pulse

the heart of conservation
2010 / Volume 1 / Issue 2

Hope for the Amazon

Ambition Meets Action for the World's Richest Rain Forest

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Observing the Amazon's elusive creatures to help save them

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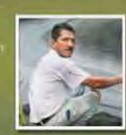

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FROM THE PRESIDENT

Biodiversity in the Balance

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The first thing you notice about the Amazon is that *it is mostly intact.*

Of the world's three great forests, the Amazon is the largest and retains 80 percent of its original forest cover. Fly in from Manaus or Quito and soon you'll be gazing over a mind-bending expanse of green – hundreds of millions of forest acres that seemingly go on forever.

But as you look over this magnificent panorama, you also see signs of the world to come. Just east of Quito, on the slope of the Andes, the view includes the Pan American Highway and the disruption it brings – logging, development and more. The reality of this destruction is stark: CO_2 emissions resulting from deforestation place Brazil among the top five global emitters.

WWF has worked in the Amazon for 40 years. In 1968, we supported the creation of Manu National Park. Grants made to study life in the Amazon led to renowned conservation biologist Tom Lovejoy's definitive work on the effects of forest fragmentation. And in 2002 we helped launch the Amazon Region Protected Areas project, one of the most ambitious conservation efforts in the world, to ensure comprehensive protection of the Brazilian Amazon. More than 79 million acres of forest have been safeguarded to date, an area slightly larger than the state of New Mexico.

But while establishing parks will go a long way in the race to save the Amazon, we know that parks alone will never be enough. The market forces altering this place – such as agriculture and infrastructure – must also be addressed, and WWF's conservation ethos has evolved to acknowledge these modern-day realities.

We employ cutting-edge science to better understand what jaguars, macaws and other creatures need to survive in a modern world. We seek the right finance mechanisms to sustain the parks. We are partnering with governments and multilaterals to design smarter infrastructure. And we engage some of the world's biggest companies in reconsidering their commodity production practices – for example, helping develop global standards for sustainable beef production by collaborating with Cargill, McDonald's and others.

The Amazon is a place where success builds on success, and I am extraordinarily proud of our track record here. But much remains to be done, and nothing short of the future of perhaps the world's greatest forest, to say nothing of the world's climate system, hangs in the balance. Read on for an in-depth look at the Amazon and WWF's on-the-ground approach to protecting its irreplaceable treasures and renewing the landscapes that sustain them.

Carter S. Roberts
President & CEO

PROTECT THE AMAZON PROTECT THE EARTH

© MICHEL ROGGO / WWF-CANON

An acre of Amazon forest is lost every minute. WWF is working with governments, industry and communities to change that.

© NIGEL DICKINSON / WWF-CANON

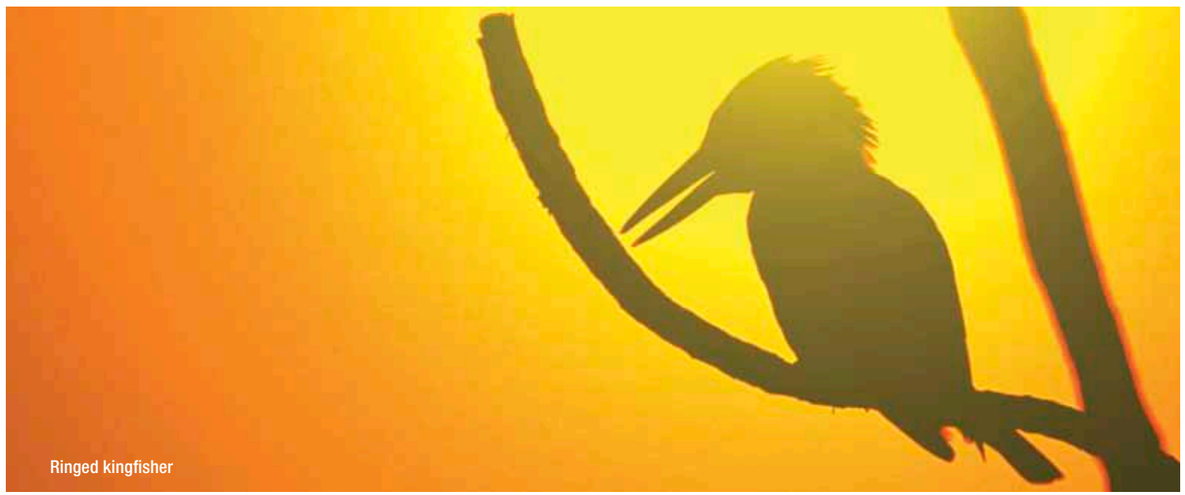
The Amazon has been a focus of WWF conservation efforts for more than four decades. As the source of almost one-fifth of all free-flowing freshwater on Earth and home to lush forests that help modulate carbon emissions for the rest of the planet, the Amazon plays a significant role in maintaining the integrity of the global environment. But today rapid deforestation threatens to upset the balance provided by this rich and still largely unexplored landscape spanning eight South American countries. On a 99 degree day during the warmest June on record, three experts sat down at our Washington, D.C. headquarters to discuss the threats to the Amazon and why it is so important for WWF – and others – to act now to preserve it. ▶

Poison dart frogs

© MICHAEL D. KERN

Amazon river dolphin

© TODD PUSSER / NPL / MINDEN PICTURES



Ringed kingfisher

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Jason Clay
Vice President
Market Transformation
WWF

Tom Lovejoy
Professor, George Mason University; Biodiversity Chair, the Heinz Center; Member of the Board, WWF

Meg Symington
Managing Director
Amazon Program
WWF

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Making conservation history by safeguarding the world's richest ecosystem

MEG SYMINGTON One of the things that's most outstanding about the Amazon, in my mind, is its biodiversity. We say that 10 percent of all known species on Earth are found here, but really, it could be up to 33 percent if you include those species still being identified.

