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How South Africa is making conservation pay

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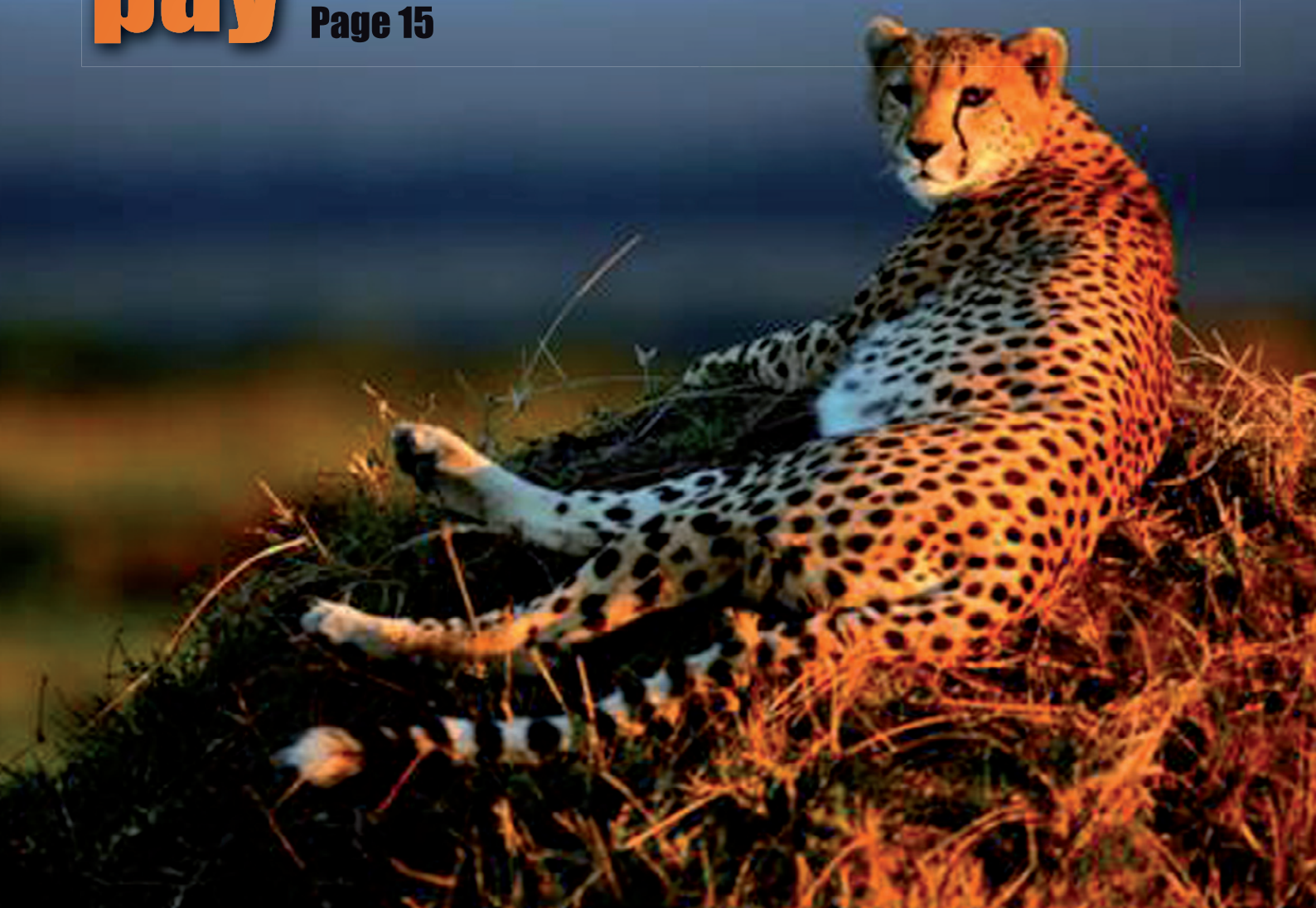

Food security takes centre stage at climate talks

Olivier De Schutter

The impact of climate change on food insecurity is created growing interest in agro-ecological methods of farming at the COP17 climate negotiations in Durban

The low-key nature of the recent Durban COP17 climate talks produced an unexpected silver lining. With a Kyoto II agreement seemingly in the deep freeze, a key issue was allowed to fill the void: food security.

New studies from Oxfam, the FAO and the IPCC have painted a stark picture of how climate change is already wreaking havoc on the global food supply, and how much worse this could get. Endemic food shortages and famine are among the most shocking eventualities yet to be thrown up by climate change.

And shocked we should be, such would be the consequences of failing to act. 2010 saw drought in Russia, China and Brazil and flooding in Pakistan and Australia, severely straining the food supply and sending world grain prices through the roof. While this year's drought in the Horn of Africa has created a humanitarian disaster in an already food insecure region.

These events provide crystal clear insights into the fragility of the food system, and how little it takes to send it out of kilter – and to consign millions more people to hunger.

This awareness of an imminent wholesale food crisis is needed to re-inject urgency into climate talks; but a continuous awareness of climate change is just as necessary in order to keep the food security agenda on the right track.

With food prices spiralling since 2008, a compelling discourse for raising food production is already firmly in place, driving a flood of interest and investment back into agriculture – particularly the 'under-exploited' farmlands of the developing world. According to the new orthodoxy, food production will need to be significantly ramped up in order to feed a growing world population, regardless of climate change.

But the danger of this discourse is precisely its indifference to how we produce, who produces for whom, and at what price for climate change and environmental sustainability.

Raising food production 70 per cent by 2050 is the figure habitually wheeled out. Fertiliser and pesticide-driven yield increases, coupled with the ploughing up of rainforests and other remaining carbon sinks, could just about squeeze the extra tonnage of food out of the earth before the self-sustaining capacities of ecosystems are fully saturated. But any approach of this nature is a race against time which will eventually be lost, and through which we will only accelerate the onset of climate change, and its potential to devastate harvests.

What is desperately needed is a change of agricultural paradigm.

The tragedy of rushing headlong into a second 'green revolution', where industrial solutions are sought on an industrial scale, is that other solutions are right within our grasp. Literally, in the case of COP17. As I saw first-hand this summer, Durban is at the forefront of a revolution in peri-urban sustainable agriculture. The city is developing a network of six agricultural support hubs to provide agro-ecology training, marketing tips and seeds to its community gardens.

Not far off the coast of South Africa, the food insecure island of Madagascar has shown the capacity to double or triple rice yields by following simple agro-ecological practices. Elsewhere, agro-ecological alternatives such as agro-forestry and integrated crop-livestock production hold real promise of rehabilitating struggling production zones and making them more resilient to the climate challenges to come.

