News and Notes

Sumatran rhino dies weeks after discovery

In early April, a critically endangered Sumatran rhino died only weeks after its chance discovery in East Kalimantan province. The rhino was caught in a pit trap the previous month in an area close to mining operations and plantations. In 2013, environmentalists discovered that the Sumatran rhino was not extinct on Indonesian Borneo when camera traps captured images of the animals. It was the first physical contact environmentalists had made with a Sumatran rhino on Indonesian Borneo in more than 40 years, after it was assumed the had gone extinct. They used to roam most of Borneo but their numbers have dwindled dramatically, with poaching and the expansion of mining and plantation operations considered the main reasons for the decline. Today, it is estimated there are less than 100 left in the wild although many conservation experts consider this figure to be over ambitious.

The captive female rhino died from what is reported to be a leg infection. Since the course of death is a highly unlikely occurrence, a post-mortem examination will be conducted to determine the official cause of death. The death of the female rhino is a serious setback for the Sumatran rhino conservation activities. Whereas many Government officials and large environmental NGOs, amongst these WWF Indonesia, have downplayed the incident, others express the incident as nothing short of a major disaster and a timely reminder that it is time for the Sumatran rhino range countries (Indonesia and Malaysia) to set aside national agendas and pursue more rigorous captive breeding techniques. Meanwhile the idea to develop a separate captive breeding centre in East Kalimantan seems ill-conceived, and will be hampered by logistical challenges and small non-viable rhino numbers even at is most optimistic level.

New report highlights laundering of wild-caught species through captive breeding facilities

TRAFFIC in Southeast Asia has recently released a report highlighting the large-scale laundering of wild-caught Tokay Geckos Gekko gecko, declared as being captive-bred from Indonesia. Commercial breeding of Tokay Geckos is permitted in Indonesia and in March 2014 the Indonesian Ministry of Forestry announced that they had given permission to six companies to export a total of over three million live captive-bred Tokay Geckos a year for the pet trade. According to TRAFFIC's report, "Adding up the numbers: An investigation into commercial breeding of Tokay Geckos in Indonesia", producing such numbers from existing captive breeding operations would be impracticable, and simply unprofitable.

- "Given the investment needed, it's clearly impossible to maintain and breed Tokay Geckos year-round on the scale required and still make a profit," said Dr Chris R. Shepherd, Regional Director of TRAFFIC in Southeast Asia.

It is also more likely the majority of these geckos are exported dead and kiln-dried to markets in East Asia where they are used as ingredients in traditional medicines. TRAFFIC recommends that applications for permits to captive breed Tokay Geckos commercially are viewed critically and urges Indonesia to list the

Tokay Gecko in Appendix III of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) with immediate effect, to allow monitoring of the trade from the country, and to consider the merits of a listing in Appendix II of the Convention to enable greater regulation of the international trade.

http://www.traffic.org/home/2015/11/6/tokay-gecko-captive-breeding-doesnt-add-up.html

Dr Chris R. Shepherd
Regional Director
TRAFFIC in Southeast Asia

Tiger countries agree to preserve big-cat habitats

Countries with wild tiger populations have agreed to do more to protect tiger habitats that are shrinking drastically because of deforestation and urban sprawl. Representatives from the 13 Asian countries with tigers, met in New Delhi in April, 2016, and issued a resolution acknowledging that the forests in which tigers live are inherently valuable themselves and worthy of protection.

Drawing on the principles of natural capital, these forests can help preserve economic growth by safeguarding water supplies, improving air quality and providing homes for not only tigers but also birds, frogs and other mammals.

The world's tiger countries are all in Asia: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Nepal, Malaysia, Myanmar, Russia, Thailand and Vietnam. India has the most by far, with about 2,500. None of the others have more than 500. At the same time, many tiger range countries have growing human populations and fast-developing economies. Nevertheless, by 2022, these countries want to double the world's wild tiger population from the all-time low of 3,200 hit in 2010.

In 2014, it was reported that the world's tiger count went up to 3,890 — marking the first increase in the wild population census in more than a century. But that did not necessarily mean there were more tigers in the wild. The higher number may just mean scientists are getting better at counting them, with more sophisticated survey methods including camera traps and DNA analysis of scat. It also could suggest that the more recent surveys are faulty, because an actual increase in wild tiger populations would also be hard to reconcile with the fact that their habitat is shrinking so fast (see the following *Statement of Concern by Tiger Biologist*). In just the last five years, tigers lost a full 40 percent of their remaining natural habitat, according to the International Union for Conservation of Nature.

