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## Crisis or rebirth?

The future of Ethiopia's pastoralist tribes



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# Pillage theory: a blueprint for prosecuting corporations trading **in conflict resources**

Timber, diamonds, gold and oil have long been recognised as drivers of war. But companies involved in trading commodities from conflict zones are seldom prosecuted. Isn't it time they were held to account? **Matilda Lee** reports

**A**ccording to the United Nations, at least 18 violent conflicts in the last two decades have been fuelled by the exploitation of countries' natural resources - everything from timber, diamonds, gold, minerals and oil, to land and water. In 2001, the UN General Assembly declared that the 6th November would henceforth be the 'International Day for Preventing the Exploitation of the Environment in War and Armed Conflict'. But if the environment has historically been the 'unpublicised victim of war', lawyers and activists are focusing their attention on a new legal tool to curb the conflict resources trade by prosecuting the corporations that are profiting from it. A report, *Corporate War Crimes: Prosecuting the Pillage of Natural Resources*, by Professor James Stewart, launched at a conference on the same subject in the Hague last year, essentially lays out a blueprint of jurisprudence to hold companies to account for their role in fuelling armed conflict.

Patrick Alley, of UK campaign group Global Witness that has worked for 17 years to expose armed conflict resource corruption, says that to date, efforts to hold corporations accountable have all but failed. 'Wars from Liberia, to Sierra Leone or Angola all had a natural resource element to them and the exploitation of



*The 'pillage theory' is a legal tool that can be used to prosecute corporations involved in the trade in resources such as timber and diamonds originating in conflict zones*

natural resources helped perpetuate the conflicts. Companies were knowingly doing business in these areas and trading in these resources. Unless this is dealt with, these companies essentially have impunity. They make a profit then leave the country, and the communities have the job of paying for it and picking up the pieces,' he says.

The legal basis centres on the so-called 'pillage theory' of conflict-related theft, prohibited in international humanitarian law in the 1949 Geneva Convention. Ken Hurwitz, senior anti-corruption legal officer at the Open Society's Justice Initiative, which was involved in preparing the report and the conference says: 'Jurisprudence is quite volatile at the moment, there are lots of cases going in different directions. The question really boils down to "If I'm buying timber from [former Liberian President] Charles Taylor, and I am therefore giving him money that he uses to arm and equip troops to commit human rights violations, do I share his intent to commit those violations, or is my intent to make money, and does that make a difference?"'

For years, Global Witness, and other civil society groups, pursued the French subsidiary of Danish timber giant DLH through the courts for buying timber from Liberian companies that supported Taylor's regime. They argued that DLH was guilty of 'recel', the French crime of profiting from goods obtained illegally. 'We had to try and search jurisdictions to see where a case could be brought. We ended up trying a Danish company in France, all of which is illustrative of the fact that it is not easy. It's an ongoing process and it's taken years. The bottom line is that there never was any prosecution. Now those companies are marketing themselves as super responsible, with FSC certification and the like. Yet, years ago, they were involved in this dirty trade.'

Under the 'pillage theory', there is

no requirement of intent to commit the violations that the resources allow to be committed, but rather, 'an intent to purchase commodities or other assets from somebody who you know doesn't have legal title to them and in the context of an armed conflict,' says Hurwitz. 'Although none of these cases are simple, we think this is a somewhat more direct and logical, and evidentially easier burden to satisfy on behalf of the prosecutor.' As to why pillage theory itself was never really looked at before, Hurwitz says that in the context in which those situations initially arose, the post World War two cases were different enough from anything people were looking at contemporaneously. 'Nobody really looked but the jurisprudence wasn't really considered particularly on point to the situations human rights activist were focusing on. Then in the DRC [Democratic Republic of Congo] in particular, people were using the word pillage to refer to what was happening economically to the country but everyone was using it as a metaphor - nobody was using it as a technical legal term. Lawyers are sometimes very literal, so the thought was, well, what actually is the crime of pillage? So we looked and found this notion of receiving stolen goods as a type of pillage which seems to have common currency within the jurisprudence, certainly after the World War two period.'

Other guidelines and regulations being developing aim to prevent natural resource trafficking from happening in the first place. One of the provisions in the US Dodd-Frank regulation now being debated relates to 'conflict minerals', and requires the company bringing materials in from the DRC to the US to show their supply chain due diligence. 'That in itself is progress,' says Alley. 'The EU is talking about doing the same thing. But there has been a tremendous push back from industry that could weaken the rule making around this.' The OECD has developed a series of corporate

guidelines on due diligence, including in conflict zones. Civil society groups have a critical role to play in raising awareness of supply chains. 'The whole point of due diligence is the company has to find out where their materials are coming from,' says Alley. 'Our start point is "what is it you are doing to know about your supply chain?" and the response varies. When we can indentify a company buying from conflict zones, we will write to them and engage with them to see what they will do about it.'

