reported that lowering blood pressure or blood sugar to prespecified targets did not reduce the risk of heart attack or stroke. In the case of blood sugar, the risks were worsened. The trial demonstrated the folly of assuming that risk factors must have a causal role in disease, says Robert Vogel, a cardiologist at the University of Colorado, Denver. "Short people have a higher risk of heart disease," he says. "But wearing high heels does not lower your risk."

Jay Cohn, a cardiologist at the University of Minnesota Medical School in Minneapolis, also worries that the focus on LDL levels offers up the wrong patients for statin therapy. Most of those who have a heart attack do not have high LDL, he notes. Cohn advocates treating patients with statins based on the state of health of their arteries, as revealed by noninvasive tests such as ultrasound. "If your arteries and heart are healthy, I don't care what your LDL or blood pressure is," he says.

Not all cardiologists want to abolish LDL targets. Indeed, Seth Martin, a fellow in cardiology at Johns Hopkins University School of Medicine in Baltimore, Maryland, believes that ATP IV should reduce LDL targets further. The simplicity of targets has helped to deliver an important public-health message, he says, and motivated many patients to get the statin therapy that he believes they need. "Just to throw that out the window doesn't seem like the ideal scenario."

Whatever the decision, the pharmaceutical industry will be watching closely, says Donny Wong, an analyst at Decision Resources, a market-research company based in Burlington, Massachusetts. Although most statins are off patent, the big pharmaceutical companies are racing to bring the next LDL-lowering drug to market. In particular, millions of dollars have been poured into drugs that inhibit a protein called PCSK9, an enzyme involved in cholesterol synthesis. This approach lowers LDL but has not yet been shown to reduce heart attacks or strokes.

Francis expects the new guidelines to relax the targets. He and his colleagues decided last autumn to change the VA's own clinical standards, so that they no longer rely solely on an LDL target but instead encourage doctors to prescribe a moderate dose of statin when otherwise healthy patients have high LDL cholesterol. The ATP IV guidelines will take a similar approach, he speculates, noting that the VA consulted several outside experts who are also serving on the ATP committee.

Despite an increasingly vegetarian diet, Francis's cholesterol has not budged. "Sometimes I want to call my physician and say, 'Don't worry about that target,'" he says. "It's going to be changing very soon." ■

BRUCE DAVIDSON/NATUREPL.COM

Guards in Garumba National Park, Democratic Republic of Congo, are working to stamp out poaching,

CONSERVATION

Tusk tracking will tackle illegal trade

Forensic testing of seized ivory could track down poachers.

BY DANIEL CRESSEY

International treaties meant to protect elephants are not working. Researchers estimate that tens of thousands of African elephants are now being killed by poachers each year, from a total wild population of around 400,000.

"It doesn't take much math to show we have a serious, urgent problem," says Samuel Wasser, director of the Center for Conservation Biology at the University of Washington in Seattle.

The only way to catch the people who are slaughtering the elephants is to redouble efforts to track illegal ivory back to its source. That is the stark message that Wasser and others will deliver to policy-makers in Bangkok next week, at the triennial conference of the parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; see 'Candidates for protection').

Nearly 39,000 kilograms of illegal ivory were traded worldwide in 2011, more than at any other time in the 16-year history of the Elephant Trade Information System (ETIS), which tracks the ivory trade for CITES. Another CITES programme, Monitoring the Illegal Killing of Elephants, will report at the meeting that between 3.5% and 11.7% of the total African elephant population was killed by poachers in 2011 — the worst year for illegal killing since the programme began collecting data in 2002.

Those on the ground in Africa predict that, once the data are all in, the figures for 2012 will be even worse. The trade is being driven by the high prices that ivory now commands: about US$1,600 per kilogram in the Far East, according to the Born Free Foundation, a wildlife charity based in Horsham, UK. But many fear that attempts to stem the demand now — although crucial — may come too late.

"We're really at a tipping point, I think," says George Wittemyer, an ecologist at Colorado State University in Fort Collins, who studies elephants in the Samburu National Reserve in Kenya. "We're seeing declines in the species as a whole and we're seeing poaching spread into what were once untouchable safe havens."

Poachers in Samburu are also switching focus from males to older females and killing entire social groups, says Wittemyer.

Scientists argue that an international drive to trace seized ivory back to its origins is urgently needed, so that authorities can curb poaching before elephant populations collapse. ▶

FRANS LANTING/NATL GEOGRAPHIC STOCK

TREATY TALKING POINTS

Candidates for protection

Next week, parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) will discuss dozens of measures to protect animals and plants. Here are a few to watch for.

● Rhinos

White rhinos (*Ceratotherium simum*; **pictured**) and black rhinos (*Diceros bicornis*) are both being targeted by poachers; parties to CITES are set to discuss an expansion of DNA work to track down killing sites. Kenya has also proposed that trade in white-rhino hunting trophies from South Africa and Swaziland should be blocked for at least six years.

