South African
NATIONAL PARKS

Elephant Management Plan

Addo Elephant National Park

2023-2028

Reference Number:

INFORMATION

Responsible Executive Manager:	Dr Howard Hendricks (CSD) Mr Property Mokoena (Parks)
Division/Unit Responsible for Formulation:	Scientific Services Division & Addo Park Management
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Dr Howard Hendricks Managing Executive: Conservation Services Division Date: 28/02/2024	Hapiloe Sello Chief Executive Officer Date: 29/09/2025
Pam Yako Chair of the SANParks Board Date: 30/09/2025	Nomfundo Tshabalala Director General, DFFE Date: 02/10/2025
Dr. Dion George Minister of the Department of Forestry, Fisheries and the Environment Date: 23/10/2025	

Note that the lifetime of the plan aligns with the Park Management Plan.

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Executive Summary

South African National Parks (SANParks) manage wildlife for both its intrinsic value and its diverse ecological roles. Addo Elephant National Park (Addo) represents unique biodiversity and is a key focus of conservation in the Eastern Cape. Elephants in Addo have the potential and ability to affect biological, cultural and stakeholder values. This management plan, compiled in accordance and compliance with the National Norms and Standards for Elephant Management, is a supporting document to the Addo Park Management Plan submitted to the Department of Forestry, Fisheries and the Environment (DFFE).

The plan outlines the strategic context of elephant management in SANParks, supported by experience and adaptive learning over time. Further, it is informed by learning during implementation of the previous elephant management plan, and takes into account key linkages to the vital attributes and management objectives of Addo as defined in the Park Management Plan. Evaluation of elephant impacts on ecological attributes of Addo have informed and stimulated adaptive management strategies and consequently this management plan.

The objectives hierarchy of the Addo Park Management Plan guides the specific objectives for this Elephant Management Plan. Four key elephant management objectives have 13 actions outlined to address these. **Objective 1** addresses the ecological role of elephants, and aims to induce spatial and temporal variation in elephant use of landscapes by mimicking historical limitations by, where appropriate, (1) consolidating and/or expanding land and removing fences to expand elephant range; (2) managing the influence of water points and earthen dams on elephant movements and (3) translocation of elephants within the park and externally. **Objective 2** seeks to manage the influence of localized influences of elephants, primarily due to restricted area and/or fencing on a range of biodiversity and social conservation values, recognizing that it sometimes requires trade-offs. This should be achieved, where appropriate, through (1) controlling population growth through contraception; (2) manipulating the intensity with which elephants use particular areas of concern and (3) managing individual elephants, if and where required, according to standard operating procedures. **Objective 3** contributes toward cultural ecosystems services and use, while providing equitable opportunities and benefits, including revenue generation through tourism. The actions associated with this objective focus on opportunities for stakeholders to benefit from elephants, maintaining awareness, interpretation and education, as well as responsible tourism, as covered in the Park Management Plan. **Objective 4** is directed at evaluating, informing and revising elephant management through monitoring and research. This provides for the critical evaluation, both internally and externally, of SANParks' progress and learning against the intentions articulated in this Addo Elephant Management Plan. The actions provide for the opportunity to generate information as well as to inform, review and accommodate adaptation in management actions.

Accountability for overall implementation of this plan lies with the Managing Executive: Parks while accountability for evaluation is with the Managing Executive: Conservation Services. The actions set out in the Objectives of this plan are not limited to the timeframe of this plan and may become redundant pending outcomes of actions taken. Changing context including but not limited to changes in resource availability, and unforeseen or emergent opportunities or challenges that may arise during the period for which this plan is active, may lead to some deviation, adding or subtracting from the plan, but these will be carefully considered and the rationale will be documented. The Addo Elephant Management Plan is written for a five year period, namely 2023-2028 to align with the review of the park management plan and should be reviewed as part of that revision.

1. Rationale

African elephants (*Loxodonta africana*) contribute to ecological features and the existence of biomes[1] while structuring the physical environment that benefits other fauna[2]. People value elephants for many reasons[3], the benefits provided to tourists[4] and rural communities[5]. Elephants, however, threaten biodiversity[6] and cause damages to property and come in conflict with people[7]. Making trade-offs between the positive effects of elephants and the various costs of living with them, both to people and other biodiversity, poses challenges to African-based conservation agencies[8].

South Africa embraced such challenges as opportunities for an inclusive, transformed society where biodiversity conservation and sustainable use ensure healthy ecosystems, with improved benefits that are fairly and equitably shared for present and future generations[9]. In this context, the management of elephants in Addo Elephant National Park (Addo) under the auspices of South African National Parks (SANParks) seeks to contribute to the national goals of transformed and enhanced biodiversity conservation, sustainable use, and equitable access and benefit sharing within the "*White Paper on Conservation and Sustainable Use of South Africa's Biodiversity*".

The management of elephants, their values and the costs and benefits that they have for people takes guidance from the developing National Elephant Heritage Strategy[10] that envisions thriving elephants contributing to equitable livelihoods, ensured dignity, and secured well-being for present and future generations of South Africans. Addo is one of 84 elephant populations that are confined by fences, and often abutting areas practice land-uses that may not align easily with neighbouring elephants[11]. Addo had 743 elephants in 2022 and can form part of a meta-population[12] within South Africa comprising the relatively small and confined populations that collectively provide improved contributions to South Africa's conservation and use of biodiversity aspirations enhancing the well-being of people and nature alike.

In this context, SANParks envisage *a resilient[13] Addo elephant population embedded in South Africa's meta-population, enhancing biodiversity, improving equitable[14] socio-economic benefits, whilst inspiring and connecting diverse cultures*. Addo has a complexity, richness and diversity of socio-ecological systems and the promotion of conservation in all its complexities is fundamental to SANParks' core biodiversity conservation values[15]. These complexities are

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[1] Skowno AL, Thompson MW, Hiestermann J, Ripley B, West AG, and Bond WJ (2017) Woodland expansion in South African grassy biomes based on satellite observations (1990-2013): general patterns and potential drivers. Global Change Biology, 23, 2358–2369

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[3] van de Water, A., Henley, M., Bates, L. and Slotow, R., 2022. The value of elephants: A pluralist approach. *Ecosystem Services*, *58*, p.101488.

[4] Lindsey PA, Roulet, PA, and Romañach, SS. 2007. Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa, Biological Conservation, 134(4): 455-469.

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Mafunzwaini, A.E. and Hugo, L. 2005. Unlocking the rural tourism potential of the Limpopo province of South Africa: Some strategic guidelines, Development Southern Africa, 22, (2), 251-265

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[9] Publication of the white paper on Conservation and sustainable use of South Africa's Biodiversity. Department of Forestry, Fisheries, and the Environment. Government Gazette, No. 48785. 14 June 2023
https://www.gov.za/sites/default/files/gcis_document/202306/48785gon3537.pdf

[10] Developing National Elephant Heritage Strategy, Humbu Mafumu, HMAFUMO@dffe.gov.za.

[11] Extracted from Addo Elephant National Park Management Plan, SANParks 2015-2025.

[12] Internal Report

[13] Resilient refers to ability to resist or recover from disturbance

[14] Equitable acknowledges that not all stakeholders are equal, and that stakeholders directly impacted and affected by elephants should have access to more benefits.

[15] Kruger National Park Management Plan 2018-2028. https://www.sanparks.org/assets/docs/conservation/park_man/knp/knp-approved-plan.pdf

addressed through a strategic adaptive management approach[16] within which the management of elephants in Addo embeds.

This management plan provides the guidance for the management of elephants and embraces the key principles of transformation, sustainable use, good governance, evidence-based decisions, and a duty of care towards nature and people alike[17]. It aligns with the Elephant Management Norms and Standards of South Africa[18].

2. Elephant contribution to Park objectives[19]

Key biological attributes of Addo

Addo is within the Eastern Cape Province. It stretches from the semi-arid plains around Darlington Dam, south and east over the Zuurberg Mountain range and into the Sundays River Valley. From here the park extends south to the Sundays River mouth and east along the coast to Bushman's River mouth. Included are the Bird and St Croix Islands group which fall within the expanded Addo Marine Protect Area.

The park straddles summer rainfall (predominantly north of the Zuurberg range) and all-year rainfall (south of the mountain range) areas, with a warm temperate climate. Mean annual rainfall varies from 900mm in Alexandria forests, to 450mm at Main Camp, to >600mm on the Zuurberg Mountains, to 350mm in the Karoo rain-shadow areas. Primary surface water availability in the major game areas of the park is through waterholes fed by boreholes. Pans and earthen dams, which are dry except in years of exceptional rainfall, Darlington Dam, and springs in the mountainous areas are further water sources.

Addo encompasses five terrestrial biomes, namely Nama Karoo, Fynbos, Forest, Thicket, Grassland, and azonal wetlands, comprising 43 vegetation units in total. Landscapes vary from short succulent noorsveld karroid vegetation in the north to spekboom succulent thicket in Colchester. The Zuurberg Mountains consist predominantly of mountain and grassy fynbos as well as xeric and mesic succulent thicket. Along the moister coastal region, mixes of afromontane and coastal forests are interspersed with coastal grasslands. Variation in altitude, topography, climate, geology, and soil composition over a relatively short range within the park accounts for a diverse flora and several large mammal species.

Elephant influence on high-level objectives

Elephants contribute to and/or have an ability to influence all the Addo terrestrial objectives. These focus on biodiversity, social aspects, responsible tourism, cultural heritage, and effective park management[20].

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[17] Extracted from Addo Elephant National Park Management Plan, SANParks 2015-2025

[18] National Norms and Standards for the Management of Elephants in South Africa (GN 251/GG 30833/ 29 February 2008) and subsequent revisions.

[19] Extracted from Section 6, Paragraph 9

(i) description of the elephant population;
(ii) the objectives of the property to which the management plan relates;
(iii) the contribution of the objectives referred to in subitem (ii) to the national conservation objectives;
(iv) risks or constraints to achieve the objectives referred to in subitem (ii);
(v) extent or success in achieving the objectives referred to in subitem (b)(ii);
(vi) maximising the contribution of the elephant population to the objectives referred to in item (b)(ii);
(vii) risks related to management interventions involving the elephant population; and
(viii) mitigation of the intervention risks referred to in subitem (vii).

[20] Addo Elephant National Park Management Plan of 2015 for details

Elephant influence on biodiversity objectives

Fencing, restricted size of areas, addition of surface water, and/or missing species or processes influence the ecological systems of Addo. These constraints affect how elephants use landscapes, either too intensely or too sparsely[21], over time which may result in impacts on other biodiversity components. In addition, water availability, food availability and people would have historically influenced elephant landscape use[22], while today management can directly (*e.g.* water provision) or indirectly (*e.g.* contraception) affect the intensity with which elephants use the landscapes available to them.

Ecological effects of elephants vary considerably depending on rainfall, plant community and landscape features[23]. Interpretation of these ecological effects is often confounded by study duration, length of elephant presence or absence in an area as well as synergistic effects of fire, other herbivores, drought, wind toppling, soil chemistry, water table and management practices[24]. In the past decade, South Africa has experienced a significant drought period and Addo experienced a decline in average annual rainfall, as well as below average vegetation conditions shown by NASA's MODIS satellite derived linear enhanced vegetation index (EVI) analyses.

Elephants respond to spatial and temporal resource variation by short- to medium-term movements and/or dispersal[25] and medium- to long-term changes in demography[26]. In Addo, however, the constraints of fencing, water provision and missing species (such as human presence that influenced elephant movements) disrupt population regulating mechanisms and how elephants use landscapes. Thus, while resource manipulation is expected to affect elephant impacts over time and across landscapes, in Addo, elephant demographic responses to these gradients of resource distribution is reduced because the relatively small areas limit the magnitude of resource gradients affecting birth and death rates through, for example, social and physiological stresses. Elephants exhibit transient dynamics in vital rates in Addo[27]. Restoring or mimicking processes that induce gradients and variability in resource distribution thus may not induce natural population regulation through density-dependent mechanisms and controlling populations may be a key requirement to mimic the outcomes.

Elephant influence on social objectives

Elephants may cause damage to humans and their livelihoods. In Africa, specifically southern Africa, local communities may incur substantial costs when living near elephants[28]. Since complete fencing of Addo in 1954, there have been no incidences of damage-causing elephants or conflicts in and around the park. Potential future incidents will be dealt with on a case-by-case

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[21] Gordon, I. J., Hester, A. J. & Festa-Bianchet, M. 2004. The management of wild large herbivores to meet economic, conservation and environmental objectives. *Journal of Applied Ecology* 41: 1021-1031.
[22] Harris, G.M., Russell, G.J., van Aarde, R.I. & Pimm, S.L. 2008. Rules of habitat use by elephants *Loxodonta Africana* in southern Africa: insights for regional management. Oryx 42(1): 66-75.
[23] Guldemond, R. & R.J. van Aarde. 2008. A meta-analysis of the impact of African elephants on savanna vegetation. *Journal of Wildlife Management* 72: 892-899
[24] Whyte, I.J., van Aarde, R.J. & Pimm, S.L. 2003. Kruger's elephant population: Its size and consequences for ecosystem heterogeneity. In: du Toit, J.T., Rogers, K.H. & Biggs, H.C. (eds). *The Kruger experience: Ecology and management of savanna heterogeneity.* Island Press, Washington, USA. pp 332-348. Kerley, G.I.H., Landman, M., Kruger, L., Owen-Smith, N., Balfour, D., de Boer, W.F., Gaylard, A., Lindsay, K. & Slotow, R. 2009. Effects of elephants on ecosystems and biodiversity. In: Scholes, R.J. & Mennell, K.G. (eds). *Elephant management: A scientific assessment for South Africa.* Wits University Press, Johannesburg, South Africa. pp 146-205.

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Young, K.D., Ferreira, S.M. & van Aarde, R.J. 2009b. Elephant spatial use in wet and dry savannas of southern Africa. *Journal of Zoology, London* doi:10.1111/j.1469-7998.2009.00568x

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Trimble, M.J., Ferreira, S.M. & van Aarde, R.J. 2009. Drivers of megaherbivore demographic fluctuations: interference from elephants. *Journal of Zoology,* London doi:10.1111/j.1469-7998.2009.00560.x
[27] Guldemond, R.A.R., Louw, C.J., Mare, C., Norgaard, C. & van Aarde, R.J. 2022. Demographic responses of an insular elephant population to removal as a management intervention. *Conservation Science and Practice* doi: 10.1111/csp2.12741.
[28] Carruthers, J., Boshoff, A., Slotow, R., Biggs, H.C., Avery, G. & Matthews, W. 2009. The elephant in South Africa: history and distribution. In: Scholes, R.J. & Mennell, K.G. (eds). *Elephant management: A scientific assessment for South Africa.* Wits University Press, Johannesburg, South Africa. Pp 23-83.

basis according to SANParks' standing operating procedures informed by the national Norms and Standards for managing damaging causing animals.

Elephant influence on responsible tourism objectives

Assumptions that the "big five" experience is a key tourism drawcard often drives tourism developments[29]. Elephants are often also a key determinant of tourist expectations and experiences. Management therefore maintains roads and improves sighting opportunities by providing water resources to attract elephants to existing infrastructure[30]. Although these actions are economically cost-effective, it can also lead to undesirable ecological consequences.

Tourist experiences are often driven by how elephants and other animals use landscapes, which in turn is driven by the distribution of both key resources and tourist infrastructure. Elephants respond to spatial and temporal resource variation through movements and/or dispersal and ultimately through changes in demography. Therefore, by restoring or mimicking natural resource distribution, land use behavior of elephants can be altered which can affect tourist experiences. In the Main Camp region of Addo, tourists experience near-guaranteed elephant sightings, often at waterholes such as Hapoor. A further unique attribute of the Addo elephant population is that they are particularly docile towards tourists, creating safe viewing opportunities not necessarily available in the other national parks.

Elephant influence on cultural objectives

Addo's cultural objectives focus on providing a full spectrum of cultural experiences and access to cultural heritage. Elephants have cultural value and the use of elephant products, such as dung, in various local practices should be further explored. Further, there may be instances where elephant may damage tangible cultural heritage (*e.g.*, artefacts or sites) in which case responsible protection and/or management actions will need to be considered.

