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Rhinoceros Conservation and International Law: The Role of Wildlife Treaties in Averting Megaherbivore Extinction

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1. Introduction

Scientists warn that human impacts are threatening to cause a sixth mass extinction event on the planet.[1] Population trends for large-bodied species reflect their particular vulnerability.[2] For the world's largest terrestrial carnivores (the 31 species weighing over 15 kg) and herbivores (the 74 species weighing over 100 kg),[3] studies confirm both the crucial role many of these species (used to) play in ecosystems and the very worrying conservation status of most of them.[4] Large herbivores, for instance, are keystone species or "ecosystem engineers," providing a food source for predators and scavengers, dispersing seeds, cycling nutrients, influencing fire regimes, and providing benefits to smaller herbivores and to birds, rodents, and insects, in addition to their direct benefits for people, i.e., as a food source or in connection with tourism.[5] Crucially, most roles played by large herbivores "cannot be taken over or compensated for by smaller herbivores."[6] These considerations apply particularly strongly to megaherbivores, eight species weighing in at over 1,000 kilograms, including both species of elephant, the hippopotamus (*Hippopotamus amphibius*), and the five species of rhinoceros.[7] A large number of scientists involved in large carnivore and large herbivore conservation have recently called for "[c]omprehensive actions to

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[1]Gerardo Ceballos et al., *Accelerated Modern Human-Induced Species Losses: Entering the Sixth Mass Extinction*, 1 Sci. Advances 1, 3 (2015); Rodolfo Dirzo et al., *Defaunation in the Anthropocene*, 345 Sci. 401 (2014).

[2]Moreno di Marco et al., *A Retrospective Evaluation of the Global Decline of Carnivores and Ungulates*, 28 Conservation Biology 1109 (2014).

[3]William J. Ripple et al., *Status and Ecological Effects of the World's Largest Carnivores*, 343 Sci. 151 (2014); William J. Ripple et al., *Collapse of the World's Largest Herbivores*, 1 Sci. Advances 5 (2015).

[4]*Id*. (both sources).

[5]*See generally* Large Herbivore Ecology, Ecosystem Dynamics and Conservation (Kjell Danell et al. eds., 2006); *see also* Ripple et al., *Collapse of the World's Largest Herbivores*, *supra* note 3, at 6–7.

[6]Ripple et al., *Collapse of the World's Largest Herbivores*, *supra* note 3, at 6.

[7]*Id*. (giraffes are also sometimes considered megaherbivores).

save these iconic wildlife species," and thus "help to curb an extinction process that appears to have begun with our ancestors in the late Pleistocene."[8] In this call to arms, the potential role of international wildlife treaties is duly noted.[9]

Indeed, in the overall effort to stem and reverse the global biodiversity crisis,[10] law is a crucial instrument,[11] including international wildlife law.[12] Wildlife treaties recognize the transboundary nature of many wildlife populations and of some of the threats they face. They reflect, moreover, the notion that biodiversity conservation is a "common concern of mankind."[13] It is no surprise then, that the scholarly literature is beginning to address the role of international wildlife law in the conservation of the largest carnivores[14] and several of the megaherbivores—mostly the African elephant (*Loxodonta africana*)[15] and, to a lesser degree, rhinoceroses[16] and the hippopotamus.[17]

The focus here is on the five species of rhinoceros. Two of these occur in Africa: the white or square-lipped rhinoceros (*Ceratotherium simum*)—the largest and currently most abundant rhino—and the black or

[8]William J. Ripple et al., *Saving the World's Terrestrial Megafauna*, 66 BioSci. 807, 811 (2016).
[9]*Id.*, at 810–811.
[10]*See* Ceballos et al., *supra* note 1, at 3.
[11]Guillaume Chapron et al., *Bolster Legal Boundaries to Stay Within Planetary Boundaries*, 1 Nature Ecology & Evolution 4 (2017).
[12]*See generally* Michael Bowman et al., Lyster's International Wildlife Law (2d ed. 2010); *see also* Arie Trouwborst et al., *International Wildlife Law: Understanding and Enhancing Its Role in Conservation*, 67 BioSci. 784 (2017).
[13]Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79 [hereinafter CBD], preamble.
[14]*See, e.g.,* Arie Trouwborst, *Global Large Carnivore Conservation and International Law*, 24 Biodiversity & Conservation 1567 (2015); Samantha Watts, *Protection of the African Lion: A Critical Analysis of the Current International Legal Regime*, 19 Potchefstroom Elec. L.J. 2 (2016); Arie Trouwborst et al., *International Law and Lions (*Panthera leo*): Understanding and Improving the Contribution of Wildlife Treaties to the Conservation and Sustainable Use of an Iconic Carnivore*, 21 Nature Conservation 83 (2017); Kimberley Graham, *International Intent and Domestic Application of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): The Case of the Ocelot (*Leopardus pardalis*)*, 20 J. Int'l Wildlife L. & Pol'y 253 (2017). *See also* the increasing number of publications on European large carnivores, *e.g.*, Yaffa Epstein, *Population Based Species Management Across Legal Boundaries: The Bern Convention, Habitats Directive, and the Gray Wolf in Scandinavia*, 25 Geo. Int'l Envtl. L. Rev. 549 (2013); and Arie Trouwborst et al., *Norway's Wolf Policy and the Bern Convention on European Wildlife: Avoiding the "Manifestly Absurd,"* 20 J. Int'l Wildlife L. & Pol'y 155 (2017).
[15]*See, e.g.*, Michael J. Glennon, *Has International Law Failed the Elephant?*, 84 Am. J. Int'l L. 1 (1990); Michael Kidd & Michael Cowling, *CITES and the African Elephant*, in Transboundary Governance of Biodiversity 128 (Louis J. Kotze & Thilo Marauhn eds., 2014); Ed Couzens, Whales and Elephants in International Conservation Law and Politics: A Comparative Study (2014); André Nollkaemper, *Framing Elephant Extinction*, 3 ESIL Reflections 1 (2014); S.A. Jeanetta Selier et al., *The Legal Challenges of Transboundary Wildlife Management at the Population Level: The Case of a Trilateral Elephant Population in Southern Africa*, 19 J. Int'l Wildlife L. & Pol'y 101 (2016); Sabrina Persaud, *Losing Our "CITES" on the "Traffic": How Taxing Ivory Trafficking Can Save the African Elephant from Its Bloody Extinction*, 20 J. Int'l Wildlife L. & Pol'y 295 (2017); *see also* Geoffrey Wandesforde-Smith, *Looking for Law in all the Wrong Places: Dying Elephants, Evolving Treaties, and Empty Threats*, 19 J. Int'l Wildlife L. & Pol'y 365 (2016); Branden D. Jung, *The Tragedy of the Elephants*, Wis. L. Rev. 695 (2017).
[16]Nigel Leader-Williams et al., *Trophy Hunting of Black Rhino* Diceros bicornis*: Proposals to Ensure Its Future Sustainability*, 8 J. Int'l Wildlife L. & Pol'y 1 (2005); Julie Ayling, *What Sustains Wildlife Crime? Rhino Horn Trading and the Resilience of Criminal Networks*, 16 J. Int'l Wildlife L. & Pol'y 57 (2013); Laurenne Coetzee & Ed Couzens, *Keeping the Rhino (Debate) Alive: Swaziland's Proposal at CITES COP17 in 2016*, 23 S. Afr. J. Envtl. L. & Pol'y 217 (2017)).
[17]Kristen D. Snyder, *The Common Hippopotamus in the Wild and in Captivity: Conservation for Less Charismatic Species*, 18 J. Int'l Wildlife L. & Pol'y 337 (2015). Some publications on international trade regulation focus on various species at once. *See, e.g.*, Annecoos Wiersema, *Uncertainty and Markets for Endangered Species under CITES*, 22 Rev. Eur. Comp. & Int'l Envtl. L. 239 (2013) (addressing trade in elephant, rhinoceros, and tiger products).

hook-lipped rhinoceros (*Diceros bicornis*). The three other species occur in Asia: the Indian or greater one-horned rhinoceros (*Rhinoceros unicornis*), the Javan or lesser one-horned rhinoceros (*Rhinoceros sondaicus*), and the Sumatran or hairy rhinoceros (*Dicerorhinus sumatrensis*). Rhinoceroses are important from an ecological perspective,[18] iconic from a human perspective, and most of their populations have crashed.[19]

Adams and Carwardine were able to admire a rare northern white rhinoceros (*Ceratotherium simum cottoni*) at close range in Garamba National Park, in what was then Zaire, in 1989.[20] "The sheer immensity of every part of it," they wrote, "exercised a fearful magnetism on the mind. When the rhino moved a leg, just slightly, huge muscles moved easily under its heavy skin like Volkswagens parking."[21] Eventually, the rhino got their wind, "snapped to attention, turned away … and hurtled off across the plain like a nimble young tank."[22]

Since then, this last remnant population of wild northern white rhino has very likely gone extinct, and the last known male representing the subspecies—a famous rhino named Sudan—died in March 2018.[23] Two other rhino subspecies, the Vietnamese Javan rhinoceros (*Rhinoceros sondaicus annamiticus*) and the western black rhinoceros (*Diceros bicornis longipes*), probably also made their last headlines some years ago, when they were officially declared extinct in 2011.[24] The future of most remaining rhino populations looks uncertain. The main threat is poaching, largely driven by an international demand for rhino horn, followed by habitat loss. On the IUCN Red List, the white rhino is currently listed as *near threatened*, the

[18]*See, e.g.*, Matthew S. Waldram et al., *Ecological Engineering by a Mega-Grazer: White Rhino Impacts on a South African Savannah*, 11 Ecosystems 101 (2008).
[19]*See, e.g.*, Norman Owen-Smith, *Megafaunal Extinctions: The Conservation Message from 11,000 Years B.P.*, 3 Conservation Biology 405 (1989); Rajan Amin et al., *An Overview of the Conservation Status of and Threats to Rhinoceros Species in the Wild*, 40 Int'l Zoo. Y.B. 96 (2006); Tom Milliken et al., *African and Asian Rhinoceroses: Status, Conservation, and Trade*, CITES CoP15 Doc. 45.1 (2009), http://www.environmentportal.in/files/Rhino.pdf.
[20]Douglas Adams & Mark Carwardine, Last Chance to See 51–104 (Arrow Int'l ed., 2009).
[21]*Id.*, at 95.
[22]*Id.*, at 96.
[23]Richard Emslie, *Ceratotherium simum*, The IUCN Red List of Threatened Species (2012), http://www.iucnredlist.org/details/4185/0 (last visited May 25, 2018); Max Bearak, *Sudan, the World's Last Male Northern White Rhino, Has Died, Putting His Species on the Brink*, Wash. Post (March 20, 2018), http://www.washingtonpost.com/news/worldviews/wp/2018/03/20/sudan-the-worlds-last-male-northern-white-rhino-has-died-putting-his-species-on-the-brink-of-extinction/?utm_term=.15e7aa8e8a41.
[24]*See, e.g.*, John R. Platt, *Poachers Drive Javan Rhino to Extinction in Vietnam*, Scientific American (October 25, 2011), http://blogs.scientificamerican.com/extinction-countdown/poachers-drive-javan-rhino-to-extinction-in-vietnam; Sarah M. Brook et al., *Integrated and Novel Survey Methods for Rhinoceros Populations Confirm the Extinction of* Rhinoceros sondaicus annamiticus *from Vietnam*, 155 Biological Conservation 59 (2012); Daniel Boettcher, *Western Black Rhino Declared Extinct*, BBC (November 10, 2011), http://www.bbc.com/news/science-environment-15663982. Some western black rhino individuals may remain in Kenya; *see, e.g.,* Yoshan Moodley et al., *Extinctions, Genetic Erosion, and Conservation Options for the Black Rhinoceros* (Diceros bicornis), 7 Nature Scientific Reports 1 (2017), https://www.nature.com/articles/srep41417.pdf.

Indian rhino as *vulnerable*, and the black, Sumatran, and Javan rhinoceros as *critically endangered*.[25]

Although wildlife treaties have not prevented substantial rhino losses, we think they have the potential to be helpful, and in what follows we ask how their contribution might be maximized. We map and analyze the international legal framework currently applicable to rhino conservation, to understand its contribution to rhino conservation to date, to identify gaps or other shortcomings in it, and to identify opportunities for improvement. We use standard international law research methodology, involving the identification and analysis of relevant treaties and their interpretation according to the rules codified in the 1969 Vienna Convention on the Law of Treaties,[26] and combine this with knowledge from the natural and social sciences about rhinoceroses and their conservation needs.

The next part provides a *dramatis personae*, concisely introducing the five rhino species.[27] There follows an overview of the international legal framework for rhinoceros conservation, with more detailed analyses of the several relevant treaties in subsequent parts. A final part offers some concluding observations.

2. *Dramatis Personae*: The Five Rhinoceros Species

2.1. White Rhinoceros

The white rhinoceros is the third largest land mammal, reaching up to 1.8 meters in height and four meters in length, and weighing around 1,800 kg (females) and 2,300 kg (males). It prefers savanna habitat and feeds almost solely on grass. White rhinos have a sedentary lifestyle, moving around mainly within their own home ranges. Territory size differs between the sexes, with that of males usually being 0.75–14 km^2 and that of females 6–45 km^2.[28] Two subspecies exist, the northern and the southern white rhino (*Ceratotherium simum simum*). It is debatable whether the northern subspecies should be considered a separate species, but it is likely that the (sub)species will go extinct before consensus is reached.[29]

The northern white rhino used to occur in the central and northern part of Africa, in the current states of Chad, Central African Republic, Congo, Democratic Republic of the Congo (DRC), Kenya, South Sudan, Sudan,

[25]*See* IUCN Red List, version 2016-3: white rhino, http://www.iucnredlist.org/details/4185/0; Indian rhino, http://www.iucnredlist.org/details/19496/0; black rhino, http://www.iucnredlist.org/details/6557/0; Sumatran rhino, http://www.iucnredlist.org/details/6553/0; Javan rhino, http://www.iucnredlist.org/details/19495/0 (last visited May 25, 2018).
[26]Vienna Convention on the Law of Treaties, May 23, 1969, 1155 UNTS 333.
[27]Although not separately introduced, *Homo sapiens* actually plays the principal part in the "drama."
[28]Reay H. N. Smithers, Smither's Mammals of Southern Africa: A Field Guide 143–145 (Peter Apps ed., 3rd ed. 2010).
[29]Colin P. Groves et al., *The Sixth Rhino: A Taxonomic Re-Assessment of the Critically Endangered Northern White Rhinoceros*, 5 PLOS One e9703 (2010), at 12.

and Uganda.[30] Currently, the subspecies' world population appears to consist of only two females living in the Ol Pejeta conservancy in Kenya, under 24/7 armed surveillance.[31] Although it is still labelled *critically endangered* by the IUCN,[32] extinction appears imminent. The population in Garamba National Park in the DRC is already considered extinct, given a lack of sightings or other signs of rhinos since 2006. Reports of sightings in remote parts of South Sudan are speculative.[33]

By contrast, the southern white rhino is the most populous of all rhino (sub)species, although this was not always so. While its range once spanned the entire southern part of the African continent, the subspecies was hunted almost to extinction in the nineteenth century, with only one small population remaining in KwaZulu-Natal, South Africa. Thanks to conservation and (re)introduction efforts, the population has rebounded to approximately 20,170 individuals in 2010.[34] South Africa has sizable populations in the greater Kruger National Park area and in Hluhluwe-iMfolozi Park, and additional numbers in many public and private reserves. Smaller, reintroduced populations occur in Botswana, Namibia, Swaziland, Zimbabwe, and Mozambique. Southern white rhinos have also been introduced outside the subspecies' known former range in Kenya, Uganda, and Zambia.[35] As a species, white rhino is classified as *near threatened*. Despite their relatively large numbers, poaching is an increasingly significant threat, and if budgets for anti-poaching measures shrank, numbers would be expected to drop quickly to a *vulnerable* status.[36]

2.2. Black Rhinoceros

The black rhinoceros is generally smaller than its white relative, with adults normally weighing 800–1,400 kg. It is a browser, feeding on shrubs, small trees, and herbaceous plants with its pointy prehensile lip. It can be found in a wide variety of habitats, including forest, savanna, and desert. Black rhino home range sizes are roughly comparable to those of the white rhino, with males and females living predominantly solitary and sedentary lives.