One concern about using 'pillage theory' is how it would impact on communities, such as artisanal miners, who depend on the natural resources trade. 'It is very often poor people in the battle zone who are mining,' Hurwitz says. 'Technically, if they are mining, and they have no license and they are selling to an armed group, even if at gunpoint, certainly the goal is not to hold them liable for pillage. That's something one would have to be very careful about.' While it is too early to gauge whether the 'pillage theory' will penetrate into mainstream prosecutorial culture, Hurwitz says the report has led to discussions with a number of authorities in 'six or so' jurisdictions and he is aware of two or three places where the theory is being pursued actively. 'We are in an unfortunate situation with the global economy. Prosecutorial agencies are having budget cutbacks meaning there are disincentives for a prosecutor to pursue a new and risky approach to litigation taking on what are probably politically controversial and deep pocketed defendants.'

Even so, 'the UN peacekeeping missions in [Liberia and the DRC] cost of hundreds of millions,' according to Patrick Alley. 'If it had been impossible to launder those natural resources onto the market, it is hard to quantify how much but the impact would have been far less. I would argue that in a sense the international community is subsidising business operation in conflict zones.'

# 21st century pastoralism in southern Ethiopia

*Photos: Tom Levitt*

Pastoralism is in crisis across Africa. But it could yet survive as the best available defence against climate change and famine. **Tom Levitt** reports from southern Ethiopia



*Camels and other livestock sold at market are usually driven to the capital Addis Abba, before being exported to Kenya or Middle Eastern countries such as Yemen where camel meat is popular. Ethiopians still largely prefer beef and goat on their dinner plates.*

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In the scorching midday heat, less than 100 kilometres from the Kenyan border, there is a chorus of voices singing as water is hauled in buckets out of a borehole and passed along the line to fill up a trough for livestock. A cluster of women and older men gather in the shade of two trees, preparing and later sharing a pot of Buna Qale, a traditional drink made by boiling up a mixture of coffee beans, butter, milk, oil and sugar. The majority of people here in the Borena region of southern Ethiopia are pastoralists, nomadic people who move with their livestock in search of good pasture. But their way of life is under ever-increasing threat from loss of grazing land, worsening drought and government attempts to resettle them.

Life here today seems good with a parade of healthy looking camels, cows and goats coming forward to quench their thirst, while the young male herders stop to share a drink in the shade. But rewind seven months and the story was very different. Two



*Every Friday is livestock day in the market town of Negele. Pastoralists from all over the region bring cattle to be sold.*

successive failed rainy seasons had led to severe drought. Thousands of animals perished and more than 4.5 million people across Ethiopia

needed food aid. The situation in neighbouring Somalia was even worse with widespread famine leading to tens of thousands of human deaths.

In Ethiopia, famine is a word the country has struggled to shrug off since the tragedy of the 1980s. Its political leaders blame food insecurity on agricultural backwardness and a dependency on rain-fed agriculture. The country's 10 million or more pastoralists are seen as part of this problem; an increasingly vulnerable relic from the past and not the Western-style agricultural system that the country is trying to install as the future. That new system is one based on irrigation, crop farming and large-scale plantation projects - sugar and wheat. The polar opposite of the livestock-based system currently making up the livelihood of pastoralists - a way of life that has survived for centuries and may, say observers, still provide the best available source of food security for many of Ethiopia's drought-risk population.

Land grabbing and displacement  
Although by no means a homogeneous group, pastoralists make up 10 to 15 per cent of Ethiopia's total population



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and perhaps, more crucially, use 63 per cent of its agricultural land. Land which observers say is being handed over to 'land-grabbing' foreign investors and state-financed irrigation schemes.

Recent reports have claimed pastoralists in the Gambella Region, in West Ethiopia, are being forcibly relocated as part of the government's settlement plan to move them into areas with improved services like schools, water supplies and healthcare. By doing so the pastoralists are forced to abandon their cattle-based livelihoods in favour of settled crop farming. But according to Human Rights Watch, the new villages lack adequate farmland, healthcare or educational facilities.

Many of the areas people are being moved from are earmarked for lease by the government for cash-crop agricultural development, according



*While more children are being sent to school, some are kept back to help with livestock. This young boy works in shifts with other boys and will go to school in the morning before looking after the livestock in the afternoon.*



*Livestock cooperative in Borena: Members of the Ibsa (translates as 'bright futures') livestock cooperative use mobiles to keep in touch about the latest market prices. The cooperative sold 300 cattle and goats last year, using profits to provide loans for poorer members of the community. Although frequently seen as 'un-modern' and out of touch, mobile phone ownership in pastoralist communities is becoming more common.*



*Leather shoes: young men roam as far as 100 kilometres away in search of pasture to graze their livestock. During this time they are almost entirely reliant upon milk from the cattle they are herding for their daily sustenance. Long-lasting footwear is essential.*

to the NGO, which adds pastoralists often have no formal title to the land, allowing the government to claim the areas are “uninhabited” or “under-utilised”. Even if they are not resettled, pastoralists are losing access to the best land and water sources, say campaigners and researchers based in Ethiopia. ‘We want the world to hear that the government brought us here to die,’ one of those relocated told the NGO. ‘They brought us no food, they gave away our land to the foreigners so we can’t even move back. On all sides the land is given away, so we will die here in one place.’

According to Human Rights Watch, Ethiopia is planning to resettle 1.5 million people by 2013 in four regions: Gambella, Afar, Somali and

Benishangul-Gumuz. Attempts such as these to commercialise formerly pastoral land is nothing new and stretches back to colonial times. But the process of land being given over to overseas investors has accelerated in recent years and seen calls for official recognition of common pastoral lands. However, with pastoralists contributing little or nothing to government revenues, unlike, for example, tax-paying sugar plantations, a change in policy seems unlikely.

