THE DISAPPEARING ACT

The Illicit Trade in Wildlife in Asia

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Executive Summary of Findings

- Southeast Asia, with its linkages into the larger Asian market that includes China, Indonesia, and India, is one of the world's biodiversity hotspots as well as one of the world's hotspots for the illegal trade in wildlife and wildlife parts. Although demand markets for wildlife, including illegally-traded wildlife are present throughout the world, China ranks as the world's largest market for illegal trade in wildlife, and wildlife products, followed by the United States.

- Globally, the volume and diversity of traded and consumed species have increased to phenomenal and unprecedented levels, contributing to very intense species loss. In Southeast Asia alone, where the illegal trade in wildlife is estimated to be worth $8-10 billion per year, wildlife is harvested at many times the sustainable level, decimating ecosystems and driving species to extinction.

- Other environmental threats such as climate change, deforestation and other habitat destruction, industrial pollution, and the competition between indigenous species and invasive species often impact ecosystems on a large scale. But the unsustainable, and often illegal, trade in wildlife has the capacity to drive species into extirpation in large areas and often into worldwide extinction—especially species that are already vulnerable as a result of other environmental threats.

- The threats posed by illegal (and also legal, but badly managed and unsustainable) trade in wildlife are serious and multiple. They include irrevocable loss of species and biodiversity; extensive disturbances to larger ecosystems; economic losses due to the collapse of sustainable legal trade of a species and its medicinal and other derivate products, or of ecotourism linked to the species; severe threats to the food-supply and income of forest-dependent peoples; spread of viruses and diseases; and the strengthening of organized crime and militant groups who use the illegal trade in wildlife for provisions and financing.

- At the core of the illegal trade in wildlife is a strong and rapidly-expanding demand. This includes demand for bushmeat—by marginalized communities for whom wildlife meat is often the primary source of protein, and for the affluent who consume exotic meat as a luxury good. Other demand for wildlife is for curios, trophies, collections, and accessories, furs, and pets. Much of demand arises out of the practice of Traditional Chinese Medicine (TCM) which uses natural plant, animal, and mineral-based materials to treat a variety of illnesses, maintain good health and longevity, and enhance sexual potency, and is practiced by hundreds of millions of people. Although effective medicinal alternatives are now available—many of these TCM potions fail to cure anything, and the supply of ingredients for TCM frequently comes through illegal channels and crisis-level poaching,—demand for TCM continues to expand greatly.

  The expansion of supply of illegally-sourced and traded wildlife has been facilitated by the opening up of economies in Southeast and East Asia and the strengthening of their international le-

gal and illegal trade connections; infrastructure development linking previously inaccessible wilderness areas; and commercial logging.

- The illegal trade in wildlife involves a complex and diverse set of actors. These include illegal hunters—ranging from traditional and poor ones to professional hunters, layers of middlemen, top-level traders and organized-crime groups, launderers of wildlife products (such as corrupt captive-breeding farms and private zoos), militant groups, as well as local and far-away consumers, both affluent and some of the world's poorest. Other stakeholders in the regulation of wildlife trade and conservation include logging companies, agribusinesses, the fishing industry, local police and enforcement forces, and governments. Policies and enforcement strategies for curbing the illegal trade in wildlife to ensure wildlife conservation and preserve biodiversity need to address the complex and actor-specific drivers of the illegal behavior.

- In Southeast and East Asia, government policies to prevent illegal trade in wildlife continue to be generally characterized by weak laws governing wildlife trade, limited enforcement, and low penalties. Government efforts to inform publics largely unaware of (and often indifferent to) how their consumer behavior contributes to the devastation of ecosystems in the region and worldwide also continue to be inadequate.

  Monitoring of captive-breeding facilities in Asia is often poor, thus facilitating the laundering of illegally-sourced wildlife and undermining the capacity of the legal trade in wildlife to curb illegal and unsustainable practices.

  Nonetheless, there has been intensification and improvement of government response to the illegal trade in wildlife in Asia, with many governments in the region toughening laws and increasing law enforcement, the Southeast Asian countries establishing the ASEAN-Wildlife Enforcement Network (ASEAN-WEN) to facilitate law enforcement, and even China undertaking more extensive labeling of legal wildlife products.

- The extent of unsustainable, environmentally damaging, and illegal practices that still characterize the wildlife trade in Asia and in many parts of the world cries out for better forms of regulation and more effective law enforcement. Unfortunately, there are no easy solutions to the problem; and almost every particular regulatory policy is either difficult to implement or entails difficult trade-offs and dilemmas.

• Supply-side Measures

▫ *Increased Law Enforcement*

Increased law enforcement does reduce poaching, especially if the original level of enforcement was very low. However, since detection is difficult, areas to be patrolled are extensive, and enforcement of wildlife regulation tends to be a low-priority, badly-resourced undertaking for law enforcement, there are limits to how much law enforcement can reduce wildlife trafficking.

▫ *Bans on Wildlife Trade*

Bans can simplify law enforcement and minimize the possibility of wildlife-laundering through legal sources. Under some circumstances, they can reduce supply and potentially even reduce demand. But these desired outcomes are not automatic. Often demand persists despite a ban while rents for poachers increase. Bans can prevent local stakeholders, such as ranchers or rural communities, from deriving any economic benefits from wildlife and ecosystem preservation, thus reducing their commitment to conservation. Bans can displace harvesting to other areas, even increasing the extent of environmental damage.

Bans have resulted in very mixed conservation outcomes. At times, they have helped increase populations of targeted wildlife and reduce the illegal wildlife trade, as in the parrot trade for the U.S. market; other times, as in rhinoceros conservation, they appeared to fail spectacularly. Overall, the

effectiveness of bans depends on many factors, including law enforcement capacity, the elasticity of demand, the strength of non-price driven effects on consumer preferences (such as seeing the natural world as intrinsically valuable or oneself as environmentally-responsible), the property-rights regimes in place, the timing of the ban, and the value of non-consumptive uses (such as ecotourism). For bans to be effective, they must be coupled with reductions in demand (whether as a result of the ban or otherwise), and they must not undermine incentives for conservation.

- *Legal Supply from Captivity or Certified Sources, such as Managed Legal Hunting*
  Legal supply, such as farming, can reduce pressure on wild resources. It gives hunters, ranchers, and farmers an economic stake in conservation of the species as well as the overall ecosystem. It can provide resources for law enforcement and other conservation practices. But these desired outcomes do not uniformly occur and other difficulties arise. Profit-seeking often drives a species to collapse, instead of enhancing conservation. Captive-breeding programs or legal hunting may serve as laundering mechanisms for illegally-sourced wildlife and be more expensive than undesirable illegal practices. Legal certificates are often issued without sustainable practices being in place. Permitting a legal supply may fail to satisfy overall demand, and worse yet, may increase demand while whitewashing consumer consciousness.

  As in the case of bans, the results of licensed trade have been mixed: At times they have been effective in promoting conservation, such as in the case of crocodilians. Other times, such as in the case of tiger farms in China, they have failed to reverse the illegal trade and precipitous decline in the species. The factors determining the level of effectiveness of licensing wildlife trade include: the level and quality of law enforcement; the elasticity of demand; the ability to supply licensed products cheaply and on a large scale; the strength of non-price driven effects on consumer preferences, such as caring that one is preserving biodiversity through his or her consumer choices; the property-rights regimes in place; the timing of the licensing scheme; and the value of non-consumptive uses (such as ecotourism).

- *Alternative Livelihoods Programs*
  By reducing the economic dependence on wildlife as a source of protein intake and income generation, alternative livelihoods programs can be important mechanisms for conservation. They can simplify and focus law enforcement as well as enhance the political sustainability of prohibitions on wildlife trade and reduce political conflict. But such programs are very resource and time intensive and difficult to design effectively. Isolated successes have been achieved. But by and large, efforts to increase income, reduce poverty, and diversify livelihoods among rural communities often have had relatively low impact on illegal wildlife trade and have not reduced even the target community's participation in wildlife harvesting and trade.

• Tackling Demand

- Benefits
  Tackling the demand for wildlife is absolutely critical, since supply-side measures are rarely effective on their own. Reducing demand facilitates law enforcement, licensing, and alternative livelihoods efforts. Several campaigns to reduce consumptive use of particular wildlife species have been effective, especially in the West.

- *Costs and Difficulties*
  Reducing demand, especially in entrenched markets in Asia, tends to be very difficult. Simply spreading awareness about the

illegality of trade has proven insufficient, and improved awareness has not resulted in a substantial decline of illegal wildlife consumption in many Asian and other markets —especially in the absence of legal and sustainable protein alternatives for the poor, and among affluent consumers for whom wildlife consumption is a symbol of status. Instead, the most effective campaigns to alter demand often have been those inducing people to perceive the behavior as a threat to their health, survival, or dating prospects—a psychological reversal not easy to achieve in areas where wildlife consumption is deeply culturally entrenched. Local NGOs and lobbying groups tend be more powerful messengers than foreign ones, whose efforts can be dismissed as culturally-insensitive and hypocritical imperialism.

Introduction

Southeast Asia, with its linkages into the larger Asian market that includes China, Indonesia, and India, is one of the world's "wildlife trade hotspots,"—a region where unsustainable and illregulated trade in wildlife poses a disproportionally large threat to biodiversity and species preservation.[1] Both the volume and diversity of traded and consumed species have increased to phenomenal and unprecedented levels. Wildlife is being extracted from Southeast Asia's tropical forests at many times the sustainable rate,[2] with the illegal wildlife trade there estimated to be worth $8 to $10 billion per year.[3] Based on data through the 2000s, scientists expect that between 13 and 42 percent of Southeast Asia's animal and plant species could be wiped out during this century. At least half of those losses would represent global extinctions.[4]

Such dismal estimates are consistent with global trends: The earth is losing species at 100 to 1,000 times the historical average, the worst loss rate since the dinosaurs died out 65 million years ago.[5] Worldwide, increasing buyer power, population growth, and globalization have led to a rise in demand for wildlife in developed, emerging, and developing countries.[6] But Southeast and East Asia today probably represent the areas of most intense legal and illegal trade in wildlife, with China as one of the biggest, if not the biggest, consumer of wildlife products in the world. China is also the world's largest demand market for illegally-traded wildlife. China's exploding demand, a result of the increasing affluence of its expanding middle class, has turned the country into a great vacuum, sucking natural environments empty of wildlife—not only from China and its neighbors, but also from across the ocean in Africa and elsewhere.

Although important, often specialized, markets for wildlife exist throughout the world, East Asia stands out as a key locus of demand for wildlife. China ranks as the number one market for illegal wildlife or wildlife parts.[7] Tens of millions of wild animals are shipped each year to southern China for food or to East and Southeast Asia for use in Traditional Chinese Medicine (TCM).[8] Many species—such as tigers; all Asian and African species of rhinoceros; Chinese pangolin; Tibetan, saiga, and droop-nosed antelopes; and many Asian freshwater turtle species—are now on the verge of extinction as a result of commercial exploitation. According to the third annual report by the Biodiversity Working Group

[1] Ben Davis, *Black Market: Inside the Endangered Species Trade in Asia* (San Rafael: Earth Aware Editions, 2005).
[2] Elizabeth Bennett, "Is There a Link between Wild Meat and Food Security," *Conservation Biology*, 16 (3), 2002: 590-592.
[3] Stefan Lovgren, "Wildlife Trade Booming in Burmese Casino Town", *National Geographic*, February 28, 2008, available at http://news.nationalgeographic.com/news/2008/02/080228-wildlife-trade.html.
[4] The Association of Southeast Asian Nations Wildlife Enforcement Network (ASEAN-WEN), "Illegal Wildlife Trade in Southeast Asia Factsheet", March 5, 2009, available at http://www.asean-wen.org/index.php?option=com_docman&task=doc_details&gid=5&Itemid=80.
[5] Neil MacFarquahar, "U.N. Sets Goals to Reduce the Extinction Rate," *The New York Times*, October 29, 2010.
[6] Vincent Nijman, "An Overview of International Wildlife Trade from Southeast Asia," *Biodiversity Conservation*, 19, 2010: 1102.
[7] Claudia McMurray cited by "US second, China first in illegal wildlife trade," *Express India*, June 10, 2008, available at http://www.expressindia.com/latest-news/US-second-China-first-in-illegal-wildlife-trade/321065/.
[8] Claudia McMurray cited by "US second, China first in illegal wildlife trade," *Express India*, June 10, 2008, available at http://www.expressindia.com/latest-news/US-second-China-first-in-illegal-wildlife-trade/321065/.

of the China Council for International Cooperation on Environment and Development (cited by Li Zhang, Ning Hua and Shan Sun 2008), nearly 70 percent of mammal species in China were endangered because of hunting or habitat destruction, with hunting representing the primary threat as of the beginning of the 2000s.[9] Although wildlife consumption has deep and long historic roots in Asia, including China and Southeast Asia, the level of cross-border trade between China and neighboring countries, and increasingly also distant regions, has reached a level unmatched in history and is decimating wildlife populations.[10]

East and Southeast Asian diaspora communities often spread the taste for wildlife to new areas, expanding local habits of exploiting wildlife, whether as pets, food, or for other products. Traditional markets and demand for wildlife exist everywhere, but globalization and increasing purchasing power of large segments of the world's population have expanded and intensified the traditional demand. Significant markets for wildlife exist in Africa, Latin America, as well as, the United States and Europe. Disturbingly, the United States—despite having one of the world's strongest regulations against the importation of wildlife, one of the most extensive regulations criminalizing illegal trade in wildlife, and among the world's most intense law enforcement against illegal wildlife trade—ranks after China as the second largest demand market for illegal wildlife products. U.S. internal demand for TCM, often linked to Asian communities in the United States, accounts for an important portion of that demand.[11]

Other environmental threats such as climate change, deforestation and other habitat destruction, industrial pollution, and the competition of indigenous species with invasive introduced ones often impact ecosystems on a large scale.[12] But trade in wildlife frequently has the capacity to drive species into extirpation in large areas and into worldwide extinction—especially species that are already vulnerable as a result of other environmental threats.[13] For endangered species with slow reproductive rates and already numbering in the low thousands, the existence or absence of poaching and trading can mean their survival or extinction. From enigmatic species (such as tigers and elephants) to those which less frequently capture the attention of publics around the world (such as reptiles, frogs, and insects), effectively managing wildlife trade and curbing its illegal components are often required for species preservation and biodiversity conservation.

Law enforcement efforts against the illegal trade in wildlife in Southeast and East Asia have been inadequate to even reduce the scale of the threat, compounding habitat loss and other threats to species. The risks of being caught and the severity of penalties tend to be small for traffickers. Large numbers of economically and socially marginalized populations in Southeast, South, and East Asia depend on forest products for basic livelihood, lack legal economic alternatives, and hence are willing participants in the illegal wildlife trade. Public awareness of and concern over the ecological harms posed by unrestricted and oblivious consumption of wildlife products, (even though increasing), continues to be inadequate,

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[9] Cited by Li Zhang, Ning Hua, and Shan Sun, "Wildlife Trade, Consumption, and Conservation Awareness in Southwest China," *Biodiversity Conservation*, 17, 2008: 1494.

[10] See, for example, Yang Qing, Chen Jin, Bai Zhi-Lin, Deng Xiao-Bao, Liu Zhi-Qiu, "Trade of wild animals and plants in China-Laos Border Areas Status and Suggestion for Effective Management," *Biodiversity Science*, 8 (3), 2000: 284-256, and Hanneke Nooren and Gordon Claridge, *Wildlife Trade in Laos: The End of the Game* (Amsterdam: The Netherlands Committee for IUCN, 2001).

[11] *Express India*, June 10, 2008.

[12] See, for example, Jeffrey McNeeley, Promila Kapoor-Vijay, Lu Zhi, Linda Olsvig-Whittaker, Kashif Sheikh, and Andrew Smith, "Conservation Biology in Asia: The Major Policy Challenges," *Conservation Biology*, 23 (4), July 2009: 805-810.