These are diverse, local solutions, but are governed by the same underlying logic: they not only maintain and raise long-term food production, but do so in precisely the places where this food is most needed, and where the resilience of land to extreme weather is sorely in need of being rebuilt.

There is therefore a strong interest in tying the food security and climate change agendas inextricably together around the axis of agro-ecology. Despite the downbeat mood, Durban could chalk up significant progress in the battle for global sustainability, should these lessons be internalised and brought forward.

Big sums of money will most likely be transferred towards the developing world in the remit of food security and climate change initiatives over the coming years and decades. It should not be used to support models of land use and food production which continue to push nature's self-sustaining capacities too far. Not when real agro-ecological alternatives are at our fingertips.

Olivier De Schutter is the UN Special Rapporteur on the Right to Food

Could politicians be charged with 'ecocide' if they approve tar sands pipeline?

A law of ecocide could potentially see politicians who approve environmentally-damaging projects, like the tar sands pipeline between the US and Canada, face a court trial. **Rosie Spinks** reports

'The air stinks and you see monster trucks driving everywhere,' says one activist of the Alberta tar sands

'The first thing you notice is that the forest just stops,' says Malaika Aleba. 'The land is desert-like and sandy - very strange for Alberta - almost like what Afghanistan looks like on the news. Canons are fired every so often to scare off the birds. The sky turns grey, then brownish. The air stinks and you see monster trucks driving everywhere as well as drug testing signs posted for the workers.'

Aleba, a 23-year old environmental activist from Alberta, Canada, is describing what the Athabasca tar sands, located near the small Alberta town of Fort McMurray, looked like the first time she visited. Perhaps unknowingly, she is also describing something that a growing group of environmental activists and legal professionals want to bring global recognition to: ecocide.

Ecocide, according to barrister and environmental lawyer Polly Higgins, is not only a crime against nature, but also one against humanity, peace, and future generations. After spending years in courtrooms representing the earth as her number one client, one day Higgins realised her efforts would remain in vain unless something changed.

'It's very hard to speak out against something that hasn't been given a name or been recognised. I realised that I was going to have to make up the laws that I needed.' Higgins told the Ecologist. 'If we're going to actually propose an earth right to life, that needs to be governed by the equivalent of genocide protecting humanity's right to life - and that needs to be ecocide.'

A law of ecocide could, for example, put heads of oil companies like BP in jail for incidences such as the Gulf oil spill.

Higgins says a mock trial in September - which was held in the UK's supreme court with a real jury - proved that an ecocide law could successfully stand the test of a courtroom trial. The jury found two fictitious executives guilty of the crime of ecocide for extracting oil from Canada's tar sands.

Higgins is now taking the her case to an international level by attempting to convince the United Nations to classify ecocide as a crime against peace, alongside a list of heinous offences including genocide and war crimes. She hopes that the idea will be adopted at the 2012 Earth Summit in Rio De Janeiro, Brazil.

If it gets approved, those found guilty will no longer find their corporation slapped with a fine; rather, they will be held individually responsible and placed in prison.

'Ecocide attaches itself to what happens upstream and it attaches itself to individuals who make those decisions,' Higgins says. 'It acts as a very powerful disincentive - we don't fine people when they murder someone, they actually end up in prison'.

If Higgins has her way, it could result in politicians and company CEOs who approve environmentally damaging projects being hauled in front of a court.

Some say that President Barack Obama's pending decision over the controversial Keystone XL pipeline - which, if built, will transport a highly acidic crude oil known as bitumen from the tar-sands of Alberta, Canada to oil refineries in the Gulf of Mexico - could represent a valid case for ecocide if it is approved. However, Higgins says her ultimate aim is not to see Barack Obama in a courtroom.

'Although it is possible for heads of state to be prosecuted under Ecocide when it is made law, the primary purpose is a law which creates a 'think before you act' provision,' Higgins says. 'The main aim of [the law] is prevention – to create a strong legal burden on governments and businesses to act in a responsible way that prevents future harm to the Earth.'

The pipeline debate

Obama's decision of whether to approve the 1,700 mile-long Keystone XL pipeline has been mired in controversy from the start. Because it spans international borders, the pipeline's approval requires a 'Presidential certificate of national interest,' which means it's a rare case where Obama can make a decision without relying on an environmentally disinclined Republican Congress.

Proponents of the pipeline maintain that the project will create employment in a shaky and jobless US economy and will bring about a decreased reliance on Middle Eastern Oil.

Opposition to the project, meanwhile, has been fierce. Environmental activists led by 350.org founder Bill McKibben, along with a bevy of high profile figures - including actor Robert Redford, the Dalai Lama, Desmond TuTu and leading NASA scientist James Hansen - have openly challenged the president to follow through on the green platform he was elected on. To date, tens of thousands have protested at the White House and over one thousand people have been arrested for their acts of civil disobedience.

> "Their list of grievances is long and varied. Oil extracted from tar sands emits significantly more greenhouse gases than lighter, conventional oil at every stage of the production cycle."

Their list of grievances is long and varied. Oil extracted from tar sands emits significantly more greenhouse gases than lighter, conventional oil at every stage of the production cycle. Activists believe that further investment in this kind of fossil fuel technology commits the US to an unsustainable path and is counter to Obama's claim this would be 'the generation that finally frees America from the tyranny of oil'. They also believe that far more jobs could be created by investing in an economy fueled by alternative energy sources.

Concerns were also raised over the fact that the company contracted by the US State Department to carry out the environmental review of the project had links to Transcanada, the Canadian pipeline company responsible for the project. Furthermore, the proposed route for the pipeline would cross

environmentally sensitive terrain including the Ogallala Aquifer in the state of Nebraska, which provides water for citizens in multiple states.

Due to widespread concern over this last claim, activists got a jolt of encouragement early in November when the White House announced their decision to review the route proposed by Transcanada. This announcement means a final decision on the project won't be made until at least 2013.

Shortly after the announcement, Transcanada stated its willingness to reroute the pipeline, despite earlier statements that this was not possible.

This delay and additional environmental review, while not an outright ban, is an accomplishment in itself according to some sources.

Bill Snape, the senior counsel for the U.S. Centre for Biological Diversity said that a few months ago, approval of the pipeline was all but a done deal. Transcanada had already invested over one billion dollars into the project and Obama's administration, Snape says, had already demonstrated its allegiance to oil interests.

