



MEME *Update*

Management & Ecology of Malaysian Elephants

Issue 10

June 2015



Because we can only manage what we measure — working towards an evidence-based conservation of Malaysian elephants.



THE COME-BACK!— In this issue we jammed it up to compensate for the times we've been idle.



MEME'S ACADEMIC TEAM IS FILLING UP— After much selection, MEME brings you additional PhD candidates.



MEME UPDATES'S FIRST RESEARCH PAPER— Mineral deposits, elephant behaviour and forest structure; find out more in Anders' article.

The Return of MEME Updates

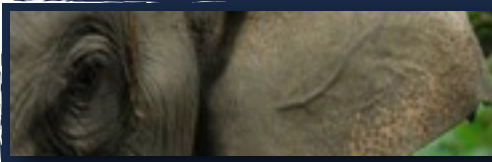
It has been a long time – two years! – since our previous issue of MEME Updates. Many things have happened to the MEME team in this time, mostly good. The team has increased considerably – we have now a new project manager (Praveena), a new tracker and field manager (Alicia, also known as *Ele-cia*), four new PhD students (Nagu, Jamie, Teck Wyn, and Lisa), and two new field assistants (Ridzwan and Khairil). We even had two Master students (Shiori and Anders) starting and finishing their projects in this period!

The new students have expanded the range of research topics that MEME can cover, including now in-depth work on human-elephant conflict, the ecological function of elephants, elephant movement, and even the science-to-policy interface. We are very excited to add all these topics to MEME's work. The new staff have also improved – a lot! – the way we operate. But most importantly, the new arrivals did not join a blank canvass. Rather, they joined an exciting research team that was already doing (I won't be modest here) an excellent job: Nurul continues to be MEME's own version of 'Mr Wolf'; Ee Phin has completed her field and lab work and is just months away of becoming MEME's first PhD graduate; Ange has travelled all over Peninsular Malaysia mapping the distribution of our elephants; and Ning has literally spent months of cumulative time watching camera trap videos of elephants.

With this new issue of MEME Updates, Ning is also taking a new role as its editor. It has been her determination and hard work that resuscitated MEME Updates (I had very much buried it under layers and layers of deadlines). I want therefore to acknowledge and thank her for keeping this newsletter rolling. The first issue of MEME Updates (August 2011) was entirely written by me. MEME had just recruited its first full-time member. MEME Updates issue 10 has been entirely written by students and staff and edited by Ning (with no input from me). From now on we intend to publish two issues of MEME Updates per year. We hope you enjoy reading about Malaysian elephants and our work studying their ecology, behaviour, and interactions with people.

Ahimsa Campos-Arceiz
MEME's Principal Investigator
Director of Mindset
SCB-Asia Acting President
School of Geography
University of Nottingham Malaysia Campus





MEME's Population Growth

MEME has grown considerably in the last two years. Here, we introduce our latest addition of PhD candidates. Their work covers more depth in elephant ecology such as elephant movement, seed dispersal, human-elephant conflict and last but not least, policy changes.

LISA ONG

Upon seeing a scholarship opportunity to investigate the ecological function of Asian elephants in Malaysian rainforests, I thought the research direction fits my interest in tropical ecology and plant-animals interaction just nice. It is a rare opportunity that could fulfill my hope to support conservation through ecological science methods! Yet the thought of seeking answers involving this elusive long-ranging species, the *Elephas maximus*, within a short timeframe and in such vast landscapes is highly daunting.



With faith in MEME's ongoing efforts, here I am looking forward to exploring the ecological aspects of Asian elephants such as their seed dispersal roles, how elephant's foraging habits and movement patterns may possibly influence the recruitment of megafauna plants, and if elephants' presence play any functional role in regulating forests' structure, flora and fauna's diversity. The process will likely involve identifying various habitats associated with current elephant populations and observing how current landuse have influenced elephants' ranging behaviour. Finally, potential habitats suitable for or that may benefit from (rewilding) the Asian elephants will be evaluated.

It may not be within the limit of conservation science to ensure the persistent of megafauna and megafauna plants in the future to come. Terrestrial ecosystems' response to perturbations and patterns arising from these are difficult to track. Such combining factors calls for an even more urgent need for boundless conservation efforts from people with varying skillsets and different backgrounds! I feel honoured to be part of this team.