Elephant influence on effective park management

Addo comprises of several fenced sections and a well-developed infrastructure to support tourist expectations and other park management requirements. Elephants can cause damage to several of these infrastructures which usually associate with access to water. Addressing these require a case-by-case approach. In addition, instances of park expansion or consolidation for improved effective park management may require specific consideration of enabling or mitigating elephant impacts.

History of elephant management

In the past, anthropogenic pressures affected animal behaviour, distribution and population structure, with this effect predicted to increase in future[31]. Historically wildlife, including elephants, roamed the coastal plains of southern Africa. Continuous, connected populations of elephants frequented areas from the Western Cape to the Eastern Cape. European settlers in the late 1500's and early 1600's hunted elephants for ivory. By the end of the eighteenth century

[29] Naughton, L., Rose, R. & Treves, A. 1999. The social dimensions of human-elephant conflict in Africa: a literature review and case studies from Uganda and Cameroon. Report to the African Elephant Specialist Group, Human-elephant Conflict Task Force. IUCN. Gland. Switzerland.
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only the Knysna and Addo elephant populations remained. When proclaimed in 1931, Addo had 11 elephants[32] due to elephant extirpation during the early 1900s to reduce damage to farms[33]. Elephant-farmer conflict continued and was a common problem by 1938[34] when there were 26 elephants. Elephant killing due to conflicts continued despite electric fencing and the feeding of oranges to keep elephants in the park[35]. Authorities fenced Main Camp in 1954, using the Armstrong fence[36], restricting the remaining 22 individuals to ~23 km^2 of valley thicket[37]. Water was provided but tourist access was not allowed at the time due to the notoriously aggressive elephants. Elephants were lured out of the thicket with oranges, pumpkins, and oats for tourists to view them from outside the elephant area[38].

While elephant numbers increased, concerns about elephant effects on other biological components[39] prompted enlargement of Main Camp in 1955, 1977, 1984, 1994, 2000, 2010 and 2015 by 23km^2, 14km^2, 34km^2, 31km^2, 17km^2, 118km^2 and 37km^2 respectively[40]. The largest single expansion included addition of the Colchester section, with the dropping of fences in 2010. The combined Main Camp/Colchester section is now ~268km^2 in size[41] and contains several boreholes and earthen dams. In addition to enclosing elephants, managers were concerned about lack of genetic diversity due to small founder population effects[42] an effect of which is that Addo elephants are mostly tuskless[43]. Thus, four elephant bulls from Kruger National Park were introduced in 2002[44].

Addo has expanded substantially over time and by 2022 Addo has eight areas separated by fences and interspersed with private land in some cases. This has expanded opportunities for elephant range expansion, with Main Camp serving as a source for other sections in Addo as well as other places in South Africa. For instance, authorities translocated four juveniles from Addo to Pilanesberg National Park in 1979[45] and a further eleven bulls to various private game reserves across South Africa in 2005. In 2003, 61 elephants were moved from Main Camp to the Nyathi section while four bulls were introduced from Kruger National Park. The Darlington section received 28 elephants from the Main Camp/Colchester section in 2018.

Elephant management was essentially preservationist at the onset of the park. This changed to a command-and-control approach when elephant numbers increased. Management focused on numbers and premises were embedded in rangeland ecology[46] with defined stocking rates[47]. In addition, tourism opportunities and demands played a large and significant role in the management of the environment and elephants.

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[32] Whitehouse, A.M. & Hall-Martin, A.J. 2000. Elephants in Addo Elephant National Park, South Africa: reconstruction of the population's history. *Oryx* 34: 46-55.
[33] Hoffman, M.T. 1993. Major P.J. Pretorius and the decimation of the Addo elephant herd in 1919-1920: Important reassessments. *Koedoe* 36: 23-44.
[34] Pringle, J.A. 1948. Future of Addo Elephant Park depends on fence. *African Wildlife* 2: 19-24.
[35] Hall-Martin, A.J. 1980a. Elephants and oranges. *The Eastern Cape Naturalist* 69: 18-20.
[36] Bunton, P.H. 1961. Improvements to Addo Park. *African Wildlife* 15: 330-332.
[37] Hall-Martin, A.J. 1980b.Elephant survivors. *Oryx* 15: 355-362.
[38] de Jaegher, J. 1964. The elephant that nearly disappeared. *Animals* 3: 123-125.
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[46] Westoby, M., Walker, B. & non-Meir, I. 1989. Opportunistic management for rangelands not at equilibrium. *Journal of Range Management* 42: 266-274.
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Boshoff, A.F., Kerley, G.I.H., Cowling, R.M. & Wilson, S.L. 2002. Th potential distributions and estimated spatial requirements and population sizes, of medium to large-sized mammals in the planning domain of the Greater Addo Elephant National Park project. *Koedoe* 45: 82-116.

In the late 1990s SANParks adopted an adaptive management approach and redefined park management objectives through extensive consultation processes with stakeholders[48]. The definition of Thresholds of Potential Concern[49] acted as triggers for decision-making and shifted management from population numbers to environmental indicators. Nevertheless, elephant numbers continued to inform elephant movements between different sections of Addo.

At a wider scale, elephant management was greatly influenced by animal rights and societal values and was discussed extensively in 2004 through the Elephant Indaba and the Luiperdskloof scientific meeting in 2005. Political and public pressure prompted the then Minister of Environmental Affairs and Tourism (now Department of Fisheries, Forestry, and the Environment) to convene a Science Round Table. The Round Table advised that generally there is no need for immediate aggressive reduction in elephant numbers in South Africa, but suggested that in some instances elephant density, distribution and population structure may need to be managed to achieve biodiversity and other objectives[50]. An external peer-reviewed scientific assessment of elephant management[51] followed in parallel with the development of the Elephant Management Norms and Standards[52]. These explicitly recognized the management of elephant impact, conflict, and effects on stakeholders rather than elephant numbers and needing to do so differently at different places and at different times.

SANParks embraced the evolution of ecological thinking in the 2008 Addo Elephant National Park Management Plan[53] and removed the precautionary principle as the sole basis for management. Terrestrial ecosystem concerns, including elephants, were incorporated into an objectives hierarchy. This facilitated the development of a process-based approach to elephant management focusing on dealing with causes and mechanisms of elephant effects, rather than purely on symptoms and reactive means of minimizing impacts, conflicts, and stakeholder interactions, aligned with developments in ecological thinking[54].

Contraception of the Addo elephant populations was introduced to lengthen birth intervals and aid in reducing population growth. This began with the Nyathi population in 2013 with Main Camp/Colchester and Darlington sections in 2019 and is an ongoing intervention. Furthermore, a water availability gradient was established in 2016-2018, by erecting fences that excluded elephants selectively from certain waterholes across the Main Camp/Colchester section to reduce homogenous landscape use by elephants.

Consequences of various management interventions over time

Following proclamation, elephant numbers in Main Camp increased by 5.5% per annum until 2005[55]. In recent years population growth was 4.7% per year (95% confidence interval 1.5 – 8.0% per annum). The historical expansion and relatively recent removals from Main Camp resulted in variable density over time (Figure 1). At Nyathi elephant numbers increased annually at 6.1% (95% CI: 2.4% to 9.7%) while numbers at Darlington increased at 5.4% (95% CI: -1.6%

[48] Rogers, K.H. 2003. Adopting a heterogeneity paradigm: Implications for management of protected areas. In: du Toit, J.T., Rogers, K.H. & Biggs, H.C. (eds). *The Kruger experience: Ecology and management of savanna heterogeneity*. Island Press, Washington, USA. Pp 41-58.
Venter, F.J., Naiman, R.J., Biggs, H.C. & Pienaar D.J. 2008. The evolution of conservation management philosophy: Science, environment change and social adjustments in Kruger National Park. *Ecosystems* 11: 173-192.
[49] Biggs, H.C. & Rogers, K.H. 2003. An adaptive system to link science, monitoring and management in practice. In: du Toit, J.T., Rogers, K.H. & Biggs, H.C. (eds). *The Kruger experience: Ecology and management of savanna heterogeneity*. Island Press, Washington, USA. Pp 59-80.
[50] Owen-Smith, N., Kerley, G., Page, B., Slotow, R. & van Aarde, R. 2006. A scientific perspective on the management of elephants in the Kruger National Park and elsewhere. *South African Journal of Science* 102: 389-394.
[51] Scholes, R.J. & Mennell, K.G. 2009. *Elephant management: A scientific assessment for South Africa*. Wits University Press, Johannesburg, South Africa.
[52] DEAT, 2008. National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): National Norms and Standards for the management of elephants in South Africa. DEAT, Pretoria.
[53] SANParks, 2008. Addo Elephant National Park Management Plan. SANParks, Skukuza.
[54] SANParks, 2008. Addo Elephant National Park Management Plan. SANParks, Skukuza.
Bulte, E., Damania, R., Gillson, L. & Lindsay, K., 2004. Space – the final frontier for economists and elephants. *Science* 306: 420-421.
van Aarde, R.J., Jackson, T.P. & Ferreira, S.M. 2006. Conservation science and elephant management in southern Africa. *South African Journal of Science* 102: 385-388.
van Aarde, R.J. & Jackson, T.P. 2007. Megaparks for metapopulations: addressing the causes of locally high elephant numbers in southern Africa. *Biological Conservation* 134: 289-297.
[55] Whitehouse, A.M. & Hall-Martin, A.J. 2000. Elephants in Addo Elephant National Park, South Africa: reconstruction of the population's history. *Oryx* 34: 46-55.

to 11.7%). These growth rates vary substantially from year to year due to small stochastic population effects and likely some sampling error. Note: Kuzuko, a previous contractual section of the national park, took over the management of their elephant population from SANParks in 2019 when the contractual agreement was terminated.

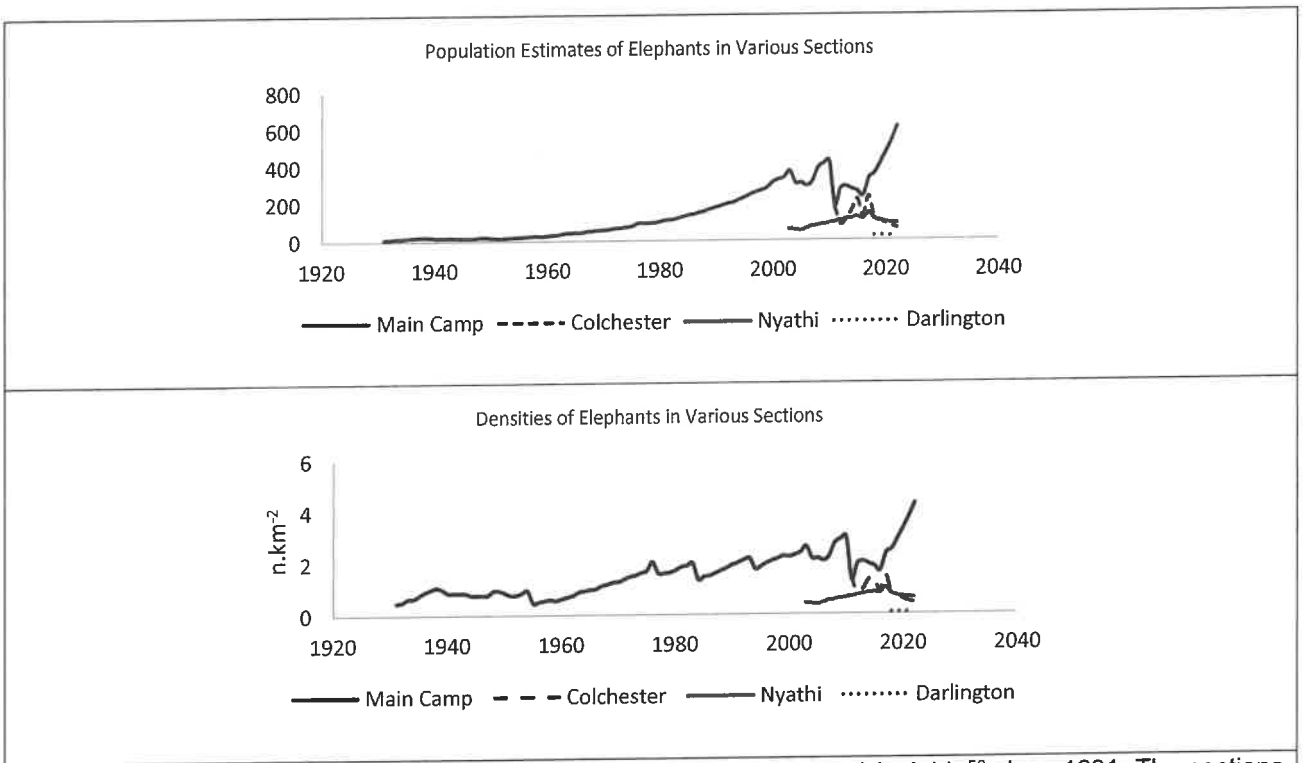

Figure 1. Historical trends in elephant numbers (top) and density (bottom) in Addo[56] since 1931. The sections available to elephants expanded at several times resulting in fluctuating densities in Main Camp even after amalgamation with the Colchester Section. Recent years have also seen other sections of Addo receive elephants including Nyathi and Darlington.

Prior to complete fencing in 1954, elephants regularly ventured out of the park and caused damage to adjacent farms[57]. However, since 1954, incidences of damage to local communities and human-wildlife conflict have ceased. Fencing, however, also confined elephants so that most of Main Camp was utilized by elephants. Individual elephant home ranges measured by minimum convex polygons overlapped each other and covered most of Main Camp[58]. The consequences for other biodiversity components and conservation values of an increasing elephant population with limited scope to use the area heterogeneously has resulted in continued impacts on vegetation structure (horizontally and vertically) and has specifically impacted sensitive species[59]. To alleviate these impacts Main Camp was expanded into the Colchester section and water provisioning was limited, however the current size of Main Camp/Colchester is not big enough to significantly change elephant space use and therefore other management interventions to limit population growth have been implemented.

These effects did not negatively affect the tourist experience associated with elephants. Tourist numbers are increasing and even at relatively low elephant densities tourists nearly always see

[56] Data extracted from Whitehouse & Hall-Martin 2000, Gough & Kerley 2006, SANParks database (Judith Kruger, SANParks, Skukuza, South Africa).
[57] Hall-Martin, A.J. 1980b.Elephant survivors. *Oryx* 15: 355-362.
[58] Whitehouse, A.M. & Schoeman, D.S. 2003. Ranging behaviour of elephants within a small, fenced area in Addo Elephant National Park, South Africa. *African Zoology* 38: 95-108.
[59] Lombard, A.T., Johnson, C.F., Cowling, R.M. & Pressey, R.L. 2001. Protecting plants from animals: botanical reserve scenarios within Addo Elephant National Park, South Africa. *Biological Conservation* 102: 191-203. Kerley, G.I.H. & Landman, M. 2006. The impacts of elephants on biodiversity in the Eastern Cape Subtropical Thickets. *South African Journal of Science* 103: 181-182.

elephants[60]. This is due to elephants being visible at water points even though the Addo vegetation is notoriously dense with poor visibility.

Operational reflection and lessons learned

The present Addo elephant population originated from only 11 individuals when the park was proclaimed in 1931[61]. A visible founder effect is tusklessness, a common feature of this population, which may change through introductions of bulls. From the onset, resources were managed, *e.g.*, food was used to lure elephants out of the thicket into areas where tourists could view them, and lack of permanent natural water in Main Camp necessitated artificial provision of water[62].

Main Camp was continually expanded due to concern around local impacts on vegetation and was often associated with additional water provisioning. Elephants were also moved across fence barriers into other sections such as Nyathi and Darlington where permanent natural water is available but supplemented by additional boreholes. Resources have thus not become limiting for elephants. Density-dependent demography and their effect on population growth rates have not taken place. As a result, the Addo elephant population increased at 5.5% per annum for some time and is likely to continue at that rate in the absence of contraception[63].

Elephant in Addo display transient dynamics which dominate their demography. On average, cows have their first calf at around age 13-14, thereafter have calves every 3-4 years and stop calving around 49 years old[64]. Elephant survival is high with mortality in the region of only 1% per annum. The populations are restricted by fences with approximately 577 elephants in Main Camp, 139 in Nyathi and 27 in Darlington sections in 2022.