‘Civilisation did not come from pastoralists but from agriculture,’ says Ato Muhammad Yusuf, an MP and leading voice on pastoralist affairs in the Ethiopian government, in an interview with the Ecologist. ‘They must work on the land to be good citizens.’

Yusuf argues pastoralists need to settle in order for the government to provide them with basic services like healthcare and education and safeguard their future but insists it is only being done voluntarily in the country.

### The pastoralist dilemma

In the far south of Ethiopia, pastoralists in Borena are yet to experience such ‘modernisation’. This may in part be to the lack of major rivers flowing through the region to provide a basis for irrigation. Pastoral populations here rely on boreholes, a vulnerable existence exemplified by flash floods late last year that wiped out all but two of the wells relied upon by one of the pastoralist communities we visited in the Arero region of Borena. Like most



*Young men work together to bring water from the well, which has recently been restored and reinforced after flash floods last year and now provides a secure water supply.*

pastoralists in Borena, the population is semi-settled, with the older men, women and children living together in small communities while young men roam as far as 100km searching for pasture to graze their livestock. During this time they are almost entirely reliant upon milk from the cattle they are herding for their daily food needs.

While this makes for a lonely and difficult life for herders, it is this mobility that is key to the pastoralist way of life. In the dry rangelands of Ethiopia and other parts of Africa, pastures vary in nutritional content due to erratic rainfall and differing soil types and plant growth. By moving their animals to ensure a constant supply of good pasture, the pastoralists are able to produce comparatively more meat and milk than sedentary animals

reared in the same conditions.

However, across Borana and the rest of Ethiopia, the pastoralists' mobility and independence is being challenged by recurring drought and increased competition for grazing land from a land-squeezed population.

'The availability of pasture was better in the past and the productivity of livestock was higher when we had better pasture,' a pastoralist tells us as he passes round the pot of Buna Qale to drink. 'We get less rain now and when we get no rain at all things rapidly get worse as animals lose weight.' Although there are fears that pastoral land in Borana could eventually be lost to large-scale farming, many young pastoralists are making their own decision, sometimes encouraged by the rest of the community, to quit

pastoralism and move to nearby towns.

'The younger generation say they don't want to pursue this livelihood', says a community elder we met, 'but the older generation is stuck in this livelihood now and must look to plough crops to substitute the meat and milk.' Like everywhere else in the world, he told us, pastoralist children in his community wanted to own computers and mobile phones and pursue a different lifestyle to that of a nomadic pastoralist. 'In the past we did not go to school, now children go and earn money,' he explains. 'We can see the benefit of education if they get a job but we can't send all our children at once as we need some to help with managing the livestock.' It is often the eldest male that is held back for fear of, so the local saying goes, "leaving

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the family blind". However, this can lead to resentment between those going off and those staying behind as well as problems, when those who go to school fail to find work.

'They face a difficult dilemma,' a pastoralist researcher based in Ethiopia later explains, 'some don't make good enough grades at school and are then left in limbo, there is no in-between livelihood for them. The elders can see these problems and that is why not all of them are so in favour of schooling.'

Just like the community itself, opinions amongst aid workers and observers working within pastoralist communities is divided about whether it has a future or not. As well as the declining availability of good pasture and perhaps also to blame for it, is a growing population. Some

of it may be internal migration from neighbouring regions, or refugees and pastoralists escaping conflicts in Somalia for example, but population growth rates in Ethiopia are also amongst the highest in the world.

Such cold reality has left many of those long-time observers of pastoralists ready to write its obituary. 'Its days are numbered,' says Teshome Dahessa, who runs one of the Save the Children offices in Borena. 'This mode of life will be more diminished if not abandoned altogether within 50 years. That is the reality as more people get educated and inevitably look beyond pastoralism. Population growth and pressure on resources are all contributing to its decline.'

Despite the many pressures on pastoral populations, aid workers we



*Pastoralism is a male-dominated world in which women are largely kept away from the job of herding livestock. However, as education and waged employment increases and men migrate to towns for work, women are assuming a greater role in pastoral societies.*



*Once a rare sight in Ethiopia, camels are favoured for their ability to survive on a diet of bush and shrub and for being able to go 14 days without water. Camels are also seen as a strategic asset to be sold in difficult times.*



*Young men work together to bring water from the well*

met insist they have a right to remain as pastoralists and be supported in that way of life. This makes the role of NGOs and charities like Save the Children working in pastoral regions controversial to some. By supporting communities with aid are they helping to preserve an important livelihood that is capable of adapting and coping with climate change? Or are they merely adding a 'sticking plaster' to an increasingly vulnerable way of life that needs to change?

### Livestock equals wealth

In the bustling town of Negele, in Borena, Saturday is the livestock market day, hundreds of sheep, cattle, goats and camels arrive from all over the region during the morning to be traded and sent off to the capital Addis Ababa and beyond to markets in East Africa and the Middle East. A good camel can fetch \$900 or more and is likely to end up on dinner plates in Yemen - Ethiopians still largely prefer beef and goat to camel. Livestock is the mainstay of the Ethiopian economy, contributing 20 per cent of its total GDP. In Borena, it makes up 90 per cent

of the local economy highlighting the continued importance of pastoralists.

