CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Twentieth meeting of the Conference of the Parties
Samarkand (Uzbekistan), 24 November – 5 December 2025

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Amendment of the Annotation of the Population of *Ceratotherium simum simum* of Namibia Listed in Appendix II

For the exclusive purpose of allowing international trade in:
a) live animals for in-situ conservation only;
b) hunting trophies; and
c) trade in rhino horn stocks owned by the Government and the Private Landowners originating in the State (excluding seized rhinoceros horn and rhinoceros horns of unknown origin); subject to the following:

i) only stocks registered with the Government;
ii) only horns with RHODIS certificates;
iii) only to trading partners that have been verified by the Secretariat, in consultation with the Standing; Committee, to have sufficient national legislation and domestics trade controls; and
iv) not before the Secretariat has verified prospective importing countries and the registered stocks.

All other specimens shall be deemed to be specimens of species included in Appendix I, and the trade in them shall be regulated accordingly.

B. Proponent

Namibia*

C. Supporting statement

1. Taxonomy

1.1 Class: Mammalia

1.2 Order: Perissodactyla

1.3 Family: Rhinocerotidae

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* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

1.4 Genus, species or subspecies, including author and year: *Ceratotherium simum simum* (Burchell, 1817)

1.5 Scientific synonyms: None

1.6 Common names: English: Southern white or square-lipped rhinoceros
French: Rhinocéros blanc du sud
Spanish : Rinoceronte blanco del sur

1.7 Code numbers: CITES A-118.003.001.001

2. Overview

Namibia's white rhino population remains under persistent threat from illegal poaching, largely driven by the high value of rhino horn. Approximately **77%** of Namibia's white rhinos inhabit privately owned freehold land. In response to growing poaching risks, these private landowners have shouldered steep security costs, including upgraded fencing, ranger patrols, and surveillance systems. With minimal government subsidies and most NGO funding directed toward state-managed reserves, many owners have been compelled to reduce or dispose of their rhino herds entirely. Unfortunately, whenever private owners remove rhinos from their properties, **the total amount of white rhinoceros habitat in Namibia decreases**.

Private landowners who do continue to keep white rhinos typically rely on three possible revenue streams—tourism, trophy hunting, and live animal sales—to cover protection expenses. Yet even in combination, these income sources often fall short. Consequently, **12 million hectares** of freehold land suitable for white rhinos remain largely unused for conservation. Without robust economic incentives, private landowners have little reason to dedicate or expand this valuable habitat for rhinos.

Currently, black-market prices for rhino horn can reach around **US$20,000** per kilogram, meaning a single large rhino horn may be worth between **US$80,000** and **US$120,000**. By comparison, a live white rhino usually sells for only about **US$10,000**—a difference of 8 to 12 times. This disparity spurs illegal hunting, as poachers stand to earn significantly more by killing a rhino than a landowner can realize by selling or conserving it (Doyle et al, 2024).

It is important to note that rhino horn, composed of keratin, regrows at roughly **1.611 kilogram per year** (if trimmed properly, without harming the animal. Over its lifetime, a single white rhino might produce up to **35 kilograms** of horn (Taylor et al., 2017). At current black-market prices, that theoretical lifetime horn value exceeds **US$700,000.00**. However, since local live trade in white rhinos is almost non-existent in Namibia—private landowners lack the financial incentives to hold them—economic gains remain unrealized. By legalizing horn trade, domestic demand for live rhinos would rise, likely **outstripping even illicit market returns**, ultimately stimulating private ownership of white rhinos and expanding their habitats nationwide. Importantly, buyers especially in East Asian markets would highly prefer legal rhino horn compared to illegal horn (MacMillan et al., 2017; Vu et al., 2022) – however, the latter is the only horn material entering this market now.

3. Species characteristics

3.1 Distribution

Historically, the southern white rhinoceros occurred widely across southern Africa, including Namibia, until it became extinct in much of its range by the late 19th century (Shortridge, 1934). A small surviving population remained in Zululand's Umfolozi area in South Africa. Thanks to strong protective measures, South Africa's white rhino numbers rebounded swiftly, allowing translocation to multiple protected areas and private properties throughout southern Africa. By 1997, the species had climbed to over 8,440 animals, plus 650 in captivity (Emslie & Brooks, 1999). Today, the southern white rhino is the most numerous of all rhinoceros taxa and is hailed as a major conservation success story. A 2017 assessment placed the global population at around 18,064 (down from a historical peak of 20,608 in 2012), according to the African Rhino Specialist Group (ARSG) (see CoP18, Agenda item 65, for further updates). South Africa remains the principal stronghold, the second-largest population inhabits Namibia, and smaller populations exist in Botswana, eSwatini, Mozambique, Zambia, Zimbabwe, and in ex situ sites in Kenya and Uganda. Namibia first reintroduced white rhinos in 1975 from Umfolozi Game Reserve, Natal, South Africa.