K. Nagulendran

Nagu joined Geography School, UNMC in August 2013 to pursue a PhD on Biodiversity Governance. His research is looking at strengthening the management of protected areas and wildlife in Peninsular Malaysia. Nagu's work will provide the science - policy link and perspective to the overall work of MEME. Nagu works for the government and after 17 years in service, he felt it's about time to go back to school to pursue studies in an area that he is very passionate about - Biodiversity.

His PhD study is funded by the Government of Malaysia.



MEME's Population Growth



TECKWYN LIM

One of my earliest memories has me in Muzium Negara at the dark far end of the natural history section in front of a skull of a bull elephant with tusks longer than I was tall. I also gazed up at a black-and-white photo of the train that the elephant had derailed "in defence of its herd".

Around the same time I was one of countless children that rode atop one of Zoo Negara's elephants on the little loop around its enclosure. The thrill of passing sticks of sugarcane to these marvellous creatures was mixed with wonder at the chains on their legs and the curved spike of their keeper.

It was some thirty years later before encountering an elephant in the wild - first the inches-deep footprints, monstrous dung and then the beasts themselves that incredibly seemed to be able to melt into the forest. These creatures seemed to fill a void in the mass of greenery that I had studied during my forestry degree.

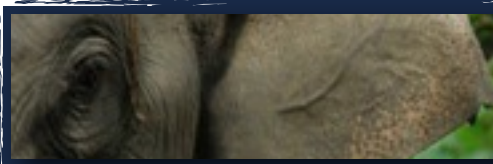
The twin onslaught of industrial plantations and rampant poaching threatens to turn Malaysia into a land of empty forests surrounded by agriculture incompatible with wildlife conservation. I'm fortunate to count as friends many of those who are working to fight these threats. With my PhD I hope to help chart a course to a future where young Malaysians will be able to inherit a World where majestic elephants continue to thrive in the wild and are not just found in zoos and museums.

JAMIE WADEY



I'm a biologist who's research has mainly focused in South-east Asia and is particularly interested in using movement ecology for conservation of large megafauna and their environments. My PhD candidacy will be analysing the movement data collected by MEME. In line with MEME's holistic approach, I will try to contribute to such by monitoring elephants with satellite GPS collars in: i) human-dominated landscapes ii) in natural habitat and iii) translocated elephants (due to human conflict). From the data we aim to analyse how highway roads, forest connectivity, human-dominated and natural landscapes affect the movement choices of Asian elephants in Peninsular Malaysia.

I'm currently a visiting Researcher at Smithsonian Conservation Biology Institute (SCBI). The purpose of the visit is to collaborate with the SCBI research team to analyse MEME's GPS collared elephants data, with the focus on the affect roads have on elephant movement. With future collaborations in sight the ultimate goal of this will be to develop a better understanding of Asian elephant movement behaviour and habitat needs and to use this newly gained knowledge for better conservation and management of wild Asian elephants.



MEME Project Manager

Praveena Chackrapani

got her Masters in Environmental Monitoring and Management at the School of Geography, UNMC. As an alumnus, MEME was not a stranger to her. She joined MEME in September 2014 as a Project Manager, handling vital tasks of administration and financial management together with Nurul; and coordinating the team's activities. She says: "Although I am not a biologist by training or by qualification, I am glad to be a part of the team and this seems to be the right 'fit' for me. My interests lie in the social sciences of environmental management and education in general." She also represents MEME at the MyGajah Committee meeting chaired by PERHILITAN.



Prior to joining MEME, Praveena was the dedicated conference coordinator for the Society of Conservation Biology- Asia Chapter 2014. She was interviewed by Nature in "Symposia- Behind the Scenes" (<http://www.nature.com/naturejobs/science/articles/10.1038/nj7506-565a>) of her experience. Here she shares her thoughts more closer to home.

From the 19th-22nd August 2014 Malaysia played host to the 3rd Regional Conference for the Society for Conservation Biology Asia Section at the Hotel Equatorial in Melaka. This biannual event saw around 380 from 45 nationalities and 36 countries of affiliation comprising of scientists, researchers, policy makers, NGO's, students and conservationists converging Melaka for a productive meeting on Conservation Biology. The conference chairperson was our very own P.I Dr. Ahimsa Campos-Arceiz who along with his team of Local Organizing Committee organized a successful conference comprising of 7 key note addresses, 223 oral talks and 60 poster presentations. There were also 7 pre and post conference workshops held at the University of Nottingham Malaysia Campus.

