South African
NATIONAL PARKS

Elephant Management Plan

Garden Route National Park

2023-2029

Reference Number:

INFORMATION

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Division/Unit Responsible for Formulation:	Scientific Services Division & Garden Route National Park Management
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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. Garden Route National Park (GRNP) represents unique biodiversity and contributes to conservation in the Western and Eastern Cape. Elephants in GRNP play a role in biological, cultural and stakeholder values. This management plan, compiled in accordance and compliance with the National Norms and Standards for Elephant Management (2008), is a supporting document to the Garden Route National Park Management Plan submitted to the Department of Forestry, Fisheries, and the Environment.

This 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 considers key linkages to the vital attributes and management objectives of GRNP as defined in the Park Management Plan. The research, monitoring and scientific evaluations of elephant impacts on stakeholder values and ecological attributes of GRNP, have informed and stimulated adaptive management approaches and consequently this management plan.

The overall objectives hierarchy of the GRNP Management Plan guides the specific objectives for elephant management in this park. The four key elephant management objectives have 11 actions addressing these. With **Objective 1** SANParks strives for a collaborative, informed, transparent decision around the persistence and ongoing existence, or not, of elephant in the GRNP, guided by available scientific/ecological knowledge and consideration of potential benefits and risks to people. **Objective 2** seeks to celebrate and appropriately appreciate the value of elephants as important components of the cultural and historic heritage of the GRNP and region. **Objective 3** seeks to enhance potential benefits and mitigate dis-benefits to people from elephants. **Objective 4** seeks to evaluate, inform, and revise elephant management through collaborative monitoring efforts and research. This encourages critical evaluation, both internally and externally, of SANParks' achievements against the intentions articulated in the GRNP Management Plan. The actions provide explicitly for the opportunity to generate information as well as to inform, review and accommodate adjustments / in management actions.

The actions set out in support of the objectives of this plan are not limited to the timeframe of this plan and may become redundant pending outcomes of actions taken. The Garden Route National Park Elephant Management Plan is written for the period 2023-2029 to align with the review of the park management plan and should be reviewed by 2029.

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 elephant for many reasons[3], the benefits provided to tourists[4] and rural communities[5]. Elephants, however, threaten biodiversity[6], cause damage to property and come into 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. In this context, the management of elephants in Garden Route National Park (GRNP) under the auspices of the 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*"[9].

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. The functionally extinct population of the GRNP makes key cultural contributions to the values of South Africans and particularly citizens living in the region.

In this context, SANParks envisage maintaining and improving the cultural values and equitable socio-economic benefits of elephants whilst inspiring and connecting diverse cultures. The Garden Route has a diversity of landscapes with elephant habitat not confined by fences but fragmented by a variety of different land uses. Even so, the promotion of conservation in all its

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10 Developing National Elephant Heritage Strategy, DFFE, humbu.mafumo@dffe.govt.za

complexities is fundamental to SANParks' core biodiversity conservation values[11]. These complexities are addressed through a strategic adaptive management approach[12] within which elephant management in the Garden Route 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[13]. It aligns with the Elephant Management Norms and Standards of South Africa[14].

2 Elephant contribution to Park objectives

2.1 Key biological attributes of Garden Route National Park

The GRNP is located between South Africa's southernmost coastal strip and the Outeniqua and Tsitsikamma mountain ranges and spans two provinces, the Western Cape Province, and Eastern Cape Province. The GRNP is divided into three areas, the Tsitsikamma section on its eastern side, the Knysna section (middle section) and the Wilderness section which is the westernmost section.

The GRNP extends roughly 150 km east-west and up to 40 km north-south with a variability in climate in both directions. In a north-south direction, altitude varies from sea level to 1675 m.a.s.l. (Formosa Peak). The Outeniqua and Tsitsikamma mountain ranges influence the climate by acting as a barrier to the inland penetration of the weather system and give rise to orographic precipitation[15]. Three rainfall patterns persist in the GRNP[16] with the wettest months spanning September to March, depending on the location within the park. Annual rainfall is between 600 and 700 mm[17] with limited seasonal variation[18] but slight peaks between January to March, and August to November[19].

Terrestrial vegetation within the park is represented by two biomes and nine vegetation types[20]. On a finer scale, there are more than 50 forest and fynbos communities within the park[21], categorized by a high plant species richness and endemicity[22]. The afrotemperate forests in the Southern Cape and Tsitsikamma form the biggest forest complex in Southern Africa[23], of which most occur in the GRNP.