3.2 Habitat

White rhino distribution in Namibia is limited by annual rainfall, as the species generally does not occur where precipitation is below **200 mm** per year. Conservative estimates suggest that Namibia has enough suitable habitat to support up to **14,000** white rhinos, given sufficient rainfall and proper management.

3.3 Biological characteristics

White rhinos are the second-largest terrestrial mammal in Africa by weight. They are bulk grazers, obligate drinkers, and breed relatively slowly, with a long gestation period. Known for their social nature, they are well-studied and require no extensive introduction here.

3.4 Morphological characteristics

White rhinos can be distinguished from other rhino species by their large body size and broad, square-shaped mouth (hence the common name “square-lipped rhinoceros”).

3.5 Role of the species in its ecosystem

As a mega-herbivore, the white rhino substantially influences vegetation structure, transforming low-quality, high-biomass grasslands into more productive, nutrient-rich habitats (Owen-Smith, 1988). White rhinos also create and maintain short-grass “lawns,” benefiting smaller grazers such as antelopes and zebras. By wallowing and transporting mud, they help seal seasonal pans, prolonging water availability into the dry season. Communal dung heaps (middens) supply essential resources for insectivorous birds, reptiles, and dung beetles.

4. Status and trends

4.1 Habitat trends

Namibia’s white rhino habitat depends on receiving over 200 mm of rainfall per year. While more than 1.5 million hectares are occupied by rhinos across three national parks, an additional 0.5 to 1 million hectares in other national parks could be restocked in the future. Outside of protected areas, land use is influenced by the profitability of rhino conservation compared to alternative uses. The mounting cost of anti-poaching security has forced smaller reserves to opt out of rhino ownership—either through sales or due to poaching losses—thus reducing overall habitat. It is estimated that **17%** of Namibia’s land area, roughly **14 million hectares**, qualifies as suitable white rhino range.

4.2 Population size

Namibia holds the **second-largest** white rhino population globally, after South Africa. As of 2024, population estimates stand at **1,500** white rhinos, based on helicopter counts, data from dehorning exercises, and reports from private owners to the Ministry of Environment, Forestry and Tourism. Records are verified through sales, exports, hunting permits, and farm inspections.

4.3 Population structure

Age and sex data from protected areas are gleaned via aerial censuses, dehorning operations, and standardized monitoring (SMART systems, camera surveillance). Many white rhinos have unique identification via ear notches, microchips, or telemetry devices. Private owners must also uniquely mark rhinos (except dependent calves), facilitating subpopulation management. Adjusting population demographics—such as removing dominant males to foster higher breeding rates—forms an integral part of Namibia’s rhino management approach.

4.4 Population trends

From an initial reintroduction of **16** animals in 1975, Namibia’s white rhino population rose to **1,500** by 2024. Between 2005 and 2024, the overall growth rate stood at **6.7%** annually, including imports from South Africa. Presently, **1161** white rhinos are privately owned across roughly **74** populations, while **339** remain under state ownership in four protected areas.

4.5 Geographic trends

All known white rhino holdings in Namibia are subject to government control over import, export, translocation, sale, and transport. Thus, the Ministry of Environment, Forestry and Tourism maintains precise distribution data, although specific locations remain confidential for security reasons.

5. Threats

The gravest threat is illegal killing and the black-market trade in rhino horns (Chanyandura et al., 2021). Poaching has risen since 2012, requiring Namibia to intensify anti-poaching strategies, interagency coordination, and stricter penalties. **A secondary but critical threat** is the growing cost of security, which compels many private owners to relinquish their rhino populations. **Climate change and prolonged droughts** force land owners to supplement feed, a substantial cost which many private farmers are unable to carry. As these private herds disappear, large tracts of potential rhino habitat are lost.

