# The Legal Challenges of Transboundary Wildlife Management at the Population Level: The Case of a Trilateral Elephant Population in Southern Africa

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Routledge
Taylor & Francis Group

ARTICLES

# The Legal Challenges of Transboundary Wildlife Management at the Population Level: The Case of a Trilateral Elephant Population in Southern Africa

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## 1. Introduction

What do geese (*Anser* spp., *Branta* spp.) and wolves (*Canis lupus*) in Europe have in common with elephants (*Loxodonta africana*) in southern Africa? In fact, quite a lot. All three enjoy protected status under multiple international legal instruments.[1] At the same time, all three have a high potential for so-called human–wildlife conflict[2] and are subject to smaller or larger degrees of lethal control.[3] These traits, in turn, are linked to the fact that the life histories of geese, wolves, and elephants require populations of these animals to range beyond designated protected areas (PAs) into the wider landscape.[4] Last but not least, many populations of geese, wolves, and elephants—and many other species besides—are transboundary, overlapping the territories of several countries.[5] These traits, however, can lead to a potential

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1 *See* Lisa Hopkinson et al., *National and International Law, in* ELEPHANT MANAGEMENT: A SCIENTIFIC ASSESSMENT FOR SOUTH AFRICA 477, 526–527 (R.J. Scholes & K.G. Mennell eds., 2008); Floor Fleurke & Arie Trouwborst, *European Regional Approaches to the Transboundary Conservation of Biodiversity: The Bern Convention and the EU Birds and Habitats Directives, in* TRANSBOUNDARY GOVERNANCE OF BIODIVERSITY 128 (Louis J. Kotze & Thilo Marauhn eds., 2014); Arie Trouwborst, *Global Large Carnivore Conservation and International Law*, 24 BIODIVERSITY & CONSERVATION 1567 (2015).

2 The term "human–wildlife conflict" is employed in this article because of its widespread use in the present context. It is duly realized, however, that the term is not quite accurate and actually comprises two separate components, namely human–wildlife/wildlife–human *impacts* and human–human *conflicts* regarding those impacts. *See generally* M. Nils Peterson et al., *Rearticulating the Myth of Human-Wildlife Conflict*, 3 CONSERVATION LETTERS 74 (2010); Steve M. Redpath et al., *Understanding and Managing Conservation Conflicts*, 28 TRENDS IN ECOLOGY & EVOLUTION 100 (2013).

3 *See generally* FRED A. JOHNSON & JESPER MADSEN, ADAPTIVE HARVEST MANAGEMENT FOR THE SVALBARD POPULATION OF PINK-FOOTED GEESE: ASSESSMENT FOR THE 2013–2015 HUNTING SEASONS, Technical Report No. 28, Danish Centre for Environment and Energy (2013); Arie Trouwborst, *Living with Success—and with Wolves: Addressing the Legal Issues Raised by the Unexpected Homecoming of a Controversial Carnivore*, 23 EUROPEAN ENERGY AND ENVTL. L. REV. 89 (2014).

4 *See generally* Enrico Di Minin et al., *Creating Larger and Better Connected Protected Areas Enhances the Persistence of Big Game Species in the Maputaland-Pondoland-Albany Biodiversity Hotspot*, August 2013, 8 PLOS ONE e71788; 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 258 (2012).

5 *See generally* Michael J. Chase & Curtice R. Griffin, *Elephants Caught in the Middle: Impacts of War, Fences and People on Elephant Distribution and Abundance in the Caprivi Strip, Namibia*, 47 AFR. J. OF ECOLOGY 223 (2009); Jeanette Selier

mismanagement of transboundary populations because of a mismatch between the scales at which these animal populations operate and the scale at which administrations operate.[6]

Although this article addresses all the aforementioned shared characteristics, the main focus is on the latter, that is, the transboundary nature of many wildlife populations. In particular, it explores the notion of adjusting relevant law and policy to the spatial scale of each animal population, including where this population is transboundary. This notion, which makes evident biological sense, is at the forefront of current thinking regarding the conservation and management (including sustainable use) of cross-border species.[7] Despite its simplicity at a conceptual level, the actual implementation of conservation and management at the transboundary population level is a complex and challenging affair.[8] This article explores the theory and practice of transboundary population level management, primarily from the perspective of one particular wildlife population, namely the population of African elephant inhabiting the Central Limpopo River Valley (CLRV) in Botswana, South Africa, and Zimbabwe. By focusing on the emblematic African elephant, this article builds on a rich tradition of international law scholarship,[9] adding the perspective of transboundary population-level conservation.

The methodology employed has multidisciplinary features. Whereas it chiefly concerns the identification, interpretation, and comparison of legally relevant documents, it also draws on data from the biological and other pertinent disciplines. The approach taken is as follows. First, the essential elements of organizing wildlife law and policy at the transboundary population level are explored in Section 2, drawing on European experiences regarding the management of populations of gray wolf and other large carnivore species and of pink-footed goose (*Anser brachyrhynchus*). This is followed in Section 3 by an introduction of the general situation regarding elephants in southern Africa and the Central Limpopo River elephant population in particular. Subsequent sections then analyse to what degree the transboundary population-level approach (as described in Section 2) is incorporated into the applicable law and policy at the global and regional level (Section 4), the trilateral level (Section 5), and the national level in the three countries concerned (Section 6). Conclusions and recommendations are presented in Section 7.

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et al., *Large Mammal Distribution in a Transfrontier Landscape: Trade-offs Between Resource Availability and Human Disturbance*, 47 BIOTROPICA 389 (2015); Trouwborst (2012), *supra* note 4; Trouwborst (2015), *supra* note 1.

[6] *See generally* Audrey Delsink et al., *Biologically Relevant Scales in Large Mammal Management Policies*, 167 BIOLOGICAL CONSERVATION 116 (2013); J. LINNELL ET AL., GUIDELINES FOR POPULATION LEVEL MANAGEMENT PLANS FOR LARGE CARNIVORES IN EUROPE (2008); John D.C. Linnell & Luigi Boitani, *Building Biological Realism into Wolf Management Policy: The Development of the Population Approach in Europe*, 23 HYSTRIX 80 (2012); Ross T. Pitman et al., *The Importance of Refugia, Ecological Traps, and Scale for Large Carnivore Management*, 24 BIODIVERSITY & CONSERVATION 1975 (2015).

[7] *See* Trouwborst (2015), *supra* note 1.

[8] *Id.*

[9] *See generally* RACHELLE ADAM, ELEPHANT TREATIES: THE COLONIAL LEGACY OF THE BIODIVERSITY CRISIS (2014); ED COUZENS, WHALES AND ELEPHANTS IN INTERNATIONAL CONSERVATION LAW AND POLITICS: A COMPARATIVE STUDY (2014); Michael J. Glennon, *Has International Law Failed the Elephant?*, 84 AM. J. INT'L L. 1; Andre Nollkaemper, *Framing Elephant Extinction*, 3 EUROPEAN SOCIETY OF INTERNATIONAL LAW (ESIL) REFLECTIONS, July 15, 2014.

## 2. The transboundary population approach

From a conservation perspective, it is preferable to adjust relevant law and policy to the spatial scale of a wildlife population—even where this population straddles the territories of various countries—rather than adjusting it to biologically meaningless political and administrative boundaries.

### 2.1 Wolf, bear, wolverine, and lynx populations in Europe

An instructive example where this approach has been developed in a comparatively consistent and comprehensive way concerns the four largest terrestrial carnivore species occurring in Europe: (1) gray wolf; (2) brown bear (*Ursus arctos*); (3) wolverine (*Gulo gulo*); and (4) Eurasian lynx (*Lynx lynx*). Given that Europe, like Africa, is composed of many countries, the fact that conservation areas often occur on international borders,[10] and given the low densities at which the large carnivore species occur, the need for transboundary coordination is especially strong in this context to effectively manage these wide-ranging species at the level of distinct populations.[11] Some basic elements of the envisioned cross-border approach are described in the following statement in a paper regarding wolves:

> The first step that is required is to move away from viewing wolf distribution within the arbitrary lines on maps that national or provincial borders represent and to look at the actual distribution. The resulting view is one of a "meta-population like" structure where demographic viability is achievable in many regional units that have a more or less continuous distribution of wolves (populations). It is crucial that these populations are managed as biological units—with the administrative bodies (be they intra- or inter-national) that share a population coordinating their activities to ensure that their independent actions enhance rather than hinder each other.[12]

The approximately 12,000 wolves living in Europe are spread across ten distinct populations, eight of which are transboundary.[13] Roughly comparable situations exist for bears (ten populations, eight of which transboundary), lynx (ten populations, eleven of which transboundary), and wolverines (two populations, both of which transboundary).[14]

The four species are covered by two important European legal instruments for wildlife conservation. The first is the 1979 Convention on European Wildlife and Natural Habitats (Bern Convention),[15] to which virtually all European countries are contracting parties. The second is the 1992 European Union (EU) Directive on

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[10] 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, 546 (2015); Frederico Montesino Pouzols et al., *Global Protected Area Expansion Is Compromised by Projected Land-use and Parochialism*, 516 NATURE 383, 383 (2014).

[11] *See generally* Guillaume Chapron et al., *Recovery of Large Carnivores in Europe's Modern Human-Dominated Landscapes*, 346 SCIENCE 1517 (2014); PETRA KACZENSKY ET AL., STATUS, MANAGEMENT AND DISTRIBUTION OF LARGE CARNIVORES – BEAR, LYNX, WOLF, AND WOLVERINE – IN EUROPE, UPDATE 2012 (2013); Trouwborst (2014), *supra* note 3.

[12] Linnell & Boitani, *supra* note 6, at 84.

[13] *See* Chapron *et al., supra* note 11, at 1518; KACZENSKY ET AL., *supra* note 11, at 41.

[14] *See generally* Chapron et al., *supra* note 11.

[15] Convention on the Conservation of European Wildlife and Natural Habitats, 19 September 1979, E.T.S. 104 [hereinafter Bern Convention].

the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive),[16] which binds the 28 EU member states. Both instruments set out obligations concerning the generic protection of the four large carnivore species involved and the protection of their habitat.[17]   However, these obligations target the countries concerned individually. No provision is made for concerted conservation actions tailored to transboundary wildlife populations, notwithstanding a generally phrased obligation in the Bern Convention for contracting parties to "co-operate whenever appropriate and in particular where this would enhance the effectiveness of measures taken under other articles of this Convention."[18]   Moreover, the specific legal regimes applicable to the various species under these instruments vary from country to country, due to reservations submitted by several parties to the Bern Convention and country-specific differences established under the Habitats Directive.[19]   For instance, under the Bern Convention, depending on the party concerned, the wolf is a "strictly protected fauna species" under Appendix II, a "protected fauna species" under Appendix III, or lacks either status.[20]   Comparable differences in legal status apply to wolves and other large carnivores under the Habitats Directive. The situation is compounded further by the fact that not all Bern Convention parties are also EU member states. The resultant fragmentation of the European legal landscape in respect to the four large carnivores adds to the urgency of transboundary cooperation at the population level.[21]

To remedy these shortcomings, both the Standing Committee of the Bern Convention (the principal body established under the Convention) and the European Commission (charged with supervising the implementation of the Habitats Directive) have expressly advocated a transboundary population level approach to large carnivore conservation and management.[22]   Of particular interest is the development of a detailed guidance document on the issue by the Large Carnivore Initiative for Europe (LCIE),[23]   under contract from the European Commission. These *Guidelines for Population Level Management Plans for Large Carnivores in Europe* (Carnivore Guidelines) were finalized and endorsed by the Commission

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[16] Council Directive 92/43/EEC, of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora, O.J. (L 206) 7 (EC).

[17] For a recent introduction to both legal regimes, see Fleurke & Trouwborst, *supra* note 1.

[18] Bern Convention, *supra* note 15, at art. 11(1)(a).

[19] *See generally* Arie Trouwborst, *Managing the Carnivore Comeback: International and EU Species Protection Law and the Return of Lynx, Wolf, and Bear to Western Europe*, 22 J. ENVTL L. 347 (2010); Trouwborst (2015), *supra* note 1.

[20] *See generally* Fleurke & Trouwborst, *supra* note 1.

[21] Linnell & Boitani, *supra* note 6, at 81. *See generally* LINNELL ET AL., *supra* note 6; Trouwborst (2010), *supra* note 19; Trouwborst (2014), *supra* note 3; Trouwborst (2015), *supra* note 1; 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).

[22] *See generally* Bern Convention, *Recommendation No. 137 of the Standing Committee on Population Level Management of Large Carnivore Populations* (27 November 2008) [hereinafter *Recommendation No. 137*]; Bern Convention, *Recommendation No. 115 of the Standing Committee on the Conservation and Management of Transboundary Populations of Large Carnivores* (1 December 2005), *available at* https://wcd.coe.int/ViewDoc.jsp?id=1487553&Site=&BackColorInternet=B9BDEE&BackColorIntranet=FFCD4F&BackColorLogged=FFC679.   As regards the European Commission, see below.