The MEMERs turned out in full force and played an important role towards the conference's success by helping out in the LOC and as volunteers. There was a special symposium on "Asian Elephants: Moving towards Effective Mitigation of Human-Elephant Conflict- Are we really progressing at all?" (photo on right). Students Ange Tan, Anders Kromann-Clausen and Hii Ning presented their research at this forum whilst PHD students Ee Phin & Jamie had poster presentations.

We take this opportunity to thank all our sponsors namely UNDP-GEF, Ministry of Natural Resources and Environment Malaysia, The Malaysian Convention & Exhibition Bureau and the University of Nottingham Malaysia campus for acting as the host institution and providing venue for the workshops.



Where Biodiversity Science Meets Policy

by K. Nagulendran

A multi stakeholder workshop was held on 4th March 2014 to discuss priority conservation issues on biodiversity management in Peninsular Malaysia. This workshop focused on strengthening wildlife and protected area management. This workshop was attended by 42 participants representing the government, NGOs, academics and private sector. It was held in part of a participatory research to identify key priority issue for conservation.



The outcome of this research has been shared with the Economic Planning Unit in September 2014 at a lab regarding the 11th Malaysian Plan. Through this participatory, transparent and inclusive approach involving all the relevant stakeholders, we can better focus and channel our conservation efforts on priority issues and optimise the use of limited resources towards a better management and conservation of our amazing biodiversity.

MEME @ IUCN World Parks Congress 2014, Sydney.



The IUCN World Parks Congress 2014 (<http://worldparkscongress.org>) was held in Sydney in November 2014. It is a landmark global forum on protected areas held once every 10 years. The Congress shares knowledge and innovation, setting the agenda for protected areas conservation for the decade to come. Nagu participated at this conference and gave a talk entitled “Integrating Protected Areas Into National Planning: Overview and key issues”

The talk by Nagu focused on the central role that Protected Areas in Malaysia play in the context of Malaysia’s development agenda. The talk highlighted the challenges and provided a 3 prong solution in Protected Area management in strengthening biodiversity conservation while promoting the well-being of the people in meeting Malaysia’s aspiration to be fully develop nation by 2020.

To view the talk : <https://www.youtube.com/watch?v=uxQuQJTmlHA> or <http://tinyurl.com/WPC-Malaysia>

How Mineral Deposits impact the Behaviour of Megafauna and Shape the structure of a Malaysian forest

by Anders Kromman Clausen

The tropics are among the most diverse ecosystems on earth and host a great variety of plants and animals, at the same time the great heterogeneity found here means that resources are distributed patchy in both time and space. Fruit trees are among these resources, and they make up an important component of animals diet, but are only available for a limited time and these periods are in many cases unpredictable, and can occur with years in between for an individual tree. Other resources are more reliable, but are scattered more scarcely in the forest such resources include mineral deposits

Mineral deposits

Mineral deposits are an important component in the diet of many species of mammals, these mineral deposits are common in many tropical forests around the world, and are often located in close proximity of a body of water. Animals visit these sites for various reasons, some of the most common are believed to be as a way to supplement their diet with minerals that their diet are low on, or lacking. The minerals sought after by the animals are linked with the available food, periods where fruits make up large portions of the animals diet sodium are increasingly important due to the low concentrations of sodium in fruits, compared with normal browse. Another benefit is believed to be consumption of clay that are rich in mineral that helps reduce the otherwise toxic impact plant secondary compounds can have.

Often the foraging behavior of animals are affected by the availability of both fruiting trees and mineral deposits, although they both are known to affect the decision making of animals, the more permanent and scarcely scattered mineral deposits attract animals from a larger catchment area than fruiting trees, and at the same time over a longer period of time.

Animals searching for these resource patches will do this based on three questions; when to forage, where to forage and what to forage for. If the animals are foraging optimally the solution to these questions is to minimize the effort and at the same time maximizing the yield. This means animals will travel along routes with low cost and high gain.

For mineral deposits this will lead to the creation of trails, going to and from the area, these trails will, as they are increasingly used, be better and better defined. One of the animals inhabiting, and shaping the forest is the Asian elephant (*Elephas maximus*), besides being one of many species recorded to visit and utilize mineral deposits elephants also plays a big role in the formation of trails, attributing to the size of elephants, trails that can be used by other species visiting mineral deposits.