Existing revenue streams—tourism, limited trophy hunting, and live sales—do not cover all security costs. At the same time, diminishing government budgets and uncertain donor funding put Namibia's anti-poaching measures at risk, particularly during global recessions and economically uncertain times such as pandemics (Chanyandura et al., 2021). Trade restrictions also hamper potential revenue generation.

6. Utilization and trade

6.1 National utilization

Domestic consumptive use of white rhinos is currently not permitted in Namibia, nor is any rhino horn commerce. Tourism revenue related to rhinos is difficult to isolate, and does not typically increase with higher rhino stocking levels. Because security costs and poaching risks rise steeply with larger populations, many properties keep minimal numbers of rhinos or none at all.

6.2 Legal trade

Between 2022 and 2024, **43** white rhinos were hunted in Namibia, averaging about 14 per year—equivalent to just **0.9%** of the population, well below annual recruitment rates. Adult males are sometimes dehorned for safety or management, limiting potential trophy hunts. Namibia has also exported **124** white rhinos since 2022 to Angola, South Africa, Zambia and the USA.

6.3 Parts and derivatives in trade

Hunting trophies currently constitute the sole rhino product in legal trade.

6.4 Illegal trade

Concerns regarding the impact of poaching and illegal trade on the extinction risk of wild rhino populations are well-founded. Since 2011, the global white rhino population has declined by approximately 1,000 individuals per year due to illegal trade (Chanyandura et al., 2021), with the majority of losses occurring in South Africa. Although there are no documented cases of Namibian rhino horn being seized abroad, around 162 white rhinos have been poached in Namibia since 2013, and their horns are presumed to have entered the illicit market.

Despite notable successes in arrests, interdictions, and the imposition of harsher penalties, poaching pressure remains unrelenting—even in areas with declining white rhino population densities (Eikelboom 2024). Demand-reduction campaigns have largely failed, and in some cases, have been counterproductive (Smith, 2018; Zhu et al., 2020). Conversely, dehorning has become a widely adopted deterrent strategy (Rubino et al., 2020), though it has resulted in large, unusable stockpiles of horn. No anti-poaching strategy to date has successfully halted poaching activities (Smith 2018; Eikeboom et al., 2020). The escalating financial burden of anti-poaching measures, coupled with increasing risks to personal safety, has led many rhino custodians to relinquish their responsibilities, thereby reducing the available habitat for rhinos (Ferreira et al., 2014; Rubino et al., 2020).

The increase in mortality further disrupts rhino social structures and behavioural patterns. Modelling studies predict a bleak outlook for rhino populations if current trends in illegal trade persist (Doyle et

al., 2024). Socioeconomic factors—particularly poverty in African countries—create fertile conditions for poaching. Local poachers are incentivized by payments of up to USD 9,000 per kilogram of horn, a reward that far outweighs the perceived risk of apprehension (Hübschle, 2015). In contrast, there is little to no financial incentive for retaining rhinos under private or community ownership, while black-market syndicates and systemic corruption continue to profit from inflated prices.

In this context, the legalisation of rhino horn trade has been proposed as a potentially viable strategy for conserving wild populations.

6.5 Actual or potential trade impacts

At present, limited trophy hunting and live animal exports do not pose a significant threat to population growth (see Section 4.4). Should the trade in rhino horn be legalised, the domestic value of live rhinos could increase substantially—potentially more than 100-fold, if the horn growth over the lifespan of a rhino is considered and multiplied by the black-market value per kilogram. This could stimulate local investment in rhino ownership and may even encourage further imports from South Africa, as has been observed since 2012.

Estimating the potential impacts of legal trade on wild rhino populations requires a nuanced understanding of consumer motivations and the complex economic factors that influence supply and demand. Rhino horn holds dual value: it is utilised in Traditional Chinese Medicine (TCM) and also functions as an investment commodity. Interviews with TCM consumers indicate a preference for legal horn over illegally sourced alternatives, due to ethical considerations (non-lethal harvesting) and the anticipated benefits of lower, more stable prices (Hanley, 2017; Vu et al., 2023), and it can thus be anticipated that “humane harvesting from live animals may significantly displace poaching” (Hanley, 2017).