'There's this sort of obsequious behaviour that occurs throughout all of the fossil fuel industry sectors which is mind boggling,' Snape told the Ecologist. 'The [Obama] administration tries to distance itself from this but the reality is at this stage in the game - three years into the administration - it's really difficult to distinguish Obama and George W Bush on a lot of these issues. The only reason [approval of this pipeline] became such an issue is because of the incredible grass-roots expression of outrage.'

A double case of ecocide

The official definition of ecocide is 'the extensive destruction, damage to or loss of ecosystem(s) of a given territory, whether by human agency or by other causes, to such an extent that peaceful enjoyment by the inhabitants of that territory has been severely diminished'.

Higgins says that the extraction of oil from the Athabasca tar sands represents a prime case of ecocide. However, another interpretation is that the Keystone XL pipeline, if built to transport that tar sands oil, constitutes a secondary ecocide. In this case there is no one individual that can be held accountable, but large-scale environmental destruction is still taking the place through greenhouse gas emissions and worsening climate change.

Andrew Leach, an environmental economist and professor at the Alberta School of Business, says including the greenhouse gas emissions potential of the Keystone XL project is not feasible for the administration.

> "...they didn't see that impact as being a particular reason to stop the project..."

'The State Department environmental impact statement certainly attributed some impact to greenhouse gases. But they didn't see that impact as being a particular reason to stop the project,' Leach told the Ecologist. 'Greenhouse gases are a global issue so in the context of determining the national interest you would have to say: "Is the US affected negatively by plus or minus 21 megatons of greenhouse gases every year?" I don't think that there's a way you can say yes to that.'

Leach added that reductionist arguments that frame the Keystone decision as the green litmus test of Obama's presidency are misguided.

'The ideas of this being "a symbolic project" and the legitimate arguments that people make about the pipeline being "slippery slope" -- there's really no room within the analysis to include that,' Leach said. 'Nor do I think by building one pipeline you make future pipelines or future developments any more or less attractive.'

Higgins says her ecocide crusade is bigger than any one issue. While she believes that the fight against the tar sands and pipeline is important, she knows a victory in this case won't mean a complete change in tune.

'You end up just fighting battle after battle. If it's not the pipeline, it's fracking over there, it's mining over there', Higgins said. 'Until we actually close the doors to this completely, all we're doing is fighting tiny little battles that actually get lost most of the time. Recognising ecocide is about closing the door to the war.'

Finding perspective on the pipeline

While Leach may characterise the claim of ecocide as excessive and unrealistic, he does concede that the popular support for the project in Alberta is somewhat narrow-minded.

'It's easy for us as Albertans, at the head of the pipeline with commercial stake, to say "Well this is obvious, it's easy, it's absolutely a win."' Leach said. 'But I think we would look at it very differently if it were a US pipeline company moving oil from Alaska to Washington through our national parks. I expect that Albertans would have a very similar reaction to what Nebraskans are having to Transcanada.'

Snape of the Centre for Biological Diversity said that far from having to adopt the idea of ecocide as a justification for blocking the project, President Obama has a number of practical and more moderate reasons that would warrant its disapproval.

'How we power the country and how we deal with a world economy that seems to be gluttonous for fossil fuels - I recognise are not easy questions, Ones that the US continues to fall down upon almost daily,' said Snape. 'But here we are talking about Nebraska farmers, Native Americans, public lands that are owned by citizens. There are a lot significant issues on the table here and a lot of reasons Obama could reject it not on the basis of a radical green agenda.'

Higgins believes that ultimately, future generations will look back on the adoption of ecocide as a logical step towards a more just world.

'Through history we see that it's always the moral imperative, over time, that trumps the economic imperative,' Higgins said 'We've gotten to the stage now that we are recognising that a lot of this dinosaur technology, this dangerous industrial activity is an ecocide, and is in and of itself wrong. That is the natural progression of law - law always plays catch up with civilisation waking up to something.'

Where will our milk come from: 'battery' farms or free range cows?

The recent axing of the Nocton 'super-dairy' renewed interest in how our milk and cheese is produced. Rosie Shute visited two dairy farms - an indoor, intensive unit and a year-round outdoor operation - to assess their very different approaches

Where do we want our milk to originate?

Deep down in Dairy Country, there's a divide developing; the divide between old and new. Driven by consumer preference and government subsidies, farmers are choosing to throw in their lot with either more natural, traditional farming methods, or more technologically advanced, intensive methods.

Nowhere is this divide better exemplified than on two farms in Somerset, on the opposite side of the same lane, but operating centuries apart. As an environmentalist and ecologist I felt certain I knew which side of the lane my preferences fell. But on visiting these farms, my preconceptions were challenged.

Anyone with the vaguest understanding of the natural world usually comes to the conclusion that 'nature knows best.' How many times have we heard stories of humans blundering into disaster when trying to control an ecosystem? (Weevils in North America, rabbits in Australia, and Bullfrogs the world over to name a few). The complexity and interrelatedness of all things means that such manipulation is beyond us: nature is not for the taking.

It is this understanding which makes ecologists, environmentalists and greenies everywhere (including me)

often balk at anything overly interfered with by humans.

So on hearing about these two farms side by side, one an intensive, technologically advanced system, the other an entirely outdoor system, I wanted to see for myself how the two compared. I was expecting an easy win for Mr Marshall-Taylor's agriculture al fresco at Volis farm.

Bucolic bliss

Having farmed the same land for almost 40 years, it was both economic and environmental considerations, as well as his daughter's advice, which persuaded Mr Marshall-Taylor to adopt an all-outdoors method. Previously, he'd been operating the modern day norm in which cows are outside for roughly half the year and inside for the rest. Although this saves the winter's wet ground from being paunched by the cow's hooves ('worse than stilletoes'), feeding the cows inside requires a lot of silage and feed concentrate. Both require oil, which is bad for the environment as well as the farmer's pocket.

But for the past seven years, Mr Marhsall-Taylor has been keeping his cows outdoors the whole year round. Come sun, rain or 20 inches of snow – the majority of his herd are outside. Whilst the ubiquitous Holsteins would have trouble in these temperatures, Mr Marshall-Taylor's cross-breeds are smaller, sturdier and more resilient cows. He even milks the herd outside, using an outdoor milking parlour, fashioned after the old-hat milking 'bails' first introduced in the UK in 1922.

On visiting, we wandered around in the sun watching the old girls being encouraged into position, fifty at a time, into the outdoor parlour. They'd spent a morning mooching around the fields and according to the statistic weren't just looking contented; they were physically a robust crowd. Compared to Mr Marshall-Taylor's previous system, the cows were now healthier and living longer, he reports. His milk has significantly lower bacterial counts (by almost 30 per cent, he says), and his carbon footprint has been dramatically reduced through his lower use of nitrogen-rich fertiliser and carbon costly feed concentrate.