Following the April meeting, Cambodia declared its tiger population "functionally extinct," meaning it had insufficient number of tigers in the wild to form a genetically viable breeding population. While Cambodia's agriculture minister pledge to "look into repopulating the Southeast Asian country with Indian tigers", this proposition has been idle for more than 10 years, due to governmental procrastination and NGOs' unwillingness to beef up external pressure and/or investment on the ground to actually accomplish something meaningful on the ground.

India, however, is ready to help, with her Environment Minister Prakash Javadekar pledging: "India is willing to cooperate with any country which does not have or has lost its tiger population in the course of history". India, home to about two-thirds of the world's wild tigers, also agreed to strengthen controls against cross-border wildlife crimes, including trafficking in animals and animal parts such as tiger skins and bones and rhino horns.

Time will tell if the respective Governments in tiger range countries will live up to their pledges, and if many of the large international NGOs working with tiger conservation will increase conservation efforts on the ground where it is most needed, or resort to endless resolutions, pledges and verbal support.

Statement of Concern by Tiger Biologists

On Sunday, April 10th, the World Wildlife Fund (WWF) and Global Tiger Forum (GTF) issued a report stating that the world's wild tiger population was on the rise, and on track for a doubling in a decade. This came as a surprise to many tiger conservationists, including some of the World's most dedicated within the field. They issued the following statement:

"We do not find this report and its implications scientifically convincing".

1. Having devoted years of our lives to trying to understand and save wild tigers, we believe their conservation should be guided by the best possible science. Using flawed survey methodologies can lead to incorrect conclusions, an illusion of success, and

slackening of conservation efforts, when in reality grave concern is called for. Glossing over serious methodological flaws, or weak and incomplete data to generate feel-good 'news' is a disservice to conservation, because tigers now occupy only 7% of their historic range 2. A recent World Conservation Union (IUCN) assessment3 showed 40% habitat loss in the last decade, and a spike in poaching pressure in many regions. Cambodia, Vietnam, Lao PDR and China have virtually lost viable tiger populations in recent years. This is not a time for conservationists to take their eyes off the ball and pat each other on the back.

2. There is no doubt that wildlife managers in parts of India and even in specific reserves in South East Asia and Russia have made commendable conservation efforts, leading to recoveries in specific tiger populations. India has invested massively in recovering several tiger populations2 over the last four decades. This has been possible because of strong political, administrative and public support rarely matched anywhere else.

3. Such sporadic tiger recoveries should be monitored using statistically robust camera trap or DNA surveys. Rigorous scientific studies in India, Thailand and Russia4-6 demonstrate this can indeed be done. But these studies also indicate that tiger recovery rates are slow and not likely to attain levels necessary for the doubling of wild tiger numbers within a decade4-6.

4. Estimates of tiger numbers for large landscapes, regions and countries currently in vogue in the global media for a number of countries are largely derived from weak methodologies7-9. They are sometimes based on extrapolations from tiger spoor (tracks and droppings) surveys, or spoor surveys alone. While spoor surveys can be useful for knowing where tigers occur, they are not useful for reliably counting their numbers. Translating spoor counts to tiger numbers poses several statistical problems that remain unresolved9, which can lead to fundamentally flawed claims of changes in tiger numbers7-9.

5. Source populations of tigers that occur at high densities and which are likely to produce 'surplus' animals that can disperse and expand populations now occupy less than 10% of the remaining 1.2 million square kilometers of tiger habitat2. Almost 70% of wild tigers survive within these source sites. They are recovering slowly, only in some reserves4-6 where protection has improved. Outside these source sites lie vast 'sink landscapes', which are continuing to lose tigers and habitat due to hunting as well as rural and developmental pressures.

6. With the above considerations in view, even taking these putative tiger numbers at face value, simple calculations show that doubling of the world's tigers in ten years as hoped for in the report1 is not a realistic proposition. Assuming 70-90% of wild tigers are in source populations with slow growth4-6, such an anticipated doubling of global tiger numbers would demand an increase between 364-831% in these sink landscapes. We believe this to be an unlikely scenario.

7. Rather than engaging in these tiger number games that distract them from reality, conservationists must now focus on enhancing and expanding recovery and monitoring of source populations, while protecting their remaining habitat and their linkages, all the while being guided by the best of science.