[23] The LCIE is a Specialist Group of the IUCN Species Survival Commission (SSC). *See* IUCN/SSC, LARGE CARNIVORE INITIATIVE FOR EUROPE, http://www.lcie.org (last visited 1 January 2016).

in 2008.[24]   The Carnivore Guidelines call for the adoption of a population-level management plan by the competent authorities of all countries involved for each large carnivore population, and they set out detailed instructions in this regard.[25] Upon the Carnivore Guidelines's adoption, the European Commission submitted that "it is difficult, if not impossible, for one Member State to manage and protect its large carnivores in the absence of concerted and convergent actions being taken by its neighbours."[26]   In particular, it held that "effective management of large carnivore populations which are shared between Member States can only be achieved through shared and co-ordinated management plans as described in the[se] guidelines."[27]   The Commission considers these Carnivore Guidelines to represent "best practice" when it comes to the application of the Habitats Directive to large carnivores.[28]   The Standing Committee of the Bern Convention has similarly called on parties to the Convention to "re-enforce cooperation with neighbouring states in view of adopting harmonized policies towards management of shared populations of large carnivores, taking into account the best practice in the field of management of populations of large carnivores."[29]   The Carnivore Guidelines are expressly referred to in the Recommendation in question.[30]

Especially significant for present purposes is a template provided in the Carnivore Guidelines setting out the ingredients that each transboundary management plan should contain.[31]   Even if the template is focussed on European large carnivores, it does appear to represent a relatively comprehensive catalogue of elements to be included in transboundary population-level conservation generally. Most of the elements mentioned in the template are clearly conducive, and some of them imperative, to the achievement of meaningful transboundary population-level cooperation. To avoid undue repetition, however, the analysis here is limited to highlighting a few of the most essential ones concerning objectives and specific actions. As regards the former, according to the Carnivore Guidelines' template, the objectives for the population concerned should be "specific and measurable," encompassing concrete goals in terms of numbers, range, and other parameters, such as harvest rates, damage levels, and poaching levels, "that can be used to measure the success of management actions."[32]   These goals ought to be "distributed in space" between the various administrative units involved, "such as countries, states, counties, wildlife management units[,] or protected areas."[33]   As regards specific actions, the template stresses that it is "crucial" that the removal of animals be "coordinated between all management units that share a population," based on a predetermined "population

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[24] LINNELL ET AL., *supra* note 6, at 1.

[25] *See id.*

[26] European Commission, *Note to the Guidelines for Population Level Management Plans for Large Carnivores* (7 January 2008), *available at* http://ec.europa.eu/environment/nature/conservation/species/carnivores/pdf/guidelines_for_population_level_management_ec_note.pdf.

[27] *Id.*

[28] *Recommendation No. 137, supra* note 22, at 1.

[29] *Id.*

[30] *Id.*

[31] LINNELL ET AL., *supra* note 6, at 35–37.

[32] *Id.* at 36 (2.2.4 Success criteria).

[33] *Id.* at 36 (2.2.6 Spatial aspects of management).

level limit for the number of individuals that can be removed per year" (or, arguably, any other coherent time unit employed).[34]  Significant attention should, furthermore, be paid to ensuring connectivity within the population as well as with neighbouring populations.[35]  A final point singled out here is that each plan should indicate any "changes in legislation that are needed to bring about the population level management plan."[36]

Whereas the Carnivore Guidelines generally refer to population-level management "plans," it is made clear that the transboundary cooperation concerned may take any of various shapes, as long as it adequately serves its purpose. It could involve a legally binding agreement, but this is not a strict requirement. The arrangement involved needs to be sufficiently flexible to adjust to future developments regarding the population concerned, but also sufficiently formal and high-profile to warrant its actual observation by the governmental actors involved.[37]  In the words of Beyerlin, any governmental transboundary wildlife regime "must fail unless it contains tailored, detailed rules on the conditions, targets, and modalities of cooperation."[38]

It should be noted that, unfortunately, the speed with which this population-level approach is actually being implemented by European countries in respect of large carnivores still leaves much to be desired. Notwithstanding a number of promising initiatives, the first full-fledged transboundary population-level management plan has yet to be formalized.[39]  This tardiness might be partly accounted for by the tenacious nature of the challenges associated with large carnivore conservation in particular.[40]

Be that as it may, the approach to transboundary cooperation at the population level as outlined in the Carnivore Guidelines is of significant interest for present purposes because of its comprehensiveness and detail, and because of the way it is embedded within applicable international legal frameworks. More than anything, it provides a benchmark as to what transboundary cooperation at the population level should ideally look like.[41]  This benchmark will be employed in the in-depth review below of the transboundary cooperation concerning the Central Limpopo River Valley elephant population.

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[34] *Id.* at 37 (3.6 Coordinating harvest/control of carnivores).

[35] *Id.* at 36–37 (2.2.5 Connectivity and expansion) (3.2 Maintaining and enhancing connectivity).

[36] *Id.* at 36 (3.3 Adapting legislation).

[37] *See* Trouwborst (2010), *supra* note 19, at 365–368.

[38] Ulrich Beyerlin, *Universal Transboundary Protection of Biodiversity and Its Impact on the Low-Level Transboundary Protection of Wildlife, in* TRANSBOUNDARY GOVERNANCE OF BIODIVERSITY 107, 109 (Louis J. Kotzé & Thilo Marauhn eds., 2014).

[39] European Commission, *Towards a Population Level Approach for the Management of Large Carnivores in Europe: Challenges and Opportunities* (December 2012).

[40] John D.C. Linnell and Luigi Boitani state:

Although progress may appear to be slow it is important to reflect on the fact that it is only a few decades since wolves changed their official status from vermin to conservation icons …. [It] is important to accept that we need to settle in for a long process and to use time to do things slowly and well. There has never been a time in European history when we have tried to form a sustainable and respectful relationship with wolves, or indeed any other large carnivore, so it is not surprising that the process takes time and is stormy.

Linnell & Boitani, *supra* note 6, at 89 (internal citation omitted).

[41] Trouwborst (2015), *supra* note 1.

## 2.2 A goose population in northwestern Europe

The next example to consider is the population of pink-footed goose that breeds on Svalbard (Spitsbergen) in the Arctic region and seasonally migrates through Norway to wintering grounds in Denmark and the Netherlands.[42] The steady increase of this goose population in the recent past has also increased conflicts with agricultural interests affected by the grazing geese, and it has raised concerns over the degradation of tundra vegetation in Svalbard.[43] The pink-footed goose provides an illustrative example, especially as it involves the actual implementation of distinct elements of the transboundary population-level management approach as detailed above.

In 2012, the Meeting of the Parties to the African-Eurasian Waterbirds Agreement (AEWA),[44] a subsidiary treaty under the Bonn Convention on Migratory Species (CMS or Bonn Convention),[45] which covers the pink-footed goose, adopted a denominated "International Species Management Plan" (ISMP) for the pink-footed goose population in question.[46] The overarching objectives of the ISMP are to (I) "[m]aintain a sustainable and stable Pink-footed Goose population and its range"; (II) "[k]eep agricultural conflicts to an acceptable level"; (III) "[a]void increase in tundra vegetation degradation in the breeding range"; and (IV) "[a]llow for recreational use [i.e., hunting] that does not jeopardize the population."[47]

The ISMP incorporates a good number of the essential elements of a transboundary population-level approach as outlined in the current section above. For instance, the Plan is adjusted to a distinct and well-defined biological unit extending across various countries, namely the range of the Svalbard-breeding population of pink-footed goose. Furthermore, the Plan's overarching objectives have been translated into specific and measurable targets, including a "population size of around 60,000" geese.[48] The various objectives are pursued through a series of detailed, coordinated conservation and management measures, *inter alia* concerning the reduction of human–goose conflict, the maintenance of the populations' range and connectivity, and the grazing impact on tundra vegetation.[49] An International Working Group has been set up as a central coordinating body and is composed of one government representative and one expert from each of the four range states (Norway,

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[42] JOHNSON & MADSEN, *supra* note 3, at 16.

[43] *See generally id*. at 8.

[44] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, 2365 U.N.T.S. 251 [hereinafter AEWA]. For more information on AEWA, *see generally* Rachelle Adam, *Waterbirds, the 2010 Biodiversity Target, and Beyond: AEWA's Contribution to Global Biodiversity Governance*, 38 ENVTL. L. REV. 87 (2008) (addressing the contribution of AEWA to the 2010 target for biodiversity loss reduction and implementation strategy); Melissa Lewis, *AEWA at Twenty: An Appraisal of the African-Eurasian Waterbird Agreement and Its Unique Place in International Environmental law*, 19 EJ. INT'L WILDLIFE L. & POL'Y 22 (2016).

[45] Convention on the Conservation of Migratory Species of Wild Animals, 23 June 1979, 1651 U.N.T.S. 356 [hereinafter CMS].

[46] AEWA, *International Species Management Plan for the Svalbard Population of Pink-footed Goose* Anser brachyrhynchus, AEWA Technical Series No. 48 (May 2012).

[47] *Id.* at 25 (6.1 Goals and Objectives).

[48] *Id.*

[49] *Id.* at 17–19 (4 Management Issues).

Denmark, the Netherlands, and Belgium).[50]  An especially significant feature for present purposes is the approach developed under the ISMP for the control of goose numbers, whereby the overall goose removal target is periodically determined at the transboundary population level and then translated into recommended hunting bag quotas for the countries involved.[51]

## 3.  The Central Limpopo River Valley elephant population

The African elephant was once widespread in the southern African subregion, occurring in high numbers in most areas until the twentieth century when large-scale hunting and ivory trade reduced numbers significantly throughout their range.[52]  Currently, the southern African elephant population constitutes 55 percent of the total African elephant population.[53]  Within southern Africa, Botswana holds, by far, the largest population in the subregion and on the continent (approximately 150,000 animals), while Mozambique, Namibia, South Africa, Zambia, and Zimbabwe still hold large elephant populations.[54]  While elephant numbers appear to be increasing in Botswana and South Africa, there seem to be declines in some of the populations in Mozambique, Zambia, and Zimbabwe. Globally, the African elephant is listed as "vulnerable" (A2a),[55]  fitting a worrying pattern applicable to many large herbivores across the globe.[56]  However, the species is considered "least concern" in the southern African region, which includes Botswana, South Africa, and Zimbabwe.[57]  Within all three of these countries, the elephant status can be considered a conservation success, but at the same time, elephants in the region are the primary agents of ecological change across their range,[58]  are one of the major causes of human–wildlife conflict,[59]  and are a source of international controversy.[60]

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[50] See AEWA, *AEWA International Working Group for the Pink-footed Goose*, AEWA.INFO, http://pinkfootedgoose.aewa.info/ (last visited 14 February 2016) (providing information on the ISMP and its implementation).

[51] See generally JOHNSON & MADSEN (2013), *supra* note 3 (describing the progress made on the development of an adaptive harvest-management strategy for maintaining the population of pink-footed geese in Svalbard).

[52] INA PLUG & STEPHAN BADENHORST, THE DISTRIBUTION OF MACROMAMMALS IN SOUTHERN AFRICA OVER THE PAST 30,000 YEARS: AS REFLECTED IN ANIMAL REMAINS FROM ARCHAEOLOGICAL SITES 93, 91 (2001); Jane Carruthers, *Romance, Reverence, Research, Rights: Writing about Elephant Hunting and Management in Southern Africa, c. 1830s to 2008*, 52 KOEDOE 1, 6 (2010).

[53] J.J. BLANC ET AL., AFRICAN ELEPHANT STATUS REPORT 2007: AN UPDATE FROM THE AFRICAN ELEPHANT DATABASE, Occasional Paper No. 33, IUCN Species Survival Commission (SSC), at 30 (2007).

[54] *Id.* at 131.

[55] International Union for Conservation of Nature and Natural Resources [IUCN], *Red List of Threatened Species: Loxodonta Africana* (30 June 2008), *available at* http://www.iucnredlist.org/ [hereinafter IUCN Red List].

[56] William J. Ripple et al., *Collapse of the World's Largest Herbivores*, 1 SCI. ADVANCES 1, 1 (2 May 2015), *available at* http://www.cof.orst.edu/leopold/papers/Ripple2015lg_herbivores.pdf.

[57] See IUCN Red List, *supra* note 55.

[58] See generally Graham I.H. Kerley et al., *Effects of Elephants on Ecosystems and Biodiversity, in* ELEPHANT MANAGEMENT: A SCIENTIFIC ASSESSMENT FOR SOUTH AFRICA 146, 146–150 (R.J. Scholes & K.G. Mennell eds., 2008).

[59] Richard E. Hoare, *Determinants of Human-Elephant Conflict in a Land-use Mosaic*, 36 J. OF APPLIED ECOLOGY 689 (1999); Richard E. Hoare et al., *African Elephants and Humans in Conflict: The Outlook for Co-existence*, 34 ORYX 34 (2000).

[60] See, e.g., COUZENS (2014), *supra* note 9.