The unfenced elephant range occurs in the central and western sides of the GRNP, in the Knysna (Diepwalle and Gouna) and Wilderness (Goudveld and Farleigh) sections and is

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approximately 185 km^2 in size[24]. The landscape is steep, rugged, and mountainous with the deep ravines of the Homtini and Knysna rivers lying in a north south direction[25]. The landscape is fragmented and covers a variety of land uses which include commercial timber plantations, privately-owned forested land, rural communities, and national park land. Anthropogenic activity is therefore diverse and includes logging, recreation and ecotourism, farming and alien plant clearing[26].

2.2 Elephant influence on high-level objectives

The key attributes of the GRNP directs the Park's mission and seven high-level objectives which focus on 1) natural heritage, 2) cultural heritage, 3) responsible tourism, 4) equitable access and benefit sharing, 5) participative engagement, 6) learning, interpretation, research and monitoring and 7) good governance (see GRNP National Park Management Plan of 2020[27] for details). Elephants contribute to or influence six high-level objectives (Table 1), 10 objectives and 15 sub-objectives (Table 1 & Appendix A). A loss of elephants from the GRNP would result in the loss of a species from the park and therefore the existence value of a component of biodiversity will be affected. Cultural heritage could be affected by decisions impacting on tangible and intangible heritage, as well as historic legacies and sense of place experiences and perceptions. Any decisions around long-term persistence, or not, of elephant in the GRNP can affect direct positive benefits through diverse ways (including heritage, direct and indirect economic) but could also bring dis-benefits to some stakeholders, and trade-offs will have to be made sensitively. For example, decisions around elephant may affect, change or impact accessibility in parts of the park. To stay true to the park mission, decisions on elephant should be made collaboratively with relevant stakeholders.

2.3 History of elephant management

Elephants occupied the grassy fynbos and afrotemperate forests, at the footslope of the Outeniqua mountains, for at least 200 years[28]. In the mid- to late-1800s, Knysna experienced a marked influx of people and increasing development and consequential human–elephant conflict[29]. During the late 1800s, an estimated 400 to 500 elephants lived in the area, but by 1900, only 30–50 individuals were left[30]. By 1970 only 10 elephants remained[31] and this dwindled to around three elephants by the 1990s.

Introduction of three young orphaned female elephants from the Kruger National Park (KNP) in 1994 aimed to supplement the Knysna elephant population but failed due to these elephants' movement across the fenceless boundaries. Soon after introduction, the youngest female died of stress-related pneumonia[32]. Five years after introduction and unresolved claims for elephant

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damages on neighbouring farmlands, the surviving two introduced elephants were relocated to a private game reserve in 1999.

Table 1. Elephant contribution to or impact on park High-level objectives. Details which include the objectives and sub-objectives are provided in Appendix A.

GARDEN ROUTE NATIONAL PARK MISSION (2020) An innovative and accessible national park, spanning mountains to marine, conserving the natural and cultural heritage of the Garden Route collaboratively for the benefit of people and the environment.	
High-level objective	Elephant contribution to or impact on high-level objective
1. Natural heritage To conserve the diverse terrestrial and aquatic ecosystems of the park on a landscape scale through adaptive, collaborative, and innovative management approaches.	The one remaining elephant's existence value contributes to GRNPs biodiversity and maintaining functional corridors. Losing elephant existence will impact on achieving this objective. The collaborative decision-making process on intervention options will contribute to this objective.
2. Cultural heritage To effectively preserve, interpret and present the diverse cultural heritage and history associated with the park through allowing access, engagement, responsible utilisation and research.	GRNPs cultural objectives focus on providing a full spectrum of cultural experiences and access to cultural heritage. Elephants support tangible and intangible cultural heritage values which contribute to this objective.
3. Responsible tourism To optimise the authentic nature- and culture-based opportunities and experiences while generating revenue without compromising the integrity of the bio-cultural assets.	The elephant's existence value contributes to visitor experiences. Visitor activities' have the potential to impact on elephant, while it is acknowledged that elephant could potentially also impact on visitor safety.
4. Equitable access and benefit sharing: To enable and promote stakeholder beneficiation through equitable access to a diversity of opportunities and park resources in a sustainable manner.	Currently the elephant does not impact or influence this objective. However, more elephants will require more game guards and safety precautions, which will impact this objective. Alternately, elephants' existence value contributes to opportunities for marketing, tourism, small businesses, and educational benefits.
5. Participative engagement: To build a trusting network of collaborative relationships by exploring and facilitating respectful, open, ongoing, inclusive, and stakeholder-centric engagements.	Elephants contribute to this objective though the collaborative decision-making for potential intervention, or not, and research, monitoring. Management outputs related to elephant existence in the GRNP provides a range of messaging and communication opportunities.
6. Learning, interpretation and research and monitoring: To promote up-to-date knowledge and awareness related to biodiversity and cultural heritage by dynamically and collaboratively producing, translating, and sharing relevant knowledge and experiences across boundaries and generations.	Elephants' existence value contributes to this objective through research, learning and monitoring efforts and opportunities regarding the social, ecological, and decision-making efforts.