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More evidence of Global warming, 15 April

An early melt event over the Greenland ice sheet occurred this week, smashing by a month the previous records of more than 10% of the ice sheet melting. Based on observation-initialized weather model runs by Danish Meteorological Institute (DMI) almost 12% of the Greenland ice sheet had more than 1mm of melt on Monday 11th April, following an early start to melting the previous day. This came as a surprise to scientists

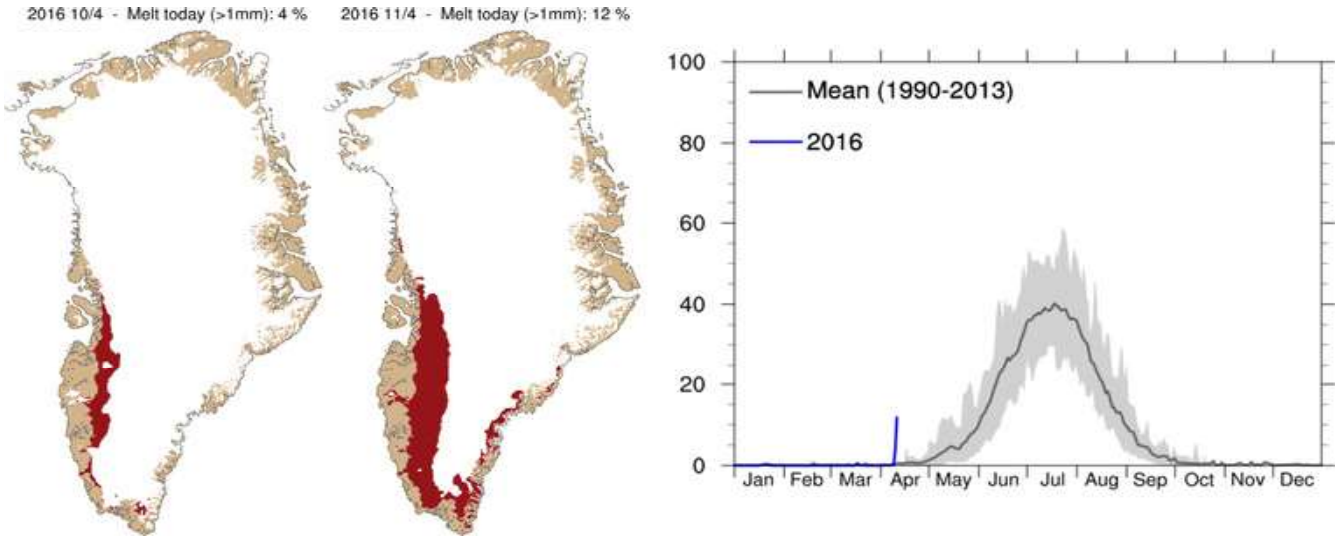


Figure 1. The mean temperature (°C) measured in April, 2016, on the ice sheet of Western Greenland (left) and the 2016 mean in comparison to previous ears (right).

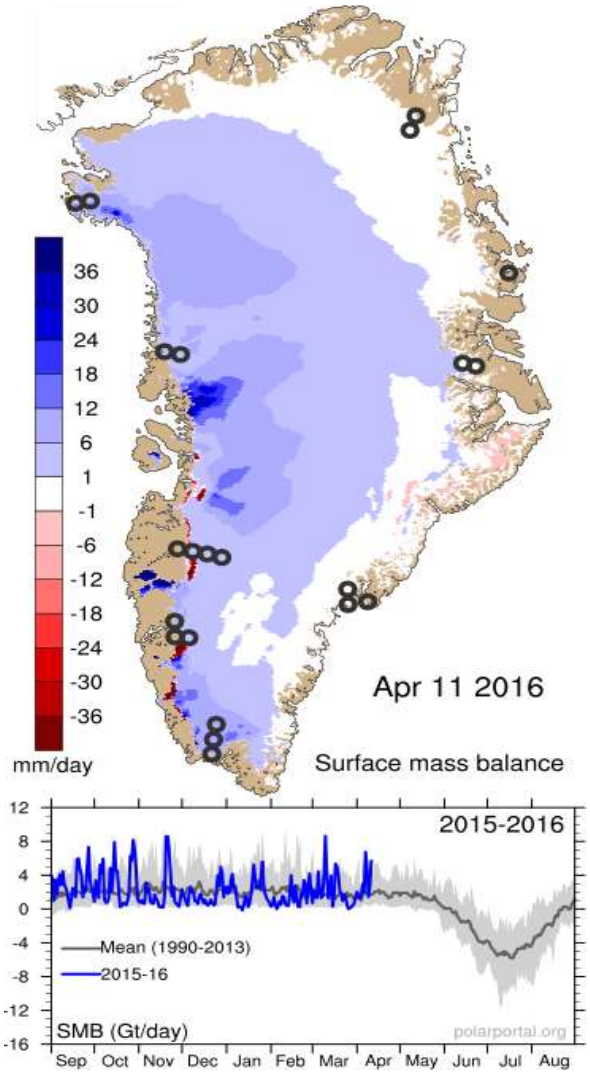


Figure 2. Daily surface mass balance on Greenland's ice sheet.