Increasing human population numbers and the concomitant demands on land and natural resources, have resulted in a fragmented landscape with PAs imbedded in a human-dominated landscape.[61] Several species, including large carnivore species and mega-herbivores such as elephants, depend on large, intact natural areas to accommodate their extensive home ranges and, to a certain extent, to enable regulation of population numbers through natural processes.[62] The majority of PAs in southern Africa are significantly smaller than what is required for the home ranges of large and, certainly, mega-herbivores.[63] As a consequence, and in the absence of population management,[64] populations of these species rapidly approach and can exceed the carrying capacity of the PA, which places pressure on the vegetation as well as the boundary fences as the species attempt to migrate or disperse to low-density areas.[65] More than 80 percent of the elephant range in Africa still exists outside of proclaimed (state and private) PAs,[66] and these areas often span administrative and political boundaries such as municipalities and provinces and, in particular, international borders.[67] Only 20–30 percent of Botswana's elephant population occurs within formally proclaimed PAs. Van Aarde and Ferreira suggested that there are currently eight elephant conservation clusters in southern Africa.[68] The Central Limpopo River Valley (CLRV) elephant population could be considered as the ninth cluster. Of the nine clusters, five span international boundaries. These areas, therefore, are likely to comprise a matrix of multiuse landscapes of potentially divergent administrative, legal, and political systems. It is further recognised that the development of the human landscape has been *ad hoc*, which has allowed a continual encroachment by human settlement and agricultural activities.[69] The occurrence of elephants in close proximity to people often results in human–elephant conflict.[70] This conflict is naturally exacerbated outside of PAs, particularly in those areas of southern Africa of increasing human and elephant densities.[71]

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[61] Andres Baeza & Cristian F. Estades, *Effect of the Landscape Context on the Density and Persistence of a Predator Population in a Protected Area Subject to Environmental Variability*, 143 BIOLOGICAL CONSERVATION 94, 94 (2010); Enrico Di Minin et al. (2013), *supra* note 4, at 12.

[62] Rosie Woodroffe & Joshua R. Ginsberg, *Edge Effects and the Extinction of Populations Inside Protected Areas*, 280 SCIENCE 2126–2127 (1998); Enrico Di Minin et al. (2013), *supra* note 4, at 3.

[63] Craig Packer et al., *Conserving Large Carnivores: Dollars and Fence*, 16 ECOLOGY LETTERS 635, 640 (2013); *see generally* Enrico Di Minin et al. (2013), *supra* note 4.

[64] Henk Bertschinger et al., *Reproductive Control of Elephant, in* ELEPHANT MANAGEMENT: A SCIENTIFIC ASSESSMENT FOR SOUTH AFRICA 257, 257–328 (R.J. Scholes & K.G. Mennell, eds., 2008); *see generally* Graham I.H. Kerley & Adrian M. Shrader, *Elephant Contraception: Silver Bullet or a Potentially Bitter Pill?*, 103 S. AFRICAN J. SCI. 181 (2007) (identifying reasons why elephant contraception may not be the best option).

[65] *See generally* Kerley et al. (2008), *supra* note 58.

[66] Max Abensperg-Traun, *CITES, Sustainable Use of Wild Species and Incentive-driven Conservation in Developing Countries, with an Emphasis on Southern Africa*, 142 BIOLOGICAL CONSERVATION 948, 950 (2009); BLANC ET AL., *supra* note 53, 29.

[67] Delsink et al., *supra* note 6, 118. For an analogy regarding leopard see Julien Fattebert et al., *Long-distance Natal Dispersal in Leopard Reveals Potential for a Three-country Metapopulation*, 43 S. AFRICAN J. WILDLIFE RES. 61 (2013).

[68] Rudi J. Van Aarde & Sam M. Ferreira, *Elephant Populations and CITES Trade Resolutions*, 36 ENVTL. CONSERVATION 8, 9 (2009) (providing an illustration of these clusters in Figure 1).

[69] Peter A. Lindsey et al., *Underperformance of African Protected Area Networks and the Case for New Conservation Models: Insights from Zambia*, May 2014, 9 PLOS ONE e94109, at 2, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0094109.

[70] *See generally* Hoare et al. (2000), *supra* note 59.

[71] *Id.*; Tim P. Jackson et al., *Solutions for Elephant* Loxodonta Africana *Crop Raiding in Northern Botswana: Moving Away from Symptomatic Approaches*, 42 ORYX 83, 83 (2008); Heidi S. Riddle et al., *Elephants: A Conservation Overview*, 2 J. THREATENED TAXA 653, 654 (2010).
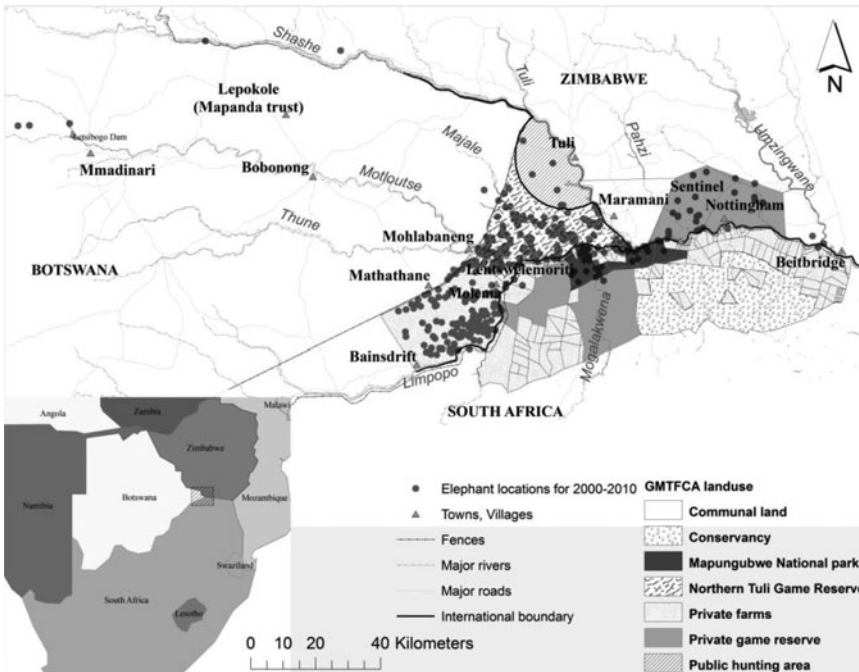
**Figure 1.** The Central Limpopo River study area with different land use practices and the elephant locations for 2000–2010.

The CLRV elephant population's current distribution spans three southern African countries, namely Botswana, South Africa, and Zimbabwe, and includes an area of some 180 km along the Limpopo River between Zanzibar Border Control in the west and Beit Bridge in the east, in a belt of about 20 km on either side of the river (Figure 1). The elephant population consists of approximately 1,224 ± 72.4 individuals and is increasing at <2 percent per annum.[72] Historically, however, elephants roamed freely across the Central Limpopo River Valley until approximately the start of the twentieth century, when hunting and increased human densities and agricultural activities led to the near extinction of elephants in the Limpopo Valley.[73] With the establishment of the Northern Tuli Game Reserve (NTGR) in Botswana in the early 1970s and its presidential declaration as a private game reserve under the Wildlife and National Parks Act,[74] elephants started increasing within the region and slowly expanded their range moving east across the Shashe River into Zimbabwe and further west along the Tuli Block in Botswana (Figure 1).

In 2006, the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA) was established with the signing of a Memorandum of Understanding (MoU) by the

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[72] Sarah-Anne J. Selier et al., *Sustainability of Elephant Hunting Across International Borders in Southern Africa: A Case Study of the Greater Mapungubwe Transfrontier Conservation Area*, 78 J. WILDLIFE MGMT. 122, 123 (2014).

[73] Tim Forssman et al., *How Important Was the Presence of Elephant as a Determinant of the Zhizo Settlement of the Greater Mapungubwe Landscape?*, 12 J. AFRICAN ARCHAEOLOGY 75, 80 (2014); SARAH-ANNE JEANETTA SELIER, THE SOCIAL STRUCTURE, DISTRIBUTION AND DEMOGRAPHIC STATUS OF THE AFRICAN ELEPHANT POPULATION IN THE CENTRAL LIMPOPO RIVER VALLEY OF BOTSWANA, ZIMBABWE AND SOUTH AFRICA (April 2007) (MSc thesis, University of Pretoria) (on file with author and available *at* ResearchGate.net).

[74] Wildlife Conservation and National Parks Act of 1992 § 13 (Bots.).

**Table 1.** Administrative and governance structures for conservation areas within the GMTFCA (replicated directly from GMTFCA TTC, Collaborative Policy and Planning Framework for the Management of Elephants in the Greater Mapungubwe Transfrontier Conservation Area, 2011–2020 (2011) at 46).

| Country | Province | District | State land | Communal land | Private sector |
|---|---|---|---|---|---|
| Botswana | Central | Bobonong | | | NTGR Central Tuli Farm Block |
| South Africa | Limpopo | Capricorn Vhembe Waterberg | Mapungubwe National Park | Vhembe Game Reserve Mogalakwena Nature Reserve | Venetia Limpopo Nature Reserve Limpopo Valley Conservancy |
| Zimbabwe | Matabeleland South | Beitbridge Gwanda | Tuli Safari Area | Maramani Machuchuta Masera Halisupi | Nottingham Sentinel River Ranch |

governments of the three partner countries.[75]  The GMTFCA is a transboundary park between Botswana, South Africa, and Zimbabwe, with the present core area covering 2573 km$^2$ centred on the confluence of the Shashe and Limpopo rivers and including the NTGR (Botswana), Mapungubwe National Park (MPNP) (South Africa), and the Tuli Safari Area (TSA) (Zimbabwe). The park, however, has the potential to double to 5,638 km$^2$ with the inclusion of additional properties within all three countries (Figure 1).[76]

Land use and ownership within and surrounding the GMTFCA are unusually diverse and include contractual partners, private and communal landowners, land claimants, private tourism operations, game farms, and subsistence and commercial farmers.[77]  The administrative and governance structures for the conservation areas in the GMTFCA are presented in Table 1. Several tourism operations run within the current boundaries of the GMTFCA. All of these draw on the single cross-border elephant population that moves freely between the three countries, either for viewing or trophy hunting. Photographic tourism is the main economic driver within the area at present,[78]  but several operations rely on a combination of trophy hunting and photographic tourism.[79]

The Northern Tuli Game Reserve forms the original core of the elephant distribution. This is an area of 770 km$^2$ that lies north of the Limpopo River and west of the Shashe and Motloutse Rivers (Figure 1). The farms are privately owned and used for commercial photographic tourism. To the southwest of the NTGR, the Tuli Block

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[75] Memorandum of Understanding to Facilitate the Establishment of the Limpopo/Shashe Transfrontier Conservation Area Between the Government of the Republic of Botswana, the Government of the Republic of South Africa and the Government of the Republic of Zimbabwe, 22 June 2006, *available at* http://iea.uoregon.edu/pages/view_treaty.php?t=2006-LimpopoShasheTransfrontierConservationArea.EN.txt& par=view_treaty_html [hereinafter GMTFCA MoU]. The Transfrontier Conservation Area (TFCA) was renamed "Greater Mapungubwe" on 19 June 2009.

[76] GMTFCA, *Collaborative Policy and Planning Framework for the Management of Elephants in the Greater Mapungubwe Transfrontier Conservation Area, 2011–2020*, at 7 (2011) (on file with author) [hereinafter GMTFCA Elephant Management Plan].

[77] *Id.*

[78] D.N. Evans, An Eco-Tourism Perspective of the Limpopo River Basin with Particular Reference to the Greater Mapungubwe Transfrontier Conservation Area Given the Impact Thereon by the Proposed Vele Colliery, Tourism Working Group of the GMTFCA, at 3 (2010).

[79] Selier et al. (2015), *supra* note 5, at 389.

extends westwards for approximately 350 km. These farms are used for game ranching, hunting, cattle farming, and commercial agricultural production. Movement by game (including elephants) between the NTGR and the remainder of the Tuli Block is relatively unrestricted. West of the NTGR is the communal land of the Batswana people that is used mainly for subsistence crop and cattle farming. The number of people varies from around 3,000 in towns such as Mathathane and Selebi-Phikwe to as few as ten people in the cattle posts spread out over a large section of the area.[80]

Movements of game between the NTGR and the communal land and between the Tuli Block and the communal areas are partially restricted by a two-meter-high electrified game fence. A double three-meter-high electrified military fence runs along the Limpopo River on the South African bank opposite Botswana and Zimbabwe, which in places has been removed. North of the NTGR is the Tuli Safari Area (TSA), a 416 km$^2$ state-owned controlled hunting area managed by the Zimbabwean National Parks and Wildlife Authority. On the eastern side of the Shashe River is a 6-km strip of communal land called Maramani. The area of Maramani covers about 490 km$^2$ and is inhabited by about 5,200 people and an unknown number of livestock. Sentinel Ranch (300 km$^2$) is situated east of Maramani. Nottingham Estate, comprising some 250 km$^2$, is situated east of Sentinel Ranch.[81] The main commercial activity on this ranch is citrus farming. Hunting (including elephants) occurs on both farms and within the communal areas to the east, west, and north through the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) program.[82] The northern borders of both Sentinel Ranch and Nottingham Estate are fenced with a 1.5-meter-high cattle fence. River Ranch occurs to the east of Nottingham Estate. This is a resettled farm of about 170 km$^2$. About 60 families have settled within the southern part of the ranch and use it for livestock grazing.[83]

The process of establishing Mapungubwe National Park has a long and complex history dating back as far as 1922. In 1983 and 1984, respectively, the archaeological sites K2 and Mapungubwe Hill and its southern terrace were declared national monuments in terms of the former National Monuments Act.[84] According to an agreement signed in June 1995 between the provincial government of the Northern Province (renamed the Limpopo Province in 2002) and the South African National Parks (SANParks), the Northern Province would make available the property Greeffswald, then part of the Vhembe nature reserve, to be declared a national park in terms of the National Parks Act.[85] The park was provisionally known as Vhembe/Dongola National Park but was later renamed Mapungubwe National

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[80] SELIER (2007), *supra* note 73, at 31, 32.