Due to the fact that these mineral deposits tend to be hotspots for animal activity it could be expected that the ecological role these animals play would be more profound here, one being their role as seed dispersers, and that this affect also could be observed with more trees found along elephant trails.



Tree composition study by MEME



Hassan measuring DBH

To answer these questions MEME have been conducting fieldwork in the Belum-Temengor Forest Complex (BTFC), where data regarding six species of trees was collected over from January to September 2014. The work included visiting mineral deposits that was known to be used or visited by elephants, at these sites information regarding, height, diameter, and distance from transect was recorded for individuals of the six tree species included. In total eight transects was done at each site, half would follow trails and half would by straight lines, with no regards for trails. The idea behind this was that elephants would migrate along trails in the forest, and therefore seed deposition through dung would be more profound here, which would be reflected in higher abundance of the study species.

Results

The results of the study showed that there was a significant difference in the abundance of all six species of trees, when mineral deposits were compared with random locations, and that this difference was with the highest abundance at mineral deposits. Comparing trees found at trails with non-trail areas at mineral deposits the study found that trails do not contribute significantly to the higher abundance of trees found as mineral deposits, and that just as many trees can be found at non-trail areas.

Implication of mineral deposits on forest composition

The results show that megafauna's behavior, when it comes to foraging at rare resource patches have implication for tree distribution, but also more general for forest structure.

Overall it shows that mineral deposits are important players in the forest structure, and an important part of forest conservation in South-East Asia is to take these mineral deposits into account.

It also underlines the important role elephants play in shaping the forest, and what consequences a loss or severe decline in local elephant populations can have for the structure of the forest, which will mean difficulty for large seeded plant to maintain their current distribution in the forest.

It is therefore important to conserve forest that contains mineral deposits which serve as hotspots both for many species of mammals, but also for plant species that rely on these animals for their dispersal.



Elephant Dialogue through Our Lens

by Hii Ning



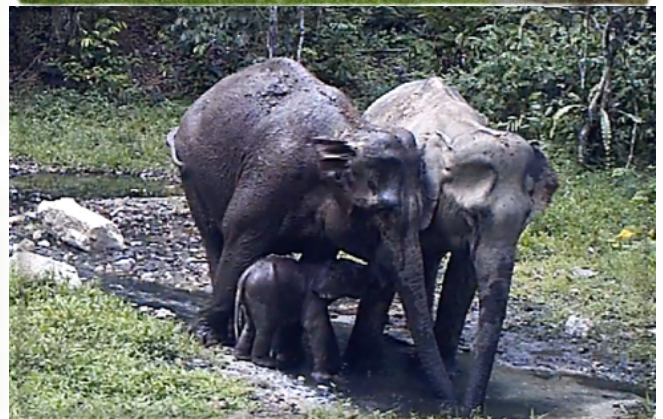
Many have acknowledged the primeval beauty of Belum Temenggor Forest Complex (BTFC) but not many knows about the storm that created its serenity. The biggest reason for the preservation of the forest complex can be attributed to the Communist guerrillas that used the site as their base, initially against the Japanese occupation during WW2, subsequently it was used against the new government during the Emergency period, lasting from 1948-1960. Access was restricted up till 1989 when the party surrendered, thus, the preservation of the ecosystem came about as a blessing in disguise.

The rich biodiversity within is still understated despite the open up since the 80s, and nonetheless the difficulty of conducting long term research in a tropical rainforest prevails. For the biggest terrestrial species known- the elephants, is no different matter. Studies on elephant social structure have long been established in open landscapes in Africa, Sri Lanka and India, but little is known about our Asian elephants that resides in the dense forest habitat. The apprehension of elephants' social structure is imperative to conserving the species. In order to fully compliment other aspects of elephant ecology research, the baseline knowledge of their social structure and demographic trends is vital to understanding what sustains the wild population over a long period of time.

My study focuses specifically on the subject of social structure of Asian forest elephants. My role is to identify individuals that belongs to a stable herd in females groups; lone males are recorded; and i observe how often they interact with one another. This is made possible not only by technological advancement but also by the fact that elephants uses mineral licks, which is a semi-open habitat, for alternative nutrient intake.