I was surprised though that while Mr Marshall-Taylor's fertiliser use was reportedly half of what it had been – it was still surprisingly high at roughly 280kg per hectare. (I also learnt of concerns that some cows housed outdoors can succumb to alarming levels of mud, leaving them caked with the stuff and existing in less than ideal conditions.)

As I left though, in general, all seemed well down on the farm.

I now made my way across the lane to the techno touted Pyrland Farm, where I knew that the cows only spent two months a year outside. The term 'battery' hung in the air, and the robots awaited.

Automated autonomy

After a few minutes pottering in a pleasant foodie farm shop, I was greeted by the owner, Mr James Read. With giant strides across a well-kept yard, he took me onto a platform overlooking a large, light filled open barn with cows standing or lying in capacious cubicles on straw. On closer inspection, I noticed machines, not dissimilar to automatic lawnmowers in appearance, following cows on their occasional wanderings across the slatted floors.

Mr Read explained that these were pushing any dung through the slats into a slurry pit below. This slurry would then be used to fertilise the fields, saving on oil-based imported fertilisers. Even more intriguing were the three automatic milkers sat at one end of the barn. Every now and then a cow would stroll into one of these booths of their own accord. Once inside, their centre of gravity was automatically detected by a metal plate on the floor. Suction cups then located the udder and attached. The absence of human interference was conspicuous. No one was herding the cattle. The cows decided when and how often they wanted to be milked. The cows were in control.

> "Come sun, rain or 20 inches of snow – the majority of his herd are outside. Whilst the ubiquitous Holsteins would have trouble in these temperatures"

The effect of this autonomy on the herd's health has proved significant. The rate of mastitis (a prevalent udder infection) has diminished to one third of even Mr Marhsall-Taylor's herd. Compared to even the outdoor system, the cows here were living longer, their milk was cleaner and they were producing more milk. And while increased yield was of course a source of pride for Mr Read, it was the animal's welfare that he cited as the single greatest benefit from his new method of farming.

But of course, there were downsides – some potentially insurmountable for the carbon conscious. For example, by keeping his cows inside all year, Mr Read needs to feed them almost nine times as many concentrates as that used in the entirely outdoors system. Moreover, the whole system is based on cows staying indoors for ten months a year. However happy the cows seem inside, is our milk worth consigning the life of a bovine beauty to a shed?

So which system won? Well, it was by no means an easy victory for the au naturel outdoors system – it was actually a draw.

Because while we may feel that nature's not for the taking, farming has already taken it. Long ago, the land was conquered, the beast tamed and the natural equilibrium disrupted. The reality is we're operating in a false system, and our objectives should now be to ensure that this system is sustainable, and that animal welfare is prioritised. Although the carbon cost and 'unnaturalness' of the indoor system are certainly negatives, the innovative approach to animal welfare is worth investigation by environmentalists.

The divide between old and new styles of farming should dissolve and the best of both integrated. In Holland it seems that they're already doing this, by taking the automatic milkers outside. Perhaps we could speed up such innovation in the UK by lending the green movement's weight to backing the case for technology in promoting animal welfare?

Durban climate change conference: why farming is the biggest issue for Africa

NOTE: This article was written and published prior to the COP-17 summit. For up-to-date coverage go to www.theecologist.org

With little hope of a binding deal on climate change at the latest UN summit, campaigners are hoping that Africa's COP will tackle the issue that plagues the continent most: agriculture. **Rosie Spinks** reports

Campaigners are hoping that agriculture will feature heavily in Africa's COP

Africa is a continent where 70 per cent of people depend on rain-fed agriculture as a primary food source. With scientists predicting an increase in the frequency and severity of droughts like this year's in the Horn of Africa - the worst in six decades - it's clear that climate change poses a growing threat to food security.

For this reason, advocates and civil society groups are campaigning for the upcoming United Nations Framework Convention on Climate Change, which starts in Durban, South Africa on November 28, to have a firm emphasis on agriculture. If this 17th Conference of the Parties (COP-17) goes anything like the last three meetings in Bali, Copenhagen, and most recently, Cancun, not much will come in the way of carbon reduction targets, which is the main focus.

Developed and developing countries are gridlocked over committing to target reductions of greenhouse gases and a renewal of the Kyoto protocol.

However, campaigners are hoping that agriculture can become a major part of the climate change dialogue at COP-17, as it has been noticeably absent before. They say a scheme similar to the one ratified at COP-15 in Coppenhagen to address the carbon emissions made by deforestation and forest degradation (known as REDD) needs to be made for agriculture.

Dr Lindiwe Majele Sibanda, CEO of the South Africa-based Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) says that agriculture represents an opportunity overcome the pessimistic expectations of COP-17.

'On the reduction of emissions, it has been long, 20 year journey—up to now the USA is still not part of Kyoto—so let's harvest some of the low hanging fruit,' Sibanda says. 'There are other things that can be agreed upon which are critical and will give us quick returns, like agriculture.'

Nowhere is the link between agriculture and global climate change as pronounced as in Africa, where changing patterns in temperature and rainfall threaten a population that is expected to swell to two billion by 2050. 'The relationship between climate change and agriculture is a two-way street,' a 2008 UN report on agriculture states. 'Agriculture contributes to climate change in several major ways and climate change in general adversely affects agriculture.'

However, as Greenpeace Africa campaigner Olivia Langhoff points out, agriculture has the potential to mitigate the negative effects of climate change, not just exacerbate them.

'Agriculture can be a huge polluter but it doesn't have to be, it can be a carbon sink, it can be actually producing agro-biodiversity,' Langhoff said. 'Economically speaking, absolutely the same is true. You can use agriculture to actually encourage a green development pathway for many communities and many countries in Africa.'

> "Agriculture can be a huge polluter but it doesn't have to be, it can be a carbon sink, it can be actually producing agro-biodiversity"

The type of agriculture that Sibanda and a growing group of backers—including South Africa's agriculture minister, the president of COP-17, and various civil society groups—are supporting is not simply about increasing yields and maximising efficiency. ĐĐThey are promoting what is termed climate smart agriculture (CSA), an approach that incorporates traditional agro-ecological methods—such as crop rotation, mulching, and low-tillage land management—to promote the resilience of natural systems and decrease the greenhouse gas emissions associated with industrial farming methods.

What will come of the Durban summit?