[13] Elizabeth Bennett, Eleanor Jane Milner-Gulland, Mohamed Bakarr, Heather E. Eves, John G. Robinson, and David S. Wilkie, "Hunting the World's Wildlife into Extinction," *Oryx,* 36 (4), 2002: 328-329; David Wilkie and Julia Carpenter, "Bushmeat Hunting in the Congo Basin: An Assessment of Impacts and Options for Mitigation," *Biodiversity and Conservation*, 8 (7), July 1999: 927-955; David Wilkie, John G. Sidle, Georges C. Boundzanga, Phillippe Auzel, and Stephen Blake, "Defaunation, not Deforestation: Commercial Logging and Market Hunting in Northern Congo," in Robert Fimbel, Alejandro Grahal, and John Robinson, eds., *The Cutting Edge: Conserving Wildlife in Logged Tropical Forests* (New York: Columbia University Press, 2001): 375-399; John G. Robinson and Kent H. Redford, eds., *Neotropical Wildlife Use and Conservation* (Chicago: Chicago University Press, 1991), and Elizabeth Bennett and John Robinson, *Hunting of Wildlife in Tropical Forests: Implications for Biodiversity and Forest Peoples* (Washington, DC: The World Bank, 2000).

and demand-reduction efforts struggle against deeply-ingrained cultural traditions.

Yet the need for vastly increased effectiveness of policy action is urgent. Unlike other illegal economies, such as the drug trade, that exploit resources which can be renewed, and thus can be conducted infinitely, the illegal trade in wildlife is drastically depleting its marketable products, unfortunately at irretrievable costs to humankind and the world's ecology. Once the endangered species are extirpated at the hands of poachers and traffickers, they are gone and there is often no bringing them back.[14]

After providing an extensive review of current government policies in Southeast and parts of East Asia and of the effectiveness of various regulatory designs and policy actions from around the world, the paper offers a set of guidelines for designing policy responses. The analysis of policy considerations and effectiveness shows the extraordinary complexity and difficult trade-offs among various policy approaches. There are no silver bullets in mitigating the illegal trade in wildlife, despite the extreme urgency and intensity of the problem.

Critically, the discussion shows that the effectiveness of various policies is often highly contingent—the same regulatory design may work well for a particular species in one country, and be ineffective in another country. Bans may work for some species, but fail for others. Licensing trade in the same species of parrots may work in one region, but fail in another. What this means is that local institutional and cultural settings matter a great deal and that local wildlife factors and species-specific factors are equally significant. Consequently, a policy can only be effective if it is based on extensive local data and is closely tailored to local conditions. Consequently, a paper such as this one can only offer broad policy recommendations as guidelines for designing a regulatory framework to mitigate the illegal trade in wildlife and enhance conservation.

[14] The success of reintroduction programs from captive-bred stocks once a species has gone extinct in the wild is often slim.

Analysis

Definition of Illegal Trade in Wildlife

Wildlife trade includes all sales or exchanges of wild animal and plant resources by people.[15] Under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), to which governments voluntarily adhere, only trade that does not threaten the survival of a species is permitted. Today, CITES accords varying degrees of protection to more than 30,000 species of wild animals and plants, whether traded as live specimens for the pet trade or in dead parts and products. All trade in species categorized as endangered is illegal, both under CITES and under national legislation. Many other species, though not endangered, are traded through permits, often establishing quotas on harvesting. Species listed in CITES Appendix I, such as tigers and orangutans, are considered close to extinction and commercial trade in them is banned. Species listed in Appendix II are considered less vulnerable and can be traded under a permit system. Species listed in Appendix III are protected by national legislation of the country that added them to the list. However, the fact that a species is not listed under CITES, and hence its trade is not illegal under international law, does not imply that the levels of trade for that species are sustainable and do not cause environmental damage. Indeed, often a species is added to a CITES list precisely because previously ill-regulated culling and trade have decimated it.

As in the case of other illicit economies, there are wide disagreements about what constitutes illegal trade in wildlife. For purposes of this paper, I apply the term to any trade in wildlife in violation of national or international laws, such as CITES. Thus, a trade in a particular species can be illegal in one country, and legal in another.

Size of the Traffic

As with all illicit economies, estimating the size of the illegal trade in wildlife is inherently difficult because much of the trade is clandestine, hidden, and often minimally monitored. Moreover, unlike in the case of the illegal trade in drugs, for example, no regular monitoring mechanisms exist to monitor either wildlife populations throughout the world or the size of the illegal trade in wildlife globally and in specific regions. Often only NGO monitoring, such as by TRAFFIC, or sporadic scientific studies provide data on wildlife population levels for particular species or the size of the illegal trade. Thus only limited data are often available, time series studies and trends are lacking, and the only available information on the size of a particular species population or the illegal trade in it may be a decade or two old.

Nonetheless, even with highly imperfect data that likely vastly underestimate the size of illegal trade in wildlife, the amount of wildlife removed from forests and waters of Southeast Asia and traded

[15] See, for example, Navjot Sodhi, Lian Pin Koh, Barry Brook, Peter K.L. Ng, "Southeast Asian Biodiversity: An Impending Disaster," *Trends in Ecology and* Evolution, 19 (12), December 2004, 2004: 654-660, http://faculty.jsd.claremont.edu/emorhardt/159/pdfs/2006/Sodhi.pdf; Steven Broad, Teresa Mulliken, and Dilys Roe, "The Nature and Extent of Legal and Illegal Trade in Wildlife," in Sara Oldfield, ed., *Trade in Wildlife: Regulation for Conservation* (London: Earthscan): 3-22.

there and globally is shocking. Vincent Nijman estimates that between 1998 and 2007 over 35 million CITES-listed animals (0.3 million butterflies; 16.0 million seahorses; 0.1 million other fish, 17.4 million reptiles; 0.4 million mammals; and 1.0 million birds) were exported.[16] Out of these, 30 million (approximately 300 species) were wild-caught while the remaining 4.5 million were derived from captive-breeding programs.[17] In addition, 18 million pieces and 2 million kg of live corals were exported.[18] Out of the total exports, the proportion of illegal to legal trade in wildlife was relatively low, involving less than a quarter of a million individuals of species over the decade.[19]

However, since these numbers were obtained from official documents governing the trade in CITES-listed species, and thus represent mainly legal trade and seizures of illegally-traded items, the number is probably only a fraction of the actual trade in wildlife throughout Asia, much of which is undocumented and illegal. For example, Sabine Schoppe estimated that in the 1990s and 2000s, some 2 million box turtles were exported from Indonesia annually, greatly exceeding the official Indonesian quota of 18,000;[20] hence more than 99 percent of the trade in box turtles from Indonesia was illegal. Similarly, Chris Sheperd showed that in 1999 and 2000, 25 tons of wild freshwater turtles and tortoises were caught and exported each week from northern Sumatra to China, amounting to about 1300 tons a year just from one small region.[21] Vincent Nijman estimated that trade in Tockay gecko from Java amounted to some 1.2 million individuals a year, enormously exceeding the Indonesian quota of 25,000,[22] and implying that 98 percent of the trade was illegal. Overall, over 50 percent of Asia's freshwater turtles (45 species) are now considered in danger of extinction as a result of over-exploitation.[23] Almost 30,000 items made from the critically endangered marine hawksbill turtle were found on sale in Vietnam in 2002, signifying the death of thousands of the turtles.[24] Overall, among reptiles, the most commonly traded species from Southeast Asia are soft-shell turtles, box turtles, cobras, pythons, monitors, and crocodiles.

In critically endangered species, the numbers of killed animals are far smaller, but the detrimental effects on species survival are often even greater. Feeding the strong Chinese market, 51 tigers, for example, were illegally killed in Sumatra between 1998 and 2002, out of a population of around 800 individuals before 1998.[25] In northeastern Laos, 7 tigers were killed during 2003 and 2004, and their bones sold for about $50,000. A shocking 2,200 tigers are estimated to have been killed by poachers in India in the last decade, crashing its population by two thirds, with only between 1,000 and 3,000 tigers left today, and critically threatening three decades of tiger conservation efforts.[26]

Although in the mammal category, the trade in endangered and charismatic species, such as bears, tigers, and elephants often receives the greatest

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[16] Nijman (2010): 1105. For comparison, in other wildlife trade hotspots, the annual hunting and harvest rates are estimated at 1-5 million tons in Central Africa; 67,000-164,000 tons in the Brazilian Amazon, and 23,000 ton in Sarawak, Malaysia. See, John Robinson and Elizabeth Bennett, "Will Alleviating Poverty Solve the Bushmeat Crisis?" *Oryx* 36(4), October 2002: 332.

[17] Ibid.

[18] Ibid.

[19] Ibid.

[20] Sabine Schoppe, *Status, Trade Dynamics, and Management of the Southeast Asian Box Turtle in Indonesia*, TRAFFIC Southeast Asia, Kuala Lumpur, 2009, http://www.traffic.org/species-reports/traffic_species_reptiles19.pdf.

[21] Chris Sheperd, "Export of Live Freshwater Turtles and Tortoises from Northern Sumatra and Riau, Indonesia: A Case Study" in Peter Paul Van Dijk, Bryan L. Stuart, and Andres G.J. Rhodin, eds., *Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia*, Chelonian Research Monographs No.2, 2000.

[22] Nijman (2010): 1109.

[23] Peter Paul Van Dijk, Bryan L. Stuart, and Andres G.J. Rhodin, eds., *Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia*, Chelonian Research Monographs No.2, 2000.

[24] TRAFFIC-Southeast Asia Indochina, *The Trade in Marine Turtle Products in Vietnam*, 2004, www.traffic.org/species-reports/traffic_species_reptiles23.pdf.

[25] Chris Sheperd and Nolan Magnus, *Nowhere to Hide: The Trade in Sumatran Tiger*, TRAFFIC-Southeast Asia, 2004, www.traffic.org/species-reports/traffic_species_mammals15.pdf.

[26] Mihir Srivastava, "Tracking the Tiger Killers," *India Today,* May 28, 2010, and "WII to Start Tiger Census This Month," *Times of India*, October 5, 2009; and Bill Marsh, "Fretting about the Last of the World's Biggest Cats," *New York Times*, March 6, 2010.

attention, the most commonly traded species among mammals are macaques, leopard cats, and pangolins. For example, 270,000 individual macaques and 91,000 leopard cats were traded legally during 1998-2007, with less than 1 percent of the total number of mammals traded having been reported as caught in the wild after 2004. China and Malaysia were the principal exporters, and the European Union and Singapore the principal importers. However, these statistics once again do not correctly indicate the size of the illegal trade of animals obtained in the wild for the illegal trade. Often traders catch animals in the wild against regulations and list them as captive-bred.

Between 1993 and 2003, more than 80,000 pangolin skins were illegally exported from Laos to international markets, primarily in the United States and Mexico. Another 15,000 were confiscated in Thailand in 2002, brought there from Laos and Indonesia en route to China. In Shanghai, pangolin meat sells for $45 a pound, being regarded as highly nutritious, while its scales are prescribed to cure everything from skin ailments to lack of milk in breast-feeding mothers.[27]

More than 8,500 water snakes (comprising five species) were estimated to be harvested daily during the 1990s from Cambodia's Tonle Sap, an ecological hotspot and a UNESCO-designated biosphere—possibly the most intense harvesting of snakes anywhere in the world.[28] In the early 2000s, an estimated 20 million seahorses were taken annually from the South China Sea and Gulf of Thailand, of which 95 percent were destined for China via Hong Kong for use in TCM.[29] In Malaysia's Sawarak, an estimated 2.6 million animals were shot and 23,500 tons of wildlife meat consumed on an annual basis for bushmeat and exotic meat trade alone during the 1990s. In Sabah, Malaysia, an estimated 108 million animals were also consumed for the same purpose.[30]

Threats Posed by Wildlife Trade

The threats posed by illegal (and often also badly managed and unsustainable legal) trade in wildlife are serious and multiple. Foremost among them is the *irrevocable loss of species and biodiversity*. If current trends in Southeast Asia continue, scientists believe that 13 to 42 percent of Southeast Asian animal and plant species will be wiped out this century. At least half of those losses are species endemic to Southeast Asia and hence would represent global extinctions.[31]

Beyond direct species extinction, poaching to supply wildlife trade disturbs delicate ecosystems and species loss, often generating cascade effects that *devastate entire ecosystems.* For forest-dependent peoples, such knock-on effects can precipitate the unraveling of fresh water supply and *food production*.[32] Numerous studies have noted the importance of wild food products for marginalized communities, especially women and children.[33] If the illegal wildlife trade depletes a species to such an extent that a sustainable legal trade in the species is no longer possible or ecotourism in the area collapses, it can cause severe economic *losses in a particular area.*

Unregulated trade and consumption of wildlife can *spread viruses and diseases*, endangering local species and food supplies, introducing harmful invasive species that generate ecological and *further economic*

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[27] Denis Gray, "Wildlife at Risk in Southeast Asia: Species Being Used for Food and Medicine," *Washington Post,* April 4, 2004.
[28] Bryan L. Stuart, Jady Smith, Kate Davey, Prom Din, and Steven G. Platt, "Homalospine Watersnakes: The Harvest and Trade from Tonle Sap, Cambodia," *TRAFFIC Bulletin*, 18(3), 2000: 115-124.
[29] Dennis Gray, "Asia's Wildlife Hunted for China's Appetite," The Associated Press, April 6, 2004.
[30] Bennett (2002), and Elizabeth Bennett, Adrian J. Nyaoi, and Jephte Sompud, "Saving Borneo's Bacon: The Sustainability of Hunting in Sarawak and Sabah," in *Hunting for Sustainability in Tropical Forests*, John Robinson and Elizabeth Bennett, eds., (New York: Columbia University Press, 2000): 305-324.
[31] ASEAN-WEN, "Illegal Wildlife Trade in Southeast Asia: Factsheet," http://asean-wen.net/index.php?option=com_docman&task=doc_details&gid=5&Itemid=80.
[32] See, for example, Robert Prescott-Allen and Christine Prescott-Allen, *What's Wildlife Worth? Economic Contribution of Wild Plants and Animals to Developing Countries* (London: Earthscan, 1982); and Robert Nasi and Tony Cunningham, *Sustainable Management of Non-Timber Forest Resources: A Review with Recommendations for the SBSTTA*, Secretariat to the Convention on Biological Diversity, Montreal (2001).
[33] Michael Cavendish, *The Economics of Natural Resource Utilisation by Communal Area Farmers of Zimbabwe* (Oxford: Oxford University Press, 1997).

losses,[34] and facilitating species-jump of disease from animals to humans. The outbreak of SARS, for example, was believed to be caused by consumption of civets in China. The transfer of avian influenza from wild birds to humans was also believed to take place in China's wildlife markets.[35]

Organized crime is strengthened by illegal trade in wildlife, which is estimated to be worth between $5-20 billion annually (though this number may be an underestimate).[36] In Vietnam alone, illegal wildlife trade was estimated at $66.5 million annually in the late 1990s and early 2000s.[37] *Militant groups* around the globe exploit illegal trade in wildlife both to feed their soldiers and to generate large revenues. These include the United Wa State Army (USWA) that traffics wildlife into Yunnan and northern Thailand, along with methamphetamines and other contraband; the Taliban who facilitate the hunting of houbara bustards, snow leopards, and saker falcons in Afghanistan for wealthy Saudis; Somali rebel groups who poach for rhino horns across the border in Kenya; UNITA in Angola and the janjaweed in Darfur and Chad who have butchered thousands of elephants; RENAMO in Mozambique who have traded in rhino horn, in addition to ivory; plus the trading of various species by the Nationalist Socialist Council of Nagaland in Northeast India and militant Islamist groups in Bangladesh—to list just a few examples.[38]

Drivers of Wildlife Trade and Illegal Traffic Increase

As in many illegal economies, at the core of the illegal trade is a strong and rapidly-expanding *demand for wildlife*.

For many people, wildlife is an important source of protein, and for particular marginalized communities, such as those along Burma's border in the country's special autonomous regions, it can be the only source of protein. Many such forest-dependent communities are among the poorest in the world. Much of wildlife food consumption in Asia and worldwide, however, is for *exotic meats* and the consumers are the affluent. In addition to the turtles and civets, wild populations of wrasses, groupers, and sharks are literally eaten away by Asian consumers. Anything can be served (and purchased) in restaurants specializing in exotic items: the rarer, the more appetizing and pricy.[39]

A range of wildlife products is used for *curios, trophies, collections, and accessories*, be they Japanese hanko ivory seals (personal name seals) or other ivory carvings, turtle carapaces, coral, beetles, horns and antlers.

Skins from reptiles (particularly crocodiles and snakes, and from pangolins and muntjacs—an Asian deer species), furs (from snow and clouded leopards,

[34] One study, for example, estimates the annual economic damage in the United States from nonnative species to be USD 123 billion. See, David Pimentel, Lori Lach, Rodolfo Zuniga, and Doug Morrison, "Environmental and Economic Costs of Nonindigenous Species in the United States," *BioScience,* 50, January 2000: 53-65.