Using camera traps, we are able to capture the ways of the elephants, how they go about each day and its more than what we had bargained for. Observing their interactions it is somewhat sensational as the emotional expressions they have is similar to what we understand and these are the indicators for information extraction from their almost silent encounters. I am grateful that we still have these colossal animals in our landscape to relish upon.

We hope to share what we have learnt with you all and for you to appreciate Nature's way a little more, bit by bit. Even though we don't see them in the forest, the signs that they leave behind is a reminder that we are not alone and our forest is still filled with wonders if we continue to preserve it the way it is, there will be more to see still.



Social Science for Conservation

by Ange Tan

“History and social science is a difficult area because it is not just an academic content area but an issue that reflects how people view themselves and so tends to get more emotional.” — Glee Johnson

Humans are the ultimate drivers of biodiversity loss. The ever increasing demand driven by growing human population is impacting the environment at an extensive scale. As such, to conserve the threatened wildlife and its habitat, we must first try to understand the drivers of these human behaviors because conservation outcomes are determined ultimately by us, humans. By understanding the drivers and relationship of the behavior, it can help us to improve conservation management and outcome. On the other hand, conservation practitioners often lack the required knowledge which has been developed and widely applied in social science field. Recognizing the importance,

more practitioners are engaging and conducting interdisciplinary conservation social science approaches developed by social scientists.

In line with the growing demand of social science research (based on the countless questions posed to Mike), Biodiversity Conservation Sarawak Society (BCSS) organized a five day “Asking Questions in Social Science Workshop” coordinated by Dr. Freya St. John and Dr. Aidan Keane from University of Kent and University of Edinburgh respectively. Dr. Freya’s research mainly focuses on understanding drivers of human behavior especially on sensitive behaviors while Dr. Aidan researches about the effectiveness of community based conservation on the use of resources. It was well attended by many local and oversea conservation practitioners and students from the ecology field.

The workshop started with explaining what is social science and the tools used and how it is relevant to the conservation world.

Participants and facilitators of the workshop. Picture taken by Horng from WCS Malaysia



The importance of a well-chosen sampling strategy is pivotal in every research and we were taught how to choose the most suitable sampling method and its analysis based on our research aims. Finally, my favourite part, on the last day, we were able to practice what we have learned by designing a group research of a chosen topic and present it to other participants for comments and suggestions.



Some lessons learned from the field and workshop.

It is common for me to obtain vague answers from respondents. An easy trick taught by Dr. Freya to get around it is by supplementing my primary question with subsequent ones by changing the way I ask the same question. For example, a normal question would be “Are there any elephants in this vicinity” to which they often reply “Oh yes, long time ago and I can’t remember now”. I often find people usually are able to relate and remember better when an event is linked with the occurrence of another significant event. For example when they were married, when they had their first child or when they were in primary or secondary students etc. Therefore, a quick way to gauge when was the last time elephants do exist in the area is by asking “How old were you when elephants were here, uncle? Were you in primary/secondary school?”

Another common unavoidable situation is to interview more than one person concurrently especially in a warung or food stall. Having a

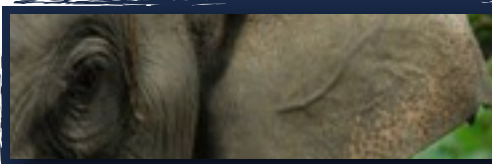
group discussion is extremely helpful if I am trying to probe or discuss a situation similar to a focus group. On the contrary, I try my best to find single individual, avoid food stalls for my interview and if unavoidable, I will only focus on one person and try to politely ignore any interrupting or conflicting answers from any third parties. The main problem for a multiple respondent interview is that the respondent will be distracted and have conflicting answers which can be extremely confusing to record their answers. In the event this circumstance is unavoidable (other people may come by to participate in your interview), Dr. Freya’s advice was “the best way to deal with this situation is politely leave and look for another respondent”.

What I’ve learned in the workshop

The experiences and challenges shared by other practitioners have made me really understand that each conservation issue must be tackled individually. There is no one stone to kill all birds and we have to be patient and persevere if we are to understand why certain behavior persists and how we can change or try to influence people’s perception and actions in addressing conservation issues. If you have missed out on the workshop and is interested to join, MEME has plans to conduct another social science workshop in the coming months so do keep yourself updated.

Param and Ange setting off to one of their field survey sites.