Information on elephant spatial use is relatively limited compared to information on population dynamics, diet, and individual histories[65]. Even so, elephant spatial use is dramatically affected by water availability – the Hapoor waterhole in the western part of Main Camp is a prime area of elephant activity. Furthermore, it is likely that rivers in the Eastern Cape historically were a key focus of elephant activity, but park sections with elephants are isolated from the Sundays River. Thus, elephant movements in response to rainfall events to and from rivers is impeded which has resulted in intensified elephant activity in areas away from rivers, which historically would have been less frequently and intensively utilized.

Boreholes that provide water are also a key focus point for elephant viewing by tourists. Various boreholes and seasonal pans provide water throughout Main Camp and Colchester. The existing tourist infrastructure and new initiatives in sections like Colchester has created expectations of fulfilling an elephant-based tourist experience. Even though relative numbers of elephant sightings did not change dramatically with an increase in area available to elephants probably because average elephant density did not decrease (Figure 2), concerns remain that consolidation of land as envisaged in the Addo Elephant National Park Management Plan may severely affect the tourism product and other objectives if elephant densities decrease in the main tourist areas.

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[60] Kerley, G.I.H., Geach, B.G.S. & Vial, C. 2003. Jumbos or bust: do tourists' perceptions lead to an under-appreciation of biodiversity? *South African Journal of Wildlife Research* 33: 13-21.
[61] SANParks 2015. Addo Elephant National Park Management Plan. SANParks. Pretoria.
[62] Brett 2019. From game camps to landscape conservation: The evolution and development of the Addo Elephant National Park. *African Journal of Hospitality, Tourism and Leisure* 8(5): 1-35.
[63] Whitehouse, A.M. & Hall-Martin, A.J. 2000. Elephants in Addo Elephant National Park, South Africa: reconstruction of the population's history. *Oryx* 34: 46-55.
[64] Guldemond, R.A.R., Louw, C.J., Mare, C., Norgaard, C. & van Aarde, R.J. 2022. Demographic responses of an insular elephant population to removal as a management intervention. *Conservation Science and Practice* e12741. https://doi.org/10.1111/csp2.12741
[65] Lochner, C.S.2017. Elephant space use and impacts on vegetation in response to habitat expansion in succulent thicket. Unpublished MSc. Nelson Mandela University, Port Elizabeth.

Historical management approaches have generally not been able to impose spatial and temporal limitations on elephant space use in Main Camp-Colchester sections, with minimal effects on elephant demography and spatial dynamics. Elephants use landscapes intensely and less variably than expected if resource limitations were imposed and despite more areas available to elephants. Weighted average density varied but tended to increase over time (Figure 2). The inability of management actions playing out their role at these scales has resulted in a population with high birth rates, low death rates and little need to use landscapes variably. Thus, impacts on other biodiversity components and values are not that variable across space and few areas have temporal or spatial respite from elephant utilization. This may lead to broad-scale environmental degradation[66].

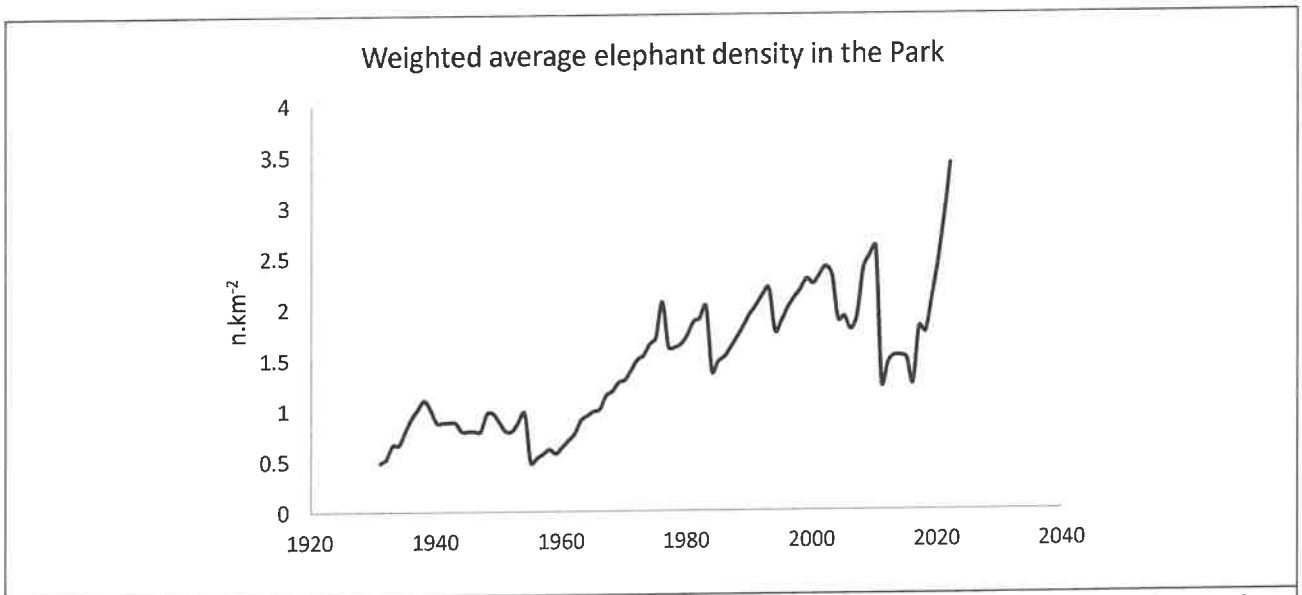

Figure 2. Weighted average density of elephants in Addo Elephant National Park illustrating considerable variation over time.

The above discussion strongly indicates that spatial variability is most desirable, and this can only be achieved through the restoration or mimicking of spatial limitations on population dynamics.

Method of elephant management plan revision

Stakeholder participation

SANParks interpret the Norms and Standards for Elephant Management as an outcome of extensive public participation in their development. Further, elephant management is embedded within the processes for developing, approving and implementing park management plans in terms of NEM:PAA. As such consultation with regards to the revision of Addo's elephant management plan focused on immediately affected stakeholders, mostly local people, tourism

[66] Guldemond, R.A.R., Louw, C.J., Mare, C., Norgaard, C. & van Aarde, R.J. 2022. Demographic responses of an insular elephant population to removal as a management intervention. *Conservation Science and Practice* e12741. https://doi.org/10.1111/csp2.12741

service providers and scientists with interests in Addo. Presentations at various meetings, conferences and forums were directed at informing key stakeholders.

In addition, the park engaged extensively with local people through two meetings as part of establishing a National Elephant Strategy for South Africa. This provided specific opportunities for principally affected stakeholders to provide input into the management of elephants in Addo (Annexure B).

Adaptive management

SANParks makes use of a Strategic Adaptive Management (SAM) approach[67], which explicitly acknowledges that complexity and uncertainty are inherent to the management of social-ecological systems. The central philosophy of SAM revolves around "learning by doing": management actions are based on best available knowledge, whilst fully acknowledging uncertainty, and by monitoring and reflecting on the outcomes of these actions, the actions and/or objectives may be adapted if needed, leading to the next cycle of learning and adapting.

SAM comprises of adaptive planning (co-creating a vision and objectives), adaptive implementation (management actions and monitoring programmes), and adaptive evaluation (feedback and learning from monitoring actions), all embedded within the context of adaptive governance (legislation, norms and standards, corporate policy, etc.). The AENP Elephant Management Plan is informed by the objectives and vision of the existing Park Management Plan (2015-2025), as well as a reflection on the implementation of the previous Elephant Management Plan. In the current document the management actions and monitoring programmes related to elephants are more explicitly developed based on these visions, objectives and past learning.

[67] Biggs, H.C. & Rogers, K.H. 2003. An adaptive system to link science, monitoring and management in practice. In: du Toit, J.T., Rogers, K.H. & Biggs, H.C. (eds). *The Kruger experience: Ecology and management of savanna heterogeneity.* Island Press, Washington, USA. pp 59-80.

3. Elephant Management Objectives for Addo

The effects of elephant impact in Addo are accentuated by three aspects, namely:

(i) absence of historical temporal and spatial limitations to elephant space use,
(ii) constraining features in the landscape that override natural temporal and spatial limitations operating at wider scales (*i.e.* additional water and fences), and
(iii) expectations based on developed tourist infrastructure.

Within SANParks' strategic approach to elephant management, this is addressed by management efforts to restore or mimic natural effects and limitations on elephant landscape use and population demography, acknowledging the need for trade-offs. However, elephant life-histories result in spatial and temporal lag responses. In addition, legislative, budget and/or logistical constraints may also reduce options or impose constraints. Concerns around local impacts may thus necessitate re-active actions such as elephant exclusion, local elephant removal and/or contraception. The elephant management objectives (Table 1) for Addo attempt to accommodate these realities.

Table 1. Elephant management objectives for Addo Elephant National Park.

Objective 1
To manage elephants' ecological role across the landscape by inducing spatial and temporal variation in space use by mimicking historical limitations, while ensuring the integrity of the population.
Objective 2
To, where necessary, manage the localized influences of elephants, primarily due to restricted area size and/or fencing, on a range of biodiversity and social conservation values, recognizing that this sometimes requires trade-offs.
Objective 3
To contribute toward provision of cultural ecosystem services and use, while providing equitable opportunities and benefits, including revenue generation through tourism.
Objective 4
To inform elephant management through monitoring and research

4. Management of wild elephants

A. General information and inventory

General

1.1 Names of owner and manager Owner: SANParks Park Manager: Nick de Goede	**1.2 Postal Address** Addo Elephant National Park PO Box 52 Addo 6105
1.3 Telephone and fax numbers +27 (0)42 233 8600	

Farm name

Addo Elephant National Park comprises 205 properties of various sizes clustered within eight sections (Darlington, Kabouga, Zuurberg, Nyathi, Main Camp, Colchester, Woody Cape, Marine Section-Islands (Annexure A). Of these, Darlington, Main Camp/Colchester, and Nyathi are fenced with predator proof fencing.

Extent of the property and areas with elephants

The terrestrial section of the park covers 178,918 ha and 114 000 ha are declared as Marine Protected Area. Elephants reside within four sections (Main Camp, Colchester, Nyathi, Darlington). A total of 88 190 ha is available to elephants with Main Camp and Colchester connected and collectively fenced, while Nyathi and Darlington are isolated areas, each fenced on their own. The Kabouga Section provides future options for expansion of areas available to elephants.

Land uses and activities on neighbouring properties

The various components of Addo do not function ecologically, economically, and socially in isolation from the region. The Park is surrounded by numerous land uses, dominated by agricultural and game farming enterprises. In recent times, there has been a shift towards wildlife-based ecotourism, with numerous bed and breakfast operations and game farms. In general, the immediate land use adjacent to the park is compatible with conservation and there is a broad range of existing tourism infrastructure.

Compilers

Name	Contact Details	Qualifications	Experience
Charlene Bissett	Tel: 0422338604 Email: Charlene.Bissett@sanparks.org	PhD	Elephants: 8 years Conservation: 19 years
Sam Ferreira	Tel: 0137354235 Email: Sam.Ferreira@sanparks.org	PhD	Elephants: 25 years Conservation: 30 years
Stefanie Freitag-Ronaldson	Tel: 0829082678 Email Stef.Freitag@sanparks.org	PhD	Elephants: 26 years Conservation: 27 years
Izak Smit	Tel: Email: izak.smit@sanparks.org	PhD	Elephants: 16 years Conservation: 18 years
Nick de Goede	Tel: 0422338605 Email: nick.degoede@sanparks.org	NDip-NC	Elephants: 17 years Conservation: 31 years
Evans Mkansi	Tel:0488015718 Email: Evans.Mkansi@sanparks.org	B-Tech	Elephants: 22 years Conservation: 23 years
Ilse Welgemoed	Tel: Email: ilse.welgemoed@sanparks.org	Ndip-NC	Elephants: 21 years Conservation: 21years
David Zimmermann	Tel: Email: david.zimmerman@sanparks.org	BVSc	Elephants: 24 years Conservation: 23 years
Andre Riley	Tel: Email: andre.riley@sanparks.org	NDip – NC BA	Elephants: 26 years Conservation: 27 years
Hugo Bezuidenhout	Tel: 0538321900 Email: hugo.bezuidenhout@sanparks.org	PhD	Elephants: 30 years Conservation: 40 years

Proximity to settlements, rural communities, and tribal land

Settlements and rural communities border the Park linked to the combined Main Camp/Colchester Section as well as the Zuurberg and Kabouga Sections.

Potential for enlarging the Park

The park has substantial potential to expand as well as consolidate various sections that will allow an increase in the size of areas available to elephants. The SANParks Vision 2040[68] strives to create a "Mega Addo" comprising one million hectares in extent. A key aspiration is to connect Addo to Mountain Zebra National Park.

Other properties that are on the list for expansion for the next three years are the Turner Properties (6000ha) bordering the Main Camp/Colchester Section and the van der Merwe property (100ha) which borders the Zuurberg section of Addo.

Specifications of the perimeter fence

Perimeter fencing varies between Sections. The Main Camp Section has the Armstrong fence consisting of railway tracks every 10 meters with 6 cables suspended. This fence was primarily built to keep in elephants and was adapted to keep in predators, by adding netting as well as electric strands. The total fencing of the Main Camp Section comprises 48 km of boundary.

The Nyathi (60 km), Colchester (52 km) and Darlington (111 km) sections have a standard 2.4 m predator proof fence, consisting of 6 electric strands, netting and droppers every 1 m to delineate the boundaries. The Kabouga section (105 km) is in the process of being upgraded to

[68]

a standard 2.4 m predator proof electrified fence to allow for the relocation of elephants into this section. Furthermore, the Darlington boundary fence will increase in the next 6 months due to the consolidation with the Kabouga section.

The fence standards exceed that specified by the Norms and Standards.

Financial plan and ability to manage elephants

SANParks follow an annual budget planning process and allocated funding for the management of national parks. Elephant management embeds within the implementation of the Addo Elephant National Park Management Plan[69]. Financing the implementation of this elephant management plan are thus provided through the SANParks annual budgeting process.

B. Ecological characteristics

Climate and hydrology

This section of the Eastern Cape is situated on the tension zone between summer, winter and all-year round rainfall. The maritime and continental climates and the altitudinal variation results in a variable type of climate[70]. The park straddles the summer rainfall area lying predominantly to the north of the Zuurberg range, and the all-year rainfall areas to the south of the mountain range. The park's climate is best described as warm temperate. One of the major correlates of Thicket vegetation area is the absence of a pronounced seasonal pattern. During drought periods, fogs may be a source of moisture[71], as is evidenced by a high incidence of bark and ground lichens. Mean annual rainfall varies from 900 mm in the Alexandria forests, to 450 mm at the park's administrative office complex, to an excess of 600 mm on the Zuurberg Mountains, to 350 mm in the northern Karoo rain-shadow areas. Temperatures vary from 15°C to 45°C in January and 5°C to18°C in July.

Geology

This area is characterised by two distinct geomorphologic terrains (Annexure III, Map X). The park is home to a complex mixture of geology which in turn supports a wide variety of South African vegetation types. This area is underlain by the Kirkwood formation of the Uitenhage Group. Mudstones of the Kirkwood formation give rise to deep, fine-textured, sandy clay loams, solonetic soils[72], and well-drained soils of the Addo form[73]. Central to the park is the east-west orientated Zuurberg mountain range, part of the Cape fold belt which consists predominantly of quartzite and sandstone sediments. Immediately to the south, high ancient wave-cut platforms are made up of a mixture of conglomerates, tillites, mudstones and sandstones, while further south-eastwards towards the coast lie extensive areas of limestone. To the north of the mountain range a similar geological assortment exists, except that it consists mainly of mudstone and sandstone, and no limestone deposits. Soils closely follow the geology with infertile soils arising

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[69]
[70] Aucamp, A.J. & Tainton, N.M. 1984. Veld Management in the Valley Bushveld of the Eastern Cape. *Unpublished Bulletin 401. Department of Agriculture, Dohne Research Station, Stutterheim,* South Africa.
[71] Vlok J. H. J., Euston-Brown, D. I. W. and Cowling, R. M. 2003. Acocks' Valley Bushveld 50 years on: new perspectives on the delimitation, characterisation and origin of thicket vegetation. *South African Journal of Botany* 69: 27-51.
[72] Low, A. B. and Rebelo, A. G. 1996. *Vegetation of South Africa, Lesotho and Swaziland*. Department of Environmental Affairs and Tourism, Pretoria.
[73] Macvicar, C. N. 1991. Soil classification: A taxonomic system for South Africa. *Memoirs of the Agricultural Natural Resources of South Africa*, 15. Department of Agricultural Development, Pretoria, South Africa.

from the Cape fold mountain quartzites and sandstones, and nutrient richer soils from the other sedimentary deposits to the south and north of the mountain range. Some soils in the Addo area are particularly deep, and include fine textured sandy clay loams, solonetic and well drained soils.