For all the scepticism of their 'un-modern' way of life both inside and outside the country, it should not be forgotten that many pastoralists are actually relatively wealthy in comparison to other Ethiopians. It wasn't just pastoral areas that needed food aid during the most recent drought crisis. As incomes soar and urbanisation continues, demand for milk and meat products will increase considerably - with the potential for demand to be met by pastoral areas.

What's more climate change and drought are nothing new to their way of life, which evolved as a coping mechanism for dealing with erratic rainfall in what has always been a harsh, arid environment. The amount of camels in the pastoral communities we visited and in the market today are testament to the adaptation already taking place. Once a rare sight, they are now favoured for their ability to survive on bush and shrub instead of important grazing pasture, and for going up to 14 days without water. Camels are seen as a strategic asset

to be sold in difficult times instead of cattle, which retain an important role in many pastoral customs and traditions.

'While it is certainly true that pastoralism is a difficult and unpredictable way of life and that many people are either choosing to leave or are being forced out, the evidence that pastoralism as a livelihood system for millions of Africans has suddenly become unsustainable seems no more convincing today than it was when these brash predictions were first made, decades or even centuries ago,' says Stephen Devereux, from the Institute for Development Studies.

In the Awash Valley, where land formerly used by pastoralists was given over to cotton and sugar cane, the switch has had surprising results. A study in 2010 found returns from pastoralism were actually equal or greater per hectare than state-subsidised and irrigated cotton and sugar farms. The difference, concludes study co-author Roy Behnke, is that these farms deliver taxes and income to the government while pastoralism contributes little beyond the livelihoods of Ethiopians. 'Motives have very little to do with economic efficiency but control, control of money and people.' Previous studies have also found the health of former pastoralist communities did not improve with settlement, creating doubts about assumptions that so-called 'modern' livelihoods will automatically be better.

Even supporters of pastoralism, such as Behnke, expect the percentage of "pure" pastoralists - those that depend solely on livestock for their income - to decline as more continue to diversify and become semi-settled. This strategy allows some family members to trade and work. 'The key is that livestock remains mobile to take advantage of Ethiopia's vast rangelands and environmental variability,' says Behnke. Something being lost to pastoralists across Ethiopia by foreign "land-grabbing" deals and irrigation projects designed to settle them and encourage large-scale farming.

In arid regions like Borena where

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*Guns are kept by some members of pastoralist communities to protect against cattle raids and wild animals.*

water sources are limited, aid workers insist livelihoods must include livestock to remain viable, even if they are likely to include more crop farming in the future - so-called agro-pastoralism. 'In these regions, livestock and animals are wealth and insurance in times of crisis,' says a local aid worker.

'It's obvious they cannot continue living in their current form of life, says Dr Zerihun Mohammed from the Ethiopian think-tank Forum for Social Studies. 'But unless we change with them they will face an even worse future. It is easier to try and adapt pastoralism rather than abandon it, yet the trend is that they will lose more and more access to rainlands and be pushed to the hinterlands.'

The bigger question for aid organisations and many observers is not whether pastoralism will survive but whether it will be allowed to.



*Herders are allotted a time by community elders to bring their livestock to the trough, while others help filling it with water from a well.*

# Big brother gone green: using technology to tackle the eco-crisis

The revolution in remote monitoring should help solve environmental problems, but might it also increase our distance from the natural world? **Hugh Knowles** and **Martin Wright** report



*Technology can be a positive and a negative when it comes to the natural world*

**D**eep in the rainforests of eastern Cameroon, someone is moving swiftly through the trees. He has the practised tread of a man who knows every inch of this land – as did his ancestors before him. He's in a race against time. He pauses by the buttressed roots of a towering tree, rummages in his pouch and pulls out what could be a vital tool for the future of his way of life: a customised GPS device, 'forest-proofed' in a tough rubberised plastic case. On its screen, a series of icons enable the illiterate forest dweller to record essential information such as the location and size of a valuable hardwood tree. The forest tribes have fished and hunted these lands since time began and now they're logging them. Not logging as in chopping wood: this version of the word has precisely the opposite goal. They're compiling a digital map of their homeland, marking trees and other landscape features. This is in theory protected land but it's been at risk from incursion by timber companies, benefiting from confusion as to just where boundaries – and rights – lie in the remote forests.

Now the data gathered on the ground will be matched with satellite observations to provide a highly precise map of the area. The device and its software have been developed by Helveta. The UK company uses a range of monitoring techniques, from satellite imagery to handheld devices, to track assets including timber, soya and coffee, through increasingly complex and tangled global supply chains. Or, in this case, help a forest community define its traditional rights. And there's more. By using barcodes and implanting tiny radio frequency identification (RFID) chips in the bark of valuable hardwoods, it's now become possible to trace the timber all the way from the forest to the consumer, providing an electronic chain of custody.

Satellite monitoring has already revolutionised our ability to tell what's going on in the most remote regions of the world. Brazil's Institute for the

Environment and Renewable Natural Resources (IBAMA) is keeping an eye on the state of deforestation in the Amazon, checking pretty much every hectare of standing forest for signs of disturbance. But, warns Helveta's Philip Briscoe, 'there is only so much you can tell from a satellite.' Some illegal loggers, he says, have managed to take out trees in a way which, for a time at least, appears to leave the canopy more or less intact as far as the satellite image is concerned. 'You need people who can see changes on the ground – what we call 'ground truthing' – and log them.' That makes it 'harder and harder to hide behind unsustainable or illegal practices when sourcing raw materials'.