Four subspecies are recognized.[37] The aforementioned western black rhinoceros used to occur in the central and western parts of Africa but was

[30]Emslie, *supra* note 23.
[31]*See Rhinos*, Ol Pejeta Conservancy, http://www.olpejetaconservancy.org/wildlife/rhinos (last visited May 25, 2018).
[32]*See* Emslie, *supra* note 23.
[33]*Id.*
[34]*See* Emslie, *supra* note 23; James Clarke, Overkill: The Race to Save Africa's Wildlife 122–132 (2017).
[35]*See* Emslie, *supra* note 23.
[36]*Id.*
[37]*See* Richard Emslie, *Diceros bicornis*, The IUCN Red List of Threatened Species (2012), http://www.iucnredlist.org/details/6557/0 (last visited May 25, 2018).

declared extinct after the last individuals disappeared from Cameroon. If the subspecies' range extended further east than previously assumed, a few western black rhinos may still survive in Kenya's Maasai Mara.[38] The eastern black rhinoceros (*Diceros bicornis michaeli*) is the next rarest subspecies and is listed as *critically endangered*.[39] Although its original range included Ethiopia, Somalia, and Sudan, it is currently mainly confined to Kenya, its present stronghold, and Tanzania.[40] The subspecies was recently returned to Rwanda, when twenty rhinos were airlifted into Akagera National Park in the first half of 2017 from South Africa, where they had been conserved *ex situ*.[41] Southwestern black rhinos (*D. b. bicornis*), classified as *vulnerable*, are found in Namibia and South Africa, with sightings or alleged occurrences in Angola and Botswana.[42] The south-central black rhino (*D. b. minor*), although listed as *critically endangered*, remains the most numerous subspecies. It occurs mainly in South Africa and Zimbabwe, with smaller numbers in Tanzania (a native population) and in Botswana, Malawi, Swaziland, and Zambia (reintroduced populations).[43] Very recently, six black rhinos of this subspecies were translocated from South Africa out of their known range into Zakouma National Park in Chad, becoming the first rhinos in that country since the demise of Chad's western black rhinos and northern white rhinos decades ago.[44]

The black rhinoceros was included in the IUCN Red List as an *endangered* species in 1986 and has been listed as *critically endangered* since 1996. Once the world's most numerous rhino species, black rhino numbers plummeted from several hundred thousand to an estimated 100,000 in 1960, due to excessive hunting and land clearance.[45] This was followed by a further dramatic 98 percent decline between 1960 and 1995 due to large-scale poaching. Between 1995 and 2010, conservation efforts brought numbers up from an estimated 2,410 to 4,880.[46] But since then, poaching has increased again.

[38]Moodley et al., *supra* note 24, at 12.
[39]*See* Richard Emslie, *Diceros bicornis*, The IUCN Red List of Threatened Species, http://www.iucnredlist.org/details/39320/0 (last visited March 9, 2018).
[40]*See* Emslie, *supra* note 37.
[41]*Rwanda Welcomes 20 Black Rhinos to Akagera National Park*, Mongabay, May 3, 2017, http://news.mongabay.com/2017/05/rwanda-welcomes-20-black-rhinos-to-akagera-national-park.
[42]Richard Emslie, *Diceros bicornis ssp. bicornus*, The IUCN Red List of Threatened Species (2011), http://www.iucnredlist.org/details/39318/0 (last visited May 25, 2018); Emslie, *supra* note 37.
[43]Richard Emslie, *supra* note 37.
[44]David Smith, *Black Rhino to be Reintroduced in Chad*, The Guardian (August 21, 2015), http://www.theguardian.com/world/2015/aug/21/black-rhino-chad-zakouma-south-africa; *Black Rhinos Return to Zakouma National Park in Chad*, Mongabay (May 7, 2018), http://news.mongabay.com/2018/05/black-rhinos-return-to-zakouma-national-park-in-chad/.
[45]*See* Emslie, *supra* note 37.
[46]*Id.*

2.3. Indian Rhinoceros

Of the three Asian rhinos, the Indian rhinoceros is the biggest and least rare. Although it is only slightly smaller than the white rhino,[47] the armor-like physique and single horn of the Indian rhino make it a very different animal. It inhabits riverine grasslands and adjacent swamps and forests, where it feeds mainly on grasses but also on fruit, leaves, and branches. Its lifestyle varies from solitary to various social groupings.[48] The species' historical distribution covered the northern part of the Indian subcontinent, stretching all along the basins of the Brahmaputra, Ganges, and Indus rivers, spanning the current states of Pakistan, India, Nepal, Bhutan, Bangladesh, and possibly up to Myanmar.[49]

Hunting, combined with progressive habitat encroachment and human–rhino conflict linked to human population growth, caused the species to decline to around 200 individuals in the early twentieth century. Since then, strict protection and other conservation efforts by India and Nepal have enabled the species to recover. By 2007, the total population was estimated at over 2,500 animals, and the species' Red List status changed from *endangered* to *vulnerable*.[50] Overall numbers have continued to increase since then, despite significant poaching, and despite the decline of several distinct populations. Indian rhinos are currently restricted to various protected areas in India and Nepal, with the bulk of them (70 percent) concentrated in Kaziranga National Park in India. Royal Chitwan National Park in Nepal is the next most important site. Poaching and habitat loss and degradation remain the most important threats, combined with the small size and isolation of some populations.[51] Extreme weather can pose additional challenges, flooding in particular. Severe monsoons in 2017 literally flushed many rhinos out of protected areas, exposing them to poachers, and highlighting the transboundary dimensions of rhino conservation when at least 15 animals were swept across the Indo-Nepalese border.[52]

2.4. Javan Rhinoceros

The Javan rhinoceros, one of the rarest large mammals, is the smaller sister of the Indian rhino. Close to the black rhino in size, it is also a browser,

[47]Thomas J. Foose & Nicolaas van Strien, *Asian Rhinos*, IUCN Status Survey and Conservation Action Plan (1997), http://www.rhinoresourcecenter.com/pdf_files/117/1175861914.pdf.
[48]Bibhab K. Talukdar et al., *Rhinoceros unicornis*, The IUCN Red List of Threatened Species (2008), http://www.iucnredlist.org/details/19496/0 (last visited May 25, 2018).
[49]Foose & van Strien, *supra* note 47, at 9.
[50]Talukdar et al., *supra* note 48.
[51]*Id.*
[52]Moushumi Basu, *India and Nepal Team up to Rescue Flooded Rhinos*, Mongabay (September 5, 2017), http://news.mongabay.com/2017/09/india-and-nepal-team-up-to-rescue-flooded-rhinos.

feeding on leaves, twigs, and shoots of woody plants.[53] The remaining Javan rhinos inhabit lowland tropical rainforest, especially in the vicinity of water, although this is unlikely to be the optimal habitat, as the species formerly occurred in a wide range of habitat types.[54] Comparatively little is known about the species' biology and behaviour.[55] Three Javan rhinoceros subspecies—*Rhinoceros sondaicus sondaicus*, *R. s. annamiticus*, and *R. s. inermis*—once lived in many Asian countries, from India and China to Malaysia and the Indonesian islands of Java and Sumatra.[56] Due to incessant poaching throughout the last few centuries, combined with serious habitat loss, the species has been virtually annihilated.[57]

Only the subspecies *R. s. sondaicus* remains, and its plight is precarious. The sole surviving population occurs on Java's western tip, in Ujung Kulon National Park,[58] and it was estimated in 2013 to consist of 62 animals.[59] The population appears relatively stable and near the carrying capacity of the site; poaching levels having been low in recent years.[60] Besides threats from poaching and habitat encroachment, the population is vulnerable to events such as disease, volcanic activity, and tsunamis. Re-establishing one or more populations elsewhere would be an "insurance policy."[61] The Javan rhino was included in the IUCN Red List as *endangered* in 1986, a status that was changed to *critically endangered* ten years later.[62]

2.5. Sumatran Rhinoceros

The Sumatran rhinoceros was similarly listed as *endangered* in 1986, and *critically endangered* since 1996.[63] This is the smallest of the remaining rhino species and the only one with body hair. It is, in fact, the closest living relative of the woolly rhinoceros (*Coelodonta antiquitatis*), which became extinct around 10,000 years ago. Sumatran rhinos' preferred habitat

[53]Colin P. Groves et al., *Rhinoceros sondaicus (Perissodactyla: Rhinocerotidae)*, 43 Mammalian Species 190, 192–199 (2011).
[54]Nicolaas J. van Strien et al., *Rhinoceros sondaicus*, The IUCN Red List of Threatened Species (2008), http://www.iucnredlist.org/details/19495/0 (last visited May 25, 2018).
[55]Groves et al., *supra* note 53, at 200.
[56]Gert Polet et al., *The Javan Rhinos,* Rhinoceros sondaicus annamiticus*, of Cat Tien National Park, Vietnam: Current Status and Management Implications*, 27 Pachyderm 34, 44 (1999).
[57]Van Strien et al., *supra* note 54.
[58]Mohammad Haryono et al., *Monitoring of the Javan rhino population in Ujung Kulon National Park, Java*, 56 Pachyderm 82, 82 (2015).
[59]Ridwan Setiawan et al., *Preventing Global Extinction of the Javan Rhino: Tsunami Risk and Future Conservation Direction*, 10 Conservation Letters 1 (2017); *see also* Haryono et al., *supra* note 58.
[60]*See* Haryono et al., *supra* note 58, at 83–84.
[61]*See* Setiawan et al., *supra* note 59, at 6.
[62]Van Strien et al., *supra* note 54.
[63]Nicolaas J. van Strien et al., *Dicerorhinus sumatrensis*, The IUCN Red List of Threatened Species (2008), http://www.iucnredlist.org/details/6553/0 (last visited May 25, 2018).

is humid hilly country with readily accessible water, mostly in primary tropical rainforest and montane moss forest, although they also occasionally wander into secondary forest.[64] They spend most of the day wallowing and move by night, feeding on fruit, leaves, twigs, and bark. Sumatran rhinos are agile and good swimmers, even known to venture into the sea. Females live in adjacent home ranges of 10–15 km^2, whereas males live in larger but overlapping home ranges of around 50 km^2.[65]

The historic range of the Sumatran and Javan rhinos probably overlapped, and the Sumatran species also used to consist of three subspecies. One of these, *Dicerorhinus sumatrensis lasiotis*, is probably extinct, although there is a slight possibility that some individuals survive in northern Myanmar.[66] Rhinos belonging to the other two Sumatran rhino subspecies remain only in various widely scattered, unconnected small populations across Indonesia and Malaysia, and their overall status and trend is unclear in both countries.[67] The subspecies *D. s. harrissoni* (also known as the Bornean rhino) appears to be down to very few individuals. The population in Tabin National Park in the Malaysian part of Borneo was recently declared extinct in the wild, but a small number of animals can probably still be found in East Kalimantan.[68] Up to 200 rhinos of the subspecies *D. s. sumatrensis*, but probably fewer, remain in various unconnected populations on the Indonesian island of Sumatra, with an unknown but very small number in mainland Malaysia.[69] The total number of Sumatran rhinoceros has declined by at least 80 percent over the last three generations to somewhere from 220–275,[70] 160–300,[71] or just 30–90,[72] depending on the source of the estimate. Poaching and habitat loss are the main drivers of decline. The emphasis in conservation is now towards captive breeding programs, although these are plagued by a lack of cooperation between Indonesian and Malaysian authorities.[73]

[64] *See* Van Strien, *supra* note 54.
[65] *Id.*
[66] *Id.*
[67] *See* van Strien et al., *supra* note 54; *see also* Milliken et al., *supra* note 19, at 14; Jeremy Hance, *Worst-Case Scenario: There Could Be Only 30 Wild Sumatran Rhinos Left*, Mongabay (November 7, 2017), http://news.mongabay.com/2017/11/worst-case-scenario-there-could-be-only-30-wild-sumatran-rhinos-left.
[68] Jeremy Hance, *Officials: Sumatran Rhino Is Extinct in the Wild in Sabah*, Mongabay (April 23, 2015), http://news.mongabay.com/2017/11/worst-case-scenario-there-could-be-only-30-wild-sumatran-rhinos-left.
[69] *Id.*
[70] Van Strien et al., *supra* note 54.
[71] Milliken et al., *supra* note 19, at 13.
[72] Hance, *supra* note 68.
[73] Jeremy Hance, *Is Anyone Going to Save the Sumatran Rhino?*, Mongabay (November 9, 2017), http://news.mongabay.com/2017/11/is-anyone-going-to-save-the-sumatran-rhino/; Jeremy Hance, *The Fate of the Sumatran Rhino Is in the Indonesian Government's Hands*, Mongabay (November 10, 2017), https://news.mongabay.com/2017/11/the-fate-of-the-sumatran-rhino-is-in-the-indonesian-governments-hands.

3. The International Legal Framework for Rhinoceros Conservation

Treaties of relevance to rhino conservation include most of the major global nature conservation treaties: (1) the 1992 Convention on Biological Diversity (CBD),[74] (2) the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),[75] (3) the 1971 Convention on Wetlands of International Importance (Ramsar Convention),[76] and (4) the 1972 UNESCO World Heritage Convention (WHC).[77] A fifth, the 1979 Convention on the Conservation of Migratory Species of Wild Animals (CMS),[78] is not directly relevant to rhino conservation but might become so in the future.

Relevant regional treaties include the African Convention on the Conservation of Nature and Natural Resources (African Convention) as adopted in 1968 and revised in 2003,[79] the 1994 Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora (Lusaka Agreement),[80] the 1999 Protocol (to the 1992 Treaty of the Southern African Development Community) on Wildlife Conservation and Law Enforcement (SADC Protocol),[81] and several treaties establishing transfrontier conservation areas (TFCAs).

The treaties mentioned so far have all entered into force. One that has not yet done so is the 2005 Protocol on Environment and Natural Resources Management to the 1999 Treaty for the Establishment of the East African Community (EAC Treaty).[82]

For 25 rhino range states, Table 1 indicates which rhino species it hosts (or hosted) and its degree of participation in selected treaties of relevance. Table 1 includes not only states where rhinoceroses are currently known to occur but also states where they possibly or likely went extinct in recent years. Also for the latter, wildlife treaties remain relevant with a view to the possible recovery or reintroduction of rhino populations.

[74]CBD, *supra* note 13.
[75]Convention on International Trade in Endangered Species of Wild Flora and Fauna, March 3, 1973, 993 U.N.T.S. 243 [hereinafter CITES].
[76]Convention on Wetlands of International Importance Especially as Waterfowl Habitat, February 2, 1971, 996 U.N.T.S. 245 [hereinafter Ramsar].
[77]UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, November 16, 1972, 1037 U.N.T.S. 151 [hereinafter WHC].
[78]Convention on the Conservation of Migratory Species of Wild Animals, June 23, 1979, 1651 U.N.T.S. 333 [hereinafter CMS].
[79]African Convention on the Conservation of Nature and Natural Resources, September 15, 1968 [hereinafter African Convention]; Revised African Convention on the Conservation of Nature and Natural Resources, revised July 11, 2003 [hereinafter Revised African Convention].
[80]Lusaka Agreement on Co-operative Enforcement Operations directed at Illegal Trade in Wild Fauna and Flora, September 8, 1994, 1 J. Int'l Wildlife L. & Pol'y 155 (1998).
[81]Protocol on Wildlife Conservation and Law Enforcement, August 18, 1999 [hereinafter SADC Protocol].
[82]Protocol on Environment and Natural Resources Management, 2005, *available at* http://iea.uoregon.edu/treaty-text/2006-protocolenvironmentnaturalresources-1999-eastafricancommunityentxt (last visited May 25, 2018).