[35] See, for example, William B. Karesh, "Wildlife Trade and Global Disease Emergence," *Emerging Infectious Diseases* 11(7), 2005: 1000-02; and William B. Karesh, Robert A. Cook, Martin Gilbert, and James Newcomb, "Implications of Wildlife Trade on the Movement of Avian Influenza and Other Infectious Diseases," *Journal of Wildlife Diseases*, 43(3), 2007: 55-59.

[36] Liana Sun Wyler and Pervaze A. Sheikh, *International Illegal Trade in Wildlife: Threats and U.S. Policy*, CRS Report for Congress, (Washington, DC: Congressional Research Service, August 22, 2008): 2.

[37] Nguyen Van Song, "Tracking the Trade: Vietnam's Illegal Wildlife Business," Policy Brief No. pb2003114, *Economy and Environment Program for Southeast Asia*, 2003, http://www.idrc.ca/eepsea/ev-47045-201-1-DO_TOPIC.html.

[38] See, for example, TRAFFIC, *The State of Wildlife Trade in China, 2008* (2008): 11; Vanda Felbab-Brown, "Peacekeepers Among Poppy," *International Peacekeeping*, 16 (1), February 2009: 100-114; Sharon Begley, "Extinction Trade," *Newsweek* 151 (10), March 10, 2008; R. Thomas Naylor, "The Underworld of Ivory," *Crime, Law, and Social Change*, 42(4-5), January 2005: 261-295; Greg L. Warchol, "The Transnational Illegal Wildlife Trade," *Criminal Justice Studies*, 17(1), March 2004: 57 – 73; Greg L. Warchol, Linda L. Zupan, and Willie Clark, "Transnational Criminality: An Analysis of the Illegal Wildlife Market in Southern Africa," *International Criminal Justice Review*, 13(1), 2003: 1-27; and Vanda Felbab-Brown, "The Political Economy of Illegal Domains in India and China," *International Lawyer*, 43 (4), Winter 2009: 1411-1428.

[39] Li Zhang, Ning Hua, and Shan Sun: 1513.

tigers and leopard cats), wool, and hair from many animal species are used to produce clothing, footwear, and shawls (such as the shashoosh shawl from Tibetan antelope). Some of these wildlife commodities, especially the skins from tigers, snow leopards, and other wild cats, are used for traditional costumes, such as in Tibet where such consumption is culturally-ingrained, long-standing, and intense. Some of the demand comes from the modern fashion industry, catering, for example, to the newly emerged market for furs, such as in Russia.

The pet trade is dominated by reptiles and birds, such as parrots and songbirds (e.g., bulbuls, mynas, laughing thrushes), but also includes tropical fish, mammals and other large animals.

Much of the demand arises out of the practice of Traditional Chinese Medicine, which uses natural plant, animal, and mineral-based materials to treat a variety of illnesses, preventatively to maintain good health, vitality, and longevity, and enhance sexual potency. Dating back at least 3,000 years, TCM practice is deeply ingrained in the culture of East and Southeast Asian countries, especially those with large Chinese populations, and practiced by hundreds of millions of people. For centuries, tiger bone has been used to treat arthritis, tiger penis and snake blood have been prescribed as elixirs and aphrodisiacs, rhino horn has been consumed to treat fever, convulsions, and delirium, and bile from bear applied to cure infections and inflammations. Although effective medicinal alternatives are now available, many of these TCM potions fail to cure anything, and the supply of ingredients for TCM frequently comes through illegal channels and crisis-level poaching, so-called *ye wei* (wild taste) continues to expand greatly. With globalization and the expansion of Chinese diasporas around the world, demand for TCM has spread worldwide. The top ten importers from China of TCM include the United States and Germany, along with Hong Kong, Japan, Korea, Vietnam, Malaysia, Taiwan, Singapore, and Indonesia.[40]

Moreover, throughout Chinese history, wild animals have been viewed as an important source of income, food, and status. Unlike in India, for example, where many animals are considered sacred or at least deserving of protection and where many abstain from meat consumption for religious reasons, in China and among Chinese communities the normative and cultural habits push in the opposite direction. As Li Zhang, Ning Hua, and Shan Sun note in their survey of wildlife consumption prevalence and consumer preferences in southwestern China, "[f]rom a traditional Chinese perspective […], wild animals are a resource to be exploited, not something to be protected for their intrinsic value."[41]

In addition to supposedly imbuing consumers with health, sexual prowess, and other desirable traits of the wild animals (such as bravery), the consumption of wildlife among East and Southeast Asian populations, such as the Cantonese, continues to be a key sign of added social status. Thus the main consumption groups in China are young males with good incomes, and disturbingly, high education levels. (At the same time, the percentage of people who believe it is not right to consume wild animals is far lower among people with primary education and below that among other groups.)[42] Li Zhang, Ning Hua, and Shan Sun found that 31.1 percent of respondents in China had consumed wild animals while 42.7 percent think no wild animals should be consumed.[43] 57.5 percent of those who consume wildlife voluntarily started doing so as a result of word of mouth, media, or the influence of professionals, indicating peer pressure dynamics. Heavy consumers are least likely to forgo consumption—despite awareness campaigns, and even while they contribute money to conservation.

In addition to growth in demand, several other factors have contributed to the expansion of the wildlife trade by *facilitating supply*. Over the past two decades, various countries in Southeast and East Asia, including critically Vietnam and China, have *opened up their*

[40] TRAFFIC, *The State of Wildlife Trade in China, 2007* (2007): 9.
[41] Ibid.: 1494.
[42] Ibid.: 1493, 1515-1516.
[43] Ibid: 1512.

economies and strengthened their international legal and illegal trade connections. *Infrastructure development* has linked previously inaccessible wild and rural areas. And *commercial logging* has further opened up access to wilderness areas for wildlife exploitation.[44]

Structure of the Wildlife Smuggling Industry

Consumers

Although, as noted above, China's consumers dominate the wildlife market in the region (and in the world), demand for wild plants and animals is increasing throughout Southeast and East Asia, exacerbated by the region's growing population and its increasing affluence. In Asia at least, experience has shown that as income increases, so does demand for wildlife, as evidenced by wildlife markets from Hanoi, to Bangkok, to Jakarta and Shanghai.[45] What were previously mainly source and transshipments locales, such as Thailand and Vietnam, are rapidly becoming important consuming countries. The Thais are now among the principal consumers of wildlife products from Laos, Burma, and Cambodia.[46]

Suppliers

The primary motivating factor for wildlife hunters and traders is economic: from small-scale subsistence for some, to major high-profit business for others. At the beginning of the smuggling chain are the hunters of animals and collectors of plants and minerals. This group consists of both poor (at times subsistence-level) hunters, and professional hunters.

The *poor hunters* include communities for whom hunting, forest exploitation, and fishing has a long and deeply-established tradition, such as the Nagas in Northeast India and the Pardhi tribe in Gujarat and Maharastra. The Nagas have lived and exploited the forests of Northeast India for centuries, and animal hunting was both a matter of subsistence and prestige (though eliciting lesser admiration than human head-hunting, which they used to practice). The Nagas have long traded with both skins and wild animals, and the tradition has been slow to diminish despite the efforts of India's government and conservation NGOs. The Pardhis represent an example of how social and economic marginalization perpetuates participation of particular groups in illegal economies. Often poor, illiterate, and mostly nomadic, they were designated as "criminal" tribes under the British Raj1871 Criminal Tribes Act. The fact that the police (and society more broadly) have often assumed that these people on society's edge participated in assorted crime and treated them accordingly made it difficult for many to obtain legal employment and indeed drove some to crime, including poaching. Some Pardhis are skilled poachers both because they have acquired the skills over generations and because they still face meager legal opportunities while persisting in wretched poverty; thus a default reaction in India to poaching is that the Pardhis are behind it.[47] Beyond the Pardhis, and their special designation as India's top poachers, it is estimated that in the 1990s, about 50 million people living in and around India's forests depended on non-timber forest products (NTFPs) directly or indirectly for sustenance.[48]

Globally, collection—including hunting—of NTFPs represents as much as 50 percent of the income of forest-dependent communities in the world, who are among the world's poorest people.[49] For some marginalized communities in Laos, Cambodia, and Burma the dependence sometimes tops 70 percent.

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[44] World Bank, *Going, Going, Gone … The Illegal Trade in Wildlife in East and Southeast Asia*, (Washington, DC: World Bank, 2005; and Compton and Le Hai Quang, *Vanishing Point: An Investigation into Cross-Border Wildlife Trade between Laos and Vietnam*, Hanoi: World Wildlife Fund Indochina Programme, 1999.

[45] Robinson and Bennett (2002).

[46] Nooren and Claridge (2001).

[47] "Pardhi Tribe Termed the Biggest Threat to Wildlife," *Express India,* January 7, 2008; Uday Mahurkar, "King in Shackles," *India Today*, April 23, 2007; and "If They Were Crooks, Wouldn't They Be Richer?" *The Economist*, April 22, 2010.

[48] Mark Poffenberger and Betsy McGean, eds., *Village Voices, Forest Choices: Joint Forest Management in India* (New Delhi: Oxford University Press, 1996).

[49] Jitendra Kumar Das and Om Prakash, "Measuring Market Channel Efficiency and Strategy to Improve Income to Local Communities Dependent on Tropical Forests," *Journal of Sustainable Forestry*, 15(4), 2002: 28, and Ajay Kumar Mahapatra, Heidi J. Albers, and Elizabeth J.Z. Robinson, "The Impact of NTFP Sales on Rural Households' Cash Income in India's Dry Deciduous Forest," *Environment Management* 35(3) 2005: 258-265.

But the illegal trade in wildlife often threatens and reshapes traditional hunting and other forest exploitation. Very few indigenous communities these days hunt purely for food, and many traditional hunters have replaced their bows and arrows with fire arms, greatly magnifying the impact on wildlife species.[50] Even subsistence hunting can drive a species to collapse. Unlike the Nagas, many of the marginalized ethnic communities along Burma's borders represent a "forced" evolution into the opportunity of wildlife smuggling. Many of these ethnic communities have participated for decades in various illegal economies, from the production of and traffic in drugs, to illegal logging and smuggling in gems. Although such economies have brought vast financial profits to the militant separatist groups (such as the United Wa State Army, Shan United Army, Kachin Independence Organization, Mong Tai Army, Democratic Karen Buddhist Army) and their leaders, many of the primary producers continue to be desperately poor. Suppression of one illegal economy drove them into switching into another —namely, the illegal trade in wildlife. Today, such impoverished communities are among the principal hunters of wildlife in Burma, vacuuming its forests (some of Southeast and East Asia's best remaining forests) free of wildlife.

The Special Region No. 4 in Burma's Shan state, bordering Yunnan province in China and controlled by the National Democratic Alliance Army (NDAA), illustrates this phenomenon. With its capital Mong La sitting on the border with China, the region used to be a major area of opium poppy cultivation. The poppy eradication drives in the late 1990s left many farmers impoverished, often with food for only eight months out of a year.[51] The farmers coped by resorting to logging timber (shipped across the border into China) and catching any animals they could find in the forests, both for consumption and for sale; once again shipping the captured wildlife into China.[52] Especially after Mong La's gambling and prostitution enterprises collapsed, following the Chinese government's restriction of access to them by Chinese tourists (including local government officials), illegal logging and wildlife trade only intensified and Mong La became one of the five biggest wildlife smuggling hubs in Burma.

The trigger of a community's participation in wildlife hunting and smuggling often is the arrival of traders in an otherwise poor area thought to be rich in wildlife. The locals' economic deprivation and social marginalization frequently make them an easy recruitment target. Once wildlife was depleted in their home areas, Vietnamese traders, for example, orchestrated extensive wildlife hunting in the Nakai-Nam Theun National Protected Area in Laos, that country's largest protected area. The subsequent hunting of pangolins, civets, turtles, and monitor lizards in Nakai-Nam Theun resulted in a significant decline in these species.[53] And with the arrival of middlemen who facilitate marketing, prices for wildlife go up. In a village in Laos, for example, before the arrival of Vietnamese traders, a golden turtle would sell for about $100, while now that middlemen can get it to Chinese markets (where Chinese businessmen believe it can cure cancer), it would sell for about $1,000. (Scarcity due to harvesting also, of course, contributes to price increase.)[54] A dead, adult male tiger is estimated at $10,000 on the black market[55] whereas in local smuggling hubs, such as Linxia in Gansu Province, China, snow leopard pelt could sell for as little as $250.[56]

The low-tech hunters sometimes evolve into, and sometimes are joined or displaced by, professional hunters. As forests empty due to the hunting,

[50] Evan Bowen-Jones, "Bushmeat: Traditional Regulation or Adaptation to Market Forces," in Sara Oldfield, ed., *The Trade in Wildlife* (London: Earthscan, 2003): 121-131.
[51] Vanda Felbab-Brown, *Shooting Up: Counterinsurgency and the War on Drugs* (Washington, DC: Brookings Institution Press, 2009): 165-170.
[52] Vanda Felbab-Brown, "Asia's Role in the Illicit Trade of Wildlife," *Boston Globe*, March 20, 2006.
[53] World Bank (2005): 6.
[54] Gray (April 6, 2004).
[55] Bryan Christy, "Asia's Wildlife Trade," *National Geographic*, 217(1), January 2010: 85.
[56] Environmental Investigation Agency (EIA), *Skinning the Cat: Crime and Politics of the Big Cat Skin Trade*, September 2006: 7.

increasing wildlife scarcity makes trapping more time-consuming and requires greater skills and, sometimes, equipment. Thus many less skilled and casual hunters drop off, and the remaining ones become professionalized.[57] Highly skilled professional hunters are sought after by middlemen and even top-level traffickers, who frequently facilitate their mobility within a country and at times even among countries, by default becoming the wildlife equivalent of professional mercenaries and hitmen. The second group of high-tech hunters includes recreational hunters who violate laws and are eager to acquire a highly endangered animal as a trophy.

Middlemen not only facilitate access for such trophy-hunters, but they also stimulate wildlife smuggling in new areas, as in the case of Nakai-Nam Theun. In addition, they frequently contribute to diversification of hunting and collecting by encouraging hunters to catch other species and families and even orders, once a local forest has been emptied of a particular species or group. Thus, collection and hunting switches from orchids to insects; from civets and bears to pangolins; from langurs to salamanders, leaving behind a systematically emptied forest.[58]

Diaspora communities, such as Chinese expatriates, often serve as important connecting links in the global illegal wildlife trade. Typically retaining the cultural traditions and predilections of their home, such as *ye wei*, they may fail to become well integrated into the new home or temporary work locale abroad.[59] The resulting sense of isolation and marginalization breeds susceptibility to recruitment by criminal rings. And as in the case of other social mobilization, personal connections and networks play a critical role.

At the apex of the smuggling chain are *big traders* who often facilitate wildlife traffic across the globe. One of the most notorious kingpins of the world-wide trade in wildlife has been Wong Keng Liang, better known as Anson Wong. A Malaysian, Wong first established himself in illegal (and legal) trade in reptiles, selling anything from legal geckos to illegal komodo dragons, Chinese alligators, and Madagascar plowshare tortoises, one of the rarest species. Later, he diversified into any wildlife of high value, such as rhino horn, Spix's macaw (believed to be extinct in the wild), and panda skins.[60] Another wildlife kingpin, Sansar Chand gained notoriety for organizing large-scale poaching of India's tigers and sales of their products throughout Asia. Other top-level traffickers include the Poon family from Hong Kong and Singapore who have traded in legal and illegal ivory (and shark fins) for generations. The Poon family was one of several long-established ivory traders and craftsmen who moved from Hong Kong to Singapore in the 1980s to take advantage of the loopholes in Singapore's laws after Hong Kong toughened its laws.[61]

As in the case of other illegal economies, profit mark-ups grow immensely the further down the smuggling chain the product has moved and the more law enforcement actions it had to avoid. Such mark-ups are not inconsiderable even within a country. While a poor hunter in Tam Dao National Park can earn perhaps low hundreds a year, an owner of a restaurant in Tam Dao will be able to make $1,000-$1,500 selling wildlife meat to tourists, while a medium-size trader in Vinh Yen will earn more than $15,000 a year.[62] In Hanoi, the trader's income will be greater yet, and so on. Similarly, a pangolin caught in Myanmar traded

[57] Christy: 8.
[58] Ibid.: 9-10.
[59] See, for example, Aidan Hartley, "Will China Kill All Africa's Elephants?" *The Spectator*, March 27, 2010.
[60] After an arrest and imprisonment in the United States on wildlife smuggling charges, Anson Wong is back in Malaysia, running breeding farms, private zoos, and likely participating in wildlife smuggling again, with the complacency of the Malay authorities. For details, see Bryan Christy, *The Lizard King* (Twelve: 2008).
[61] For details, see, for example, Environmental Investigation Agency, *Back in Business: Elephant Poaching and the Ivory Black Markets of Asia*, 2002: 1-10, and Environment Investigation Agency, *Systems of Extinction: The African Elephant Disaster*, 1989.
[62] Ibid: 10.

there in the late 2000s for $ 3/kg. When smuggled into Kunming, China, the price had risen to $57/kg. Upon arrival in Guangdong province, the price increased to $86/kg and may reach $171/kg during special occasions, such as the Chinese New Year.[63]

Nonetheless, profit accumulation is often slow in the initial stages of smuggling. While many poor participants, such as hunters, processors, and even small traders, are better off economically than they would be in the absence of participating in the economy, they have hardly managed to escape poverty, and even many of the key transshipment centers described below, such as Vientiane in Cambodia and even Linxia in China, continue to be areas of low living standards and underdeveloped legal economy.