TOM LOVEJOY People don't realize how important biodiversity is, in terms of how many fundamental resources it provides, how it supports all living things – including people.

MEG True. We rely on biodiversity to help us discover new medicines and to learn how to grow food more productively. We're not just preserving the Amazon for preservation's sake.

JASON CLAY For example, there is a palm tree there, called peach palm, that's so productive it actually makes ten times more vegetable protein and calories per acre than the best corn in Iowa. So as we strive to feed 9 billion people on this planet, with most of them living in the tropics, we're going to start looking to plants like the peach palm to solve the food shortage.

TOM One of the other interesting aspects of biodiversity is how it contributes to the development of the life sciences and spills over and has health benefits. Literally, there are tens if not hundreds of millions of people who take ACE inhibitors for their high blood pressure, and that all goes back to how the venom of the bushmaster works. The bushmaster is a big, nasty snake that lives in the Amazon, and basically it makes its prey's blood pressure go to zero. Forever.

By studying the venom, researchers uncovered the system of regulation called the angiotensin system. That's what the ACE inhibitors were designed to work on. Until somebody was looking at how the venom worked, nobody had a clue how to do this.

MEG And the toxins in the poison dart frogs are also being used to develop heart stimulants.

JASON I don't think what is economically valuable from the Amazon has even really been tapped yet.

TOM When you get to the Amazon, you really understand that this is a living planet. It's a physical and biological system linked together, and forests as a whole play a huge role in all of that, especially when it comes to climate. It's pretty simple to the extent that if you destroy the forest, the carbon that was stored in the trees goes up in the atmosphere and creates more climate change. And if you reforest, you can pull some of that carbon out of the atmosphere, you can start managing the planet in a much more sensible way than we've been doing.

The world's largest tropical rain forest, the Amazon encompasses a staggering 1.4 billion acres.

The Amazon River is so massive it actually contains more water than the Mississippi, the Nile and the Yangtze rivers combined.

MEG Deforestation or forest destruction is responsible for 15 percent of the total greenhouse gas emissions on the planet. And the Amazon's about half of that. That's a significant percentage of total global emissions and if you were to vaporize the Amazon tomorrow, the amount of carbon released into the atmosphere would be equivalent to 10 to 15 years of man-made emissions.

TOM The Amazon also plays an important role in global hydrology. It actually makes half of its own rain, but the impact of that is quite far-reaching. As the moisture hits the high wall of the Andes, some of it deflects south and some of it north. This moisture goes south right into important agro-industrial areas in southern Mato Grosso, Sao Paulo, and even northern Argentina.

JASON So when you deforest the Amazon, you're disrupting this "bellows" that sends rain from the east to the west. Through a cycle of evaporation, it produces rainfall about six times by the time you get to the mountains. And what goes south about nine months later is a perfect indicator for how much rain there's going to be for grain production in South Africa. And the part that goes north, there's even speculation that this influences the Gulf Stream. The rain forest has an enormous impact on global climate.

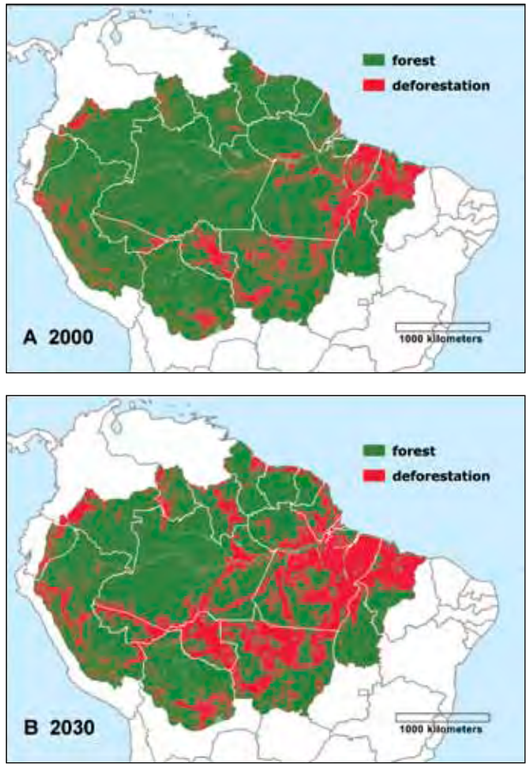
TOM In the reverse, climate change has an enormous impact on the rain forest as well. But this is a slightly complicated picture, and also a hugely important and scary one. With the normal climatic cycle, El Niño-La Niña, you alternate between wet and dry periods. With El Niño you get really dry at times in the Amazon. Superimposed on that is human-driven climate change. And the Hadley Centre, which is one of the five major computer centers doing climate modeling, showed that with just a slight rise in global temperature, you could actually get a reduction in rainfall in the south and the eastern Amazon, essentially to a point where it no longer can support rain forests and would gradually become savanna. That's called Amazon dieback.

They first projected this would occur at a 2-1/2 degrees increase in global temperature. Then last year they revised it to 2 degrees. On top of that, the World Bank did a million-dollar study last year in which, for the first time, modeling combined climate, deforestation and fire, each of which has been known to have some kind of impact. And that study suggests that you could have a tipping point for dieback at 20 percent deforestation. It is currently at 18 percent.