Table 1. Rhinoceros range states and relevant treaties.

Range state	Rhino	CBD	CITES	Ramsar	WHC	CMS	Afr. '68	Afr. '03	SADC
Angola	B	X	X	–	X	X	–	X	–
Botswana	B, W	X	X	X	X	–	–	–	X
DRC	W?	X	X	X	X	X	X	–	–
Chad	B	X	X	X	X	X	–	X	N/A
Ethiopia	B?	X	X	–	X	X	–	–	N/A
Kenya	B, W	X	X	X	X	X	X	–	N/A
Malawi	B	X	X	X	X	–	X	–	X
Mozambique	B, W	X	X	X	X	X	X	–	X
Namibia	B, W	X	X	X	X	–	–	–	X
Rwanda	B	X	X	X	X	X	X	X	N/A
South Africa	B, W	X	X	X	X	X	–	X	X
South Sudan	W?	X	–	X	X	–	–	–	N/A
Sudan	W?	X	X	X	X	–	X	–	N/A
Swaziland	B, W	X	X	X	X	X	X	–	–
UR Tanzania	B	X	X	X	X	X	X	–	X
Uganda	W	X	X	X	X	X	X	–	N/A
Zambia	B, W	X	X	X	X	–	X	–	X
Zimbabwe	B, W	X	X	X	X	X	–	–	X
Bhutan	I	X	X	X	X	–	N/A	N/A	N/A
India	I	X	X	X	X	X	N/A	N/A	N/A
Indonesia	J, S	X	X	X	X	–	N/A	N/A	N/A
Malaysia	S	X	X	X	X	–	N/A	N/A	N/A
Myanmar	S?	X	X	X	X	–	N/A	N/A	N/A
Nepal	I	X	X	X	X	–	N/A	N/A	N/A
Vietnam	J?	X	X	X	X	–	N/A	N/A	N/A
25	**5**	**25**	**24**	**23**	**25**	**13**	**10**	**4**	**8**

List of rhinoceros range states, largely based on the IUCN Red List, indicating their participation in relevant treaties. *Legend:* Afr. '68 = 1968 African Convention; Afr. '03 = 2003 African Convention; SADC = SADC Protocol; B = Black rhinoceros; I = Indian rhinoceros; J = Javan rhinoceros; S = Sumatran rhinoceros; W = White rhinoceros; ? = possibly or likely extinct; X = contracting party; - = not a contracting party; N/A = not applicable.

In what follows we first address the CBD, the overarching legal framework for global biodiversity conservation, followed by CITES, the Ramsar Convention, WHC, CMS, and selected regional instruments.

Although the analysis emphasizes binding international agreements, including relevant binding or non-binding decisions adopted within the context of these agreements, other, non-binding international instruments are relevant to rhinoceros conservation and may, indeed, facilitate the application of the binding instruments. An apt example is the 2016 African Rhino Conservation Plan endorsed by most African rhino range states.[83] The Plan was crafted during successive meetings of delegates from thirteen range states,[84] greatly assisted by the IUCN Species Survival Commission's African Rhino Specialist Group. It constitutes a long-term vision for "[s]ecure, viable, growing & valued rhino populations across the African landscape," to ensure that "continental rhino numbers of southern white

[83]African Rhino Range States' African Rhino Conservation Plan, 2016, *available at* http://www.flauna.co.za/news/downloads/rhino-action-plan.aspx (last visited May 25, 2018). The conservation plan was launched during the 17th CITES COP in Johannesburg in September 2016.
[84]*Id.,* at 38 (Angola, Botswana, Kenya, Mozambique, Malawi, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe).

rhino and each of the three remaining black rhino subspecies increase over the next five years (by end 2021)."[85] The Plan notes that

> Until the recent upsurge in poaching the goal targets of most national plans set out to achieve at least an underlying growth rate (after allowing for translocations) of at least 5% per annum. However, given the high black-market prices currently being paid for rhino horn, involvement of transnational organised crime and resultant escalating poaching (despite increased protection efforts), it was felt that a realistic continental goal target would be to simply increase numbers over the life of the plan.[86]

A curious type of intergovernmental cooperation concerns the many cross-border rhino translocations that have taken place over the past decades for reinforcement or reintroduction purposes, with South Africa as the principal source country.[87]

A number of UN General Assembly (UNGA) Resolutions are also relevant, with the most recent one expressing concern over the "extraordinarily detrimental levels of rhinoceros poaching" and urging UN member states to take "decisive steps at the national level to prevent, combat and eradicate the illegal trade in wildlife, on both the supply and demand sides."[88] Lastly, we highlight the relevance of domestic legal and policy instruments, including national rhino conservation and management plans.[89]

4. Convention on Biological Diversity

The CBD aims for the conservation and sustainable use of biodiversity, including at ecosystem, species, and genetic levels.[90] Thus it obviously covers the various rhinoceros (sub)species. Regarding genetic diversity, the need to counter "genetic erosion" in small and/or fragmented rhino populations stands out.[91] All rhino range states are CBD parties. The Convention requires each, "as far as possible and as appropriate," to establish a protected areas system, to promote the "maintenance of viable populations of species in natural surroundings" and the "recovery of threatened species," and to enact the "necessary legislation and/or other regulatory provisions for the protection of threatened species and populations."[92]

[85]African Rhino Conservation Plan, *supra* note 83, at 14.
[86]*Id.*,
[87]Rhinos have been translocated from South Africa to Botswana, Kenya, Malawi, Mozambique, Rwanda, Swaziland, Tanzania, Zambia, and, most recently, Chad. To illustrate, the latter translocation was based on a bilateral Memorandum of Understanding on Cooperation on the Reintroduction of Black Rhinoceros of October 7, 2017; *see* http://www.sanparks.org/about/news/?id=57294 (last visited May 25, 2018).
[88]G.A. Res. 71/326 (September 11, 2017); *see also* G.A. Res. 70/301 (September 9, 2016); G.A. Res. 69/314 (July 30, 2015).
[89]Many of these are available through the Rhino Resource Center, http://www.rhinoresourcecenter.com (last visited May 25, 2018).
[90]CBD, *supra* note 13, at art. 1.
[91]Moodley et al., *supra* note 24.
[92]CBD, *supra* note 13, art. 8.

Other relevant obligations concern national biodiversity strategies, plans and programmes,[93] *ex situ* conservation,[94] sustainable use,[95] socioeconomic measures acting as incentives for conservation and sustainable use,[96] and environmental impact assessment.[97] The "as far as possible and as appropriate" language obviously gives parties ample discretion to determine what, in their individual circumstances, is "possible" and "appropriate." This discretion is not limitless, however, particularly regarding what is "appropriate." Allowing a species to go extinct on its territory, for example, would be hard to defend as an appropriate discharge of a party's Convention obligations.[98]

Several decisions by the CBD Conference of the Parties (COP) are relevant, even if they do not expressly address rhino conservation. For example, the 2004 Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity affirm that "all resource managers and users have the responsibility to ensure" that biodiversity components are used "in a manner in which ecological processes, species and genetic variability remain above thresholds needed for long-term viability."[99] Likewise, according to one of the COP's strategic Aichi Biodiversity Targets, CBD parties are committed to ensuring that "[b]y 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained."[100]

The CBD has influenced the development of national legislation around the world, and many parties have drawn up national biodiversity strategies and action plans (NBSAPs) in direct response to their becoming CBD parties.[101] This is where rhinoceros conservation comes into closer view. Mozambique's 2015 NBSAP, for example, makes the fight against rhino poaching a national priority.[102] Rhinoceros conservation also features in various parties' national reports, filed in accordance with Article 26 of the CBD, on implementation measures taken and their effectiveness. Examples include South Africa's reporting on the creation of a Biodiversity Management Plan for black rhinos,[103] India's reporting on the adoption of

[93] *Id.*, art. 6.
[94] *Id.*, art. 9.
[95] *Id.*, art. 10.
[96] *Id.*, art. 11.
[97] *Id.*, art. 14.
[98] Trouwborst et al., *International Law and Lions*, *supra* note 14, at 114.
[99] CBD COP Decision VII/12 on Sustainable Use, February 20, 2004, Annex II, ¶ 8(1), http://www.cbd.int/decision/cop/?id =7749 (last visited May 25, 2018).
[100] CBD Strategic Plan for Biodiversity 2011–2020, adopted through CBD COP Decision X/2, October 29, 2010.
[101] *See* the CBD website: http://www.cbd.int (last visited May 25, 2018); Benjamin Cretois et al., *What Form of Human-Wildlife Coexistence Is Mandated by Legislation?: A Comparative Analysis of International and National Instruments* (on file with the authors).
[102] National Strategy and Action Plan of Biological Diversity of Mozambique (2015–2035), 2015, at 48, *available at* http://extwprlegs1.fao.org/docs/pdf/moz158577.pdf (last visited May 25, 2018).
[103] South Africa's Fifth National Report to the Convention on Biological Diversity, 2014, at vi, *available at* http://www.cbd.int/doc/world/za/za-nr-05-en.pdf (last visited May 25, 2018).

an Indian Rhinoceros Recovery Plan and Indian Rhino Vision,[104] and Nepal's reporting on the population trend of its Indian rhino population.[105]

5. Convention on International Trade in Endangered Species (CITES)

"It is no small miracle that rhinos still walk the face of the earth," said one commentator in 1995.[106] "No other group of animals has been so highly prized for so long yet managed to survive human onslaught."[107] Rhino horn has long been valued in traditional Chinese medicine and as ornamentation and investment in various countries in the Middle East and East Asia, and additional uses have arisen more recently.[108] The killing of rhinoceroses to supply these markets continues to threaten most remaining populations.[109] To illustrate, in South Africa, where over three-quarters of all rhinos in the world remain, more than 1,000 rhinos were poached annually in the last five years.[110] The country where rhino horn is originally obtained is typically far removed from the country or countries where the horn is processed and sold to its final buyer(s). This extensive but largely illegal trade is highly lucrative, with rhino horn fetching higher prices per unit weight than cocaine or gold, and it involves sophisticated crime syndicates.[111]

CITES, as the primary framework for regulating international wildlife trade, thus has a key role in rhino conservation. Virtually all rhino range states (Table 1) and rhino horn transit and consumer countries are among the current 183 CITES parties, and all five species are listed in the Convention's appendices.

[104]India's Fifth National Report to the Convention on Biological Diversity, 2014, at 72, *available at* http://www.cbd.int/doc/world/in/in-nr-05-en.pdf (last visited May 25, 2018).
[105]Nepal's Fifth National Report to Convention on Biological Diversity, 2014, at vi, *available at* http://www.cbd.int/doc/world/np/np-nr-05-en.pdf (last visited May 25, 2018).
[106]Alan Rabinowitz, *Helping a Species Go Extinct: The Sumatran Rhino in Borneo*, 9 Conservation Biology 482, 482 (1995).
[107]*Id*.
[108]*See*, *e.g.*, Kristin Nowell et al., The Horns of a Dilemma: The Market For Rhino Horn in Taiwan (1992); Milliken et al., *supra* note 19; Duncan Graham-Rowe, *Biodiversity: Endangered and in Demand*, 480 Nature S101 (2011); Yufang Gao et al., *Rhino Horn Trade in China: An Analysis of the Art and Antiques Market*, 201 Biological Conservation 343 (2016); Clarke, *supra* note 34, at 140–142; Douglas Macmillan et al., Demand in Viet Nam For Rhino Horn Used in Traditional Medicine (2017), http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/11_V__Public%20Information_Publications_2016-2017%20Bienn.pdf (last visited May 25, 2018); *see also* Tom Milliken & Jo Shaw, *The South-Vietnam Rhino Horn Trade Nexus: A Deadly Combination of Institutional Lapses, Corrupt Wildlife Professionals, and Asian Crime Syndicates*, Traffic 118–123, 134 (2012) (discussing new uses of rhino horn, including "conspicuous consumption" to boost social status and use as hangover and cancer cures in Vietnam).
[109]*Id*.
[110]Department of Environmental Affairs of South Africa, *Media Release: Minister Edna Molewa Highlights Progress on the Implementation of the Integrated Strategic Management of Rhinoceros* (January 25, 2018), *available at* https://www.environment.gov.za/mediarelease/molewa_highlightsprogressonimplementationofintegratedstrategicmanagementofrhinoceros (last visited May 25, 2018).
[111]*See* Milliken & Shaw, *supra* note 108; Duan Biggs et al., *Legal Trade of Africa's Rhino Horns*, 339 Science 1038, 1038 (2013); Ayling, *supra* note 16.

CITES seeks to protect wild fauna and flora against overexploitation caused or exacerbated by international trade.[112] "Trade" is defined as "export, re-export, import and introduction from the sea."[113] The Convention regulates such international trade in specimens and body parts of species, subspecies, and populations listed in three appendices, the first two of which are most important. Also central to the Convention's operation is a licensing system, which generally prohibits international trade in listed species without the prior grant of one or more CITES permits.[114] The rigidity of trade restrictions and licensing conditions depends on the level of danger faced by the species. Thus CITES prohibits, with few exceptions, international commercial trade in species threatened with extinction, included in Appendix I.[115] Species that are not yet threatened but that may become so unless international trade is controlled are listed in Appendix II, and the Convention limits export of Appendix II specimens to levels that would not be detrimental.[116]

Tailor-made restrictions can result from annotations to a species' entry, added to delimit the extent of the species' inclusion in the appendix involved. The listing of species is undertaken by the COP, according to biological and trade criteria.[117] The Convention expressly allows contracting parties to adopt national measures stricter than those required under CITES' provisions.[118] Parties' responsibilities have been clarified and elaborated over the years by the COP. For instance, export quotas have become a key feature of the Convention's operation, even if their use is not expressly called for in the treaty text.[119] Quotas are most frequently established by parties unilaterally, but they can also be adopted by the COP through annotation or resolution. CITES features a comparatively advanced institutional structure to oversee its implementation, and non-complying parties risk being subjected to trade suspensions.[120]

[112]CITES, *supra* note 75, preamble; see also Annecoos Wiersema, *CITES and the Whole Chain Approach to Combating Illegal Wildlife Trade*, 20 J. Int'l Wildlife L. & Pol'y 207 (2017) (providing an overview of the evolution and functioning of the CITES regime).
[113]CITES, *supra* note 75, art. I(c).
[114]*Id.*, art. II–VII.
[115]*Id.*, art. III.
[116]*Id.*, art. IV.
[117]CITES Resolution Conf. 9.24 (Rev. CoP17), *Criteria for Amendment of Appendices I and II*, November 18, 1994 (revised October 5, 2016).
[118]CITES, *supra* note 75, art. XIV(1).
[119]CITES Resolution Conf. 14.7 (Rev. CoP15), *Management of Nationally Established Export Quotas*, June 15, 2007 (revised March 25, 2010) (stating in the Preamble that "export quotas for Appendix-II species are important tools to assist in regulating and monitoring wildlife trade to ensure that the use of natural resources remains sustainable").
[120]*See* CITES Resolution Conf. 14.3, *CITES Compliance Procedures*, June 15, 2007.