There's growing demand for such services from companies keen to prove they're not complicit in rainforest destruction. Gibson Guitars, for example, was shocked when FBI agents raided its Nashville factory accusing it of using illegally harvested hardwood. The court case is still ongoing but it stung Gibson into exploring ecologically responsible alternatives. The use of monitoring technology could have prevented the issue arising in the first place. Jean Paul Vooght, who blogs at Citizen Sensing, says that to make the most of the technology available, we need a mix of 'soft' and 'hard' sensing. Hard sensing is what can be measured and monitored solely by machines, such as sensors connected to vast databases, or remote viewing from satellites. The soft variety involves humans going out into nature, noticing changes and logging them, sometimes with the help of automatic sensors.

And there's no reason why such activities should be restricted to rainforest tribes with custom-made gizmos. Many of us carry around some impressively powerful ground truth monitors in the shape of our smart phones. Their combination of GPS and cameras is already being put to use by initiatives such as Project Noah, whose motto is 'citizen scientists everywhere'. Its apps allow users to map animals and plants in their local area to feed into scientific research. Other uses are

more down to earth. Urban Edibles encourages folk across the world to go foraging by mapping local sources of wild foods such as fruits and herbs.

### Future smart phones could include pollution sensors

There's no technical obstacle to putting this sort of software on mobiles everywhere, allowing millions to map community assets. Future smart phones could connect to wearable pollution sensors, or even have them embedded in the phone itself. The University of California in San Diego is developing a pollution-sensing chip for just such a purpose. The Android app 'Visibility' uses the phone's camera to take a snapshot of the horizon, then analyses it to estimate the amount of pollution in the haze. Such inventions could allow us to build up detailed pictures of air quality on a street-by-street basis, spotting hotspots, and navigating around them.

Our phones could alert us to more serious hazards, too. Apple has just announced that its new operating system, iOS 5, will include the ability to connect to Japan's earthquake warning system, hinting at the functionality our phones might have in the future if linked up to huge environmental sensor networks. With mobile use almost universal among Asia's coastal communities, there's every chance of avoiding a repeat of the horrendous casualties in the 2004 tsunami.

Remote sensing's ability to warn us of catastrophes before they happen needn't just apply to freaks of nature like earthquakes or tsunamis. With increased monitoring of the environment, we might also stand a greater chance of being able to predict tipping points in entire natural systems, possibly in time to avert a catastrophic crash. A 2009 paper in *Nature* suggested that a wide range of systems, from fish populations to financial markets, display some 'generic early-warning signals', including a range of unusual fluctuations, 'if a critical threshold is approaching.' Spotting those signals needs some

pretty extensive and sophisticated monitoring but a new initiative by the National Science Foundation in the USA is aiming to do just that. Its National Ecological Observatory Network, to be launched at a cost of \$434 million, will help scientists use the latest sensor technology deployed at 'nodes' in 24 states to gather and synthesise data on everything from invasive species to the effects of climate change. It should be operational by 2013.

All this has been enabled by a surge in the power and sophistication of monitoring technology at the same time as it has tumbled in price. In less than a decade, it has brought us to the point where, without leaving our laptops, we can keep tabs on a corner of a distant rainforest, map the migration of whales, and track the progress of tropical hardwood from tree to forest to furniture store. Whether we're doing so as nature lovers, supply chain managers, or both, we are becoming a collective Big Brother. But it's no coincidence that our capacity to monitor nature remotely is growing at a time when the number of us who experience it directly, with our senses rather than our sensors, is shrinking. In 2010,

humanity passed a significant milestone. Over 50 per cent of us now live in cities – and it's starting to show.

In one of the more populist uses of remote monitoring, the Royal Society for the Protection of Birds placed a camera on a rare nesting osprey and its chicks, high in a tree on a remote Scottish hillside, offering round-the-clock viewing online. RSPB staff were delighted that tens of thousands of enthusiasts logged on to watch. But when one of the chicks appeared to start choking as it fed, the organisation was flooded with anxious messages from viewers, demanding that someone do something to stop it. They were reacting not as privileged observers of nature in

the wild but as horrified witnesses of the callous neglect of a cherished pet. Conversely, it is possible to sit transfixed as hurricanes whirl across your computer screens in real time – yet their hypnotic beauty from above does little to connect you to the devastation below. The same technology which can help us zoom in on nature, in other words, sometimes serves to reinforce our lack of connection with – or understanding of – natural realities.

### Wisdom and Knowledge

Seventy years ago, the poet TS Eliot asked: 'Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?' As humans, we notice and absorb a huge, eclectic range of information about our surrounding environment at any one time, some of it easily quantifiable, some not. Over generations, this builds up into a vast store of experiential wisdom which helps us navigate our surroundings. But in our information-rich age, it is all too tempting to use the latest technology to apply a reductionist view of the world around us. We break it down to its constituent

bits, and end up with ones and zeros where once there were rivers, forests, whole ecosystems – things of incredible beauty and complexity.