JASON Certainly deforestation is one of the major threats to the Amazon. About 75 to 80 percent of the Amazon that has been cut is related to cattle and beef production. Ranchers cut trees because that is a way they can make a living, by turning forest into pasture. But what if trees had a value? What if carbon payments became significant enough that trees actually had more value as trees than as cleared pasture to grow beef? Right now, some ranchers in Brazil suggest that with carbon even at 50 cents to $1 a ton, they would make more money selling carbon than selling beef.

That's a whole new ball game. That's a fundamentally different issue where ranchers could be convinced not to cut. Why would you cut trees if you were actually reducing your assets?

MEG I want to point out that what's underlying the agricultural expansion and that threat to the Amazon are the expanding global markets for soy and for beef as the middle class expands globally and we have more people who want to eat meat. Soy is used as a feed for livestock. And beef is a popular export. So rising affluence around the world is the root cause of the agricultural expansion.



Maps by WWF-Peru based on Soares-Filho et al 2006

If recent trends do not change, the Amazon could see dramatic changes over the next two decades. These maps show scientists' predictions of ongoing deforestation. The worst of it occurs along roads.

Soybeans with rotary irrigation system

© EDWARD PARKER / WWF-CANON

Macaw

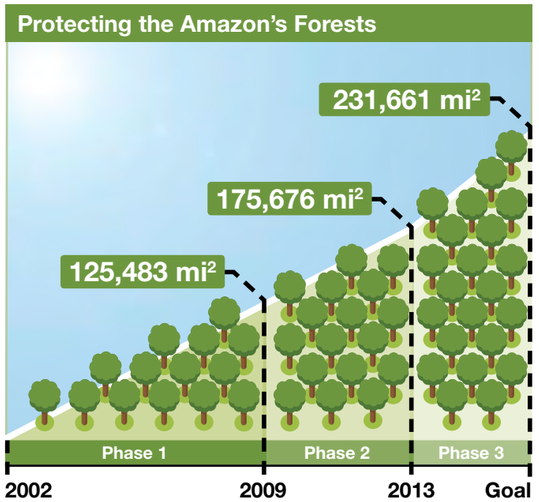
© ANAND SHARMA

Peach palm

© DIEGO M. GARCES / WWF-CANON

Bushmaster snake

© CHRISTOPHER MURRAY



Through 2009, WWF has helped protect an area of forest in the Brazilian Amazon approximately the size of New Mexico through the Amazon Region Protected Areas program (ARPA). By the end of Phase 3, the program will encompass an area almost 50 percent larger than the state of California.

JASON Did you know that the Amazon's largest trading partner right now is not the U.S.? Its biggest trading partner is China. That's because while the U.S. and European economies are still reeling, in 2009 China imported 30 percent more soy than in 2008, and this year 10 percent more again. The Asian economies are bouncing back faster.

TOM We also have to be concerned about infrastructure, which is what makes all of this trade possible. It's all about access.

MEG The roads allow access to the frontier and allow you to get the crops out to market. Most deforestation of the Amazon occurs within less than four miles of a road.

The western Amazon has been protected for many, many years by being so remote and having no road access. But now they're going to open up large parts of the western Amazon. For the first time now we're getting roads that are going to reach all the way from the Atlantic to the Pacific. We need to work with zoning, make the standing forest valuable so that there will be incentives not to clear it alongside the road.

JASON Last summer we were approached by Nike, General Mills and Dannon about the issue of deforestation and the beef industry. Now you wouldn't think of these three companies as being very connected to beef, but in point of fact the beef industry in any part of the world only breaks even selling meat. They make their money selling what we think of as cattle by-products, most importantly hides and hooves.

So if Nike says they don't want to buy leather that's come from deforested parts of the Amazon, you listen because that is half of your profit. When General Mills and Dannon, both of which use gelatin made from cattle by-products in their yogurts, say they won't buy from deforested areas, you listen.

MEG Protected areas are another tool that we have. A recent paper attributed 37 percent of the total decrease in deforestation over the last five years to the expansion of the protected area system, and about 44 percent to the decrease in demand for agricultural products due to the economic downturn. So protected areas and agricultural demand are about equally important in terms of mediating deforestation pressures.

TOM There's been a spectacular gain in protected area coverage in the Amazon in the last 15 years.

MEG Yes — in 1999, the WWF forest campaign came up with the idea of challenging all of the governments of all of the countries around the world to protect 10 percent of their forests. And Brazil's President Cardoso stepped up to the challenge and made that commitment to protect 10 percent of the Amazon. That has resulted in huge gains in new protected areas. WWF has catalyzed that initial commitment and since then we've worked really closely with the government of Brazil and the other donor partners to implement that program.

The total goal is to protect about 232,000 square miles of the Brazilian Amazon, which is an area larger than the total U.S. National Park system. And we're at about 125,000 square miles now. It's predicted that those goals will be achieved over the next eight years.

You also have more than 20 percent of the Amazon demarcated as indigenous land. And obviously indigenous peoples are very dependent on those lands and forests to maintain their traditional lifestyle. They are, in many cases, the most effective stewards of forest conservation.

JASON The reason so much land has been set aside in Brazil is in part because there are different types of demarcation. In some types, resource use is allowed; in others it isn't.

© BRASIL2

Children on the way to school in the morning in the Brazilian Amazon. There are more than 30 million people living in the Amazon, including more than 220 indigenous groups. By promoting the local management of indigenous territories, WWF supports indigenous peoples' rights and traditional lifestyles and ensures the long-term conservation of important ecosystems.