The effectiveness of CITES in achieving its objective of shielding species from harmful trade is, as Wandesforde-Smith recently put it, a "perennially controversial" issue.[121] On the one hand, as Bowman and others have pointed out, "[i]nternational trade in the majority of Appendix I and II species is certainly more carefully regulated than before CITES came into force [and] CITES can justifiably claim much of the credit in this regard."[122] The Convention has thus tangibly contributed to the conservation of many species.[123] To illustrate, the population trends of jaguars (*Panthera onca*), ocelots (*Leopardus pardalis*), and other South American cat species notably improved after the CITES prohibition on trade in their pelts took effect in 1975.[124] Other examples of species that have demonstrably benefited from trade regulation under CITES include crocodiles and neotropical parrots.[125] On the other hand, problems with the functioning and implementation of the CITES regime have severely limited its utility for many other threatened species. CITES needs to be adequately implemented through national legislation and other actions at the domestic level, because the "real power of wildlife law to protect iconic species under threat, such as elephants, rhinos, leopards, and lions, among others, lies with domestic law, domestic police and rangers, domestic prosecutors, domestic courts, and domestic conservation bureaucracies."[126] This presents major challenges:

> The length and complexity of the Appendices makes the already difficult task of enforcement officers that much harder, and there is also very clearly insufficient implementation in some countries in relation to surveillance and the issuing of permits. The level of fines imposed on those involved in illegal traffic can be frustratingly inadequate to deter effectively. Moreover, securing sufficient financial resources to implement the Convention effectively is an ever-present problem. Additionally, despite efforts to improve capacity building, Management and Scientific Authorities are too often understaffed and their personnel inadequately trained and communication between Management Authorities could certainly be improved in

[121]Wandesforde-Smith, *supra* note 15, at 365; *see also* Michael Bowman, *A Tale of Two CITES: Divergent Perspectives upon the Effectiveness of the Wildlife Trade Convention*, 22 Rev. Eur. Community & Int'l Envtl. L. 228 (2013); Wiersema, *supra* note 112.
[122]Bowman et al, *supra* note 12, at 533.
[123]*See, e.g.*, Organisation for Economic Co-operation and Development, Trade Measures in Multilateral Environmental Agreements (2000); Phaedra Doukakis et al., *Testing the Effectiveness of an International Conservation Agreement*, 7 PLOS One e340907 (2012).
[124]Moreno di Marco et al., *A Retrospective Evaluation of the Global Decline of Carnivores and Ungulates*, 28 Conservation Biology 1109 (2014); Graham, *supra* note 14, at 288 ("[T]he CITES regime has played a critical and important role in curbing the immense trade in spotted-cat furs, with ocelot trade dropping from many thousands to a few hundred in more recent years.")
[125]Jon Hutton & Grahame Webb, *Crocodiles: Legal Trade Snaps Back*, *in* The Trade in Wildlife: Regulation for Conservation 108 (Sara Oldfield ed., 2003); Debbie Pain, *Impact of Protection on Nest Take and Nesting Success of Parrots in Africa, Asia, and Australia*, 9 Animal Conservation 322 (2006); Anna Santos et al., *Do Wildlife Trade Bans Enhance or Undermine Conservation Efforts?* 1 Applied Biodiversity Perspective Series 1 (2011).
[126]Wandesforde-Smith, *supra* note 15, at 369.

> many instances, as could the rate of submission of annual reports to the Secretariat.[127]

Problems are particularly daunting in developing countries.[128]

In addition to these implementation difficulties, the CITES regime is marked by serious disagreements between stakeholders and, ultimately, between Convention parties about what sort of regime is appropriate for particular species[129]—elephants being a notorious example.[130] The key question is what degree or combination of strict protection and/or sustainable use is "in the best interest of the conservation of the species concerned."[131] Ethical issues create further complications. As Wiersema puts it:

> Listing decisions lie at the heart of CITES. It is through listing on either Appendix I or II that CITES operates, regulating international trade in those listed species. Yet listing decisions are complicated by fundamental disagreements about the role of utilization and trade in species conservation. This translates into two main debates. First, the idea that banning commercial trade in a species will always help ensure that species' survival is itself contested. Some commentators and countries suggest that, because trade can be beneficial for the survival of some species, listing itself should be a last resort. In addition, commentators note that banning commercial trade can have a detrimental effect on livelihoods and that sound conservation can accommodate sustainable utilization. Second, certain species trigger another set of concerns, namely the appropriateness of killing or domestication of some or all animals. These debates often merge but reflect distinct concerns. The first concern involves predictions and information about the viability of sustainable utilization for population viability of particular species. The second concern invokes values that go beyond what the data might tell decision makers.[132]

Thus, for some species, including rhinoceroses and especially the African species, it is hard to get agreement on a way forward.

When CITES entered into force in 1975, for example, the three Asian species and the northern white rhino were on Appendix I, and the black rhino on Appendix II. At its first meeting in 1976, however, the COP included all rhino species and subspecies in Appendix I, effectively banning international trade in rhinos and rhino products for CITES parties, with some limited exceptions including, under certain complex conditions,

[127]Bowman et al., *supra* note 12, at 533–534.
[128]*See* DLA Piper, Empty Threat: Does the Law Combat Illegal Wildlife Trade? An Eleven-Country Review of Legislative and Judicial Approaches (2014); DLA Piper, Empty Threat: Does the Law Combat Illegal Wildlife Trade? A Review of Legislative and Judicial Approaches in Fifteen Jurisdictions (2015); Wandesforde-Smith, *supra* note 15.
[129]*See, e.g.*, Saskia Young, *Contemporary Issues of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Debate over Sustainable Use*, 14 Colo. J. Int'l Envtl. L. & Pol'y 167 (2003); Peter Sand, *Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment*, 1 Eur. J. Int'l L. 29 (1997); Bowman, *supra* note 121.
[130]Glennon, *supra* note 15; Kidd & Cowling, *supra* note 15; Couzens, *supra* note 15; Wandesforde-Smith, *supra* note 15.
[131]CITES Resolution Conf. 9.24, *supra* note 117, § 2.
[132]Annecoos Wiersema, *Uncertainty, Precaution, and Adaptive Management in Wildlife Trade*, 36 Mich. J. Int'l L. 375, 399 (2015).

"personal or household effects" such as hunting trophies,[133] captive-bred rhino (products),[134] and pre-Convention specimens.[135]

In 1981, the COP further requested a halt in trade in rhino products from stocks kept by governmental and parastatal bodies.[136] Six years later, another COP Resolution urged parties to destroy all such stocks.[137] The strong language in this Resolution, adopted over thirty years ago, is worth recalling. The Preamble notes that the black rhino has "continued to decline catastrophically, and that the species is currently extremely endangered," and that the "precarious conservation status of Asian rhinoceros species" stems from "the continuing threat posed to these species by commerce in their parts and derivatives."[138] The Resolution admits that parties' efforts "have failed to stem the flow" of illegal trade in rhinoceros horn, that "this trade is the primary factor responsible for the destruction of rhinoceros populations," and that "the situation will continue to deteriorate unless drastic measures are taken immediately."[139] Parties are then urged to take the following measures "immediately":

a. a complete prohibition on *all* sales and trade, internal and international, of rhinoceros parts and derivatives, especially horn, whether whole or in any other form, including personal effects, but excluding (solely) non-commercial movement of legitimate hunting trophies where appropriate full CITES documents are issued to that effect;
b. the destruction of all government and parastatal stocks of rhinoceros horn with supporting contributory funds from external aid sources to be used for rhino conservation in the state concerned;
c. the issuance of special instructions to *all* law enforcement agencies to be particularly alert to the problem of rhinoceros horn smuggling;
d. an increase in penalties for individuals/companies convicted of relevant offences; and
e. firm action against middlemen and poachers involved in cross border poaching and trafficking in horn.[140]

By 1992, however, range states in southern Africa argued that these restrictions went too far. South Africa proposed to transfer its national southern white rhino population from Appendix I to Appendix II,[141] and

[133]CITES, *supra* note 75, art. VII(3).
[134]*See* CITES, *supra* note 75, at art. VII (4) (explaining that animals belonging to an Appendix I species that have been bred in captivity for commercial purposes are treated as if included in Appendix II).
[135]CITES, *supra* note 75, art. VII(2).
[136]CITES Resolution Conf. 3.11, *Trade in Rhinoceros Horn* (March 8, 1981) (no longer valid).
[137]CITES Resolution Conf. 6.10, *Trade in Rhinoceros Products* (July 24, 1987) (no longer valid).
[138]*Id*., preamble.
[139]*Id*.
[140]*Id*., operative part (emphasis in original).
[141]CITES CoP8 Prop. 17, *Transfer from Appendix I to Appendix II* (March 1992).

Zimbabwe advocated downlisting its white[142] and black[143] rhino populations, both countries arguing that a regulated international trade in rhino products, subject to quota and other safeguards, could ultimately benefit rhino conservation.[144] Proceeds would be used exclusively, South Africa said, for priority conservation projects and "neighborhood programmes" to support the sustainable development of "underprivileged communities surrounding game reserves," in anticipation of increased support for rhino and broader wildlife conservation within these local communities.[145] The proposals were not adopted, however, because opposing parties, many of which were not rhino range states, feared that opening legal trade would drive up the demand for rhino products in importing countries to even more unsustainable levels.[146]

In 1994, the 1981 and 1987 Resolutions were repealed and replaced with Resolution Conf. 9.14,[147] which appears to reflect at least a partial change of mind as to the way forward. While applauding the "efforts made by range States to protect their rhinoceros populations against illegal hunting, often under very difficult circumstances," as well as demand reduction measures by countries "to control and reduce use of rhinoceros horn, especially countries where use is part of a cultural tradition extending back many centuries," the 1994 Resolution acknowledges that "the above measures have not arrested the decline of rhinoceros populations."[148] Besides issuing familiar calls for improved enforcement, the Resolution expressly abandons the previous instruction to destroy rhino horn stocks, instead urging parties "that have stocks of rhinoceros horn to identify, mark, register and secure all such stocks":[149]

> AWARE that, given the social, economic and cultural realities in many producer and consumer States, emphasis solely on law enforcement has failed to remove the threat to rhinoceroses;
>
> CONSCIOUS that stocks of rhinoceros horn continue to accumulate in some countries and that the call for their destruction, as recommended by Resolution Conf. 6.10, has not been implemented and is no longer considered appropriate by a number of Parties;

[142]CITES CoP8 Prop. 16, *Transfer from Appendix I to Appendix II* (March 1992).
[143]CITES CoP8 Prop. 18, *Transfer from Appendix I to Appendix II* (March 1992).
[144]*See* CITES CoP8 Prop. 17, *supra* note 141; CITES CoP8 Prop. 16, *supra* note 142; CITES CoP8 Prop. 18, *supra* note 143.
[145]CITES CoP8 Prop. 17, *supra* note 141, at § 6.
[146]CITES CoP8, *Summary Report of Committee I Meeting*, Com.I.8.1 (Rev.) (March 13, 1992).
[147]CITES Resolution Conf. 9.14, *Conservation of Rhinoceros in Asia and Africa* (November 18, 1994) (to be revised at later COPs; text as originally adopted, available at http://www.cites.org/sites/default/files/eng/cop/09/E9-Res.pdf (last visited May 25, 2018)).
[148]*Id.*, preamble.
[149]*Id.*, § 2.

> CONCERNED that the destruction of stocks of rhinoceros horn could in all probability increase the risks to remaining rhinoceros populations;
>
> RECOGNIZING that recent international measures have had a number of unintended consequences, including driving the trade further underground, and have coincided with a rise in price in some consumer countries;
>
> RECOGNIZING further that there is a diversity of opinion as to the most effective approaches to the conservation of rhinoceroses in Asia and Africa;
>
> CONCERNED that the direct threats to rhinoceros populations are not being reduced, and that the cost of ensuring adequate security for them is increasing and cannot easily be met by many range States under the present conditions.[150]

The Resolution further recommends that each rhino range state develop a tailored recovery plan for its rhinoceros population(s).[151]

The year 1994 also marked the end of uniform listing of all rhinoceroses in CITES Appendix I, with the COP's decision to transfer South Africa's populations of southern white rhino (*C. s. simum*) to Appendix II with an annotation. Swaziland's white rhino population was transferred in 2004. To date, both countries' populations of southern white rhino remain in Appendix II "[f]or the exclusive purpose of allowing international trade in live animals to appropriate and acceptable destinations and hunting trophies."[152] The annotation specifies that "[a]ll other specimens shall be deemed to be specimens of species included in Appendix I."[153] Reportedly, this partial downlisting has benefited the rhino populations involved by enabling the generation of additional income that has been redirected into conservation efforts.[154] Yet the hunting trophy trade option has also been subject to abuse, with "pseudo-hunting" being used to enable export of rhino horn to Asia, although this loophole was addressed through regulatory changes within South Africa in 2012.[155]

In 1997, South Africa had reattempted to widen the options for trading southern white rhino horn, asking CITES parties to alter the Appendix II annotation "to allow the possibility of establishing a legal trade in rhinoceros products," with an initial zero quota and an investigation of the "possibility of establishing bilateral trade in these products with appropriate

[150] *Id.*, preamble.
[151] *Id.*, §§ 4–5.
[152] CITES, *supra* note 75, Appendix II.
[153] *Id.*
[154] *See* Michael 't Sas-Rolfes, *Assessing CITES: Four Case Studies*, *in* Endangered Species, Threatened Convention: The Past, Present, & Future of CITES 69, 73 (Jon Hutton & Barnabas Dickson eds., 2000); Melissa G. Lewis, *CITES and Rural Livelihoods: The Role of CITES in Making Wildlife Conservation and Poverty Reduction Mutually Supportive*, 12 J. Int'l Wildlife L. & Pol'y 248, 264 (2009).
[155] *See, e.g.*, Milliken & Shaw, *supra* note 108, at 52–60.

controls that will prevent the laundering of illegal products," but failed to get the necessary two-thirds majority by a narrow margin.[156]

Black rhino hunting trophies were the focus of a dedicated COP Resolution adopted in 2004 and revised in 2007. Resolution Conf. 13.5 states that "effective conservation, management and monitoring plans and programmes are in place in a number of range States of the black rhinoceros," and that "some populations are recovering and can sustain limited offtakes through trophy hunting."[157] Likewise, the COP acknowledged that "the financial benefits derived from trophy hunting of a limited number of specimens will benefit the conservation of the species directly," and will "provide additional incentives for conservation and habitat protection, when such hunting is done within the framework of national conservation and management plans and programmes."[158] Against this background, the Resolution approves the establishment of an annual export quota of five hunting trophies of adult male black rhinoceros for South Africa and another five for Namibia.[159]

At the 2016 COP, Swaziland proposed altering the Appendix II white rhino annotation to allow for limited and regulated trade in white rhino horn harvested in a non-lethal way, collected from animals having died from natural causes, or recovered from poached rhinos.[160] Although important rhino range states supported this proposal (including Namibia, South Africa, and Zimbabwe), it was ultimately rejected.[161] Opposing parties included the EU, the US, and rhino range states Kenya, India, Nepal, and Indonesia.[162]

The 2016 COP also adopted a revised version of Resolution Conf. 9.14. The tone of this newer version is slightly less desperate than that of Resolution 6.10 of 1987, quoted above. The COP expresses concern that "some rhinoceros populations have continued to decline drastically and that four of the five species are threatened with extinction," but also commends the "successful management and protection of rhinoceroses in some African and Asian range States."[163] It notes the importance of "well targeted strategies or programmes to reduce demand for illegally obtained