As in the case of other illegal economies, there is "laundering" not only of profits, but also of the actual animals and plants. Since captive-bred animals are exempted from CITES prohibitions on trade, farms breeding particular species are often used to launder wild plants and animals by claiming that they were farm-raised. Public and private zoos also make a good cover for smugglers since a zoo can claim to have a breeding program for endangered animals and thus can explain arrival of new animals. As discussed in the upcoming section on policy considerations, such laundering and falsification of certificates have plagued controls on the ivory trade in Thailand (where sale of ivory from domesticated elephants is permitted and smugglers from Burma or Africa often claim that their ivory has come from Thailand's domestic animals) and on tiger products in China (where sellers claim that their tiger products come from animals raised on tiger farms, not from poached animals in India and Indonesia).

Once again, as with other illegal economies, militant groups across the world have exploited the illegal wildlife trade to obtain resources. However, the participation of militant groups in the illegal wildlife trade is often complex. Neither the various ethnic militant groups in Burma, nor the Nationalist Socialist Council of Nagaland experienced any push-back from their popular base against their participation in hunting and trafficking, since the local population also participated in the illegal economy and/or hunting has had a century-long tradition.

On the other hand, also operating in Northeast India like the Naga militants, Bodo militants had a very different involvement in wildlife trade. Building off a local culture of animal protection, the Bodo Security Force (BdSF), which has been seeking to liberate "Bodoland" from Assam, took it upon itself to enforce anti-poaching laws. For example, they singled out known rhinoceros poachers and sent them a notice to desist in their activities. If the poachers failed to comply, the Bodo militants killed them. The BdSF's location in the Manas National Park and the economic pressures of providing for their insurgency later encouraged the group to violate its own edicts and local community mores and dabble in the illicit trade in wildlife. But, the subsequent public outcry from the local population that constituted their base was so strong that the BdSF aborted its participation in the illicit trade and went back to enforcing environmental protection.[64] Similarly, although the dacoits (robbers and bandits) in India's Uttar Pradesh in the 1980s so undermined public safety in the area and threatened the state that their activities amounted to a de facto insurgency, the dacoits determinedly protected the unique wildlife in their area, including burying the poachers alive.[65]

Other stakeholders in the regulation of wildlife trade and conservation include logging companies, agribusinesses, the fishing industry, local police and enforcement forces, and governments. The logging industry, for example, frequently demands access to new areas where timber is abundantly available, and the logging routes open access for poachers and

[63] TRAFFIC, *The State of Wildlife Trade in China*, *2007* (2007): 13.
[64] Author's interviews with environmental groups operating in the region, India (May-June 2008).
[65] Author's interviews in dacoit communities in Uttar Pradesh, India, July 2007.

traders. In remote areas, loggers themselves frequently hunt local wildlife for food. Around the world, the legal fishing industry, frequently subsidized by governments, often perpetrates illegal fishing by harvesting outside of designated areas, in excess of legal quotas or immature fish. Local police officers frequently obtain little prestige and chance for promotion by enforcing regulations against wildlife trade, an area of focus that tends to be at the bottom of law enforcement priorities.

Policies to curb the illegal trade in wildlife and ensure its conservation and biodiversity preservation need to address the diverse and actor-specific drivers of illegal wildlife trade.

Smuggling Routes

Where the laws against wildlife smuggling are enforced, the smugglers of course try to hide their routes. Unlike in the case of illegal logging or drug cultivation that can be detected by satellites and where, at least, the source of the illegal commodity and some expectation of trade routes can be established, illegal harvesting of wildlife often takes place over such extensive territory and is so hidden that detection is very difficult. The detection efforts and attempted law enforcement often result in the wildlife traffickers altering their routes or better hiding their products along the same routes. So many smuggling routes may remain undetected (which means that some of the information presented below might be woefully incomplete or outdated.)

With these qualifications, broad patterns of wildlife smuggling can nonetheless be described. First of all, most wildlife trade is undertaken locally and the bulk of it is done within countries.[66] Still, a large amount is traded internationally.[67] The trade of some species, the operations of large smuggling organizations, and often even smuggling routes are truly global. Ivory from an elephant slaughtered in Zambia may be trafficked first into Lagos, Nigeria, then into London, and then into Singapore before it reaches its final destination in Beijing. Moreover, internet trading in wildlife has increased greatly, often connecting suppliers and consumers across the globe.

In addition to being often highly circuitous to avoid detection, the routes tend to be very widespread, flexible, frequently changing, and highly diverse. As a result of law enforcement in known smuggling hubs or at established border crossings, the traffic often disperses away from trading posts and the smugglers traverse borders anywhere where terrain and lack of law enforcement permit.[68] Bulk shipments taken by cars, ships, or planes are divided into shipments taken by human couriers. Sales locations disappear from streets and move inside houses where only trusted customers and traders are allowed.

Paradoxically, national parks and other conservation areas tend to be frequent sources of smuggled wildlife. The fact that an area is designated as protected indicates to hunters and traders that it is rich in biodiversity and endangered wildlife, and perhaps also contains higher than normal density of particular species, thus facilitating hunting. Law enforcement in the protected areas often lacks the ability to be effective due to lack of resources (as well as low resolve because of corruption) for preventing poaching. Moreover, in many parts of Southeast and East Asia (as well as in Africa and Latin America) tribal communities live in biologically protected areas, including national parks; thus human and physical infrastructure exists for smugglers to exploit. Consequently, designating an area as protected may attract poachers and wildlife smugglers to the area,

[66] Rob Barnett, ed., *Food for Thought: Utilization of Wild Meat in Eastern and Southern Africa*, TRAFFIC East/Southern Africa, Nairobi, 2000, www.traffic.org/general-reports/traffic_pub_gen7.pdf; and Stephen Nash, *Sold for a Song: The Trade in Southeast Asian non-CITES Birds*, TRAFFIC International, Cambridge, 1994, www.traffic.org/species-reports/traffic_species_birds5.pdf.

[67] See, for example, Arthur Blundell and Michael Mascia, "Discrepancies in Reported Levels of International Wildlife Trade," *Conservation Biology*, 19(6), October 2005: 2020-2025; Peter Stoett, "The International Regulation of Trade in Wildlife: Institutional and Normative Considerations," *International Environmental Agreements: Politics, Law, and Economics*, 2(2), June 2002: 195-210; Edmund Green and Francis Shirley, *The Global Trade in Corals* (Cambridge: World Conservation Monitoring Centre, 1999); and Mark Auliya, *Hot Trade in Cool Creatures: A Review of the Live Reptile Trade in the European Union in the 1990s*, Brussels: TRAFFIC Europe, 2003, http://www.traffic.org/reptiles-amphibians/.

[68] EIA (2006).

undermining the very purpose of designating the area as protected.

Although particular routes and smuggling hubs vary substantially, general descriptions of the Southeast and East Asian trade can be provided.

Myanmar is probably the most important source country for a wide range of smuggled wild animals and plant species in Southeast Asia—vying for that sad title only with Laos. The border areas, such as semi-autonomous special regions, are areas of particularly intense hunting and collecting, both because law enforcement is limited and because their remoteness, isolation (partly due to five decades of war) and underdevelopment have shielded forests in those areas from the same level of destructions that other areas have faced. Tigers, bears, primates, leopards, clouded leopards, elephants, pangolins, reptiles and many other species are being hunted at extraordinary rates.[69]

Myanmar also contains several critical smuggling hubs, not just internally, but for the entire region. On the border with China, *Mong La* is one the world's largest and most diverse wild smuggling centers, where tiger, other big cats, and bear parts, reptiles, turtles, lizards, birds, orchids, and most any wildlife is available. *Tachilek,* on the border with Thailand, is probably the biggest pelt trading market in the world.[70] *Kyaiktyio* or *Golden Rock* is not only an important Buddhist pilgrimage area, but also one of Myanmar's largest hubs of the illegal wildlife trade, supplying both Thai tourists and Myanmar's residents with TCM elixirs and other products. Finally, the *Three Pagoda Pass* on the border with Thailand is yet another key trading hub, where skins, TCM, and live elephants are smuggled into Thailand. *Muse* used to be a key smuggling hub, but wildlife traffic through it has declined somewhat over the past several years.

After Myanmar, *Laos* is probably the second most important source country in Southeast Asia—supplying Thai consumers with reptiles, wild orchids, wild cattle, pets, food animals and other wildlife ingredients for TCM; supplying Vietnamese consumers with macaques and other primates, monitor lizards, freshwater turtles, and pangolins; and serving as a conduit of African ivory to China. (Interestingly, although it is one of the biggest suppliers of the illegal trade in wildlife, Laos exports relatively little of its wildlife products and commodities legally.)[71] *Vientiane* is one of its important smuggling hubs.

Cambodia is another important source country for various wildlife species, including primates. It gained notoriety (or fame among many Vietnamese traders and consumers) for its reptiles trade (such as from the Tonle Sap lake area). Preah Monivong (Bokor) National Park is poached for a variety of wildlife, while Phnom Penh is one of its important smuggling centers.

Vietnam, although having become a consumer country of exotic meats and TCM and even ivory due to the rising affluence of its population, remains a source country for a variety of wildlife, such as snakes, turtles and pangolins. Vietnam's major source areas are the Pu Mat and Tam Dao National Parks. Vietnam also is an important transshipment center for wildlife smuggled from elsewhere in Southeast Asia and even globally, such as African ivory. Its major smuggling hubs include *Hanoi, Haiphong, Vinh Yen*.

Thailand is a major processing and smuggling hub with Bangkok's Chatuchak wildlife market being

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[69] Myanmar is estimated to have about 150 tigers left in the wild, for example, but scientists believe at current hunting levels, tigers will become extirpated in the country in the not-too-distant future. See, for example, Madhu Rao, Than Myint, Than Zaw, and Saw Htun, "Hunting Pattens in Tropical Forests Adjoining the Hkakaborazi National Park, North Myanmar," *Oryx* 39(3), 2005: 292-300; and Kristin Nowell, *Asian Big Cat Conservation and Trade Control in Selected Range States: Evaluating Implementation and Effectiveness of CITES Recommendations*, TRAFFIC International, 2007, www.felidae.org/KNOWELLPUBL/abc_report.pdf.

[70] See, for example, Chris Sheperd and Vincent Nijman, *The Wild Cat Trade in Myanmar*, TRAFFIC-Southeast Asia, Malaysia, 2008, www.traffic.org/species-reports/traffic_species_mammals40.pdf; Chris Sheperd and Vincent Nijman, "The Trade in Bear Parts from Myanmar: an illustration of the ineffectiveness of enforcement of international wildlife trade regulations," *Biodiversity Conservation* 17 (2008): 35-42; and Esmond Martin, "Wildlife Products for Sale in Myanmar," *TRAFFIC Bulletin*, 17 (1997): 33-44.

[71] Nijman (2010): 2.

one of the world's biggest. In 2003, one raid there yielded 1,000 protected species worth $1.25 million.[72] However, Thailand has stopped being a major source country for most wildlife and evolved into a consumer country. Yet, it still supplies more than 90 percent of seahorses traded legally and illegally in Asia, with *Hong Kong and Taiwan* serving as processing locales for converting the seahorses into TCM. Hong Kong dominates the international market for seahorses, tropical fish and abalone. *Japan* is a critical player not only in fishing and global exploitation of the oceans, but also in preventing the tightening of environmental regulations on fishing and other marine ecosystems' use and conservation by insisting on whaling and by preventing the setting of tighter global quota on fishing, including in significant species, such as bluefin tuna.[73]

Thailand is also a key ivory smuggling area, with *Bangkok* being second only to Hong Kong in the size of the illegal ivory trade.[74] *Mae Sai*, sitting across from Tachilek, is not only an important ivory trading hub, but also a key illegal trading center for wildlife generally.

Malaysia continues to be a major source country for butterflies, reptiles and turtles, with *Penang* and *Kuala Lumpur* being important regional and global smuggling hubs and processing centers. Malaysia is also an important smuggling hub for wildlife from Thailand.

Singapore is another major hub for smuggling ivory from Southeast Asia (mainly Myanmar) and Africa and for processing the ivory into statues and curios for China's market and hankos (traditional personal seals) for Japan. And along with Malaysia, it is a major smuggling hub of reptiles for Japanese and European consumers and of pangolins for buyers in China, the United States and Mexico. Singapore is also the locus of major nodes in smuggling networks for Indonesian wildlife en route to China, other Asian countries, the European Union and the United States.

Indonesia is a major source country for tropical wildlife, ranging from coral, turtles and other reptiles to pangolins, tigers, rhinos and primates. Hunting areas spread out across the vast Indonesian archipelago, covering Sumatra, such as in Kota Lubuk Liggau and Borneo through Aceh. *The Philippines* is also a robust source country for wildlife traded illegally in Southeast Asia.

India, not surprisingly, is a major source country for tiger, leopard, snow leopard, clouded leopard skin trade, as well as other tiger parts trade. In India, tigers are poached from national parks (NP) throughout the country, from Kaziranga in the Northeast to Panna in Madhya Pradesh, having been extirpated in Sariska and Panna NPs as a result of hunting. Skins and other parts of big cats are often sent from India through Myanmar or Nepal into China. *Nepal* also supplies the Tibetan antelope trade for shashtoosh shawls. Atypically, the antelopes are poached in China, and then smuggled via Nepal into India, including Kashmir.

Finally, there is the huge role of *China*. Beyond being the biggest regional and worldwide consumer of shark fins, civets, pangolins, tiger and bear parts, turtles, snakes and many bird species, China harbors major transshipment and processing networks and facilities for wildlife originating in Southeast, South and East Asia and Africa.[75] Among the major transshipment centers are *Daluo* (across from Myanmar's Mong La),

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[72] World Bank (2005).

[73] For details on Japan's activities to subvert any tighter regulation on fishing and for the sources and evolutions of its insistence on hunting whales and dolphins, see, for example, David Jolly, "Whaling Talks in Morocco Fail to Produce Reductions," *The New York Times*, June 23, 2010; Shino Yuasa, "Australia Sues Japan over Controversial Whaling," *Associated Press*, June 1, 2010; Martin Fackler, "Uncertainty Buffets Japan's Whaling Fleet," *The New York Times*, May 15, 2010; David Jolly and John Broder, "U.N. Rejects Export Ban on Atlantic Bluefin Tuna," *The New Yrok Times*, March 18, 2010; Blaine Harden, "Japan Says It Won't Comply with Bluefin Tuna Ban," *The Washington Post*, March 5, 2010.

[74] Daniel Stiles, *Elephant and Ivory Trade in Thailand*, TRAFFIC-Southeast Asia, Petaling Jaya, Selangor, Malaysia, 2009.

[75] Collection and hunting continues also in China itself, for example, for hawks and geckos. Animals and plants from inland provinces, such as Hunan, Sichuan, Jiangxi, and Gansu are first brought to Guangzhou, from which they are distributed throughout China.

