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The ecological damage has already been done

# Drugs, crime and a conservation crisis

## Attempts to protect ecosystems and wildlife are being seriously hampered by drug production and trafficking

PETER ALDHOUS, MEXICO

IN THE southern reaches of Mexico's Baja California peninsula, majestic cardon cacti stand sentry over the dusty red desert, which crumbles into the turquoise waters of the Gulf of California. But in this striking landscape, dark forces are at work.

Within an hour of leaving the airport at the resort of Loreto, our truck is flagged down at a checkpoint set up by federal agents. They include inspectors from the environment ministry searching for abalone and other illegally harvested wildlife. Calling the shots are members of the AFI – the Mexican equivalent of the FBI – clad in flak jackets and armed with semi-automatic rifles. They are looking for narcotics.

I am here with Wallace J. Nichols, a biologist with the California Academy of Sciences and The Ocean Conservancy, who since 1993 has studied endangered sea turtles off the Baja coasts and worked with local fishermen to reverse their decline. These efforts are threatened by the trade in illegal drugs.

*New Scientist*'s inquiries suggest that the narcotics trade is a serious but largely neglected impediment to conservation efforts. Drug production and trafficking can damage sensitive ecosystems, and some projects, such as those run by Nichols, are undermined by epidemics of addiction among local people (see "Loggerheads and crackheads"). In other cases, biologists and officials who should be enforcing environmental laws are kept away by the threat of violence.

Given the dangers, there have been few studies to quantify the problem. Researchers and conservation organisations are often reluctant to discuss the issue, which is seen as intractable and outside the realm of science. "This is an extremely important issue, and one that is not talked about enough," says Thomas Brooks of Conservation International's Center for Applied Biodiversity Science in Washington DC.

Remote biodiversity hotspots make ideal bases for narcotics production and trafficking. The problems are particularly acute along the smuggling routes of Latin America, from the forests of Colombia to the Mexican staging posts from which drug runners make their final push into the US. The situation is often made worse by efforts to crack down on the trade.

Mexico is on the front line. According to the US Department of State, up to 90 per cent of cocaine consumed in the US enters via Mexico. Mexican

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"Cultivation of coca and opium poppies accounts for half of the deforestation in Colombia, threatening some bird species"

growers also produce some 30 per cent of the heroin on the US market. And in recent years, "superlabs" south of the border have become the major source of methamphetamine, a powerfully addictive synthetic drug. The entire business is controlled by powerful and ruthless cartels that exert a strong influence through official corruption.

Travelling through Baja, almost everyone has a story about the narcotics trade. Cecilia Fischer, who works for a developer in Loreto, recalls a stand-off three years ago when she was part of a team trying to eradicate introduced animals on local islands. Her camp was disturbed in the dead of night by armed men expecting to pick up a drugs shipment. "Had the hunters with us not had guns, I don't know where we would have been," says Fischer.

Officials employed to prevent poaching of turtles and other marine species live in fear of the drug runners, who want to keep government boats out of the water. "They've had gunfire over their homes at night, flattened tyres or smashed windshields on their vehicles – things that have made them back off from doing their job," Nichols says.

Compared to some parts of Mexico, the Baja peninsula is relatively safe. The Sierra Madre highlands (see Map, page 8) are a centre for marijuana and opium cultivation, and the gangs that control the trade jealously guard their territory. Dean Hendrickson, a fish biologist at the University of Texas at Austin, says that the threat of violence hampers his attempts to survey streams in the area. "We always work with local guides," he says. "Frequently they'll say: 'Maybe you'd like to go down that canyon, but just don't.'"

Where marijuana and opium is grown, the disturbance can displace animals such as jaguars, which may then be shot by ranchers, says ecologist Sandra Guido at the Research Centre for Food and Development in Mazatlán, Mexico. One small benefit is that the lawlessness cuts off remote areas, preventing further habitat destruction.

For the most part, though, the negatives outweigh such locally positive effects. The fragile Sonoran desert near the US border is a case in point. It has become a major drugs route in recent years, as border controls tighten around Tijuana and other cities. "The fieldwork I do in north-west Mexico is severely impacted," says Richard Felger, a botanist and director of the Drylands Institute in Tucson, Arizona. "Everyone has guns now." Some sites have become too dangerous to visit and on one occasion Felger was robbed while a gun was held to his forehead.

Violence is spilling over the US border. Skirmishes between drug runners and the US border patrol threaten endangered animals – including the Sonoran pronghorn antelope (*Antilocapra americana sonoriensis*), now down to a few dozen individuals in Arizona. "They're highly sensitive to disturbance," says Kathy Billings, superintendent of the Organ Pipe Cactus National Monument in Arizona.

For US conservation biologists, encountering drug-related violence is a new experience. At the other end of the smuggling routes, in the forests of Colombia, it has been a fact of life for many years. Since the 1990s, cocaine production in Colombia has largely been controlled by leftist guerrillas and right-wing paramilitaries. Thomas Defler, a primatologist now at the National University of Colombia in Bogotá, ran into trouble with the largest left-wing group, the FARC, in the late 1990s while working near the Brazilian border. First, one commander demanded $5000 from him for permission to carry on working. "I was going to give it to them," Defler admits, though fortunately that faction was ▶

## LOGGERHEADS AND CRACKHEADS

**A decade ago, when Wallace J. Nichols first showed up at Isla Magdalena, on the Pacific coast of Baja California, it was a depressing scene. He counted around 240 dead turtles washed up along 45 kilometres of beach.**