Gathering data is, by definition,

a reductionist enterprise. Whether we're a Cameroonian forest dweller pinpointing a tree or a climate modeller painstakingly correlating the readouts from a host of temperature sensors, we are of necessity trying to narrow our focus. You have to define specific parameters, then zero in on your target with laser-like precision – ignoring everything else. It's hard to record what you're not looking for. Say you've given rainforest dwellers portable loggers to map specific trees but there's no icon to press to say they've become diseased

as a result of drought weakening their defences. It would be a valuable early warning of possible ecosystem collapse, an indicator of a much more serious problem than any illegal logging. But in this particular data monitoring exercise at least, it will remain invisible.

So amidst all the excitement over the potential of this benign Big Brothery, we have to stay awake to what it won't tell us. In part, that just means keeping a sense of perspective – looking up from the laptop now and then to see what the weather's doing; going for a walk in the woods. But we can also look for ways to subtly modify our data gathering, too, deliberately 'softening' some of the parameters so as to pick up what we're not looking for, as well as what we are. And we can learn from people whose experience of the natural world is still largely unmediated.

In Cameroon, Helveta has established long-term relationships with 15 different forest communities. It started by finding out what was important to the villagers in maintaining their way of life, and only then designed the software to record it. As a result, local people now have GPS devices designed to map their land in terms of the various uses and meanings it holds for them. So, they record the sources of their medicinal plants, their fishing waters and hunting grounds, their ancestral homes, and so on. In doing so, they not only provide valuable hard data, which can help establish legal rights over their land and defend it against illegal incursion; they also provide something of a record of their way of life, and so, to some degree at least, capturing wisdom and knowledge, as well as information. TS Eliot would be proud.

*Hugh Knowles is a futures and innovation specialist at Forum for the Future. Martin Wright is Editor in Chief of Green Futures. A version of this article first appeared in Green Futures.*

## Satellite monitoring has already revolutionised our ability to tell what's going on in the most remote regions of the world.

# Pharmaceutical industry 'rejoices' at demise of pioneering EPD allergy treatment

Enzyme Potentiated Desensitisation is a groundbreaking treatment for allergy sufferers. But the recent closure of a firm championing EPD leaves its future in doubt. Drug companies and mainstream doctors are unlikely to be mourning, says **Charlotte Davis**



*The pioneering EPD treatment for allergies is under threat from lack of funding and research. Why isn't the pharmaceutical industry more concerned about its demise?*

**A**s I lay on my back, looking up at a warm summer sky, I could hear the bees buzzing in the flowers and the gentle drone of a tractor as it criss-crossed the fields nearby. I lay where I had landed, felled by an allergic reaction. By my side was a spent epi-pen. My body ached from the excessive dose of synthetic adrenalin roaring through my system but at least I was breathing again. I was 19 and glad to be alive.

Like many others, my allergies had started innocuously enough, a little nettle-rash, occasional mysterious swellings, but now something had pushed me over the edge and I was in an anaphylactic spiral from which there seemed no way out.

According to the British Allergy Foundation, one in three people suffer from an allergy at some time in their lives. The numbers increase every year and as many as half of those affected are children. One in three UK 13-14 year olds suffer from asthma, one in four from hay fever and one in five from eczema. And allergies aren't just getting more common, they are getting more serious. Between 1990 and 2000 hospital admissions for life-threatening allergic reactions increased by 700 per cent, giving the UK one of the highest allergy rates in the world.

Allergies and intolerances have been around since the beginning of time – Otzi the frozen stone age man found in the Alps was diagnosed last month by post-mortem as being 'lactose intolerant'. But most allergies are modern - an unforeseen by-product of industrialisation and pollution. UK figures are up to ten times higher than in Eastern Europe and Asia. Yet when it comes

to diagnosis and treatment, Britain has been described by the House of Lords' Science and Technology committee as 'the laughing stock of Europe'. In 2007, the Committee reported that because of a lack of training 'a significant proportion of general practitioners are unable to diagnose and manage allergic disorders, and have nowhere to refer patients with complex allergies'.

When financial woes caused McEwen Laboratories to shut its doors earlier this year, Enzyme Potentiated Desensitisation (EPD), a ground breaking desensitisation treatment, came to an abrupt halt. Until now EPD treatment was available both on the NHS and privately, but its future is increasingly uncertain.

Developed by allergist, immunologist and pharmacologist, Dr Leonard McEwen, at St. Mary's Hospital, Paddington, in the mid-60s, EPD works like a vaccine. Extremely small doses of allergens are injected under the skin together with an enzyme that occurs naturally in the human body to gradually desensitise a patient against his allergies.

Since the treatment exploits a natural reaction in the human body it is particularly safe - in 40 years use, over 300,000 carefully controlled doses of EPD have been given, and no patient has ever suffered a major side effect.

**Improving lives**

For many patients, including in my own experience, EPD treatment improves lives dramatically. In many cases, house-bound sufferers with no control over their symptoms became fully functioning members of society. One such person was Jon, who battled ME and multiple food intolerances.

'I was in no doubt that if I didn't have treatment I would die,' he

says. 'I was getting weaker and weaker and conventional medication wasn't doing anything for me. My heart goes out to all those people who are stuck in the situation that I was in eight years ago.'