[156]CITES CoP10, Prop. 28, *Consideration of Proposals for Amendment of Appendices I and II* (June 1997).
[157]CITES Resolution Conf. 13.5 (Rev. CoP14), *Establishment of Export Quotas for Black Rhinoceros Hunting Trophies* (October 14, 2004; revised June 16, 2007), preamble. *See also* Leader-Williams et al., *supra* note 16.
[158]CITES Resolution Conf. 13.5, *id*.
[159]*Id*., operative part.
[160]CITES CoP17 Prop. 7 (October 3, 2017); *see also* Coetzee & Couzens, *supra* note 16.
[161]*Summary of the Seventeenth Meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora: 24 September–4 October 2016*, 21 Earth Negotiations Bull. 18 (2016).
[162]*Id*. The Swaziland proposal was comparatively brief and short on detail, perhaps because South Africa had been expected to file another legal trade proposal but eventually refrained from doing so. *See*, *e.g.*, Coetzee & Couzens, *supra* note 16.
[163]CITES Resolution Conf. 9.14 (Rev. CoP17), *Conservation of and Trade in Rhinoceros in Asia and Africa*, preamble (November 18, 1994; revised October 5, 2016).

rhinoceros specimens," as well as of "strategies or programmes to enhance community awareness of the economic, social, and environmental impacts of illegal killing of rhinoceroses."[164] Regarding enforcement, the COP stresses the need to "deploy the same tools and techniques as those used against other domestic and transnational organized crimes … against the criminal groups involved in the illegal killing of rhinoceroses and the trafficking of rhinoceros horns, and in particular against those individuals managing and organizing these illegal activities."[165] Likewise, it recommends "using forensic science to the fullest extent possible in order to combat wildlife crime."[166] The operative part of the Resolution urges parties to "adopt and implement comprehensive legislation and enforcement controls, including internal trade restrictions and penalties" to counter illegal rhino product trade, and sets out a range of detailed recommendations to improve enforcement.[167] Parties with rhino horn stocks are urged to "identify, mark, register and secure" such stocks and declare them each year to the CITES Secretariat in a standardized manner.[168] Another key recommendation is that each range state develop and implement a "budgeted conservation and management plan" for rhinoceroses, "utilizing all available relevant expertise and resources."[169]

The preceding brief review of the role CITES has played in rhino conservation clearly reveals divergent opinions among stakeholders on the best way to regulate the rhino horn trade, and what role CITES should play in the future. Some stakeholders and commentators, such as Wiersema, advocate a primary emphasis on continued demand reduction efforts and improved enforcement, recommending that CITES parties pursue strategies directly aimed at "limiting demand, enforcing bans and ensuring that domestic efforts track international efforts to eliminate trade in endangered species."[170] But, as Bennett observes, this is a steep road to climb:

> To save some of the highly charismatic species before it is too late we have to start taking wildlife enforcement seriously. We must dedicate the intellectual, funding and personnel resources needed to supersede those of the criminal organizations involved. This requires greatly increased numbers of highly trained and well equipped staff at all points along the trade chain: most especially in core sites where the species are being hunted but also along key transportation routes and in end markets. It involves use of a wide array of technologies, whatever is most appropriate for the task in hand: sniffer dogs and X-ray machines for vehicles and shipping

[164] *Id.*; *see also* CITES Resolution Conf. 17.4, *Demand Reduction Strategies to Combat Illegal Trade in CITES-Listed Species* (October 5, 2016).
[165] CITES Resolution Conf. 9.14, *supra* note 163, preamble.
[166] *Id.*
[167] *Id.*, operative part.
[168] *Id.*
[169] *Id.*
[170] Wiersema, *supra* note 17, at 249; *see also* Wiersema, *supra* note 112; Annecoos Wiersema, *Incomplete Bans and Uncertain Markets in Wildlife Trade*, 12 U. Pa. Asian L. Rev. 65 (2016).

> containers, user-friendly DNA testing kits and smartphone apps to aid in species identification, and state-of-the-art software to detect internet crime. Success necessitates a total change in the way that wildlife crime is treated by governments and wider society. Law enforcement agencies including customs and police must regard this as serious crime and its enforcement as part of their job. … [N]ational governments … should start dedicating the scale of resources to illegal wildlife trade that they do to other serious crimes, including the provision of highly trained enforcement personnel. Members of the judiciaries in countries along the trade chain should be well informed, giving sentences appropriate to the value and scale of the crime. Critically important, enforcement agencies in developed countries should greatly step up their technical support to the less developed countries that are so often the sources of the traded wildlife, as well as curb demand at home, and multilateral, bilateral and private funding agencies should dedicate the level of resources needed to support such operations.[171]

The various CITES Resolutions discussed above are evidence of the consistent emphasis the COP has placed over the years on the importance of adequate enforcement—work supported by other international entities, both global and regional. They include the wildlife trade monitoring network TRAFFIC; the International Consortium on Combating Wildlife Crime (ICCWC); the UN Office on Drugs and Crime (UNODC); the Lusaka Agreement Task Force; the SADC Rhino and Elephant Security Group/INTERPOL Environmental Crime Working Group; the Horn of Africa Wildlife Enforcement Network (HA-WEN); the ASEAN Wildlife Enforcement Network (ASEAN-WEN); and non-governmental initiatives such as the Wildlife Justice Commission. "Where enforcement is thorough, and with sufficient resources and personnel," Bennett asserts, "it works, both at sites and along trade chains," and many law enforcement successes have indeed been achieved.[172] Unfortunately, however, the overall situation Bennett imagined is still far removed from the actual situation on the ground. In many places that matter, progress has been limited, especially in the developing countries where rhinoceroses are hunted and traded and where daunting capacity and governance problems, including pervasive corruption, impair law enforcement.[173] Some encouraging demand-reduction efforts have occurred in Japan, Yemen, and elsewhere, but overall it is unclear whether "demand rooted in thousands of years of culture and tradition can be completely eliminated, especially given the increasing affluence of China and Vietnam,"[174] and, particularly, whether

[171]Elizabeth L. Bennett, *Another Inconvenient Truth: The Failure of Enforcement Systems to Save Charismatic Species*, 45 Oryx 476, 477–478 (2011).
[172]*Id.*, at 477.
[173]Robert J. Smith & Matthew J. Walpole, *Should Conservationists Pay More Attention to Corruption?*, 39 Oryx 251 (2005); DLA Piper (2014), *supra* note 131; DLA Piper (2015), *supra* note 131; Robert J. Smith et al., *Elephant Conservation and Corruption Beyond the Ivory Trade*, 29 Conservation Biology 953 (2015); Wandesforde-Smith, *supra* note 15.
[174]Ayling, *supra* note 16, at 79.

demand-reduction campaigns "can change behavior *in time* to reduce poaching to sustainable levels."[175]

This has led an increasing number of commentators to urge a reconsideration of current policies, including the 40-year-old ban on commercial international trade in rhino products. In the words of one review, the "recent escalation in poaching in South Africa and the recent losses of 3 subspecies of rhinoceroses elsewhere in Asia and Africa make it timely to evaluate, discuss, and test alternatives to the present long-standing policy."[176] As another commentator argues, whereas "a massive effort has gone into closing down the trade in rhino horn, perhaps the time has come to accept and recognise that this has failed."[177] Specifically, the momentum for enabling a sustainable, legal, well-regulated international commercial trade in rhino horn has been building, and so has the debate surrounding this notion.[178]

Among those who see various shortcomings and unwanted effects of the current regime,[179] a central argument is that by limiting the supply of rhino horn, the regime has raised prices and has, therefore, driven illegal killing to fuel a lucrative black market: "When certain consumers will pay dearly, there is a significant profit to be made, trade networks are well established, ownership is vague, the animals are worth more dead than alive, and the odds of getting caught are slim, how can a trade ban be effective?"[180] Importantly, rhino horn profits go largely to poachers and

[175]Kirsten Conrad, *Trade Bans: A Perfect Storm for Poaching?*, 5 Tropical Conservation Sci. 245, 249 (2012); *see also* Gayle Burgess, *Powers of Persuasion? Behavioural Change and Reducing Demand for Illegal Wildlife Products*, 28 Traffic Bull. 65 (2016); Lucy Vigne & Esmond Martin, *Demand for Rhino Horn Declines in Yemen*, 47 Oryx 323 (2013).

[176]Enrico di Minin et al., *Identification of Policies for a Sustainable Legal Trade in Rhinoceros Horn Based on Population Projection and Socioeconomic Models*, 29 Conservation Biology 545, 553 (2015).

[177]John Hanks, Operation Lock and the War on Rhino Poaching 241 (2015). This statement is perhaps too simplistic in the sense that the international rhino horn trade has been subject to an incomplete ban since the split-listing of southern white rhino in 1994. *See also* Wiersema, *Incomplete Bans and Uncertain Markets in Wildlife Trade*, *supra* note 170.

[178]*See, e.g.*, Brian Child, *The Sustainable Use Approach Could Save South Africa's Rhinos*, 108 S. Afr. J. Sci. 21 (2012); Conrad, *supra* note 175; Ayling, *supra* note 16; Roderick Campbell, Horn of Contention: A Review of the Literature on the Economics of Trade in Rhino Horn (2013), https://www.ifaw.org/united-states/resource-centre/horn-contention-review-literature-economics-trade-rhino-horn (last visited May 25, 2018); Michael 't Sas-Rolfes & Tim Fitzgerald, *Can a Legal Horn Trade Save Rhinos?*, 13-6 PERC Res. Paper (2013); Biggs et al., *supra* note 111; Alan Collins et al., *Rhino Poaching: Supply and Demand Uncertain*, 340 Sci. 1167 (2013); Herbert H.T. Prins & Benson Okita-Ouma, *Rhino Poaching: Unique Challenges*, 340 Sci. 1167 (2013); Sam M. Ferreira et al., *Management Strategies to Curb Rhino Poaching: Alternative Options Using a Cost-Benefit Approach*, 110 S. African J. Sci. 1 (2014); Alejandro Nadal & Francisco Aguayo, Leonardo's Sailors: A Review of the Economic Analysis of Wildlife Trade (2014), http://thestudyofvalue.org/wp-content/uploads/2014/06/WP5-Nadal-and-Aguayo-Leonardos-Sailors-2014.pdf (last visited May 25, 2018); Hanks, *supra* note 177, at 221–251; Di Minin et al., *supra* note 176; Wiersema, *supra* note 17; Douglas J. Crookes & James N. Blignaut, *Debunking the Myth That a Legal Trade Will Solve the Rhino Horn Crisis: A System Dynamics Model for Market Demand*, 28 J. Nature Conservation 11 (2015); Wiersema, *Incomplete Bans and Uncertain Markets in Wildlife Trade, supra* note 170; MacMillan et al., *supra* note 108; Andrew Taylor *et al.*, *Sustainable Rhino Horn Production at the Pointy End of the Rhino Horn Trade Debate*, 216 Biological Conservation 60 (2017).

[179]*See, e.g.*, Child, *id.*; 't Sas-Rolfes & Fitzgerald, *id.*; Ferreira et al., *id.*; Conrad, *supra* note 175; Ayling, *supra* note 16; Biggs et al., *supra* note 111; Hanks, *supra* note 177; Di Minin et al., *supra* note 176.

[180]Conrad, *supra* note 175, at 252.

criminal traders on the black market, rather than to local communities or to the public administrators or private owners of land hosting rhinos. The latter, however, bear the substantial costs of trying to keep the animals from being poached, a task requiring expensive combinations of manpower and technology.[181] During the four decades of its existence, the CITES Appendix I trade ban has not sufficiently reduced rhino poaching.

Could a strictly controlled legal trade in rhino horn sourced from viable, sustainably managed rhino populations offer a workable and superior alternative to the trade ban? This is "not a simple question, nor is there a simple answer."[182] Various studies and past experiences with other species appear to indicate that, conceptually at least, a legal trade scheme could undercut the illegal trade, and "simultaneously supply horns, fund rhino protection, and provide an incentive for their sustainable use and long-term survival [while] reduc[ing] the incentive for poaching."[183] A concern, however, is that legalization might increase rhino horn demand along with supply, as the destigmatization and lower pricing of horn draws in more customers than can be served by a legalized trade, thus maintaining or even increasing the incentive to poach.[184] A related concern is the risk of illegally obtained rhino horn being laundered into the legal trade at an unsustainable rate.[185] There are then various preconditions to be met and safeguards to be put in place, if a rhino horn trading scheme is to be capable of succeeding. According to Biggs and others:

> [A] legal trade can reduce the incentive for poaching if: (i) regulators can prevent the laundering of a threatening level of illegal supply under the cover of a legal trade; (ii) the legal supply can deliver the product (horn) more easily, reliably, and cost-effectively than the illegal trade; (iii) the demand does not escalate to dangerous levels as the stigma associated with the illegality of the product is removed; and (iv) legally harvested horns from live animals can substitute for horns obtained from wild, poached animals. A highly regulated legal trade based on the renewable cropping of horns from rhinos is likely to succeed if these conditions are met.[186]

This implies an independent central selling organization, tasked with negotiating and managing the selling of horns so that it is "more attractive, reliable, and cost-effective for buyers to obtain the product legally than through illegal means," with various safeguards in place to "manage the

[181]Elena C. Rubino & Elizabeth F. Pienaar, *Applying a Conceptual Framework for Rhinoceros Conservation on Private Lands in South Africa*, 34 Endangered Species Res. 89 (2017); Eleanor J. Milner-Gulland et al., *Dehorning African Rhinos: A Model of Optimal Frequency and Profitability*, 249 Proc.: Biological Sci. 83 (1992); Hanks, *supra* note 177, at 234–236.
[182]Hanks, *supra* note 177, at 241.
[183]Biggs et al., *supra* note 111, at 1038; *see also* the other sources *supra* note 178.
[184]*See* sources mentioned *supra* note 178. Note, however, that MacMillan et al., *supra* note 108, found little evidence of any social stigma from rhino horn consumption in Vietnam.
[185]*Id.*; *see also* Brendan Moyle, *Wildlife Markets in the Presence of Laundering: A Comment*, 26 Biodiversity & Conservation 2979 (2017).
[186]Biggs et al., *supra* note 111, at 1038–1039.

uncertainties and risks that may emerge from a legal trade."[187] The merits of a scheme like this have already been considered under the auspices of CITES for elephant ivory, although the CITES process to explore the options for a "decision-making mechanism for a process of trade in ivory" (DMM), initiated by the COP in 2007, was discontinued in 2016 because of a lack of agreement amongst the parties.[188]

One key piece of evidence was provided by a recent assessment that put the potential mass of South African rhino horn (from natural deaths, dehorning, stockpiles, and trophy hunting) available to supply a legal market in the next few years at 5,319–13,356 kg, and the mass of horn entering the illegal market from South Africa at 5,346 kg.[189] A significant problem for any legal trade scheme, however, is that in a highly dynamic and complex world, with many different countries and governmental and private stakeholders involved, there is "deep and multilayered uncertainty"[190] regarding the assumptions underpinning legal trade proposals. This makes it hard to predict with any accuracy the impact of legal trade on the demand side and the dimensions of the various other challenges involved and, therefore, the overall chances of success.[191] Even with a central selling body, managing the rhino horn trade successfully is "unlikely to be easy."[192]

The CITES COP's precautionary guideline that, in case of doubt regarding the proper legal regime for particular species, the parties shall act "in the best interest of the conservation of the species," is of limited value here.[193] It should be noted, however, that in situations of doubt regarding the downlisting of Appendix I species, the COP has hitherto favoured the retention of such species in Appendix I.[194] Effectively, the choice is between two evils. One approach has been tried to a significant degree (and fallen short), and the other not. Wiersema warns CITES parties not to embark on "an approach of using legal markets that is untried, extremely risky and potentially highly resource intensive,"[195] but Ayling argues that

[187] *Id.*, at 1039; *see also* Di Minin et al., *supra* note 176.
[188] *See* Rowan B. Martin et al., *Decision-Making Mechanisms and Necessary Conditions for a Future Trade in African Elephant Ivory*, Consultancy for the CITES Secretariat, SC62 Doc. 46.4, Annex (May 24, 2012); *see also* the 2015 background document on the DMM process by the UNEP and CITES Secretariats, SC66 Doc. 47.4.1, Annex; CoP17 Prop. 7, *supra* note 160, at 13.
[189] Taylor et al., *supra* note 178.
[190] Wiersema, *supra* note 17, at 239.
[191] *Id.*; Richard J. Hall et al., *Endangering the Endangered: The Effects of Perceived Rarity on Species Exploitation*, 1 Conservation Letters 75 (2008); Campbell, *supra* note 178; Collins et al., *supra* note 178; Nadal & Aguayo, *supra* note 178; Crookes & Blignaut, *supra* note 178.
[192] *See* Collins et al., *supra* note 178, at 1167.
[193] *See* CITES Resolution Conf. 9.24, *supra* note 117, at § 2 and Annex 4; Wiersema, *supra* note 17; Wiersema, *supra* note 132.
[194] *Id.*
[195] Wiersema, *supra* note 17, at 249.

