
(1939-2021)

Poster of Martin Wijesinghe. The picture captures a rare mischievous smile taken in 2015 during an OSC DP Geography IA visit. The three endemic species were all photographed within sight of his guest house while he was alive. (all photos by the author).

In November last year Martin Wijesinghe passed away at the advanced age of 82. He was and continues to be intimately associated with the remarkable story of the protection of a logged forest that became the resplendent Sinharaja Man & Biosphere reserve. This large area of lowland and montane tropical rainforest in the Rakwana hills of south western Sri Lanka was a bleak and unappreciated landscape five decades ago. The forest was the site of industrial logging before a hard fought non-violent citizen's campaign in the 1970s put a stop to that plan. Nearly 50 years later, Sinharaja has made an astounding recovery, illustrating the resilience of nature to recover after harmful human activities. Martin lived through this period of transition serving in the agency that sought to profit from timber and then becoming a guardian and voice for its conservation.

In Sri Lanka, Martin's story is the stuff of legends. He worked in the Forest Department serving in a variety of roles. He started as a cook but when his sharp naturalist skills were recognized he extended himself into guiding and supporting researchers who were studying forest dynamics and species in the early 1980s. He had interactions with leading scientists such as Professor Balasubramaniyam, P.B. Karunarathne, Nimal and Savitri Gunatilleke, Peter Ashton and Sarath Kotagama. My understanding is that it was Professor Kotagama that encouraged Martin to set up a guest house for bird watchers in the early 1990s. Uditha Wijesena's blog post from 2016 on Martin details these facets of his beginnings as a conservationist. By the turn of the century Martin was known as the man to go to if you wanted to know about Sinharaja.

Snapshots from my first visit to Sinharaja with Anna Lockwood in March 2000. From top: catching a ride to Sinhagala with a researcher (note the open roads that are now under the forest canopy), Ian with Martin after one of the long hikes, with the two Finnish birdwatchers on the veranda at Martin's place. (photos taken by Anna Lockwood)

Early Personal Forays

I first heard about Martin through publications from the Oriental Bird Club (OBC). In the mid-1990s I was dipping my toes in the world of serious birdwatching and become a member of the OBC. Birding complimented my interest in natural history, landscapes and efforts to document their changes in key South Asian habitats. I had just started working as a teacher in Bangladesh and one of my first steps was to invest in a pair of Leica Trinovid binoculars (a purchase that took a good year of saving to afford). On weekends I started going on birding expeditions with the towering pioneers of the field in Bangladesh including Dave Johnson, Paul Thompson, Ronnie Halder and Enam Ul Haque. Their stories and articles from the OBC's journals led me to Thailand and also helped me better understand the unique birds of the southern Western Ghats. In 1997 the OBC published a thin but enormously valuable supplement entitled *A Birdwatcher's Guide to Sri Lanka (part of OBC Bulletin*). The pamphlet written by Gehan de Silva Wijeyeratne, Lester Perera, Jeevan William, Deepal Warakagoda and Nirma de Silva Wijeyeratne

emphasized the importance of Sinharaja as the key site to visit for most Sri Lankan endemics and notable species. In those days there was only one place to stay at in Sinharaja and it was run by a man named Martin.

In April 2000 my cousin Anna and I found ourselves negotiating rough, monsoon-gouged roads in an uncertain direction towards the Kudawa entrance of Sinharaja. Sri Lanka, its food, culture and people were familiar because of our family's long connections in the northern areas of the island. Our grandfather Edson had been a birder accompanying Sid Bunker on many an outing in the wetlands and coastal areas around Vaddukkodai in the 1940-60s. Now a half century later the grandkids were on their own adventure in a very different part of this diverse island.

The route to Martin's was not clear and our van driver was new to the area. At the time, Sinharaja was far off the beaten path for most tourists. The driver became quite agitated in the final few kilometers as the old logging road wound its way up through small home gardens and tea plantations from Kudawa to Martin's place. It took 4-5 hours from Colombo (today we can do the trip in 2.5 hours thanks to the vastly improved roads). Upon arrival we were greeted by Martin and his family. His place was simple with 3-5 rooms that were grouped around his family home and a plot of tea on the edge of the forest. There was no power or solar-heated water but we were in a superb birding location. A partially covered verandah with a dining table was where we spent most of the time when we weren't walking. It overlooked the edge of secondary forest that had been logged three decades earlier. Across the valley towering emergent trees created a wall of undisturbed rainforest vegetation. We sipped tea and waited for different feathered delights to fly over. Anna and I dedicated four days to Sinharaja and had a chance to explore the key trails to the Research Center, Sinhagala and Moulawella peaks. In the evenings we spoke with Martin, enjoyed the company of two very serious Finnish birdwatchers and tallied our lists of species seen.

In 2005, married to Raina and with our son Lenny aged 18 months, I returned to Sri Lanka to teach IB Diploma Geography and Environmental Systems at the Overseas School of Colombo. Previous to my arrival, there was low enthusiasm for conducting the required IA field work. It was an anxious time as the war was raging in the north of the island. In my job interviews I proposed conducting the field work using the safe and homey location of Martin's as a base. Laurie McLellan, the Head of the School, seemed interested and perhaps my enthusiasm for both Sinharaja and Sri Lanka helped secure my contract. On my first visit with students in October 2005 I was lucky to be able to request Professor Kotagama and his PhD student Chaminda Pradeep Ratnayake to accompany us. That really helped as I started to establish learning and data collection routines for the students in the forest. Over the years the focus of the data collection has gone from ecology-oriented studies to looking at human interactions in the landscape outside of the protected area boundaries. The learning experiences were successful (we recently completed the 17th IA study) and we continue to come back for annual studies-usually in May at the end of the DP1 academic year.

Martin’s Forest Lodge played host to OSC classes over the final 16 years of his life. The place grew in a somewhat haphazard manner; new rooms were added and the verandah area was enlarged. Around 2018 grid electricity was extended to Kudawa. Sadly the home-made dynamos that Martin had rigged up went into disrepair. Meanwhile the secondary forest grew and today there are virtually no signs of the ravages of the logging in the 1970s. When you stay at Martin’s it is a true home stay and after a few nights you are part of the family. That family is now global and includes most serious birders and naturalists who have visited Sri Lanka as well as the many Sri Lankans who visit regularly. I always enjoy interacting with other visitors who have come to Martin’s with a similar approach to escaping the city in search of Sinharaja’s serenity and enormous diversity. I’ve crossed paths with Deepal Warakagoda, Sarinda Unamboowe, Michal & Nancy van der Poorten, Vimukthi Weeratunga, Uditha Hettige, Dulan Ranga Vidanapathirana, Mevan Piyasena and many others while at Martin’s.

Martin has left us with a legacy of love and respect for Sinharaja and Sri Lanka’s rainforests. Through his life and efforts so many of us have learnt to love what previous generations might have dismissed as a leech-infested, jungle only worth its weight in timber.

Over the years OSC geography students have had a chance to speak with Martin and learn more about his experiences in Sinharaja.

OSC students from the class of 2020 speaking with Martin. Luca asking questions next to Rashmi and Anouk. Josh and Arnav are also seen while Savi, Seth and Neha are out of the frame. Taken on the delayed IA study that happened in September 2019.

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Written by ianlockwood

2022-03-01 at 8:20 am

Posted in Around Sri Lanka, Sinharaja

Tagged with Martin Wijesinghe, Sinharaja

Sinharaja: The IA Must Go On

with 2 comments

OSC's class of 2021 DP Geography class. Standing from left: Kevin, Satwik, Imandi, Talia, Ashvini, Rukshi and Rika. Kneeling: the author and Rashmi (Class of 2020). Photograph courtesy of Desline Attanayake

In Sri Lanka, we have been living through an age of disruption-first with senseless bombing in April 2019 and then with the ongoing COVID-19 pandemic. The impact to the island's tourism industry has been profound. Flights were canceled in the spring of 2020 and the country went into lockdown. At the time of writing the country was experiencing being called a 2nd wave of the virus. This all had an impact on Sinharaja, the resplendent rainforest that has a thriving, low-impact model of ecotourism at its two major entrances. It has served as a place for exploration and learning both at a personal level and for my students of the Overseas School of Colombo.

The IA Must Go On

In hindsight, the first quarter of the 2020-21 school year experienced a relative lull from the pandemic storm and we ran face-to-face classes. During that time I was able to take my small cohort of seven Class of 2021 DP Geography students to Sinharaja to complete their fieldwork for their Internal Assessment (IA). The final report they produce is an

important milestone along the 18-month journey of the course. It normally counts for between 20-25 % of their overall grade but because exams have been canceled two years in a row, the IA is the only piece of work that the IB has to assess students. This school year it is slated to count for 35% of overall grades but it is likely that it will have a greater impact on how grades are allocated. Many schools have been forced to cancel field work and we were fortunate to be able to squeeze our trip in when the COVID situation was relatively stable.

We had four days based out of Martin's Forest Lodge. Desline was able to support the trip and we were supported by Rashmi who had just graduated and knew the data collection routines really well. Both of them enjoy birds and other creatures and we were a strong team. During our time the students were able to conduct 59 separate interviews in four teams of two. They used Survey 123 again and were able to explore the impact of COVID on lives and tourism. Over the next few months, they processed and analyzed the data, mapped their sites and then produced final internal assessments (IA) reports. The GIS maps that students use to support their data and analysis had to be created in January during a relatively brief period of face-to-face teaching. Given that IB exams were cancelled this year it is gratifying that they had such rich experiences to build their internal assessments on.

Satwik & Ashvini interviewing a tuk-tuk driver in western Kudawa.

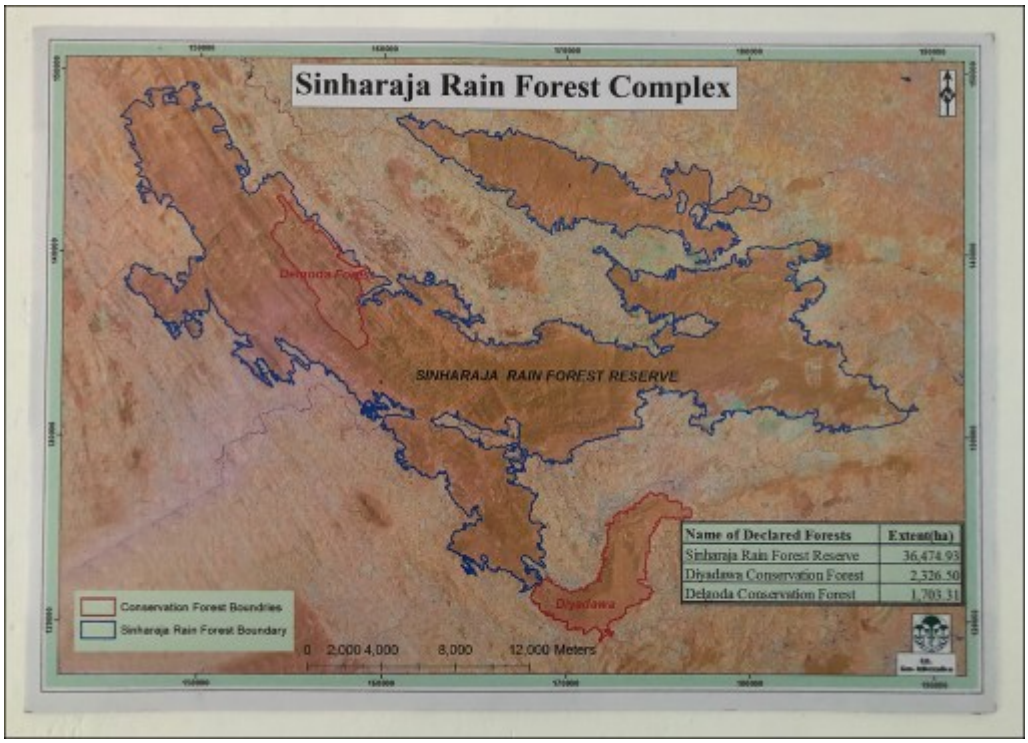
Talia & Imandi interviewing a family on the road to the west of Kudawa. They make a living growing tea on a small parcel of land.

Talia & Imandi interviewing Sunil, one of the most senior guides working at the Kudawa entrance.

We got caught in a downpour looking for pit-vipers on the trail leading to Sinhagala. Talia & Imandi are prepared with an umbrella and jacket.

Ashvini & Rukshi on the Sinhagala trail as we retreated back to the research station in the rain.

Thilak, Sinharaja's talented and well known private guide, clears a tree that had fallen across the road leading to Martin's lodge.



Forest Department Map of the Sinharaja Rainforest Complex showing the updated boundaries from 2019. This and several other maps are on display at the Kudawa entrance.

Home Garden near Kudawa village showing a mix of tea, coconut and other crops. The ridge above has a mix of Pinus sp. plantation and secondary forest with Alstonia macrophylla.

Scrub areas on the Sinharaja buffer near Kudawa being prepared for a new generation of tea plants.