Soils

The Eastern Cape has a total of 13 major soil types, with seven of them alone represented within a 100 km radius of the city of Gqeberha. These abrupt changes in soil composition interact with water availability and the diverse climates to produce a range of habitats conducive to supporting a wide diversity of plants and animals. See also 2.2.

Vegetation

The present park represents five of South Africa's seven biomes, namely the Nama Karoo, Fynbos, Forest, Thicket, Grassland and the azonal Wetland (only lacking the Succulent Karoo and Savanna) (Annexure III, Map 8). This makes it the most diverse park in South Africa and Africa. A total of 43 vegetation units have been identified, some of these being Afro-montane Forest, Coastal Forest, Eastern Mixed Nama Karoo, Central Lower Nama Karoo, Mountain Fynbos, Grassy Fynbos, Valley Thicket, Mesic Succulent Thicket, Spekboom Succulent Thicket, Xeric Succulent Thicket and Coastal Grasslands[74]. Expansion plans for the park will increase this number of nationally recognised vegetation types to 13, more than any other conservation area in the country.

In the park 10 landscape units could be identified, classified, described and mapped. Broad vegetation map and descriptions[75] that are used with land type map of the study area assist with the following description. These include: (1) Alexandria dune veld; (2) Alexandria forest; (3) Addo valley lowland; (4) Addo undulating midslope; (5) Addo valley bottomland; (6) Zuurberg rolling hills; (7) Zuurberg rocky mountain; (8) Zuurberg undulating hills; (9) Darlington undulating footslope; and (10) Darlington valley bottomland.

Landscapes vary from the short succulent Noorsveld type (characterised by the short sweet noorsdoring, *Euphorbia coerulescens*), karroid vegetation of the Central Lower Nama Karoo vegetation type, and Spekboom Succulent Thicket on the warm northern slopes near Darlington Dam. None of the Noorsveld was conserved prior to its incorporation into the park. The Zuurberg Mountains consist predominantly of Mountain and Grassy Fynbos on the higher lying leached nutrient-poor sandstone-derived soils. The southern side of the mountain range has relatively nutrient-rich alluvium- and aeoliante-type soils with its characteristic Xeric and Mesic Succulent Thicket. Along the moist coast, unique mixes of Afro-montane and coastal forests interspersed with coastal grasslands occur.

The variation in altitude, topography, climate, geology and soil composition over a relatively short range within the park accounts for the diverse floristic change. The vegetation varies from typical

[74] Vlok J. H. J., Euston-Brown, D. I. W. and Cowling, R. M. 2003. Acocks' Valley Bushveld 50 years on: new perspectives on the delimitation, characterisation and origin of thicket vegetation. *South African Journal of Botany* 69: 27-51

[75] Mucina, L. and Rutherford, M. C. (eds.) 2006. *The vegetation of South Africa;* World Bank *(eds. L. Kruger and C. Sykes).* 2004. Brief description of land classes.

thicket species such as spekboom *Portulcaria afra,* white milkwood *Sideroxylon inerme*, and cape plumbago *Plumbago auriculata*, to forest species such as broad-leaved yellowwood *Podocarpus latifolius,* through to typical Fynbos species on the mountainous areas to the characteristic *Pentzia* spp shrub land and Noorsveld *Euphorbia* spp. communities in the Karoo section.

Game species and numbers

Several species of game reside within Addo (Table 1). Note that species trends vary across species as well as across the different sections of the Park. In this context, elephants are thus part of a suite of herbivores and thus contributing to the dynamics of the Addo ecosystem collectively. Within this context, systems approaches are key and provide reflection on the "*Preferred management density of elephants*"[76].

The elephant population has grown beyond the previously recommended density of two elephants per km^2 [77]. The greater Addo Elephant National Park project focused primarily on increasing the Park's biodiversity, expanding the habitat available for elephants. However, the presence of major roads and operational railway lines, together with certain key pieces of land that SANParks has yet been unable to procure, means that the different sections of the Park are still in separate, fenced-off units. The elephants are thus unable to traverse the entire Park, and are currently restricted to the Addo Main Camp, Colchester, Nyathi, and Darlington sections. As a result, other forms of elephant management have been introduced, as set out in the Park's previous elephant management plan[78]. This includes the creation of a gradient in surface water availability across Addo Main Camp and Colchester that mimics historical access to the Sundays River, as well as contraception of adult elephant cows in all sections of the Park. SANParks thus anticipate variable elephant density over time and between sections of the Park.

Sensitive habitats and species

The park currently supports the largest population of the critically endangered south-western ecotype of black rhinoceros *Diceros bicornis bicornis*. The park also supports small populations of the vulnerable Cape mountain zebra *Equus zebra zebra*, within the Zuurberg and Darlington sections. A number of other red data species, including large raptors such as the vulnerable martial eagle *Polemaetus bellicosus* and near threatened crowned eagle *Stephanoaetus coronatus*, 13 species of endemic herpetofauna, five species of land tortoises, and 14 species of frogs. Addo is home to five cycad species namely the endangered Alexandria cycad *Encephalartos arenarius*, the endangered Eastern Cape Blue cycad *Encephalartos horridus*, the near threatened Grahamstown cycad *Encephalartos caffer*, the near threatened Karoo cycad *Encephalartos lehmannii* and the near threatened Zuurberg cycad *Encephalartos longifolius*.

[76] Preferred management density of elephants
[77] Kerley, G. I. H. and Boshoff, A. 1997. A proposal for a Greater Addo National Park. A regional and national conservation and development opportunity. *Terrestrial Ecology Research Unit Report 17*. University of Port Elizabeth, South Africa.
[78] SANParks 2012. Addo Elephant National Park, Elephant Management Plan. SANParks, Skukuza.

Table 1. Estimates for animal abundances in Parks in Addo Elephant National Park. Provided are the year of the last survey, 95% Confidence interval ranges where available and indicate the method, 5-year trend and year of the last estimate. (-) species does not occur in the park, nc – not counted. Methods: t – total counts, r – registration studies, g – guestimate usually from ranger experience. Trends: u – unknown, i – increase, d – decrease, 0 – non-directional. Round values for those larger than 10 to the nearest 5, and larger than 50 to the nearest 10.

	Addo Main/Colchester	Addo Darlington	Addo Nyathi	Addo Zuurberg
Species	Number	Number	Number	Number
Black rhinoceros	78 r,i,2023	113 r,i,2023	70 r,i,2023	-
Black wildebeest	-	19 t,d,2022	-	-
Brown hyaena	1 t,u,2022	0 t,u,2022	nc	-
Buffalo	210 t,0,2022	47 t,u,2022	87 t,d,202	-
Plains zebra	567 t,0,2022	-	305 t,d,2022	-
Eland	26 t,d,2022	94 t,d,2022	130 t,d,2022	25 t,u,2008
Elephant	577 t,i,2022	27 t,0,2022	139 t,0,2022	-
Gemsbok	-	134 t,0,2022	-	-
Greater kudu	555 t,u,2022	611 t,u,2022	277 t,u,2022	nc
Impala	-	16 t,d,2022	5 t,u,2022	-
Leopard	nc	nc	nc	nc
Lion	5 r,0,2023	-	3 r,0,2023	-
Mountain reedbuck	-	11 t,u,2022	0 t,u,2022	20 t,u,2008
Cape mountain Zebra	-	139 t,u,2022	-	25 t,u,2008
Ostrich	13 t,d,2022	684 t,i,2022	20 t,d,2022	-
Red Hartebeest	588 t,i,2022	79 t,d,2022	33 t,0,2022	70 t,u,2008
Spotted hyaena	40 g,u,2022	-	-	-
Springbok	-	1628 t,i,2022	0 t,0,2022	-
Warthog	351 t,u,2022	239 t,d,2022	282 t,d,2022	-

Table 1. Continued. The focus is on species observed incidentally during aerial surveys.

Species	Addo - Main Number	Addo – Darlington Number	Addo - Nyathi Number	Addo – Zuurberg Number
Aardwolf	nc	nc	nc	nc
Chacma Baboon Troop	4 t,u,2022	36 t,u,2022	10 t,u,2022	nc
Bat-eared fox	nc	nc	nc	nc
Bushbuck	52 t,u,2022	0 t,u,2022	26 t,u,2022	-
Bushpig	7 t,u,2022	4 t,u,2022	-	-
Common duiker	25 t,u,2022	21 t,u,2022	23 t,u,2022	0
Black-backed jackal	22 t,u,2022	48 t,u,2022	12 t,u,2022	nc
Klipspringer	-	-	-	-
Porcupine	1 t,u,2022	2 t,u,2022	0 t,u,2022	nc
Steenbok	0 t,u,2022	20 t,u,2022	-	-

Disturbed or degraded areas

The parks expansion programme into the agricultural areas has seen the inclusion of large tracts of transformed landscapes (ranging from lightly grazed to heavily cultivated citrus lands) and unwanted structures. Many of these degraded areas have seen the invasion of alien plants such as *Acacia cyclops*, *A. mearnsii* in the coastal and mountain sections, *Opuntia* spp in the Thicket and Karoo vegetation types, and *Tamarix* spp along the Sundays River system, particularly in the Darlington Dam area. In addition, areas like Darlington have been exposed to extensive sheet and donga type erosion.

Water bodies and distribution thereof

Water availability varies in the different sections of Addo which have elephants, with the Main Camp/Colchester having very few natural water bodies other than seasonal pans, however there are 16 artificial water points and one natural spring. The Nyathi section has the Coerney and Krom rivers which are seasonal as well as a number of natural springs, seasonal pans and 3 artificial water points. The Darlington section as the large Darlington Dam which is fed by the Orange-Fish water skeem, as well as 4 artificial water points and a number of natural springs.

In addition to rivers and artificial water points, Addo contains a relatively high diversity of wetland ecosystem types. Wetlands are transitional between terrestrial and aquatic systems and characterised by permanently or periodically saturated soils and hydrophytic vegetation. South Africa's National Biodiversity Assessment of 2018 found that wetlands are one of the most threatened ecosystem types in South Africa, as is the case globally.

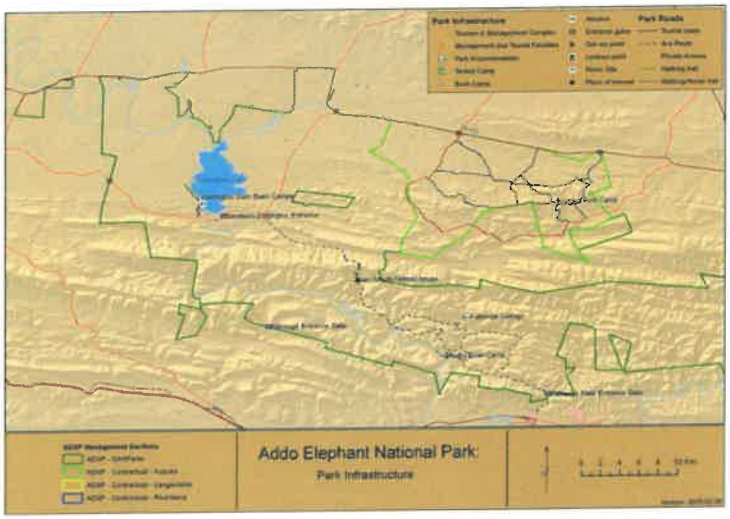
A separate project is currently under way to systematically survey, classify and map the wetlands of Addo. Preliminary results from this project indicate that the most notable types of wetlands occurring in all of Addo's sections are seeps, springs and depressions. Depressions can be sub classified into those that are fed by groundwater and those that mainly receive water from surface runoff.

Based on observation made during field surveys for the above project, it is clear that elephants have the potential to significantly modify wetland ecosystems. As an example, after introduction of elephants to the Nyathi Section, a once shaded spring with clear water and surrounded by lush vegetation was modified into a turbid pool with bare surrounding soil and no canopy cover. This highlights the importance of monitoring wetlands in sections where elephants are still to be introduced, and potentially protect some wetlands as reference sites.

Maps

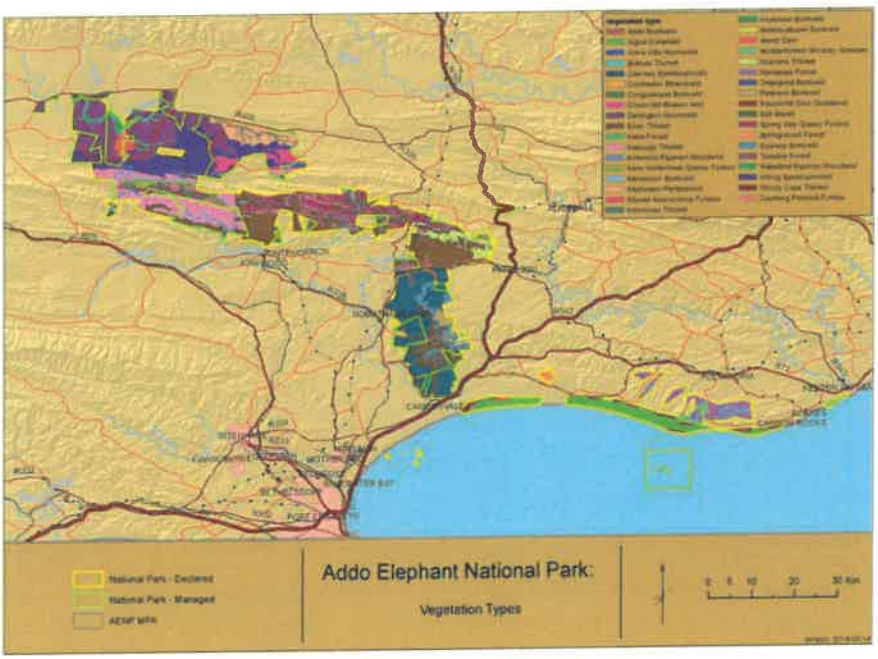
(a) Location

(b) Topography[79]



[79] Topographic map of property (boundary of farm(s) and camp(s), roads, water points, infrastructure, etc.)

(c) Vegetation communities.



C. Management goals and objectives

The Park envisages *a resilient*[80] *Addo elephant population embedded in South Africa's meta-population, enhancing biodiversity, improving equitable*[81] *socio-economic benefits, whilst inspiring and connecting diverse cultures*. Achieving four objectives can help realize this vision and focus on (1) managing the ecological role of elephants; (2) managing the localized influence of elephants on biodiversity and social values; (3) sustainable use of all values; and (4) inform through research and monitoring. See Section 3 for details.

Habitat

Veld condition[82]

Veld condition monitoring in Addo makes use of various methods to identify grazing and browsing capacity within the various sections of Addo. Each section of Addo has different plant communities and wildlife. Therefore, veld (vegetation) condition assessment monitoring is adapted according to the suit of animals and different plant communities located in each section. Apart from climate, the habitat (vegetation, soil and geology) and the size (hectare) of the management units (consists of one or more plant communities) are the most important factors when considering the vegetation monitoring of a park. Each plant community has two important features, namely plant species composition and vegetation structure. For grazing capacity, a wheel point method or step point method adapted from the wheel point method are used for herbaceous layer data collection, whereas either a quadrant or belt transect method is used to monitoring the woody species (density and biomass) data collection to determine browsing capacity. Constraints such as time of year, human capacity and budget play a role in the frequency of monitoring. Wildlife populations are estimates and all monitoring follows the adaptive management approach and is adapted as changes occur.