[81] CESVI, Concept Paper for the Zimbabwe Component of the Limpopo/Shashe Trans-Frontier Conservation Area 7 (June 2001), *available at* http://www.cesvi.eu/sectors/UserFiles/File/reports%20eco%20development/SLP10_SLTFCA%20Concept%20paper.pdf.

[82] SELIER (2007), *supra* note 73, at 33.

[83] CESVI, *supra* note 81, at 8.

[84] *See* National Monuments Act 28 of 1969 (S. Afr.).

[85] National Parks Act 57 of 1976 (amended) p. 41 (S. Afr.).

Park (MPNP).[86] In 2003, the Mapungubwe Cultural Landscape, synonymous with Mapungubwe National Park and National Heritage Site, was designated as a National and World Heritage site.[87] The current national park consists of land managed by SANParks under contract with the landowners.[88] The total surface area of the park declared in terms of South African legislation[89] is 153 km$^2$, which includes seven privately owned contracted properties, with an additional 490 km$^2$ in the process of being designated.[90] A further 45 km$^2$ of privately owned land managed under contract by SANParks, but not designated, and 127 km$^2$ of privately owned land that is not managed by SANParks are present within the core area of the World Heritage site.[91]

Due to the establishment of the national park and the development of the GMT-FCA, some fences between Botswana and South Africa and between Zimbabwe and South Africa were removed, allowing elephant access to Mapungubwe National Park and large sections along the Limpopo River within South Africa. As a result, elephants have been expanding their range east and west along the Limpopo River. However, movement of elephants further into South Africa is restricted by electrified game fencing and thus is limited to those properties bordering the Limpopo River. The expansion of the elephant's range and the inclusion of areas outside of formally proclaimed PAs and private nature reserves have brought the elephant into conflict with commercial farmers on the South African side, as well as local communities within Botswana and Zimbabwe.[92] Elephants are usually associated with a wide range of conflicts. Most common are conflicts associated with their impact on agricultural crops and infrastructure such as wells.[93] A second conflict, specifically within southern Africa, is the possible impact elephants can have on riverine habitat through the removal of spectacularly large trees with high aesthetic and ecological value.[94] Beyond these conflicts (which have a physical, material, and economic basis) are a wide range of social conflicts that range from a direct fear for personal safety in the presence of elephants to a fear of the socioeconomic changes that elephants often come to symbolise.[95] These conflicts, when combined, often lead to a very low tolerance of elephants among rural communities with whom they have to share living space.[96]

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[86] SANParks, *Mapungubwe National Park and World Heritage Site Management Plan for the Period 2013–2018*, at 1 (2013), *available at* https://www.sanparks.org/assets/docs/conservation/park_man/mapungubwe_approved_plans.pdf.

[87] *Id.* at 1, 3.

[88] *Id.* at 2.

[89] *See* National Environmental Management: Protected Areas Act 57 of 2003 (S. Afr.) [hereinafter NEM:PAA].

[90] SANParks, *supra* note 87, at 76.

[91] *Id.* at 77.

[92] Selier et al. (2014), *supra* note 72, at 123.

[93] N.W. Sitati et al., *Factors Affecting Susceptibility of Farms to Crop Raiding by African Elephants: Using a Predictive Model to Mitigate Conflict*, 42 J. APPLIED ECOLOGY 1175, 1176 (2005); N.W. Sitati et al., *Predicting Spatial Aspects of Human-Elephant Conflict*, 40 J. APPLIED ECOLOGY 667, 668 (2003).

[94] Kerley et al. (2008), *supra* note 58, at 147, 154.

[95] N.W. Sitati et al., *Human-Elephant Conflict: Do Elephants Contribute to Low Mean Grades in Schools within Elephant Ranges?* 4 INT'L J. BIODIVERSITY & CONSERVATION 614, 614 (2012).

[96] Wayne Twine & Hector Magome, *Interactions Between Elephants and People, in* ELEPHANT MANAGEMENT, *supra* note 1, at 206, 230.

Where wildlife—in particular, the elephant—has no direct benefit to landholders, it is bound to disappear in the dispersal areas surrounding PAs, and when there are no dispersal areas, the PAs will become islands within which wildlife is likely to disappear sooner or later.[97]  In contrast, however, where communities in dispersal areas receive revenue from a species, they are more likely to conserve it and be more tolerant of negative impacts arising from the dispersing species.[98]  Within the CLRV, only a part of the elephant population's range is currently protected, namely within the boundaries of the GMTFCA. As a result, human–elephant conflict is a concern in both agricultural and rural communities bordering the GMTFCA in all three countries, with elephants causing extensive damage to crops and wells.[99]  Apart from trophy hunting, elephants (mainly bulls) are destroyed as damage-causing animals (DCAs). Depending on local policy and practice, DCAs may be professionally hunted or destroyed by the conservation agency.[100]  In South Africa alone, 19 bulls were destroyed in 2011 as DCAs on properties bordering the Limpopo River.[101]

## 4. Global and regional law and policy

### 4.1 Global instruments

Wildlife management has long been regulated at the international level.[102]  A key global agreement regulating the use of elephant is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),[103] which has more than 180 parties. CITES provides a legal framework to regulate the international trade in specimens of wild animals and plants and their derivatives, listed in three appendices, through export and import permit systems. The aim of the Convention is to protect species against overexploitation as a result of international trade. Trade poses a significant threat to the elephant. Article III of the Convention deals with species that are threatened with extinction included in Appendix I, and it prohibits, with few exceptions, international commercial trade in these species. Trade in Appendix I species is further subject to strict requirements. Article IV of the Convention deals with species that are not yet threatened but that may become so unless trade is controlled, and these species are listed in Appendix II. Appendix III

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[97] Herbert H.T. Prins & Jan Geu Grootenhuis, *Introduction: The Value of Priceless Wildlife, in* WILDLIFE CONSERVATION BY SUSTAINABLE USE 1, 1 (Herbert H.T. Prins et al. eds., 2000).

[98] *See generally*, James Blignaut et al., *The Economic Value of Elephants, in* ELEPHANT MANAGEMENT, *supra* note 1, at 446; Robin Hurt & Pauline Ravn, *Hunting and Its Benefits: An Overview of Hunting in Africa with Special Reference to Tanzania, in* WILDLIFE CONSERVATION BY SUSTAINABLE USE 295; P.A. Lindsey et al., *Economic and Conservation Significance of the Trophy Hunting Industry in Sub-Saharan Africa*, 134 BIOLOGICAL CONSERVATION 455 (2007).

[99] SELIER (2007), *supra* note 73, at 167.

[100] Hopkinson et al., *supra* note 1, at 508.

[101] Selier et al. (2014), *supra* note 72, at 127. *See also* data obtained from Limpopo Department of Economic Development, Environment, and Tourism (on file with the author).

[102] *See generally* MICHAEL BOWMAN, LYSTER'S INTERNATIONAL WILDLIFE LAW (2d ed. 2010).

[103] *See* Convention on International Trade in Endangered Species of Wild Flora and Fauna, 3 March 1973, 993 U.N.T.S. 243 [hereinafter CITES]. For information on the significance and development of decision-making under CITES in respect of the African elephant see generally COUZENS, *supra* note 9.

concerns species subject to national regulation and requiring international coop-
eration for trade control. The Convention requires states to adopt legislation that
(i) designates at least one management authority and one scientific authority; (ii)
prohibits trade in specimens in violation of the convention; and (iii) penalizes
such trade, calling *inter alia* for the confiscation of specimens illegally traded or
possessed.

In 1977, all populations of the African elephant were listed on Appendix II of
the Convention, limiting the international trade in elephants and their products.[104]
In 1989, due to increased poaching levels and illegal trade in ivory and a resultant
rapid decline in elephant numbers, as derived from data in the Elephant Trade Infor-
mation System (ETIS) and Monitoring the Illegal Killing of Elephants Programme
(MIKE), all African elephant populations were uplisted to Appendix I, effectively
banning all international trade in elephant.[105] Many southern African countries
disagreed with the African elephant trade ban and continued to argue against it,
contending that international trade in ivory from their countries is justified.[106] In
1997, at the 10th CITES Conference of the Parties (COP), the populations of African
elephant in Botswana, Namibia, and Zimbabwe were downlisted to Appendix II with
the following annotation:

> Populations of Botswana, Namibia and Zimbabwe: For the exclusive purpose of allowing:
> 1) export of hunting trophies for non-commercial purposes; 2) export of live animals to
> appropriate and acceptable destinations (Namibia: for non-commercial purposes only); 3)
> export of hides (Zimbabwe only); 4) export of leather goods and ivory carvings for non-
> commercial purposes (Zimbabwe only). No international trade in ivory is permitted before
> 18 months after the transfer to Appendix II comes into effect (i.e. 18 March 1999). There-
> after, under experimental quotas for raw ivory not exceeding 25.3 tonnes (Botswana), 13.8
> tonnes (Namibia) and 20 tonnes (Zimbabwe), raw ivory may be exported to Japan subject
> to the conditions established in Decision of the Conference of the Parties regarding ivory
> No. 10.1.[107]

In 2000, the South African elephant population followed those of the other three
southern African countries and was downlisted to Appendix II with the same anno-
tation.[108] Botswana, South Africa, and Zimbabwe are parties to this Convention; all
three countries subscribe to the sustainable use concept and have pleaded on more
than one occasion for the sale of stockpiled ivory. Botswana has a CITES export
quota of 800 tusks as hunting trophies (400 elephants), South Africa 300 tusks as
trophies (150 elephants), and Zimbabwe 1,000 tusks as trophies (500 elephants).

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[104] Van Aarde & Ferreira, *supra* note 68, at 8.

[105] *Id.*

[106] Daniel Stiles, *The Ivory Trade and Elephant Conservation*, 31 ENVTL. CONSERVATION 309, 309 (2004); *see generally* COUZENS, *supra* note 9.

[107] Stiles, *supra* note 106, at 310; CITES Secretariat, *Amendments to Appendices I and II of the Convention*, UNEP/CITES/CoP10, 150, 151 (19–20 June 1997).

[108] Pat Awori, Kenya Elephant Forum Fact Sheet 03, *CITES and the Ivory Trade*, para. 10, *available at* http://wildlifedirect.org/files/2009/11/ KEF_Fact_Sheet_03c.pdf.

The Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention),[109] similar to CITES, is a species-based agreement focusing on the immediate protection of certain species included in lists, differentiating according to the degree of threat. The CMS aims to conserve terrestrial, marine, and avian migratory species throughout their ranges, requiring cooperation among "range states" host to migratory species regularly crossing international boundaries. Migratory species can be included in one or both of the Appendices. The Convention defines "migratory species" as species "whose members cyclically and predictably cross one or more national jurisdictional boundaries,"[110] but this has subsequently been interpreted by the CMS COP in a flexible manner, as encompassing any species whose range extends across more than one country.[111] This approach has enabled the inclusion of species and populations that can hardly be considered migratory in the classical sense—as in the case of the CLRV elephant population. As such, the CMS has evolved into an instrument that focusses on the conservation of transboundary rather than purely migratory wildlife.[112] The African elephant is included in Appendix II (species with an unfavourable conservation status). CMS parties that are range states of Appendix II species are required to conclude global or regional agreements to maintain or restore the species concerned to a favourable conservation status.[113] These agreements can be either in the form of "AGREEMENTS" under Article IV(3) or less formal "agreements" under Article IV(4). Such subsidiary instruments can take the shape of treaties or non-binding Memoranda of Understanding (MoU). With respect to AGREEMENTS under Article IV(3), these should, "where appropriate and feasible," *inter alia* provide for:

- "Conservation and, where required and feasible, restoration of the habitats of importance in maintaining a favourable conservation status, and protection of such habitats from disturbances, including strict control of the introduction of, or control of already introduced, exotic species detrimental to the migratory species;
- Maintenance of a network of suitable habitats appropriately disposed in relation to the migration routes;
- Where it appears desirable, the provision of new habitats favourable to the migratory species;
- Elimination of, to the maximum extent possible, or compensation for activities and obstacles which hinder or impede migration;
- Measures based on sound ecological principles to control and manage the taking of the migratory species."[114]

Whereas a CMS MoU for the West African elephant population came into effect in 2005, to date no agreements under either Article IV(3) or IV(4) of the CMS have been developed for elephants within the southern African region. South Africa and

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[109] CMS, *supra* note 45.

[110] *Id.* at art. 1(1)(a).

[111] Trouwborst (2012), *supra* note 4, at 287, 288.

[112] *Id.* at 288.