Hannah Abson

decided to joined MEME as part of her gap year from September 2014- March 2015. Her injection into the team has brought much joy as she was packed with mild English humour and her flexible character to accommodate in all of MEME's activities has been very valuable.

She furnished the project with photographs and art and we are grateful to have had her onboard. Herewith, an article from Hannah of her experience in Peninsular Malaysia.



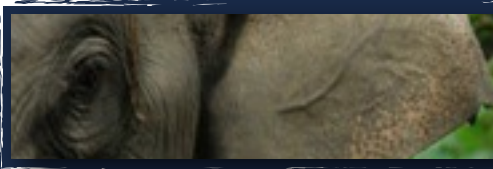
Meme has many different aspects of their work ranging from interaction with local people to collection of hormones from dung in the field. In my six months of interning at MEME as part of my gap year, I was lucky enough to sample and participate in most of their activities with the focus on seed dispersal identification work, where we aimed to identify the large quantity of seeds in order to discover which seeds in tropical East Asia elephants disperse; and elephant tracking with field manager Alicia Solana Mena followed by human-elephant conflict surveys with Ange Tan.

A favourite memory was once when we were tracking elephants in Terengganu. To follow the trail we had to jump off a ledge down to the river bed, into what looked like sand. Cherang went first and jumped feet first into sinking sand and crawled out covered up to his stomach in clay like yellow sand.

Following Ange, talking to people in and around the villages of peninsular Malaysia has helped me to understand their opinion of co-existing with Elephants. I began to understand the views of the locals who have had their crops and buildings damaged by elephants. This is their livelihood and if damaged they may not be able to feed their families. I can in no way condone what is happening with the poisonings and killings of elephants, however it made me realise that we must consider the people living in these areas. We cannot tell someone that they have to live alongside these huge animals and not expect retaliation when things go wrong. People need to be able to work together, side by side, in order to make conservation work.

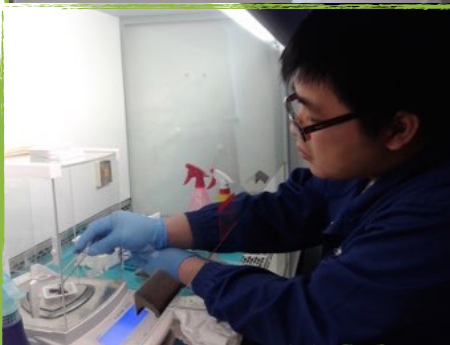
I was only in Malaysia for six months so in no way can I even try to understand the working of such a long running project. But from what I have seen I believe there is a place for elephants in Malaysia and it is not in a zoo or a sanctuary. They have an important role to play within the ecosystem and without them many things we may not even yet realise could change. I would like to thank Ahimsa and the team for the eye opening opportunity that they gave me and look forward to where it will lead me in the future.





Diary from the stress zone

by Wong Ee Phin

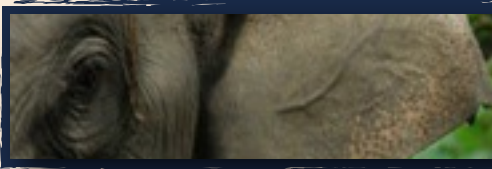


From the top: Ee Phin with Mawar, a released elephant from Kuala Gandah; MEME's tracking team; Clearing the freezer of dung samples with Cheng Sze Yin; Loke Wei Qi assisting in weighing out samples for hormone extraction.

In 2012, when I started my PhD research, one of the first thing I did was to talk to experienced wildlife department officers who track elephants in the field, about the idea of non-invasive monitoring of translocated wild elephants. It was funny enough to convince them that, yes, it is possible to extract hormones through the dung, and that it will give us an idea of the adrenal activity in the animal that can be linked to 'stress' response. Often, the officers gave me a look that seems to say "are you serious?", and proceed in trying to convince me that tracking wild elephants are difficult and perhaps a futile effort. What they said was true as it was not an easy task to track elephants through the thick foliage of Malaysia's rainforest where visual sightings are low. Luckily, if not for technology of GPS satellite collars, we wouldn't be able to carry out this research. After almost two years of fieldwork, we have collected about five hundred dung samples from 15 elephants (individual and groups) and also from opportunistic samplings of dung from other elephants.