Those nuances, coupled with science that says where you need parks from a diversity point of view and from a connectivity point of view, have made it a lot easier politically to get these new areas accepted than simply saying we want to put a fence around the Amazon. Science has played a role. As we've understood better what needs to be protected, we have been able to make a better case for why it should be protected. There's a good moral there.

MEG Another way we can make a significant impact is with REDD (Reducing Emissions from Deforestation and Forest Degradation). This is a component of the negotiations to be included in the next phase of the global climate treaty. REDD is basically the idea that governments would be compensated for decreasing their emissions from deforestation and forest degradation. It's a very, very complex topic but one that has great promise for the Amazon.

TOM It's an idea that's been around for a long time. It springs directly from what we were talking about earlier, about the amount of carbon and the degradation of ecosystems adding to the atmosphere.

MEG WWF is just developing its strategy in terms of what we want to focus on with REDD in the Amazon. But one really strong emphasis of our work is building the capacity of governments to do what they need to do in terms of monitoring deforestation, setting a national baseline, and being able to report on that.

We're also doing a lot in terms of capacity building with indigenous peoples, trying to increase their ability to engage in the international negotiations on REDD. And we're trying to inform and educate ourselves by doing some pilot projects on the ground, where we try to actually find an area that's under threat of deforestation, protect it, quantify the carbon saved, and then market and sell those carbon credits.

TOM We've got so much going on in the way of emissions. And yes, it can get complicated. But you don't have to have a perfect system in order to make it work. Most things in human affairs are operated with error bars anyway.

REDD is essential for going forward. We've just got to do it.

FROM THE FIELD

Bald-faced saki

PHOTO COURTESY OF GEORGE POWELL

What the Monkeys Told Us

By Dr. George Powell

During my six years in the Madre de Dios region of the Peruvian Amazon, I learned to listen for the soft twitter that meant a family of bald-faced sakis was nearby. With my team of graduate students, local woodsmen, and former-hunters-turned-conservationists, I spent thousands of hours watching and waiting for the surprisingly hairy little monkeys to appear, only to have them vanish after a fleeting glimpse.

But watch and wait we did, because we knew that learning about the eating habits and distribution patterns of this "umbrella species" – along with those of several other far-ranging species such as jaguars, pumas, macaws and white-lipped peccaries – would give us the information we needed to determine how much and what type of land should be protected in this slice of the Amazon. Geneticists tell us that at least 2,000 individuals must live in a species' population in order for that species to be safely conserved in perpetuity.

The science of conservation planning requires identifying which kinds of habitat are necessary and how to integrate them into large enough areas to protect the maximum number of species. Since we clearly can't study all of the myriad species that live in any one section of the Amazon, we selected those suspected of being the most area-sensitive, with the assumption that protecting critical habitat for these species would likewise protect areas critical to hundreds more.

Unlike the other species we selected, however, the sakis, which we came to regard as the "phantoms of the jungle," could not be captured and fitted with GPS-adapted collars to help us track their movements. To learn about this species, so rarely observed by humans because of their talent for instantaneously disappearing into the landscape, we had to help them habituate to us. That is, we needed to teach them not to be afraid of us, by quietly observing them for as long as they would allow it.

PHOTO COURTESY OF GEORGE POWELL

George Powell (center) with his field assistants, Jimmy Gustavo (left) and Rene Escudero (right).

It took months, but eventually we learned a few things about the sakis that helped us to understand their habitat needs. We found, for example, that unlike other monkeys, this rare species does not eat ripened fruit, but prefers the seeds of immature fruit. We also learned that, unlike other monkeys, the saki does not come crashing through the trees but quietly slips from branch to branch, travelling in small families of five or six, rather than in larger groups. That means they need to live in dense, mature forested areas where the branches are close enough together for them to travel without making much noise.

Tracking the other species, though relatively simpler, likewise taught us some things that surprised us. For example, by capturing and collaring jaguars and pumas, we learned that these big cats behave quite differently from each other. Big cats are believed to be territorial, with individual males claiming an area exclusively. This we found to be true of the pumas we tracked, but the male jaguars overlapped territories quite comfortably.

We were likewise surprised to see that both jaguars and pumas, previously assumed to live scattered throughout the jungle, preferred to forage along the riverbeds. These findings indicate that protecting this species will require securing large expanses of river area.

Like the big cats, peccaries – pig-like animals that live in groups of up to 1,000 and are a key source of food for the Amur Indians – also prefer to feed in the flood plains of larger rivers. There they find the palm nuts they depend on for sustenance. Because the palm trees are widely scattered except in floodplains, the peccaries must travel from river to river, often covering 30 to 40 miles in search of a new feeding area.

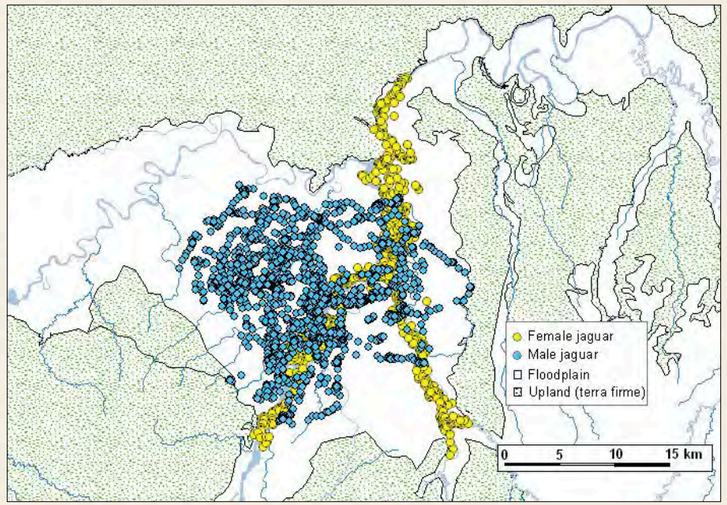
Macaws, we learned, also travel great distances – up to 100 miles – when not nesting. The team captured and tagged these amazing birds by erecting scaffolding up to 100 feet high in order to reach their nests.