"where the knowledge base is poor *and existing strategies seemingly ineffectual*, one can certainly argue under a precautionary approach that any action that could reduce poaching and quash the illegal trade ought to be tried."[196] More concretely:

> [A] grand experiment in regulated trade [in rhino horn] may be worth attempting. Such an experiment would need to be under review from the moment it began, and would have to be given a finite period to produce results. There would need to be a commitment to end the experiment if it was not achieving its objectives. Stringent oversight would be essential to keep the price of legal horn below that of the illegal equivalent, to prevent any of the trade becoming an avenue for laundering illegal horn and to ensure that corruption did not corrode processes.[197]

This is not the place to go into the details of alternative trading schemes. We would, however, observe that all the evidence indicates that the details of any regime and associated governance structures will be crucial; that any decision to open up for more legal trade should not be taken lightly, as the risks involved are considerable and market impacts potentially difficult to reverse; and that any broadening of the possibilities for legal trade should not diminish efforts to curb illegal trade. Some valuable insights have already been gained in the context of the elephant ivory DMM process, wherein it was agreed *inter alia* that trade should not resume before a mechanism was in place "to halt trade and immediately re-transfer to Appendix I populations that have been transferred to Appendix II, in the event of non-compliance with [applicable] conditions … or of the escalation of illegal hunting of elephants and/or trade in elephant products owing to the resumption of legal trade."[198] Any trading scheme would also need to address the different possible ways in which synthetically produced rhino horn could influence the rhino horn market, given the technological developments in this regard.[199]

Recently, a domestic trade in rhino horn within South Africa was legalized, after a temporary national ban on such trade was overturned in court.[200] A first large-scale auction held in August 2017 had 264 horns (weighing in at 500 kilograms) on offer, originating from the stockpile of a private rhino ranch running an ambitious captive breeding operation of

[196]Ayling, *supra* note 16, at 79 (emphasis added).
[197]*Id*.
[198]CITES COP Decision 10.1 (June 20, 1997) (notably, under CITES art. XV, a transfer from Appendix II to I requires a proposal by a party and approval by the COP and takes 90 days to take effect).
[199]Steven Broad & Gayle Burgess, *Synthetic Biology, Product Substitution and the Battle Against Illegal Wildlife Trade* 28(1) Traffic Bull. 22 (2016); Frederick Chen, *The Economics of Synthetic Rhino Horns*, 141 Ecological Econ. 180 (2017); Olivia Trani, *Synthetic Rhinoceros Horns Spark Economic Debate on Conservation*, Inside Science (August 4, 2017), http://www.insidescience.org/news/synthetic-rhinoceros-horns-spark-economic-debate-conservation.
[200]*Kruger and Another v. The Minister of Water and Environmental Affairs and Others* 2015 (1) All SA (GP) at 565 (S. Afr.).

more than 1,500 white and black rhinos, from which horns were regularly and non-lethally removed—although not a single horn was sold.[201]

It remains to be seen how South Africa's policy and CITES will affect each other, given that the demand for rhino horn is primarily from overseas.[202] Options for rhino horn legally purchased within South Africa to leave the country legally exist, but they are limited, and this probably explains the auction's failure. According to the Convention, such trade must only be authorized in "exceptional circumstances."[203] First, the importing country's CITES management authority must issue an import permit, which it may not do unless its scientific authority advises that the import will be for "purposes which are not detrimental to the survival of the species," and the management authority itself is satisfied that the rhino horn is "not to be used for primarily commercial purposes."[204] According to the COP, this latter phrase is to be interpreted "as broadly as possible so that any transaction which is not wholly 'non-commercial' will be regarded as 'commercial.'"[205] If an import permit is issued, South Africa can grant a corresponding export permit, but only if its own scientific authority deems the export not to be "detrimental to the survival of the species," and its management authority has verified that the horn was obtained in conformity with South African law.[206] Notably, the exemption from CITES controls of "personal or household effects" does not apply to persons who are not citizens or permanent residents of South Africa.[207]

Whatever conclusion one reaches about the impact CITES has already had on rhinoceros conservation, CITES will remain the pre-eminent international legal framework for addressing the threats posed by trade to rhino survival. Regarding the framework's future role, it is hard to see, in the light of available information and past experience, how the CITES COP will be able to avoid serious consideration of other regimes than the one currently applicable, including exploring further the options and conditions for enabling more legal trade in rhino horn than is currently allowed.

[201] *See* Rhino Horn Auction, http://rhinohornauction.com (last visited May 25, 2018); Keith Sommerville, *South Africa's First Online Rhino Horn Auction Ends in Risky Impasse*, The Conversation (August 29, 2017), http://theconversation.com/south-africas-first-online-rhino-horn-auction-ends-in-risky-impasse-83119; *Question NW2978 to the Minister of Environmental Affairs*, Parliamentary Monitoring Group (November 13, 2017), http://pmg.org.za/committee-question/7441/ (last visited February 7, 2018).

[202] A salient detail is that the August 2017 auction was advertised also in the Chinese and Vietnamese languages: Rhino Horn Auction, *supra* note 201; *see also* Clarke, *supra* note 34, 142–144.

[203] CITES, *supra* note 75, art. II(1).

[204] *Id.*, art. III(3).

[205] CITES Resolution Conf. 5.10 (Rev. CoP15), *Definition of 'Primarily Commercial Purposes'* (May 3, 1985; revised March 25, 2010), § 3 (stating that the "burden of proof for showing that the intended use of specimens of Appendix I species is clearly non-commercial shall rest with the person or entity seeking to import such specimens").

[206] CITES, *supra* note 75, art. III(2).

[207] *Id.*, art. VII(3)(a).

6. Ramsar Wetlands Convention

"Conservation and wise use of all wetlands through local and national actions and international cooperation" is the Ramsar Convention's mission.[208] Wetlands are defined as "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt."[209] This definition covers many different areas and vast stretches of territory, altogether accounting for approximately nine percent of the earth's surface.[210] These include significant, sometimes crucial, portions of rhinoceros habitat. In addition, many sites on the Convention's List of Wetlands of International Importance (the Ramsar List) include dry areas within their limits, and some of these are of significance for rhinos too, as discussed below.

All but two of the 25 rhino range states are Ramsar Convention parties (Table 1). Each is under a general obligation to formulate and implement its planning "so as to promote the conservation of the wetlands included in the List" and, "as far as possible," the "wise use" of *all* wetlands within its territory.[211] Wise use of wetlands involves the "maintenance of their ecological character," achieved through "ecosystem approaches, within the context of sustainable development."[212] Another generic obligation, applying to listed and non-listed wetlands alike, is to promote their conservation "by establishing nature reserves on wetlands."[213] In addition, parties must cooperate regarding transboundary wetlands and "coordinate and support present and future policies and regulations concerning the conservation of wetlands and their flora and fauna."[214]

Sites are added to the Ramsar List principally through selection by the parties.[215] To qualify, a wetland must be of "international significance in terms of ecology, botany, zoology, limnology or hydrology."[216] For each prospective new site, the national authority involved, with the assistance of the Convention's Secretariat, completes a Ramsar Information Sheet that details the site's ecological character and how it meets the relevant criteria, with the Secretariat ensuring that the data meet the COP's standards for site selection. One of these listing criteria, which is of evident importance from a rhinoceros conservation perspective, is that "a wetland should be

[208]Ramsar CoP Res. XII.2 (2015).
[209]Ramsar Convention, *supra* note 76, art. 1(1).
[210]Bowman et al., *supra* note 12, at 403.
[211]Ramsar Convention, *supra* note 76, art. 3(1).
[212]Ramsar CoP Res. IX.1 (2005).
[213]Ramsar Convention, *supra* note 76, art. 4(1).
[214]*Id.*, art. 5.
[215]*Id.*, art. 2(1), (4).
[216]*Id.*, art. 2(2).

Table 2. Ramsar-listed sites of significance to rhinoceros conservation.

Range state	Ramsar site	Rhino	Size (ha)	Since
Botswana	Okavango Delta System	B, W	5,537,400	1996
Kenya	Lake Nakuru	B, W	18,800	1990
	Lake Baringo	W	31,469	2002
Mozambique	Zambezi Delta	B, W	3,171,172	2004
Namibia	Etosha Pan, Lake Oponono & Cuvelai Drainage	B, W	600,000	1995
South Africa	St. Lucia System	B, W	155,500	1986
	Ndumo Game Reserve	B, W	10,117	1997
	Makuleke Wetlands	B, W	7,757	2007
UR Tanzania	Lake Natron	B	224,781	2001
	Kilombero Valley Floodplain	B	796,735	2002
Zambia	Kafue Flats	B	600,000	1991
	Luangwa Flood Plains	B	250,000	2007
Zimbabwe	Victoria Falls National Park	B	1,750	2013
Indonesia	Berbak National Park	S	162,700	1992
Malaysia	Lower Kinabatangan-Segama Wetland	S	78,803	2008
Nepal	Beeshazar and Associated Lakes	I	3,200	2003

Detailed information on each site, including the reasons for its designation and its location and delimitation, can be found in the Ramsar Sites Information Service database (http://rsis.ramsar.org). *Legend:* B = Black rhinoceros; I = Indian rhinoceros; S = Sumatran rhinoceros; W = White rhinoceros.

considered internationally important if it supports vulnerable, endangered, or critically endangered species."[217]

Ramsar parties are expected to draw up and implement management plans for listed sites to ensure their conservation.[218] Among other things, any harvesting of wildlife from a listed site is to be "regulated by a management plan developed in close consultation with the stakeholders," and the party in question is to make sure that such harvesting "will not threaten or alter the ecological character of the site."[219] Deletions or boundary restrictions of listed sites can occur only if they are necessitated by an "urgent national interest," and any resultant ecological losses should "as far as possible" be compensated, for example by creating additional nature reserves.[220] One of the criteria to be employed by parties when considering whether a site restriction or deletion is warranted is the site's value in providing habitat for endemic, vulnerable, rare, threatened, or endangered species.[221] If a listed wetland is under particular threat, the need for additional conservation or restoration measures can be flagged by including it in the Montreux Record, which registers sites "where changes in ecological character have occurred, are occurring, or are likely to occur."[222]

Sixteen listed wetlands of apparent relevance to rhinoceros conservation are shown in Table 2. They have been designated by eight African and three Asian rhinoceros range states, and they are of actual or potential significance to four of the five rhino species. No Javan rhinoceros habitat is

[217]Ramsar CoP Res. VII.11 (1999), last amended by Res. X.20 (2008).
[218]Ramsar CoP Res. XII.2 (2015).
[219]Ramsar CoP Res. VII.19 (1999).
[220]Ramsar Convention, *supra* note 76, art. 2(5), 4(2).
[221]Ramsar CoP Res. VIII.20 (2002).
[222]Ramsar CoP Recommendation 4.8 (1990).

currently included in the Ramsar List. In the aggregate, however, the sixteen sites provide a layer of protection to 116,502 km^2 of actual or potential rhino habitat, most of which is in Africa (the Asian sites cover only 2,447 km^2). Individual site size varies from 17.5 km^2 to the immense 55,374 km^2 of the Okavango Delta site. None of the sites in Table 2 features, or has featured, on the Montreux Record.

The relevance for rhino conservation of the sites in Table 2 varies. In the case of Africa, for example, the Etosha Pan site in Namibia is of evident importance for black rhinoceros conservation. Likewise, in South Africa, the St. Lucia System and Ndumo Game Reserve harbour meaningful numbers of both African rhinos, even if the country's Ramsar sites together capture only a modest portion of the overall South African rhino populations. The sites' significance for rhinos is duly noted in the documentation accompanying their designation. To illustrate, the Information Sheet for the St. Lucia System mentions both rhino species as "species of particular note" within the site and highlights the status of the black rhinoceros as an "internationally threatened species."[223] Despite its much smaller size, the Ndumo Game Reserve also constitutes a key rhino area. Its 1996 Information Sheet notes the occurrence of black and white rhino in "fairly high densities," reporting that "[a]bout 2% of the world's black rhino occur here," while noting at the same time that both species are "constantly under threat from poachers."[224] Some sites in Table 2 are places where rhinoceroses are currently rare or even absent—the Kilombero (Tanzania), for instance, and the Zambezi Delta (Mozambique). They have the potential, however, to host populations, if they return, and the Ramsar listing safeguards that potential.

In some Ramsar sites emptied of rhinos in the past, recovery is already underway. There were no rhinoceros left in the Okavango Delta when it was designated by Botswana for inclusion in the Ramsar List in 1996, for example. But subsequently both white and black rhino populations have been re-established, and the area now holds significant potential for a continued increase in rhino numbers. The Luangwa Flood Plains in Zambia were included in the Ramsar List in 2007, with black rhino recovery efforts in the area underway. The black rhino had gone extinct in the country in 1998, but there is now a modest reintroduced population in North Luangwa National Park, and the species may in future also be reintroduced to another Zambian Ramsar site, Kafue Flats.

Virtually all remaining wild rhinos occur within areas that have some sort of public or private protected status under domestic law. The Ramsar Convention affords an additional protective shadow to several of these

[223]Information Sheet on Ramsar Wetland St Lucia System (October 1998), §§ 12(2), 18.
[224]Information Sheet on Ramsar Wetland Ndumo Game Reserve (January 1993/November 1996), §§ 20, 23.

areas, provided domestic authorities live up to their Ramsar obligations. Allowing unsustainable levels of rhino killing in the areas involved would certainly be at odds with parties' Ramsar Convention obligations, for example, especially so for sites where rhinoceroses were integral to Ramsar listing.

Depending on the circumstances, a number of different threats to rhinoceroses can be addressed within the Ramsar framework. For example, Indian rhino habitat in Chitwan National Park is under serious threat from invasive alien plant species, such as *Mikania micrantha* (alias the mile-a-minute weed), which smothers native fodder plants on which rhinoceroses rely.[225] Consequently, curbing the spread of this and other harmful invasive species is a key ingredient of the Ramsar site management plan drawn up by the Nepalese authorities for Beeshazar and Associated Lakes.[226] Furthermore, the Ramsar status of a site and the accompanying international obligations tend to be distinct factors influencing domestic authorities, including courts, when deciding whether or not to authorize certain development projects or other human uses within a site.[227]

The supplementary benefits of the Ramsar Convention include the development or improvement of site management plans, following listing, and the acquisition of funding under the Convention's Small Grants Fund, established to help developing countries achieve wetland conservation and the sustainable development of wetland-dependent human communities. One study of 26 Ramsar-listed wetlands found that Ramsar status had been instrumental in providing increased support for protection and management of sites, scientific studies, funding opportunities, tourism, and poverty alleviation.[228] Furthermore, several multinational corporations, while not legally bound by the Convention themselves, have unilaterally adopted commitments towards the conservation of Ramsar sites as part of their corporate social responsibility policies.[229]

In sum, it appears worthwhile to invest in making the most of the Ramsar Convention as it presently applies to rhinoceros habitat, and to pursue the Ramsar listing of additional sites of importance to rhinoceros. For instance, given the preference of Indian rhinos for wetland habitat, the current absence of any Indian sites with rhino habitat on the Ramsar List is notable.