Tea fields in a home garden in the area west of Kudawa village. Typically a field of tea is supplemented with a variety of other fruit and vegetable-bearing plant like this papaya tree. The shade tree is Gliricidia sepium, which is nitrogen fixing and used as an organic nutrient supplement.

The recently painted bus stand shelter pays artistic tribute to the denizens of Sinharaja. The COVID pandemic has forced a steep drop in visitor numbers.

Past Blog Posts on Sinharaja

Geography IA Trip 2007

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This post updated in November 2024

Written by ianlockwood

2021-01-01 at 12:00 pm

Posted in Around Sri Lanka, School work, Sinharaja

Tagged with IB Geography, Internal Assessment, Overseas School of Colombo, Sinharaja

Sinharaja 2019 Geography IA Field Studies

leave a comment »

Serendib Scops Owl (*Otus thilohoffmanni*) on the Sinharaja boundary. Spotted with the excellent help of Warsha and the good company of Desline, Luca and Rashmi.

In April this year the unprecedented attacks on churches and hotels shook the stability and relative peace that Sri Lanka has enjoyed in the ten years since the conclusion of the Civil War. One of the minor impacts of the events was the suspension of field trips for almost all schools, including OSC. That meant a delay in the annual field study that I have

been running in Sinharaja since 2005. My students were disappointed but they understood the situation and I made plans to conduct the study in the early parts of the 2019-20 school year.

The students in the Class of 2020 IBDP Geography class are a special bunch: they enjoy each other's company, love to engage in field work (regardless of leeches and wet conditions) and are not fazed by time away from their mobile phones. The group of eight includes class clowns, aspiring activists, experts in GIS, individuals determined to get good grades and several dedicated birdwatchers. There are five Sinhala-speaking individuals who played a key role in the interviews that are at the heart of the data collection.

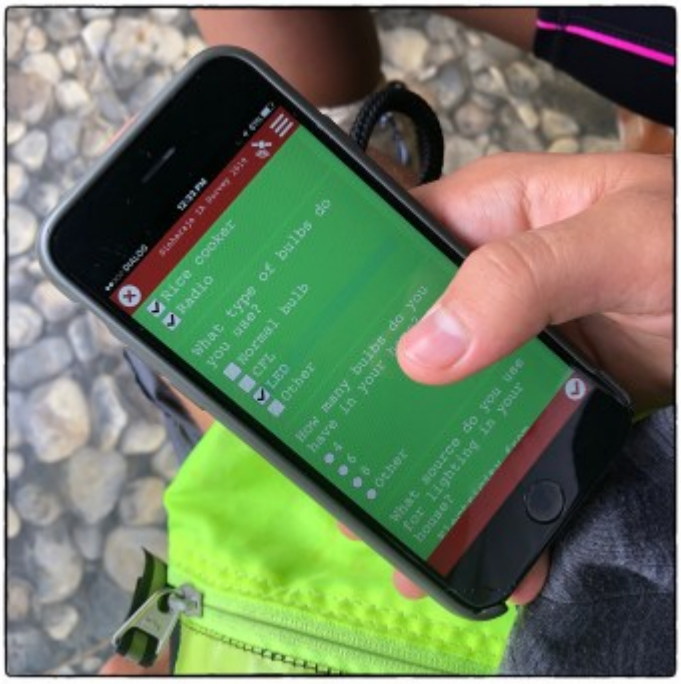
In September, after receiving the green light to conduct our field work, the class packed up a bus and headed south to Sinharaja. There we spent four days conducting field research in the home gardens on the north-western edge of Sinharaja rainforest. OSC's logistic coordinator Desline Attanayake provided support in the interviews and fully took part in all aspects of the study. We hired four Sinharaja guides each day and they were essential in leading us through home gardens and helping the students to better understand the area. Some of them like, Chandra (Sri Lanka's 2nd female guide in Sinharaja) , have been working with OSC groups for more than 10 years and they know our format and aims well. All of the surveys were gathered on foot in rain or shine. We now have a deep and intimate relationship with the area. The Kudawa village and forest on this side of Sinharaja offer ideal conditions for student learning, inquiry and field work on socio-economic, tourist and land-use themes. Martin's Wijesinghe inimitable Forest Lodge, was once, again the base of operations. We appreciate the forest access and family-like atmosphere that he extends to our OSC groups.

Savi (and the team) interviewing Martin's Wijesinghe at his Forest Lodge.

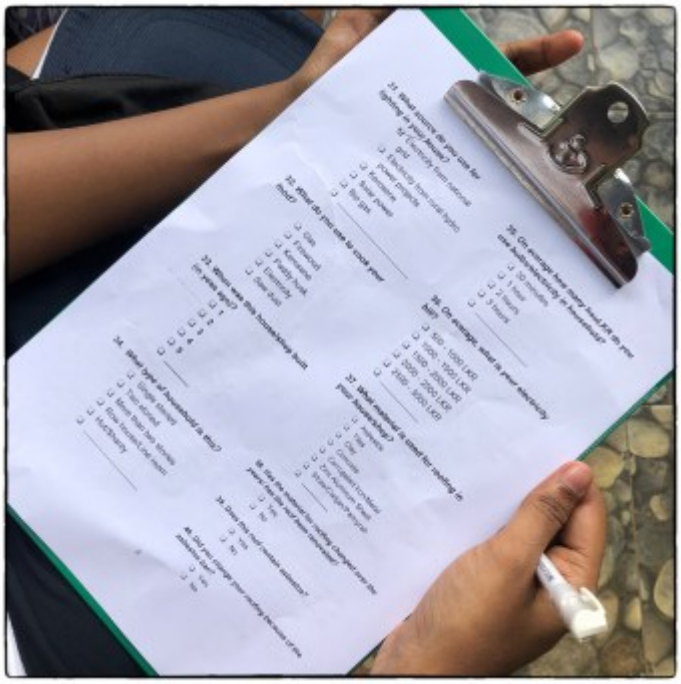
Part of the Class of 2020 after an interview near the Kudawa primary school.

Rashmi & Joshua in the midst of interviewing a farmer at his home garden.

Aarnav & Anouk interviewing a man (Martin’s son actually) near Kudawa.



Collecting data in digital format.



Collecting data in paper format.

Surveying Sinhraja from the top of Moulawella peak

Pseudophilautus sp. (to be identified) near Martin’s.

Hypnale hypnale in secondary forest beside the road.

Hammerhead worm in lowland rainforest.

Nisaetus sp. on the road up from Kudawa to Martin's Forest Lodge. I'm not 100% sure of the identity of this individual. Most likely a Changeable Hawk Eagle (*Nisaetus cirrhatus)* but also possibly a juvenile Legge's Hawk Eagle (*Nisaetus kelaarti*).

Each of the students explored an individual geographic research question but pooled all of their sub-questions into a single survey that small groups could run. The actual survey of 48 questions could take up to 20-30 minutes with introductions and a look around their properties. The respondents were gracious with their time and several teams were invited to have refreshments. With four different teams going in different directions we collected 55 different interviews. Once again, we collected responses using Survey 123 a GIS-enabled data gathering app that all the students could run off their phones (we also recorded every response on paper). This allows students to map their results and do basic spatial analysis on the findings using ArcGIS, the GIS software package that they are learning to operate.

The view south from Moulawella Peak. I take this composite panorama of Sinharaja rainforest canopy every time I have the privilege of sitting on top of this beautiful mountain. Soon after, the first drops started to fall on us and we headed down.

Sri Lanka Green Pit Viper (Trimeresurus trigonocephalus) that was found in a fruit tree beside Martin's Forest Lodge.

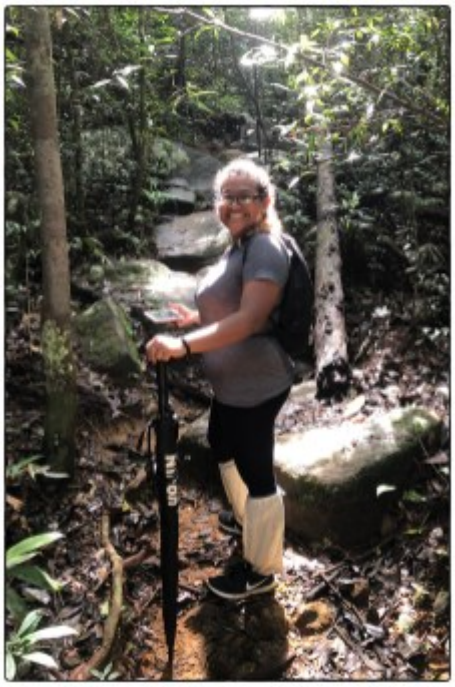
Southern Whipping Frog or Long-Snouted tree-frog (Taruga longinasus). With all the rain during our trip, I was confident of seeing this the endemic lowland rainforest frog. However it took a lot of looking and listening. Luca and I finally found a pair on the last night walk on the road below Martin's.

Southern Whipping Frog or Long-Snouted tree-frog (Taruga longinasus).

Another view of the endemic Serendib Scops Owl (Otus thilohoffmanni) on the Sinharaja boundary. Spotted with the excellent help of Warsha and the good company of Desline, Luca and Rashmi.

Crossing a stream on the way back from a remote home garden.

The annual group shot, with a slightly different take this time.



Savi on the trail up to Moulawella peak.

In addition to conducting the surveys, students got a flavor of being ecotourists in a tropical forest. They walked the different forest trails, encountered birds, snakes and spiders, and soaked their feet in jungle streams. Before returning to Colombo on Saturday we hiked up Moulawella peak to take in the full extent of Sinharaja. It was a challenging adventure and we encountered mid-morning shower that thoroughly soaked the group on the descent. But all members of the team made it up and down safely. A highlight of the trip was having an encounter with the rare and endemic Serendib Scops Owl (*Otus thilohoffmanni*). It helped round off an exhilarating adventure in geographic learning.

Past Blog Posts on Sinharaja

Geography IA Trip 2007

Geography IA Trip 2007

Geography IA Trip 2012

Geography IA Trip 2013

Geography IA Trip 2007

Geography IA Trip 2015

Geography IA Trip 2016

Geography IA Trip 2017

Geography IA Trip 2018

General Sinharaja Reflections

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Written by ianlockwood

2019-12-04 at 10:37 pm

Posted in Around Sri Lanka, School work, Sinharaja

Tagged with Nisaetus cirrhatus, Nisaetus kelaarti, Otus thilohoffmanni, Overseas School of Colombo, Sinharaja, Taruga longinasus, Trimeresurus trigonocephalus

Preliminary Analysis of Land Cover in the Sinharaja Adiviya using Planet Dove Imagery

with one comment

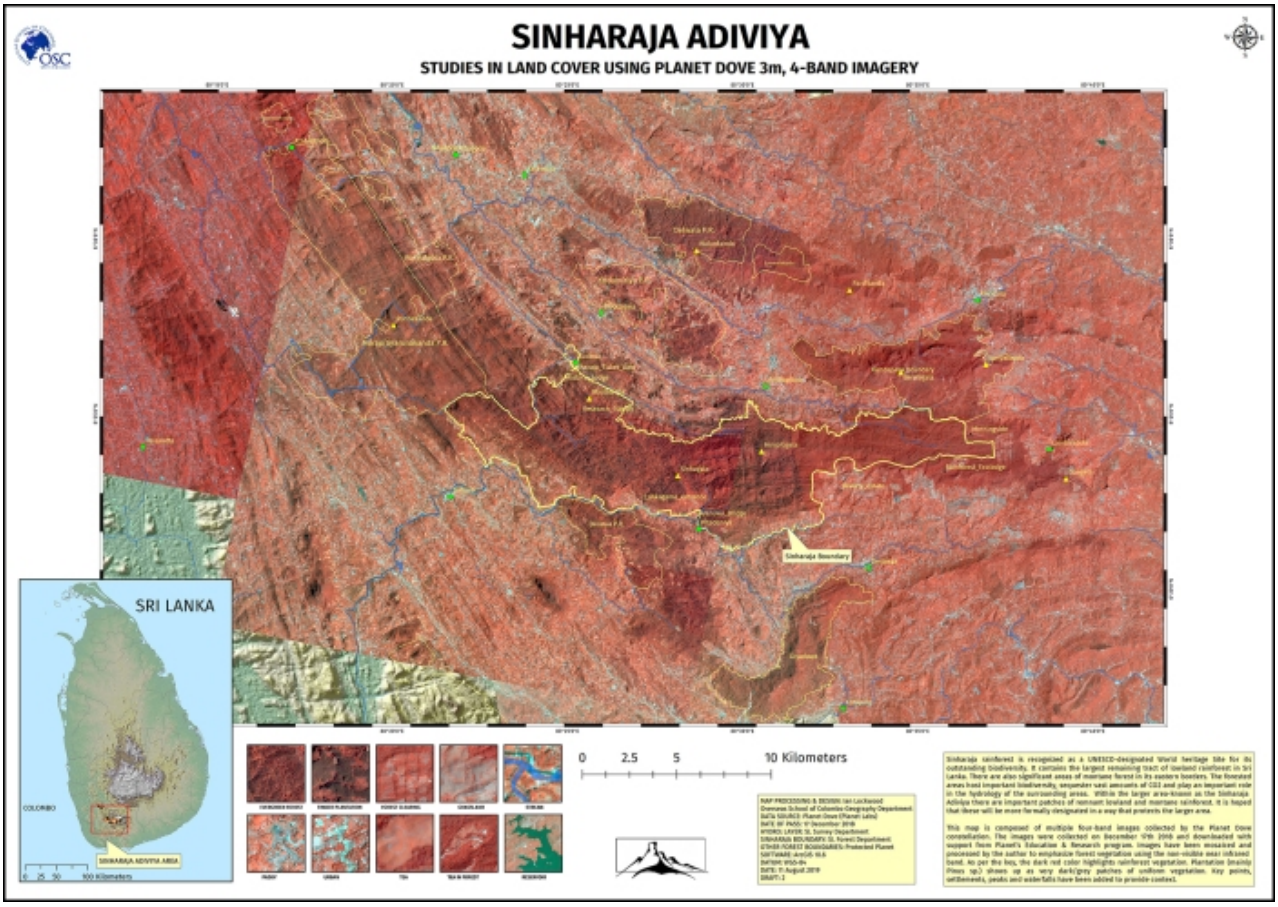

Figure 1: Sinharaja Adiviya (or greater Sinharaja area) mapped with Planet Dove imagery. Reduced in size to fit this post.