Thereafter, much publicised debates erupted over the Knysna elephant group's chances of survival and disparity in findings of their low numbers[33], which was exacerbated by their evasiveness in the low visibility terrain. Additionally, polarised opinions on the primary drivers of population decline hamper assessment of current potential threats to elephant survival in the landscape[34]. This is aggravated by the limited historical demographic and ecological data. Further, a previous failed introduction of three juvenile elephants into the Garden Route adds another layer of complexity as it polarises opinions on appropriateness of introducing more elephants. These diverse polarised opinions on almost every aspect of the Knysna elephant, the complex nature of elephants, behaviourally and in terms of their management[35] and the fact that the Knysna elephant range is unfenced and spans various landowners' land, confronts decision-makers with a challenging decision regarding the one elephant and whether to intervene or not.

The 2013-2022 GRNP Elephant Management Plan aimed to clarify some of the uncertainties around elephants in the Garden Route forests and fynbos and determine how this impacted stakeholder relations as well as expectations regarding the Knysna elephants. First, a desired better understanding of the ecological role of elephant in the area required clarity on the number of elephants remaining. Advances in camera trap technology provided the availability of camera models that use invisible flash systems, known as black flash[36] which SANParks have deployed across the elephant range between 2015 until 2022[37]. Only one female elephant was ever observed on the extensive photo record across the area.

After release of the camera trap survey result, stakeholders and various sectors of the public enquired what SANParks' plans were in response to there being only one elephant left. Nevertheless, some parties refute these findings and continue to believe that there is still a small, viable elephant population. This sparked further debate about the appropriateness of introducing elephants.

Complex conservation challenges, underpinned by uncertainty and which involve or affect multiple stakeholders with various and often diverging values and knowledges, typically require participatory decision-making processes[38]. A Knysna elephant stakeholder engagement process was therefore initiated in January 2017[39]. Initial stages of the process primarily involved information dissemination. Thereafter a survey questionnaire sought to explore stakeholder understanding of the Knysna elephant population and expectations regarding the persistence of elephants in the forest. This was not a decision-making process but represented steps to gather information aimed at advising a participatory decision-making process. A summary of this survey's result is captured in Appendix B.

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2.4 Operational reflection and lessons learnt.

Part of reviewing the 2013-2022 Garden Route Elephant Management Plan was to reflect on how SANParks have gained a better understanding of elephant presence in the Garden Route, and where an understanding or efforts still lack.

Lessons learnt during implementation include:

- There is only one Knysna elephant remaining, and the number of elephants present in the afrotemperate forest and surrounding fynbos during the past, at least, 30 years were less than ten individuals. Elephant therefore have played a significantly reduced ecological role in the area in recent times.
- Sparseness of available historic data limits inferences that can be made regarding the primary drivers of elephant population decline, but indicates that illegal killing, stochastic demographics and habitat quality may have synergistically caused the decline.
- A majority of stakeholders in all the various sectors understand the complexity and uncertainty under which a decision must be made regarding the Knysna elephant, with most expecting some form of intervention (introduction of more elephants) but at the same time not expecting a large group of free-roaming elephants to be present in the area.

Lessons learnt on where SANParks can improve:

- Gaps still exist in our understanding of the historic relationship between elephants and the afrotemperate forest and surrounding fynbos. This could be further investigated by spatially analysing the available historic occurrence data.
- There is uncertainty among key stakeholders as to why the 1994 KNP elephant introduction failed, which influences their expectations around another intervention. An investigation into the introduction operation, spatial movement of the reintroduced KNP elephants and deductions as to why the operation failed, could be undertaken, and reflected on in a report made available to stakeholders.
- Misperceptions around the Knysna elephant(s) could influence stakeholders' expectation of the type of management decision they would support. This could be addressed via communicating credible information and the inherent complexity in the debate using multiple platforms.
- Some key stakeholders, e.g., forest village ("bosdorp") residents, have not been approached for the survey questionnaire as it was done mostly during the COVID-19 lockdown period, however, a future collaborative decision-making process must target such groups also.

Future effort should focus on thoroughly planning a collaborative decision-making process for management options, which will include identifying primary stakeholders. Although some gaps still exist in the understanding of ecological and historic aspects of the elephant population, some of these aspects have been addressed, and while lower-key research efforts could potentially still address some gaps, this is not considered essential to informing the way forward as

sparseness of availability of ecological and historic data, however, may mean that uncertainty of some ecological aspects will remain.