Jie Gao (across from Myanmar's Muse), *Ruili, Xishuangbanna*, and *Kunming* in Yunnan Province, *Nanning, Pingxiang*, and *Dongxing* in Guangxi, *Haikou* in Hainan, *Guangzhou* (where the Chatou Wild Animal market is the hub of snake trade, the Qingping Market for turtles, and the Panjiayuan Market for ivory) in Guangdong; and *Xining* and *Germu* in Qinghai Province. The town of *Linxia* in Gansu province is one of the world's largest smuggling hubs and processing centers of furs, with over 90 shops selling skins from endangered cats in the notorious Bei Da Jie market, living up to its long tradition of fur and skin processing.[76] Many of these provincial capitals are also major consumption loci. Other major consumptions centers include Beijing, Shanghai, Hong Kong, Kunming and Guangzhou and other big cities with affluent Cantonese populations. Lhasa in Tibet is an important transshipment and consumption area for ivory as well as furs, including tiger furs used in traditional *chupas* (costumes used for celebrations).

Government Action

In Southeast and East Asia, government policies to prevent illegal trade in wildlife continue to be generally characterized by weak laws governing wildlife trade, limited enforcement and low penalties. Government efforts to inform publics largely unaware of (and often indifferent to) how their consumer behavior contributes to the devastation of ecosystems in the region and worldwide also continue to be inadequate.

Punishments for wildlife traffic typically include financial penalties and limited jail terms. In Singapore, a person found guilty of smuggling a CITES-protected species can be fined $50,000 for each species, and up to $500,000 and face a two-year jail term.[77] In India, the penalties for tiger, snow leopard or leopard traders are a minimum fine of $440 (rising for subsequent offenses) and three to seven years of imprisonment. In Nepal, trading of endangered cats carries a tougher penalty—a fine of $1400 and a prison term of five to 15 years.[78] In Myanmar, possession or trade of protected species carries a penalty of $7450 and/or imprisonment for up to seven years.[79] In India, killing an elephant carries a penalty of approximately $100 to $500.[80] In China, traders in illegal wildlife can face fines, confiscation of property, five to ten years of imprisonment, and even the death penalty.[81] However, since enforcement is often lacking, for many poachers and wildlife traders, hunting and smuggling continues to be a low-risk, high-gain pursuit. During police interdiction operations against smugglers in China, for example, perpetrators usually have their contraband confiscated and they are given an "awareness" lecture, but criminal charges are rarely filled.[82]

Nonetheless, there has clearly been intensification and improvement of government action. Facing decades of pressure from conservation groups and Western governments, and increasingly seeing the devastating ecological consequences of the lack of conservation efforts, such as in China, many governments have at least publicly come to accept that conservation and anti-wildlife smuggling concerns cannot be dismissed as Western imperialism and hypocrisy or NGO folly. Although the narrative that the West has destroyed its ecosystems and hence has no right to lecture the people in Asia remains common among the public, it is less often expressed by government officials. Since the accession of Laos in 2004, all of the governments in the region are now parties to the CITES treaty. In 2006, with funding from the United States Agency for International Development, the Association of Southeast Asian Nations created the ASEAN-Wildlife Enforcement Network (ASEAN-WEN) to facilitate law enforcement against wildlife traffic, bring

[76] EIA (2006): 6 and TRAFFIC, "Porous China-Myanmar Border Allowing Illegal Wildlife Trade," March 16, 2010. At least 80,000 people in Linxia are engaged in the skin and fur business, the majority mainly in trading sheepskin, cow leather, and furs from fox and otter.
[77] Nicholas Yong, "Drop in Illegal Wildlife Trade Here," *Straits Times*, May 2, 2009.
[78] EIA (2006): 3.
[79] Shepherd and Nijman (2008): 2.
[80] TRAFFIC-India, *An Assessment of the Domestic Ivory Carving Industry and Trade Controls in India*, February 2003, www.traffic.org/species-reports/traffic_species_mammals20.pdf.
[81] EIA (2006): 3.
[82] TRAFFIC, *The State of Wildlife Trade in China, 2008* (2008): 5.

together customs agents, park rangers, prosecutors and police, and share best practices.

Many governments in the region have toughened laws and increased law *enforcement*, mounting raids and interdiction operations with greater frequency and perhaps also somewhat greater scope. Vietnam, facing the threat of CITES-based sanctions, also enacted legislation against wildlife traffic. In 1991 China, for example, banned ivory imports (but permitted trading of ivory imported before 1991), and in 1993 it banned the trade in rhinoceros horn and tiger bone (while permitting trade in tiger products obtained from captive-bred animals). In early 2004, Chinese authorities seized 31 Bengal tiger skins, 581 Asian leopard skins and 778 otter skins worth more than $1.2 million, in one of the PRC's largest interdiction hauls.[83] Following the outbreak of SARS believed to have sprung from civets in southern China's wildlife markets, Chinese officials cracked down on the markets as well as the eating of exotic meats, launching Operation Thunderstorm. Once the SARS crisis dissipated, however, both law enforcement efforts as well as the willingness of consumers to abstain from exotic meats weakened significantly. Moreover, many threatened species still lack legal protection in China, such as sea horses, live reef fish, sharks, sea cucumbers and abalone.[84]

In 1991, Thailand was subject to a CITES ban because the illegal wildlife trade there, including in ivory, was so pervasive. Subsequently, the Thai government has intensified efforts to stem the traffic, mainly by intensifying its interdiction efforts through increased frequency of raids and the creation of special task forces and dedicated wildlife-traffic units. Nevertheless, since the monitoring of its legal ivory stocks (from domesticated elephants) continues to be poor, illegal ivory continues to be easily mixed into the legal stocks, and Thailand still remains a critical transshipment hub for illegal ivory worldwide. Similar problems with the leakage of illegal ivory into legal stocks have also occurred with alarming frequency in Japan, whose government often described the regulations and monitoring systems of its legal ivory as tight.[85]

Other *certification and licensing schemes* adopted by governments in the region, such as those for tiger and bear farms in China, remain porous and allow the laundering of wild-caught animals into the legal market, thus undermining conservation. (Not to mention the appalling conditions in which many of the animals are kept at the farms, such as thousands of bears crammed in tiny cages with catheters implanted in their gall bladders constantly milking their bile or tigers so poorly fed in Chinese zoos that they resort to cannibalism.[86])

Realizing the inadequacies of the certification system, the Government of China announced stricter rules in August 2008, under the rubric of "Special Labeling for China Wildlife Management and Utilization." The labeling system applies to wildlife products produced and traded in compliance with the law. It includes, for example, pangolin scales; drugs, cosmetics, and leather goods, made from rare snakes; tiger and leopard skin and organ products. In December 2008, the government further toughened regulations for ivory processing and stocks, improving information systems and encouraging self-regulation of the industry.[87] How much the new system will improve the situation remains to be seen, but there are reasons to doubt that it will be very effective in the absence of a reduction in demand for wildlife in China.

Moreover, the dangers of greenwashing—the increase in demand for a product as a result of misleading certification and labeling—are significant. Governments and NGOs that provide such certification of ecological sustainability often conduct only cursory and sporadic monitoring and oversight. Even the Marine Stewardship Council, founded in 1995 by World Wildlife Fund and Unilever, then a big seafood

[83] Gray (April 4, 2004).
[84] TRAFFIC (2007).
[85] EIA (2002). For management approaches and challenges in other important illegal ivory markets in Asia, see, for example, TRAFFIC-India (2003).
[86] Xiyun Yang, "Tiger Deaths Raise Alarms About Chinese Zoos," *The New York Times*, March 18, 2010.
[87] TRAFFIC, *The State of Wildlife Trade in China, 2008* (2008): 29.

retailer, often-thought as the gold-standard of fish certification, has come under criticism for issuing problematic certifications. Since such ecolabelling is often conducted by third-party contractors and is paid for by the wildlife companies or industries themselves, such as in fishery, the potential conflict of interest is not insignificant and can undermine the credibility and usefulness of such eco-certification.[88]

Overall, enforcement of wildlife regulations and CITES obligations still remain at the bottom of law enforcement priorities and continue to be spotty, sporadic and insufficient to apprehend and deter key smugglers and disrupt key smuggling nodes. Implementation of toughened laws continues to be severely lacking. As is often the case, prosecution and penalties are frequently applied only to the lowest levels of the smuggling chains, such as impoverished hunters and low-level smugglers. Only occasionally, arrests and successful prosecutions of top wildlife kingpins, such as Sansar Chand, have occurred. Unlike in the United States, where the Lacey Act[89] makes it a federal crime to violate any wildlife laws, including those of foreign countries, and a wildlife smuggler does not have to be caught in possession of an illegal commodity (such an animal) to face prosecution, many countries in Southeast and East Asia retain weaker laws. For example, in Malaysia, a person must be caught in possession of a wildlife item shown to be sourced or traded illegally to be subject to felony charges, thus allowing big traffickers to remain at large.

In short, law enforcement clearly has been inadequate to significantly reduce the size of the illegal trade in wildlife. On some occasions, immediately following interdiction operations, such as by Chinese authorities in Linxia and elsewhere after the SARS outbreak, illegal markets in wildlife shrank. Often, however, increased interdiction efforts have simply driven the trade underground or displaced it to other locations while demand continues to expand.

Illicit Trade in Wildlife in Southeast Asia (1)

	Species	Region	Demand	Export/Import Destinations	Government Policy
Vietnam	snakes, turtles, birds, sea horses, pangolins	Pu Mat and Tam Dao National Parks. Hanoi, Haiphong, and Vinh Yen are also important global transshipment centers.	In the early 1990s, the illegal wildlife trade in Vietnam was conservatively estimated at $24 million annually and at $66.5 million during the early 2000s.	Vietnam remains a source country as well as a growing comsumer. Exports to China and Thailand.	In 2002, decrees 11/2002/ ND -CP, and 48/2002/ND -CP were established in order to amend and supplement the list of precious and rare wild plants and animals. In 1992, decree 18/HDBT stipulated the categories of rare and precious forest fauna and flora, and their management and protection.
Cambodia	primates, reptiles	Tonle Sap lake area and Preach Monivong (Bokor) National Park. Phnom Penh is one of Cambodia's most important smuggling centers.	From 1999 to 2000, over 8,500 water snakes (comprising five species) were estimated harvested per day from Cambodia's Tonle Sap, primarily for local subsistence and trade, possibly representing the greatest exploitation of any single snake assemblage in the world.	Cambodia is primarily a source country, particularly for reptiles and primates. Exports to Thailand and Vietnam	Since 2002, the Cambodian Forestry Law has provided a legal basis for rural communities to participate in forest management through community forestry (6); In February 28, 2008, the National Biosafety Law came into force to ensure the safety of biological resources and human beings associated with the application of biotechnology (7).

[88] See, for example, David Jolly, "Krill Harvest Certification Upsets Conservationists," *The New York Times*, June 22, 2010.
[89] Wyler and Sheik.

	Species	Region	Demand	Export/Import Destinations	Government Policy
China	tigers, antelopes, pangolins, seahorses	South China Sea.	An estimated 20 million seahorses are taken annually from the South China Sea. Musk deer males are hunted for their valuable scent glands, or pods, for which there is a heavy demand in China. In early 2004, Chinese law enforcement seized the skins of 31 tigers. In 2005 there were only 50 tigers estimated to be left in the wild in China—worth more than $1.2 million.	China is the Greater Mekong Sub- region's largest consumer, particularly of animal and plant products used as food and ingredients in traditional Chinese medicine. Imports from Mongolia, Cambodia, Vietnam, Laos and Myanmar.	China's 1989 Wild Animal Protection Law was formulated in order to protect, develop, rationalize and save species of endangered wildlife resources (8). In December 2003, the CITES Management Authorities of Vietnam and China signed an agreement to cooperate on strengthening CITES controls along the shared border.
Malaysia	butterflies, pangolins, reptiles, turtles	Penang and Kuala Lumpur are important regional and global smuggling hubs and processing centers.	From November 2008 to September 2009, 15,332 monitor lizards were exported illegally. In 2008, 22,000 tortoises were also exported illegally (2).	Malaysia is another important source country for illicit wildlife trade into and through Southeast Asia. Imports from Thailand.	The 2010 Wildlife Conservation Bill provides significantly higher penalties and mandatory jail terms for wildlife crime (9). The Sarawak: Sarawak Wildlife Protection Ordinance (1998) provides better instruments for the protection of wildlife, the establishment and management of wildlife sanctuaries and such (10).
Thailand	pangolins, seahorses	Bangkok comes only second to Hong Kong in the size of illegal ivory trade. Gulf of Thailand. River border between Thailand and Laos.	In Thailand, in 2003, a one day raid on Bangkok's Chatuchak market seized 1,000 protected species worth $1.25 million. From 1998 to 2007, an estimated 94 percent of all seahorses imported throughout Southeast Asia came from Thailand (2).	Thailand, formerly a major source of wild species, is now chiefly a consumer, particularly of high-value pets, trophies and food products, while also playing an important role as a regional and global trade conduit. Imports from Myanmar, Laos and Cambodia. Exports to Malaysia.	In 2003, Thailand established a special Wildlife Task Force to combat the illegal trade. Thailand is also considering the use of the death penalty for illegal wildlife trafficking, and in coordination with the Royal Thai Army and the Anti-Money Laundering Office (AMLO), invoking anti-money laundering laws to seize the profits of illegal wildlife traffickers.
Burma	pangolins, reptiles, turtles, birds, orchids, tigers, big cats, bear parts	Mong La is considered one of the world's largest and most diverse wildlife smuggling center. Other smuggling hubs are Three Pagoda Pass, Tachilek, which is the biggest pelt trading market in the world, and Kyaiktyio (or Golden Rock)-both supply Thai tourists and Burma's residents with traditional chinese medicines (TCM) elixirs (3).	In 1999, a reported annual 2 million snakes were exported or confiscated illegally (4).	Along with Laos, Burma is probably the most important source, as well as a conduit, country for a wide range of wild animal trade. Wildlife products go through Burma and into the Great Mekong Sub-region.	The Protection of Wild Life and Wild Plants and Conservation of Natural Areas Law (1994) focuses on identification of nature reserves, establishment of zoological gardens and botanical gardens, protected wildlife and wild plants, permission for hunting, conduct of research studies, administrative action, offences and penalties (11).

	Species	Region	Demand	Export/Import Destinations	Government Policy
Laos	reptiles, wild orchids, macaques, fresh water turtles, monitor lizards, pangolins	Vientiane is considered a prime trading hub.	The greatest threat to Laos wild species is the country's over-harvesting for international and domestic trade and consumption (WCS Lao Program, 2003), which puts Laos in danger of falling under the "empty forest syndrome"—all trees and no animals. In 1999, the value of wildlife smuggled into Vietnam from Laos along one route alone was estimated at $11.8 million.	Exports to Thailand and Vietnam	Within the past few years, political will in Laos PDR to address illegal wildlife trade has improved. For example, regulations on wildlife trade were amended in December 2003, and efforts to confiscate illicit wildlife cargoes by the Vientiane Forestry Department have increased.
Singapore	reptiles, pangolins, macaques (5)		From 1998 to 2007, 67 percent of reptiles imported illegally throughout Southeast Asia came from Singapore (5).	Imports from Indonesia, China, and Malaysia (5).	The Endangered Species (Import & Export) Act was established in 1989 in order to control the importation, exportation and introduction from the sea of certain animals and plants, as well as parts of such animals and plants (12).