In March this year I attended a fascinating talk entitled “Sinharaja: From a Timber Reserve to a Biological Treasure Trove. What next?” by Nimal and Savitri Gunatilleke at the BMICH in Colombo. The lecture was sponsored by the WNPS in their monthly lecture series. There were several aspects of the talk reflecting back on their decades of research in Sri Lanka’s preeminent forest. Initially, Savitri did botanical studies documenting the diversity of plants in Sinharaja in the period before mechanical logging started (1960s-77). They were witness to a period of commercial logging and recovery to a world-renowned UNESCO-designated world heritage site. The Gunatilleke’s experiments with rainforest restoration were of particular interest to me, given the lessons

that these examples hold for similar non-native plantation areas across the Western Ghats/Sri Lankan biodiversity hotspot. In the lecture, both spoke of the broader Sinharaja area of forest fragments and large patches that are connected or satellites to the core area-something they identified as the *Sinharaja Adiviya*.

At the same time, I was interested in mapping land cover and forest types in study areas that I take students to for fieldwork. Up to this stage, our DP Geography studies in Sinharaja have utilized Survey Department 1:50,000 and 1:10,000 land use data. It comes as a shape file with the data that I have purchased from their map sales office. This data is satisfactory but we have found significant omissions and inaccuracies in the Kudawa area where OSC students conduct fieldwork (much of the data is based on surveys conducted in the early 1980s).

Forest types and land cover are a key part of the Sinharaja story. Literature about the area's successful conservation refers to primary and secondary forests as well as *Pinus caribaea* plantations (along the border). Yet, I couldn't locate GIS-ready shapefiles of boundaries of these forest types. The Forest Department has files based on its 2010 forest cover map but these are, thus far, not in the public sphere. I had mapped the area using a Landsat tile from 2005 (published in my blog in 2012) but this was before I had learned how to conduct a supervised classification of a raster image.

Home garden landscape on the border with Sinharaja rainforest (north west side). (September 2019)

Pinus caribaea plantation in the Sinharaja buffer zone undergoing ecological succession as part of an ecological restoration effort. This area was once dominated by a monoculture community. The intervention of conservationists in thinning pine trees and planting appropriate native species is

helping to return it to the climax lowland rainforest community. See linked articles by Professors Mark Ashton, Nimal Gunatillike and others for details of these efforts. (September 2019)

Primary/ridge forest below Moulawella Peak in the Sinharaja core zone. This area did not experience any logging in the period of commercial exploitation in the 1960s-70s. (September 2019)

A Brief Literature Review

A review of land cover analysis in Sinharaja shows that only a few studies have been published to date. The most significant, publicly available study looking at land cover change in Sinharaja was conducted by Buddhika Madurapperuma and Janak Kuruppuarchchi in 2014 (see link). Their analysis used Landsat ETM data between 1993 and 2005 in an area slightly larger than the Sinharaja boundary provided by the Forest Department. They used a Normalized Difference Vegetation Index (NDVI) and Burn Index (BI) to assess changes in three years (2001, 1993 and 2005). The study is thorough but the data that they use is coarse and it is difficult to get a sense of the land cover patterns at a large scale. They conclude with an acknowledgment that ground surveys need to be conducted to better understand the change. Thanura Madusanka Silva published a study entitled “Land Cover Changes of a Tropical Forest Buffer Zone” in 2018 that used Sri Lanka Survey Department data to assess changes in land use in the Kudawa area (see link). This study is based on secondary data and not satellite imagery and it concludes that major change has occurred in home garden areas. There may be other studies that I have missed but the field of land cover change in Sinharaja, as seen in satellite imagery, is ripe for further study.

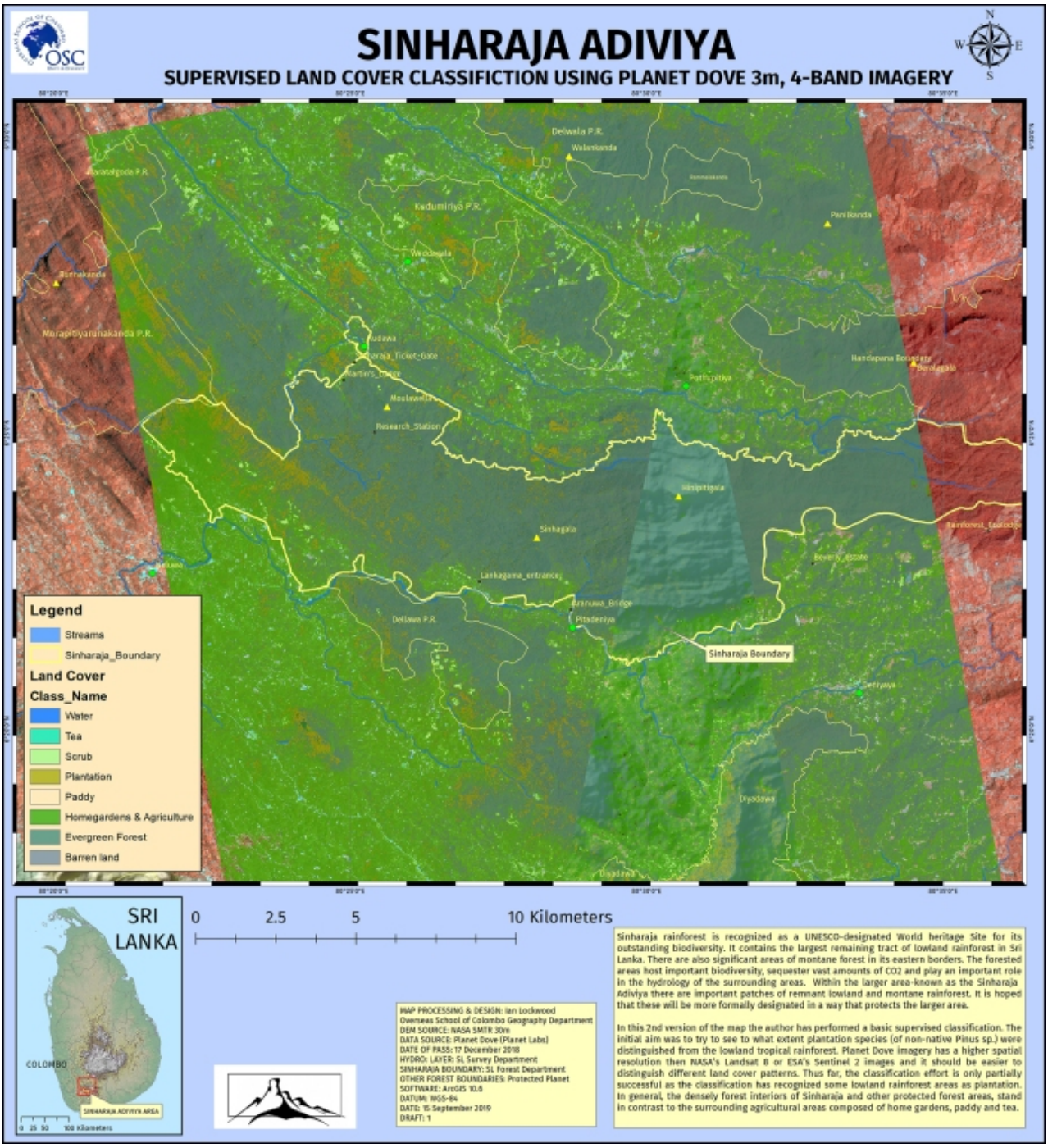

Figure 2: Supervised classification of land cover based on Planet Dove imagery. Because the images were not collected on the same flight, there are some unavoidable gaps and seams, that are visible on close inspection.

Planet Dove Methodology and Results

Two years ago I became familiar with Planet Dove imagery and saw that it might provide a solution in my attempts to classify land cover in the Sinharaja area. Planet Dove's constellation of 120+ satellites, which revisit the same areas every day, offers a new opportunity to visualize and analyze any area of the earth. At the beginning of 2019 I successfully applied to Planet's Education and Research program and was able to download a host of tiles of study areas. I found a series of cloud-free scenes from December 2018 and downloaded them. These are from around December 18 but some were collected at slightly different dates. Using ArcGIS, I mosaiced these various tiles so

that I had most of the area Sinharaja *Adiviya* covered. Because the images were not collected on the same flight there is some unavoidable gaps and visible seams, that are visible on close inspection. The improved spatial resolution of 3-5m means that it is easier to distinguish between different land cover types (lowland rainforest, vs, *Pinus caribaea* plantation, for example). Initially I worked on a map using the non-visible near infrared (NIR 780-860 nm) layer to highlight vegetation (see figure 1).

In the second part of my efforts, I conducted a supervised classification using tools in ArcGIS's Spatial Analyst extension toolbar. For land cover type, I collected between 5 and 10 training samples and merged each of them into their own distinct land cover type. The classified image (Figure 2) clearly highlights the dense lowland rainforest pockets in a landscape dominated by home garden and tea agriculture. The effort to categorize the *Pinus caribaea* plantation was partially successful. However, there are errors with some of the classification. For example, plantation in the midst of dense (primary) forest near Moulawella peak.

Conclusion/Future

In the next attempt I plan to collect more training samples in the hopes of getting a more accurate picture of the land cover patterns. A focused study on the pine forest in the buffer area near Kudawa deserves attention. Some of these areas are being successfully restored to their original lowland rainforest vegetation type and time a change study would be illuminating. There are areas of the landscape that I am very familiar with (the Kudawa tourist and village zone) while I have far less personal experience in other areas like western Sinharaja and the various forest fragments. Further studies of landcover need to be verified with ground truthing in the field.