Rehabilitation programme for degraded areas[83]

The purpose of this programme is to regain natural habitat composition, structure and function and thereby enhance ecosystem services and reduce the risk of natural disasters or human induced impacts by improving landscape stability and resilience. Degradation processes in the park can be ascribed to several environmental factors, past land use and current management practices. The parks expansion programme into the agricultural areas has seen the inclusion of large tracts of transformed (ranging from lightly grazed to heavily cultivated citrus orchards) landscapes and unwanted structures. In some of the old, cultivated areas (*i.e.,* Addo Main Camp, in Kleinvlak and grassland plains) passive rehabilitation is taking place. However, natural succession over the years has only climaxed to the herbaceous component with little or no recruitment of woody species representing the pre-disturbed plant communities. In areas affected by past or current herbivore management practices, removal of basal vegetation cover and associated soil capping are evident, leading to soil degradation such as sheet, rill and gully erosions (*i.e.*, Darlington area). Similar to old-cultivated lands, the natural ecological processes

[80] Resilient refers to ability to resist or recover from disturbance
[81] Equitable acknowledges that not all stakeholders are equal, and that stakeholders directly impacted and affected by elephants should have access to more benefits.
[82] Veld condition monitoring methods and time schedules.
[83] Extracted from the Addo Elephant National Park Management Plan

(*e.g.*, nutrient recycling, infiltration) have been lost or degraded and need be restored to speed-up the return of natural vegetation patterns and processes.

Other factors contributing to degradation of vegetation in the park include how herbivores (*i.e.*, warthog, elephants *etc.*) utilise different landscapes. Warthog have been observed to degrade most of the grassland habitats where basal cover is adversely affected leading to change in vegetation composition (*i.e.*, colonisation by annual species and weeds). Elephants are also great architects of vegetation structure and where they are, impacts are intensive (*i.e.*, Addo Main Camp), the bush clump structures are altered and directly affect the microclimate habitats. Some areas are also re-vegetated with Spekboom to speed-up vegetation recovery. The recovery in these areas differs according to intensity of use by herbivores and other tourism related activities defined by park zonation. The effected rehabilitation measures in degraded vegetation communities are mainly focusing on re-vegetation with the Spekboom plant. It is aimed at reinstating the lost functionality processes such as nutrient cycling (litter accumulation), soil chemistry, and infiltration. Monitoring in these areas includes landscape function analysis focusing on landscape stability, nutrient cycling and infiltration to detect changes in the rehabilitated areas[84]. Rehabilitation in areas affected by soil degradation include gully control methods such as re-sloping, silt fencing, brush packing and gabions constructions[85]. Where sheet erosion was identified as a major degradation concern, combination of soil ponding and brush packing is undertaken to break capped soils and facilitate sediments and seed capture. Water runoff is also accelerated by road infrastructure in areas of high tourism intensities. If rehabilitation does not receive attention, the park runs the risk of allowing further degradation which consequently has negative impacts on biodiversity. The risks involved include increased hectares of land invaded by alien species, erosion, loss of biodiversity and reduced forage to support game.

Fire management plan[86]

Fire only plays a role in the Zuurberg section of Addo Elephant NP and there are no elephants in this section, therefore this is not applicable to the elephant sections. Even so, the purpose of the Parks fire programme is to allow fire to function as naturally as possible in those systems adapted to it. According to the National Veld and Forest Fire Act, No 101 of 1998, SANParks is obliged to be a member of the local fire protection association (FPA) to gain full legal benefit thereof and stakeholder support. The only areas in the park that are fire prone are the plateaus of Zuurberg mountains, the coastal grasslands and degraded patches within the park which have been altered to "grasslands". The Zuurberg section largely comprises two types of fynbos, *i.e.*, Zuurberg quartzite fynbos and Zuurberg shale fynbos[87]. Fire is the most important disturbance agent in fynbos ecosystems, and is essential in maintaining biodiversity and natural

[84] Tongway, D. J. and Hindley, N. L. 2004. Landscape Function Analysis: Procedures for monitoring and assessing landscapes, with reference to mine sites and rangelands. *SCIRO*, Australia.
[85] Coetzee, K. 2005. *Caring for natural rangelands*. University of KwaZulu-Natal Press, Interpak Books, KwaZulu-Natal, South Africa.
[86] Extracted from the Addo Elephant National Park Management Plan
[87] Rebelo, A. G., Boucher, C., Helme, N., Mucina, L. and Rutherford, M. C. 2006. Fynbos biome. In: Mucina, L. and Rutherford, M.C. (Eds), *The vegetation of South Africa, Lesotho and Swaziland. Strelitzia*, Vol. 19, pp. 134-135, 152-153. South African National Biodiversity Institute, Pretoria.

ecological processes[88]. In grassy fynbos, too frequent burning typically results in the conversion of fynbos to grassland, whereas absence of fires results in the conversion of fynbos to thicket.

The 'Adaptive Interference Fire Management System'[89] is a suitable management option for the Zuurberg section. The system provides for the use of both natural and artificial sources of ignition. Although management intervention should be limited, the level of control required / exercised will be flexible in space and time. As required by an adaptive management approach, regular assessments would be conducted to decide on the most appropriate, proactive measures in anticipation of wildfires. The spatial control of fires is thus pragmatically determined according to local circumstances of veld age configuration, accessibility, hazard to property, fire protection measures already in place, etc. Interventions are made when fires threaten other systems (or infrastructure) or have burnt more than the desired area of the Zuurberg plateau.

Although, generally fire managers would like to exercise greater control over the occurrence of fires, it is commonly accepted that wild fires (of natural or human origin) dominate fynbos fire regimes, with prescribed fires having comparatively little effect[90]. It is furthermore financially unfeasible to conduct prescribed burning over vast areas in order to maintain young vegetation post-fire age classes. Fire management should rather focus on fuel reduction treatments in strategic locations (*i.e.*, along boundaries or where assets are at risk) to benefit fire suppression activities by providing safer areas for firefighting.

Water provision[91]

Resource availability is a key driver of herbivore space use, with surface water being a primary resource required by large herbivores. As such, the creation of a gradient of water availability is favoured to stimulate variable use of the landscape by different herbivore It is expected that water-dependent herbivores will concentrate their feeding closer to water, thereby localizing overutilisation, which may have its own inherent biodiversity value. By restricting water as a critical resource, water-dependent species' birth rates are also expected to decline, or at least approximate more natural landscapes where these processes are intact. However, too few water points would not be acceptable to tourists because of reduced game viewing opportunities and may also have adverse consequences for species of special concern (*e.g.*, black rhino), and for plains game required for predators. It will therefore be important to monitor the outcomes of the water gradient closely. The option of seasonally opening or closing certain artificial water points should also be considered.

Boreholes provide water in all elephant sections as well as seasonal pans, springs, and Darlington Dam in the Darlington section of the park, as well as the Sundays River in the Kabouga section.

[88] Van Wilgen, B. W., Bond, W.J. and Richardson, D. M. 1992. Ecosystem management. In: Cowling, R.M. (Ed.). *The ecology of fynbos. Nutrients, fire and diversity*. Oxford University Press, Cape Town. pp. 345-371.
[89] Seydack, A.H.W. 1992. Fire management options in fynbos mountain catchment areas. *South African Forestry Journal* 161: 53-58.
[90] Kraaij, T. and van Wilgen, B. W. 2014. Drivers, ecology and management of fire in fynbos. In: *Fynbos: ecology, evolution, and conservation of a megadiverse region*, Allsopp N, Colville J. F and Verboom G. A. (eds.), pp. 47-72. Oxford University Press, Oxford.
[91] Extracted from the Addo Elephant National Park Management Plan

Population management of other wildlife species

The management of other species embeds within three Programmes in the Addo Elephant National Park Management Plan[92]. The Carnivore Management Programme seeks to establish and maintain large mammal predator-prey relationships and associated processes. The restoration and maintenance of predation is a key objective for SANParks in achieving ecosystem objectives. The management of carnivores in the Park is guided by park-specific objectives primarily aiming at the conservation and promotion of the unique landscapes. Predation in the park is associated with two main issues – mesopredator-prey dynamics and predation by large carnivores (including their scavenging function).

The Herbivore Management Programme seeks to ensure sustainable herbivory that maintains / restores the park's terrestrial biomes and characteristic flora and fauna and focuses specifically on the process of herbivory carried out by the large herbivores present in the park. SANParks herbivore population management follows a flux paradigm that seeks to maintain heterogeneity across space and time, thereby favouring biodiversity and ecosystem resilience. Thus, allowing populations to evolve and develop as naturally as possible.

The Reintroduction Programme seeks to strive towards re-establishing viable populations of faunal species that have historically occurred in the park. This involves not only reintroducing species assemblages that are still missing, but also supplementing populations that may be on a downward trend. Restoration of species assemblages is not haphazard. Rather, the recovery of disturbed areas would typically entail certain species colonising earlier and more successfully than others if source areas are readily available. Recovery thus depends on whether sources are available, if species are able to get from the source to a degraded area, if suitable habitat is available once a degraded area has been reached, and if the resources at the reintroduction site are sufficient to establish a breeding population. Consequently, the reintroduction and management of large mammals follow these principles.

These reflections highlight that SANParks anticipate variable densities of species across time and between different sections and thus do not have set "preferred management density[93]" for a species.

D. Information pertaining to elephants

Purpose of introduced elephant

Addo Elephant National Park was proclaimed in 1931 to protect the remaining 11 elephants in that area. This followed a period in the early 1900s during which elephants were hunted and extirpated to reduce elephant damage to farming properties. The park was fenced, and elephants were allowed to increase with minimal management. Introductions supplemented populations thought to be genetically degraded.

92

93 Preferred management density

Preferred management density of elephants[94]

SANParks anticipate variable elephant density over time and between sections of the Park, and thus also expect variable total population size. The implementation of contraception in recent years across all sections predicts elephant population sizes below 1,000 individuals in total. In addition, integration with meta-population management across South Africa will result in fluctuating numbers.

Public consultation[95]

Three stakeholder meetings preceded the revision process and helped with informed revising of the management plan. These stakeholder meetings were part of the participation and consultation with two local communities (Nomathamsanqa, Enon-Bersheba) in the region surrounding Addo to assist with the development of a National Elephant Heritage Strategy (ANNEXURE B). A total of 146 stakeholders took part in the discussions.

Specifications for the release camp

As part of meta-population management envisioned for Addo contributing to the collective of small, fenced populations in South Africa, elephant movements take place using veld-to-veld approaches. These approaches do not require release camps.

Control of elephant population size[96]

Contraception of the Addo elephant populations was introduced to lengthen birth intervals and aid in reducing population growth. This began with the Nyathi population in 2013 with Main Camp/Colchester and Darlington sections in 2019 and is an ongoing intervention. Furthermore, a water availability gradient was established in 2016-2018, by erecting exclosures that selectively exclude elephants from certain waterholes across the Main Camp/Colchester section to reduce homogenous landscape use by elephants.

Sex and age ratios[97]

SANParks does not explicitly manipulate age and sex ratios. These indicators are outcomes of vital rates such as births, natural deaths, and movements in and out of the Park (effectively translocations into or from fenced sections). Given that contraception reduces birth rates, SANParks anticipate changes in age structures over time with higher proportions of adults.

Measures to prevent poaching

Addo has never lost an elephant due to poaching. Most of Addo's female elephants are tuskless, which is an added advantage. The park is in the process of setting up a fully functional Anti-Poaching Unit with a 24hr Fusion centre. This builds on the existing rhino protection initiatives

[94] Number of elephants kept or to be introduced, and preferred population size to be maintained.
[95] Public participation reports, where there is contractual agreements between the management authority of a protected area and a private land owner(s).
[96] Interventions to manage elephant population size and elephant impact, and a culling plan if the management intervention involves culling.
[97] If and how sex and age ratios will be manipulated.

of the Park. Furthermore, Addo works closely with SANParks Environment Crime Investigation Unit for any intelligence that might lead to poaching thus being proactive in preventing poaching.

Provision for adequate insurance

Addo is fully covered by Indwe Risk insurance.

Contingency plans[98]

SANParks adhere to the Policies and Standard Operating Procedures for Damage Causing Animals. Even so the following contingencies:

(a) elephant problems in the case of the fence being unable to contain the elephants, or in the case of an escaped elephant;
SANParks' Veterinary Wildlife Services provide all the veterinary requirements for interventions. Assessment is on a case by case basis, but does follow a generalized rule of translocating (through the means specified in the Norms and Standards) the elephant back to the Park. Elephants that leave the Park because of social pressure from other elephants will be targeted for removal and integration into the South African developing meta-population of small, fenced elephant populations and/or support for conservation initiatives elsewhere in Africa. If all options are exhausted, such elephants will be euthanized. Elephants that pose threats to human life or have developed a habit of leaving the Park and regularly cause damage will also be euthanized.

(b) elephant problems in the case of the alteration of the habitat beyond acceptable limits;
Similar to above, SANParks Veterinary Wildlife Services provide all the veterinary requirements. Removal of elephants to mitigate undesirable local influences on habitat will follow a similar decision tree as above. The first is integrating elephants into the South African developing meta-population of small, fenced elephant populations and/or support for conservation initiatives elsewhere in Africa. If all options are exhausted, such elephants will be culled following the approval of a culling plan.

(c) the fate of an elephant in the event of the death, insolvency or any other event that impairs the ability of the responsible person to care for the elephant;
SANParks is mandated to conserve elephants in National Parks. This is not applicable.

Feeding[99]

SANParks adopted a systems-based approach and do not feed elephants. The food gradients in Addo are sufficient for the needs of elephants.

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[98] Contingency plans to elephant problems in the case of the fence being unable to contain the elephants, or in the case of an escaped elephant.
(b) elephant problems in the case of the alteration of the habitat beyond acceptable limits; or
(c) the fate of an elephant in the event of the death, insolvency or any other event that impairs the ability of the responsible person to care for the elephant.
[99] Feeding scheme in case of a natural food supply shortfall

Threat analysis and security plan

The purpose of this programme is to provide a safe and secure environment for both staff and visitors to the park while at the same time will ensure that the integrity of the natural and cultural resources of the area is maintained in a sustainable manner. The park is the only national park that is home to the "Big 7" and very unique biodiversity. Any compromise with regards to safety would receive negative international coverage. The risks to visitors to the area remains low but at the same time the risk to our natural resources is real, due to the ever-growing pressures of society and organised crime syndicates on our natural heritage.

The urban communities near the park are increasing exponentially and pose an increasing threat to our resources. All staff must be familiar with standard operating procedures related to safety and security. Formal training of staff who deals with all forms of illegal activity in the park has been elevated and receives high priority. The Safety and Security Plan comprehensively addresses both the strategic and operational aspects of visitor safety and security. A detailed SWOT analysis of issues affecting safety and security in the park has been developed and the resulting strengths, weaknesses, opportunities, and threats have been converted into achievable objectives and are reviewed regularly. Proactive consideration including those listed are discussed in some detail: working hours, law and order, high risk areas, personnel, infrastructure, resources, equipment, staff training, reporting, data capture, record keeping, monitoring, information, and intelligence. In addition to this a number of reactive considerations including: immediate action drills, emergency procedures and evacuation plans have been developed.

The long-term population structure[100]

Contraception reduces birth rates and will result in age structures over time with higher proportions of adults.

E. Information after approval for introduction of elephants[101]

Details of the elephants

The complete translocation history of each individual:

(a) Origin of the elephants[102]

Addo's elephant population grew from a small population that historically occurred in the area.

(b) The age of elephants and selection of elephants to be translocated[103]

Not applicable to Addo.

[100] Identification of the long-term population structure in view of the management objectives of the population.
[101] Section C: Information to be provided after approval for the introduction of elephants, but before a permit may be issued
[102] (e.g., location, habitat, fencing and size of reserve/farm)
[103] (e.g., exposure to tourists, fences and boma).

Serial numbers of transponders (microchips) to be inserted where appropriate.

Not applicable to Addo.

The management of the capture, transport and keeping in boma[104]

Not applicable to Addo.

5. Elephants in the legal context

Natural resources in South Africa are conserved and managed within a comprehensive legal framework which is guided at a high level by the country's constitution. SANParks' elephant management plans are compiled in line with the relevant park management plans. Currently these are compiled as stand-alone documents as required by the Norms and Standards for the Management of Elephants.

A number of legislative instruments are of relevance to the preparation of elephant management plans, namely

National Norms and Standards for the Management of Elephants in South Africa (GN 251/GG 30833/ 29 February 2008)

Of direct relevance are the National Norms and Standards for the Management of Elephants in South Africa which were developed in terms of section 9 of the National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004) and came into effect on 1 May 2008. The Norms and Standards for the Management of Elephants in South Africa has been in review since 2018.