As an investment asset, rhino horn is prized for its scarcity. Ironically, trade bans have exacerbated its value by creating speculative bubbles. Comparable patterns have been observed in the markets for ivory and rosewood, where investors deliberately restrict supply to inflate demand (Zhu, 2019). The price inelasticity of rhino horn—where consumers are willing to pay any price—and deeply entrenched beliefs in its medicinal efficacy render prohibition policies largely ineffective (Zhu et al., 2020). Conversely, legal trade could mitigate scarcity value, stabilise prices, and align with TCM consumer preferences. The risk of illegal horn infiltrating the legal market can be mitigated using existing technologies such as the RhODIS DNA profiling system, which enables unique identification of horn sources.

The extent to which legal trade would affect wild populations hinges on the volume of legal horn available for market distribution (Taylor et al., 2017). Current and projected demand can be met through the release of existing stockpiles and routine dehorning of live rhinos—practices already in place to deter poaching. South Africa reportedly holds approximately 65 tonnes of rhino horn, far exceeding the estimated 8 tonnes (equivalent to at most 1,500 rhinos) currently trafficked illegally each year. Taylor et al. (2017) have predicted that the demand, even if expanded by a new consumer base, can be satisfied by harvesting of rhino horn from wild animals.

Critics (e.g., Eikelboom et al., 2020) argue that illegal demand may escalate under legal trade, particularly if the removal of legal restrictions broadens the consumer base in consumer countries and removes the assumed stigma associated with purchasing an illegal commodity. However, there may be little to no social stigma attached to the consumption of rhino horn in Vietnam, as consumers have little to fear from wildlife protection laws (Shairp 2016). Similar to other luxury goods, prices are unlikely to fall to levels that would significantly increase accessibility. Those currently able to afford illegal horn are likely to be the same individuals who would purchase it legally—particularly if legal horn is ethically sourced and of comparable or superior quality. Should the consumer base grow with an increasing spending power within the Asian market (Crookes et al., 2015), it can be assumed that the price may increase in a free market system, and that consumers may compete for the product. The current price inelasticity of rhino horn may not be governed by the same rules when legally traded and free market procedures and policies become relevant. At this point it should be mentioned that users prefer wild rhino horn product over ‘farmed’ rhino horn, which may serve to incentivize rhino horn keepers to ensure ethical, natural keeping of rhino populations (Hanley, 2017; Vu et al., 2023). Should the trade be legalized, government institutions would need to ensure that these animals are

kept under acceptable conditions. Namibia in particular, prides itself in upholding high ethical standards of wild animal keeping and protection (Controlled Wildlife Products and Trade Act, 2008).

According to free-market principles, an increase in demand would drive up prices, thereby incentivising supply—especially when profits are directed toward conservation stakeholders rather than criminal networks. A key advantage of a legal trade framework is that revenue would support conservation efforts rather than funding illicit activities. Currently, the most significant threat to wild rhino populations is the unsustainable cost of anti-poaching efforts. To date, cumulative expenditures across Africa have reached several billion USD, with limited long-term impact and no sustainable funding mechanism, and particularly governments being unable to carry costs (Lindsey et al., 2021; Rubino et al., 2018).

A recent study modelling the effect of economic dynamics under a legal trading system on wild rhino populations indicates that legal trade could greatly benefit the conservation of rhino populations, providing that the user demand can be met (Doyle et al., 2024). Although current projections are necessarily based on assumptions, any shift from the status quo may offer renewed hope for the survival of the species in the wild. As is, legal trade may replace illegal trade with two significant differences: rhinos may live, and profits may go to those who invest in their survival. Finally, if legal trade does not produce the intended conservation outcomes, regulatory restrictions could be reintroduced.

7. Legal instruments

7.1 National

In Namibia, white rhinoceros is classified as “Specially Protected” under the Nature Conservation Ordinance (Ordinance 4 of 1975, as amended). All activities—hunting, capture, possession, transport, import, export, and re-export—are subject to permits. Horns and other parts are deemed “Controlled Wildlife Products” under the Controlled Wildlife Products and Trade Act (Act 9 of 2008, as amended). Convictions for illegal trade in these products can lead to fines up to N$25,000,000 (around US$1,780,000) and/or 25 years of imprisonment. Importantly, these laws are indeed enforced across Namibia.

Under the Animal Health Act (Act 1 of 2011), veterinary permits are required for importing or moving raw wildlife products, including rhino horn, across veterinary cordon fences.

7.2 International

Namibia’s white rhino population (*Ceratotherium simum simum*) is currently included in CITES Appendix II, strictly for in-situ live trade within Africa’s historical rhinoceros range. All other specimens remain regulated as Appendix I, subject to comprehensive CITES safeguards.