[113] CMS, *supra* note 45, at art. IV(3).

[114] *Id.* at arts. V(5)(e–h), (j).

Zimbabwe are parties to the CMS, but Botswana is not. The fact that Botswana is not yet a party to the CMS, however, would not stand in the way of Botswana becoming a party to any future subsidiary CMS agreement(s) covering elephants.[115]

Many other international legal instruments are of relevance for present purposes, even if they do not specifically list elephant. One of these is the Convention on Biological Diversity (CBD),[116] which is an overarching agreement specifically addressing biodiversity conservation, and sustainable use on an ecosystem, species, and genetic level.[117] The Convention's 193 contracting parties include Botswana, South Africa, and Zimbabwe. Even though the CBD lacks lists of species requiring special attention, many of its obligations are of relevance to elephants. These include duties regarding the *in situ* conservation,[118] *ex situ* conservation,[119] sustainable use of biodiversity,[120] socioeconomic measures acting as incentives for conservation and sustainable use,[121] and environmental impact assessments.[122] The Convention provides guiding principles that should be taken duly into account when developing national policy and laws. The CBD COP has adopted specific principles and operational guidelines on sustainable use, which provide guidance to ensure that the use of the components of biodiversity will not lead to the long-term decline of biological diversity.[123]

The World Heritage Convention[124] is also relevant, in particular due to the listing of Mapungubwe National Park as a cultural World Heritage site.[125] As parties to the Convention, Botswana, South Africa, and Zimbabwe are expected, as far as possible, to identify, protect, conserve, present, and transfer heritage sites within their territories.[126] Article 5 of the Convention stipulates that each party

> shall endeavour, in so far as possible, and as appropriate for each country[,]" "to integrate the protection of that heritage into comprehensive planning programmes[,]" and "to take the appropriate legal, scientific, technical, administrative[,] and financial measures necessary for the identification, protection, conservation, presentation[,] and rehabilitation of this heritage[.][127]

In general, those species whose habitat is situated within a listed World Heritage site are likely to benefit from the protection regime imposed by the

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[115] Trouwborst (2015), *supra* note 1, at 1579.

[116] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 79 [hereinafter CBD].

[117] *Id.* at art. 1.

[118] *Id.* at art. 8.

[119] *Id.* at art. 9.

[120] *Id.* at art. 10.

[121] *Id.* at art. 11.

[122] *Id.* at art. 14.

[123] CBD, *Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity*, CBD Guidelines AEWA/ TC Inf. 7.5, 1, 1 (2004), *available at* http://www.unep-aewa.org/sites/default/files/document/tc_inf7_5_addis_ababa_principles_gudelines_0.pdf.

[124] United Nations Educational, Scientific and Cultural Organisation (UNESCO), Convention Concerning the Protection of the World Cultural and Natural Heritage, 16 November 1972, 11 I.L.M. 1358, *available at* http://whc.unesco.org/archive/convention-en.pdf [hereinafter UNESCO Convention].

[125] GMTFCA Elephant Management Plan, *supra* note 76, at 13.

[126] UNESCO Convention, *supra* note 124, at art. 4.

[127] *Id.* at art. 5.

Convention.[128]  In some cases, however, conflict might arise between the conflicting objectives set out to conserve a cultural landscape and those species occupying the landscape. This is the situation with elephants occupying the Mapungubwe Cultural Landscape.[129]  The gallery forest within the park is considered part of the ambience of the cultural heritage.[130]  At the same time, these forest areas are also favoured by elephants.[131]  Over time, the impact of elephants on the forest has been significant and has become a bone of great contention.[132]  In an attempt to reduce the elephant impact, a section of the gallery forest in proximity to Mapungubwe Hill has been fenced to exclude elephants from this part of the park.[133]

### 4.2  Regional instruments

In addition to these four global treaties, many regional legal instruments are of relevance for present purposes. The earliest record, from an international perspective, that African elephant populations were under threat from both hunting and habitat loss can be traced back to the nineteenth century,[134] with the drafting by several colonial powers of the Convention of the Preservation of Wild Animals, Birds, and Fish in Africa (1900 London Convention).[135]  This Convention set up a mechanism for the protection of "useful" or "harmless," or rare and endangered wild animal species and the reduction of pest species.[136]  The mechanisms included a prohibition of consumptive use of those species that were considered rare or were threatened by extinction.[137]  For elephants, the Convention prohibited hunting of young animals and, specifically, young elephants with tusks less than five kilogrammes.[138]  This Convention never entered into force, as the majority of the signatory states failed to ratify it, although its provisions did exercise an influence on the administration of colonies in southern (and eastern) Africa.[139]

The 1900 London Convention was followed by the 1933 London Convention Relative to the Preservation of Fauna and Flora in their Natural State, which entered

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[128] Trouwborst (2015), *supra* note 1, at 1575.

[129] SANParks, *supra* note 87, at 36.

[130] *Id.*

[131] Simon Chamaille-Jammes et al., *Managing Heterogeneity in Elephant Distribution: Interactions between Elephant Population Density and Surface-water Availability*, 44 J. APPLIED ECOLOGY 625, 626 (2007); Graeme Shannon et al., *The Effects of Artificial Water Availability on Large Herbivore Ranging Patterns in Savanna Habitats: A New Approach Based on Modelling Elephant Path Distributions*, 15 DIVERSITY & DISTRIBUTIONS 776, 779, 781 (2009).

[132] SANParks, *supra* note 87, at 36.

[133] *Id.*

[134] ADAM, *supra* note 9; BARBARA J. LAUSCHE, WEAVING A WEB OF ENVIRONMENTAL LAW: CONTRIBUTIONS OF THE IUCN ENVIRONMENTAL LAW PROGRAMME 53 (2008), *available at* http://www.iucn.org/about/work/programmes/ecosystem_management/about_work_global_prog_ecos_dry/?uPubsID=3526.

[135] Convention for the Preservation of Wild Animals, Birds, and Fish in Africa, 19 May 1900, *available at* http://iea.uoregon.edu/pages/view_treaty.php?t=1900-PreservationWildAnimalsBirdsFishAfrica.EN.txt&par=view_treaty_html.

[136] *Id.* at arts. II(1), (13), (15).

[137] *Id.* at sched. I.

[138] *Id.* at art. II(11).

[139] IUCN, AN INTRODUCTION TO THE AFRICAN CONVENTION ON THE CONSERVATION OF NATURE AND NATURAL RESOURCES 3 (2d ed. 2006), *available at* https://portals.iucn.org/library/efiles/documents/EPLP-056-rev.pdf [hereinafter IUCN INTRO TO THE AFRICAN CONVENTION].

into force in 1936.[140]  The lack of decision-making institutions and secretariat services proved to be a significant inadequacy of the Convention which, consequently, afforded little protection of elephants.[141]  Furthermore, the Convention lacked a general policy for the protection of nature in Africa, which embraced the interests and expectations of the African people themselves.[142]  The correction of this Convention was overtaken by the decolonisation of Africa, resulting in the purpose and benefits of the convention not being applied to either elephant conservationn or people's use and management thereof. The first conservation milestone for the newly formed 21 African states was the Arusha Manifesto of 1961.[143]  The key driver for the Arusha Conference was the concern that natural resources were deteriorating, and this was creating or driving socioeconomic problems in Africa.[144]  The Manifesto also recognized the critical need for cooperative trusteeship between African states as a significant mechanism to conserve and protect dwindling natural resources.[145]  The Arusha Manifesto gave rise to the 1968 African Convention on the Conservation of Nature and Natural Resources (the Algiers Convention),[146] which replaced the 1933 London Convention. In turn, the Algiers Convention will be superseded by the (revised) African Convention on Conservation of Nature and Natural Resources,[147] which was adopted in Maputo in 2003 (the Maputo Convention), when it enters into force.[148]

As parties to the Algiers Convention, it is incumbent on Botswana, South Africa, and Zimbabwe to cooperate with respect to elephant population management and to refrain from making parochial decisions that may have adverse impacts on this shared wildlife resource.[149]  In particular, they are to grant special protection throughout their territories to species such as the elephant listed in the Convention's Annex.[150]  This includes the prohibition of their "hunting, killing, capture[,] or collection …."[151]  For elephants with tusks over five kilograms each, "Class B," this prohibition may, however, be lifted "under special authorization" at the discretion of the "competent authority."[152]  For elephant with tusks under five kilograms each, "Class A," exceptions 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

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[140] Convention Relative to the Preservation of Fauna and Flora in Their Natural State, Lon., 8 November 1933 27 T.S. 1936; *see* SHERMAN STRONG HAYDEN, THE INTERNATIONAL PROTECTION OF WILD LIFE: AN EXAMINATION OF TREATIES AND OTHER AGREEMENTS FOR THE PRESERVATION OF BIRDS AND MAMMALS 177 (Fac. Pol. Sci. of Columbia University ed., 1942).

[141] HAYDEN, *supra* note 140.

[142] IUCN INTRO TO THE AFRICAN CONVENTION, *supra* note 139, at 4, 8.

[143] *See generally* IUCN Secretary-General G.G. Watterson, *The Arusha Conservation Conference*, 15 UNASYLVA 1 (1961).

[144] *Id.*

[145] *Id.*

[146] African Convention on the Conservation of Nature and Natural Resources, 15 September 1968, 1001 UNTS 3 [hereinafter Algiers Convention].

[147] African Convention on Conservation of Nature and Natural Resources, *revised* 11 July 2003 (not in force), *available at* http://www.au.int/en/treaties/african-convention-conservation-nature-and-natural-resources-revised-version.

[148] IUCN INTRO TO THE AFRICAN CONVENTION, *supra* note 139, at ix–x.

[149] Algiers Convention, *supra* note 146, art. XVI.

[150] *Id.* at art. VIII.

[151] *Id.*

[152] *Id.*

scientific purposes."[153]  Other relevant provisions *inter alia* address habitat protec-
tion[154]  and the generic restriction of certain means of capture and killing, such as
a prohibition on the use of poisoned baits.[155]  As regards the revised 2003 Maputo
Convention, of the three countries under consideration, only Botswana is a signa-
tory.[156]

A relevant forum with a more delimited geographical scope is the Southern
African Development Community (SADC).[157]  The SADC's Regional Indicative
Strategy Development Plan (RISDP), adopted in 2003, is a 15-year regional inte-
gration framework, setting the priorities, policies, and strategies for achieving the
long-term goals of SADC and providing guidance to member states, regional stake-
holders, and international partners in achieving these goals.[158]  The RISDP contains
a section specifically addressing wildlife.[159]  The promotion of community-based
natural resource management (CBNRM) programmes, TFCAs, common manage-
ment practices, sustainable wildlife utilization, and capacity building are some of the
strategies set out in the RISDP that are of relevance to elephant management.[160]

The principal legally binding instrument of the SADC for present purposes is
the SADC Protocol on Wildlife Conservation and Law Enforcement, to which
Botswana, South Africa, and Zimbabwe are parties.[161]  The Protocol seeks to
establish a framework for, *inter alia*, the conservation and sustainable use of wildlife
resources in the SADC Region.[162]  Whilst recognizing the sovereign rights of the
parties, this framework includes recognition that biodiversity, and particularly
transboundary biodiversity (e.g., a transboundary elephant population), is most effi-
ciently safeguarded through international cooperation.[163]  Furthermore, the Pro-
tocol prohibits state parties from "caus[ing] damage to the wildlife resources of
other states or in areas beyond the limits of national jurisdiction."[164]  The man-
agement of the transnational elephant population outside of a joint management
agreement by one state party may be prejudicial not only to the elephant popula-
tion's wellbeing but also to the other state parties' legitimate access to and use of
this wildlife resource.[165]  In such circumstances, the Protocol provides for inter-
state cooperation, particularly on matters where a decision taken by one state is
"likely to affect the natural resources of any other State."[166]  Thus the removal

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[153] *Id.*

[154] *Id.* at art. X.

[155] *Id.* at art. VII.

[156] *Id.* at art. XXV.

[157] Southern African Development Community (SADC), *Regional Indicative Strategy Development Plan* (2003), *available at* http://www.sadc.int/files/5713/5292/8372/Regional_Indicative_Strategic_Development_Plan.pdf.

[158] *Id.* at 13.

[159] *Id.* at sec. 3.4.8.

[160] *Id*. at sec. 3.4.8.1.

[161] SADC, Protocol to the SADC Treaty on Wildlife Conservation and Law Enforcement, pmbl., 18 August 1999 [hereinafter SADC Protocol].

[162] *Id.* at art. 2; *see also* MARIA TERESA CIRELLI & ELISA MORGERA, WILDLIFE LAW IN THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY 5 (Kai-Uwe Wollscheild & Rene Czudek eds., 2010).

[163] SADC Protocol, *supra* note 161, at pmbl.

[164] *Id.* at art. 3.

[165] Algiers Convention, *supra* note 146, at arts. XIV–XVI.