at DMI Danish scientist, Peter Langen and colleagues confirmed this from data from the PROMICE.dk stations on the ice sheet that the temperature had been well above melting, even above 10 °C (Fig. 1). The former top 3 earliest dates for a melt area larger than 10% were previously all in May (5th May 2010, 8th May 1990, 8th May 2006). Even weather stations high up on the ice sheet observed very high temperatures on Monday. At KAN_U station, for example, a site at 1840 m above sea level, scientist observed a maximum temperature of 3.1°C, similar to a warm day in July. Other PROMICE stations in the network at lower levels had daily average temperatures between 5 and 10 °C.

Around the coast of Greenland, where DMI has climate records dating back to 1873, Greenland came close to setting a record temperature for the whole of Greenland in April. Kangerlussuaq measured a daily maximum of 17.8°C and the DMI observation station at the Summit of Greenland set a new "warm" April record of -6.6°C.

The melt was driven by warm air from the southwest, bringing rain along the coast, similar to an extreme melt event in 2012 when 95% of the surface of the ice sheet had melt, a situation that has been reported in detail by GEUS and DMI scientists (Fausto et al., 2016).

According to Prof. Jason Box at GEUS, who leads a Danish Research Council project with Fausto, DMI, and DTU colleagues (http://retain.geus.dk/), rainfall and meltwater on the ice sheet at this time of the year mostly runs into the snow and refreezes. However, meltwater refreezing releases heat into the snow at depth, reducing the amount of heating needed for melt

to start and forming ice layers that can help melt water run off the ice sheet earlier with climate warming. As the daily surface mass balance plot shows, the blue shows a mass gain, most likely from freezing rainfall and perhaps some snow, as the small dark red areas show an overall loss of ice (Fig. 2).

Fausto, R. S., van As, D., Box, J. E., Colgan, W., Langen, P. L. and R. H. Mottram (2016). The implication of nonradiative energy fluxes dominating Greenland ice sheet exceptional ablation area surface melt in 2012. *Geophys. Res. Lett.* **43**, doi:10.1002/ 2016GL067720.

Antarctic hitting 400ppm

In June, 2016, carbon dioxide levels passed 400 parts per million at the South Pole, the National Oceanic and Atmospheric Administration reported. It's the last place on Earth to hit the global warming milestone and it is the first time in approx. 400 million years that CO_2 has been this high at the South Pole. As this negative milestone was past, Pieter Tans, scientist in charge of NOAA's Global Greenhouse Gas References Network, warned that global CO_2 levels will not return to values below 400 ppm in our lifetimes, and almost certainly for much longer.

Although carbon dioxide levels fluctuates over the course of the year, the average CO_2 levels have gone up every year since 1958. It's unlikely 2016 will be any different. Last year's average was 399 ppm. This year's is sure to be above 400 ppm and abundance evidence put the blame for this entirely on human activities. While the current mechanisms to mitigate climate change may be able to contain significant temperature rise, it's unlikely CO_2 levels will drop below 400 ppm, and unfortunately most nations have begun to accept this as the "new normal". Yet, even at 400ppm the impact on ecosystems and ecological processes will be significant, especially in the oceanic, Arctic and Antarctic ecosystems, as reported elsewhere in this section.

Largest coral atoll in the World lost 80 percent of its coral to bleaching

The largest coral atoll in the world, Kiritimati, has lost 80 percent of its coral in the past 10 months, due to this year's devastating coral bleaching event and another 15 percent is likely to die. The Pacific has been experiencing abnormally warm water temperatures for months, causing extreme stress to corals and the species that rely on them. This is the longest coral bleaching event ever recorded and scientists are becoming increasingly pessimistic that the affected reefs will recover.

One can only hope that governments across the World will finally begin to realise the impact of human activities on the World's ecosystems and put in place mechanisms to, not only prevent this from worsening, reverse the current negative trends.

New Indonesia mill raises doubts about APP's forests pledge

A landmark commitment by one of the world's largest producers of tissue and paper to stop cutting down Indonesia's prized tropical forests is under renewed scrutiny as the company prepares to open a giant pulp mill in South Sumatra. More than three years ago, Asia Pulp and Paper (APP) promised to use only plantation woods after an investigation by one of its strongest critics, Greenpeace, showed its products were partly made from the pulp of endangered trees.