National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

Of relevance is Section 39 of NEMPAA which deals with the preparation of management plans for protected areas. It specifically provides that a management plan for a protected area should at least contain a coordinated policy framework, planning measures, controls and performance criteria, a program for its implementation and its costing, procedures for public participation, and the implementation of community-based natural resource management as well as a zoning of the area indicating what activities may take place in different sections of the protected area as set out in Section 41(2) of NEMPAA.

National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

NEMBA came into operation on 01 September 2004 and provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998 (Act No.107 of 1998; NEMA). In 2013, amendments to the NEMBA were gazetted (Section 57 of Act No. 10 of 2004 and Section 35 of 2009; NEMBA). Section 43 of NEMBA provides that any person, organisation or organ of state desiring to contribute to

[104] (including sedation) of elephants, as well as the name of the acting veterinary practitioner.

biodiversity management may submit to the Minister for his or her approval, a draft management plan for an indigenous species listed in section 56 of the NEMBA or an indigenous species not listed, but that warrant special conservation attention. The biodiversity management plan must be aimed at ensuring the long-term survival in nature of the species or ecosystem to which the plan relates, must indicate who will be responsible to implement this, and must be consistent with the NEMBA, all national environmental management principles, the national biodiversity framework, any applicable bioregional framework, any environmental implementation plans and management plans referred to in Chapter 3 of NEMA, any municipal integrated development plan, any other plans prepared in terms of national or provincial legislation that is affected and any relevant international agreement binding on the Republic of South Africa.

Threatened and Protected Species Regulations (GN 152/ GG 29657/ 23 February 2007)

The African elephant is listed as a Protected species in the list of Threatened or Protected Species (GN No R151/GG 29657/ 23 February 2007). In terms of section 56(1)(d) of NEMBA this means a species which is of such high conservation value or national importance that it requires national protection. The Threatened or Protected Species regulations (GN No R152/GG 29657/ 23 February 2007), restricts activities involving the African elephant and permits are required to carry out these activities.

Critically Endangered, Endangered, Vulnerable or Protected Species

Notwithstanding the provisions in section 45 of NEMBA, these requirements are also highly relevant to matters connected therewith in the publication of lists of critically endangered, endangered, vulnerable and protected species (GN 151/GG 29657/ 23 February 2007) to avoid the management of elephants in isolation of South Africa's biodiversity that warrants national protection.

6. Implementation in support of elephant management objectives

Management Actions

The elephant management objectives for Addo are not mutually exclusive and several objectives can be addressed by the same management action. Actions are grouped to address each of the four elephant management objectives and are associated with managing elephant impact, conflict and stakeholder relationships, and lag effects associated with response times. Links to the Addo Elephant National Park Management Plan and its specific lower-level plans are made explicit. Further, an indication is provided of how actions will be recorded or evaluated, as appropriate.

6.1 *Achieving Objective 1*

To manage elephants' ecological role across the landscape by inducing spatial and temporal variation in space use by mimicking historical limitations, while ensuring the integrity of the population.

Management actions aim to manage elephant space use and mimic mechanisms that mitigate ecological impacts of elephants:

No.	Strategic Action	Responsible Division/Unit*	Reporting / Evaluation	Addo Park Management Plan Reference
1.1	Where appropriate, consolidate and/or expand land and remove fences to expand elephant range [It is recognized that (i) this may include acquisition, contracts or agreements for land incorporation and (ii) decisions may explicitly exclude some areas of Addo from elephant to meet other objectives]	PM	Annual PMP implementation review	Park Consolidation Programme Herbivore Programme
1.2	Consider and if appropriate manage the influence of water points and dams on elephant movements [This may require trade-offs for other herbivore management and/or tourism objectives]	CM	Annual PMP implementation review	Freshwater Ecosystem Programme Herbivore Programme
1.3	Translocate elephants within sections of Addo and/or externally when feasible and desirable	PM,CM with support from VWS	Annual PMP implementation review	Herbivore Programme Reintroduction Programme

*PM-Park Manager; CM-Conservation Manager; VWS-Veterinary Wildlife Services; SS-Scientific Services

6.2 *Achieving Objective 2*

To, where necessary, manage the localized influences of elephants, primarily due to restricted area size and/or fencing, on a range of biodiversity and social conservation values, recognizing that this sometimes requires trade-offs.

Management actions under this objective aim to mitigate elephant influences on specific biodiversity and/or social values in Addo.

No.	Action	Responsible Division/Unit*	Reporting / Evaluation	Addo Management Plan Reference
2.1	Control elephant population growth through contraception, where appropriate [This currently relies on porcine zona pellucida (pZP) immunocontraceptive as the most viable safe contraceptive option for use in wild elephant populations]	CM with support from SS, VWS	Annual PMP implementation review	Herbivore Programme
2.2	Manipulate the intensity with which elephants use in particular areas of concern [This may be related to actions under 1.2 above, and/or may include additional opportunities or exclusion of elephant from some areas through exclosures, etc].	CM	Annual PMP implementation review	Herbivore Programme
2.3	Manage individual elephants if and when required, according to standard operating procedures	CM (with support from VWS where required)	Quarterly reports	

	[This relates to the possibility of problem, damaging causing and/or compromised (injured, diseased, welfare) animals]			

*PM-Park Manager; CM-Conservation Manager; VWS-Veterinary Wildlife Services; SS-Scientific Services

6.2.1 Damage causing animal control procedures

Elephants may leave the park and potentially threaten human life or cause damage to property, including crops. Furthermore, on occasion, they may pose threats to staff and/or tourists when entering rest camps or staff villages, or threaten people taking part in tourist activities such as game drives and walks.

In the event that damage causing elephants must be dealt with, this will be done by staff experienced and trained in dealing with dangerous game. Incidents will be appropriately reported as soon as they happen, to be followed up and investigated. Reports are completed for every incident and, where appropriate, affected parties are advised to report at nearest police stations for insurance claims.

In the eventuality that elephants exit the park, they will be captured and returned to the park. If the animal cannot be recovered due to logistical or other reasons, or, poses a threat to human life or property, management may have to revert to lethal removal.

6.2.2 Veterinary considerations and procedures

Veterinary considerations (including management of disease effects) and procedures, when handling elephants, are carried out according to the SANParks Standard Operating Procedures (SOP) for the Capture, Transportation and Maintenance in Holding Facilities of Wildlife (SANParks 2017a). The SOP is approved by the SANParks Animal Use and Care Committee (AUCC). The SOP guides the operations policy of Veterinary Wildlife Services and is aimed at ensuring that:

- safety of people involved in the capture, transport or holding of animals is not compromised at any time;
- operations are planned and techniques selected to ensure safety and welfare of the animals;
- the animal survives immobilization procedures with the minimum effect on its natural behaviour or other activities;
- minimum amount of restraint consistent with accomplishing the task is used;
- no capture, transport, holding or manipulation of any animals for the purposes of research (other than where these standard operating procedures are used) is undertaken without the support of SANParks AUCC.

6.2.3 Procedures for handling of ivory

Elephant tusks and ivory pieces found and collected during routine patrols and management activities throughout Addo are transported to Main Camp and handed in at the Senior Section

Rangers for safe storing, before being transferred to the High Value Store which is located in Kruger National Park for proper record and safe keeping as outlined in detail in the SANParks SOP for the Management and Safeguarding of Ivory and Rhino Horn (SANParks 2017b). Here ivory is marked with CITES numbers and reported annually to Department of Forestry, Fisheries and the Environment. Information regarding the handling of ivory is outlined in detail in the SANParks SOP for the Management and Safeguarding of Ivory and Rhino Horn in SANParks.

6.3 *Achieving Objective 3*

To contribute toward provision of cultural ecosystem services and use, while providing equitable opportunities and benefits, including revenue generation through tourism.

Management actions aim to contribute to the diversity of cultural values and ecosystem services, including tourism.

No.	Strategic Action	Responsible Division/Unit*	Reporting / Evaluation	Addo Management Plan Reference
3.1	Facilitate, where appropriate, sustainable resource use of elephant-related products	CM, SET	Quarterly reports	Resource Use Policy
3.2	Maintain and/or update interpretation, awareness and education efforts related to elephants in Addo	SET with support from CM, Tourism and SS		Environmental Education Programme

*PM-Park Manager; CM-Conservation Manager; VWS-Veterinary Wildlife Services; SS-Scientific Services; SET-Socio-Economic Transformation Department, BDU- Business Development Unit

Where appropriate, SANParks will explore opportunities for beneficiation and/or diversification of tourism related around elephants in line with the park management plan opportunities for Addo.

6.4 *Achieving Objective 4*

To inform elephant management through monitoring and research

The Strategic Adaptive Management approach adopted by SANParks requires evaluation or assessment of actions in order to learn and adapt. In addition, several actions require basic information (such as census data) and/or would benefit from knowledge gaps to be addressed through research.

No.	Strategic Action	Responsible Division/Unit*	Reporting / Evaluation	Addo Management Plan Reference
4.1	Determine elephant population status and trends [this may include population estimates, trends, demographics and/or issues related to disease or welfare]	SS, supported by CM, VWS	Census reports; quarterly reports	Herbivore Programme Disease Management Programme
4.2	Monitoring the impacts of elephant on other components of the park's biodiversity *e.g.*, vegetation	SS, supported by CM & external researchers	Reports; Publications; science-management	Herbivore Programme

			meeting minutes	
4.3	Facilitate relevant research interest to address knowledge gaps	SS	Research projects registered; science-management discussions and/or meetings	Research Strategy

*PM-Park Manager; CM-Conservation Manager; VWS-Veterinary Wildlife Services; SS-Scientific Services

SANParks' 2020 Research Strategy (SANParks, 2020) provides principles to guide research across the organization. Addressing elephant-related research needs in Addo, as elsewhere in SANParks, will strongly rely on leveraging and collaborating with external research capacity. Specific ecological information needs in Addo with regards to elephant management requires evaluation of elephant population dynamics over time (aerial counts {Whyte et al., 2003} and demographic profiling {Ferreira & van Aarde, 2008}) and spatial dynamics (distribution and focal collared elephants). In addition, vegetation and/or other biodiversity responses using appropriate techniques requires assessment.

7. Reporting and reflection

In order for coherent and integrated evaluation of implementation and learning, an annual reflective report will be compiled for Addo. This will reflect on all the relevant elephant management actions undertaken and/or reasons for not undertaking certain actions. The report is anticipated to be compiled through a reflective science-management forum / engagement.

8. Management plan review

The Norms and Standards for Elephant Management in South Africa published by the Minister of Fisheries, Forestry and the Environment require an Elephant Management Plan for each Park to be prepared by an elephant ecologist. This Elephant Management Plan has been developed as a collaborative effort inclusive of reflections on the lessons learnt from the previous Addo plan. The Norms and Standards are currently still under review (October 2022). Once gazetted, SANParks will ensure alignment of this elephant management plan with any changed prescripts. Furthermore, the elephant management plan will be reviewed in conjunction with the revision of the Addo Elephant National Park management plan.

ANNEXURE A: DECLARATIONS

Government Notice 243 / Government Gazette 1963 of 3 July 1931 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act No. 56 of 1926)

1. "Mentone", formerly Forest Reserve, Division of Alexandria, in extent 934 morgen 330.75 square roods. [Farm Mentone 150, Division of Alexandria, in extent (GIS) 803.27 hectares];
2. "Strathmore", formerly Forest Reserve, Division of Alexandria, in extent 2,064 morgen 403.06 square roods. [Farm Strathmore 149, Division of Alexandria, in extent (GIS) 1777.19 hectares];
3. "Hathi", portion of the farm Kenmure, Division of Alexandria, in extent 500 morgen 2 square roods. [Portion Hathi 1 of Farm Kenmure 154, Division of Alexandria, in extent 428.2689 hectares, held under title deed T639/1926];
4. "Indlovu North", portion of the Vellore Outspan, Division of Alexandria, in extent 166 morgen 216 square roods. [Farm Indlovu North 151, Division of Alexandria, in extent (GIS) 133.63 hectares];
5. "Indlovu", portion of the farm Brackendale, Division of Uitenhage, in extent 600 morgen. [Portion Indlovu 2 of Farm Brackendale 112, Division of Uitenhage, in extent 513.9192 hectares, held under title deed T10987/1925];
6. "Krompoort", a further portion of the farm Brackendale, Division of Uitenhage, in extent 100 morgen. [Portion Krompoort 3 of Farm Brackendale 112, Division of Uitenhage, in extent 85.6532 hectares, held under title deed T10987/1925 and T56726/2008];
7. "Brand Laagte", portion of the farm Commando Kraal Estate, Division of Uitenahge, in extent 902 morgen 481 square roods. [Portion Brand Laagte 255 of Farm The Commando Kraal Estate 113, Division of Uitenhage, in extent 773.2786 hectares, held under title deed T52125/1981].

Government Notice 134 / Government Gazette 2287 of 12 July 1935 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act No. 56 of 1926)

1. Portion Addo Reserve 2 a portion of Farm Kenmure 154, Division of Alexandria, in extent 428.2643 hectares, held under title deed T1937/1936 & T97910/2001;
2. Remainder of the Farm Commando Kraal Estate 113, Division of Uitenhage, in extent 1468.3119 hectares, held under title deed T8614/1977;
3. Portion Liwandi 252 of the Farm Commando Kraal Estate 113, Division of Uitenhage, in extent (GIS) 21.38 hectares, SG Diagram 5216/1920.

Government Notice 14 / Government Gazette of 12 July 1965 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act No. 42 of 1962)

1. Remainder of the farm Kenmure 154, Division of Alexandria, in extent 449.8771 hectares, held under title deed T9757/1966 & T97910/2001.

Government Notice 266 / Government Gazette 4911 of 28 February 1975 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 42 of 1962)

1. A certain piece of quitrent land, being the remainder of the land known as Kenmure, in the division of Alexandria, in extent of 449.8771 hectares, held under title deed T9757/1996;
2. Portion 251 (a portion of Portion 199) of the farm Commando Kraal Estate 113, in the division of Uitenhage, in extent of 48.3385 hectares, held under title deed T19007/1968;
3. Lot 1, Block G, a portion of the farm Commando Kraal Estate 113, in the division of Uitenhage, in extent of 4.2641 hectares, held under title deed T1856/1965;

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4. Portion 296 (a portion of Lot 2, Block G) of the farm Commando Kraal Estate 113, in the division of Uitenhage, in extent of 42.9902 hectares, held under title deed & T3427/1966.

Government Notice 262 / Government Gazette 7973 of 31 December 1981 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Portion 2 of the farm Marion Bareë 120, in the division of Uitenhage, in extent of 860.5763 hectares, described in SG diagram 5653/1951.

Government Notice 1766 / Government Gazette 15125 of 24 September 1993 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Portion 268 (a portion of Portion 204) of the farm Commando Kraal Estate 113, in the division of Uitenhage, in extent of 33.7317 hectares;
2. Remainder of Portion 2 of the farm 91, situated in the division of Alexandria, in extent of 44.3755 hectares;
3. The farm 158, situated in the division of Alexandria, in extent of 850.2222 hectares.

Government Notice 37 / Government Gazette 15420 of 14 January 1994 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Portion 1 of the farm Duncairn 109, situated in the division of Alexandria, in extent 555.5381 hectare, described in SG diagram A117/1925;
2. Portion 5 (a portion of Portion 3) of farm 91, situated in the division of Alexandria, in extent of 87.3674 hectares, described in SG diagram 1544/1895;
3. Remainder of portion 6 of the farm 91, situated in the division of Alexandria, in extent of 226.4818 hectares, described in SG diagram 7728/1903;
4. Remainder of the farm Mimosa 89, situated in the division of Alexandria, in extent of 506.9986 hectares, described in SG diagram A737/1924;
5. Remainder of the farm Thornleigh 85, situated in the division of Alexandria, in extent of 169.4341 hectares, described in SG diagram B563/1886;
6. The farm Unamore 88, situated in the division of Alexandria, in extent of 495.5095 hectares.

Government Notice 1227 / Government Gazette 15854 of 15 Julie 1994 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Portion 1 of the farm Good Hope 38, situated in the division of Uitenhage, in extent of 565.8193 hectares, described in SG diagram 1149/1912;
2. Portion 4 (a portion of Portion 2) of the farm Doorn Nek 73, situated in the division of Alexandria, in extent of 685.2215 hectares, described in SG diagram 5976/1947;
3. Portion 6 of the farm Woodlands 45, situated in the division of Uitenhage, in extent of 1, 204.5562 hectares.