There is little opposition to CSA as a strategy to face food security issues in Africa and globally, however there also appears to be little consensus as to what specific targets should come out of COP-17. Other than a side-event that will specifically address agriculture scheduled for December 3, there is no official item on the COP-17 agenda mentioning agriculture.

South African Agriculture Minister Tina Joemat Pettersson says her goal for COP-17 is simple. 'We simply want nothing more than one sentence which says that there has to be work done for CSA,' Pettersson told the Ecologist. 'Remember agriculture has never before been in the context of climate change [negotiations] so just getting our foot in the door is the main objective of COP-17.'

The minister remarked that the she hopes a more detailed action plan - one that outlines the science, technology and funding behind CSA - will be laid out by nations attending the Rio 20 conference next summer. FANRPAN CEO Sibanda thinks more decisive action should be taken. 'There is already a global agreement that food security is a global issue,' Sibanda told the Ecologist. 'We already have a lot of sentences on agriculture and food security but what we need out of Durban is a work program dedicated to agriculture to reinvigorate the sector and not treat it the same way as the transport and aviation sectors.'

Greenpeace's Langhoff hopes that South Africa will use COP-17 as an opportunity to emerge as a leader in agriculture. She said that it must become a priority for African nations to put farmers, not agribusiness, first.

Is the World Bank welcome?

The chorus of advocates for CSA methods is not just limited to civil society groups and government ministers.

The World Bank has backed the idea of farmers adapting to climate change via agro-ecological methods.ĐĐ

Jamal Saghir, World Bank Director for Sustainable Development in the Africa cites success stories such as in Rwanda, where potato farmers were able to increase their harvests by more than 50 per cent by improving rainfall management.

Saghir said that Durban is a crucial moment for agriculture to enter the global climate change dialogue. 'A few years ago, the focus on deforestation and degradation was unthinkable; today it is central to the discussions about climate change,' Saghir said. 'We believe the time is opportune to recognise the potential of climate-smart agriculture to tackle climate change.'

However, some believe that the World Bank support for CSA, far from signaling a wholesale endorsement of small-scale farming practises, is merely a token project. The World Bank, as well as other international development institutions such as the IMF, are known for providing loans and financial assistance to developing nations for large-scale agricultural projects and for encouraging development through the export of cash crops, all of which rely on fossil-fuel intensive farming methods.

'If it is a complete change of tune and not being treated as a niche pet project it is absolutely welcome because the future of farming lies in ecological farming,' says Greenpeace's Langhoff. 'But with the World Bank, and lots of international finance institutions and development agencies, the majority of investment is actually going into the traditional, industrial, technological fixes and then you have nice window dressings or shop windows for the beautiful, sweet, small projects. What we need is not more window dressings.'

Pettersson says that regardless of whether the support from the World Bank is long-term or not, she views their endorsement as a positive step.'Agriculture is the mainstay of the African economy and we cannot sacrifice support because of reputational risks of the World Bank,' the minister said. 'We're always saying "Why doesn't the World Bank come to party? Why doesn't the World Bank assist us?" And now they're coming to the party for small holder farmers and now we're questioning them.'

Director Saghir of the World Bank told the Ecologist that the World Bank endorsement of CSA does not mean that the institution does not support agricultural exports or other forms of technology that could also improve agricultural yields. 'The World Bank supports agriculture as an instrument for development, and this entails improved food security at the household level, higher incomes for African farmers ... and agricultural exports where good opportunities exist,' Saghir said. 'Mulching, composting, and rotational grazing are appropriate in many places, and so are investments in irrigation, water harvesting and storage ... and a host of innovations and investments.'

Sibanda of FANRPAN echoed Minister Pettersson's acceptance of the World Bank and said she hopes it will help broaden the reach of CSA. 'I believe anything that puts food first is good for everybody. So I think it is a good thing and we're excited that the World Bank has embraced the CSA initiative and we are hoping that it becomes not just an Africa appeal but a global appeal.'

Getting to farmers on the ground

Changing the international dialogue from industrialised farming to small-scale, agroecological methods is a big step, but getting the information to farmers on the ground remains an largely unmet challenge. Minister Pettersson spoke about the difficulty of getting farmers who are struggling to meet their basic needs to think about the need to face climate change in their farming practises, but she also characterised it as an opportunity.

'If people are eking out a measly existence, for them, the emphasis and the most important point would be to put a plate of food on the table,' Pettersson said. 'If you have that kind of reality in developing countries, then climate change is not going to come a real priority. So we need to make it part of people's environment. Once farmers get an understanding that climate smart practices will not work against their profit margins but will actually supplement their profits and productivity, well see a better buy-in from farmers.'

However, the problems faced by African farmers, Langhoff said, is not just limited to methods of cultivation, but also structural issues such as infrastructure and land conversion. 'If you're a farmer in central Africa and you actually don't have a problem with producing a surplus, your problem is you can't sell it because by the time the surplus reaches the market after days on a boat or over land, it's rotten,' Langhof said.

'What farmers need most is skill sharing, learning about other methods which are working and real support in establishing infrastructure and a market so they can actually sell what they're producing.' Langhoff cited additional obstacles for farmers, including competition with large-scale industries, farmers being thrown off their land to make space for monocultures or cash crop production, and monopolised seed markets with one-size-fits all solutions.

In South Africa, Pettersson is planning to launch a new Department of Agriculture program to encourage small-scale farming. She hopes to get government institutions, such as schools, hospitals and prisons, to procure their food from local farms.

'In South Africa most people produce food they don't eat and they eat the food they don't produce,' Pettersson explained. 'So through small holder agriculture and through our Zero Hunger campaign, we are highlighting the connection between food security and small holder farming but were also saying that if we don't look at CSA well be relegating them to subsistence for the rest of their lives.'

The conservation quandary: can wildlife NGOs save Africa's animals?

Conservation is a huge industry in Africa but wildlife populations across the continent are declining. So why isn't it working? **Ian Michler** reports

The fate of the Black Rhino has been much reported. Photo: Jpelling / IUCN

Last year Cambridge University zoologist Dr Ian Craigie and his colleagues released a report called 'Large mammal population declines in Africa's protected areas'. The paper, published in Biological Conservation, analysed 78 protected areas from southern, East and West Africa and concluded that Africa's large mammal populations had declined by 59 per cent over the past 40 years. Large primates are the big losers, as are lions, African wild dogs and cheetahs. That's hardly news - a growing number of studies have highlighted these trends - but these figures also apply to many ungulate species we may regard as common. Wildebeest, zebra, buffalo, hartebeest, eland and giraffe - they are all there too. Moreover, as the survey excluded national parks and reserves in remote locations, as well as wilderness areas falling outside formal protection, the wider situation is likely to be far worse.