**Most were loggerheads (*Caretta caretta*), which had begun their days on nesting beaches in Japan. Some 300 turtles still wash up each year; when we visit Isla Magdalena in early August there is another carcass to haul to one of the "turtle cemeteries" beneath the dunes. By working with local fishermen, Nichols and graduate student Hoyt Peckham of the University of California, Santa Cruz, have found out why this slaughter is happening and how to reduce it. The problem is that a burgeoning drug trade in the area may be undoing their good work.**

**Through radio-tracking and aerial surveys, Nichols and Peckham have shown that juvenile and immature loggerheads congregate in a spot just off the Baja coast, where they feed mostly on swimming red crabs. The area is also frequented by small fishing boats, which set gill nets for halibut and lay long lines with multiple hooks for sharks. Both snare loggerheads, and this kills many more turtles than the industrial-scale fisheries in Hawaii, which are closely regulated to reduce encounters with migrating turtles.**

**It does not have to be this way. Working with Peckham and Nichols, gill-net fishermen from the nearby village of Puerto López Mateos have found they get better catches if they stay within 12 kilometres of the shore, away from the turtle hotspot. Most fishermen from this village are now voluntarily doing so.**

**López Mateos is only one of several villages on this stretch of coast, though, and elsewhere it is harder to engage with the fishermen. The main problem is an epidemic of crack cocaine and methamphetamine abuse, fed into these communities by drug traffickers who use the villages as stopovers. "Fishermen are really unlikely to think about sustainable seafood if their main concern is their next fix," says Nichols.**

**Just down the coast, at Puerto San Carlos, we talk with an abalone poacher who helps Nichols with his turtle monitoring. He says his village is going down an "ugly road". Of his friends from school, he can count on one hand those who are not using drugs. In some communities, 80 per cent of fishermen are addicted, Nichols says.**

**Nichols fears for the impact the drugs trade is having both on the turtles and his Mexican friends. "Clearly, the major concern is the health of the people we work with," he says. "But secondarily, there's a big impact on efforts to conserve and manage natural resources."**

PETER ALDHOUS

Victim of the narcotics trade

run out of the area before it could collect the money.

Then in 1998 Defler was expelled from his field station by another FARC unit. Detained by the rebels and expecting to be shot, Defler escaped by diving from a boat then making his way through the forest over three nights. "I've got a huge list of places I'd like to go, but I can't, either because of guerrillas or drugs production," he says.

Colombia is also one of the few places where scientists have tried to assess the impact of drug production on conservation. At Javeriana University in Bogotá, Andrés Etter has used satellite images to study deforestation in Caquetá, a biodiversity hotspot in the Colombian Amazon. He found that it reached a peak between 1996 and 1999, when coca cultivation was booming in areas controlled by the FARC.

The most comprehensive studies come from a researcher at Columbia University in New York, who has pieced together a picture of the ecological impact of drugs cultivation from a variety of sources. A Colombian national, she writes under the pseudonym of María Álvarez to ensure her personal safety. In 2002, Álvarez revealed that clearance for cultivation of coca and opium poppies had risen to account for half of the deforestation in Colombia, threatening the survival of some bird populations (*New Scientist*, 3 August 2002, p 10).

Since then, she has extended her analysis to the whole of the tropical Andes, including Bolivia, Ecuador and Peru. The good news is that it should be possible to preserve most birds endemic to the region by protecting areas that are not yet affected by drug production. "But birds aren't the whole story," Álvarez says. What's more, her studies suggest that efforts to eradicate drug crops by spraying them with glyphosate herbicide are making the problem worse, by driving growers to clear more forest.

REUTERS

Spraying coca crops may harm rare species

Since 2000, as part of an anti-drugs initiative called Plan Colombia, backed to the tune of $4.7 billion by the US government, vast quantities of glyphosate have been sprayed in Colombia's remote forests. It seems to have done little to curb drug production. Ecologists are worried about the effects of the sprays, especially surfactant chemicals that are added to help the herbicide penetrate foliage.

Frogs and toads, which are highly sensitive to pollution, are a particular concern. John Lynch, a herpetologist at the National University of Colombia, would like to investigate the effects on amphibian populations. But having been kidnapped by leftist guerrillas in 1999 and again in 2000, he is not prepared to take the risk.

Such dilemmas help explain why few conservation organisations are addressing the narcotics issue. It is also a difficult topic for groups that rely on a "wholesome" image to attract public donations. "It's not something that foundations necessarily want to print in their annual reports," says Nichols. "It's considered unstoppable. And I think people perceive the danger involved in engaging with it in any way."

The conservation organisation WWF, for instance, is running into narcotics-related problems in the forests of Chocó-Darién, near the Colombia-Panama border. "The issue of drug use and production is very far removed from our expertise," says Tom Lalley, spokesman for WWF-US. "We're dealing with very powerful forces which can put our people in danger."

Nichols argues that conservationists cannot ignore the issue. He wants to see more studies to quantify the problem, and believes field workers must forge links with public health organisations to try and find solutions.

Ultimately, fundamental change may only happen if there is a shift in strategy in the US-led war on drugs, currently dominated by attempts to reduce supply by targeting illicit crops and drug smugglers. Laurie Freeman, a fellow of a non-governmental organisation called the Washington Office on Latin America, has studied the escalating drug-related violence in Mexico and believes the answer lies in efforts to reduce demand in the US, and a broader approach to aiding Latin American countries in their anti-drugs efforts.

"You need to have the whole system: education, healthcare, the judiciary and economic development," she says. "It's going to be really difficult. Drug cartels are only getting more powerful, more corrupting, and more dangerous." ●

**WHERE THE WILD THINGS ARE**

**The remote areas of Mexico are a haven for smugglers and wildlife alike**