(1) All data in this chart with the exception of (2), (3), (4), (5), (6), (7), (8), (9), (10), (11), and (12) extracted from World Bank, 'Going, Going, Gone…The Illegal Trade in Wildlife in East and Southeast Asia', (Washington, DC), 2005.
(2) Vincent Nijman, 'An Overview of International Wildlife Trade from Southeast Asia', Biodiversity Conservation, 19, 2010, p.1105.
(3) Chris Sheperd and Vincent Nijman, 'The Wild Cat Trade in Myanmar', TRAFFIC-Southeast Asia, Malaysia, 2008; Chris Sheperd and Vincent Nijman, 'The Trade in Bear Parts from Myanmar: an Illustration of the Ineffectiveness of Enforcement of International Wildlife Trade Regulations', Biodiversity Conservation 17 (2008): 35-42; and Esmond Martin, 'Wildlife Products for Sale in Myanmar', TRAFFIC Bulletin, 17 (1997): 33-44.
(4) Nijman: 'An Overview of International Wildlife Trade', p.1110.
(5) Nijman: 'An Overview of International Wildlife Trade', p.1105-1109.
(6) The NGO Forum of Cambodia, http://www.ngoforum.org.kh/eng/core/flpp_background.php, accessed on June 17, 2011.
(7) Cambodia Biosafety Clearing House, http://www.cambodiabiosafety.org/index.php?option=com_facileforms&ff_name=law_main_public&Itemid=164&ff_param_curid=1&ff_page=2&init=1, accessed on June 17, 2011, and Phonm Penh, "National Biosafety Framework", June 2004, available at http://www.unep.org/biosafety/files/KHNBFrep.pdf, accessed on June 17, 2011, p. VII
(8) 'Law of the People's Republic of China on the Protection of Wildlife', available at http://www.china.org.cn/english/environment/34349.htm, accessed on June 17, 2011.
(9) 'Malasya gets tough new wildlife law', TRAFFIC, avalaible at http://www.traffic.org/home/2010/8/6/malaysia-gets-tough-new-wildlife-law.html, accessed on June 17, 2011.
(10) 'Laws of Sarawak, Wildlife Protection Ordinance, 1998', available at http://www.petpitcher.com/wp-content/uploads/2008/07/sarawak-wildife-protection-ordinance-1998.pdf, accessed on June 17, 2011, p. 4.
(11) UNDP, 'State of the Environment in Myanmar', available at http://www.mm.undp.org/UNDP_Publication_PDF/Env%20Sheet.pdf, accessed on June 17, 2011.
(12) Available at http://eelink.net/~asilwildlife/singapore1.pdf, accessed on June 17, 2011, p.1.

Policy Considerations and Effectiveness

As with other illicit economies, evaluating the effectiveness of policy measures is difficult. The lack of baselines and insufficient data compound the difficulties, and establishing causality for complex ecological and social phenomena is a complicatedundertaking. Often, there is enormous uncertainty regarding the species status and population trends, the size of legal and illegal exploitation, the exact locale-specific drivers of harvesters, the causes of decline of a species and the relative importance of the trade—as opposed, for example—to habitat degradation, for example, the definition and level of sustainable exploitation, and the interactive dynamics among these factors. It is thus imperative to tailor policies to particular local cultural and institutional settings as well as to particular ecological needs of particular species in particular locales. That of course implies that effective regulation requires an enormous amount of case-specificity and imposes great demands on local data generation and monitoring over time.

Despite the difficulties, some broad advantages, disadvantages and trade-offs of particular policy

approaches can be established, and some guidelines for dealing with the basic dilemmas and (situation-specific) complexities can be derived.

Supply-side Measures

Increased Law Enforcement

Benefits

Clearly, there is an urgent need to intensify law enforcement efforts against wildlife smuggling in Asia. An increase in resources, frequency of law enforcement action, strict corruption-reduction programs among law enforcement officials, toughening of laws (and possibly penalties) and the elimination of legal loopholes would each likely have some positive effect in reducing the trade, given the very low baselines in the wildlife regulation and conservation enforcement in Asia. Aaron Bruner et al, for example, have shown that the effectiveness of protected areas most strongly correlates with the density of guards.[90] Similarly, Hugo Jachmann has shown that intensified law enforcement resulted in reduced poaching of elephants in Zambia.[91]

Costs and Difficulties

However, the extent of the positive effect remains a question mark, and there are reasons to doubt how ultimately effective law enforcement against wildlife trafficking can ultimately be. Unlike in the case of other illegal economies, the supply areas for wildlife are extremely extensive and shipments are often small even while the overall volume of traffic is immense, making detection of poaching or hunting extraordinarily difficult. Beyond spot detection, it is hard to imagine how law enforcement could be beefed up to succeed on its own in substantially reducing traffic. Consequently, both the incapacitation and deterrent effects of law enforcement will inevitably remain limited even at far greater enforcement levels. (Still, given how weak wildlife trade law enforcement currently is in Asia, greater law enforcement efforts are likely to boost the incapacitation and deterrent effects from their current state of ineffectiveness.) Yet, total monitoring of internal territories as well as international borders and smuggling routes is simply impossible.

More often than not, law enforcement simply drives black markets, including in wildlife, underground and out of view as well as to new areas with lesser enforcement, but does not necessarily reduce them. As the previous empirical illustrations show, just like with other illegal economies, law enforcement often also contributes to the vertical integration and professionalization of the wildlife smuggling groups. Such organizational changes, in turn, make criminal groups more lethal and give them the capacity to act on a large-scale, neither of which is a positive outcome from conservation and law enforcement perspectives. The fact that less competent and determined hunters and smugglers may be eliminated from the illegal wildlife market does not inevitably imply a reduction in the incidence and intensity of poaching.

Bans and Blanket Bans

Many of the problems stemming from intensified enforcement are driven by underlying problems related to bans, especially blanket bans, on trade in particular commodities, including wildlife.[92]

Benefits

Bans do have some key advantages. Blanket bans simplify law enforcement as they eliminate the need to determine whether a wildlife product came from illegal sources (such as the wild or a sanctioned country) or legal ones, and thus minimize the possibility of laundering illegal wild-caught animals through the loopholes of legal supply. Bans do discourage some hunters, traders and consumers: the fact that

[90] Aaron Bruner, Raymond E. Gullison, Richard E. Rice, Gustavo A.B. da Fonseca, "Effectiveness of Parks in Protecting Tropical Biodiversity," *Science*, 291(5501), January 2001: 125-128.

[91] Hugo Jachmann, "Elephant Poaching and Resource Allocation for Law Enforcement," in Sara Oldfield, ed., *The Trade in Wildlife* (London: Earthscan, 2003): 100-107.

[92] For a comprehensive discussion of the pros and cons of blanket bans, see, for example, Rosie Cooney and Paul Jepson, "The International Wild Bird Trade: What's Wrong with Blanket Bans?" *Oryx* 40(1), January 2006: 18-23.

something is illegal may cause sufficient moral and psychological discomfort for some to dissuade them from particular behaviors. The mere proposal to place devil's claw (a plant from Southern Africa used as a natural remedy for arthritis and traded globally with a principal market in the European Union) on the CITES Appendix II so diminished the market in Europe that it generated very substantial income losses to poor African subsistence harvesters who depended on it for income.[93] In this case, the demand market was highly susceptible to perceptions of legality and sustainability. The threat of punishment through law enforcement may discourage others. A restriction of supply will also drive up price, thus perhaps pricing out some potential buyers.

In Europe and the United States, for example, the 1989 ban on ivory did significantly contribute to a decline in sales, and along with an extensive NGO campaign about the horrors of elephant poaching, apparently also helped drive demand down in those regions. The ban perhaps helped slow a precipitous decline in African elephants; but even so, the elephant population in Africa, estimated at 1.3 million in 1980, is down to less than 500,000 today.[94] The ban on wild bird trade in United States and Europe registered similar positive outcomes. Official exports of wild birds from four of the five leading bird-exporting countries fell by more than two thirds between the late 1980s and 1990s, a decline often attributed to the U.S. import ban.[95] In both cases, the bans were implemented in societies with high environmental and conservation consciousness and far greater law enforcement and legal capacity for wildlife regulation than are present in many Asian, African or Latin American countries.

Costs and Difficulties

The ivory ban, however, has not been successful with respect to the Asian market for ivory. Neither the ban, nor intensified law enforcement have been sufficient to reduce demand for ivory in Asia. In fact, the demand continues to grow,[96] even as the price of ivory has increased from $100/kg at the beginning of the 2000s to $1,800/kg in 2010.[97] In Thailand, Japan and China, ivory products continue to be a source of great prestige. It is not unusual to find ivory carvings in the homes of high government officials, military and police officers, as well as Buddhist temples. Moreover, although the 1989 ban on legal ivory trade disrupted supply networks temporarily, over time, smugglers developed new routes and smuggling chains independent of the previously legal ivory supply, and were able to resurrect supply levels to Asia. Thus, poaching in Africa, especially in Zambia and Tanzania, has once again intensified, with the illegal trade estimated at $264 million during the 2000s.[98] Thus, at the end of the 2000s, 8-10 percent of the elephant population had been poached annually.[99] (Some assessments suggest that only 7 percent of the elephant population was poached before the ban.)[100]

The initial increase in law enforcement in Africa against elephant poaching following the 1989 ban also had a negative side-effect. Even before poaching in Africa increased again since the late 1990s, poaching was displaced from Africa into Asia where the remaining wild elephants were intensively illegally hunted.[101]

Similarly, the parrot ban was limited in its effectiveness, as it did not address all significant demand markets. The U.S. ban—coupled with the legal supply from captive stocks in the United States and elsewhere

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[93] Cyril Lombard and Pierre du Plessis, "The Impact of the Proposal to List Devil's Claw on Appendix II of CITES," in Sara Oldfield, ed., *The Trade in Wildlife* (London: Earthscan, 2003): 132-146.

[94] Neil MacFarquhar, "Talks to Address Trade in Tuna and Ivory," *The New York Times*, March 11, 2010.

[95] "Call of the Wild," *The Economist*, March 8, 2008.

[96] For a similarly differentiated outcome of environmental bans effectiveness on the level of trade and demand between the United States and Europe on the one hand and Asia on the other hand, see, for example, Wells' and Barzdo's discussion of the ban on turtles. S.M. Wells & J.G. Barzdo, "The International Trade in Marine Species: Is CITES a Useful Control Mechanism?" *Coastal Management,* 19, January 1991: 146.

[97] Michael Casey, William Foreman, and Jason Straziuso, "Asian Ivory Trade Poses Danger to African Elephant," *The Washington Post*, May 16, 2010.

[98] Samuel K. Wasser et al, "Elephants, Ivory, and Trade," *Science*, 327(5971), March 12, 2010: 1331-1332.

[99] Ibid.

[100] "Call of the Wild," *The Economist*, March 8, 2008.

[101] In the past several years, poaching in many parts of Africa with weak state capacity and violent conflict, such as Zambia and the Congo, has increased again. See, for example, John Frederick Walker, "Selling Ivory to Save the Elephants," *The Washington Post*, October 17, 2009; and John Frederick Walker, *Ivory Ghosts: The White Gold of History and the Fate of the Elephants* (New York: Grove Press, 2010).

discussed below—helped to drive the U.S. and EU demand for parrots in Brazil down, and is frequently considered a conservation success.[102] However, while law enforcement for international parrot trade was increased in Brazil, Brazil's domestic trade in parrots, especially in popular mimics such as the blue-headed parrot, has continued unabated and is having significant negative consequences for particular species. Conservation awareness in Brazil continues to be severely lacking.[103]

As bans and criminalization drive up the price for smuggled wildlife, they inadvertently generate increased monetary incentives for poachers and smugglers to participate in the illegal economy. Scarcity of a species, including as a result of poaching, drives up its price.[104] Phillippe Rivalan et al have shown the paradoxical effect that placing a species on the endangered species list can actually result in its greater slaughter. Calling a species "endangered" indicates to smugglers its increased scarcity and therefore greater value as well as the urgency in catching remaining specimens before the competition gets them.[105] Many poachers and traders are fully aware that what they are doing is illegal and are not discouraged by the knowledge.[106] For similar reasons discussed above, designating a place as a protected area also serves to attract poachers (even though hopefully contributing to conservation in other ways and providing some increased enforcement in the designated area.)

Thus, the ban on rhino horn, highly prized in TCM, has not managed to halt a precipitous decline in the species even though when CITES came into force in 1975, the five rhinoceros in the world were among the first species to be banned under the convention. Since the ban, the black rhino went extinct in at least 18 countries, and the global population of all rhino species has fallen from 75,000 in the early 1970s to 11,000 at the end of the 2000s.[107] Price for rhino horn on the black market escalated sharply while law enforcement has been insufficiently resourced.[108] However, in the absence of a comparative controlled case, it is very difficult to answer whether in the absence of the ban, the trade in rhino horn would have been even more intense and the species would have declined considerably more. What seemed to have contributed more robustly to rhino preservation have been *in situ* conservation measures, such as protection of habitat for the remaining populations, concentration of law enforcement, and even dehorning of live rhinoceros to reduce their attractiveness to poachers.[109]

In short, the effectiveness of bans depends on many factors, including law enforcement capacity, the elasticity of demand, the strength of non-price driven effects on consumer preferences (such as seeing the natural world as intrinsically valuable or oneself as environmentally-responsible), the property rights regimes in place, the timing of the ban and the value of non-consumptive uses, such as ecotourism.[110] For

[102] See, Timothy Wright et al., "Nest Poaching in Neotropical Parrots," *Conservation Biology*, 15(3), 2001: 710-720; and Brendan Moyle, Regulation, Conservation, and Incentives, in *The Trade in Wildlife: Regulation for Conservation*, in Sara Oldfield (London: Earthscan, 2003): 41-51; and Jorge Rabinovich, "Parrots, Precaution and Project Ele: Management in the Face of Multiple Uncertainties," in Rosie Cooney and Barney Dickson, eds., *Biodiversity and the Precautionary Principle: Risk and Uncertainty in Conservation and Sustainable Use* (London: Earthscan, 2005): 173-188.

[103] Author's interviews about illegal trade in wildlife in Brazil, the lower Amazon and Pantanal, December-January 2009-2010.)

[104] For how increase in prices subsequent to a ban has fueled the trade in rhino horn, see, for example, 't Sas Rolfes, "Assessing CITES: Four Case Studies," in John Hutton and Barnabas Dickson, eds., *Endangered Species, Threatened Convention: The Past, Present, and Future of CITES* (London: Earthscan: 2000): 69-87.

[105] See, Philippe Rivalan et al., "Can Bans Stimulate Wildlife Trade?" *Nature* 477 (7144), May 31, 2007: 529-530.

[106] See, for example, Sherperd and Nijman (2008) and TRAFFIC-India (February 2003).

[107] "Call of the Wild," *The Economist*, March 8, 2008. In the early 1900s, the global population of all species of rhinoceros has declined by hundreds of thousands. See, Nigel Leader-Williams, "Regulation and Protection: Successes and Failures in Rhinoceros Conservation," in Sara Oldfield, *The Trade in Wildlife* (London: Earthscan, 2003: 89.

[108] See, Leader-Williams.

[109] Ibid.

[110] See, for example, Carolyn Fisher, Does Trade Help or Hinder the Conservation of Natural Resources," *Review of Environmental Economics and Policy,* 4(1), 2010: 103-121; Dilys Roe, Teresa Mulliken, Simon Milledge, Josephine Mremi, Simon Mosha, and Maryanne Grieg-Gran, *Making a Killing or Making a Living? Wildlife Trade, Trade Controls, and Rural Livelihoods*, Biodiversity and Livelihoods Issues No. 6, IIED and IUCN, London, March 2002; Edwin H. Bulte, Richard D. Horan, and Jason F. Shogren, "Elephants: Comment," *The American Economic Review* 93 (2003): 1437-1445; Richard D. Horan and Edwin H. Bulte, "Optimal and Open Access Harvesting of Multi-Use Species in a Second-best World," *Environmental and Resource Economics,* 28, 2004: 251-272, and Paul C. Missios, "Wildlife Trade and Endangered Species Protection," *The Australian Journal of Agricultural and Resource Economics* 48, 2004: 613-627.

bans to be effective, they must be coupled with reductions in demand (whether or not the result of the ban), and they must not undermine incentives for conservation.

Legal Supply from Captivity or Certified Sources, such as Managed Legal Hunting

Allowing a legal supply of the demanded animals, plants, and products is similarly fraught with difficult dilemmas and less-than perfect outcomes.

Benefits of Legal Supply

On the positive side, legal supply—whether from managed and well-regulated capture from the wild or from farms and captive breeding facilities—has several important advantages:

First, farming can take pressure off of wild resources: instead of obtaining the animal caught in the wild, consumers will obtain it from farms. As already discussed above, the U.S. ban on the import of wild birds is often deemed as successful, with consumers of parrots supplied from captive stocks in the United (each bird accompanied by a certificate of captive origin), thereby reducing nest-poaching in the neotropics. Farmers and ranchers of captive-bred species could even become proponents of bans on the wild trade to increase their market share.