So with rocketing need and strong results, why has EPD foundered? The largest problems appear to have been a hostile commercial environment, excessive 'red tape' and a lack of funding for research and development.

One interest group unlikely to mourn EPD's difficulties is the pharmaceutical industry. The over the counter allergy remedies market alone was valued at £110m in 2011 and is forecast to increase dramatically. Antihistamines, steroids and adrenalin are used to manage the symptoms of allergic disease but they do not address the underlying problem. As a result, allergies often get worse over time and sufferers tend to 'recruit' more allergies. In contrast, the problem with EPD, as Dr Len McEwen notes, is that 'patients tend to get better and stop needing treatment'. 'Drug manufacturers are aggressively anti-EPD, they would rather desensitisation didn't exist at all'.

The UK's commercial licensing regime and manufacturing regulations also present major hurdles for EPD. The House of Lords Committee, which criticised the UK for its failure to regularly use immunotherapy treatments that have been shown to work elsewhere in Europe, found that UK regulations are 'inappropriately stringent' for allergy desensitisation treatments, reducing the scope for profitability.

Limited funding has in turn limited the amount of research and development. As a result, not only has the real potential of EPD to help people not been fully explored but many doctors remain sceptical of a treatment that has not been exhaustively trialled and unequivocally proven.

Yet a seven year study of EPD

**Allergies aren't just getting more common, they are getting more serious.**

treatment in America involving over 10,000 patients reported that three quarters of patients rated the improvement in their health as good to excellent. Placebo controlled, double blind trials and follow-up studies after five years also suggest that EPD has much greater long-term success than any other method of immunotherapy.

Similarly, nine out of ten published trials into the effect of EPD on hay fever symptoms have shown that a single pre-seasonal dose of EPD gives significant protection. However, critics point out that a larger study in Southampton failed to show any benefits for hay fever sufferers, and there has not been enough funding for subsequent research to weigh in on one side or the other.

### Fumes and food

Another reason that the medical establishment are sceptical is that EPD claims to treat conditions that are not yet widely accepted, such as food intolerance and adverse reactions to inhaled fumes, known as fume sensitivity, thought to be caused by anything from perfume to pesticides or smoke from anything from cigarettes to factory chimneys.

Believers in fume sensitivity suggest that scientific research may simply have failed to keep pace with allergies unheard of before industrialisation. And of course for big business and its government supporters there are huge financial reasons for remaining sceptical.

Faced with medical suspicion, industry hostility and the closure of his family-run factory, Len McEwen remains surprisingly undaunted. He says he is hopeful for the future of EPD because of the obvious and increasing need. 'There is hope because there is a need. The phone calls we are getting from patients are absolutely desperate'.

And his optimism has its own supporters. Doctors and allergists around the world who treat patients with EPD and who have been

## Conditions that have been treated successfully with EPD include:

Hay fever, dusts mite allergy, perennial rhinitis, asthma, urticaria ('hives') eczema, angioedema (swelling of the face, lips, etc) anaphylactic reactions (life-threatening swelling, usually involving the airways) to most known substances, food allergy or intolerance, adverse responses to inhaled fumes (sometimes known as "multiple chemical sensitivity"), ADHD (Attention Deficit Hyperactivity disorder) autism, tourette's syndrome, irritable bowel disorders, Crohn's disease, ulcerative colitis and migraine. EPD also appears to be a long-lasting treatment option for autoimmune illnesses including Rheumatoid arthritis, Type 1 diabetes and multiple sclerosis, illnesses which respond poorly – or not at all – to other methods of treatment of any kind.

impressed by the results are pulling together in search of ways to get the treatment funded and manufactured again. Dr Franziska Meuschel, a member of the new International EPD Society, reports that a Spanish factory is poised to start production of EPD

but cautions that

'If there are too few patients it will become so expensive that we can't afford it ... but we hope with demand and some funding that we can create wider availability'.

'The NHS was the biggest user of EPD in England and we hope that they will offer it again'.

Eunice Rose, Founder of the National Society for Research into Allergy says: 'The need for intelligent, open-minded doctors and effective allergy treatment in

this country is greater now that it has ever been. Now's the time to challenge the establishment and the vested interests and to demand action in the long-term interests of our health rather than in the short term interests of big business.'

Looking back on my own experience as a teenager, lying on the ground gasping for breath and suffering from a life-threatening allergic reaction, all I can think is that I am glad there are doctors and researchers who put people

before profit and that the last sound I heard was not the rhythmic chug of a crop-spraying tractor.

**'There is hope because there is a need. The phone calls we are getting from patients are absolutely desperate'**

# Activists return to defend Tasmania's forests as logging resumes

An agreement that would end 30 years of verbal, and often physical, confrontation over the future of the forests in the Australian state of Tasmania is teetering on the edge of collapse. **Ollie Milman** reports



Activists fear that remaining forests face the chop

**T**he future of the state and federal government-brokered agreement aiming to balance the interests of conservationists and the timber is in doubt amid accusations of bad faith on both sides. Tasmania, at first glance, appears an unlikely spot for environmental activism. The rugged island state is viewed by 'north island' Australians as sleepy and somewhat parochial. But strident green activism is becoming an increasing force, precisely because of its untouched nature.