We'll now compile all of these data into an assessment to determine how much area we believe needs to be protected, and how much of each particular habitat. Clearly, the area will be large – likely millions of acres. An immediate concern arises from this conclusion because most individual national parks and protected areas are considerably smaller than this total. We will need to ensure that there is sufficient connectivity between parks and reserves to allow these species to maintain large enough populations.

I came to recognize the importance of this kind of information decades ago, when I was doing my graduate work in Costa Rica studying the habitat of the quetzal, a strikingly colored tropical bird. Sadly, in those days national park boundaries were determined based on politics, rather than on conservation theory, and they were far less effective in protecting the native species for which they were established.

Though we had to stop our work earlier than we wanted for lack of funding, I am confident that the information we've gleaned from tracking these disparate species will enable decision makers to better protect the abundance of wildlife that calls the Peruvian Amazon home.

Dr. George Powell is a senior conservation scientist with WWF.



Data collected from GPS-based TrackTags worn by a male and female jaguar demonstrate the cats' affinity for riparian habitat. Human development tends to have a heavy impact on Amazonian rivers, which are poorly represented in protected areas.

Global Action

From the Amazon to the Arctic, WWF is building a future where human needs are met in harmony with nature.

▶ We are strategically focusing on conserving critical places and species while also working to reduce humanity's ecological footprint. Here are some highlights of WWF's recent successes made possible by your support.

SPECIES

FIGHTING THE ILLEGAL IVORY TRADE IN AFRICA

In China, an expanding middle class has an appetite for luxury items – including those made of ivory. In Central Africa, a decrease in timber company jobs has left people unemployed. In combination, these forces have pushed ivory prices higher and made poaching a tempting source of income for those without work. The result? Illegal ivory trading is on the rise.

In this situation, the efforts of TRAFFIC, WWF's wildlife trade monitoring network, come to the fore. Our ongoing work to build the capacity of local governments to enforce wildlife trade laws has helped lead to the first-ever poaching arrests in Africa. One case yielded 157 ivory objects that weighed more than 440 pounds.

Since its inception in 1976, TRAFFIC has developed extensive intelligence networks in Southeast Asia, focusing on cities that are major hubs for illegal trade. We are now working to replicate this success in Africa, in countries such as the Congo, the Democratic Republic of Congo, Cameroon, Central African Republic and Gabon. Elephant populations are most at risk in these countries, where inadequate legislation and poor law enforcement have allowed ivory sellers to thrive.

MAPPING PRIORITY REGIONS IN SOUTHERN CHILE

Southern Chile is home to a number of distinctive species, including blue whales – the largest animals on Earth – humpback whales, sea lions, deep sea corals, penguins, dolphins, albatrosses and petrels. But the region faces numerous threats. Salmon aquaculture, unsustainable logging, forest conversion, infrastructure projects and a lack of government enforcement all place these species at risk.

Using innovative new software to map where species are most abundant and which areas have the highest potential for ecotourism, WWF has designated the Chiloense Ecoregion as a global priority for conservation, identifying 40 separate marine and coastal areas of high ecological and socio-cultural importance. The 126,000 square-mile area, recognized for its pristine environment and complex bio-oceanographic processes, covers six marine ecosystems.

SAVING RUSSIAN TIGERS BY PROTECTING TREES

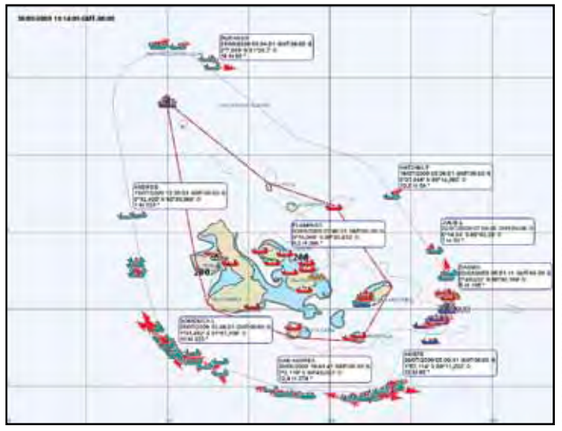
Despite a global economic downturn that has reduced trade in most timber species, commercial trade in Korean pine, a key species found in Amur tiger habitat, has increased over the past decade. The rising demand has led to a massive increase in logging, much of it being carried out illegally in Russia's remaining temperate forests.

Around 400 Amur tigers survive in the native Korean pine forests of the Russian Far East and northeast China, where the pine nuts are an essential food source for tiger prey species. To help regulate the logging and protect tiger habitat, Russia has listed the Korean pine in Appendix III of CITES (the Convention on International Trade in Endangered Species). The listing means exports of Korean pine timber from Russia will need CITES permits, which will make it harder for the illegal timber trade to continue.

Blue whales are among the many species found along the coasts of Southern Chile, where WWF is helping to identify marine areas for future protection.

© WWF CHILE / THOMAS CROWLEY

WWF Program Officer Dennis Jørgensen releases a long-billed curlew during a tagging expedition.



These maps from the VMS system are used by the Galápagos National Park Service to continuously monitor and control the activities of fishing vessels above 20 metric tons operating inside the Galápagos Marine Reserve.