Then, Greenpeace welcomed the announcement as a breakthrough and the company, long reviled by activists as a villain, rebranded itself as a defender of the environment, helping it to win back customers that had severed ties. At the same time, it was pressing ahead behind the scenes with plans to build a third pulp mill in Indonesia. When it went public with its plans for the OKI mill in 2013, APP announced it would produce 2 million tons a year and then earlier this year acknowledged the mill's capacity could in the future increase to 2.8 million tons.

New research by a dozen international and Indonesian environmental groups, however, estimates that APP will face a significant shortfall in its supply of plantation-grown wood after the new mill begins operating, even at a 2.0 million ton capacity. The company could then face a choice between using higher-cost imported wood or looking the other way as its suppliers encroach upon virgin forests. How the mill is fed will be a factor in the survival of Indonesia's tropical forests and the endangered wildlife they shelter. More generally, the draining and destruction of peatlands for forestry or agriculture will over decades release vast amounts of carbon that could jeopardize Indonesia's ability to meet its emission reduction targets under an international agreement.

To date, estimates suggest that APP's plantations in South Sumatra have never produced half of the wood needed to feed a 2.0 million ton a year pulp operation. That shortfall is compounded by devastating forest and peatland fires across Indonesia last year that destroyed more than a quarter of APP's planted trees in South Sumatra, according to an on-the-ground survey by Hutan Kita Institute and other civil society groups.

Most of the concessions that supplies APP is located in drained peatland in South Sumatra. With the recent record fires, among them last year's, that caused an estimated $16 billion of losses for Indonesia, according to the World Bank, and covered the region in a health-damaging haze.

In addition to environmental concerns, the mill and its plantations affect the livelihoods of thousands of people who have lived for decades on land used by APP. The company remains embroiled in hundreds of land use conflicts across Indonesia and has yet to reach an agreement with any community, despite pledging to settle such disputes in 2013. The disputes are expected to escalate once the mill begins operation, because it will provide a certain level of financial justification to maintain a status quo or invoke even more land to supply the mill. Unless the acacia pulp plantations will create income at a similar level as what a local community can create from agriculture, the conflicts will continue.

Greenpeace forests campaigner Andy Tait said APP has maintained it will only supply the mill with plantation or imported wood. But he acknowledged that APP's assessment that its plantation wood supply is adequate predates last year's "horrendous" fires, which heavily affected the company.

According to Greenpeace, APP has not been pulling back from its commitments on no deforestation yet. Doing so will likely result a significant negative feedback, with severe commercial setbacks. Time will tell if the mill construction will address a number of critical questions that have emerged too.

New species of mouse lemur in Madagascar

Scientists from the German Primate Center (DPZ), the University of Kentucky, the American Duke Lemur Center and the Université d'Antananarivo in Madagascar have described three new species of mouse lemurs. They live in the South and East of Madagascar and increase the number of known mouse lemur species to 24. Mouse lemurs are small, nocturnal primates, which are only found in Madagascar and they look so similar that the only way to distinguish between the different species reliably is through DNA-testing.

The same research groups described two new mouse lemur species only three years ago, with the 30g Madame Berthe's mouse lemur considered the smallest primate in the world.

Ganzhorn's mouse lemur, *Microcebus ganzhorni*, was named after Professor Jörg Ganzhorn from Hamburg University, who has been engaged in research and protection of lemurs for decades and was instrumental in starting up the field research at the German Primate Center in Madagascar in the 1990s.

As with so many other of the Earth's species, more than 100 known species of lemurs are threatened by extinction and represent the world's most endangered group of mammals. Deforestation and hunting are the main causes of the threat to lemurs in one of the poorest countries of the world.

The new findings have been published in Molecular Ecology.

Hotaling, S., Foley, M.E., Lawrence, N.M., Bocanegra, J., Blanco, M.B., Rasoloarison, R., Kappeler, P.M., Barrett, M.A., Yoder, A.D. and D.W. Weisrock (2016). Species discovery and validation in a cryptic radiation of endangered primates: coalescent-based species delimitation in Madagascar's mouse lemurs. *Molecular Ecology*, DOI: 10.1111/mec.13604

Intact nature offers best defence against climate change

A new paper published in *Nature Climate Change* "Intact ecosystems provide the best defence against climate change", discusses how certain adaptation strategies may have a negative impact on nature, which in turn will impact people in the long-term. Principal research scientist Dr. Tara Martin suggests that when many local communities around the world rapidly adjust their livelihood practices to cope with climate change, it will sometimes cause catastrophic implications for nature.