[166] *Id.* at art. XVI(1)(b).

of what is deemed to be excess or damage causing animals (DCAs) by one state may negatively impact another's opportunity to do the same—hence the need for a cooperative management agreement of the transnational elephant population by the state parties. Such agreement would provide for an adjustment of the allocation of resources (if required) when a state party is required to undertake extraordinary action. This includes *force majeure*, defence of human life, or defence of property.[167] When such circumstance arises, the cause and action taken must be shown to be unique and in accordance with the purpose of the action taken.[168]

Finally, each state party must implement and interpret its domestic legislation, policies, and biodiversity management for the conservation of the shared or transnational biodiversity.[169] The SADC Protocol makes provisions for parties to cooperate, *inter alia*, to achieve a framework for the management and use (including removal) of wildlife, as well as enforcing compliance with multilateral agreements and applicable domestic laws providing for its protection and conservation, and preventing overexploitation and extinction of species and habitats.[170] As a mechanism to jointly achieve the necessary level of protection and use of wildlife/elephants, the cooperating state parties are required to collect information (i.e., monitor) and share information with each other and, based on that sharing, provide for the joint management of the species.[171] This joint management function is operationalized through a "Wildlife Sector Technical Coordinating Unit."[172]

A regional instrument specific to elephants, albeit not legally binding, is the Southern Africa Regional Elephant Conservation and Management Strategy drafted in 2005.[173] It highlights that most key elephant populations in the region are shared and move across international boundaries, that populations are not evenly distributed across the different range states, and that there is a set of issues and concerns common to all range states.[174] The purpose of the Strategy is to facilitate coordination, collaboration, and communication in the management of elephant populations across the region so as to conserve elephants and to expand their range within historic limits, forming as contiguous a population as possible across southern Africa and, in so doing, realize their full potential as a component of wildlife-based land use for the benefit of the region and its people. The Strategy has a strong emphasis on sustainable utilization. It strives to foster appropriate coordination at a transboundary level regarding land-use planning, human–elephant conflict mitigation measures, law enforcement, management of trophy hunting, other management offtake exercises, and understanding and accommodating cross-border elephant movement. It expressly aims for the harmonization of policies in these regards

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[167] *Id.* at art. XVII.
[168] *Id*. at art. XXIV(2).
[169] *See, e.g.*, CBD, *supra* note 116, at arts. 3, 5–6.
[170] SADC Protocol, *supra* note 161, at arts. 6, 7.
[171] *Id.* at art. 8.
[172] *Id.* at art. 5.
[173] *See generally* SADC, *Southern Africa Regional Elephant Conservation and Management Strategy* (27–29 May 2005), *available at* http://cmsdata.iucn.org/downloads/2007saecs.pdf [hereinafter SADC 2005 Strategy].
[174] *Id*. at 5.

and for the development and implementation of "agreements/protocols on management of cross border populations."[175]

## 4.3  Appraisal

It is thus clear that a significant body of international law and policy of importance for elephant conservation already exists at varying levels and with varying degrees of detail. Principles uniform to all the relevant overarching instruments include the conservation and sustainable use of biodiversity, the need for cooperation between range states sharing wildlife populations, and the need to harmonize wildlife legislation when dealing with resources or species that straddle across countries' borders. The SADC Protocol provides the necessary omnibus for the harmonisation of wildlife legislation across SADC country boundaries.[176]

However, even though the idea of managing species at a population level rather than within administrative boundaries is gaining momentum at the international level, within international treaties regulating the sustainable use of species, such as CITES, the prevailing unit continues to be the range state rather than the biological population entity. For instance, decisions on trade in wildlife/elephant products depend on country-specific information, mostly of limited precision, provided by MIKE and ETIS. However, most major populations span several countries, and elephants move freely across borders.[177]  Decisions targeting one country therefore may be undermined by factors affecting elephants in another country.[178]  This further highlights the need for transboundary cooperation between range states.

Both the CMS and the SADC Protocol place emphasis on the need for transboundary cooperation. The CMS expressly calls for cooperation among range states to promote the development of common provisions for the proper management of transboundary areas or species. The significance of the CMS for the elephant is, however, curtailed because some important range states, in this case Botswana, are missing as contracting parties. Cooperation on a regional level is, at any rate, important for the effective implementation of global and regional international commitments. To illustrate, implementing uniform penalties by neighbouring countries will assist in preventing the bypassing of CITES rules, which could result from choosing to trade wildlife in certain countries rather than others.[179]

The SADC Protocol provides for a collective conservation framework for, in particular, protection and sustainable use of wildlife populations that extend to and fulfil lifecycles between two or more countries. The fulcrum of the SADC Protocol is that it restrains each country, when making decisions affecting a shared wildlife resource, from causing "damage to the wildlife resources of other states or in areas beyond the

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[175]*Id.* at para. 3.6.1.4.

[176]CIRELLI & MORGERA, *supra* note 162, at 13.

[177]D.G. Mpanduji et al., *Movement of Elephants in the Selous–Niassa Wildlife Corridor, Southern Tanzania*, 33 PACHYDERM 18, 29 (2002).

[178]Björn Frank & Per Botolf Maurseth, *The Spatial Econometrics of Elephant Population Change: A Note*, 60 ECOLOGICAL ECON. 320, 321 (2006).

[179]CIRELLI & MORGERA, *supra* note 162, at 38.

limits of national jurisdiction."[180] Thus when the removal of animals in one country has the potential to render an equivalent removal in another unsustainable, then it may be argued that the first removal would be contrary to this provision of the Protocol. As a means to prevent such circumstances arising, the key objectives of the Protocol include provisions that promote sustainable use of wildlife, the exchange of information concerning wildlife management and use, and the fostering of the conservation of shared wildlife resources through the establishment of transfrontier conservation areas.[181] Further, a series of operational governance structures (e.g., Wildlife Sector Technical Coordinating Unit, Committee of Senior Officials, and the Technical Committee) exist to ensure that the objectives of the Protocol are achieved. Within these structures, the cooperating countries must, *inter alia*, establish cooperative management programmes for the conservation of transboundary wildlife that prevent overexploitation and extinction of species exploited. Finally, the Protocol provides a mechanism for the sharing of information that harmonises the monitoring and control of transboundary wildlife. As such, it would be incumbent on each country to ensure that the removal of animals in excess of the jointly agreed quota has no significant consequence for the overall population or the interests of another country.

The SADC Protocol, therefore, represents one of the most advanced efforts towards regional harmonisation of wildlife legislation that is being experimented with around the world.[182] SADC countries have already formed a "community" and have institutionalized cooperation in numerous sectors.[183] A high-level committee of senior officials meets, as part of the SADC Ministers Responsible for Environment and Natural Resources, once every two years.[184] However, decisions do not always translate into actions on the ground. This is a clear example of a mismatch in temporal scales as well as where social processes lead to a scale mismatch as a result of fragmentation of responsibilities and the lag effect of bureaucracies in dealing with ecological issues.

Specific policy for transboundary elephant conservation in southern Africa exists in the form of the Regional Elephant Conservation and Management Strategy, which, however, still awaits formal adoption and implementation.[185]

This touches on another general issue, namely that in order for international wildlife treaties and other instruments to play an effective role in the conservation of transboundary species, compliance by range states with their international obligations and related commitments is required. States do, however, at times seem to neglect wildlife conservation obligations, especially where these might have considerable socioeconomic consequences. Even so, it seems fair to assume that

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[180] SADC Protocol, *supra* note 161, at art. 3.

[181] *Id.* at art. 4.

[182] *Id.* at pmbl.

[183] *Id.*

[184] *Id.* at art. 5.

[185] *See generally* SADC 2005 Strategy, *supra* note 173.

international wildlife instruments play a significant role and that the conservation status of several species would have deteriorated (further) without them.[186]

## 5.  Trilateral agreements and policy

The GMTFCA MoU was signed by the three participating countries in 2006. It is significant for present purposes that one of the MoU's objectives is to "enhance ecosystem integrity and natural ecological processes by harmonising wildlife management procedures across international boundaries and striving to remove artificial barriers impeding the natural movement of animals."[187]  A Trilateral Technical Committee (GMTFCA TTC) and several working groups were established to deal with the formulation of sectorial plans aimed at the adoption of an integrated Development Plan for the GMTFCA and the signing of the Treaty in which the operational procedures for managing the GMTFCA are established. In 2011, the GMTFCA resource management committee was formed to deal with cross-border challenges at an operational level. The Treaty between Botswana, South Africa, and Zimbabwe on the establishment of the GMTFCA has to date not been signed. Several draft joint management plans have been developed but have not yet been approved or implemented. These include a GMTFCA Large Predator Management Plan[188]  and, significantly, a Collaborative Policy and Planning Framework for the Management of Elephants in the GMTFCA 2011–2020 (GMTFCA Elephant Management Plan).[189]

The GMTFCA Elephant Management Plan envisages the presence of elephants as integrated drivers of ecosystem integrity, benefiting all stakeholders and enhancing the livelihoods of people, thereby contributing to the social, cultural, ecological, and economic development of the Transfrontier Conservation Area.[190] In addressing identified issues of conservation, protection, and ecological management (including veterinary disease control), together with human–elephant conflict minimization and livelihood improvements of local people, the strategic goal is to maintain and adaptively manage variable elephant use of cultural and biological landscapes, enhance rural livelihoods, and improve wildlife benefits, whilst reducing conflict and engaging stakeholders through effective communication. Five specific objectives have been formulated to achieve the above: elephant populations will be (1) conserved and (2) protected, (3) elephant impacts will be managed, (4) populations will be used sustainably across the GMTFCA landscape in collaboration with local stakeholders, and (5) human–elephant conflict will be reduced through spatial planning, mitigation measures, and increased

[186]Trouwborst (2015), *supra* note 1, at 1570–1571.
[187]GMTFCA MoU, *supra* note 75, at art. 6(1)(c).
[188]*See generally* Shashe Limpopo Predator Research Group, *Greater Mapungubwe TFCA Predator Management Plan* (September 2010).
[189]GMTFCA Elephant Management Plan, *supra* note 76.
[190]*Id.* at vii.

benefits.[191]   Accompanying each of these objectives is a set of strategies and actions.

The development of the GMTFCA and its Elephant Management Plan form a positive start towards the management of the CLRV elephant on a population level. However, the process of developing the GMTFCA has been very slow, and nearly ten years after the signing of the MoU the Treaty between the three countries has not yet been signed, hampering efforts to implement management plans and collaborative law enforcement for the conservation of elephant. This is an example of a mismatch in temporal scales, where bureaucracies are slow in dealing with rapid, ecological changes that require quick management actions. Furthermore, the draft Elephant Management Plan applies only to part of the elephant's range, albeit a significant part of its overall range.[192]

When evaluating the draft GMTFCA Elephant Management Plan against the template provided in the Carnivore Guidelines, which sets out the ingredients that each transboundary management plan should contain, the degree of conformity with this blueprint is striking. The GMTFCA Elephant Management Plan includes many of the measurable objectives required, although it fails to include certain others. The draft Plan does not define or include a favourable reference population value or the favourable reference range. The Plan suggests regular aerial surveys to monitor elephant population numbers, distribution, and trends but lacks population goals and a set of measurable parameters to measure the success of management actions. It further indicates that a single quota should be developed for the GMTFCA elephant population, but no attempt has been made towards discussions between range states to develop a single overall offtake quota for the population, let alone the division of this overall quota among the countries involved. The lack of cross-border cooperation in the management of elephants and the lack of implementation of a single offtake quota shared by all three countries has resulted in individual countries implementing unsustainable trophy-hunting quotas based on restricted subsets of population data.[193]   Excessive hunting can lead not only to a reduction in numbers[194]   but also to disturbance effects that force species such as the elephant to trade off between disturbance avoidance and good food and water availability.[195]   Current management decisions are thus not made at the appropriate decision level for the species under consideration, with a mismatch in spatial scales resulting.[196]   This has far-reaching implications for cross-border species, where the stress effects of hunting could be transmitted to ecotourism areas within neighbouring countries.[197]   In order to understand

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[191] *Id.* at 23.

[192] Selier et al. (2014), *supra* note 72, at 123.

[193] *Id.* at 129.

[194] Lindsey et al. (2007), *supra* note 98, at 461.

[195] *Id.*; Selier et al. (2015), *supra* note 5.

[196] Graeme S. Cumming et al., *Scale Mismatches in Social-Ecological Systems: Causes, Consequences, and Solutions*, 11 ECOLOGY & SOCIETY art. 14 (2006), *available at* http://www.ecologyandsociety.org/vol11/iss1/art14/.

[197] *Id.*; Delsink et al., *supra* note 6, at 117.

the consequences of management activities such as trophy hunting and to implement an adaptive quota system based on population trends, long-term monitoring is essential.[198]  Where an effective monitoring system with clear objectives is in place, consumptive utilization is sustainable. The GMTFCA Elephant Management Plan further includes objectives to maintain and enhance connectivity within the population but lacks objectives and actions to enhance connectivity with neighbouring populations. The legal framework as it pertains to elephants for each country is highlighted in the management plan, but no attempt is made to describe any changes in legislation that are needed to bring about population-level management.

The effective implementation of the GMTFCA draft Elephant Management Plan will depend on whether a legal framework can be established within which collaborative planning and law enforcement relating to elephant management in the GMTFCA can be practiced. This will require harmonization of wildlife legislation among the three countries when dealing with resources or species that straddle countries' borders. Multilateral agreements have set in place a cooperative framework but may have different officials associated with their implementation from those operating within the framework of trilateral or bilateral agreements. This makes coordination and integration of elephant management extremely difficult, particularly on matters relating to sovereignty (i.e., the setting of offtake quotas and the management of DCAs).