© NILS WARNOCK, UC DAVIS, MAP COURTESY GNPS

In addition, the Ministry of Agriculture is expected to enact a ministerial order restricting the harvesting of Korean pine.

Both of these actions follow lobbying from WWF and, more immediately, the recent airing of an undercover exposé that ran on Russia's "presidential" television channel. Using information provided by WWF, the show exposed illegal logging in Primorsky Province and indicted a corrupt government official.

TRACKING CURLEWS ACROSS NORTH AMERICA

WWF is in its second year of tracking long-billed curlews, the largest shorebird in North America. An imperiled species, curlews come to the Northern Great Plains each spring to breed in the grasslands, where they find good nesting habitat and plentiful insects to feed upon. In the summer and fall they migrate to the southern United States and Mexico. But habitat degradation and cultivation are altering their wintering grounds and their migration stopover habitat with unknown consequences.

In the spring of 2009 in the grasslands of Montana, WWF and partners fitted seven long-billed curlews with lightweight solar-powered satellite transmitters. Scientists then watched in near real-time as the birds migrated up to 1,800 miles south. In collaboration with WWF's Chihuahuan Desert Program and the Universidad Autonoma de Nuevo Leon, WWF deployed three additional satellite tags on curlews in the grasslands of Mexico in October 2009. This spring, WWF tagged eight more birds in Montana.

This research is providing critical data for developing effective conservation strategies for the birds' habitat. The curlews' great migration also highlights the interconnectivity of North American grasslands and the importance of our local work and its global ties.

THWARTING ILLEGAL FISHING IN THE GALÁPAGOS

The nearly 53,000 square-mile Galápagos Marine Reserve is one of the largest marine reserves in the world, home to whales, whale sharks, rays, swordfish, sea turtles and other species of commercial and ecological interest. But though it has long enjoyed legal protection from commercial fishing, the reserve still feels the impact of illegal fishing activity by industrial fishing fleets and traditional boats. Last year, WWF took significant steps to help fight this infringement on protected waters.

It had been difficult for the reserve's limited number of law enforcement patrols to cover such a vast area. So, to thwart damaging fishing activities, WWF helped to deploy a Satellite Vessel Monitoring System (VMS) that provides real-time data on the position, route and speed of every ship above 20 metric tons operating inside the reserve. The data enables patrol boats to efficiently target trespassers.

More recently, we recruited vessel monitoring experts from Alaska to design a similar system for monitoring smaller boats, so that 100 percent of ships can be tracked. In addition, WWF is funding the design and implementation of an on-board Automatic Identification System that can automatically transmit several reports per minute showing the route, speed, navigation status and identification of every ship in the reserve.

With the implementation of both systems, WWF expects the Galápagos Marine Reserve will become one of the better-controlled marine protected areas in the world.

The ecotourism opportunities generated by gorilla habituation programs create economic incentives for the local community to protect these charismatic primates.

EFN Fellow Pablo Jamioy (in hat) with a group of indigenous park guards on patrol in the Kamentsa Indigenous Reserve, Sibundoy, Putumayo, Colombia.

© MICHEL GUNTHER / WWF-CANON, © PABLO JAMIOY

DEVELOPING GORILLA ECOTOURISM IN THE CENTRAL AFRICAN REPUBLIC

Ever want to get up close and personal with a gorilla? WWF has found a way to allow people to do this, while at the same time benefitting local communities and raising funds for conservation.

Since 1997, WWF has supported the Dzanga-Sangha Primate Habituation Program in its efforts to develop ecotourism through gorilla viewing. Local trackers have been employed to help habituate western lowland gorillas to the presence of humans. After some initial challenges, the first family of gorillas was successfully habituated and ecotourism opened in 2001.

Today, hundreds of visitors each year observe the 12 gorillas in the Group Makumba, named for its male silverback leader. Another group has been habituated since, and two more are in the process, creating financial opportunities for the local community and incentives to protect these magnificent creatures.

CLIMATE

GUIDING LAND-USE PLANNING IN SUMATRA

Deforestation is causing biodiversity loss and degrading many ecosystem services in Sumatra. These services – the benefits nature provides us – include clean water, flood control, climate regulation, crop pollination, food, medicine, recreation and spiritual fulfillment. They are difficult to quantify, and are therefore typically ignored in decisions about land use – until now.

A tool developed by the Natural Capital Project – a joint venture of WWF, Stanford University and The Nature Conservancy – is now being used by WWF and other nongovernmental organizations in Sumatra to map and value ecosystem services. InVEST (Integrated Valuation of Ecosystem Services and Trade-offs) provides mapped information about where on the landscape ecosystem services are supplied, and how these patterns might change under future land-use scenarios. It can be overlaid with biodiversity information to see where ecosystem services and conservation priorities overlap.

Working with a group known as Forum Tata Ruang Sumatera, WWF is using this information to make recommendations to local governments as they complete mandated land-use plans. For example, InVEST results will indicate promising areas in which to encourage sustainable land use and conservation by establishing profitable incentives such as ecotourism, payments for watershed services, forest carbon projects, and certified forestry and agriculture.

BUILDING INDIGENOUS CAPACITY IN THE AMAZON

WWF's Russell E. Train Education for Nature Program strives to build a dynamic and highly qualified corps of conservation leaders in Africa, Asia and Latin America by awarding education fellowships to people who can use their training to bring increased sustainability to their home communities.