● Polar bears

The United States has proposed that the polar bear (*Ursus maritimus*) be moved from Appendix II of CITES, which covers animals not in danger of extinction but needing trade protection, to Appendix I, for species threatened with extinction. But the CITES secretariat has recommended that the proposal be rejected, saying that projections of polar-bear population decline vary widely.

● Sharks

Many sharks could be added to Appendix II, although in most cases protection will be delayed by 18 months to give affected countries some breathing room. The CITES secretariat is backing protection for oceanic whitetip sharks (*Carcharhinus longimanus*), porbeagles (*Lamna nasus*) and various species of hammerhead shark. **D.C.**

▶ There are few reliable estimates of regional elephant numbers, and counting corpses is inaccurate because many are likely to be lost in the vast forests and savannahs of Africa.

A team led by Wasser has developed a map of DNA samples collected across Africa[1] — often from elephant dung — which it uses to pinpoint the probable origins of seized ivory samples (see 'Hunting the poachers'). Wasser has shown that illegal ivory shipments do not often originate from the countries in which the animals were poached.

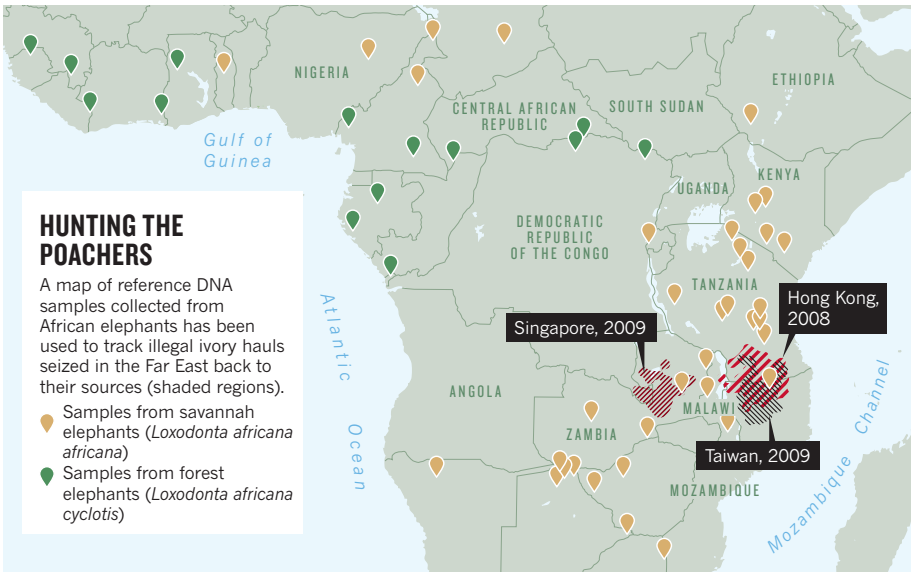
He wants CITES to increase forensic scrutiny of the huge stockpiles of ivory in many African nations. He also wants the treaty to change so that authorities must test every item in all large ivory seizures, which can weigh many tonnes. This would give a more detailed picture of where poaching is occurring, and could be used to step up enforcement in regions where killing is rife.

Hitting these areas could have a big impact, says Wasser. "There are probably not as many of these poaching hotspots as people might think."

Others are also working on tracking. Alfred Roca, a geneticist at the University of Illinois at Urbana-Champaign — whose work demonstrated that African elephants are actually likely to be two separate species[2] — has used mitochondrial DNA to trace ivory hauls[3]. He says that his technique could complement Wasser's work. Male elephants tend to leave their herds at reproductive age, whereas females stay in the same social group, so mitochondrial DNA — which is passed through the female line — could be used to help to triangulate the origins of the ivory, says Roca.

"It's very important to source these large-scale ivory seizures. It should be mandated through CITES that there is forensic examination of the shipments so the source can be determined," says Tom Milliken, the elephant expert at wildlife-trade monitoring group TRAFFIC, which is headquartered in Cambridge, UK. Milliken will be presenting the ETIS data at the Bangkok meeting.

He adds that it may be time for CITES to consider sanctions against countries — including Thailand — that have failed to tackle the ivory trade within their borders. Such restrictions could block all trade in wild-animal and plant products from a nation. "We have reached a moment when the threat of sanctions is certainly warranted," says Milliken. ■



HUNTING THE POACHERS

A map of reference DNA samples collected from African elephants has been used to track illegal ivory hauls seized in the Far East back to their sources (shaded regions).

- Samples from savannah elephants (*Loxodonta africana africana*)
- Samples from forest elephants (*Loxodonta africana cyclotis*)

SOURCE: S. WASSER

1. Wasser, S. K. *et al. Proc. Natl Acad. Sci. USA* **101,** 14847–14852 (2004).
2. Roca, A. L., Georgiadis, N., Pecon-Slattery, J. & O'Brien, S. J. *Science* **293,** 1473–1477 (2001).
3. Ishida, Y., Georgiadis, N. J., Hondo, T. & Roca, A. L. *Evol. Appl.* **6,** 253–265 (2013).

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