Government Notice 1228 / Government Gazette 15854 of 15 Julie 1994 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Portion 14 (a portion of Portion 8) of the farm 91, situated in the division of Alexandria, in extent of 342.6128 hectares, described in SG diagram A161/1923;
2. Remaining extent of Portion 12 (a portion of Portion 8) of the farm 91, situated in the division of Alexandria, in extent of 208.3400 hectares, described in SG diagram 2629/1921;
3. Remaining extent of Portion 13 (a portion of Portion 8) of the farm 91, situated in the division of Alexandria, in extent of 195.6219 hectares, described in SG diagram A160/1923;

4. Remaining extent of Portion 21 (a portion of Portion 8) of farm 91, situated in the division of Alexandria, in extent of 271.9211 hectares, described in SG diagram 2164/1936;
5. Remaining extent of Portion 22 (a portion of Portion 8) of farm 91, situated in the division of Alexandria, in extent of 271.9194 hectares, described in SG diagram 2165/1936.

Government Notice 1582 / Government Gazette 16755 of 13 October 1995 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Portion 4 of the farm Break Neck 24, situated in the division of Uitenhage, in extent of 2, 183.9243 hectares, described in SG diagram 5357/1972;

2. The farm Kabougas Poort 26, situated in the division of Uitenhage, in extent of 457.1883 hectares, described in SG diagram B825/1927;
3. Portion 7 (a portion of Portion 1) of the farm Woodlands 45, situated in the division of Uitenhage, in extent of 977.8743 hectares, described in SG diagram 12356/1965;
4. The farm Rockleigh 27, situated in the division of Uitenhage, in extent of 1, 865.4994 hectares, described in SG diagram 535/1886;
5. The farm Coldstream 28, situated in the division of Uitenhage, in extent of 1, 814.9369 hectares, described in SG diagram 536/1886;
6. The farm Glencoe 29, situated in the division of Uitenhage, in extent of 2, 168.1451 hectares, described in SG diagram 537/1886;
7. The farm Ravensworth 30, situated in the division of Uitenhage, in extent of 1, 518.0751 hectares, described in SG diagram 538/1886;
8. The farm Glenorgal 31, situated in the division of Uitenhage, in extent of 1, 933.2502 hectares, described in SG diagram 539/1886;
9. The farm Lulworth 32, situated in the division of Uitenhage, in extent of 863.6192 hectares, described in SG diagram 540/1886;
10. The farm Durlstone 33, situated in the division of Uitenhage, in extent of 935.2274 hectares, described in SG diagram 541/1886;
11. The farm Clifton 34, situated in the division of Uitenhage, in extent of 1, 542.9343 hectares, described in SG diagram 542/1886;
12. An unsurveyed, unregistered portion of State land situated in the division of Uitenhage, bounded within the former Sundays River State Forest, which previously formed an integral part of the Zuurberg State Forest (Farm 35), in extent of 822.2708 hectares;
13. The farm 74, (formerly Lot 16), situated in the division of Alexandria, in extent of 1, 939.6938 hectares, described in SG diagram 3402/1876;
14. The farm Ferniebrae 71, situated in the division of Alexandria, in extent of 656.9178 hectares, described in SG diagram 6693/1974;
15. The farm 72, situated in the division of Alexandria, in extent of 277.5974 hectares, described in SG diagram 6694/1974;
16. The farm Heatherbrae 69, situated in the division of Alexandria, in extent of 820.2674 hectares, described in SG diagram 562/1886.

Government Notice 1138 / Government Gazette 17314 of 12 Julie 1996 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. The farm Buffelskuil 84, situated in the division of Alexandria, in extent of 656.9178 hectares, described in SG diagram 394/1829;
2. Portion 1 of the farm Coerney 83, situated in the division of Alexandria, in extent of 306.5289 hectares, described in SG diagram 1349/1906;
3. Remainder of the farm Coerney 83, situated in the division of Alexandria, in extent of 417.7921 hectares, described in SG diagram 73/1905;
4. The farm Buffelskop, a portion of the farm Buffelskuil, situated in the division of Alexandria, in extent of 217.5591 hectares, described in SG diagram 377/1909;

5. Portion 7 of the farm Coerney 83, situated in the division of Alexandria, in extent of 296.3601 hectares, described in SG diagram 2883/1949;
6. Portion 2 of the farm Buffelskuil 84, situated in the division of Alexandria, in extent of 309.6364 hectares, described in SG diagram 702/1910.

Government Notice 1139 / Government Gazette 17314 of 12 Julie 1996 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Remainder of Portion 1 of the farm The Wells 87, situated in the division of Alexandria, in extent of 278.6167 hectares, described in SG diagram 3152/1920;
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2. Portion 18 (a portion of Portion 2) of the farm 91, situated in the division of Alexandria, in extent of 235.3907 hectares, described in SG diagram 162/1924;
3. Portion 17 (a portion of Portion 12) of the farm 91, situated in the division of Alexandria, in extent of 134.2728 hectares, described in SG diagram 205/1924;
4. Portion 11 (a portion of Portion 8) of the farm 91, situated in the division of Alexandria, in extent of 256.9625 hectares, described in SG diagram 2630/1921;
5. Portion 3 (a portion of Portion 1) of the farm The Wells 87, situated in the division of Alexandria, in extent of 299.7880 hectares, described in SG diagram 7612/1954;
6. Portion 4 (a portion of Portion 1) of the farm Coerney 83, situated in the division of Alexandria, in extent of 114.5641 hectares, described in SG diagram 3995/1928;

Government Notice 1140 / Government Gazette 17314 of 12 Julie 1996 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. Portion 3 of Farm 37, situated in the division of Uitenhage, in extent of 426.7763 hectares, described in SG diagram 1285/1944;
2. Portion 2 of Farm 38, situated in the division of Uitenhage, in extent of 185.2679 hectares, described in SG diagram 1156/1912;
3. Remainder of Portion 2 of the farm Slag Boom 39, situated in the division of Alexandria, in extent of 15.2199 hectares, described in SG diagram 11556/1912;
4. Farm 33, situated in the division of Uitenhage, in extent of 992.2667 hectares, described in SG diagram B1549/11876;
5. Remainder of Portion 1 of the farm Klein Plaats 2, situated in the division of Alexandria, in extent of 381.1567 hectares, described in SG diagram A2014/1926.

Government Notice 1106 / Government Gazette 22809 of 02 November 2001 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. The farm Boxwood 256, situated in the division of Alexandria, in extent of 881.1930 hectares;
2. Farm 270, situated in the division of Alexandria, in extent of 1, 160.0000 hectares;
3. Farm 272, situated in the division of Alexandria, in extent of 612.0000 hectares;
4. Farm 292, situated in the division of Alexandria, in extent of 602.0000 hectares;
5. Unsurveyed Farm 308, situated in the division of Alexandria, in extent of 3, 436.0000 hectares;
6. Unsurveyed Farm 318, situated in the division of Alexandria, in extent of 6, 589.0000 hectares;
7. The remainder of the farm Midfor 327, situated in the division of Alexandria, in extent of 2, 593.2142 hectares, held under title deed T7619/1967;
8. The farm Mainfor 328, situated in the division of Alexandria, in extent of 4, 995.9528 hectares, held under title deed T7619/1967.
9. The remainder of the farm Kwaaihoek 349, situated in the division of Alexandria, in extent of 382.9812, held under title deed T43/1948.

Government Notice 940 / Government Gazette 25134 of 04 Julie 2003 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)

1. The remainder of the farm Deep Drift 18, situated in the division of Uitenhage, in extent of 2, 345.5704 hectares, held under title deed T30661/1984.

Government Notice 1499 / Government Gazette 25562 of 17 October 2003 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)

1. Portion 6 of the farm Woodlands 45, situated in the division of Uitenhage, in extent of 1, 204.5562 hectares, held under title deed T45364/1993;
2. Portion 357 of the farm Strathsomers Estate 42, situated in the division of Uitenhage, in extent of 1, 670.0227 hectares, held under title deed T26422/1996;
3. The remainder of the farm Woodlands 45, situated in the division of Uitenhage, in extent of 898.4117 hectares, held under title deed T26063/1996;
4. Portion 5 of the farm Nieuwe Post 68, situated in the division of Alexandria, in extent of 231.4781 hectares, held under title deed T61263/1971;
5. Portion 3 of the farm Nieuwe Post 68, situated in the division of Alexandria, in extent of 25.4775 hectares, held under title deed T61263/1971;

6. Portion 4 of the farm Nieuwe Post 68, situated in the division of Alexandria, in extent of 642.3970 hectares, held under title deed T61263/1971;
7. The remainder of the farm Marion Baree 120, situated in the division of Uitenhage, in extent of 133.1420 hectares, held under title deed T58631/1997;
8. Portion 1 of the farm Addo Heights 209, situated in the division of Uitenhage, in extent of 436.8352 hectares, held under title deed T58631/1997;
9. Portion 6 of the farm Addo Heights 209, situated in the division of Uitenhage, in extent of 214.1330 hectares, held under title deed T58631/1997;
10. The remainder of the farm Lismore 208, situated in the division of Uitenhage, in extent of 893.8143 hectares, held under title deed T58631/1997;
11. Portion 2 of the farm Lot De B Penhurst 123, situated in the division of Uitenhage, in extent of 285.5133 hectares, held under title deed T58631/1997;
12. Portion 3 of the farm Vygeboom 326, situated in the division of Somerset East, in extent of 771.1714 hectares, held under title deed T889/1997;
13. Portion 1 of the farm Weltevrede 67, situated in the division of Alexandria, in extent of 327.0733 hectares, held under title deed T79387/1997;
14. Portion 6 of the farm Weltevrede 67, situated in the division of Alexandria, in extent of 139.4019 hectares, held under title deed T101297/1997;
15. Portion 4 of the farm Woodlands 45, situated in the division of Uitenhage, in extent of 648.0806 hectares, held under title deed T35507/1998;
16. Portion 4 of the farm Addo Heights 209, situated in the division of Uitenhage, in extent of 496.1968 hectares, held under title deed T77716/1998;
17. Remainder of the farm Addo Heights 209, situated in the division of Uitenhage, in extent of 249.8601 hectares, held under title deed T77716/1998;
18. Portion 2 of the farm Addo Heights 209, situated in the division of Uitenhage, in extent of 287.3420 hectares, held under title deed T77716/1998;
19. Portion 5 of the farm Addo Heights 209, situated in the division of Uitenhage, in extent of 128.4786 hectares, held under title deed T75543/1998;
20. Portion 2 of the farm Rietpoort 19, situated in the division of Uitenhage, in extent of 405.7944 hectares, held under title deed T82517/1999;
21. The remainder of the farm Rietpoort 19, situated in the division of Uitenhage, in extent of 1, 650.3244 hectares, held under title deed T82517/1999;
22. The remainder of the farm Die Dorings 21, situated in the division of Uitenhage, in extent of 459.3244 hectares, held under title deed T82517/1999;
23. The remainder of Farm 630, situated in the division of Uitenhage, in extent of 213.7463 hectares, held under title deed T8987/1999;

24. The remainder of the farm Fascadale 213, situated in the division of Uitenhage, in extent of 1, 401.6661 hectares, held under title deed T89188/1999;
25. Portion 2 of the farm Die Dorings 21, situated in the division of Uitenhage, in extent of 226.4341 hectares, held under title deed T98322/1999;
26. The remainder of the farm 75, situated in the division of Alexandria in extent of 401.9019 hectares, held under title deed T101587/1999;
27. The remainder of the farm 76, situated in the division of Alexandria in extent of 204.8824 hectares, held under title deed T102587/1999;
28. Portion 2 of the farm Doring Nek 73, situated in the division of Alexandria, in extent of 132.1361 hectares, held under title deed T102587/1999;
29. The farm Koms 70, situated in the division of Alexandria, in extent of 949.1587 hectares, held under title deed T102587/1999;
30. The remainder of the farm Dirks Kraal 286, situated in the division of Somerset East in extent of 967.7702 hectares, held under title deed T4386/2000;
31. Portion 4 of the farm Cypherfontein 160, situated in the division of Alexandria, in extent of 522.4894 hectares, held under title deed T25107/2000;
32. Portion 9 of the farm Cypherfontein 160, situated in the division of Alexandria, in extent of 522.4796 hectares, held under title deed T25107/2000;
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33. Portion 2 of the farm Modderfontein 338, situated in the division of Somerset East, in extent of 342.6128 hectares, held under title deed T53486/2000;
34. Portion 5 of the farm Dirks Kraal 286, situated in the division of Somerset East in extent of 342.6128 hectares, held under title deed T53483/2000;
35. Portion 3 of the farm Dirks Kraal 286, situated in the division of Somerset East in extent of 784.2393 hectares, held under title deed T53486/2000;
36. The remainder of the farm Zoute Fontein 210, situated in the division of Uitenhage in extent of 416.8585 hectares, held under title deed T62546/2000;
37. Portion 1 of the farm Zoute Fontein 210, situated in the division of Uitenhage in extent of 513.9182 hectares, held under title deed T62547/2000;
38. Portion 1 of the farm Riet Poort 19, situated in the division of Uitenhage in extent of 89.4327 hectares, held under title deed T75186/2000;
39. Portion 2 of the farm Lismore 208, situated in the division of Uitenhage in extent of 473.0541 hectares, held under title deed T90192/2000;
40. Portion 3 of the farm Vaalnek 233, situated in the division of Jansenville in extent of 494.1019 hectares, held under title deed T94191/2000;
41. Portion 5 of the farm Coerney 83, situated in the division of Alexandria, in extent of 396.0146 hectares, held under title deed T107910/2000;
42. The remainder of the farm Lynwood 86, situated in the division of Alexandria in extent of 515.9264 hectares, held under title deed T107910/2000;
43. Portion 2 of the farm Tomleigh 85, situated in the division of Alexandria, in extent of 599.5274 hectares, held under title deed T2272/2001;
44. The remainder of the farm Henderson 410, situated in the division of Somerset East in extent of 2, 885.2478 hectares, held under title deed T30574/2001;
45. Portion 3 of the farm Rietrivier 230, situated in the division of Jansenville, in extent of 140.6155 hectares, held under title deed T30574/2001;
46. Portion 6 of the farm Dwaas 232, situated in the division of Jansenville, in extent of 507.0669 hectares, held under title deed T30574/2001;
47. Portion 10 of the farm Dwaas 232, situated in the division of Jansenville, in extent of 189.8420 hectares, held under title deed T30574/2001;
48. Portion 2 of the farm Zoute Fontein 210, situated in the division of Uitenhage in extent of 85.6542 hectares, held under title deed 775782001;
49. Portion 4 of the farm Weltevrede 67, situated in the division of Alexandria, in extent of 308.2208 hectares, held under title deed T79836/2001;

50. Portion 7 of the farm Weltevrede 67, situated in the division of Alexandria, in extent of 122.1355 hectares, held under title deed T79836/2001;
51. The remainder of the farm Nieuwe Post 68, situated in the division of Alexandria in extent of 217.2168 hectares, held under title deed T89684/2001;
52. Portion 2 of Farm 65, situated in the division of Alexandria, in extent of 257.0296 hectares, held under title deed T93047/2001;
53. Portion 9 of the farm Weltevrede 67, situated in the division of Alexandria, in extent of 447.5129 hectares, held under title deed T98508/2002;
54. Portion 10 of the farm Vista 367, situated in the division of Alexandria, in extent of 780.3857 hectares, held under title deed T10629/2002;
55. Portion 1 of the farm Henderson 410, situated in the division of Somerset East in extent of 817.2515 hectares, held under title deed T23048/2002;
56. The remainder of Farm 296, situated in the division of Jansenville, in extent of 3, 231.5208 hectares, held under title deed T23048/2002;
57. The remainder of the farm Oudekraal 327, situated in the division of Somerset East, in extent of 552.2629 hectares, held under title deed T23179/2002;
58. Portion 1 of the farm Die Dorings 21, situated in the division of Uitenhage, in extent of 329.0408 hectares, held under title deed T27706/2002;
59. Portion 7 of the farm Dirks Kraal 286, situated in the division of Somerset East in extent of 861.5604 hectares, held under title deed T49208/2002;
60. Portion 6 of the farm Ingleside 215, situated in the division of Uitenhage, in extent of 402.2331 hectares, held under title deed T49731/2002;
61. The remainder of the farm Zuurkloof 17, situated in the division of Uitenhage, in extent of 180.5959 hectares, held under title deed T62467/2002;
62. Portion 2 of Farm 52, situated in the division of Uitenhage, in extent of 396.8827 hectares, held under title deed T62467/2002;
63. Portion 3 of the farm Henderson 410, situated in the division of Somerset East in extent of 3, 023.2080 hectares, held under title deed T63799/2002;
64. Portion 2 of the farm Rietrivier 230, situated in the division of Jansenville, in extent of 342.4105 hectares, held under title deed T63799/2002;

65. Portion 7 of the farm Rietrivier 230, situated in the division of Jansenville, in extent of 22.0356 hectares, held under title deed T63799/2002;
66. Portion 349 of the farm Strathsomers Estate 42, situated in the division of Uitenhage, in extent of 691.6924 hectares, held under title deed T86530/2002;
67. Portion 1 of Farm 296, situated in the division of Jansenville, in extent of 1, 720.3823 hectares, held under title deed T30082/2002;

Government Notice 281 / Government Gazette 27408 of 01 April 2005 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. The St Croix Island Reserve;
2. Algoa Bay Bird Island Provincial Nature Reserve;
3. Stag Island Provincial Nature Reserve;
4. Algoa Bay Seal Island Provincial Nature Reserve;
5. Algoa Bay Black Rocks Nature Reserve.