Another important success of licensed farming has been the trade in crocodilians (crocodiles, caiman, and alligator species). By the 1970s, more than two million crocodilian skins were found in the trade, and there was strong evidence that many wild crocodilian populations had drastically fallen. In 1975, CITES prohibited trade in all crocodilian species sourced from the wild, but licensed commercial trade in them if they were bred in captivity. After 1980, the trade in crocodilian skins came to be dominated by skins from captive breeding, while the number of skins from wild animals in the trade has declined by several orders of magnitude and wild populations have rebounded in many countries. Incidences of skin laundering have by and large been dealt with effectively, including by requiring that all crocodilian skins and skin parts be recorded and tagged.[111] The eleven most commercially-valuable species of crocodilians are the species least threatened with extinction.[112] What is perhaps most striking and unique about the outcome is the fact that unlike in the case of other species and taxa, the success of legal management, trade, and conservation of crocodilians took place regardless of the country in which it occurred, with great variation in the level of economic development, the quality of governance in those countries, and environmental consciousness of harvesters and consumers among the countries.[113] The trade in crocodilians came to be widely considered as a model of the effectiveness of market-led conservation.[114]

Second, allowing some level of trade can give hunters, ranchers, and other people close to the wild resource a stake in preserving the species and the entire ecosystem and managing it sustainably. Managed hunting thus reduces the pressure on converting land from its natural state to cattle ranching or agricultural cultivation. Often, competition for land between poor populations and wildlife puts wildlife, such as elephants, at risk anyway, as rural populations see wildlife as pests and kill them. Without being able to derive any value from wildlife (in the absence of legal or illegal trade), local populations thus may have no stake in any conservation of the species. If bans and other restrictions on land use and requirements for conservation impose significant costs on local

[111] Jon Hutton and Grahame Webb, "Crocodiles: Legal Trade Snaps Back," in Sara Oldfield, ed., *The Trade in Wildlife* (London: Earthscan, 2003): 108-120.

[112] James Perran Ross, ed., *Crocodiles: Status Survey and Conservation Action Plan*, IUCN-The World Conservation Union, 1998, http://iucncsg.org/ph1/modules/Publications/action_plan1998/plan1998a.htm.

[113] Ibid.

[114] See, for example, John Thorbjarnarson and Alvaro Velasco, *Venezuela's Caiman Harvest Program: A Historical Perspective and Analysis of Its Conservation Benefits*, Wildlife Conservation Society Working Paper No. 11, 1998, and John Loveridge, *A Review of Crocodile Management in Zimbabwe*, Mimeo Report, Department of Biological Sciences, University of Zimbabwe, 1996; and Henriette Kievit, "Conservation of the Nile Crocodile: Has CITES Helped or Hindered?" in Jon Hutton and Barnabas Dikson, eds., *Endangered Species: Threatened Convention: The Past, Present, and Future of CITES* (London: Earthscan, 2000).

owners, they may even want to extirpate the species from their lands to avoid such conservation costs. Managed hunting, on the other hand, puts money in their pockets legally, perhaps even raising their standard of living (as many poachers continue to be desperately poor.) Similarly, the frequent argument for encouraging the consumption of wild meat and allowing trophy hunting of big game on private properties in Africa is that this motivates land owners to preserve the ecosystem, instead of burning down the bush for cattle ranching. Indeed, in South Africa, where the controlled hunting of the white rhinoceros is permitted, the species has increased spectacularly.[115]

If a ban eliminates the economic value of a species, ranchers may be tempted to cut down the forest (especially on private properties) to grow rice, soy, or raise cattle, and the entire ecosystem, including the protected species, can be destroyed through the destruction of the habitat. To deal with the unregulated and rampant trade in blue-headed parrots taking place throughout the area of the bird's range, the government of Argentina, for example, instituted a regulated trade scheme in the Chaco region. The scheme was reported to have reduced the levels of trade to a fraction, while raising money for conservation and three strictly protected areas of habitat for the bird, and providing almost 20 percent of income for poor peasant landowners who were otherwise razing their land of trees and converting it to soy cultivation.[116] Other experts, however, have questioned the solidity of the Chaco data and have suggested that the Chaco case may be an isolated exception in the case of bird trade. Studies of several parrot species licensed trade in Nicaragua showed their collapse by 80 percent over a 10-year period.[117]

Finally, as shown in the Argentine case, regulated trade can also raise money for conservation. For example, many African countries end up with stocks of ivory from elephants that have died naturally, and want to be able to sell the ivory to pay for conservation, such as park rangers' salaries and habitat preservation. Countries with well-managed elephant populations that are successful in preventing poaching, such as Namibia, Botswana, and South Africa, are regularly given a license to sell some of their ivory stocks. (Often those sales go to Japan and China who agree not to resell the ivory.) During 2008, the money raised and indeed applied to conservation through the licensing scheme was $15 million.[118] (In some cases, such as in the case of South Africa's Kruger National Park, the elephants were so overpopulated, threatening to unsustainably alter the Kruger's habitat, that the park managers believed they had to resort to elephant culling regardless of whether they would be able to sell the ivory or not.) As rangers tend to be vastly under-resourced compared to poachers (in many African and Asian countries frequently not paid for months), the park's ability to raise money through controlled sales could increase the park's resources and reduce the propensity for corruption among under-paid officials and rangers.

In the cases where wildlife regulation and its law enforcement are well managed, such as South Africa, such licensing of culling has not led to the increase in poaching that has plagued countries without a license, such as Tanzania and Zambia, and preceded the licensing of South Africa, Botswana, and Namibia.[119] (In fact, as a result of the poaching, they have continued to be denied a license for the ivory trade.)[120] On the other hand, some of the countries that experienced the greatest elephant losses before the 1989 ban—Zambia, Tanzania, Zaire, and Sudan —continue to experience intense poaching and losses after the ban. Poor environmental management, problematic property rights, and other governance problems in those countries seem to have a far greater impact than the international regime.[121]

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[115] Leader-Williams.
[116] Rabinovich (2005).
[117] See, James Gilardi, "Captured for Conservation: Will Cages Save Wild Birds? A response to Cooney and Jepson," *Oryx*, 40(1), January 2006: 24-26.
[118] Walker (2009).
[119] Wasser.
[120] Alan Cowell, "Bid to Relax International Ban on the Sale of Ivory Is Rejected," *The New York Times,* March 22, 2010.
[121] Timothy Swanson, "A tale of rent seeking, corruption, stockpiling and (even) tragedy: Re-telling the tale of the commons," *International Review of Environmental and Resource Economics,* 1(1), 2007: 111-150.

Costs and Difficulties

But many of these presumed positive outcomes often do not happen or at least do not fully happen in reality.

Not always does legal supply take pressure off the wild. The fishing industry is the most potent example: Although fishing is a multibillion-dollar industry and billions of people and most countries in the world have a stake in preserving it—from consumers, to the fishermen, to national governments—more often than not fishing takes place completely unsustainably, devastating species after species to such an extent that scientists now worry about the possibility of empty oceans in a few decades unless radical regulation is instituted. Because of vested interests of fishing fleets and the governments that sponsor them, such as Japan, such radical regulation of fishing remains elusive. Many animals and plants are placed on CITES Appendix I precisely because their exploitation failed to encourage stakeholders to manage their use sustainably.

Culling animals or plants from the wild may allow hunters to sell their wares more cheaply than farm-raised animals, undercutting the legal supply. This phenomenon is analogous to the existence of an extensive and highly profitable illegal market in cigarettes alongside a legal one. In China, the price of illegal ivory products is often one third of the price of legal ones.[122] In fact, the more governments try to discourage the use of particular wildlife products (even farm-raised ones) by imposing heavy taxes on them, or the more complex it is to raise an animal on a farm (keeping a tiger, for example, is considered to cost about $5,000 a year), the more likely illegal wild culling and trade will persist alongside the legal behavior. Also, many consumers in Asia (and elsewhere, such as in the United States with farm-raised versus wild-caught fish) prefer wild animals to farm-raised ones, believing them to have greater curative potency and other health values.[123]

Another problem with farming as a conservation mechanism is that farming could reduce incentives to preserve the species in the wild and increase pressures on land for agribusinesses.

Furthermore, allowing a legal supply may not necessarily satisfy the level of demand for two reasons. Since raising many wild species, including tigers and pandas, but also many others, is extraordinarily difficult in captivity, many farms and captive-breeding programs in fact resort to replenishing their stocks by catching some animals in the wild. The level of such activity often is quite extensive. And if the availability of supposedly-farmed raised wildlife products increases the consumers' desire for them, and distinguishing between legal-sourced ones and illegal-sourced ones is difficult for both consumers and law enforcement officials, the pressure on the species in the wild to supply farms may even increase. As Wells and Barzdo aptly point out, for a farm product to displace a wild product through market forces, it must be available in large quantities and cheaply (ideally cheaper than the wild product), or be of better quality than the wild product. But all of these factors are often difficult to achieve in breeding programs, especially in their early stages.[124]

Legal supply can also reduce the moral opprobrium on the trade in a particular species of wildlife. The availability of artificial fur coats helped reduce demand for fur from wild animals. But over time, it also undermined shaming campaign of the anti-fur community in the United States and Europe since wearers of real fur could easily assuage criticism by saying it was merely artificial fur; so overall, the wearing of fur became once again more socially-accepted in the West.

This latter problem directly links to what was discussed above; namely, that the captive-breeding and licensing schemes often allow the leakage of illegally-caught wildlife into the supposedly clean legal

[122] TRAFFIC, *The State of Wildlife Trade in China, 2007* (2007).

[123] According to Li Zhang's, Ning Hua's and Shan Sun's survey in China, for example 36.9 percent of respondents preferred real wild animals, compared to 20.2 percent who preferred captive-bred wild animals and 28.4 percent who did not have a preference. Li Zhang, Ning Hua, and Shan Sun: 1506.

[124] Wells and Barzdo.

supply. Since monitoring a wildlife product from the farm through its various processing stages, especially when it crosses international borders, is extraordinarily law-enforcement intensive, it is often relatively easy to mix illegally-obtained products into the legal supply.[125] Frequently, neither customers nor law enforcement officials have the capacity to determine whether a wildlife product was obtained from the wild or a captive-bred facility or whether it came from a legal supplier or not.

As was described above, Thailand, with laws permitting the selling of ivory from domesticated animals, for example, serves as a major center of illegal ivory laundering, while Japan, with its extensive regulations governing the sale of ivory, sees illegal ivory leaking into its supply. In China, consumers are frequently misinformed by store owners that the ivory products come from mammoths (which is legal).[126] Despite the commitment of the Chinese government to monitor the farms closely, tiger farms in China, whose stock of 5,000 tigers now exceeds almost five times the numbers of tigers in the wild, are often suspected of serving as facilities to launder poached tigers while encouraging consumer demand for tiger products.[127]

Another example is the legal trade in wild birds in Europe. The majority of legally exported birds were also reported to come from captive-breeding facilities, mainly in China, Vietnam and Malaysia, with EU and Japan as the main destinations.[128] Following the outbreak of avian influenza, the EU in 2005 severely restricted the import of birds, and the legal export of birds from Southeast Asia came to almost a complete halt. Although trading (legal and illegal) in birds in Southeast Asia has continued, the EU ban has apparently contributed to reductions in catching of birds in the wild at least locally.[129] What this indicates is, of course, that wild-caught birds were leaking (at least to some extent) into a supposedly captive-bred supply.[130]

The many enforcement challenges for ensuring that a legal, certified scheme does not serve to launder illegal products also include being able to detect falsified licenses and preventing corrupt government officials from handing out licenses to those who should not have them. Just as with bans, effective law enforcement is extraordinarily resource-intensive and likely to be overwhelmed; with a clear limit on how much the licensing schemes can be tightened to prevent leakage. New technologies, such as DNA testing of ivory or other products, or microchips for animals in the wild, both of which are being implemented for some species, can reduce the law enforcement challenges to some extent, but they are unlikely to eliminate them. For DNA testing to be effective beyond random catches, and to have a large deterrent effect, the database of known genetic samples needs to be enormous, since DNA will vary for each specimen. Testing also needs to take place any time the product changes hands. Neither requirement is likely to be achieved any time soon in Southeast Asia and in many other parts of the world. Having detailed, complete, and continuously updated surveys and databases of legal stocks and incoming legal supply is critical, but that is also very hard to achieve. In Japan, for example, with all its vaunted regulation, it is not mandatory to register whole tusks in private possession if there is no intention to trade them, and registration does not cover movement of ivory onward from processing, and much information can be falsified. A DNA systematic database, even in a country that should have the institutional capacity to implement it, does not exist.[131]

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[125] On this problem in the case of turtle farms in China, see, for example, TRAFFIC, *The State of Wildlife in China, 2008* (2008): 13-15.

[126] EIA (2002).

[127] For details on the Chinese tiger black market and the tiger farms, see, for example, Brendan Moyle, "The Black Market in China for Tiger Products," *Global Crime* 10(1&2): February 2009: 124-143; Nowell and Xu Ling; and Doug Williamson and Henry Leigh, *Paper Tigers?: The Role of the U.S. Captive Tiger Population in the Trade in Tiger Part*, TRAFFIC-North America, Washington, DC, 2008; and Marwaan Macan-Markar, "Environment Asia: Future of China's Tiger Farms in the Balance," *Global Information Network*, February 1, 2010.

[128] Nijman (2010): 1110.

[129] Chris Shepherd, "The Bird Trade in Medan, North Sumatra: An Overview," *Birding ASIA, 5,* 2006: 16-24.

[130] See, for example, Wells and Barzdo (1991); and TRAFFIC (March 16, 2010).

[131] For details on the Japanese ivory market, see, for example, Masayuki Sakamoto, *Black and Grey: Illegal Ivory in Japanese Markets*. (Tokyo: Japan Wildlife Conservation Society, October 2002).

One way to deal with the limited law-enforcement capacity is to encourage self-regulation of the wildlife industry through education programs and government or NGO certificates of good corporate behavior. But as both the wildlife market and many other legal markets have shown, self-regulation often tends to have poor results, with industries just not capable of policing themselves reliably. The existence of effective external oversight is often needed.

Finally, one of the most undesirable effects of licensing may be that it does precisely the opposite what it is set up for—namely, to eliminate demand for illegal products in threatened species. If licensed trading chains are extensively pervaded by illegally-obtained wildlife, the licensing may serve only to whitewash consumers' consciousness. Instead of feeling any guilt at all and moderating their demand, consumers may in fact increase their consumption of the supposedly harmlessly-obtained product, and the impact on wildlife may be even worse than if the trade were fully illegal and hence it would be unambiguously clear to consumers that they were hurting the environment and the species (whether or not they actually cared and acted differently). Greater availability of a species on the market may also reduce its price, thus in turn stimulating demand (even though perhaps reducing rents from poaching). Compounding the problem is the fact that suppliers also often experiment in new and exotic species, and legal supply in one species may thus create a new and undesirable demand in other species through the same established supply networks.[132]

Whether these possibilities should discourage the adoption of a licensing scheme of course depends on the size of the posited effects: how much demand would there be regardless of whether something is legal or illegal and how much its whitewashed legality would increase demand. Ascertaining such outcomes depends on difficult empirical work pervaded by numerous problems of measuring illegal economies and soft variables, such as consumer preferences that they may be loath to disclose in interviews.

Ultimately, what determines the level of effectiveness of licensing wildlife trade in particular species and from wild or farm sources are to a large extent the same factors that determine the effectiveness of bans: the level and quality of law enforcement; the elasticity of demand; the ability to supply licensed products cheaply and on a large scale; the strength of non-price driven effects on consumer preferences, such as caring that one is preserving biodiversity through his or her consumer choices; the property-rights regimes in place (the looser they are, such as in the commons, and the poorer the dispute resolution mechanisms, the more likely the illegal economy to thrive alongside a legal economy); the timing of the licensing scheme; and the value of non-consumptive uses, such as ecotourism.

Alternative Livelihoods

As many poachers are often highly marginalized and desperately poor people, focusing on finding legal livelihoods for them can be an important component of policy interventions to reduce the illegal wildlife trade.

Benefits

Although creating legal economic alternatives does not address the problem of higher-up traders, it can simplify and focus law enforcement as well as enhance the political sustainability of prohibitions on wildlife trade and reduce political conflict. If people face either dire poverty or wildlife hunting, they will frequently choose wildlife hunting. And in such circumstances if the government attempts to enforce a ban on wildlife hunting, political conflict, leading even to violent opposition, may ensue. Existing militant groups can exploit such situations.

Unlike in the case of other illegal economies, such as the drug trade, the problem that the illegal price and profits will remain higher than profits from the substitute legal economy and hence hunters will not be interested in switching may be somewhat less intense. Since wildlife is a finite commodity, as

[132] On the incidence of this phenomenon with respect to rare turtle species processed through Chinese turtle farms, for example, see TRAFFIC, *The State of Wildlife in China, 2008* (2008): 15.

wild stocks decline, so often do profits for low-level poachers. And even in drugs, price-profitability is not always the most important driver.