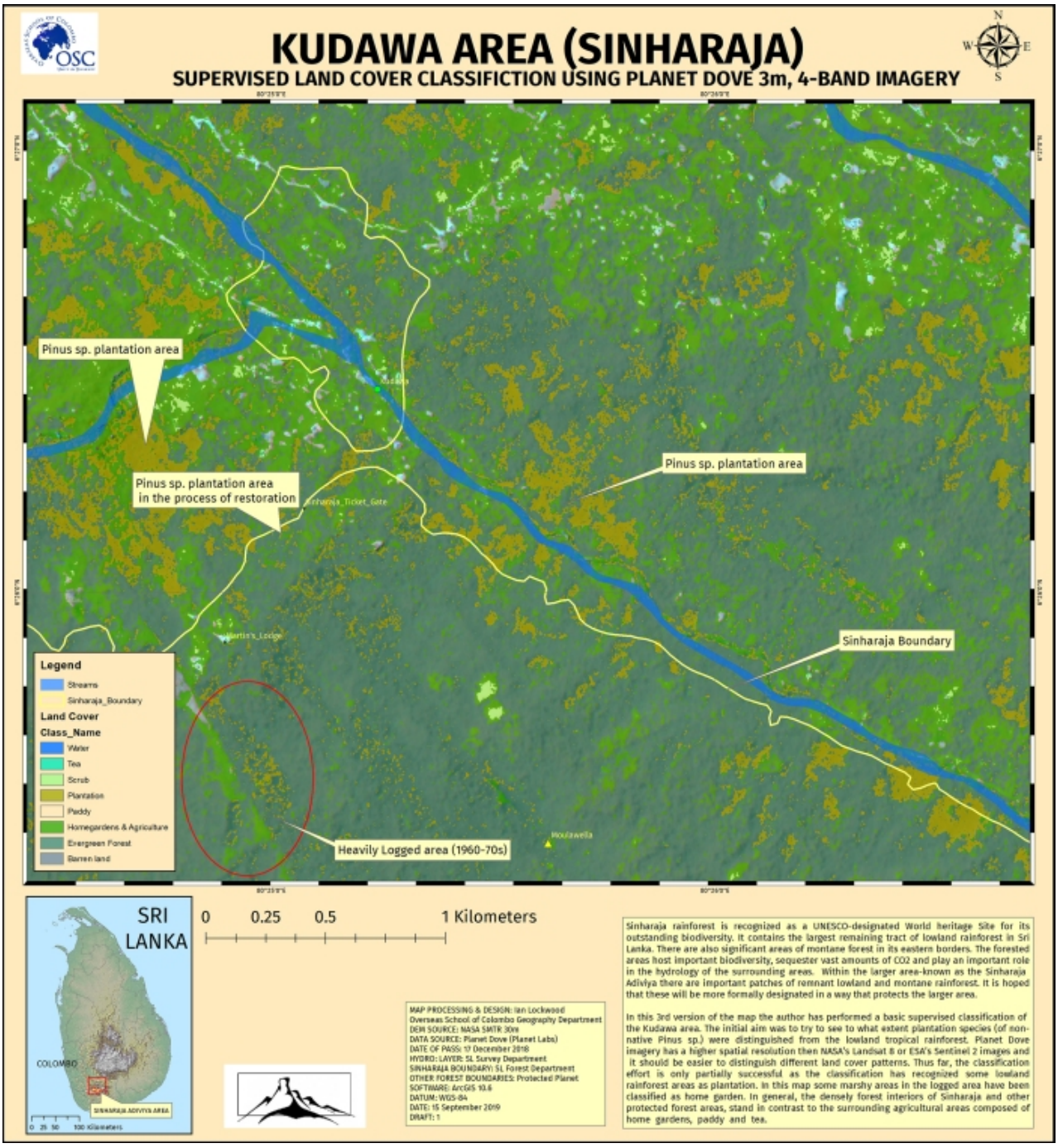

Figure 3: The Kudawa area of Sinharaja with classification of land cover based on Planet Dove imagery. In this image I have highlighted the popular tourist area around the settlement of Kudawa. The lower part of the map experienced mechanical logging 40+ years ago (some of it is encircled in red). The stream running down to the Sinharaja ticket gate is not depicted on this map and is missing from Survey Department 1:10,000 sheets that were used for the hydro/stream layer.

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Written by ianlockwood

2019-09-16 at 7:41 pm

Posted in Around Sri Lanka, Ecological Restoration, GIS related, Sinharaja

Tagged with Adiviya, ecological restoration, land cover, map, Sinharaja

Sinharaja 2017 & 18 Geography IA Field Studies

with 4 comments

Sinharaja's rainforest canopy under the Milky Way- an unusual sight given that high humidity often prevents clear view of the heavens. (May 2017).

Two successful OSC Geography field studies have come and gone in the last 15 months. Both learning experiences gave an opportunity for small groups of motivated DP1 students to investigate an individual research question in a rural Sri Lankan landscape. Sinharaja rainforest, a UNESCO-designated World Heritage site, is located the south-western "wet zone" of the country and is well known for its rich biodiversity. OSC classes have been conducting field work in Sinharaja since 2005. The location offers ideal conditions for student learning, inquiry and field work on socio-economic, tourist and land-use themes. Many years ago, we used to do more ecology/ecosystems studies but the changes in the DP Geography syllabus has influenced how students craft their research questions around human aspects of the landscape. On both trips we were privileged to stay at Martin's Wijeysinghe's Forest Lodge; it continues to offer an ideal base for student field work, with access to the protected area, a range of habitats and home gardens.

The Sinharaja canopy from Moulawella showing the extensive rainforest over the core part of the World Heritage Site. (May 2017)

May 2017 Experience

The Class of 2018 geography class included eight enthusiastic students representing a diverse range of countries (eight different nationalities, with half the class being dual nationals). They embraced the learning opportunities, didn't complain about the leeches (it was relatively dry this year) and seemed to thoroughly enjoy the Sri Lankan cuisine cooked up by Martin's daughter. In 2017 Kamila Sahideen provided support in the interviews and was once active with finding frogs and other forest creatures. We were also happy to have Salman Siddiqui (Malaika and Maha's father) along for one night. With his role as the head of IWMI's GIS unit, I appreciated having Salman's insights on how we might better use GIS/RS & drones to emphasize spatial dimensions of our data collection.

May 2018 Experience

The Class of 2019 geography class was slightly smaller but no less enthusiastic. There were six students and we were supported by Sandali Handagama, OSC's multi-talented math teacher (and a former student of OSC). We hired four Sinharaja guides each day and they were essential in translating the surveys and helping the students to better understand the area. We have now developed a strong relationships and they have played a key role in the success of OSC's field work in Sinharaja. Most of the surveys were gathered on foot but at times we hired local jeeps to take us further away from the ticket office at Kudawa.

Each of the students explored an individual geographic research question but pooled all of their sub-questions into a single survey that all could run. The actual survey of 45-50 questions could take up to 20-30 minutes with introductions and a look around home garden properties. The respondents were gracious with their time and several OSC teams were invited to have tea. With several different teams going in different directions we collected 72 different interviews in 2017 and 42 in 2018. We collected responses

using Survey 123 a GIS-enabled data gathering app that all the students could run off their phones (we also recorded every response on paper). This allows students to map their results and do basic spatial analysis on the findings using ArcGIS, the GIS software package that they learn to operate in my class.

The elusive and rarely seen Golden Civet Cat (Paradoxurus zeylonensis) making a short visit to Martin's Lodge during the course of our final meal of idiyappam (string hoppers) and kiri hodi (potato curry).Food was dropped in a slightly messy panic in order to trigger the camera and flashes during its brief time with us.

Sri Lanka frogmouth (Batrachostomus moniliger) female on left and male on the right in a patch of tree ferns. These pictures are only possible-like almost any frogmouth image-with the sharp eyes of a guide! I was assisted by Thandula, Ratnasiri and several others. Students got impressive pictures with their phones. (May 2018).

In addition to conducting the surveys, students got a flavor of being ecotourists in a tropical forest. They walked the different forest trails, encountered mixed species feeding flocks, appreciated small rainforest creatures and soaked their feet in jungle streams. Looking for frogs, insects and snakes at night is always a special treat. On the 2017 trip the class had me wake them up in the middle of the night to take in the majesty of the Milky Way in unusually clear, moisture-free skies. A highlight of the 2018 trip was having an encounter with a rare Golden Civet Cat (*Paradoxurus zeylonensis*) while eating dinner at Martin's. The shy nocturnal mammal graced us for a few brief minutes and fed on bananas put out by our hosts. We completed our Sinharaja visits with a hike up to Moulawella peak to take in the full extent of the Sinharaja rainforest landscape. The views in 2017 were especially clear but 2018 also offered the team a chance to take in this remarkable rainforest and home garden landscape.

OSC students walking through tea and cinnamon fields in a home garden.(May 2017).

Home garden overlooking the Kudawa village valley.(May 2017).

Relatively low income home garden. (May 2017).

Relatively high income home garden.(May 2017).

Paddy surrounded by mixed forests and home gardens.(May 2017).

Class of 2018 conducting surveys in Kudawa market area.

Class of 2018 collecting data on paper and on a phone (with Survey 123) in a home garden.

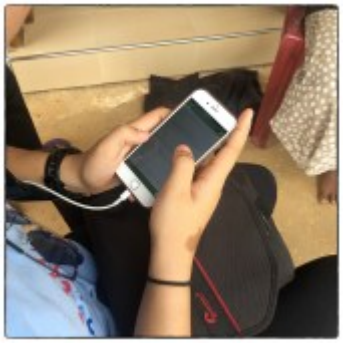
At a home garden about two kilometers away from the Kudawa market.

Yuki and Zoe collecting data from an areca and tea farmer who lives alone in a traditional adobe dwelling.

Taking a walk through the rainforest at the beginning of the study.

Devin and Sarah interviewing a tea farmer (and father of our guide) west of Kudawa.

Home Garden with both cement and adobe partitions.



Collecting data with Survey 123 loaded onto an iPhone (out of mobile signal reach).

Backing up the data on a paper survey

Dominic photographing a vine snake (Ahaetulla nasuta) on our way up to Martin's on the first day.

Maha interviewing a young forest guard at the ticket counter.

Jordan, Lukas interviewing a forest guard with translation help from Sandali.

Class of 2019 DP Geography Class and several of the Sinharaja guides (May 2018).

Land crap on the forest floor.

Günther’s golden-backed frog (Hylarana temporalis). This species has undergone taxonomic revision and I may need to update the species name once I have better information.

The wedge or square-tailed bulbul (Hypsipetes ganeesa)

Yellow-fronted barbets (Psilopogon flavifrons) adult and juvenille

Sri Lanka Shining Gossamerwing (Euphaea splendens) at the Koskulana River that flows through Kudawa.

Sri Lanka grey hornbill (Ocyceros gingalensis) at Martin’s (while we were eating breakfast).

Green Pit Viper (Trimeresurus trigonocephalus) from under.

Green Pit Viper (Trimeresurus trigonocephalus) showing its tongue.

Sri Lanka Kangaroo Lizard (Otocryptis wiegmanni) male

Sri Lanka Kangaroo Lizard (Otocryptis wiegmanni) female

The Class of 2018 DP Geography Class with Martin at his Forest Lodge. Back Row: Easmond, Thiany, Aanaath, Zoe, Adrian & Ian. Bottom Row: Malaika, Salman S, Martin, Kamila, Fatma & Yuki. (May 2017)

The Class of 2019 DP Geography Class with Martin at his Forest Lodge. Back Row: Joran, Dominic, Devin, Lukas, Martin's grandson and granddaughter. Middle Row: Sandali, Martin, his wife and daughter. Bottom Row: Sarah, Maha and Ian (May 2018)

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Written by ianlockwood

2018-08-27 at 10:50 pm

Posted in Around Sri Lanka, School work, Sinharaja

Tagged with Batrachostomus moniliger, Paradoxurus zeylonensis, Sinharaja

Sinharaja 2016 Geography IA Field Study

with one comment

As usual, Sinharaja offered many superb sightings of endemic rainforest creatures: Serendib Scops Owl (Otus thilohoffmanni) in the Sinharaja core zone, flanked by two different frogs photographed near Martin's Lodge.

Towards the end of the school year and before the South West monsoon set in OSC's DP1 Geography class took its annual IA field study to Sinharaja rainforest. This was the 11th OSC field study at Sinharaja (the 2015 trip was our 10 year anniversary) and, like past visits, it offered an unparalleled opportunity for the students to engage in field work inside and along the edges of a protected Sri Lankan rainforest.

Keeping in mind the protected area and the impressive forest area that Sinharaja hosts, my students focused on investigating questions relating to human communities on the park boundaries. Using questionnaires and 1:1 interviews with residents they explored cropping, land use, water resources and tea patterns in the study area. There were strong spatial elements in the study that were later incorporated into their reports using GIS. This year we used relatively new 1:10,000 digital vector data from the Sri Lanka Survey Department as well as the most current population and housing data from the Sri Lanka Department of Census and Statistics.

Once again we stayed at Martin's Wijeysinghe's Jungle Lodge. Martin provided one of our first interviews, which helped set the stage for many more fruitful conversations. The Sinharaja Forest Department guides played a critical role in translating and being a bridge between our group and the local community. In many cases they took us to visit neighbors as well as their own families. We estimate that we were able to interview roughly 60% of the households in the Kudawa area. On our first full day of field work we were in the Kudaa village area and had a traditional lunch with Martin's daughter's family. On the second day we explored eastwards up a little used road to the family that has Sri Lanka spurfowl (*Galloperdix bicalcarata*) visitors every morning. We only heard the bird but the students conducted several memorable interviews that morning. Our group of students was supported by Kamilla who joined us as a female chaperone and frog locater par excellence.

The field work was balanced with down time spent soaking tired feet in the nearby stream and climbing Moulawella on the final day. On our way out we had the good fortune to see a rare Serendib Scops Owl (*Otus thilohoffmanni*) in a fern thicket. By that time the

students had been inundated with views of rare birds, frogs, snakes but I hope that one day they'll look back and realize what a special final sighting this was!

Interviewing Martin's Wijeysinghe as part of the Geography IA study.

Snapshots from the field work in and around Sinharaja's north western Kudawa entrance. The poster, now out of print, decorates the common area at Martin's lodge.

Students broke into two different groups so that we could maximize the interviews and responses that we collected. I had the opportunity to spend time with both groups as we covered different areas near Kudawa village. One of the memorable interview and conversations that we had was with a family that grew tea, cinnamon and various fruit in their home garden. We were welcomed into their home and were able to observe the process of cinnamon bark stripping. Just before we left they offered a freshly cut pineapple from their garden.

Miscellaneous snapshots from the Sinharaja rainforest area.

View looking north-west from Moulawella peak. On the final day we do a hike up to this point to give the class an appreciation for the Sinharaja area and the effort that has been made to protect its spectacular rainforests.

Sinharaja's guides play a key role in any visitor's experience in the rainforest. They are knowledgeable, hard working and patient with their clients. OSC enjoys a warm relationship with their team and we have enjoyed getting to know more about the rainforest and their communities through the guides. I was able to take this picture of most of them on one of our first days before people had arrived at the Kudawa ticket entrance.