The paper produces evidence that that in Australia and Canada, conservation reserves are being used as drought relief to feed livestock, while forests in the Congo Basin in Africa are being cleared for agriculture in response to drought, and coral reefs are being destroyed to build sea walls from the low-lying islands in Melanesia. The paper states that intact native forests have been shown

to reduce the frequency and severity of floods, while coral reefs can reduce wave energy by an average of 97 per cent, providing a more cost-effective defence from storm surges than engineered structures. Likewise, coastal ecosystems such as mangroves and tidal marshes are proving to be a more cost-effective and ecologically sound alternative to buffering storms than conventional coastal engineering solutions.

Co-author Dr James Watson, Principle Research Fellow at the University of Queensland, said that with more than 100 million people per year at risk from increasing floods and tropical cyclones, ill-conceived adaptation measures that destroy the ecosystems, which offer our most effective and inexpensive line of defence, must be avoided. He predicts that the cost of adaptation to climate change could reach 100 billion per year in the coming decades. But this is dwarfed by the perverse mechanism contributing to climate change and fossil fuel subsidies. The International Monetary Fund estimates global energy subsidies for 2015 at $US5.3 trillion per year. Eliminating fossil fuel subsidies would slash global carbon emission by 20 percent and raise government revenue by 2.9 trillion, well over the funds needed for intelligent policy and action on climate adaptation.

Not all adaptation strategies end up destroying nature. Some ecosystem-based intervention, protection and restoration of, for example, mangrove forests is a prime example.

Martin, T.G., Watson, J.E.M. (2016). Intact ecosystems provide best defence against climate change. *Nature Climate Change* **6(2)**: 122 DOI: 10.1038/nclimate2918

Why Global bat populations are in decline?

Many of the 1,300 species of bat are considered to be threatened and declining. A new analysis reveals trends and causes of death in bats around the world, shedding new light on the possible factors underlying population declines.

In the analysis, 1180 mortality events, each involving more than 10 bats, were represented in a detailed canvassing of the literature dating from 1790 to 2015, and could be divided into 9 categories.

Prior to the year 2000, intentional killing by humans caused the greatest proportion of mortality events in bats; the reasons for killing varied with region, but bats were killed as pests, for food, for vampire bat control, and to protect fruit crops. Since 2000, collisions with wind turbines and white-nose syndrome (in North America) have been the leading causes of mass mortality in bats. Storms, flooding, drought, and other abiotic factors also cause mortality, and are likely to increase with climate change.

O'Shea, T.J., Cryan, P.M., Hayman, D.T.S., Plowright, R.K.S. and D.G. Streicker (2016). Multiple mortality events in bats: a global review. *Mammal Review* DOI: 10.1111/mam.12064

New black-fly found in Indonesia

A new species of black fly has been discovered in Indonesia on the island of Borneo. The new species, which belongs to the family Simuliidae, is described in the Journal of Medical Entomology. A team of researchers from the University of Malaya in Kuala Lumpur, Malaysia, discovered it while surveying aquatic stages of black flies in Indonesia. In total, they collected nine species, and two of them were new to science. The new species, *Simulium kalimantanense*, was named in honour of the Indonesian state of Kalimantan, where it was discovered.

The biology and behavioural habits of *S. kalimantanense*, including whether or not it bites humans or other animals, remain unknown. Another species in in the same subgenus is known to be a vector of an unknown parasitic disease caused by infection with roundworms, and it probably parasitizes birds. The new fly is the first known member of the Simulium (Gomphostilbia) banauense species-group to be found in Borneo. A complete description of the new species, along with a key for identifying the 19 Bornean species in the subgenus Gomphostilbia, is provided in the article.

Takaoka, H., Sofian-Azirun, M., Ya'cob, Z., Chee, D.C., Van, L.L. and Harmonis (2016). A new species of Simulium (Gomphostilbia) (Diptera: Simuliidae) from Kalimantan, Indonesia, with keys to identify 19 Bornean species of the subgenus Gomphostilbia. *Journal of Medical Entomology* DOI: 10.1093/jme/tjw017