Government Notice 1066 / Government Gazette 28185 of 28 October 2005 declared the following land to be part of the Addo Elephant National Park in terms of the National Parks Act (Act 57 of 1976)
1. The remainder of Farm 212, situated in the division of Uitenhage, in extent of 146.8552 hectares, held under title deed T6977/1998;
2. Portion 1 of Farm 212, situated in the division of Uitenhage, in extent of 146.8581 hectares, held under title deed T6977/1998;

3. Portion 2 of Farm 212, situated in the division of Uitenhage, in extent of 146.8596 hectares, held under title deed T6977/1998;
4. The remainder of the farm Kenkelbosch Outspan 301, situated in the division of Alexandria, in extent of 584.9726 hectares, held under title deed T6977/1998;
5. Portion 5 of the farm Palmiet Fontein 281, situated in the division of Somerset East, in extent of 409.7961 hectares, held under title deed T115343/2003;
6. The remainder of Erf 881 Colchester, situated in the division of Uitenhage, in extent of 35.7614 hectares, held under title deed T29410/2004;
7. Portion 1 of the farm Brakvlei 353, situated in the division of Somerset East, in extent of 429.0579 hectares, held under title deed T60752/2003;
8. Portion 3 of the farm Palmiet Fontein 281, situated in the division of Somerset East, in extent of 819.6183 hectares, held under title deed T20752/2003;
9. Portion 4 of the farm Palmiet Fontein 281, situated in the division of Somerset East, in extent of 409.8281 hectares, held under title deed T20752/2003;
10. Portion 5 of the farm Volkers Rivier 244, situated in the division of Somerset East, in extent of 3.3600 hectares, held under title deed T68500/2004;
11. The remainder of the farm Brakvlei 353, situated in the division of Alexandria, in extent of 433.7252 hectares, held under title deed T68502/2004;
12. The remainder of the farm Volkers Rivier 244, situated in the division of Somerset East, in extent of 1, 395.9030 hectares, held under title deed T67258/2003;
13. Portion 2 (a portion of Portion 1) of the farm Palmiet Fontein 281, situated in the division of Somerset East, in extent of 513.9235 hectares, held under title deed T67258/2003;
14. The remainder of Portion 1 of the farm Palmiet Fontein 281, situated in the division of Somerset East, in extent of 767.2022 hectares, held under title deed T67258/2003;
15. Portion 1 of the farm Boerslaagte 245, situated in the division of Somerset East, in extent of 9.3733 hectares, held under title deed T67258/2003;
16. Portion 6 (a portion of Portion 1) of the farm Palmiet Fontein 281, situated in the division of Somerset East, in extent of 349.1273 hectares, held under title deed T67260/2003;
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17. The remainder of the farm Klein Dirks Kraal 287, situated in the division of Somerset East, in extent of 1, 387.3480 hectares, held under title deed T75605/2003;
18. The Farm 366, situated in the division of Somerset East, in extent of 132.9823 hectares, held under title deed T75605/2003;
19. Portion 3 of the farm Olievenfontein 292, situated in the division of Somerset East, in extent of 336.0460 hectares, held under title deed T75605/2003;
20. Portion 2 of the farm Olievenfontein 292, situated in the division of Somerset East, in extent of 642.3990 hectares, held under title deed T75605/2003;
21. The remainder of the farm Klein Brakpoort 285, situated in the division of Somerset East, in extent of 545.2851 hectares, held under title deed T67544/1999;
22. Portion 14 (a portion of Portion 9) of the farm Dwaas 232, situated in the division of Jasenville, in extent of 77.1972 hectares, held under title deed T67544/1999;
23. Portion 4 of the farm Henderson 410, situated in the division of Somerset East in extent of 3, 973.3500 hectares, held under title deed T93672/1998;
24. Portion 3 of the farm Deep Drift 18, situated in the division of Uitenhage, in extent of 13.0438 hectares, held under title deed T93672/1998;
25. Portion 1 of the farm Wilger Fontein Annex 25, situated in the division of Uitenhage, in extent of 4.8904 hectares, held under title deed T93672/1998;
26. Portion 2 of the farm Break Neck 24, situated in the division of Uitenhage, in extent of 129.6343 hectares, held under title deed T93672/1998;
27. The farm Bedrog Fontein 23, situated in the division of Uitenhage, in extent of 1, 905.1756 hectares, held under title deed 936721998;
28. The remainder of the farm Glenmore 155, situated in the division of Alexandria, in extent of 478.2661 hectares, held under title deed T75544/1998;

29. Portion 3 of the farm Alva 156, situated in the division of Uitenhage, in extent of 121.3080 hectares, held under title deed T75544/1998.

Government Notice 399 / Government Gazette 32094 of 09 April 2009 declared the following land to be part of the Addo Elephant National Park in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003)

1. Portion 1 of the farm Nieuwe Post 68, situated in the division of Alexandria in extent of 285.6820 hectares, held under title deed T79682/2001;
2. Portion 6 of the farm Nieuwe Jaars Kop 300, situated in the division of Alexandria in extent of 171.4050 hectares, held under title deed T4507/2007;
3. The remainder of Portion 3 of the farm Cypherfontein 160, situated in the division of Alexandria, in extent of 213.9313 hectares, held under title deed T4507/2007;
4. Portion 5 of the farm Cypherfontein 160, situated in the division of Alexandria, in extent of 213.9175 hectares, held under title deed T4507/2007;
5. The remainder of Portion 6 of the farm Cypherfontein 160, situated in the division of Alexandria, in extent of 156.4013 hectares, held under title deed T4507/2007;
6. Portion 7 of the farm Cypherfontein 160, situated in the division of Alexandria, in extent of 327.7020 hectares, held under title deed T4507/2007;
7. Portion 8 of the farm Cypherfontein 160, situated in the division of Alexandria, in extent of 171.3107 hectares, held under title deed T4507/2007;
8. The remainder of Portion 9 of the farm Dwaas 232, situated in the division of Jansenville, in extent of 262.6862 hectares, held under title deed T28805/2005;
9. The farm Schiethoogte 279, situated in the division of Jansenville, in extent of 2, 892.5086 hectares, held under title deed T78895/2002;
10. Portion 5 of the farm Rietrivier 230, situated in the division of Alexandria, in extent of 173.1094 hectares, held under title deed T78895/2002;
11. Portion 4 of the farm Brak Poort 284, situated in the division of Somerset East in extent of 56.2372 morgen (≡ 48.1784ha), held under title deed T78895/2002;
12. Portion 5 of the farm Brak Poort 284, situated in the division of Somerset East in extent of 33.4875 morgen (≡ 28.6887ha), held under title deed T78895/2002;
13. Portion 6 of the farm Brak Poort 284, situated in the division of Somerset East in extent of 6.8137 morgen (≡ 5.8373ha), held under title deed T78895/2002.

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Government Notice 156 / Government Gazette 35073 of 02 March 2012 declared the following land to be part of the Addo Elephant National Park in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003)

1. The remainder of the farm Vaalnek 233, situated in the division of Jansenville, in extent of 665.5194 hectares, held under title deed T35366/2009;
2. Portion 1 of the farm Vaalnek 233, situated in the division of Jansenville, in extent of 494.1031 hectares, held under title deed T35366/2009;
3. Portion 1 of the farm Request 234, situated in the division of Jansenville, in extent of 890.7790 hectares, held under title deed T35366/2009;
4. Portion 2 of the farm Request 234, situated in the division of Jansenville, in extent of 896.1295 hectares, held under title deed T35366/2009;
5. Portion 32 of the farm Addo Drift East 124, situated in the division of Uitenhage, in extent of 193.0685 hectares, held under title deed T34155/2010;
6. The remainder of the farm Milverton 121, situated in the division of Uitenhage, in extent of 229.7868 hectares, held under title deed T34155/2010;
7. The remainder of Portion 2 of the farm Milverton 121, situated in the division of Uitenhage, in extent of 496.9017 hectares, held under title deed T34155/2010;
8. Portion 5 of the farm Milverton 121, situated in the division of Uitenhage, in extent of 510.9593 hectares, held under title deed T75631/2008;
9. Portion 1 of the farm Marion Baree 120, situated in the division of Uitenhage, in extent of 993.7182 hectares, held under title deed T75631/2008;
10. The remainder of Portion 1 of the farm Lismore 208, situated in the division of Uitenhage, in extent of 402.7628 hectares, held under title deed T75631/2008.

Government Notice 811 / Government Gazette 36951 of 25 October 2013 declared the following land to be part of the Addo Elephant National Park in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003)

1. Portion 305 of the farm Strathsomers Estate 42, situated in the division of Uitenhage, in extent of 68.5251 hectares, held under title deed T3642/2011;
2. The remainder of Portion 279 of the farm Strathsomers Estate 42, situated in the division of Uitenhage, in extent of 27.8702 hectares, held under title deed T3642/2011;
3. The Farm 416, situated in the division of Alexandria, in extent of 6.3129 hectares, held under title deed T17070/2011;
4. Portion 2 of the farm Bloukrans 23, situated in the division of Alexandria, in extent of 38.7152 hectares, held under title deed T17070/2011;
5. Portion 8 (a portion of Portion 5) of the farm Coerney 83, situated in the division of Alexandria, in extent of 24.4884 hectares, held under title deed T39080/2008.

ANNEXURE B: STAKEHOLDER ENGAGEMENTS

Elephant Strategy engagement with communities around Addo Elephant Park in the context of elephant management.

21-22 February 2022

Elephants impact people in a number of different ways, and because of this, they need to be managed properly. There are various projects being done by various people at the moment that all are trying to help to manage elephants better in various places. Jeanetta Slier who was presenting is working on a national elephant strategy document and part of their processes require that they hear from people who are living in the landscapes where elephants are. This is so that voices and opinions can be part of the process especially of those living amongst elephants. The Socio-Economic Transformation department assisted in the organising of the National Elephant Strategy community engagements facilitated by Dr. Jeanetta Selier from the South African National Biodiversity Institute, Ms. Mukondi Matshusa with team from the Department of Environment, Forestry and Fisheries for communities around the park. Communities visited were Nomathamsanqa and Enon/Bersheba. The aim visits were to engage and discuss the visions the community members have for elephants and people in SA. Discussing the key benefits of having elephants all around them, values, risks or challenges and the impacts the elephants have on the community. The first session the community members were divided into groups to discuss the benefits/values of elephants, key challenges and key opportunities, all the groups were facilitated by the Park's employees and students that came to assist on the day. The second session the groups discussed the vision they have regarding the relationship between the elephants and the people in SA, the strategy moving forward, what should the strategy include.

Based on the presentations of the day, there were a few broader themes that were discussed, and participants were motivated to share input on, to build on what was already known. The following questions were then discussed in groups;

1. **Are elephants important to people living in this area, currently? In other words do the people who you represent get any benefits from elephants at the moment? If so (yes or no or both), can you tell us more about this?.**
- Who's responsibility is it for these benefits to keep flowing?
- Are there any challenges with these processes?
- What options do you see for possible future benefits from elephants for the people who you represent?

2. **Do elephants impact people in any negative ways at the moment? If so, can you tell us more about this.**
- Who's responsibility is it to reduce the negative impacts of elephants on people?
- Do you/the people you represent have role in this?
- What needs to change to reduce the negative impacts felt by people?

3. **What future would you like to see for people and elephants in this landscape**?
- What would this future look like?
- What do you think needs to be done and by whom, to achieve this future?

The feedback received from these sessions and more engagements that were conducted in various other provinces were collated to a draft elephant heritage strategy (attached). The general sentiments around elephants to the session in Nomathamsanqa and Enon/Besherba were same; the centred around not having access to elephant dung that is traditional used as a medicine for sore feet and during pregnancy. The participants cited that they don't have access to the park and some have not even been in the park to see elephants due to not having money or park not having more programmes that are enabling for them to be in the

park. The cited impacts of elephant were positive as they indicated that there was little to none human-animals conflicts incidents related to elephants and that they are not negatively impacted.

Development of a National Elephant Heritage Strategy for South Africa
27- 28 June 2023

These engagements were a follow -up to those reported on above and again The Socio-Economic Transformation department assisted in the organising of the community engagements facilitated by Dr. Jeanetta Selier from the South African National Biodiversity Institute supported by the Department of Forestry, Fisheries and Environment. The same communities were visited, namely; Nomathamsanqa and Enon/Bersheba. Dr. Jeanetta presented the feedback on progress on the development of the heritage strategy, including the Draft vision, mission and key objectives as defined by the stakeholder meetings and pointed out that the community should add their vision for the elephant strategy where they wish to add inputs. Jeanette outlined the 3 elements that guides the heritage strategy:

- Economic element: the elephant strategy promotes the socio-economic development, job opportunities to the communities that are adjacent to the park, SMME opportunities for youth and women.
- Social element: this element aims to promote the moral coexistence of people and elephants, this can be achieved through the social transformation.
- Environmental element: the elephant-based conservation enhances the biodiversity and ecological resilience.

During the feedback sessions, the community members stated that they see themselves in the vision for the elephants in South Africa. The indicate that they wish to get more jobs from the parks and the youth was present requested trainings that will enable them to know more about the conservation especially that relating to the behaviour of elephants. They outlined that it can be beneficial for them if they could get more workshops from the Park that will make them understand more about wildlife around them. The community members mentioned that they see themselves in the vision, however they wish to see the opportunities that are created by the park that they can tap into to get access to business as well as job opportunities
The key discussion points in addition to the vision of the elephant heritage strategy are as follow;

Stakeholder mapping

1. As a stakeholder, where do you see yourself along the line reflecting the level of interest that you have in elephants and why?
2. As a stakeholder, where do you see yourself along the line reflecting the impact or influence that elephants have on you and your way you live and why?
3. As a stakeholder, where do you see yourself along the line of participation in government policy processes and why?

Developing key actions to achieve the desired outcomes

1. Which key actions should be included in the strategy to achieve the desired outcomes?
2. What are the obstacles/barriers and opportunities that prevent or help us achieving these outcomes?
3. How do you think we can overcome these obstacles/barriers or tap in/access these opportunities? What do we need to consider and implement?

The general community members of Nomathamsanqa and Enon Bersheba conducted the stakeholder mapping and the outcomes were as follows; the community members showed an interest in learning about elephants that are in the park, the interest was high. The community members stated that there is an impact of elephants to their lives as the elephants attracts

international, domestic and surrounding tourists, they stated that the tourists normally come to the park and wants to explore the surrounding of the park. The impact of elephants was average to the community. The community members felt that they are not included in government policies, however,they believe that they have an influence in the Elephant Strategy since they conducted the first initial elephant strategy in 2022, and the Park is coming to have more engagements with them.
Input received from these community sessions together with the ones that will be received from other areas with then be collated into the final draft that will be translated and sent back to communities for comment. This is to ensure that all that is captured is correctly voicing the feedback of the participants and what will be in the final document is what was said in the engagements.