8. Species management

8.1 Management measures

Namibia’s *White Rhinoceros Management Strategy (2022)* employs a metapopulation approach, promoting genetic flow through translocations and introductions. Basic guidelines—like exchanging at least one breeding individual per generation—are exceeded by current efforts. Reintroduction to unoccupied but suitable areas also helps build up populations.

Trophy hunting (often termed “conservation hunting”) is acknowledged as an important revenue source, while live sales boost private-sector engagement. Meanwhile, increasingly sophisticated, globally networked poachers necessitate upgraded security and intelligence measures. Horn stockpile management (e.g., annual horn re-registration) helps avert theft and illegal leakage.

8.2 Population monitoring

The Ministry of Environment, Forestry and Tourism spearheads rhino monitoring and anti-poaching patrols nationwide. Key tools include aerial surveys, waterhole counts, SMART patrolling, and camera surveillance. In Etosha National Park, helicopter block counts occur bi-annually. In private reserves,

mandatory microchipping, DNA sampling (RhODIS database), and permit checks ensure tight population oversight.

8.3 Control measures

8.3.1 International

Permit control: The Ministry of Environment, Forestry and Tourism permit office at Windhoek issues all permits relating to white rhinoceros and their parts or derivatives. No competencies are delegated to local or regional authorities. Only Namibia registered game dealers are allowed to capture and trade wild animals. In the case of hunting, only Namibian registered professional hunters and operators/outfitters are allowed to conduct hunting. The Directorate of Veterinary Services in Windhoek issues all veterinary permits. A strictly applied permit system thus already exists and the control of translocations, trade in live animals and hunting and trade in hunting trophies would continue to be strictly enforced.

Marking of animals/products: As is common practice already, and in the interest of facilitating control and law enforcement, any animal that is traded is required to be DNA profiled and microchipped. Hunting trophies are also required to be sampled for DNA profiling. DNA samples are submitted to the RhODIS database. All horns are additionally allocated and marked with National serial number, and paperwork is traceable.

Customs and border control: Namibian Customs Officers check CITES, veterinary and transit permits. Where necessary, they refer to the Namibian Police or district veterinary officer.

Law enforcement: Law enforcement is a joint effort by the Ministry of Environment, Forestry and Tourism, the Protected Resources Division of the Namibian Police and the Customs Service. Law enforcement agencies rely primarily on information and well-established informer networks exist and are maintained.

8.3.2 Domestic

Since white rhinos are classified as Specially Protected Game, all aspects of ownership and transport require permits. Namibia's legal framework includes robust enforcement mechanisms and harsh penalties designed to suppress illegal trade and safeguard sustainable use.

8.4 Captive breeding and artificial propagation

No formal captive breeding operations exist in Namibia.

8.5 Habitat conservation

About **17%** of Namibian territory is designated as protected areas, encompassing roughly **30%** of the country's potential white rhino habitat. Namibia's broader philosophy is that habitat loss constitutes the ultimate threat to wildlife, unless the animals are more valuable alive than competing land uses. Currently, **46%** of the country is under some form of conservation management or wildlife production, including freehold land where wildlife-related tourism and hunting occur. Expanding rhino-friendly environments, both privately and communally, will secure additional habitat.

8.6 Safeguards

Namibia's existing permitting systems, DNA tracking, stringent penalties, and an updated management strategy provide robust defences. These measures will be enhanced if legal horn trade proceeds, ensuring that all rhino-derived products remain traceable and lawfully sourced.

9. Information on similar species

Various wildlife species have exhibited population rebounds after adopting sustainable-use models that elevate live value. A notable example is the **vicuña** in South America: once nearly extinct in the 20th century, it recovered through regulated legal trade. In 1969, the Vicuña Convention banned hunting and trade, reinforced by an Appendix I CITES listing in 1975. However, beginning in 1980, Peruvian authorities granted local communities the right to shear and sell fiber from live vicuñas; subsequent CITES downlistings to

Appendix II were accompanied by strict oversight. Populations rebounded sharply, and today the vicuña is classified as Least Concern by the IUCN Red List. Both vicuña fiber and rhino horn highlight how consumptive use, properly managed, can protect populations without harming individual animals (Kasterine et al., 2018).