The downside of Indonesia's popular civet-coffee, *kopi luwak*

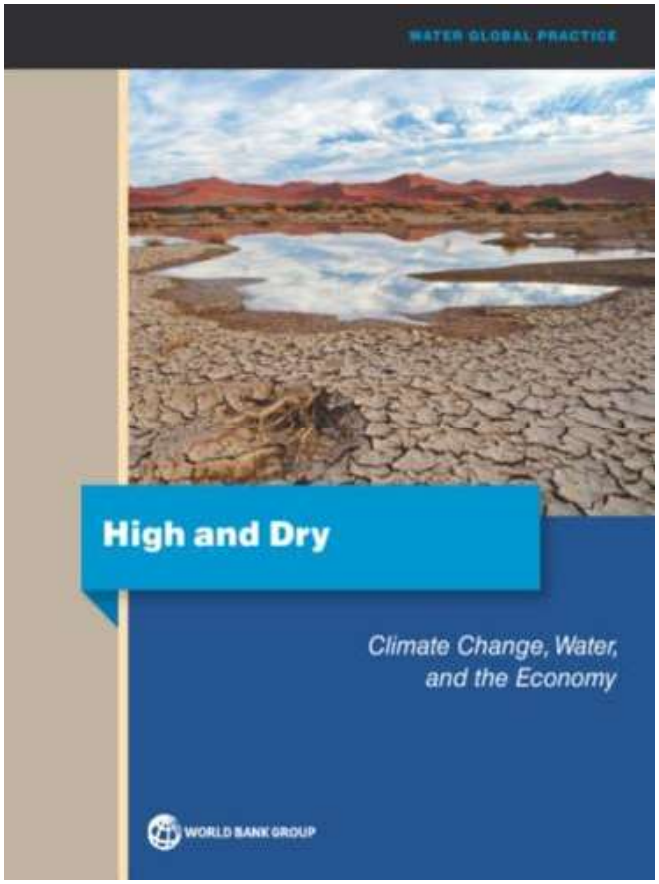
A newly published paper explores the downside of the sudden rise in demand for Indonesia's civet coffee, known as *kopi luwak*. The abstract summarises the following:

There is a growing demand for civet coffee (also known as 'Kopi Luwak' in Indonesia), a luxury coffee produced from coffee cherries that have been eaten and partially digested by civets. Traditionally made using scat collected from the wild, the trend for 'caged' civet coffee, where live civets are taken from the wild and housed in captive conditions, is increasing. There is a rapidly expanding civet coffee tourist industry that has emerged within the last five years in Indonesia. The present paper is based on observations of the housing conditions of 48 wild-caught common palm civets (*Paradoxurus hermaphroditus*) at 16 of these tourist-orientated coffee plantations in Bali. A score between 0–4 indicating welfare concerns was given for eight husbandry factors at each plantation, including: mobility, hygiene, surfaces, shelter, noise, food, water, and social interactions. In addition, interviews were conducted with senior tour guides at each of the plantations to gather information regarding tourist activities and the civet coffee production taking place therein. The data allowed for a welfare assessment to be made, which highlights the inadequate conditions and negative impact on common palm civets associated with the caged commercial production of this luxury product, which are not associated with traditional collection of scat from wild-living civets. We hope that our findings will inform tourists and tour operators about the ethical implications of visiting these attractions.

Carder, G., Proctor, H., Schmidt-Burbach, J. and N. D'cruze (2016). The animal welfare implications of civet coffee tourism in Bali. *Animal Welfare* 25(2): 199-205(7)

The cost of declining Global water supply

A new World Bank reports finds that water scarcity, exacerbated by climate change, could hinder economic growth, spur migration, and spark conflict. The good news, however, is that most countries can prevent the adverse impacts of water scarcity by taking action to allocate and use water resources more efficiently (Fig. 1). The report suggests that water scarcity, exacerbated by climate change, could cost some regions up to 6% of their GDP, spur migration, and spark conflict. The combined effects of growing populations, rising incomes, and expanding cities will see demand for water rising exponentially, while supply becomes more erratic and uncertain.



A "no action" scenario will result in water scarcity in regions where it is currently abundant, for example, Central Africa and East Asia. The situation will likely worsen in regions where water is already in short supply - such as the Middle East. These regions could see their growth rates decline by as much as 6% of GDP by 2050 due to water-related impacts on agriculture, health, and incomes (Fig. 2). The collateral impact of water insecurity is likely to multiply the risk of conflict, because prices of food will increase due to limited demand caused by droughts, thereby inflaming existing conflicts and force additional migration. In the past, regions where economic growth have been impacted by rainfall, episodes of droughts and floods have generated waves of migration and spikes in violence within countries.