Pablo Herman Jamioy Juajibioy, who received a fellowship in 2006, has leveraged his education to win additional WWF and World Bank grants that allow him to wed traditional terminology and ideas from his Kamentsa Indian culture

WWF is working to protect the Chukchi Sea region in northern Alaska, home to magnificent creatures such as the walrus. In August there was evidence that they were being forced ashore as sea-ice disappeared from the Chukchi, with an unprecedented 10,000 to 20,000 walruses onshore by mid-September.

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KOMUNTO fishermen – pictured here with Veda Santiadji (far left) and Taswin Munier (far right), both from WWF-Indonesia, and Catherine Plume (fifth from left, back row) from WWF-US.

The incredible success of communal conservancies in Namibia has helped increase the populations of predators such as lions while generating income and improving human welfare.

© TOMIA ISLAND FISHER COOPERATIVE MEMBERS, ©WIM VAN PASSEL / WWF-CANON

with modern technology like GIS to improve indigenous land planning.

For Pablo and his community in Colombia, improved land management will help as they adapt to a changing climate. It will position them to receive funding through sources supporting REDD (Reducing Emissions from Deforestation and Forest Degradation) activities. Forest monitoring is at the foundation of REDD, and Pablo is providing his community with the tools they need to sustainably manage and expand their forests.

USING THE COURTS TO PROTECT THE ARCTIC

WWF's long campaign to protect Alaska's Arctic seas and coastlines from oil and gas development won a major victory when a federal court put a hold on recent leases that would have opened up the Chukchi Sea to new drilling.

In siding with the plaintiffs challenging Lease Sale 193 – a group consisting of native Alaskan and conservation organizations, including WWF – the Federal District Court of Alaska ruled that the Minerals Management Service failed to conduct proper environmental reviews. The court directed the agency to consider impacts of gas development and to address the question of whether missing information about the environment in the Chukchi is essential for proper decision making and how that information might be gathered.

The Chukchi is home to one of America's two polar bear populations; beluga, bowhead and gray whales; millions of birds; and a remarkably rich marine ecosystem that supports many indigenous communities.

PEOPLE

SUPPORTING LOCAL FISHERMEN IN THE CORAL TRIANGLE

An Indonesian fishermen's group that partners with WWF to preserve marine resources has been awarded a 2010 United Nations Equator Prize in recognition of its outstanding efforts to reduce poverty through the conservation of biodiversity. The prize recognizes KOMUNTO, a community-based organization composed of representatives from fishing groups from the small island of Tomia, located in Wakatobi National Marine Park.

Formed in response to a vacuum in natural resource management by local government and the encroachment of commercial fishing interests, KOMUNTO has mobilized isolated groups of fishermen into a powerful movement for positive environmental and social change.

To help raise the visibility of its often-marginalized members, KOMUNTO has forged partnerships with other organizations that share its goals. One such partnership is the TNC-WWF Wakatobi Joint Program, which assists the group with technical expertise on fisheries management. Through these partnerships, WWF has helped train local conservation agents who now contribute to decision-making activities in their home villages.

CREATING A FRAMEWORK FOR SUCCESS IN NAMIBIA

Over the past two decades, WWF has helped Namibia form a communal conservancy framework that promotes sustainable natural resource management by allowing communities to control local wildlife management and tourism.

Because it directly benefits them, these communities have come to see wildlife

The permanent metal roofs WWF provided for homes like this in the Trongsa district help improve villagers' living conditions, reduce labor needs and protect the forests.

Working with WWF, David Cheng – Walmart's global sourcing director – explains the company's timber sourcing policy and requirements to suppliers.

PHOTO COURTESY OF DAVID CHENG, © FREDERICK J. WEYERHAEUSER / WWF-CANON

as a valued livelihood asset and are now promoting wildlife management on vast tracts of land where poaching is no longer acceptable. Since its inception, the program has grown to include more than 235,000 community members in 59 registered communal conservancies across Namibia, covering more than 32 million acres of prime wildlife habitat. It has shown remarkable success in increasing the populations of such rare species as the black rhino and top-of-the-food-chain predators such as the desert lion. Human welfare is also improving, thanks to the more than $5.7 million in annual income and benefits the conservancies generate for the communities.

As a result of this huge success, Namibia's Communal Conservancy Tourism Sector was recently nominated as one of three finalists in the World Travel & Tourism Council's "Tourism for Tomorrow Awards."

PRESERVING TREES BY USING ALTERNATIVE ROOFING MATERIALS IN BHUTAN

A significant demand on forest resources in Bhutan comes from the need for roofing materials, traditionally made of fir tree shingles or bamboo thatching. Harvesting these materials places a real strain on natural resources, endangers habitat critical to the red panda, and requires enormous amounts of villagers' time. Thanks to private contributions, WWF has been able to provide corrugated, galvanized iron roofing sheets as an alternative roofing material. These sheets, which last for 30 years, reduce the strain both on natural resources and villagers' labor.

Through this initiative so far we have provided iron roofing sheets to more than 500 households in different parts of the country, eliminating the need to cut down approximately 700 trees every year. Within the 30-year lifespan of the roofing sheets, about 21,000 trees will be saved.

MARKETS

SHIFTING CHINESE FORESTRY TOWARD SUSTAINABILITY

China's growing economy continues to place more pressure on the planet's resources. Through the WWF-led Global Forest & Trade Network (GFTN), WWF is working in China to influence economic development that goes hand-in-hand with long-term sustainability and environmental protection. In particular, GFTN is working with committed companies like Walmart, the world's largest retailer, to harness the power of China's international trade flow in ways that reduce China's ecological footprint on forests.

Walmart and GFTN recently cohosted a training workshop on responsible timber sourcing for the company's wood suppliers in Shenzhen, China. Attendees included Walmart's top suppliers of wood products to the U.S. market. At the workshop, GFTN showed these suppliers how to mitigate the risk of sourcing and trading illegally harvested wood by establishing a responsible purchasing program and committing to sourcing credibly certified wood.