OSC's Class of 2017 DP Geography students with Martin Wijeysinghe, their teacher (the author) and Kamilla.

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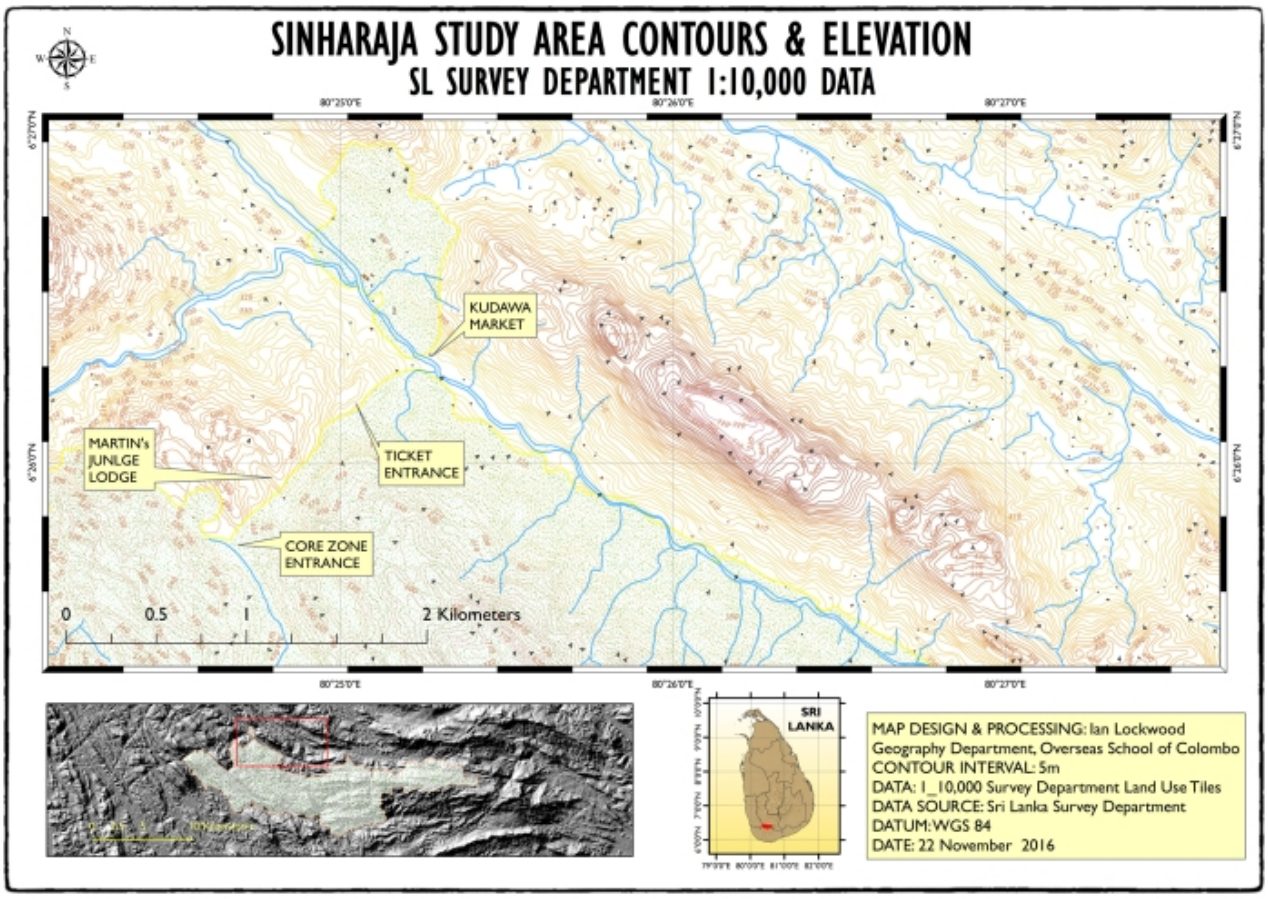

OSC's field study site in Sinharaja: a map created with ARCGIS 10.4 and recently released 1:10,000 data from the Sri Lankan Survey Department.

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Written by ianlockwood

2016-11-17 at 10:54 pm

Posted in Birds of Sri Lanka & the Western Ghats, School work, Sinharaja

Tagged with IB Geography, Sinharaja

Linking the Hotspot: From Silent Valley to Sinharaja

with 2 comments

Malabar trogon (Harpactes fasciatus), male and female, photographed in the Sairandhri zone of Silent Valley National Park. This is one of the most beautiful birds from the Western Ghats & Sri Lanka hotspot and is found in many parts of the Ghats as well as in most evergreen forests (both wet and dry) in Sri Lanka. It is quite shy but can be photographed with patience. In Sinharaja rainforest Malabar trogons are often found in the mixed-species feeding flocks that are a key feature. Some of my best sightings are from Sinharaja trails and it was thrilling to have the long encounter in SVNP with Aneesh CR that produced these images.

The Western Ghats and Sri Lanka biodiversity hotspot encompasses a swathe of area running down the western coast of India across the Palk Straits to Sri Lanka and its southernmost point at Dondra Head. The heterogeneous landscape-composed of rugged hills, river valleys, wetlands and coastal plains there host a variety of vegetation types. Being a hotspot, there are unfortunately anthropocentric pressures: dense human populations, mining, damming, plantation agriculture and expanding human settlements to name a few. There is also impressive work that has been done in protecting key parts of the hotspot. A significant type of vegetation is the tropical wet evergreen forest that are found in high rainfall areas along the hotspot.

This blog is a personal narrative exploring two exemplary tropical rainforest habitats in the Western Ghats and Sri Lanka biodiversity hotspot-Silent Valley in the Indian sate of Kerala and Sinharaja in south-western Sri Lanka. By good fortune our school had two breaks over a course of March/April this year that allowed me the opportunity to explore both of these seminal protected areas with our two children. Amy-eight years old and enthusiastic about learning, art and sports -accompanied me to Sinharaja in March. Lenny, in middle school and now approaching his teen years is involved in theater productions and has a sharp eye for the wildlife in our Malabe neighborhood. He joined me on the Silent Valley exploration in April.

The rare Serendib Scops Owl (Otus thilohoffmanni) photographed at a day-time roost in Sinharaja captured in in a beam of afternoon light with the able guidance of Thandula. The species was only identified 12 years ago by Sri Lankan ornithologist Deepal Warakagoda.

This map shows the location of Silent Valley and Sinharaja layered over an updated SRTM “Swiss shade” model that I have just started to work with. The Western Ghats boundary (from ATREE) and the major protected areas in both Sri Lanka and the southern Western Ghats are also highlighted.

	SILENT VALLEY	SINHARAJA
Area	89.47 km^2 (core) *236.74 (total with buffer)*	88.64 km^2
Dominant Vegetation Type	Tropical moist evergreen forest	Tropical lowland rainforest
WWF Ecoregion	Southwestern Ghats Moist Forests	Sri Lanka Lowland Rainforests
Year of Protection	1985	1978
UNESCO Designation Year	2010	1988
Annual Rainfall (average)	5,045 mm[1*]	3,614 – 5,006 mm [2*]
Elevation Range	900 m - 2,384 m	300 m – 1,170 m
Charismatic & Keystone Species	Great Pied Hornbill White Bellied Treepie White Bellied Blue Flycatcher Lion tailed Macaque King Cobra Tiger	SL Frogmouth SL Blue Magpie Serendib Scops Owl Red Slender Loris SL Green Pit Viper SL Leopard
Management	Kerala Forests & Wildlife Department	Sri Lanka Forest Department

Table 1: Comparing the two protected areas.

SILENT VALLEY

Silent Valley sits high amongst India's most important protected areas. Not only does it preserve one of the largest tracts of undisturbed tropical rainforest in the Western Ghats, it is a symbol for a people's movement to protect wilderness areas from misguided "development." In the 1970s a plan to dam the Kunthipuzha River that runs from the Nilgiri plateau to the Arabian Sea galvanized a people's anti-dam movement in Kerala in favor of protecting the forest. It was not an easy fight – in addition to agitation from citizen's groups in Kerala, luminaries such as Salam Ali and the strong will of Indira Gandhi played a key role in Silent Valley's notification as a national park in 1985. The area is now zealously protected and is one of the finest tracts of rainforests in the Western Ghats. Shekar Dattatri's 1991 film *Silent Valley: An Indian Rainforest* helped introduce many of us to the area. His article (listed below) presents a timeline of events that led to the area's protection.

During the longer Sinhala & Tamil new year break this year Lenny and I journeyed to south India and Silent Valley for an exhilarating four day visit. We were the guests of Silpa Kumar, the wildlife warden of SVNP who Lenny and I met a year and a half ago in Kerala's other national park, Eravikulam. I was interested in revisiting SVNP (22 years ago I made a very brief foray into the forest) and I also wanted to introduce Lenny to the wonders of a Western Ghats rainforest. This was hard work-his friends were going to amusement parks in Singapore or beach resorts in the Maldives and Lenny was going on another adventure with his father. With a few incentives, he was a good camper and played a vital role in helping to spot birds and mamals.

Of course, it's some way from Colombo to the Kerala side of the Nilgiri Hills. Silent Valley sits in the south-west portion in a relatively inaccessible part of the greater Nilgiri Biosphere Reserve. Our journey took us to Madurai, the Palani Hills and then on across

the scorching hot and bone-dry Palghat Gap to Mananarkad, the nearest large settlement to the Valley. We were warmly received by Silpa and set up for an amazing visit. That afternoon we journeyed to the Mukali gate and then into the core zone in a forest department jeep. We spent the next three days based around the old proposed dam site at Sairandhri. A young and energetic officer/Wildlife of India Institute graduate Aneesh accompanied us and helped us learn more about the area.

On one of our full days we walked the trail to the Poochipara forest station. It crosses the Kunthipuzha and then continues through gorgeous, towering rainforest to a forest guard hut. Back in the Sairandhri vicinity I was able to record rare and colorful creatures-most that I had seen in past years but was never able to photograph properly. Highlights included sightings of Malabar Trogons, Southern Treepies, White Bellied Blue Flycatchers, Fairy Bluebirds, Gray Headed Bulbuls, Great Pied Hornbills, Lion Tailed Macaques, Nilgiri Langurs, Draco lizards and much more. We shared the forest guesthouse with Aneesh and three young women from the College of Forestry in Trissur Kerala. They were conducting population studies of bats, rodents and small carnivores. Lenny was able to observe them setting up mist nets and catching bats. Ever the prankster, Lenny photo-bombed one of Devika's camera trap-a device that a few weeks earlier had captured a tiger and black panther (a melanic form of the leopard) moving on different nights.

There have been significant changes in Silent Valley since it started receiving formal protection from the Kerala Forest Department. One change and improvement that is visibly obvious is the increased forest cover. The image on left was taken in January 1995 during a fleeting day-long visit that I did.

The right image was taken from roughly the same place this month (April 2016). Though the lighting is not great, several of the patches of grasslands have now been taken over by forest cover. This, of course, poses interesting challenges as there is less fodder for large herbivores- and SVNP's wildlife staff reported decline in gaur and Sambhar. The tree growth is of native vegetation and appears to be following the somewhat predictable stages of ecological succession that one would expect in this area.

Canopy of the rainforest in Silent Valley National park -a composite exploration.

Lenny's Lion Tailed Macaque (Macaca silenus). While having a short siesta Lenny and I were alerted to a troop of LTMs next to the rest house. This male was also in a lethargic mood in the afternoon heat. LTMs are significant keystone species in the rainforests of the Western Ghats. Their protection was a key issue in the debate about whether or not to dam the Kunthipuzha River and flood prime LTM rainforest habitat.

White Cheeked Barbet (Psilopogon viridis) and Fairy Blue bird male (Irena puella) at Silent Valley National Park. The barbet is endemic to the Western Ghats while the Fairy Bluebird is distributed in the Western Ghats (but not Sri Lanka) and into NE India and SE Asia.

Sri Lankan endemic bird species from Sinharaja, taken in a similar habitat to the SVNP birds above. From left to right: Yellow Fronted Barbet (Psilopogon flavifrons) Ashy Headed Laughing Thrush (Garrulax cinereifrons) and Layrd's Parakeet (Psittacula calthrapae).

SINHARAJA

Like Silent Valley, Sinharaja's status as a protected area was born from controversy. The area that makes up what visitors know of the park was part of a larger belt of lowland rainforest in the Rakwana Hills. The lore associated with the forest stretches back to a time before recorded history. Much of this hilly area was converted into plantation agriculture in the 20th Century but Sinharaja enjoyed natural protection because of the rugged topography of its boundaries. However, in the 1960s roads were built into its heart and mechanical logging was started to feed a large paper mill located in Avisawella. It was a time when this sort of project elicited praise for improving the prospect for "development." Awareness about ecological matters-concepts like biodiversity, deforestation, ecosystem services and watershed management were not in the public discourse of the age.