These learnings, together with the findings from the extensive stakeholder survey questionnaire around perceptions and desires for stakeholders on the persistence of elephants in the Knysna forests, were used to inform the revision of the GRNP elephant management plan.

2.5 Method of elephant management plan revision

2.5.1 Stakeholder participation

SANParks interpret the Norms and Standards for Elephant Management[40] 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 GRNP elephant management plan focused on immediately affected stakeholders, mostly Park Management, scientists with interests in GRNP and neighbouring landowners who share the elephant range[41] (See Appendix B for a summary). Presentations at various meetings and workshops were directed at informing key stakeholders.

2.5.2 Adaptive management

SANParks makes use of a Strategic Adaptive Management (SAM) approach[42], 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 GRNP Elephant Management Plan is informed by the objectives and vision of the existing Park Management Plan[43] (2020-2029), 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.

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

[41] Moolman, L. 2018. Knysna elephant stakeholder engagement process, in light of there being only one elephant cow left. Draft Internal report, Scientific Services, South African National Parks. Moolman, L. & Gaylard, A. 2018 Risk-benefit analysis for management options for the Knysna elephant, in light of there being only one elephant cow left: Consolidated internal and external elephant range landowners' assessments. Draft Internal report, Scientific Services, South African National Parks.

[42] Biggs, H.C. & Rogers, K.H., 2003, 'An adaptive system to link science, monitoring and management in practice', in J.T. du Toit, K.H. Rogers & H.C. Biggs (eds.), The Kruger experience. Ecology and management of savanna heterogeneity, pp. 59–80, Island Press, Washington DC.

[43] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/gmp/gmp-approved-plan.pdf

3 Elephant Management Objectives for GRNP

The functionally extinct population of the GRNP makes key cultural contributions to the values of South Africans and particularly citizens living in the region. SANParks envisage maintaining and improving the cultural values and equitable socio-economic benefits of elephants whilst inspiring and connecting diverse cultures. The Garden Route has a diversity of landscapes with elephant habitat not confined by fences but fragmented by a variety of different land uses. Even so, the promotion of conservation in all its complexities is fundamental to SANParks' core biodiversity conservation values. These complexities are addressed through a strategic adaptive management approach within which elephant management in the Garden Route embeds.

Table 2. Elephant management objectives for Garden Route National Park.

Objective 1 To make a collaborative, transparent decision around the persistence and ongoing existence, or not, of elephant in the GRNP, guided by best available scientific/ecological knowledge and consideration of potential benefits and risks to people. Objective 2 To celebrate and appropriately appreciate the value of elephants as important components of the cultural and historic heritage of the GRNP and region. Objective 3 To enhance potential benefits and mitigate dis-benefits to people from elephants. Objective 4 To inform and evaluate elephant management through collaborative research and monitoring.

4 Management of wild elephants

4.1 Section A. General information and inventory

4.1.1 General

4.1.1.1 Names of owner and manager Owner: SANParks Park Managers: Pat Bopape & Sandra Taljaard	**4.1.1.2 Postal Address** Garden Route National Park Long Street Thesen Island PO Box 3542 Knysna 6570
4.1.1.3 Telephone and fax numbers +27 (0)44 302 5600	

4.1.1.4 Farm name

The GRNP can be described as a complex of protected areas managed as a single entity. The GRNP includes the previously proclaimed Tsitsikamma National Park (TNP) and Wilderness National Park (WNP), state forests and mountain catchment areas, as well as the Knysna National Lake Area. The latter is managed as a Protected Environment (PE) (with promulgated regulations). The park is unfenced. All the Farm names, numbers and portions that are declared as National Parks and hence fall within the border of the GRNP, are listed in the GRNP Management Plan[44] (see Appendix C).

4.1.1.5 Extent of the property and areas with elephants

The unfenced park currently comprises of 165,899 ha including contractual areas of which 47,382 ha is not proclaimed (mainly former Department of Water Affairs and Forestry (DWAF) areas and the Knysna estuary). Following the completion of the plantation exit in terms of the 2005-06 government-led Cape Conversion Process (exit areas handed over to SANParks), all encumbrances on the former DWAF land will be identified and resolved to proclaim these areas as national park (Figure 1).

The unfenced elephant range is approximately 185 km^2 in size[45] and occurs in the central and western sides of the GRNP, in the Knysna (Diepwalle and Gouna) and Wilderness (Goudveld and Farleigh) sections (Figure 2).