## 6. National law and policy

### 6.1 Botswana

The Botswana Wildlife Conservation Policy[199]  deals with utilization of wildlife resources outside of PAs. Hunting is, in principle, allowed outside PAs, and the policy aims at sustainable harvesting of wildlife resources and an equitable distribution of the benefits, while also encouraging the development of a commercial wildlife industry that is viable in the long term. The Policy further deals with the zoning and protection of wildlife areas, land use planning and zoning for wildlife, and the protection of wildlife migration. Land use planning must accord wildlife resources a position that reflects their considerable economic significance through PAs (preservation), Wildlife Management Areas (WMA) (conservation, and sustainable utilization), and Controlled Hunting Areas (CHA) (licensed hunting).[200]

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[198] S.A.J. Selier & E. Di Minin, *Monitoring Required for Effective Sustainable Use of Wildlife*, 18 ANIMAL CONSERVATION 131, 131 (2015).

[199] Wildlife Conservation Policy of 1986 (Bots.); *see* CENTRE FOR APPLIED RESEARCH, REVIEW OF THE WILDLIFE CONSERVATION POLICY, THE WILDLIFE CONSERVATION AND NATIONAL PARKS ACT AND ASSOCIATED REGULATIONS – FINAL REPORT (2008) at 12.

[200] *Id.*

The Wildlife Conservation and National Parks Act[201] is still the main piece of legislation concerning wild animals.[202] It resulted from the merger of the Fauna Conservation and Parks Acts.[203] The objective of the Act is to make provisions for the management, utilization, and conservation of the country's wildlife resources so as to generate development benefits for the current and future generations of Botswana, to maintain the country's biodiversity, to give effect to CITES and any other international conventions for the protection of fauna and flora to which Botswana is a party, and to provide for the establishment, control, and management of wildlife areas.[204] Numerous regulations have been adopted to operationalize the Act.[205] The competent ministry and government wildlife agency in the present subject area is the Department of Wildlife and National Parks (DWNP).[206] The Wildlife Conservation and National Parks Act expressly grants ownership of wild animals to the owner of land on which animals are kept or confined within a game-proof fence.[207] The elephant is listed as a partially protected game animal that can be hunted under license.[208] However, in January 2014, a temporary hunting ban was introduced, and no quotas, licenses, or permits will be issued for the hunting of part 1 and part 2 schedule game animals listed under the Act.[209]

Private Game Reserves and Game Ranches are subject to the Game Ranching Policy. This policy complements the Wildlife Conservation Policy by increasing economic returns from wildlife outside of PAs and WMAs, developing an environmentally friendly game-ranching industry; promoting species conservation through game farming; ensuring a viable and healthy wildlife game population for stocking of ranches; promoting Batswana participation; creating jobs; and income and economic diversification. The principal resource management objective for Private Game Reserves, used mainly for ecotourism purposes, is biodiversity conservation as determined by the owner and endorsed by government.[210] The primary objective for Game Ranches is the sustainable utilization of wildlife resources, maintaining biodiversity, and economic use of wildlife, which includes consumptive utilization through hunting, cropping for meat production, captive breeding, translocation, and restocking.[211]

The Botswana Department of Wildlife and National Parks developed a draft management plan for elephants in 1991, which was never implemented. In 2003, the

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[201] *See generally* Wildlife Conservation and National Parks Act of 1992 (Bots.).

[202] It will be superseded by the Botswana Wildlife Act of 2008 once it enters into force.

[203] CIRELLI & MORGERA, *supra* note 162, at 59.

[204] Wildlife Conservation and National Parks Act of 1992 (Bots.).

[205] National Parks and Game Reserves Regulations (2006) S.I. 64, § 92 (Bots.); Wildlife Conservation (Hunting and Licensing) Regulations (2001) S.I. 35, § 92 (Bots.); National Parks and Game Reserve Regulations (2000) S.I. 28, § 92 (Bots.).

[206] Its director also acts as the CITES management and scientific authority.

[207] Wildlife Conservation and National Parks Act of 1992 § 83 (Bots.).

[208] *Id.* § 18.

[209] *Botswana to Ban Hunting over Wildlife Species Decline*, BBC (29 November 2012), http://www.bbc.com/news/world-africa-20544251; *see also Botswana Bans Sport Hunters after Cecil Killing*, ENCA (1 August 2015), https://www.enca.com/africa/botswana-bans-sports-hunters-after-cecil.

[210] *See* CENTRE FOR APPLIED RESEARCH (2008), *supra* note 199, at 21.

[211] *Id.*

government carried out a review of the 1991 plan and drafted the National Policy and Strategy for the Conservation and Management of Elephants in Botswana (Botswana Elephant Plan).[212]  The Plan aims to conserve and optimize elephant populations while ensuring the maintenance of habitats and biodiversity, promoting the contribution of elephants to national development and to human communities within their range while minimizing their negative impacts on rural livelihoods. With regard to limiting risks to human life and property, management actions are to be considered that pose the least risk, are feasible, are practical, and are both economically and aesthetically acceptable.

The four primary objectives identified in the Botswana Elephant Plan are to (1) reduce human–elephant conflicts to acceptable levels; (2) prevent, reduce, or reverse unacceptable elephant-induced environmental changes; (3) maximise the benefits from sustainable utilization of elephants; and (4) protect elephants through law enforcement.[213]  Because of varying land-uses, the Plan breaks down activities to tailor the specific objectives to geographic units. In the Bobirwa subdistrict of the country, the intention is to maximize benefits through both consumptive (trophy hunting) and nonconsumptive (photographic tourism) utilization.[214]  The Plan's provisions target mostly northern Botswana, with no management prescriptions provided for the Tuli area of interest to the GMTFCA. The Plan does, however, emphasize the importance of cooperation between neighbouring countries in elephant management. Where TFCAs are developed, the Plan encourages the harmonization of elephant management amongst participating countries, setting specific targets in this regard.[215]  These include the setting up of an intergovernmental committee to deal with cross-border issues. Measures to reduce human–elephant conflict include elephant-free zones; reduction of elephants through translocation, culling, or attracting animals away from areas of concern; and training/empowering of communities within elephant range to carry out control measures to increase both tolerance and effectiveness of measures. Botswana is the only country that maintains a Problem Animal Control Unit within the DWNP.

## 6.2  South Africa

According to South African common law, wild animals enjoying a state of natural freedom are considered *res nullius*.[216]  However, if certain requirements are met, ownership of a wild animal can be acquired.[217]  In particular, ownership can be established through control and constraint, e.g., through suitable fences.[218]

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[212]NATIONAL POLICY AND STRATEGY FOR THE CONSERVATION AND MANAGEMENT OF ELEPHANTS IN BOTSWANA 1 (2003), *available at* https://cmsdata.iucn.org/downloads/bwstrategyfinal.pdf.

[213]*Id.*

[214]*Id.*; GMTFCA Elephant Management Plan, *supra* note 76.

[215]NATIONAL POLICY AND STRATEGY FOR THE CONSERVATION AND MANAGEMENT OF ELEPHANTS IN BOTSWANA, *supra* note 212, at 13–14 (2003).

[216]Hopkinson et al., *supra* note 1, at 480.

[217]W.A. JOUBERT, ET AL., THE LAW OF SOUTH AFRICA, Vol. 14, para. 461 (1999).

[218]Game Theft Act 105 of 1991 § 2 (S. Afr.).

Within South Africa, wildlife management occurs separately at the national and provincial levels, and, unfortunately, uniformity between national and provincial legislation—or, indeed, between different pieces of provincial legislation—is not always ensured.[219]

The National Environmental Management Act (NEMA)[220] provides the primary legislation for the management of natural resources in South Africa. Within that framework, the legal basis for elephant management is provided by the National Environmental Management: Protected Areas Act (NEM:PAA);[221] the National Environmental Management: Biodiversity Act (NEM:BA);[222] the NEM:BA Threatened or Protected Species Regulations (ToPS Regulations);[223] and the Norms and Standards for the Management of Elephants in South Africa ("Elephant Norms and Standards").[224] Over the years, the focus of this legislation has shifted from narrow protectionism to sustainable use.

The objective of NEM:PAA is to provide for a national protected area system. It requires overall and subsidiary management plans for PAs.[225] NEM:BA provides for the management and conservation of South Africa's biodiversity; the protection of species and ecosystems that warrant national protection; and the sustainable use of indigenous biological resources.[226] The ToPS Regulations were promulgated to operationalize the NEM:BA permit system for restricted activities involving threatened and protected species; provide for the registration of captive breeding operations, commercial exhibition facilities, game farms, sanctuaries, rehabilitation facilities, and the like; regulate hunting of ToPS species; completely prohibit the carrying out of certain activities in respect of certain ToPS species; and provide for operation of the Scientific Authority. The elephant is listed as protected due to its high conservation value and international trade value.[227] All activities regarding the elephant (e.g., translocation and hunting) require a prior permit.

The Elephant Norms and Standards, which apply to wild and captive elephants alike, came into effect in 2008.[228] They are not themselves legally binding, but they assist officials in implementing the applicable laws to elephants. Their purpose is to ensure that elephants are managed in a way that warrants the long-term survival of elephants within the ecosystems in which they occur or may occur in the future; to promote broader biodiversity and socioeconomic goals; and to

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[219] Hopkinson *et al., supra* note 1, at 529–530.

[220] *See generally* National Environmental Management Act 107 of 1998 (S. Afr.) [hereinafter NEMA].

[221] *See* National Environmental Management: Protected Areas Act 57 of 2003 (S. Afr.) [hereinafter NEM:PAA].

[222] *See* National Environmental Management: Biodiveristy Act 10 of 2004 (S. Afr.) [hereinafter NEM:BA].

[223] National Environmental Management: Threatened or Protected Species Regulations of 2007 [hereinafter ToPS Regulations].

[224] *See* National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004): National Norms and Standards for the Management of Elephants in South Africa, Government Notice (GN) 30833 of 2008 (S. Afr.) [hereinafter Elephant Norms and Standards].

[225] NEM:PAA §§ 39, 41(4) (S. Afr.).

[226] *See generally* NEM:BA § 2 (S. Afr.).

[227] *Id.* § 56(1)(d) (S. Afr.).

[228] *See* National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004): National Norms and Standards for the Management of Elephants in South Africa pt. 1 §§ 2(b)(i)(aa), 2(b)(ii)(4), GN 251 of 2008 (S. Afr.) (based on NEM:BA, Section 9).

enable the achievement of specific PA management objectives. The document provides for three types of areas where elephants could be found, namely: (1) a controlled environment; (2) an extensive wildlife system (where elephants are covered by the ToPS Regulations); and (3) a limited wildlife system. The situation in the CLRV does not fit option (1) or (3) above but could possibly fit option (2) (extensive wildlife system). However, many properties along the Limpopo River do not meet the definition of an extensive wildlife system, as they are not game farms, are not fenced, and self-sustaining wildlife populations cannot be managed on these properties.

In particular, the Elephant Norms and Standards require an elephant management plan to be developed for PAs, registered game farms, and private and communal land where elephants occur.[229] Such areas are usually fenced, and the landowners of such areas are generally in control of the elephant populations within them. An elephant management plan shows that the area's managers are capable of managing the elephants on the property concerned. Importantly, such elephant management plans provide the basis for trophy-hunting applications. Along the Limpopo River, however, many farms are small, unfenced, and not managed for elephants (or even other game), and landowners are not in control of the elephants, which come and go as they please. These landowners are thus unable to submit elephant management plans and, consequently, are also unable to apply for trophy hunting. These landowners can apply only for the hunting of a roaming problem elephant or other damage-causing animal (DCA) and may not permit a foreign hunter to do so.[230] Finally, a drawback of the Elephant Norms and Standards is that they do not effectively cater to elephant movements between South Africa and neighbouring countries. Given the emphasis on elephant management within fenced areas, the Norms and Standards' implications for the elephant population utilizing the GMTFCA are less than clear.

The only provincial legislation relevant to this study is the Limpopo Environmental Management Act.[231] The Act essentially prohibits the hunting of wild animals without prior authorization and provides for the classification of game into categories affording different levels of protection. Elephants are listed as a "specially protected wild animal."[232] No provincial ordinances deal with the question of ownership of wild elephants.

At the level of the Mapungubwe National Park and World Heritage Site, the overarching objectives of the applicable Management Plan for 2013–2018 include promoting and fostering international cooperation, preserving biodiversity across international boundaries, protecting the cultural heritage and geographic landscape of the area, and facilitating socioeconomic benefits.[233] The latter include managing the provision of benefits of the GMTFCA to the region and its people. However, the

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[229] *Id.* at pt. 1 § 6(1). These elephant plans may be incorporated into either a management plan pursuant to NEM:PAA Chapter 4 or a biodiversity management plan pursuant to NEM:BA Section 43.

[230] *Id*. at pt. 5 §§ 8–9.

[231] *See generally* Limpopo Environmental Management Act 7 of 2003 (S. Afr.).