10. Consultations

The Association of Private Rhino Owners in Namibia has been consulted and fully supports this proposal. This proposal only pertains to the Namibian population.

11. Additional remarks

Realigning Incentives through Legal Horn Trade

Despite Namibia's notable successes in rhino conservation, rising security costs and limited returns have compelled many private landholders to abandon rhino ownership. Legalized horn trade, managed under rigorous permit systems, DNA verification, and quotas, would **motivate these custodians** to retain and expand their rhino populations, shifting the economic balance away from poaching and toward legal, live conservation.

Adaptive "Pilot" Framework

The Government of Namibia proposes an initial, closely monitored phase, capped at **200 kg** of horn per year. Authorities would observe poaching rates, rhino population trends, and trade volumes. If negative consequences arise—such as an uptick in illegal offtake—the government stands prepared to suspend or revise quotas. This adaptive approach mitigates risk while testing the potential for a transformative conservation strategy.

Championing Local Communities

Across Africa, the future of wildlife conservation depends on the engagement and empowerment of local communities. In Namibia, enabling landowners and communal conservancies to benefit from rhino ownership not only fosters **economic resilience**—such as job creation in anti-poaching units, tourism, or wildlife monitoring—but also positions them as frontline protectors. By sharing revenue and involving these communities directly in rhino management, Namibia aims to ensure that **local livelihoods** become intertwined with long-term wildlife stewardship.

Preventing Illegal Horn Laundering

Namibia acknowledges concerns that legal horn trade might provide cover for illicit supplies. To counter this, each horn (or part thereof) must carry a DNA certificate (via the RhODIS system), microchip ID, and the relevant CITES documents. Annual audits and specialized enforcement units will help detect discrepancies. This design improves traceability and reduces incentives to launder illegal horn.

Modeling Other Conservation Triumphs

Namibia's proposal draws inspiration from success stories like the vicuña. Rhino horn, similarly renewable, could yield substantial revenue for reinvestment in conservation and livelihoods—turning a vulnerability (poaching) into a sustainable asset. By refining its Appendix II annotation, Namibia seeks to **share best practices**, reinforce collaboration with other range states, and uphold CITES objectives. Ultimately, the country envisions a future where **white rhinos** thrive on private and communal lands, secured by a regulated trade that rewards custodianship and displaces illegal activity.

12. References

Balfour, D., Brebner, K., Coetzee, R., Davies-Mostert, H., Lindsey, P.A., Shaw, J., & 't Sas-Rolfes, M. (2017). Sustainable rhino horn production at the pointy end of the rhino horn trade debate. *Biological Conservation, 216*, 60–68.

Brooks, P.M. (1989). *Conservation Plan for Black Rhinoceros Diceros bicornis in South Africa, the TBVC States, and SWA/Namibia.* Unpublished Report, 28 pp.

Brooks, P.M., & Hughes, G.R. (1993). *Proposal for the Transfer of South Africa's Population of the White Rhinoceros Ceratotherium simum simum from Appendix I to II.* Unpublished Report.

Buys, D. (1988). *A Summary of the Introduction of White Rhinoceros onto Private Land in the Republic of South Africa.*Unpublished Report to NPB, 11 pp.

Chanyandura, A., Muposhi, V.K., Gandiwa, E., & Muboko, N. (2021). Ecological and conservation dynamics of rhino populations. *Ecology and Evolution, 11*, 5892.

Doyle, H., Champagne, K., Rajpal, D., Seebeck, G., & Gerberry, D.J. (2024). A coupled model of population, poaching, and economic dynamics to assess rhino conservation through legal trade. *A Journal of Biomathematics, 10*(1), 15–23.

Eikelboom, J.A.A., & Prins, H.H.T. (2024). Poaching pressure on African rhinos is still at an all-time high. *Science Advances, 10*(25).

Emslie, R., & Brooks, M. (1999). *African Rhinoceros: Status Survey and Conservation Action Plan.* IUCN/SSC African Rhinoceros Specialist Group, IUCN, Gland, Switzerland and Cambridge, UK, ix + 92 pp.

Ferreira, S.M., Pfab, M., & Knight, M. (2014). Management strategies to curb rhino poaching: Alternative options using a cost-benefit approach. *South African Journal of Science, 110*(1–8).

Hübschle, A.R. (2015). *Game of horns: transnational flows of rhinoceros horn.* Dissertation, IMPRS-SPCE, Universität zu Köln, 1–424.