The Tarkine, in Tasmania's north west, is one the largest single areas of temperate rainforest in the southern hemisphere, at 3,800 square kilometres. It's home to three endemic species of frog, 12 species of birds and the pugnacious Tasmanian Devil. The birth of the Australian Greens, who claim to be the world's first green political party, originated in ferocious protests in Tasmania against the construction of dams in the 1970s. Bob Brown, the party's current leader, even spent 19 days in prison for protesting against the Franklin River Dam. The Tasmanian Greens are currently part of a coalition state government, while several environmental NGOs, such as the Wilderness Society and Australian Conservation Foundation,

were also created in the state.

These environmental activists have clashed with timber companies for the past three decades, with protests to prevent logging in native forests a regular occurrence. However, hopes were high of a belated end to the conflict in August last year with the signing of an Intergovernmental Agreement (IGA) between the state and federal governments, in consultation with green groups and the loggers. The deal will turn 430,000 hectares of native forest into an informal reserve – less than the 572,000 hectares sought by environmental lobbyists – with \$277 million set aside to compensate forestry workers and manage the new protected areas.

But the process has stalled, with protests resuming over claims that Forestry Tasmania, the state-owned logging agency, is again felling trees in the conservation areas. 'There seems to be an inability to get Forestry Tasmania to plan logging outside this area,' says Vica Bayley, Tasmanian campaign manager for the Wilderness Society. 'The state government can't control its own agency. It's a rogue agency that is almost ungovernable. There's real frustration that the agreement hasn't been honoured. If this process doesn't work, what will? There's about 1,900 hectares being logged within the area. It's just business as usual. If anything the logging has intensified.'

Bayley says that it's not only Tasmania's diverse flora, such as the tall wet eucalyptus forests that have been judged one of the most effective carbon banks in the world, that is at risk from logging activity. The endangered swift parrot, which has around 1,000 breeding pairs left, nests in the hollows of Tasmanian trees, while the Tasmanian Devil and the wedge tailed eagle also depend heavily upon the forests.

Miranda Gibson, a young activist, has spent the past three months perched 60 metres up a tree in an area of supposedly protected forest, around an hour-and-half drive north

of the state's capital, Hobart.

'The loggers have picked bits and pieces out of the agreement and ignored the bits they don't like,' she says from her vertiginous platform, from which she regularly blogs to a sizeable online audience. 'People think the forest is protected, but it is falling rapidly. I felt it was important to share the story of the forest with the rest of the world. The first week up the tree was the hardest. They were logging in this coupe and I had to watch. They've since moved to another copse and most days I can hear the chainsaws. They aren't giving the forest any space, even while they are trying to put this agreement in place.'

Gibson says that she's happy to spend a further three months taking part in her arboreal protest – the kind of stance that has infuriated Forestry Tasmania. The state agency, which is responsible for the management of 39 per cent of Tasmania's forests, says a clause in the IGA allows it to log within the protected area if it cannot access timber outside the zone to meet contractual obligations. 'It's disgraceful, really,' says Ken Jeffreys, general manager of corporate relations and tourism at Forestry Tasmania. 'They call us a rogue agency when we are the ones spending time and money providing data and modelling for this agreement, and how are we rewarded? By attacks on our customers and having our people confronted in the forest.'

The timber industry has been hurt by several blows in recent years, with the global financial crisis followed by a soaring Australian dollar, making exports uneconomical. Worse still, Gunns, Forestry Tasmania's largest customer, announced that it was pulling out of native forest logging as part of the peace deal. Now, Forestry Tasmania alleges that customers, mainly in Japan and the UK, have been victims of 'economic vandalism' from pressure groups such as Markets For Change, determined to deter them from purchasing Tasmanian native timber.

Earlier this month, New Zealand

company Richard Chandler Corporation pulled out of a \$150 million investment in Gunns, because the move did not meet its "social criteria". 'Customers aren't put off by Tasmanian wood because of our environmental record, because we have some of the most stringent laws in the world here,' says Jeffreys. 'It's because they are fearful of cyber attacks from activists. Customers know we have world-best practice, but they face blackmail if they do so. If the IGA goes through, over 50 per cent of the state's forest will be in reserves. If you look at any area in Asia or Europe, can anyone else say that? Most ecologists would say that native forests, properly managed, are the best for biodiversity. You don't get much biodiversity in plantations. It's logical to have a mix of native and plantation resource. In a carbon-restrained world, timber is better than steel and concrete. We want to be known as something other than one giant national park.'

For all of the protests, Bayley concedes it's the economics that will be key in the future of logging in Tasmania. 'Japan doesn't want Tasmanian woodchips and the other option, China, has got cheaper markets in Vietnam and Cambodia,' he says. 'Tasmania loses money every time it ships timber overseas. It's a broken model. The industry needs to diversify.'

Tourists drawn to Tasmania's clean, green image is seen as part of the solution, although the logging industry is also pushing for the construction of a controversial pulp mill to help sustain it. One thing both sides can agree on is that a solution to the lengthy forest war is something almost all Tasmanians crave. 'I think everyone wants this resolved,' says Jeffrey. 'I just don't know what the green groups will be satisfied with. Ultimately, people still need to eat.' Bayley adds: 'One pathway leads to outcomes for the environment and the community, the other leads to more trench warfare. People are sick of the debate and conflict. We all want to move on, but if this agreement doesn't work, we all lose.'