FACILITATING ENVIRONMENTAL STANDARDS FOR SOY

The Roundtable on Responsible Soy has adopted voluntary sustainability standards that will help move soy production toward more environmentally sound and socially responsible methods. The standards are the result of years of dialogue among WWF, other nongovernmental organizations, farmers and the soy industry.

The standards call on soy producers to avoid clearing native forests and other high conservation value areas. They also require farmers to take measures to protect the environment, such as reducing greenhouse gas emissions, soil erosion, water use and pollution, and eliminating use of the most hazardous pesticides.

The roundtable estimates that responsibly produced soy will be available by March 2011.

PARTNERING TO CONSERVE FRESHWATER IN VIETNAM

In 2007, WWF and The Coca-Cola Company launched a transformative partnership to conserve the world's freshwater resources. Among the sites chosen for this endeavor was Tram Chim National Park in Vietnam. One of the last natural wetlands of the once vast Plain of Reeds ecosystem, Tram Chim is situated in the Mekong Delta, a freshwater source for 60 million people. For decades, this region has experienced serious environmental damage, resulting in dwindling habitats and disappearing species.

Through the partnership, a conservation team has been working with local governments in Tram Chim to address freshwater issues. The team has successfully implemented hydrology management that mimics the historic flood pulse of the Mekong; removed 400 meters of internal dykes to improve river connectivity and flow; and established natural resource user groups to help alleviate conflicts over declining resources.

Significantly, the partnership team advocated for wetland policy reform and helped to pass a new statute that allows for park management in accordance with the particular wetland ecosystem. As a direct result of the partnership efforts in Tram Chim, bird numbers have increased dramatically. The number of endangered Sarus cranes has stabilized, and in 2009 the critically endangered Bengal florican was sighted for the first time in nearly a decade.

CREATING SUSTAINABLE FINANCING FOR CONSERVATION IN MOZAMBIQUE

WWF is always looking for innovative new ways to finance conservation projects around the world. One complex financing mechanism that has been used successfully in numerous projects is the environmental trust fund. Most recently, WWF negotiated a "debt-for-nature swap" program with the French and Mozambican governments to establish such a fund to protect conservation areas in Mozambique.

Under this plan, the French government will reduce some of Mozambique's debt in exchange for the government of Mozambique channeling about $10.6 million of its debt payments into conservation programs. Half will go into BIOFUND, a new conservation foundation being launched this year to support Mozambique's conservation areas network, and the other half will be allocated to the country's Quirimbas National Park.

Entities such as BIOFUND are established by WWF as independent organizations with their own boards and staff. Their purpose is to continue raising money and making investments that enable them to maintain sustainable sources of conservation funding for specific regions.

Saurus crane numbers have stabilized in Vietnam's Tram Chim National Park thanks to a partnership between WWF and The Coca-Cola Company.

Local residents, such as this fisherman from Bazaruto Island in Mozambique, benefit from WWF's work to secure sustainable funding for conservation.

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FOCUS ON PHILANTHROPY

A Gift Born of Passion

PHOTO COURTESY OF SUE SCOTT STANLEY

Art gallery owner Sue Scott Stanley learned to love nature during summers spent in New Hampshire.

There a friend took her on long walks through the woods, sharing her passionate enthusiasm for the wildlife that surrounded them. The friend, Joanne Bross, also shared stories and pictures of other adventures, such as a trip to Mexico where she was once covered in monarch butterflies. And she introduced Stanley to an organization for which she seemed to feel just as much passion: World Wildlife Fund.

"Joanne was always excited about WWF, always talking about what they were doing," said Stanley, adding that Bross's son, Marshall Field, was on WWF's Board of Directors and likewise became a friend of hers.

When she married Michael Stanley, his philanthropic passion for the environment created a unique opportunity for her to do something productive with her blossoming love of nature. She became involved, alongside her husband and his children, Bredt, Georgie and Ben, with the Stanley Family Foundation, a charitable organization Michael had launched to support the causes in which they believed, many of which were environmental in nature.

Sue Stanley contacted Marshall Field and asked for information on projects that could use additional support. "Everything he sent me was so impressive," she said. "I was intrigued with the way they laid out the problems and the potential solutions – it was very goal-oriented." Stanley pored over information on coral reefs and oceans, tigers and the Great Plains. But what caught her attention most was the Amazon.

"I'd been to a small part of the Amazon, in Ecuador," she said, "and I felt a real emotional connection to the place."

During her trip, Stanley had been moved by the immensity of the jungle and the wildlife hidden in its depths. "The jungle is a breathing, pulsating place," she said. "You can feel life all around you."

She was also moved by the statistics WWF had provided, showing that an acre of Amazon forest was being cut down every minute. "It's heartbreaking," she said.

The "big picture" of the Amazon's critical function in protecting the planet from accelerating climate change, combined with her personal experiences there, solidified her decision to target a Stanley family gift to this region.

Stanley will be traveling to the Amazon with her husband and their teenage son, Chase Squier, as part of a continuing commitment to the region. "I want to see some of the places we helped create protections for. I can't stop thinking about it."

"Biodiversity is life in all its dazzling variety. And the Amazon is the most biodiverse place on Earth. When you're there, you really understand that this is a living planet."

Tom Lovejoy
Professor, George Mason University; Biodiversity Chair, the Heinz Center; Member of the Board, WWF

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WWF's mission is to stop the degradation of the planet's natural environment, and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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