International Trade Centre. (2018). *Trade in Vicuña: Implications for Conservation and Rural Livelihoods.* Geneva (ITC Document Number: SIVC-18.13.E), 50 pp.

Kasterine, A. and Lichtenstein, G (2018). *Trade in Vicuña: the Implications for Conservation and Rural Livelihoods*. International Trade Centre, Geneva, Switzerland.

MacMillan, D., Bozzola, M., Hanley, N., Kasterine, A., & Sheremet, O. (2017). *Demand in Viet Nam for Rhino Horn Used in Traditional Medicine.* International Trade Centre, Geneva, Switzerland.

Martin, R.B. (2010). *Background Study for White Rhinoceros (Ceratotherium simum simum).* Ministry of Environment, Forestry and Tourism, Namibia, 154 pp.

MET. (2012). *White Rhinoceros Species Management Plan for Namibia.* Ministry of Environment, Forestry and Tourism, Republic of Namibia.

MET. (2018). *White Rhinoceros Management Strategy.* Ministry of Environment, Forestry and Tourism, Republic of Namibia.

MET. (2022). *White Rhinoceros Management Strategy.* Ministry of Environment, Forestry and Tourism, Republic of Namibia.

MET. (2022). *Black Rhinoceros Management Strategy.* Ministry of Environment, Forestry and Tourism, Republic of Namibia.

Nuijten, R.J.M., Nguyen, T., Eikelboom, J.A.J., & Drori, O. (2024). Legal rhino horn trade: A thorny proposition. *Science, 386*(67), 157–158.

Owen-Smith, N. (1973). *The Behavioural Ecology of the White Rhinoceros.* PhD thesis, University of Wisconsin, USA.

Owen-Smith, N. (1988). *Megaherbivores: The Influence of Very Large Body Size on Ecology.* Cambridge University Press.

Pienaar, D.J., Hall-Martin, A.J., & Hitchins, P. (1991). Horn growth rates of free-ranging white and black rhinoceros. *Koedoe – African Protected Area Conservation and Science, 34*(2).

Rubino, E.C., & Pienaar, E.F. (2020). Rhinoceros ownership and attitudes towards legalization of global horn trade within South Africa's private wildlife sector. *Oryx, 54*(2), 244–251. https://doi.org/10.1017/S0030605318000030

Shortridge, G.C. (1934). *The Mammals of South West Africa. Vol. I & II.* William Heinemann Ltd., London.

Smith, M.S. (2018). Framing rhino horn demand reduction in Vietnam: Dismissing medical use as voodoo. *Pacific Journalism Review, 24*(2), 241–256. https://doi.org/10.24135/pjr.v24i2.403

T'Sas-Rolfes, M. (1990). *Privatizing the Rhinoceros Industry.* B.Comm. Hons. Dissertation, University of the Witwatersrand, South Africa.

Taylor, W.A., Balfour, D., Brebner, K., Coetzee, R., Davies-Mostert, H., Lindsey, P.A., Shaw, J., & 't Sas-Rolfes, M. (2017). Sustainable rhino horn production at the pointy end of the rhino horn trade debate. *Biological Conservation.*

't Sas-Rolfes, M., Challender, D.W.S., Hinsley, A., & Veríssimo, D. (2019). Illegal wildlife trade: Scale, processes, and governance. *Annual Review of Environment and Resources, 44*, 201–228.

Vu, H. N. D., Nielsen, M. R., & Jacobsen, J. B. (2022). Conserving rhinos by legal trade: Insights from a choice experiment with rhino horn consumers. *Ecological Economics*, *193*, 107287.

Vu, A.N. (2023). Demand reduction campaigns for the illegal wildlife trade in authoritarian Vietnam: Ungrounded environmentalism. *World Development, 164*, 106150.

Wikelski, M. (2024). Protect white rhinos by legalizing the trade. *Science, 386*(6718), 157.

Zhu, A.L. (2019). China's rosewood boom: A cultural fix to capital overaccumulation. *Annals of the American Association of Geographers, 110*(1), 277–296.

Zhu, A.L. (2020). China's rosewood boom: A cultural fix to capital overaccumulation. *Annals of the American Association of Geographers, 110*(1), 277–296.

Zhu, A., & Zhu, G. (2020). Understanding China's wildlife markets: Trade and tradition in an age of pandemic. *World Development, 136*, 105108.