These declines have occurred despite the endeavours of an entire industry, comprising private sector, government and NGO groups dedicated to conservation, environmental sustainability and social justice, working to avoid precisely this scenario. The first protected areas on the continent were declared as long ago as the late 1800s, yet despite more than 100 years of (admittedly sporadic) awareness of Africa's wilderness areas, habitat and wildlife have been lost across most regions. It is time we took a critical look at our conservation models. Are we missing something, or are they fatally flawed?

The scars of the past

Protected areas, which encompass any category of land given some form of official protection, have been and remain the foundation of Africa's conservation initiatives. However, the way in which many of them came into existence is proving central to the challenges and problems facing conservationists today. At the turn of the last century, when the boundaries of parks like Kruger and Amboseli were established, ecology - the study of how living organisms relate to each other and their environment - was in its infancy. Administrators split wet and dry season ranges, and gave little thought to weather patterns and their impact on migratory movements. The fences, roads and agriculture that sprang from these decisions have had disastrous consequences for adult mortality and the calving success of many ungulate species. Equally disastrous have been the independence struggles and protracted civil wars that have characterised much of the continent's history. Many wilderness areas served as bases (and pantries) for armed forces, often for decades at a time, with the true extent of wildlife losses going largely undocumented.

> "In many African states, the environment is ranked as the least important portfolio and as a result, conservation tends to be treated with indifference and, in some instances, outright neglect."

There have been human costs as well. The rural communities living in and around most protected areas were not consulted when they were established, and researchers suggest as many as 15 million people were directly affected by forced removals. The injustice was aggravated when traditional lifestyles were either curtailed or prohibited, and the people were generally excluded from any financial benefits accruing to the new landowners. Alienated and marginalised, communities have been left to eke out a living on the outskirts of the continent's iconic parks and reserves. It is no wonder that hostility and apathy towards present-day conservation goals remain. Human pressures such as slash-and-burn agriculture, poaching, wood collection and overgrazing by domestic livestock, compounded by in-creasing populations, are some of the largest contributors to biodiversity loss. These, then, are the protected areas that the conservation community is desperately trying to keep intact.

Who's in charge anyway?

According to IUCN UNEP's World Database on Protected Areas (2011), sub-Saharan Africa has 11.8 per cent of its land under formal national protection, whereas North Africa has only four per cent. (Within these regions, however, there are wide disparities between countries. Botswana conserves 30.93 per cent of its land; South Africa just 6.9 per cent.) The management of these protected areas takes various forms, and where it's a joint operation between government and private operators, NGOs often provide the link. Given the severity of the declines, it is pertinent to ask: are all custodians failing in their mandates, or are some more effective than others?

Governments, as owners of national parks, bear the ultimate responsibility. Although they can justifiably point to the conflicts they inherited as mitigating factors, their record in the post-colonial era is patchy at best. In many African states, the environment is ranked as the least important portfolio and as a result, conservation tends to be treated with indifference and, in some instances, outright neglect. Where active management is in place, it is often characterised by a pattern of extremes. The iconic protected areas, like the Masai Mara National Reserve, Ngorongoro Crater Conservation Area and Kruger National Park are given a high profile and used extensively, whereas those in remote locations receive little support. In countries such as Gabon and Angola, government leaders trumpet impressive visions, but little materialises on the ground.

These operational concerns are exacerbated by two other factors. Firstly, regulations and law enforcement systems are outdated or inadequate. The appropriate legal infrastructure is often absent, as is the will to follow the prosecutorial route to its conclusion, leaving governments unable to counter the organised crime syndicates that are currently targeting wildlife. Secondly, weak monitoring and enforcement systems provide fertile ground for corruption, a scourge that, whether manifest in outright theft or in more insidious bribery, has become a major inhibition to successful conservation.

Peter Fearnhead, the chief executive officer of the African Parks Network, believes that mitigating factors must be considered. 'Governments have committed huge areas to the conservation of biodiversity, at

enormous opportunity cost to the electorate. But they struggle to meet the daily needs and aspirations of their own citizens for a plethora of reasons. So, to expect governments to deliver on their international conservation obligations for the benefit of an amorphous international community is too much to ask. The international community must share in the responsibility for the maintenance of protected areas,' he says.

There are also questions to be asked of the private-sector players. Despite the glossy brochures lauding conservation credentials, many operators are in essence financial ventures, driven by their shareholders' demands for profitability. Rigorous interrogation of their genuine commitment to benefit-sharing and the environment, and of their levels of greenwashing, is needed. Notwithstanding these reservations, there is a perception that private operators generally have a better grasp of the immediate circumstances than government-run entities have, and are more proficient and passionate when going about their business.

Colin Bell, one of the founding partners of Wilderness Safaris and The Great Plains Company, two of Africa's most highly regarded ecotourism operators, believes the answer lies in sound partnerships between the private sector and government. 'When the roles between rural communities, governments and the tourism industry are structured fairly, these three entities become wildlife's best guardians. When the relationship between the entities is poorly structured, wildlife's long-term potential looks grave,' he says. For Bell it is possible for private eco-tourism companies to fulfil mandates to both their shareholders and the environment, 'as long as there are checks and balances, clear lines of responsibility and accountability, with severe penalties for transgressions and long-term rewards for good custodianship'.

Botswana is one African country that seems to have got the balance between government and private sector just right. Steering clear of the protracted conflicts that have wracked its neighbours, Botswana has implemented sound economic and political planning since its negotiated independence from Britain in 1966, and has placed more than 30 per cent of its land under some form of protection. It is these factors, together with a population density of just 3.4 people per square kilometre that are crucial to its success. Similarly Namibia, which also enjoys a stable government and low population densities, has garnered kudos for the policies that underwrite its much-admired conservancy initiatives. Unfortunately, the circumstances and records of these two countries are the exception rather than the norm, and - here's the kicker - despite doing so much 'right', they too continue to lose wildlife.

The present paradigm

Whether by way of government, private concern or NGO, the present conservation paradigm is rooted in utilitarian doctrines, with the overarching aim being to lure ever greater numbers of tourists in the hope that their 'eco-dollars' will solve both the biodiversity and poverty issues. But despite the growing number of arrivals and pockets of success in some countries it is, as Craigie's study shows, a tough mandate. Says Fearnhead: 'For some reason, people look to eco-tourism, which consists mostly of small, high-risk enterprises, as the solution to all conservation and community development aspirations. This is unrealistic, as there is only so much extra burden that they can shoulder.'