The making of impossible to be possible, is a team of dedicated people assign to the cause of conserving wild elephants, including fellow team-mates in the field: Alicia Solana Mena whom heads the elephant tracking task and our local indigenous research assistants a.k.a. field mentors, Param, Cherang, Hussin, Ridzuan and Khairil. Tracking with them in the jungle has been an inspiring experience. I am also extremely grateful for the support from my advisors and supervisors, volunteers, friends, government, private and academic institutions. If they say it takes a village to raise a child, it certainly feels like it takes equally or more to carry out a PhD in wildlife conservation.

Amazingly so, I am reaching the final leg of my PhD research journey. After filling two large freezers to the brim with elephant poo, I started extracting the 'hormone metabolites' earlier this year. I am glad to report that the freezers are now emptied and the hormones extracts are safely in tubes. I am currently analyzing the result in the lab and there will be a couple more steps to go, including data analyses and publishing the results. But looking back on the three years journey, we have certainly come a long way for non-invasive monitoring of wild Asian elephants.



The Unsung Heroes of MEME

Five field mentors, each having their own stories but all dedicated to the greater good of Malaysian elephant research. We would like to use this opportunity to introduce them as a way to show our deepest appreciation for what they have done. From the creation of MEME till today, they were the ones that made our fieldwork possible. They are the people of little words but their actions are assertive with strength. Their keen observation for the signs and sounds of the forest and of people has taught us a lot about being humble and kind. Their qualities can only be unfolded with the days and endeavours we've been through together and we thank them for the spirit that they have shown us. "Terima Kasih Kawan!"



Param has been with MEME since its formation. Working with various project before he has shown maturity and intelligence. It has made him the glue of the team and natural leader. He is a delightful person to work with.



Hussin is soft-spoken but flexible in his roles within the group, he is hard working and once you get to know him, he is playful and it is a real pleasure to work with him. Cherang and him makes the perfect tandem.



Cherang has excelled as one of our prowess elephant tracker. He has a comical straight-face on first encounters but he is reliable in the field with his instinctive memory, courage and also his strictness in keeping the team safe.

Khairil is the youngest and newest addition to the team. He is smart and joyful. He has an incredible skill in climbing trees and has instilled fresh vibe and energy since his joining.



Ridzuan is the only father among the five and has worked as a tour guide before he joined MEME last year. His sense of humour and openness has brought much dynamism into the team.





Top left: Beetle experts, Dr Hans Huijbergts from the Museum of Natural History Naturalis, Leiden, Netherlands and Thary Gazi joins in on one of the salt lick trips. They are interesting in finding dung beetles that resides in elephant poop.

Above: Field team crossing Sg Perak to get to Sira Lebong as part of Ander's fieldwork.

Left: Mawar enjoying a drink after she was released to the wild; **Below:** Jamie taking over the elephant collaring work as part of his PhD research. The collaboration with Perhilitan is important and we would like to thank them again for this opportunity.

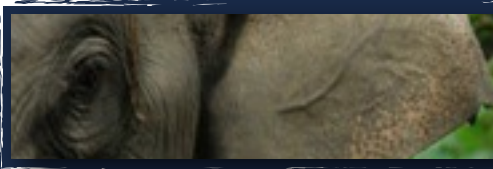


Left: Bees found to be using the mineral licks too.

Bottom left: Ridzuan, Alicia, Anders and Hussin after done dung-seed work, waiting in the rain for team members to finish up the camera trapping work.

Bottom: MEMERs went on a work retreat to Institute of Biological Diversity (IBD) in Krau in preparation for the SCB Melaka 2014 presentations.





Above: Temenggor Lake, a scenic natural asset to the country.




Left: Dr Ahimsa Campos-Arceiz presented his keynote on “The elephant in the room – the difficult task of conserving elephants in a crowded world.” at the Annual meeting of GTO held in ETH Zurich, Switzerland.

Below: Field biologists and researchers working on tropical ecology around the globe met in Phnom Penh, Cambodia for the Association of Tropical Conservation Science-Asia Chapter.

Right: Mindset was grateful to host notable researchers to present their work. Here Dr James Watson and Dr Balah talks about protected areas. Podcast can be found on <http://www.mindset.my>.



It was our pleasure to have visiting researchers like Professor John Terborgh, Dr Lisa Davenport and Dr Kim McConkey. They visited the forest with the hope of kick-starting some research studies on seed dispersal in Peninsular Malaysia. Their expertise and experience has been a valuable asset to the team! 

Our Supporters

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