As the name suggests, Sinharaja ("lion king") evokes pride in the Sinhalese and by the 1970s groups of citizens, university professors and students had started to raise awareness about the deforestation and need to protect the forest. The March for Conservation group was a key actor in raising public awareness. It took Julius Jayewardene's 1977 election for that to happen. The logging soon stopped and Sinharaja was protected first as a sanctuary in 1978 and then as a UNESCO-designated World Heritage site in 1988. Since then it has become one of the most studied rainforests in Asia. The area that was once logged has made a remarkable recovery and Sinharaja illustrates the potential for rainforest recovery after human disturbance.

In March I did a short three-day visit to Sinharaja with our daughter Amy. The goal was to experience the forest and see and photograph as many birds (and other creatures) as possible. In recent years most of my visits have been with students as part of our DP Geography field work and it was good to have an opportunity to explore other places in the area for personal reasons. It was quite hot and dry- in fact dry enough that there were no leeches! Amy and I were lucky to have Thandula as our guide on this visit. We walked to the research center, observed a few mixed species flocks and journeyed to see a Green-billed Coucal (*Centropus chlororhynchos*) next and the rare Sri Lanka Spurfowl (*Galloperdix bicalcarata*). Many of the birds were busy nesting but the migrants (paradise flycatchers etc.) were still around, which we appreciated. The highlight was a superb encounter with the Serendib Scops Owl (*Otus thilohoffmanni*), a bird brought to public notice by Deepal Warakagoda in 1998. Thandula had worked in Sinharaja with Deepal and it was thanks to him that we saw this shy bird. As usual, we stayed at Martin's where we are treated like family and Amy was showered with special attention. Her favorite part was spending time exploring the stream below Martin's.

SHARED LESSONS

There are fascinating parallels in Sinharaja and Silent Valley that are worth highlighting briefly here. Both have conservation histories that started in controversy, elicited a ground swelling of public support and resulted in their protection. From my perspective, both demonstrate effective management strategies. Silent Valley is blessed with a team of enthusiastic and committed personnel that love what they do. This stretches from the top level -who are more often in the field than office- to the forest guards manning remote

posts. The Kerala Wildlife Department runs a tight operation and I was impressed by the commitment and love for their rainforest that they espoused. In Sinharaja. a similar pride in the protected area is evident in the forest guides that take tourists along trails at the Kudawa and Deniaya entrances. Their livelihoods are closely connected to the protected forest. Ecological succession is happening in both places and the recovery of the rainforest is remarkable. There have been important studies conducted on this recovery as well as other aspects of the forest areas but there are opportunities to delve deeper. Both case studies demonstrate the power of protecting South Asian rainforests for ecological, aesthetic and even economic reasons.

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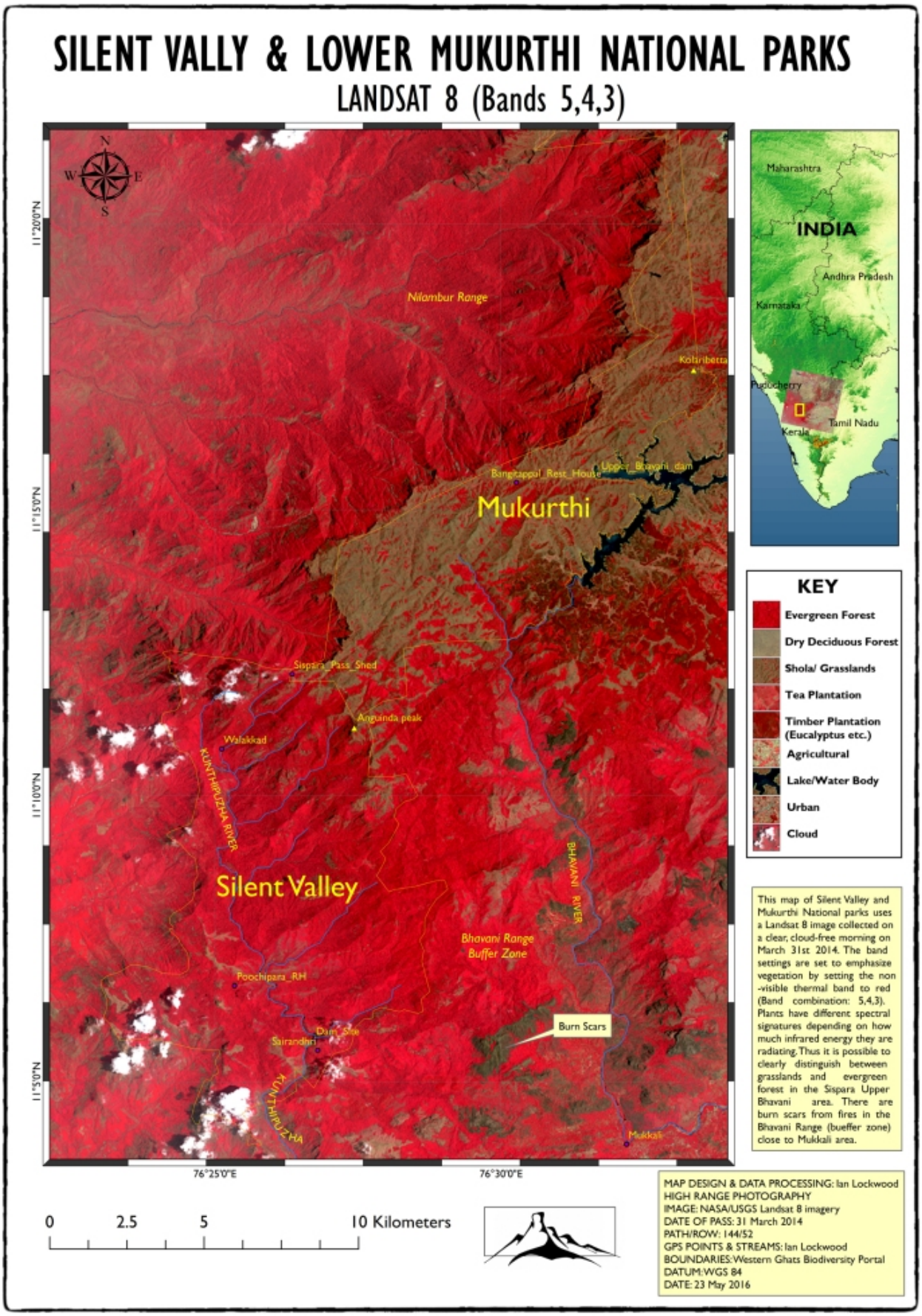

Silent Valley and lower Mukurthy National Parks as seen in a a 2014 Landsat 8 image of the area. Double click for a larger 150 DPI A3 image.

Postscript: Getting the child into the woods: (Left) Lenny and Ian returning from a hike to Poochipara in Silent Valley National Park (April 2016). (Right) Amy and her dad in Sinharaja photographing the elusive Serendib Scops Owl with a 600mm lens (March 2016). Left photograph courtesy of Aneesh , right photograph courtesy Thandula.

Written by ianlockwood

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Tagged with Harpactes fasciatus, Macaca silenus, Otus thilohoffmanni, Serendib Scops Owl, Silent Valley, Sinharaja

Sinharaja: Ten Year OSC Study Anniversary

with 3 comments

Primary forest near the north-western entrance to Sinharaja.

Two weeks ago OSC's IB Diploma Geography class spent four days conducting field research in Sinharaja rainforest. This UNESCO-designated World Heritage Site located the south-western wet zone of the country is well known for its rich biodiversity. This was a significant trip -not only for the eight students and their two teachers- but for the 57 year-old school. This is the 10th anniversary of OSC geography field work in Sinharaja -a location that offers ideal conditions for student learning, inquiry and field work.

I had first visited Sinharaja in 2000 on a birding trip with my cousin Anna. It seemed like a natural choice of locations when I was asked to design the DP Geography Internal assessment (requiring field work) when I was hired to teach at OSC. When we first started taking students to Sinharaja in 2005 we did so under the guidance of the Field Ornithology Group of Sri Lanka and their intrepid leader Professor Sarath Kotagama. Professor Kotagama, as well as dragonfly expert (and OSC parent) Karen Conniff, helped guide the original group of geography students. The focus of the early years' field work was on ecosystems and biodiversity. This changed when the IB syllabus was revised and

we transitioned to socio-economic, tourist and land-use studies. We've been privileged to stay at Martin's Wijeysinghe's Jungle Lodge during all this time. It continues to offer an ideal base for student field work, with access to the protected area, a range of habitats and home gardens.

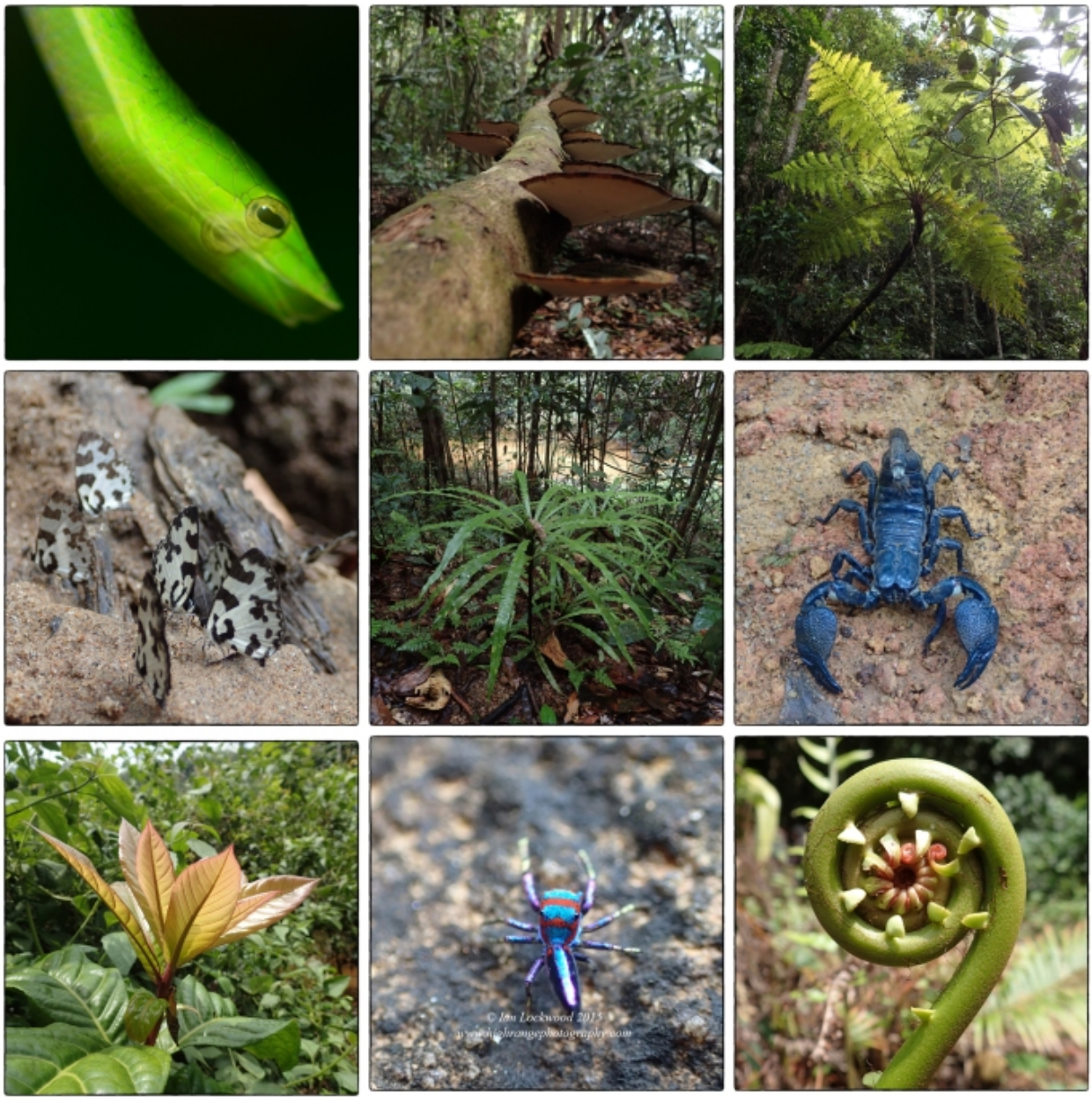
Here is a brief review of the themes of ecology and geography that we have looked at over the years:

- **Tropical Rainforest Biodiversity in a "Biodiversity Hotspot."** Sinharaja is know as an exemplar lowland rainforest with very high levels of terrestrial diversity. Studies by notable academics at Peradeniya University, the University of Colombo and the Yale School of Forestry have documented and tracked plant diversity within Sinharaja. Others have studied the avian, amphibian, reptile and mammalian fauna. Professor Kotagama thinks that few other single forests have been as well documented as Sinharaja. Put together this provides a wealth of baseline data and information for any studies of the area.
- **Natural recovery of cleared forest areas:** It was only 40 years ago that the area that is now well-trodden by ecotourists was being systematically destroyed as a part of a large-scale mechanical logging operation. Paradigms and attitudes about tropical forests have radically changed and today the same area has been allowed to recover. The recovery of the once logged areas is, frankly, mind-blowing! There is no perceptible evidence of the logging operations in Sinharaja today. It is a remarkable case study in tropical forest recovery with very little active attempts to restore the habitat. In recent years the Forest Department has been successfully working to thin pine plantations and restore native lowland rainforest species.
- **A model case study of ecotourism:** Without intentionally trying, Sinharaja offers some of the most authentic opportunities for ecotourism in South Asia. The design of activities (walking, bird watching etc.), the low-impact accommodation and clear, benefit to the local community (through guiding and locally owned accommodation) help contribute to this. Sinharaja's Kudawa gate on the north-west border is its most popular entry point. OSC students have been able to track numbers of visitors in the last 5-10 years and seen a steady growth of visitors. The calendar year has key high seasons with the winter (December to February) being the peak for visitor numbers. There are at least 3-4 times as many Sri Lankan visitors as foreigners, but because of ticket prices foreign visitors contribute more to the revenue. While some visitors are naturalists and bird-watchers most foreigners are curious beach revelers taking a day to explore a rainforest within reach of the coastal resorts.