Why, then, has ecotourism been so casually lumped with the dual responsibility of poverty alleviation and biodiversity conservation? Development goals are usually in conflict with those of conservation, and linking these two uneasy bedfellows may well have created a false expectation. One that is, furthermore, reliant on the whim of people to travel. In stable political environments where profit margins are good - namely, the protected areas where wildlife and habitats are at their most fecund - there has been success. But where the cost-to-benefit equation falls away, or in the remote and less bountiful protected areas that struggle to lure ever-greater numbers of tourists, it is not working. Yet it is these so-called marginal areas that need conservation most.

Ecotourism's capacity to alleviate poverty while conserving wildlife has also been found wanting in the buffer zones, those vital tracts of land that separate protected areas from urban centres and other well-developed localities. Here wildlife and habitat are most at risk as their protection status remains unclear, and they face stiff competition from other land-use options, such as agriculture, mining, logging and housing estates. With the surge in economic growth and infrastructural development across many parts of Africa, much of it carried out by the Chinese, these less-protected areas have become the new pantries, feeding both the armies of workers and the criminal wildlife syndicates that follow in their wake. Securing the integrity of these twilight zones may just be conservation's greatest challenge, for without them Africa's wildlife will be confined to fewer isolated and fortified parks and reserves.

Transfrontier conservation and corridor initiatives are attempting to expand protected areas by bringing various levels of support to the landowners and communities that lie between them. Here, NGOs play a significant role. The large field-based conservation organisations such as Conservation International (CI), WWF, International Fund for Animal Welfare (IFAW)) and African Wildlife Foundation (AWF) have been instrumental in identifying the 'hotspots', while groups such as the African Parks Network and the Peace Parks Foundation have facilitated the multi-sector partnerships that such initiatives need. For Bell, this is where all parties involved should show innovation. 'Stakeholders can claw back the losses by creating new community conservancies abutting onto existing parks on a grand scale. Can you imagine what would happen if we could double the amount of land under formal conservation protection in Africa by partnering rural conservancies with safari businesses and NGOs?' he asks.

Innovative though the land acquisition may be, ecotourism will still be relied upon to generate the revenue. Which brings us neatly back to the economics of people travelling, and whether there are enough of them to ensure the model can start delivering on one of its key promises - an equitable spread of the spoils. Historically, local communities have paid a high price for conservation and many continue to lose livelihoods and even lives to wild animals, yet gain no material benefits from doing so. 'Until the vast majority of rural people living alongside Africa's

wildlife reserves are incorporated formally into the tourism or wildlife industry in a meaningful way and start to view wildlife as a material financial asset, I believe that much of Africa's wildlife has little chance of long-term survival,' warns Bell. 'Many parts of Africa have little or no formal - and effective - entrenching of the communities into the wildlife and safari industry. Money often accrues to a few, well-connected individuals and to foreign bank accounts, leaving the poorest rural people in poverty and wildlife numbers plummeting,' he adds.

Because current systems favour the operator, Bell advocates a widespread restructuring of how land is leased and the way fees are paid. Revenue streams to communities must become larger and more reliable. In the past decade or so, though, a new player has entered the fray.

The rise of the eco-philanthropist

'Eco-philanthropists', to coin a phrase, are those extremely wealthy individuals who are ploughing large amounts of their personal money into conserving existing protected areas across Africa. Generally, their presence has been welcomed - besides the much-needed funding, they bring organisational and administrative skills, and a sense of urgency. As Bell says, 'Any person, community, NGO or company that can help to increase the amount of land under formal conservation protection and convert marginal wildlife land into prime wildlife habitat should be encouraged and supported.'

Fearnhead agrees. 'Conservation in Africa needs all the assistance it can get and this includes the involvement of individual philanthropists.' He does offer a word of caution though. 'Park management is a tough business. Problems are seldom solved, they are just postponed. This can become tiring and frustrating.'

Rich people giving money to the environment is nothing new. Their donations have been the lifeblood of conservation NGOs and other beneficiaries, including the hunting fraternity, for many years. There are, however, some important distinctions between the traditional largesse of the wealthy and this new breed of patron. Eco-philanthropists seem to be more actively involved in their respective projects, and this stewardship brings less politics and bureaucracy. Without profit as the primary motive, they can tackle projects in regions others may avoid for fear of losing money.

It is for these reasons that the arrival of Greg Carr, a retired internet and communications entrepreneur from the US, has generated such widespread enthusiasm in Mozambique's conservation circles. Carr's Gorongosa Restoration Project, a non-profit foundation, recently entered into a 20-year public-private partnership with that country's government, committing US$40-million to the rejuvenation of what was once an iconic national park. His motivation seems simple enough: 'I love nature and am inspired by landscapes and the diversity of life,' he says. 'In this century, we need to focus on preserving biodiversity for future generations.' While his model for achieving this isn't substantially different from the norm ('I think all national parks would say that they promote science-based conservation practices, "green" ecotourism and mutually supportive community engagement'), Carr does believe that enduring commitment is crucial to the chances of success. 'The challenge is to actually do the work, and that requires long-term focus. Our 20-year commitment may be one factor that distinguishes us from other foreign interventions,' he suggests.

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Though the project is barely in its third year, Carr is pleased with the results to date. 'We had 5,500 tourists last year, up from zero when we started, and we'll have a larger number this year. Many animal populations are up. And through our lobbying, the government of Mozambique added Mount Gorongosa to the park,' he says. And when his 20 years are over? 'Our strategy is to train and empower Mozambicans to manage their own national park. We try to have as few foreigners on the team as possible. If the system gets going in the right direction, then it will drive itself. Gorongosa needed some philanthropy to push it in the right direction, but some day it won't need me. The park will take care of itself.' Carr may well achieve his goals, and others in this elite group are undoubtedly giving Africa's protected areas a much-needed push, but it would be foolhardy to look to the efforts of so few to reverse the current declines.

A different way of thinking?

Are we starting to learn that conservation is indeed more about protection and less about consumption? Such utterances are politically incorrect and run counter to our global socio-political and economic systems, of which the present conservation paradigm is a part. These systems are based on unlimited growth, which requires the use of resources and the production of waste. They are sound enough strategies for immediate financial success, but have no long-term vision for true environmental sustainability.

It's also futile and short-sighted to frame the debate as a struggle between the extravagant environmental ideals of the rich versus the subsistence needs of the poor. Biodiversity protection is imperative for the survival of our entire species, rich and poor alike. Without healthy systems, there will be no fresh drinking water, no topsoil, no nutrient cycling and no carbon regulation, let alone wildlife to view.