[232] *Id.* at sched. 2.

[233] SANParks, *supra* note 87, at viii.

development of a sustainable elephant offtake quota is not mentioned or implied anywhere amongst the actions to be taken within this context.

### 6.3 Zimbabwe

The Environmental Management Act[234] sets out the general framework for environmental matters in Zimbabwe, addressing environmental institutions, planning, standards, and impact assessment. It is complemented by the Parks and Wildlife Act,[235] which provides the main legislation for wildlife management. It makes provision for the establishment of six particular PA types: (1) national parks, (2) safari areas, (3) recreational parks, (4) sanctuaries, (5) botanical reserves, and (6) botanical gardens, describing the purposes for which each can be used.[236] Other legislation allows for the establishment of game areas on communal lands.[237]

Uniquely, Zimbabwe has delegated resource use rights, authority, and responsibility for wildlife management, including elephants, to the legally authorized land occupants, enabling the latter to manage and derive full benefit from wildlife on their land. In the case of communities, rural development councils (RDCs) are the competent authority. RDCs are, for instance, empowered to adopt bylaws addressing natural resource management. For instance, in 1989, Zimbabwe instituted a benefit-sharing program for wildlife called CAMPFIRE.[238] The programme focuses especially on communal areas adjacent to PAs, where human–wildlife conflict tends to be most problematic, bringing human–elephant conflicts to the fore.[239] Although no specific management policy or plan for problem elephant management exists, RDCs allocate resources to problem animal management.

A Policy and Plan for Elephant Management in Zimbabwe was adopted by the competent Ministry in 1997 and, although not fully implemented, is still in force.[240] The policy acknowledges the elephant as an important component of Zimbabwe's wildlife and cultural heritage and aims to conserve elephants at levels that promote biodiversity conservation, while ensuring their sustainable use and their contribution to national development. This combined objective is to be achieved by (1) maintaining at least four demographically and genetically viable populations; (2) maintaining numbers and densities below levels that would compromise biodiversity; and (3) maintaining or increasing elephant range at or above the 1996 level.[241] The accompanying management plan sets out associated management actions to give effect to the policy.[242]

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[234] *See* Environmental Management Act 13 of 2002 pt. 2 §§ 4–6 (Zim.).

[235] *See generally* Parks and Wildlife Act ch. 20:14 of 1975 (Zim.).

[236] *See* Parks and Wildlife Act ch. 20:14 of 1974 pts. III–VIII (Zim.).

[237] Communal Lands Act ch. 20:04 of 1982 pt. III § 9(1)(e) (Zim.).

[238] Carolyn Fischer et al., *A Bio-Economic Model of Community Incentives for Wildlife Management under CAMPFIRE*, 48 ENVTL. & RESOURCE ECON. 303, 304 (2011).

[239] *Id.*

[240] MINISTRY OF ENVIRONMENT & TOURISM: DEPARTMENT OF NATURAL PARKS & WILDLIFE MANAGEMENT, THE POLICY & PLAN FOR ELEPHANT MANAGEMENT IN ZIMBABWE (1997).

[241] *Id.*

[242] *Id.*

## 6.4  Comparison and appraisal

Elephants are at the centre of some of the more important wildlife and environmental management decisions having to be made within southern Africa. The legal frameworks for doing so in Botswana, South Africa, and Zimbabwe have much in common, but some marked differences exist. Below, a comparison is made on several important counts, namely concerning elephant conservation and management objectives, the legal status of elephants, their (consumptive) use, monitoring, population connectivity, and transboundary cooperation.

The overall national visions for elephant conservation of the three countries align well, focussing on conserving elephant populations while ensuring the maintenance of habitats and biodiversity and promoting the contribution of elephants to national development. Yet the concrete *objectives* towards achieving this differ. Zimbabwe's Policy and Plan for Elephant Management focuses on maintaining at least four demographically and genetically viable elephant populations and managing these at specific ecological carrying capacities through periodic population reductions, either through culling or translocations. Botswana's Elephant Plan, which is still in draft format and has not yet been effectively implemented, is more conservative. Although concerns regarding the impact of elephants on biodiversity have been raised, the active removal of elephants through, for instance, culling, has not been approved. A good example of the different outlooks is the recent trophy-hunting ban in Botswana, compared with the international public outcry against the capture and sale of wild-caught elephant calves in Zimbabwe.[243]

All three national legal frameworks make provision for ownership of elephants and their nonconsumptive and consumptive utilization. The conditions attached to such use differ, however. In Zimbabwe, elephants are unprotected and their control transferred to landowners and RDCs. In Botswana, elephants are partially protected and can be utilized only under permit. Ownership and control of elephants is claimed by the state. In South Africa, the elephant is a protected species. Elephants crossing into South Africa from neighbouring countries are *res nullius*, but ownership can be established through control and constraint. The status of the elephant within the GMTFCA will likely be that of *res nullius* with the state as overall custodian.

Policies in all three countries draw on the notion that the survival of the elephant within each country is reliant on its economic value to people, especially in light of increasingly conflicting land uses. Indeed, sustainable utilization of the elephant can generate important benefits for local communities and, at the same time, assist in expanding the conservation estate.[244]  However, when consumptive utilization is driven purely by economic incentives, it can lead to the extirpation of

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[243] *E.g.*, Adam Cruise, *Fight to Stop 27 Elephant Calves from Export to Chinese "Circus" Park*, RAND DAILY MAIL, http://www.rdm.co.za/lifestyle/2015/06/23/fight-to-stop-27-elephant-calves-from-export-to-chinese-circus-park (23 June 2015).

[244] *See, e.g.*, Selier & Di Minin, *supra* note 198, at 1; Lindsey et al. (2007), *supra* note 98, at 462–463.

populations and can have negative evolutionary consequences.[245]  It is thus important that the goals of utilization and conservation are in line and that utilization is sustainable. Long-term monitoring of offtakes and population numbers is essential in this regard.[246]  In terms of transboundary populations, monitoring is furthermore essential to ensure that the management actions of one country do not have negative repercussions across the border. Elephants belonging to the CLRV population are hunted in all three countries. But there is little or no consultation among the three countries to ensure collaborative monitoring or the coordinated setting of elephant hunting quotas, with each country determining its own national quota based on restricted subsets of population data.[247]  Current quotas are set at 14 for Zimbabwe and 33 for Botswana.[248]  As of 2014, however, no trophy hunting is allowed within Botswana.[249]  In South Africa, no hunting quota has been set for the CLRV population.[250]  Even so, a total of 47 elephants were shot as DCAs between 2006 and 2014.[251]  Data on hunting and DCA offtakes within each country are collected, but are not used to feed back into a monitoring framework or shared with neighbouring countries. Importantly, the combined offtake must be considered unsustainable.[252]  Besides, it appears that this offtake could have an adverse impact on photographic tourism activities in Botswana in the future.[253]  There is thus a mismatch between national quota setting and the fine-scale requirements of individual elephant populations.[254]

The legal construction whereby ownership of wildlife can be established through fencing has resulted in the development of a very profitable game industry within South Africa and Zimbabwe, but to a lesser extent in Botswana.[255]  Game fencing, especially in the case of South Africa, has major implications for connectivity between neighbouring elephant populations, and no provision has been made in national legislation to maintain or enhance connectivity between populations.[256]  In fact, it could indeed be argued that the current legislation incentivizes the fragmentation of landscapes, thus hindering connectivity. In Botswana's draft Elephant Plan, however, provision has been made allowing connectivity between elephant populations and the natural movements of elephants within the country.

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[245] Selier & Di Minin, *supra* note 198, at 1.

[246] *Id*.

[247] Selier et al. (2014), *supra* note 72, at 123.

[248] *Id*.

[249] Nkaben Maruping-Mzileni, *Hunting in Africa: To Ban or Not to Ban Is the Question*, SUNDAY TIMES, http://www.timeslive.co.za/sundaytimes/opinion/2015/07/29/Hunting-in-Africa-to-ban-or-not-to-ban-is-the-question (July 29, 2015).

[250] Selier et al. (2014), *supra* note 72, at 123.

[251] *Id. See also* data obtained from Limpopo Department of Economic Development, Environment, and Tourism (on file with the author).

[252] *See* Selier & Di Minin, *supra* note 198, at 1.

[253] *See, e.g.*, Selier et al. (2014), *supra* note 72, at 124, 130.

[254] Harvesting regulations typically need to be determined at relatively fine scales. *See generally* Cumming et al., *supra* note 196, at 2–3.

[255] CIRELLI & MORGERA, *supra* note 162, at 61.

[256] Abi Tamim Vanak et al., *Do Fences Create an Edge-Effect on the Movement Patterns of a Highly Mobile Mega-Herbivore?*, 143 BIOLOGICAL CONSERVATION 2631, 2635–2636 (2010).

Relevant law and policy in all three countries highlight the importance of transboundary cooperation in general, but in the case of the CLRV elephant population, little has been done to put collaborative management into practice.

## 7.  Conclusions and recommendations

Conservation challenges facing elephants in southern Africa are similar in crucial respects to those facing many large carnivores, not only in Africa but also in Europe and elsewhere.[257]  Successful conservation and management of these species must take into account both the ecological needs of the animals themselves and the social, cultural, economic, and political needs of people.[258]  Balancing biological realism and anthropogenic pragmatism is as important to wolf management in Europe as it is to elephant management in southern Africa. Likewise, international law and policy regarding such controversial species needs to be interpreted and applied across a diversity of local contexts.

The trilateral CLRV elephant population provides a particularly vivid illustration of the related key challenges that are in the spotlight of the present article, especially the fragmentation of the legal landscape. Encouragingly, the above analysis confirms that the need to cooperate in order to manage transboundary wildlife at the level of their populations rather than the level of countries (or other artificial, administrative units) is receiving increasing recognition in governmental and intergovernmental circles.

At the *international* level, the preceding analysis attests to the existence of a significant body of international law and policy that is of importance for elephant conservation in general and potentially conducive to transboundary cooperation at the population level in particular. The SADC Protocol on Wildlife Conservation and Law Enforcement and the Southern Africa Regional Elephant Conservation and Management Strategy are cases in point. Moreover, in terms of international legal instruments, the fragmentation of the southern African landscape is only modest. Almost all international treaties discussed count all three countries involved amongst their contracting parties—a notable exception being Botswana in respect of the CMS.

In terms of *national* law and policy, however, the degree of fragmentation is significant in the case under consideration. Notable differences between Botswana, South Africa, and Zimbabwe exist concerning the following: elephant management objectives; elephants' legal status; the hunting and culling of elephants; cross-border monitoring; and measures to ensure connectivity. For instance, a prominent challenge concerning the CLRV elephant population is the absence of a single offtake quota, shared by the three countries, for the transboundary population as a whole.

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[257]Trouwborst (2015), *supra* note 1, at 21–22.
[258]William F. de Boer et al., *Understanding Spatial Differences in African Elephant Densities and Occurrence: A Continent-wide Analysis*, 159 BIOLOGICAL CONSERVATION 468, 475–476 (2013).

As regards actual trilateral cooperation at the level of the CLRV elephant *population*, the need to remedy the aforementioned mismatch and to coordinate management at the transboundary population level has been duly recognized. What is more, the development of the GMTFCA and the associated draft Elephant Management Plan apparently goes beyond what has been done for many other cross-border populations. It is worth highlighting that the comprehensive and detailed approach developed for this trilateral region ticks many of the boxes of the uniform blueprint for transboundary population-level cooperation produced in the European large carnivore context.

At the same time, population-level management of the CLRV elephants is clearly still a work in progress. In particular, the GMTFCA framework yet remains to be fully endorsed and implemented by the relevant authorities in the three countries. For instance, the GMTFCA Treaty still remains to enter into effect, and the associated Collaborative Policy and Planning Framework for the Management of Elephants equally still awaits formal endorsement (notably, the same is true of several of the relevant national instruments reviewed above). Crucial implementation steps still missing with respect to the CLRV elephant population include coordinated monitoring and coordinated offtake management. It should also be noted that the spatial focus of many of the cooperation efforts in the region is on the GMTFCA rather than the CLRV elephant population. Despite significant overlap, the match between the two is not exact.

In addition to the endorsement and implementation of the aforementioned instruments, it is recommended that a cross-border management authority for the CLRV region be established, consisting of government representatives, at least one scientific expert per country, and other relevant stakeholders, to assist with the coordination and implementation of management actions pertaining to elephants and other cross-border species. Advice by this authority should be mandatory regarding the allocation and sharing of trophy-hunting quotas based on scientific monitoring data, the coordination of enforcement activities, and the sharing of information between the management authorities and stakeholders.

In sum, the trilateral Central Limpopo River Valley elephant population provides an illustration, first, of what a transboundary population-level approach to the conservation and sustainable use of wildlife could—or should—look like in practice. The cooperative instruments devised for this cross-border elephant population are exemplary in many respects, as they tick many of the boxes for the aforementioned approach. Lessons learned from the CLRV elephant situation can be applied to the EU carnivore situation and elsewhere. At the same time, however, the remaining shortcomings regarding the implementation of the common management of the CLRV elephant population clearly illustrate the significant challenges involved in achieving a comprehensive, consistent, and effective application of a transboundary population-level approach.