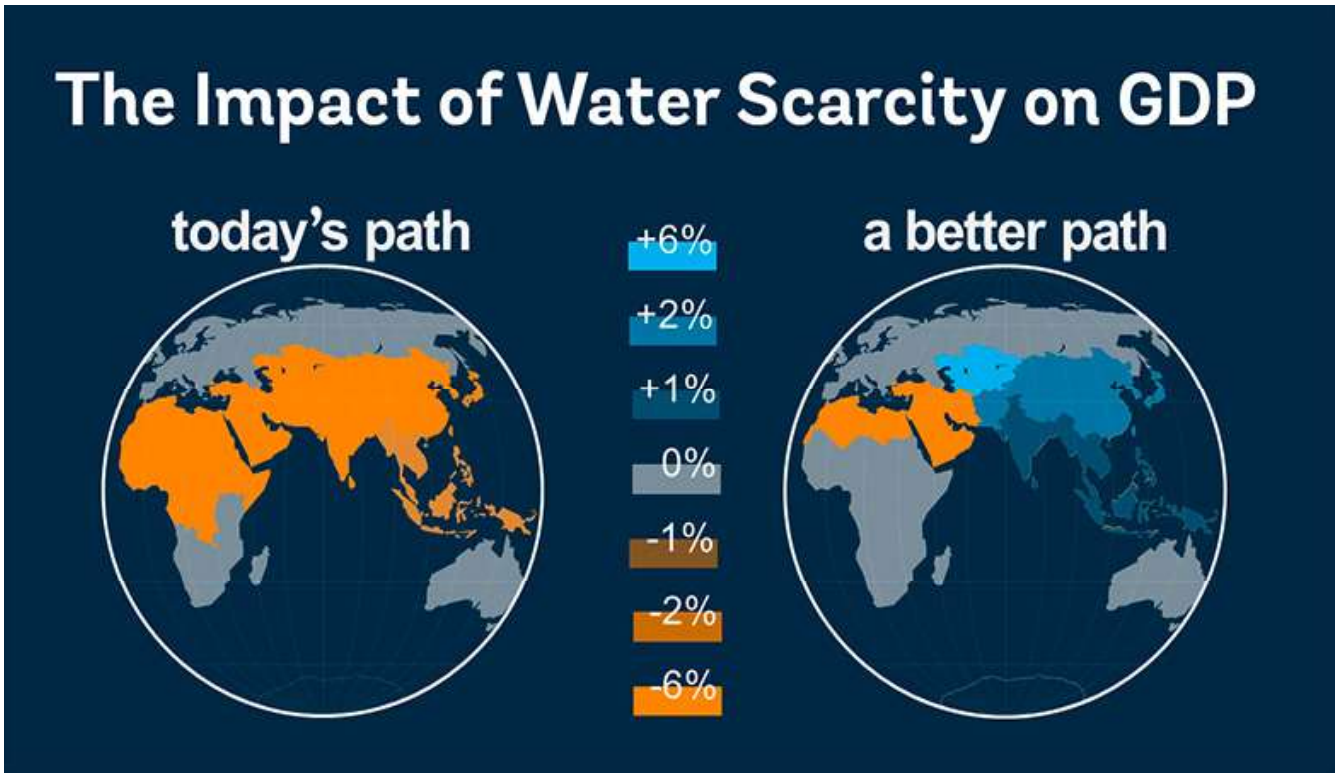


Figure 2. The World Bank report predicts that water scarcity will be exacerbate by the ongoing climate change. This will likely impact national and regional GDP in a negative manner, with a potential to cause unrest and migration to already overpopulated areas.

On a positive note, the solution is technically simple and does not cost a lot of money. It is about proper water management. Improved policy decisions can improve growth rates by up to 6% in some regions with better water resource management. When governments respond to water shortages by boosting efficiency and allocating even 25% of water to more highly-valued uses, such as more efficient agricultural practices, losses decline dramatically and for some regions may even vanish. In extreme dry regions, more far-reaching policies are needed to avoid inefficient water use. Unfortunately, a large part of the World's most water stressed regions include many countries with a historic record of poor overall governance, with little focus on environmental issues at all.

Three Arrested in Jambi Sumatran Tiger Poaching Ring

In May, the **Jakarta Globe** reported that authorities arrested three alleged poachers who have taken part in an illegal trade syndicate of endangered Sumatran tigers. Riau Police officers and Jambi Natural Resources Conservation Agency officials seized tiger skin and bones from the home of the suspects, who were apprehended in the border area of Jambi and Riau provinces.

According to the Jambi Forest Police chief, the arrests were made after authorities received reports from local residents who said the three had poached tigers in Jambi and sold their bones and skin in Riau. Police officers also confiscated the bones of bears, beaks from hornbills and the skin of snakes and monitor lizards. The arrests were the second in Jambi since January, when authorities seized tiger skin from seven illegal wildlife trade suspects.

The Sumatran tiger population is believed to number less than 400 Sumatran tigers alive today and is considered Critically Endangered by the IUCN.