This, then, leaves us with only one major question: why does conservation and biodiversity protection remain a voluntary exercise based on economics rather than a matter of survival based on principles? 'Problems cannot be solved by the same level of thinking that created them,' said Albert Einstein. This may very well be at the root of the conservation quandary.

A version of this article was first published by Africa Geographic www.africageographic.com

Making eco-tourism pay for African wildlife

Pristine wilderness and eco-friendly lodges have made the Kwandwe Reserve a key stop on South Africa's Garden Route – and an inspiration for those involved in ethical tourism . Ruth Styles reports

A luxurious suite at Great Fish River Lodge

At first glance it looks like an innocuous grey rock surrounded by a cloud of shimmering green leaves. Then it moves. 'There it goes,' says Mike, the ranger charged with showing me around the Kwandwe Reserve. 'Check it out.' I peer through my binoculars and it comes into focus. I'm looking straight at one of Africa's most endangered mammals: the beautiful black rhino.

Here on the Eastern Cape, black rhinos were nothing but a distant memory until a man called Angus Gillis came along just over a decade ago, bought a former goat farm and set about transforming it back into an animal's paradise. The southern half of South Africa was the first to feel the effects of colonisation, with the Dutch, followed swiftly by the British, launching expeditions from Port Elizabeth and Cape Town in search of virgin farmland and game to hunt. As a result, the Eastern Cape's wild residents were driven north with many finding refuge in what is now the Kruger

The world biggest fried egg is on the menu at Kwandwe

National Park. The land left behind, meanwhile, was turned into a larder for goats. Until, that is, Gillis turned up.

'All in all we have introduced around 7,000 animals,' explains Kwandwe manager, Graeme Mann. 'Cheetahs were extinct in the Great Fish River Valley for over a hundred years before we brought them back and that's a massive achievement. Bringing back rhinos and having a thriving population [of them] is another big achievement for us.' What's particularly interesting is that Kwandwe has brought back more than just the big tourist-friendly beasts: they've also reintroduced the smaller ones, including goat-ravaged plants. 'We put a big emphasis on trying to put back what was once here in the past,' adds Graeme, 'down to even the small stuff.'

The success of the reintroduction programme is what has made it possible for Kwandwe to begin eco-tourism operations, which as Graeme points out, is one of the few ways a reserve like this can sustain itself. Kwandwe has two lodges, one with six rooms and one with nine, plus two sole-use villas. All in all, the reserves can accommodate 44 guests at any one time, which on a 20,000-hectare property means peace, quiet and uninterrupted animal viewing opportunities are in ample supply. It's a delicate balancing act though. After all, a stay at Kwandwe isn't exactly cheap and as a result, expectations are high. The key for the reserve is to provide a luxury experience that doesn't negatively affect conservation efforts so a few innovative tweaks have been needed.

As we talk, Graeme and I are sitting in the cosy lounge bar at Great Fish River Lodge, where a cheerful fire is crackling away merrily in a huge double-sided hearth. 'Like sitting in the lounge and watching the fire burn over there,' he says, nodding towards the fireplace. 'You know, we need to have the fires but then the wood that is burning is alien vegetation that we buy from a guy locally who clears black wattle, which is a invasive alien in South Africa. So he makes money twofold: he clears alien vegetation for different landowners and we purchase wood from him.'

Wood fires aren't the only method of caring for the environment that Kwandwe has employed – for instance, the perimeter electric fence is solar-powered – but it's just one of the many ways in which the reserve works with the local community. And that is crucial, not only for providing a source of income for people living in an impoverished area, but for ensuring that conservation efforts can continue untroubled. The land on which

One of the resident black rhino

Kwandwe sits has already been cleared of its wildlife once and keeping the new introductions in good shape is proving a labour of time, love and above all, money. Part of the conservation cash is coming in from the lodges themselves but more comes from the reserve's TB-free buffalo breeding programme. Still more comes from tourists looking for a real conservation experience, which is where the reserve's black rhino tagging programme comes in.

Currently home to around 50 of the critically endangered mammals, much of Graeme's time and effort is spent on orchestrating anti-poaching operations, which cost upwards of one million rand (£76,000) every year. So far, the reserve has been lucky but with 347 rhinos already killed this year in South Africa alone, you get the sense that it's only a matter of time before someone has a go.

In the meantime, tagging operations help the reserve management keep tabs on the rhino population and their whereabouts, as well as providing an opportunity to microchip the horns. 'We need pretty much every adult rhino on the reserve to have unique ear notches for visual identification plus microchips and that exercise costs us about 20,000 rand (£2,000) per animal,' says Graeme. 'Vets, choppers and chips; all these things cost money. The microchips you put into the horns grow out, because the horns grow continuously, so you have to go back every three to four years to put more chips in. We don't like to give out our own numbers [of rhinos] for security reasons but it's a huge cost. Getting guests involved makes life for us much easier: a great experience for the guest helps subsidise the operation.'

Breakfast in the great outdoors

Among staff on the reserve, attitudes towards poachers are hardening with everyone from the trackers to the lodge staff intimately concerned with the future of their wild charges. And it's not hard to see why. Out and about on the reserve with Mike and his tracking partner, Bongari, we came across lions, black and white rhino, cheetah and hippos all thriving and largely untroubled by the human world beyond the reserve's boundaries. Most of the time, Mike, who sees these animals every day, is even more excited to see them then I am and almost bounces out of his chair with glee when we come across a pair of cheetahs.

And Kwandwe really is beautiful. From the hilltop where we stopped for a 'Bongari special' (a mocha coffee enlivened with a generous dose of Amarula liqueur) on the first morning, you see zones of yellow and green rolling hills stretching out in every direction, interrupted only by the odd navy blue river canyon. The sheer variety of flora and fauna is huge and although the reserve is free from the traffic, people and electrical sounds most of us hear everyday, the air crackles with birdsong at dawn. It's really no surprise that many of those who visit – the Earl and Countess of Wessex among them – keep coming back.

But tourists aside, the real winners here are the animals themselves. It's rare to find former farmland that's been so thoroughly rehabilitated and the low-impact, high luxury eco-tourism model that has replaced it is paying

Great Fish River Lodge

One of the reintroduced lions

dividends for local people and wildlife alike. 'We like to think, especially on the guest side, that it is not just about [them] coming here to get pictures, but about instilling a bit of Africa in them, trying to touch their spirit,' says Graeme. 'And I think it is an easy thing to do in a place like this. But making people aware of the challenges that face conservation in Africa goes without saying – we do it every day.'

For more information about Kwandwe, see www.kwandwereserve.com

A pool with a view