In fact, a critical component of successful alternative livelihoods schemes to counteract poaching was precisely that they were instituted when wildlife was being depleted and economic interest in poaching was declining. Of course, from a conservation perspective, it is probably too late: the marginalized populations are weaned off of illegality, but the wildlife conservation may still have failed because the species were depleted anyway. One example of successful efforts to wean poor populations from wildlife poaching took place in Pu Mat National Park, Vietnam, a key biodiversity area and a site of extensive and vastly damaging wildlife trade. The trade involved 75 percent of households in the buffer zone around the park, and the illegal extraction of forest products was the only activity available to generate the income necessary to buy rice. Alternative development efforts led to wildlife becoming less important to the income portfolio of many households, and the number of poachers shrank considerably. However, this development took place in the context of highly increased scarcity of wildlife in the national park, and thus reduction in hunting may have taken place irrespective of the rural development intervention and the scale of the positive effect due to rural development is not clear.[133]

For legal livelihoods efforts to be effective, they need to be comprehensive and assure sustainable income that maintains at least minimum (and ideally above) livelihood standards.

Costs and Difficulties

Unfortunately, many schemes to convert poachers into park rangers—from Thailand to Aceh to Rwanda[134]—have run into the lack of sustainability and resource problems, with ex-hunters originally enthusiastic about going legal, but, as they were not paid for months, resorting back to poaching. Moreover, such schemes have to be carefully monitored, since many supposedly ex-hunters continue to poach even while working for law enforcement in anti-poaching efforts against their poaching competition.[135] Many alternative livelihoods programs centering on ecotourism or sustainable trade in alternative wildlife products such as artisanal crafts simply do not generate steady and sufficient income to offset income losses from foregoing hunting. Finding legal job alternatives that produce sufficient income streams for most of the poorest and most isolated populations is simply very hard.

Often programs to reduce poverty benefited urban rather than rural populations, and even among the rural populations, farmers, rather than hunters and forest-dependent people were better able to take advantage of the substitute legal economy. Without targeted and time-intense assistance, the latter typically lack the education, skills and even cultural context to take advantage of cash-earning jobs in plantations and industry. In fact, in some cases, as a result of poverty-reduction programs meant to generate a substitute economy, they lost access to their land and traditional resources, experiencing big drops in income and great food insecurity, including protein intake (which only exacerbated their dependence on wildlife hunting for consumption and income).[136]

A 2008 comprehensive study of the various drivers of wildlife trade by TRAFFIC concluded that efforts to increase income, reduce poverty and diversify livelihoods among rural communities often had relatively low impact on illegal wildlife trade and often did not reduce even the target community's participation in wildlife harvesting and trade.[137]

As in the case of alternative livelihoods efforts to wean farmers from the cultivation of illegal crops,

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[133] For details, see World Bank (2005): 8.
[134] See, for example, Antony Lynam, "Rain-forest Guardians," *Wildlife Conservation*, November/December 2005: 8-9.
[135] Among the author's interviewees in the lower Amazon and Pantanal in Brazil, December 2009 and January 2010.
[136] See, for example, Robinson and Bennett (2002).
[137] TRAFFIC, *What's Driving the Wildlife Trade: A Review of Expert Opinion on Economic and Social Drivers of the Wildlife Trade and Trade Control Efforts in Cambodia, Indonesia, Lao PDR, and Vietnam*, October 2008, www.traffic.org/general-reports/traffic_pub_gen24.pdf: 27-29 and 58-61.

the big question of course is whether such efforts are structurally-bound to fail even among low-level hunters or whether the programs applied were not sufficiently resourced and comprehensively and adequately designed.

Tackling Demand

As the above discussion showed, neither bans combined with intensified law enforcement nor licensing nor alternative livelihoods are often sufficient on their own to stem the trade in wildlife. While such measures may contribute to conservation objectives in varying degree and under some circumstances, tackling the demand for wildlife is absolutely critical.

Benefits

Not only does it address the underlying cause, it also facilitates law enforcement, licensing, and alternative livelihoods efforts by reducing the incidence of illegal behavior and the economic, political, and cultural significance of wildlife use and consumption.

There are effective precedents. In the United States and Europe in the early 1980s, an energetic campaign against seal hunting, directed mainly against the killing of harp and hooded seal pups on humanitarian grounds, succeeded in creating a climate in which wearing seal furs was morally unacceptable and resulted in a serious decline in the market for them.[138] The effect of the campaign seems to have held over the years: In 2010, for example, despite a permit to harvest 330,000, hunters killed only a fraction of it as only one of the established four purchasers was buying the pelts.[139] In Litang, Sichuan province, a key wildcat fur market, awareness campaigns launched in 2005 culminated in people gathering from across the region to burn their furs. Subsequently, demand for new furs declined, prices also declined, and the market in Litang decreased. However, since the awareness campaign was limited in its extent, the market simply shifted to Kanding and Batang in Sichuan.[140]

Even in entrenched markets with some of the most prevalent and deeply engrained taste for wildlife, such as in Asia, there has been some change in attitudes. In Hong Kong, one of the world's most intense demand markets for shark-fin soup and a global hub of the shark fin trade, where serving the soup is considered an important sign of prestige and status, opposition to its consumption is slowly emerging as a result of the devastating consequences of shark finning on shark populations around the world and marine ecosystems as well as the brutality of the practice. But a similar change has not yet occurred in China where demand for shark fin soup is escalating.[141]

Costs and Difficulties

Unfortunately, tackling demand for wildlife, especially in Southeast and East Asia, is also very difficult. First, experience with demand reduction of illegal drugs shows that reducing demand takes a lot of time, often decades. Unfortunately, many wild species are likely to be extirpated in a much shorter time-span. Second, as wildlife use and consumption are so culturally ingrained in many parts of Asia and linked to social status, finding the right triggers to reduce demand is not easy. In some cases, such as among poor, uneducated, and isolated hunters or processors in Myanmar or China, people are simply not aware of the impact of their actions on wildlife.[142] But simply spreading awareness about the illegality of trade and consumption has proven insufficient, and improved awareness has not resulted in a substantial decline of illegal wildlife consumption.[143] Moreover, in the absence of providing protein legally and sustainably, demand may be impossible to reduce.

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[138] Wells and Barzdo: 145.
[139] "Canada: Harp Seal Hunt Begins amid Lower Demand," *The New York Times*, April 8, 2010.
[140] EIA (2006): 10.
[141] See, for example, Juliet Eilperin, "Distaste Widening for Shark Fin Soup," *The Washington Post*, June 5, 2011; and Bettina Wassener, "Environmental Cost of Shark Finning Is Getting Attention in Hong Kong," *The New York Times*, June 20, 2010.
[142] See, for example, Li Zhang, Ning Hua, and Shan Sun: 1511. Many hunters and sellers interviewed by the author in Mong La, Myanmar in 2005 and 2006 also claimed that they did not know and believe that they were contributing to the extinction of particular species.
[143] TRAFFIC, *The State of Wildlife in China, 2008* (2008): xiii.

In some cases, owning an illegal animal can result in a higher social status of the owner: In Indonesia, for example, ownership of a rare and protected bird is a "popular way of showing that one is sufficiently important and powerful to be immune from prosecution."[144] Most of the time, however, consumers were simply indifferent to acting illegally and having a detrimental impact on wildlife and biodiversity.

Indeed, as noted above, the main consumption groups in China are male and young people with good incomes, and high education levels, who could hardly claim not to be aware to some extent of the impact of their consumer behavior. Moreover, studies of consumer preferences even among groups aware of environmental impacts of buying wildlife products show that often people talk the talk, but don't walk the walk: One 2009 study, for example, showed that among aware Chinese consumers, fewer than 3 percent ever purchased green products.[145] One of the key implications is thus that efforts need to target consumers early on, before they become heavy users (again, this is fully consistent with lessons from anti-drug and anti-obesity and other public health campaigns.)

Experience from the wildlife trade, other environmental campaigns, and other illegal markets shows that often the least effective way to structure efforts to alter consumer preferences through messaging efforts is to rely on consumers' altruism toward other creatures. Instead, the most effective campaigns have often been ones in which people perceive the behavior as a threat to their health, survival, or dating prospects—be it cigarette use (in which children's anti-smoking attitudes toward their parent smokers was critical), or environmental campaigns that resulted in vastly changed regulations, such as against acid rain or mercury and DDT pollution, or Montana's methamphetamine campaign (based on showing teenagers that if they consume meth, they will become hideous, and will not be able to get boyfriends and girlfriends). The difficulty of structuring environmental messages in Asia this way is that people often believe the opposite: namely, that consuming wildlife will enhance their health and sexual potency.

Following the outbreak of SARS in 2003 and the bird flu in 2004, some previously legal wildlife trade in China was temporarily banned, medical experts mounted campaign to point out that wild animals, such as primates, rodents, and ungulates share more than 100 diseases with humans, and publics became more aware of the negative impact wildlife consumption could have on their health. However, as the epidemics and surrounding media coverage tapered off, consumers often returned to their previous consumption patterns.[146] Even as environmental awareness has grown among the China's population and within its government, the focus of environmental attention rarely is species preservation and wildlife consumption and instead, priority is given to clean water, air and even global warming considerations.[147]

A second leverage mechanism that has proven effective in the case of cigarettes and drug use, for example, was to stress that engaging in such behavior was not cool—hence reducing the social status of the behavior and working to counter peer pressure. Once again, this approach is challenging in the case of Asian wildlife consumers since wildlife consumption is so deeply ingrained and so socially significant. Especially if the messengers are foreign, such as Western NGOs, the message runs the risk of being dismissed as imperialism (as happened, for example, with efforts to reduce foot binding in China or female genital mutilation in Africa.)[148] In places like China (or Russia where displaying fur coats is a status symbol of the newly rich), consumers may not care about what the West considers normatively

[144] Nash (1993).
[145] McKinsey study cited in Wassener.
[146] Zhang et al: 1513-1514.
[147] See, for example, Andrew Jacobs, "China Issues Warning on Climate and Growth," *New York Times*, February 28, 2011.
[148] Margaret E. Keck and Kathryn Sikkink, *Activists Beyond Borders: Advocacy Networks in International Politics* (Cornell: Cornell University Press, 1998).

appropriate. Local messengers, such as local NGOs, will be far more effective.

However, efforts to reduce consumption of illegally-sourced wildlife need to be careful in some cases not to eliminate all demand for wildlife. If a conservation policy is based on giving locals an economic stake in conservation, a significant reduction of all demand for that particular wildlife product, not just demand for illegally-sourced wildlife, could undermine the conservation effort. Pressures on clearing the natural ecosystem and converting land into plantations or cattle ranching could once again increase.

Sadly, the overall prospects for being able to design policy interventions in a way that can achieve substantial reduction in the illegal trade in wildlife are not high. Bans and licensing can help in particular circumstances, depending on local cultural and institutional settings and the ecological requirements and circumstances of particular species; but they are often structurally unable to substantially stem illegal wildlife trade and the necessary intensity of law enforcement and monitoring often cannot be achieved. Going after consumer demand is structurally the most promising venue, but demand reduction measures are complex and take time. And many species are rapidly running out of time.

Recommendations

The discussion of the effectiveness of various regulatory measures and policy approaches has revealed the extraordinary complexity and difficult trade-offs among various policy approaches. There are no silver bullets in mitigating the illegal trade in wildlife, despite the extreme urgency and intensity of the problem. Critically, the discussion has shown that the work effectiveness of various policies is often highly contingent—the same regulatory design may work well for a particular species in one country, and be ineffective in another country. Bans may work for some species, but fail for others. Licensing trade in the same species of parrots may work in one region, but fail in another. What this means is that local institutional and cultural settings matter a great deal and that local wildlife factors and species-specific factors matter are equally significant. Consequently, a policy can only be effective if it is based on extensive local data and is closely tailored to local conditions. Consequently, a paper such as this one can only offer broad policy recommendations as guidelines for designing a regulatory framework to mitigate the illegal trade in wildlife and enhance conservation.

I. Tailor regulatory approaches, whether bans or licensing scheme, carefully to local institutional and cultural settings and to species' local ecological requirements based on careful data-based analysis of such settings. How to design policy interventions against illegal wildlife trade simply cannot be answered in general, given the highly variable outcomes of policies. This may well mean that a species will be licensed for farming or trade in one area, but not in another. Case-specificity—informed by lessons from elsewhere, no doubt—is a critical ingredient in designing an effective regulatory framework.

II. Carefully monitor adopted policy designs and be prepared to change them based on policy outcomes. This may mean extending a license or removing one, intensifying alternative livelihoods efforts in one area or abolishing them in another, or increasing law enforcement.

III. Focus law enforcement on critical smuggling hubs, but complement it by ensuring sufficient law enforcement capacity to detect the emergence of a more covert black market. Focus on prosecution of high-level traders. Diligently enforce existing laws as much as possible given law enforcement's resources and inherent limitations. Concentrate law enforcement resources rather than dispersing them too thinly.

IV. Intensify training and anti-corruption measures among park rangers, since committed and well-resourced park management frequently is crucial for mounting effective anti-poaching response.

V. When determining whether to ban or license managed trade in a particular species, pay attention to the level and quality of law enforcement; the elasticity of demand; the ability to supply licensed valuable products cheaply and on a large scale; the strength of non-price

driven effects on consumer preferences; the property- rights regimes in place; the timing of the licensing scheme or ban; and the value of non-consumptive uses, such as ecotourism.

VI. Develop economic and non-economic stakes for governments, interest groups and local communities to preserve wildlife and ecosystems. Remove economic incentives for conversion of land to agricultural uses, such as through differential land-use taxes, conservation subsidies or communal property rights schemes.

VII. If licensing schemes are adopted, monitor them carefully; develop databases of legal stocks and supplies; undertake registration within all sectors of the industry; and if possible, conduct frequent inspections along the entire trading chain. Make sure that appropriate property rights systems are in place and dispute resolution mechanisms are available. If farming facilities turn out economically unviable by not producing sufficient supply at a relatively cheap price, be ready to shut them down.

VIII. Undertake alternative livelihoods efforts for marginalized populations dependent on wildlife use for basic livelihoods. But such programs need to be designed as broad rural and social development and include policies that specifically target forest-dependent marginalized communities. Often simple programs such as transforming poachers into park rangers are not sufficient. Do not assume that general poverty reduction measures will be accessible to forest dependent communities or effective for weaning them off over utilization of wildlife.

Moreover, assessments of rural livelihoods efforts need to be undertaken to ascertain their ecological impact: Building roads to access remote areas or converting people to farming may result in habitat destruction and greater ecological losses than unmitigated trade in wildlife. Couple the programs with law enforcement against the target community's participation in wildlife hunting as the legal alternative development becomes available.

IX. Focus on reducing demand for illegally-sourced wildlife. Base messaging on issues such as "being cool" and "saving face" with respect to peer groups that matter to consumers. Do not rely on general awareness programs. Focus on debunking false claims of positive health effects of TCM in Asia, but also among Asian diasporas and other communities around the world, including in the United States. Focus on early intervention before consumers become heavy users, and ideally before they become users at all. Tailor messages carefully to particular consumer subgroups, based on the issues that matter to them. Use local actors, rather than outsiders, such as foreign NGOs, as the principal messengers of demand reduction measures as much as possible.

X. Promote other conservation policies, such as, critically, habitat conservation through well-patrolled national parks and reserves and on private lands. If resources are not available to adequately patrol a protected area, merely designating it as a national park may cause more environmental damage. Focus on limiting fragmentation of land for wildlife, such as by establishing wildlife corridors among protected or still undamaged areas.

XI. Work with the government of China to embrace measure to combat illegal trade in wildlife trade efforts, not simply in its domestic policies, but also in policy interventions in abroad. Often, the leverage that the Chinese government will have in dealing with countries, such as Myanmar, including its non-state militant actors, or Laos will be far greater than the sway the United States can generate. Such a role would allow China to show its productive participation in the global community in an environmental area that is easier for it to undertake than China's internal environmental regulation and enforcement.

XII. Ensure that biodiversity protection is a key priority area for governments and does not become ignored among other environmental considerations, such as improving the quality of water and air or reducing global warming. The United States, specifically, should demonstrate its commitment to biodiversity protection by signing the United Nations Convention on Biodiversity.

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