[225]Sean T. Murphy et al., *Invasive Mikania in Chitwan National Park, Nepal: The Threat to the Greater One-Horned Rhinoceros* Rhinoceros unicornis *and Factors Driving the Invasion,* 47 Oryx 361 (2013).
[226]Site Management Plan, Beeshazar and Associated Lakes (Ramsar Site), Gov't of Nepal (March 2014), http://ramsar.rgis.ch/pdf/wurc/Beeshazar-and-associated-Lakes-Management-Plan.pdf (last visited May 25, 2018).
[227]Royal Gardner et al., *African Wetlands of International Importance: Assessment of Benefits Associated with Designation under the Ramsar Convention*, 21 Geo. Int'l Envtl. L. Rev. 257 (2009).
[228]*Id*.
[229]*See, e.g., World Heritage Sites and Ramsar Wetlands Policy*, HSBC (2014), http://www.hsbc.com/-/media/hsbc-com/citizenship/sustainability/pdf/hsbc-world-heritage-sites-and-ramsar-wetlands-policy-march-2014.pdf (last visited May 25, 2018).

7. World Heritage Convention

The World Heritage Convention (WHC) contributes to rhinoceros conservation much as the Ramsar Convention does. It binds all rhino range states, and many important rhino areas in Africa and Asia qualify as "natural heritage" sites, defined in the Convention to be of "outstanding universal value."[230] Some of these areas currently feature in the World Heritage List (see Table 3). Each party "will do all it can" to meet its "duty of ensuring the identification, protection, conservation, presentation and transmission to future generations" of the natural heritage on its territory,

Table 3. Sites on the World Heritage List that are of significance to rhinoceros conservation.

Range state	World Heritage site	Rhino	Size (ha)	Since	In danger
Botswana	Okavango Delta	B, W	2,023,590 + 2,286,630 b.z.	2014	–
DRC	Garamba National Park	W	500,000	1980	1984-1992 1996-pres.
Kenya	Mount Kenya National Park/ Natural Forest	B, W	202,334 + 69,339 b.z.	1997	–
	Kenya Lake System in the Great Rift Valley	B, W	32,034 + 3,581 b.z.	2011	–
Namibia	Namib Sand Sea	B	3,077,700 + 899,500 b.z.	2013	–
South Africa	iSimangaliso Wetland Park	B, W	239,566	1999	–
UR Tanzania	Ngorongoro Conservation Area	B	809,440	1979	1984–1989
	Serengeti National Park	B	1,476,300	1981	–
	Selous Game Reserve	B	6,120,000 + 21,492 b.z.	1982	2014–pres.
Zambia & Zimbabwe	Mosi-oa-Tunya / Victoria Falls	B	6,860	1989	–
Zimbabwe	Mana Pools National Park, Sapi and Chewore Safari Areas	B	676,600	1984	–
India	Kaziranga National Park	I	42,996	1985	–
	Manas Wildlife Sanctuary	I	39,100	1985	–
Indonesia	Ujung Kulon National Park	J	78,525	1991	–
	Tropical Rainforest Heritage of Sumatra	S	2,595,124	2004	2011–pres.
Nepal	Chitwan National Park	I	93,200	1984	–

Detailed information on each site, including the reasons for its designation and its location and delimitation, can be found on http://whc.unesco.org/en/list. *Legend:* B = Black rhinoceros; b.z. = buffer zone; In danger = included in List of World Heritage in Danger; I = Indian rhinoceros; J = Javan rhinoceros; S = Sumatran rhinoceros; W = White rhinoceros.

[230]WHC, *supra* note 77, art. 2.

"to the utmost of its own resources" and, where appropriate, "with any international assistance and co-operation."[231] To ensure that "effective and active measures" are taken for the conservation of the sites concerned, each party "shall endeavor, in so far as possible, and as appropriate for each country," to "take the appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage," and to "integrate the protection of that heritage into comprehensive planning programmes."[232] The WHC's Operational Guidelines furthermore instruct parties to provide buffer zones when necessary for a site's conservation.[233] Whereas the above obligations clearly apply to sites included in the World Heritage List, they also cover all non-listed areas meeting the Convention's definition of "natural heritage," although there may in practice be considerable uncertainty as to whether particular areas qualify.

The prestige attached to a site's inclusion in the World Heritage List is partly due to the selective nature of the associated procedure, which is governed by the World Heritage Committee, the Convention's decision-making body with a rotating membership of 21 contracting parties.[234] Initially, each party compiles a "Tentative List" of heritage on its territory, from which it may then formally nominate individual sites. Natural heritage nominations are evaluated and advised on by the IUCN, after which the World Heritage Committee decides whether or not to inscribe the site on the World Heritage List. Although the majority of listed sites are within individual countries, the List also includes transboundary sites. The Committee administers a World Heritage Fund to provide targeted assistance for the conservation of specific sites,[235] and a "List of World Heritage in Danger" to flag "serious and specific dangers" to particular listed sites.[236] In addition, based on its mandate to supervise the Convention's implementation, the Committee regularly adopts decisions urging individual parties to adopt particular site-specific measures. All else failing, the Committee may decide to delete a site from the World Heritage List, something that has hitherto occurred only occasionally.

Table 3 lists sixteen sites on the World Heritage List that are of apparent significance to rhinoceros conservation. They are located in eight African and three Asian range states, one site being transboundary. Collectively, they benefit all five rhino species. Between them, the eleven African sites

[231] *Id.*, art. 4.
[232] *Id.*, art. 5.
[233] Operational Guidelines for the Implementation of the World Heritage Convention, WHC.16/01 (October 26, 2016).
[234] WHC, *supra* note 77, art. 11.
[235] *Id.*, art. 15.
[236] *Id.*, art. 11(4).

cover 151,644 km^2 of actual or potential rhino habitat (184,450 km^2 when counting the sites' buffer zones). The five Asian sites cover 28,489 km^2 in the aggregate. As with the Ramsar sites, individual site size varies enormously. Some of the World Heritage sites in Table 3 overlap with Ramsar-listed sites from Table 2 and are therefore subject to both Convention regimes. Three sites are presently danger-listed.

The importance of the five Asian World Heritage sites can hardly be overstated. The Sumatran site is crucial for the Sumatran rhino; the Indian and Nepalese sites include the two most important sites for the Indian rhino; and Ujung Kulon is the only place on the planet where Javan rhinoceroses remain. The rhinoceros populations within these sites form part and parcel of the sites' "outstanding universal value," as recorded in their designation documentation.[237]

The significance of the African World Heritage sites for rhinoceros conservation varies. Some sites are of evident importance for resident rhino populations, such as the Okavango in Botswana and iSimangaliso (St. Lucia) in South Africa. Others are currently of only marginal significance—for instance, the Namib Sand Sea. Table 3 also includes some sites where rhinos were present at the time of listing, and were indeed part of the listing motivation, but have since disappeared, such as Garamba in the DRC (northern white rhino) and Mana Pools in Zimbabwe (black rhino). Such sites hold potential for the re-establishment of rhinoceros populations in the short, medium, or long term. The same applies to some sites that are located in countries that are presently no longer rhino range states (and therefore not included in Table 3). An example of such a site with eventual reintroduction potential is Manovo-Gounda St. Floris National Park in the Central African Republic. The black rhino population in this large site (17,400 km^2) partly motivated its inscription on the World Heritage List in 1988, but the rhinos have since vanished (the site has been on the Danger List since 1997). In cases like this, the WHC can help keep future options open by conserving rhino habitat, and potentially facilitate the actual reintroduction of rhinoceros. Incidentally, even cultural heritage sites may contribute to rhino conservation. For instance, although Mapungubwe Cultural Landscape in South Africa features on the World Heritage List exclusively for its outstanding cultural value, it indirectly helps safeguard the habitat of a modest white rhino population.[238]

Regarding possible future listings, the Tentative Lists of various range states contain sites the inscription of which on the World Heritage List

[237] *See World Heritage List*, UNESCO, http://whc.unesco.org/en/list (last visited May 25, 2018).
[238] Sam M. Ferreira et al., *The Status of Rhinoceroses in South African National Parks*, 59 Koedoe – African Protected Area Conservation & Sci. 1392 (2017).

would seem beneficial from a rhinoceros conservation viewpoint.[239] Examples include Royal Manas National Park in Bhutan, Zakouma National Park in Chad (where black rhinos were recently reintroduced),[240] Etosha Pan in Namibia, and various sites in Kenya.

Clearly, the inclusion of a site in the World Heritage List or the Danger List does not in and of itself guarantee conservation success. Nevertheless, experience shows that World Heritage status can bring distinct advantages for wildlife conservation, and that the situation at many listed sites would have been worse without the Convention's involvement.[241] Like Ramsar, the WHC bestows an extra layer of protection on the areas involved, in addition to a range of associated benefits. The prestigious status of World Heritage designation can influence domestic decision-making, potentially affecting the conservation of such sites and their rhinoceros populations.[242] The possibility of a site being removed from the World Heritage List can be a notable incentive for national authorities to comply with their Convention obligations.

It is instructive to consider some examples. After flawed management led to an overall deterioration of the Ngorongoro Conservation Area, the World Heritage Committee put the site on the Danger List in 1984. Thanks in part to the Committee's active involvement and certain technical cooperation projects, the situation subsequently improved, and the site was removed from the Danger List in 1989. Also in Tanzania, following pressure from the Committee and two rulings by the East African Court of Justice, the government more recently aborted a plan to upgrade a road running through the Serengeti National Park into a "super highway." The court determined that constructing the highway would run counter to Tanzania's obligations under the general environmental provisions of the EAC Treaty, and its reasoning leaned heavily on the site's World Heritage status.[243]

One of the Committee's first decisions concerning rhinoceroses allocated 40,000 USD in "emergency assistance" in 1983 to the then Republic of Zaire to assist its anti-poaching efforts in Garamba National Park.[244] In 1984, when no more than 15 northern white rhinos remained, the Committee put Garamba on the Danger List.[245] Although a joint project of the World Heritage Committee, the World Wildlife Fund, and the

[239]*See Tentative Lists*, UNESCO, http://whc.unesco.org/en/tentativelists (last visited May 25, 2018).
[240]*See supra* note 44.
[241]Bastian Bertzky, *World Heritage and Species: Safe Havens for Wildlife?*, 73 World Heritage 30 (2014).
[242]It should be noted that the additional tourism that may result from World Heritage status can benefit but also pose a challenge to conservation, depending on how well it is managed.
[243]Reference No. 9 of 2010 (June 20, 2014); Appeal No. 3 of 2014 (July 29, 2015).
[244]World Heritage Committee, *Request for Emergency Assistance*, Decision CONF 021 V.19 (1983).
[245]World Heritage Committee, *Inscriptions on the List of World Heritage in Danger*, Decision CONF 004 X.26-27 (1984).

Frankfurt Zoological Society led to some recovery[246] and the site was removed from the Danger List in 1992, when there were 32 animals,[247] poaching returned and the recovery could not be sustained. The site went back on the Danger List in 1996.[248] Despite subsequent engagement by the Committee, including the funding of salaries for anti-poaching operations,[249] rhinoceroses eventually disappeared from the site.

Altogether, rhinoceros conservation is expressly addressed in some 70 decisions adopted by the World Heritage Committee since 1983.[250] The Committee has addressed, *inter alia*, the relocation and restoration of Sumatran rhinoceroses in the Tropical Rainforest Heritage of Sumatra (2009);[251] the possibility of a black rhino reintroduction program for Zimbabwe's Mana Pools site (2014);[252] the construction of a highway and railway threatening to fragment Indian rhino habitat in Chitwan National Park (2015);[253] and the need for improved anti-poaching measures and grassland management to preserve rhino and their habitat in India's Manas Wildlife Sanctuary (2015).[254] Moreover, just as rhinoceros conservation can be a rationale for listing a site, it can also be a reason to amplify existing sites. For example, in 2013 the Committee adopted an extension of the Mount Kenya National Park/National Forest partly to incorporate an additional piece of rhino habitat.[255] Several decisions acknowledge the global increase in rhino poaching,[256] with the Committee calling on transit and destination countries to help rhino range states to reduce the threat on the ground in places such as Selous Game Reserve, in particular through the implementation of CITES.[257]

Finally, as with the Ramsar Convention, the role of multinational corporations should be noted. An increasing number of them have undertaken "no-go" commitments regarding World Heritage sites, including oil

[246]World Heritage Committee, *List of World Heritage in Danger: Garamba National Park (Zaire)*, Decision CONF 004 XV.D (1989).
[247]World Heritage Committee, *Monitoring of the State of Conservation of the World Heritage Natural Properties and Related Technical Problems: Overview*, Decision CONF 002 VIII (1992); World Heritage Committee, *Garamba National Park (Zaire)*, Decision CONF 003 V.31 (1992).
[248]World Heritage Committee, *SOC: Garamba National Park (Zaire)*, Decision CONF 201 VII.D.37 (1996).
[249]World Heritage Committee, *SOC: Virunga National Park, Garamba National Park, Kahuzi Biega National Park, Okapi Wildlife Reserve (Democratic Republic of the Congo (DRC))*, Decision CONF 209 X.A.4 (1999).
[250]*See* UNESCO Decisions of the World Heritage Committee, http://whc.unesco.org/en/decisions/ (last visited May 25, 2018).
[251]Decision 33 COM 7B.11 (2009).
[252]World Heritage Committee, *Mana Pools National Park, Sapi and Chewore Safari Areas (N 302) (Zimbabwe)*, Decision 38 COM 7B.97 (2014).
[253]World Heritage Committee, *Chitwan National Park (Nepal)*, Decision 39 COM 7B.15 (2015).
[254]World Heritage Committee, *Manas Wildlife Sanctuary (India)*, Decision 39 COM 7B.11 (2015).
[255]World Heritage Committee, *Extensions of Properties Already Inscribed on the World Heritage List: Mount Kenya National Park/Natural Forest*, Decision 37 COM 8B.9 (2013).
[256]World Heritage Committee, *Emerging Trends and General Issues*, Decision 37 COM 7 (2013).
[257]World Heritage Committee, *Selous Game Reserve (United Republic of Tanzania)*, Decision 38 COM 7b.95 (2014).

companies such as Shell, SOCO, Total and Tullow Oil, and the International Council of Mining and Metals.[258]

All told, the WHC appears to be making a substantial contribution to rhinoceros conservation, especially with regard to the three Asian species.

8. Convention on Migratory Species (CMS)

Of the global conventions, the CMS has the lowest number of rhino range states amongst its parties: 12 of the 18 African range states (see Table 1) and only one Asian range state (India). The Convention requires parties to take particular conservation measures with respect to migratory species listed in its Appendix I.[259] It also promotes targeted ancillary instruments for migratory species, especially those listed in its Appendix II.[260] A range of less formal mechanisms target specific groups of species or address cross-cutting issues.[261] The relevance of the CMS to rhino conservation is currently marginal, however. None of the rhino species are listed in the Convention's appendices, nor do any of the existing CMS ancillary instruments and initiatives expressly apply to them. Yet existing instruments and initiatives may in some cases benefit rhinoceros conservation. For example, Indian rhinos could in principle benefit from the measures addressing illegal killing and trade that are envisaged under the CMS Central Asian Mammals Initiative.[262]

The practice of the CMS COP involves considerable terminological flexibility, so that the Convention's scope has been extended to several species and populations that are largely sedentary, but are nonetheless considered "migratory" because they have transboundary ranges.[263] Large herbivores and carnivores that have already been included in the Convention's appendices include African elephant, Grevy's zebra (*Equus grevyi*), gorillas (*Gorilla gorilla*, *Gorilla beringei*), African wild dog (*Lycaon pictus*), cheetah (*Acinonyx jubatus*), snow leopard (*Panthera uncia*), and—since the 12th COP in October 2017—giraffe (*Giraffa camelopardalis*), lion (*Panthera leo*), and leopard (*Panthera pardus*).[264] If any of the rhino species were to be brought within the Convention's remit, there would be a range of options to further its conservation within the CMS framework, including through

[258] *See World Heritage and Extractive Industries*, UNESCO, http://whc.unesco.org/en/extractive-industries (last visited May 25, 2018).
[259] CMS, *supra* note 78, art. III.
[260] *Id.*, art. IV.
[261] *See* CMS website, http://www.cms.int, under "CMS Instruments" (last visited May 25, 2018).
[262] *See* Programme of Work for the Central Asian Mammals Initiative (2014–2020), adopted through CMS COP Resolution 11.24 (November 9, 2014).
[263] Bowman et al., *supra* note 12, at 540; Arie Trouwborst, *Transboundary Wildlife Conservation in A Changing Climate: Adaptation of the Bonn Convention on Migratory Species and Its Daughter Instruments to Climate Change*, 4 Diversity 259, 287–288 (2012).
[264] *See* CMS appendices, http://www.cms.int/en/document/appendices-0 (last visited May 25, 2018).

tailor-made measures as part of "Concerted Actions," "Special Species Initiatives," or a dedicated treaty or memorandum of understanding.[265] Conveniently, participation in such mechanisms is also open to range states that are not (yet) CMS parties.