- **Land use in the buffer and border areas of the protected area.** The areas surrounding the PA boundary of Sinharaja highlight challenges to conservation. Many of these areas were only cleared for agriculture in the last 50-100 years. The dominant land use type is of home gardens (small land holding with a diverse range of fruit, vegetable and plantation species that are largely used for subsistence). Tea is now the most preferred crop in many of the Sinharaja border areas. Unlike the high-grown tea, the tea in the Rakwana Hills is cultivated in small holdings (1-2 acres) by individual households (rather than large estates with their own labor, factories etc.). To better understand the cropping patterns we have been using 1:50,000 land use data from the Sri Lanka Survey Department in our GIS mapping of the area. This data is dated and we hope to acquire more up-to-date land use data to better understand trends in agriculture and land use.
- **Socio-economic studies of communities living on the edge of Sinharaja:** OSC students have been able to conduct basics socio-economic surveys of communities living in the shadow of Sinharaja's north-western border. DP Geography students have focused on energy choices, education, ecological footprints, housing and nutrition (for the first time this year).

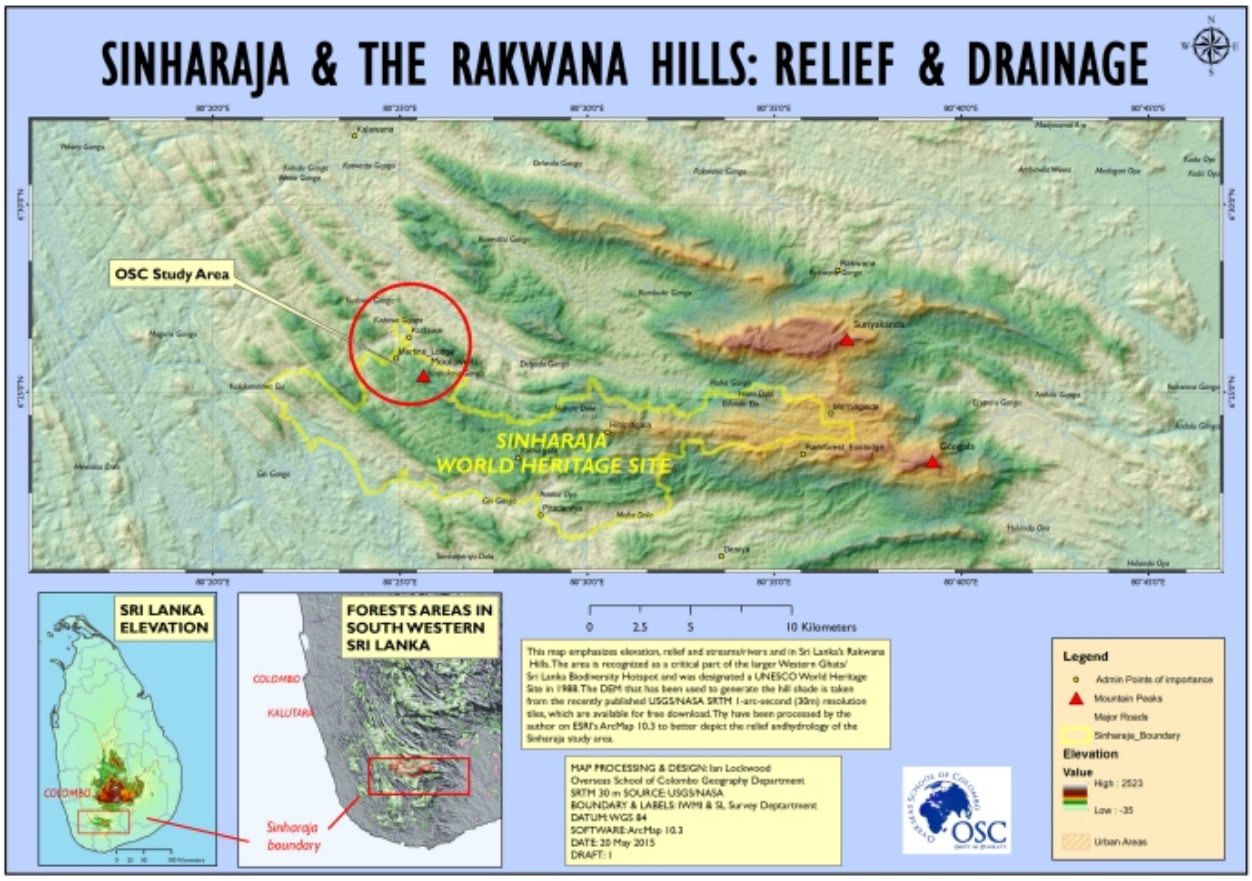
The Class of 2016 geography class was a stellar group to take to Sinharaja. They embraced the learning opportunities, didn't complain about the leeches, lack of cell phone connectivity and seemed to thoroughly enjoy the Sri Lankan cuisine cooked up by Martin's daughter. Each of them explored an individual research question with the Sinhala speakers working overtime to help others with the translations of survey questions. Once again the Sinharaja guides were essential in helping us to better understand the area. They are a key bridge to the surrounding communities. Dr. Indrika Senaratna provided support in the interviews and fully took part in all aspects of the study. We look forward to many more years of OSC field work Sinharaja.

OSC in Sinharaja. Above: Class of 2006 with Martin, Professor Kotagama, Chaminda Ratnayake,Karen Coniff and others (taken October 2005). Below: Class of 2016 with Martin, Dr. Indrika and their teacher (taken May 2015).



A cacophony of diversity: Snapshots of Sinharaja’s flora & fauna from the May 2014 IA field study.

Class of 2016 field work in households, home gardens and shops on the Sinharaja boundary.



OSC study site in Sinharaja elevation map using the (relatively) new 30 m SRTM from USGS/NASA. Click on the image for an A3 150 dpi version.

Past Blog Posts on Sinharaja

Geography IA Trip 2007

Geography IA Trip 2008

Geography IA Trip 2009

Geography IA Trip 2012

Geography IA Trip 2013

Geography IA Trip 2014

General Sinharaja Reflections

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Written by ianlockwood

2015-05-21 at 2:24 pm

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Tagged with IB Geography, Overseas School of Colombo, Sinharaja

OSC Sinharaja Field Study 2014

with 4 comments

Images from Sinharaja rainforest and its edges: emergent layer on Moulawella, misty primary forest, mixed cultivation on the north-west edge of the protected area.

Last week OSC's DP Geography class spent four productive and memorable days in Sinharaja rainforest collecting data for their internal assessment. This is the 10th OSC class to visit Sri Lanka's well known tropical rainforest. Located in the south western Rukwana Hills, Sinharaja is a designated UNESCO biodiversity heritage site and has received widespread recognition for its flora and fauna. A key aspect of its story is the remarkable recovery that the forest has made after being heavily logged in the early 1970s. Today Sinharaja offers a model site to study ecotourism, rainforest ecology and rural home garden agriculture. Our trip provided an opportunity for students to collect field data for their internal assessment, a 2,500 word research paper that accounts for 20-25% of their final grade. As we have done on past field studies, this year's cohort focused on themes of tourism, biodiversity, energy, land use and home garden agriculture.

Once again, we stayed at Martin Wijeysinghe's Jungle Lodge. This small guest house has ideal conditions for a forest experience and field study. It sits on the boundary between the buffer and core zone of the protected area and there is easy access to several different habitats. There is excellent secondary forest that attracts most of the endemic birds and a clear stream for guests to cool off in. Electricity is generated by a small micro-turbine, water is heated by solar panels and the food is locally produced. There is very limited cell phone connectivity, something that delights old fashioned teachers but can challenge students used to 24/7 connectivity. Weather conditions were wet during our stay, but the showers came in the afternoon and we had productive mornings in the surrounding landscapes.

This year's Geography cohort was its smallest in recent memory, with only five students participating. We were supported by Ms. Uthpala De Silva, who assists the secondary school with cover work. She was an enthusiastic participant and was particularly resourceful in helping with translation and building bridges with community members who the students were interviewing. After getting settled into Martin's on Tuesday afternoon we started the experience with an introductory walk to the Sinharaja core area. That afternoon we traversed the well-worn tourist paths though secondary, and primary forests.

Different types of Geographic data being gathered by OSC DP students in Sinharaja. Socio-economic data from Kudawa residents, spatial data in a household and water quality data from a forest stream.

Over the next two days students broke into two small groups to gather field data on their individual geographic questions. This year most students had questions that involved the home gardens and human-dominated landscapes on the park boundary. Sajni looked at

soil conditions in forest and human-impacted landscapes. Mikka studied water quality and land use. Jitmi researched energy consumption patterns to devise a measure of people's ecological footprint. Nikita assessed bird diversity to inform his question on differences in land use and habitat. Finally, Ravin looked at tourist numbers and attitudes of local residents towards the increasing importance of tourism as a strategy to improve livelihoods in the area. A highlight was building relationships through our guides with the Kudawa community. Most of these people make a living growing tea and other crops on small parcels of land (home gardens). For several men and women, guiding tourists provides an important secondary source of income. We explored remote home garden pockets to gather data and enjoyed several traditional village meals. Jackfruit curry, *gotukola* sambol and a special forest mushroom curry were gastronomical highlights.

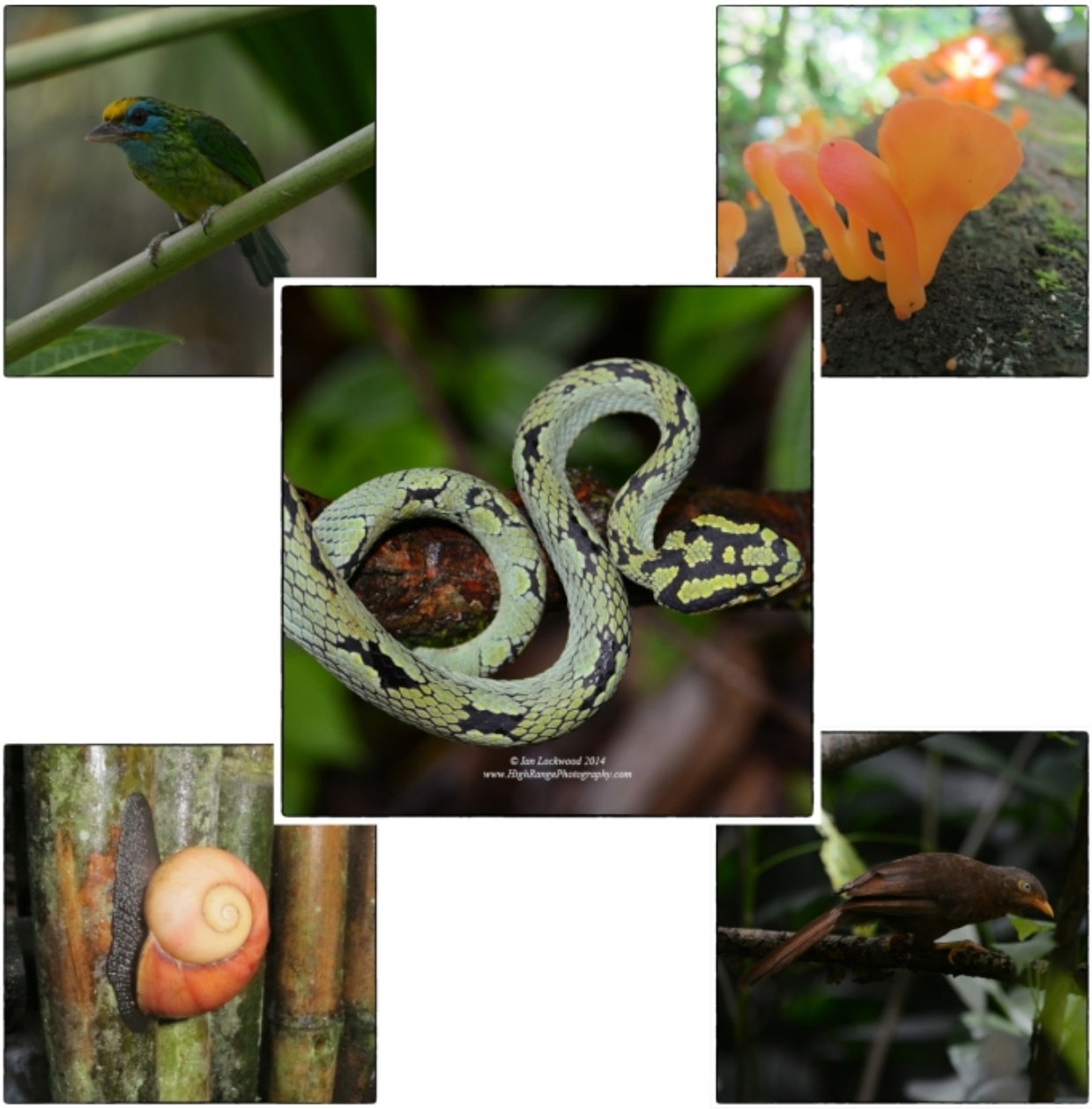
Stages in generating micro hydroelectricity in Sinharaja. The examples here are simple alternators hooked up to pipes in the forest but there are other more powerful generators set up with funds from the ADB and other donors. Entrepreneurs can now sell electricity back to the CEB since the area is being hooked up to the gird.