9. African Convention(s)

The history of African wildlife treaties regulating the hunting and trade of rhinoceroses and other megaherbivores dates back to the nineteenth century.[266] The pan-African wildlife treaties currently in force are the 1968 and 2003 versions of the African Convention on the Conservation of Nature and Natural Resources.

The 1968 African Convention has ten of the eighteen African rhino range states as parties (Table 1). There are some important absentees, however, including South Africa, Namibia, and Zimbabwe. Both African rhino species are included in the Convention's Annex, entailing a requirement for parties to accord them special protection throughout their territories, including the prohibition of their "hunting, killing, capture or collection."[267] The white rhino is listed as a "Class A" species, whereas the black rhino is under a more flexible "Class B" regime—a distinction that no longer reflects the two species' population trends since the Convention's adoption half a century ago. Thus for black rhino the taking prohibition may be lifted "under special authorization" at the discretion of the "competent authority," whereas for white rhino exemptions may be made "only on the authorization in each case of the highest competent authority and only if required in the national interest or for scientific purposes."[268] Parties must regulate trade in rhinoceros and rhino trophies and make their export, import, and transit subject to authorization "which shall not be given unless the specimens or trophies have been obtained legally."[269] The Convention further prohibits or restricts the use of particular means of killing and capture, including snares and poison,[270] both of which have been used in practice to (illegally) kill rhinos.[271] Concerning rhinoceros habitat, contracting parties are required to maintain, expand, and/or newly establish "conservation areas" (a concept encompassing "strict nature reserves," "national parks," and "special nature reserves") in order to "ensure conservation of all species and more particularly of those listed …

[265] *See* Bowman et al., *supra* note 12; Trouwborst et al., *International Law and Lions*, *supra* note 14.
[266] *See generally* Rachelle Adam, Elephant Treaties: The Colonial Legacy of the Biodiversity Crisis (2014).
[267] African Convention, *supra* note 79, art. VIII.
[268] *Id.*,
[269] *Id.*, art. IX.
[270] *Id.*, art. VII.
[271] Milliken et al., *supra* note 19, at 4.

in the annex."[272] The treaty is credited with having catalyzed an increase in protected area designations and improvements in hunting and wildlife trade legislation in many rhinoceros range states in the years following its adoption.[273] However, the lack of an institutional framework to oversee and promote compliance has rendered the 1968 Convention something of a "sleeping treaty."[274]

The substantially revised version of the Convention adopted in 2003 does include a COP and a Secretariat.[275] In force since 2016, its parties as yet include only four rhino range states: Angola, Chad, Rwanda, and, notably, South Africa.[276] The 2003 Convention places an emphasis on sustainable use besides conservation.[277] It is less species-specific than its predecessor, not mentioning rhinoceroses or any other species in annexes. Most of the Convention's substantive obligations regarding the conservation of species and their habitats are couched in terms that leave parties with considerable discretion. Of interest is the obligation to adopt "legislation regulating all forms of taking" so as to ensure that "the use of any population is sustainable."[278] The Convention unconditionally requires parties to prohibit the use of "all indiscriminate means of taking," including snares and poison.[279] Parties "undertake" to accord "a special protection" to species that are threatened or may become so, and to "the habitat necessary for their survival."[280] The 2003 Convention's value for rhino conservation could increase if in future its parties—preferably including all African rhino range states—were to act on the need to "develop or maintain throughout the African continent concerted protection measures for such [threatened] species," whereby one or more "Annexes to this Convention may be adopted by the Conference of the Parties to that effect."[281]

10. SADC Protocol

The SADC Protocol on Wildlife Conservation and Law Enforcement is another regional instrument of evident relevance, with a geographic scope covering rhinoceros range from Tanzania and the DRC to South Africa. Currently, the Protocol binds eight key rhino range states in this region,

[272]African Convention, *supra* note 79, art. X(1).
[273]Bowman et al., *supra* note 12, 265; John Manyitabot Takang, *From Algiers to Maputo: The Role of the African Convention on the Conservation of Nature and Natural Resources in the Harmonization of Conservation Policy in Africa*, 17 J. Int'l Wildlife L. & Pol'y 165 (2014).
[274]Bowman et al., *id.*; Takang, *id.*
[275]Revised African Convention, *supra* note 79, art. XXVI–XXVII.
[276]Between contracting parties to the 2003 Convention, the latter replaces the 1968 Convention (art. XXXIV).
[277]*See, e.g.*, Revised African Convention, *supra* note 79, art. II (objectives).
[278]*Id.*, art. IX(3).
[279]*Id.*, art. IX(3)(b)(iii) and Annex 3.
[280]*Id.*, art. X(1).
[281]*Id.*, art. X(2).

and it could enter into force for a further three range states once they ratify (Table 1). The Protocol's overarching aim is to provide "common approaches to the conservation and sustainable use of wildlife resources and to assist with the effective enforcement of laws governing these resources."[282] Specific objectives include promoting sustainable wildlife use, harmonizing pertinent legal instruments, aiding national and regional capacity-building for wildlife conservation, management, and law enforcement, facilitating community-based management practices, and promoting the conservation of shared wildlife populations by establishing TFCAs.[283]

Even if species-specific provisions are absent, the Protocol obliges each party to "ensure the conservation and sustainable use of wildlife resources under its jurisdiction;"[284] "adopt and enforce legal instruments" to that end;[285] and "assess and control activities which may significantly affect the conservation and sustainable use of wildlife so as to avoid or minimise negative impacts."[286] Furthermore, parties shall take measures to "ensure the maintenance of viable wildlife populations" and prevent over-exploitation, *inter alia* by regulating the taking of wildlife through "restrictions on the number, sex, size or age of specimens taken and the locality and season during which they may be taken."[287] The Protocol emphasizes the need for cooperation regarding transboundary wildlife populations, requiring parties, as appropriate, to "establish programmes and enter into agreements to promote the co-operative management of shared wildlife resources and wildlife habitats across international borders."[288] Similarly, parties must "endeavour to harmonise national legal instruments governing the conservation and sustainable use of wildlife resources."[289] Even if in practice such harmonization can be a slow and difficult process, it is a key step towards achieving effective management of transboundary wildlife populations, including rhinoceros.[290]

The Protocol's institutional framework includes a Committee of Ministers, a Committee of Senior Officials, a Technical Committee composed of the Directors of countries' wildlife agencies, a Wildlife Sector Technical Coordinating Unit acting as secretariat,[291] and various thematic sub-entities, two of which are rhino-specific: the SADC Rhino and Elephant Security Group/INTERPOL Environmental Crime Working

[282]SADC Protocol, *supra* note 81, art. 4(1). Art. 1 defines "wildlife" as "animal and plant species occurring within natural ecosystems and habitats."
[283]*Id.*, art. 4(2).
[284]*Id.*, art. 3(1).
[285]*Id.*, art. 6(1).
[286]*Id.*, art. 7(2).
[287]*Id.*, art. 7(3).
[288]*Id.*, art. 7(5).
[289]*Id.*, art. 6.
[290]Selier et al., *supra* note 15.
[291]SADC Protocol, *supra* note 81, art. 5.

Group and the SADC Rhino Management Group. The latter is an advisory body, whose tasks include the drafting of rhino management plans and assisting national authorities in reviewing permit applications for the hunting of rhinoceros. A parallel body exists within the East African Community, the EAC Rhino Management Group. A SADC Regional Rhino Conservation Strategy was adopted in 2005, setting out a long-term goal of maintaining "Southern African rhinos … as flagship species for biodiversity conservation and wildlife-based economic development, within viable and well distributed populations."[292] A detailed manual to guide SADC range states in the implementation of the Strategy was published in 2006.[293] Another relevant, thematic strategy adopted within the SADC Protocol's framework is the SADC Law Enforcement and Anti-Poaching Strategy 2016–2021.[294]

A different Protocol to the SADC Treaty that is of relevance is the 2002 Protocol on Mutual Legal Assistance in Criminal Matters,[295] providing a platform for promoting greater efficiency and effectiveness in the prosecution of transboundary crime.

11. TFCA Treaties

The legal instruments establishing transfrontier conservation areas (TFCAs) compose a special category of international wildlife law for present purposes. Treaty-based TFCAs of actual or potential significance to rhino conservation include Great Limpopo (established by Mozambique, South Africa, and Zimbabwe); Kavango Zambezi (Angola, Botswana, Namibia, Zambia, Zimbabwe); Kgalagadi (Botswana, South Africa); and Malawi-Zambia (Malawi, Zambia).[296] Other (potentially) relevant TFCAs are, until now, only based on non-binding memoranda of understanding or letters of agreement,[297] or are at a still more informal stage.[298]

[292]SADC Regional Rhino Conservation Strategy 2005–2010, *available at* http://www.rhinoresourcecenter.com/pdf_files/119/1197206693.pdf (accessed May 25, 2018).
[293]Raoul du Toit et al., Guidelines for Implementing SADC Rhino Conservation Strategies (2006), *available at* http://www.rhinoresourcecenter.com/pdf_files/119/1190402386.pdf (last visited May 25, 2018).
[294]SADC Law Enforcement and Anti-Poaching Strategy 2016–2021, August 2015, *available at* http://dc.sourceafrica.net/documents/26991-SADC-Law-Enforcement-and-Anti-Poaching-Strategy.html (last visited May 25, 2018).
[295]Protocol to the SADC Treaty on Mutual Legal Assistance in Criminal Matters, October 3, 2002, *available at* http://www.sadc.int/files/8413/5292/8366/Protocol_on_Mutual_Legal_Assistance_in_Criminal_Matters_2002.pdf (last visited May 25, 2018).
[296]For more information and the latest developments regarding TFCAs in Southern Africa, *see* http://www.peaceparks.org (last visited May 25, 2018).
[297]These include Lubombo (Mozambique, South Africa, Swaziland); Iona Skeleton Coast (Angola, Namibia); Greater Mapungubwe (Botswana, South Africa, Zimbabwe); Chimanimani (Mozambique, Zimbabwe); Transboundary Manas Conservation Area (Bhutan, India).
[298]These include Liuwa Plains-Mussuma (Angola, Zambia); Lower Zambezi-Mana Pools (Zambia, Zimbabwe); ZiMoZa (Mozambique, Zambia, Zimbabwe); Kagera (Rwanda, Tanzania, Uganda); Niassa-Selous (Mozambique, Tanzania); Mnazi Bay-Quirimbas (Mozambique, Tanzania).

By way of example, the treaty creating the Kavango Zambezi (KAZA) TFCA entered into force in 2012.[299] It combines 520,000 km^2 of pre-existing protected areas and multiple resource use areas in five countries, covering key rhino areas and much potential rhino habitat. It aims to develop a "complementary network of Protected Areas within the KAZA TFCA linked through corridors," supporting "healthy and viable populations of wildlife species."[300] Further objectives of potential significance for rhino conservation include the "harmonisation of relevant legislation, policies and approaches" and ensuring "compliance with international protocols and conventions related to the protection and Sustainable Use of species and ecosystems."[301] The five contracting parties are committed to sustainable wildlife use, rehabilitation of declining populations, and taking "knowledge based decisions derived from interdisciplinary research and traditional knowledge and to exercise precaution when there is insufficient information."[302] They are under a duty to "ensure the protection and management of those parts of the Kavango Zambezi ecosystem falling directly under their jurisdiction;" to cooperate in developing common approaches to wildlife management; and to provide for proper stakeholder involvement.[303] While its ties to the SADC are acknowledged,[304] the KAZA TFCA has been established as an autonomous international organization.[305] Its institutional framework includes a Ministerial Committee, Committee of Senior Officials, Joint Management Committee, Secretariat and National Committees.[306]

12. Concluding Observations

Clearly, the future of the remaining rhinoceros (sub)species would be much more secure if all states involved—both rhino range states and other states able to influence rhino conservation—were to live up to the international obligations identified in the preceding analysis regarding the conservation and sustainable use of rhinos and their habitat. In fact, implementation must contend with pervasive compliance deficiencies, because of problems of capacity, governance, and enforcement in many of the states involved.[307] All efforts aimed at decreasing these deficiencies and improving compliance

[299]Treaty on the Establishment of the Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA), August 18, 2011, *available at* http://www.kavangozambezi.org (last visited May 25, 2018).
[300]*Id.*, art. 6(1).
[301]*Id.*,
[302]*Id.*, art. 5.
[303]*Id.*, art. 8.
[304]*Id.*, art. 9.
[305]*Id.*, art. 3.
[306]*Id.*, arts.10–23.
[307]Bennett, *supra* note 171; DLA Piper (2014), *supra* note 173; DLA Piper (2015), *supra* note 173; Wandesforde-Smith, *supra* note 15.

are thus to be strongly encouraged. And it is important in this regard that the participation of local communities, poverty alleviation, awareness-raising, and education have become notable features in the implementation of all the major conservation treaties, as expressed in COP decisions, strategies, funding allocations, and guidance documents.[308]

International wildlife treaties cannot by themselves guarantee the survival and recovery of the five rhino species. But it is fair to say that the rhinos' plight would have been worse without them and, further, that it is worthwhile for stakeholders in rhino conservation and management to seek out and seize the many opportunities offered by the existing international legal framework.

A recent review of the role of international wildlife law in lion conservation reached similar conclusions.[309] The relative significance of the various treaties for rhinoceroses and lions differs, however. Presently, CITES and the WHC are comparatively more important for rhinos than for lions; the CMS the other way around; and the Ramsar Convention, CBD, and regional instruments appear roughly equally important to rhinos and lions.[310]

Regarding the future development of the various treaty regimes as they apply to rhinoceros conservation, it would seem appropriate for the CITES COP to explore seriously but critically the merits of alternative regimes for rhino horn trade, including regimes with more scope for legal trade than currently exists.

The importance of international cooperation for the conservation of the world's remaining rhinoceros species seems unlikely to diminish in the foreseeable future. International treaties may not be sufficient to avert further megaherbivore extinctions, but the evidence is that they play a role that is both necessary and positive.

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[308] *See, e.g., Participatory Skills: Establishing and Strengthening Local Communities' and Indigenous People's Participation in the Management of Wetlands*, Ramsar Convention Secretariat (2010), http://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-07.pdf (last visited May 25, 2018); *World Heritage Resource Manual: Managing Natural World Heritage*, UNESCO (2012), http://docplayer.net/21728465-Managing-natural-world-heritage.html (last visited May 25, 2018); Lewis, *supra* note 154.
[309] Trouwborst et al., *International Law and Lions*, *supra* note 14.
[310] *Id.*