A typical home garden scene in rural Sri Lanka. This is the Kudawa home of Chandra, Sinharaja's first female nature guide. It is overshadowed by the forests of Sinharaja (and Moulawella peak). The food image shows the scrumptious traditional lunch prepared by Martin's daughter in Kudawa.

In order to get the data gathered all groups had to do a fair amount of walking in sunny, humid conditions. There were significant physical demands as streams were forged, jungles traversed and mountains climbed in search of data. Leeches were discouraged with the famous Sinharaja leech socks and various liquid deterrents. Students and their teachers suffered little more than a few small itchy bites. The afternoon showers helped moderate the climate and on Thursday afternoon there was time to cool off in the stream near Martin's. On the final morning we took a fast-paced trek up to Moulawella Peak (fondly renamed "cell phone mountain" by Ravin for its clear G3 reception). Here, on a clear, rain-washed morning we appreciated the landscape taking note of vast areas of protected rainforest as well as the patchwork of tea gardens, pine plantations and other landscapes to the north and west.

We returned to Colombo on May 2nd with ample field data and experiences not to be forgotten. The class is now working to process and analyze the data, while using the school's GIS software to provide original maps of the study site.

Katu Kitul Palm (Oncosperma fasciculatum), a favorite highland palm for elephants who can get to them. Photographed on the steep slopes of Moulawella peak.

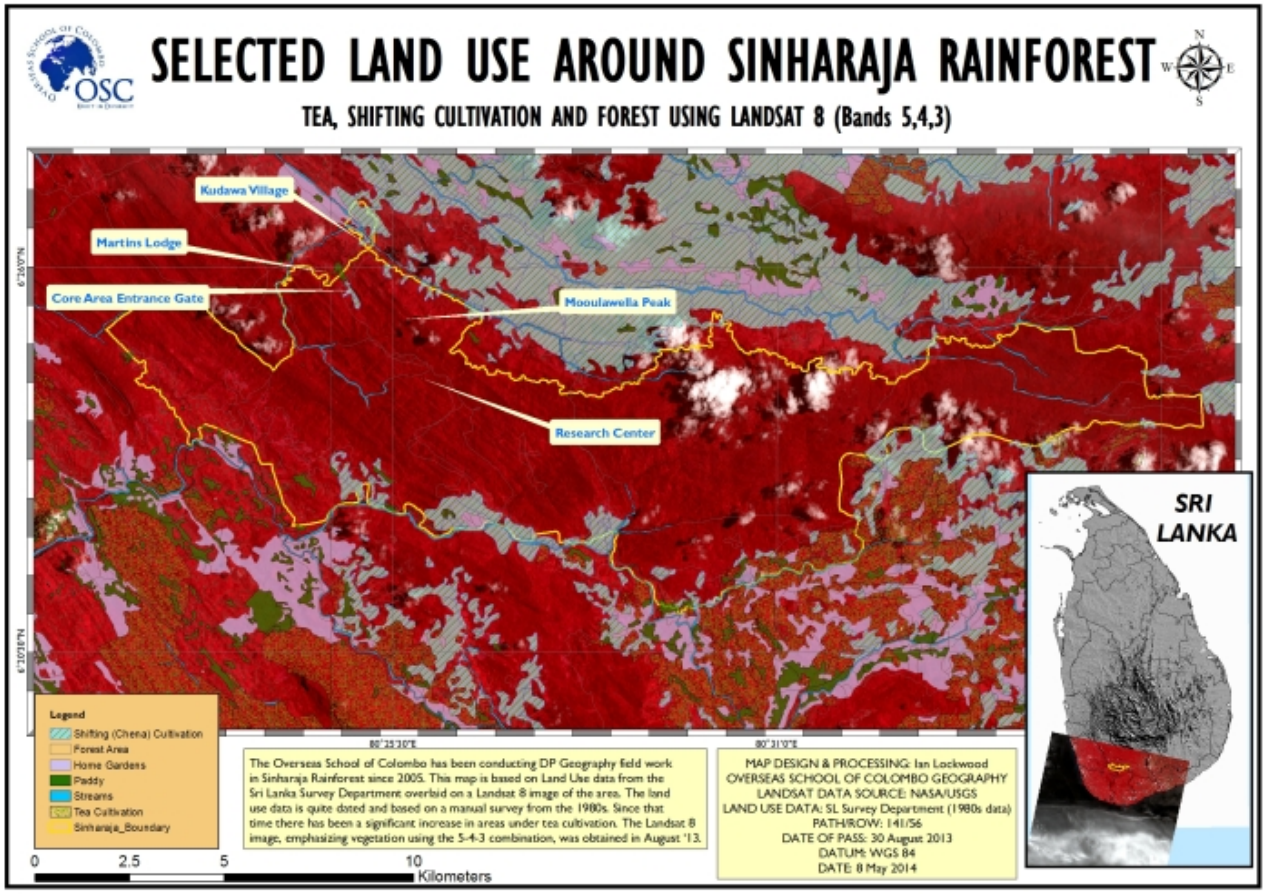


Selected biodiversity from a short trip to Sinharaja: Clockwise from upper left: Yellow-Fronted Barbet (Megalaima rubricapillus), fungi in secondary forest, Orange-Billed Babbler (Turdoides rufescens), large land snail, Sri Lanka Green Pit Viper (Trimeresurus trigonacephalus).

Looking south from Moulawella on a clear morning on our last day. This is a composite of four images taken with a Nikon D-800, thus producing a very, very large image. It has been reduced for this format but clicking on the image should give a better sense for the vast protected area in Sinharaja's heart.

OSC Class of 2015 DP Geography group on Moulawella peak with their teacher and guides (Ponaiya & Gunaratna). It was a remarkably clear day with uninterrupted views of Sri Pada. Picture courtesy of Uthpala De Silva.

Looking north from Moulawella's 760 meter peak to the Central Highlands. Sri Pada or Adam's Peak (2,243 meters) is a point on the distant, blue ridge to the right of the center. This image has also been cropped and reduced but it was clear to Horton Plains and beyond.



2014 Sinharaja Study Area (click on image for full 150 DPI A3 version).

SINHARAJA RESEARCH

Sinharaja rainforest has been host to a number of significant scientific studies in the decades since logging operations ceased in 1977. Several landmark ecological studies have been conducted over the last four decades. This includes the two-decade long forest dynamics study of a 25-hectare plot by the Smithsonian Tropical Research Institute , Peradeniya University and several other notable institutions. A classic study on the composition and spatial organization of mixed species flocks by Sarath Kotagama and Eben Goodale from 2004 serves as a model study and journal article for OSC students.

An intriguing development in the western corner of Sinharaja is how it is being used as a location to host “reconciliation workshops” for students from all over the country. The basic idea is to bring teenage students from government schools in the conflict affected areas in the north and east of the country and foster an appreciation of nature to help provide a more lasting peace. “Reconciliation through the Power of Nature” is facilitated by the tireless work and enlightened thinking of Professor Kotagama and the Field Ornithology Group of Sri Lanka (FOGSL) with support provided by Dilmah Conservation. Martin hosts these student-teacher groups at his lodge and there are illuminating posters illustrating the goals and outcomes of the three day workshops for Jaffna schools.

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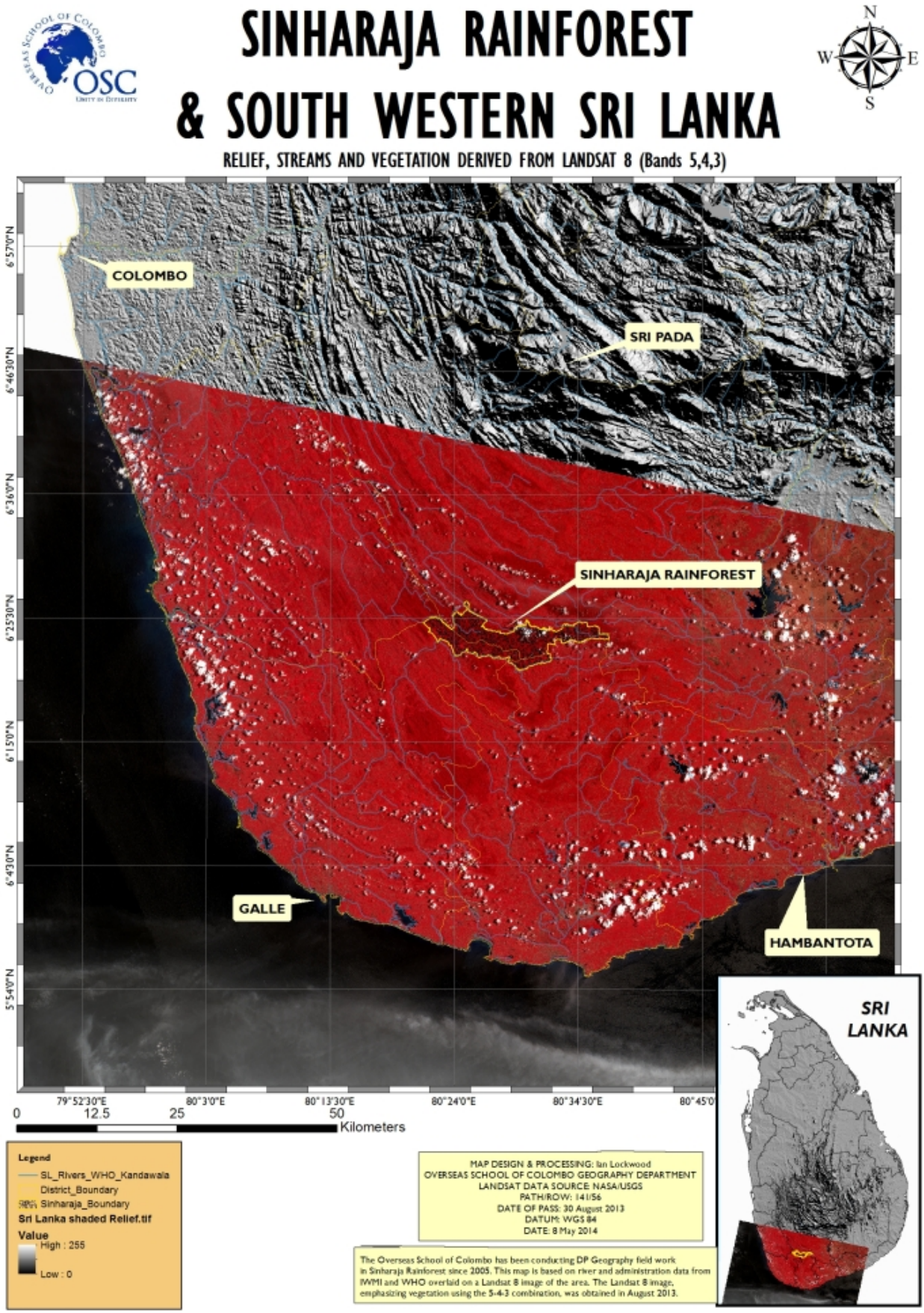
PAST BLOG POSTS ON SINHARAJA

- Geography IA Trip 2007
- Geography IA Trip 2008
- Geography IA Trip 2009

- Geography IA Trip 2012
- Geography IA Trip 2013
- General Sinharaja Reflections



A Map showing Sinharaja in relationship the surrounding area. This utilizes the same Landsat 8 image from the land use map above.

Written by ianlockwood

2014-05-07 at 5:17 pm

Posted in Birds of Sri Lanka & the Western Ghats, Reptiles of Sri Lanka & the Western Ghats, School work, Sinharaja, Sri Lanka Wildlife, Sri Pada (Adam's Peak)

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