4.1.1.6 Land uses and activities on neighbouring properties

The park spans two provinces, two district and four local municipal boundaries, within a fragmented and multi-use landscape including urban, forestry (mainly commercial pine plantations), conservation (national and provincial) and agricultural (small-scale and commercial farming) land uses.

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[44] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/gmp/gmp-approved-plan.pdf

[45] Moolman, L., De Morney, M.A., Ferreira, S.M., Ganswindt, A., Poole, J.H. & Kerley, G.I. 2019a. And Then There Was One: a camera trap survey of the declining population of African Elephants in Knysna, South Africa. African Journal of Wildlife Research, 49(1), pp.16-26

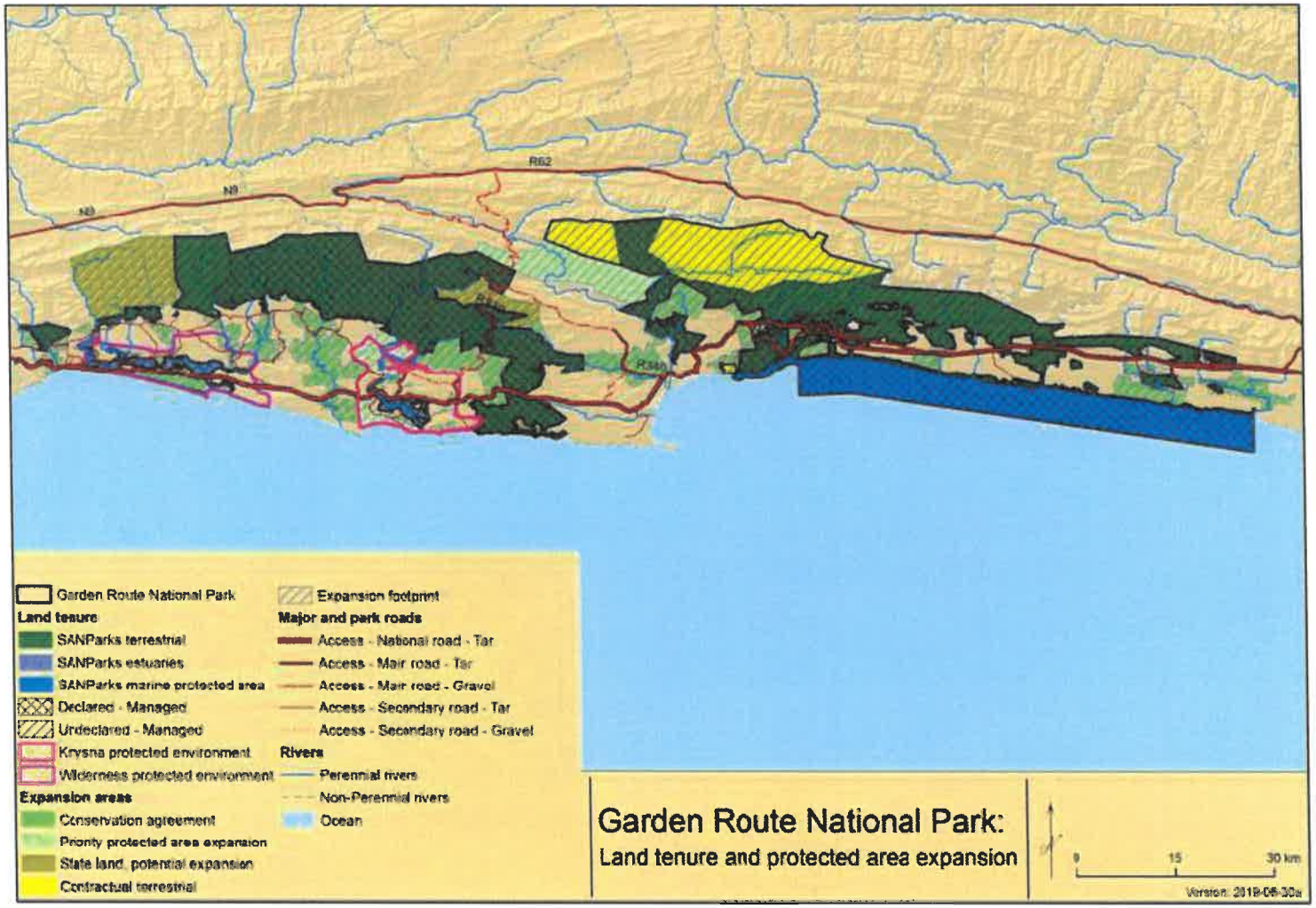

Figure 1. GRNP land tenure and expansion (Map extracted from the GRNP Management Plan[46])

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[46] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf

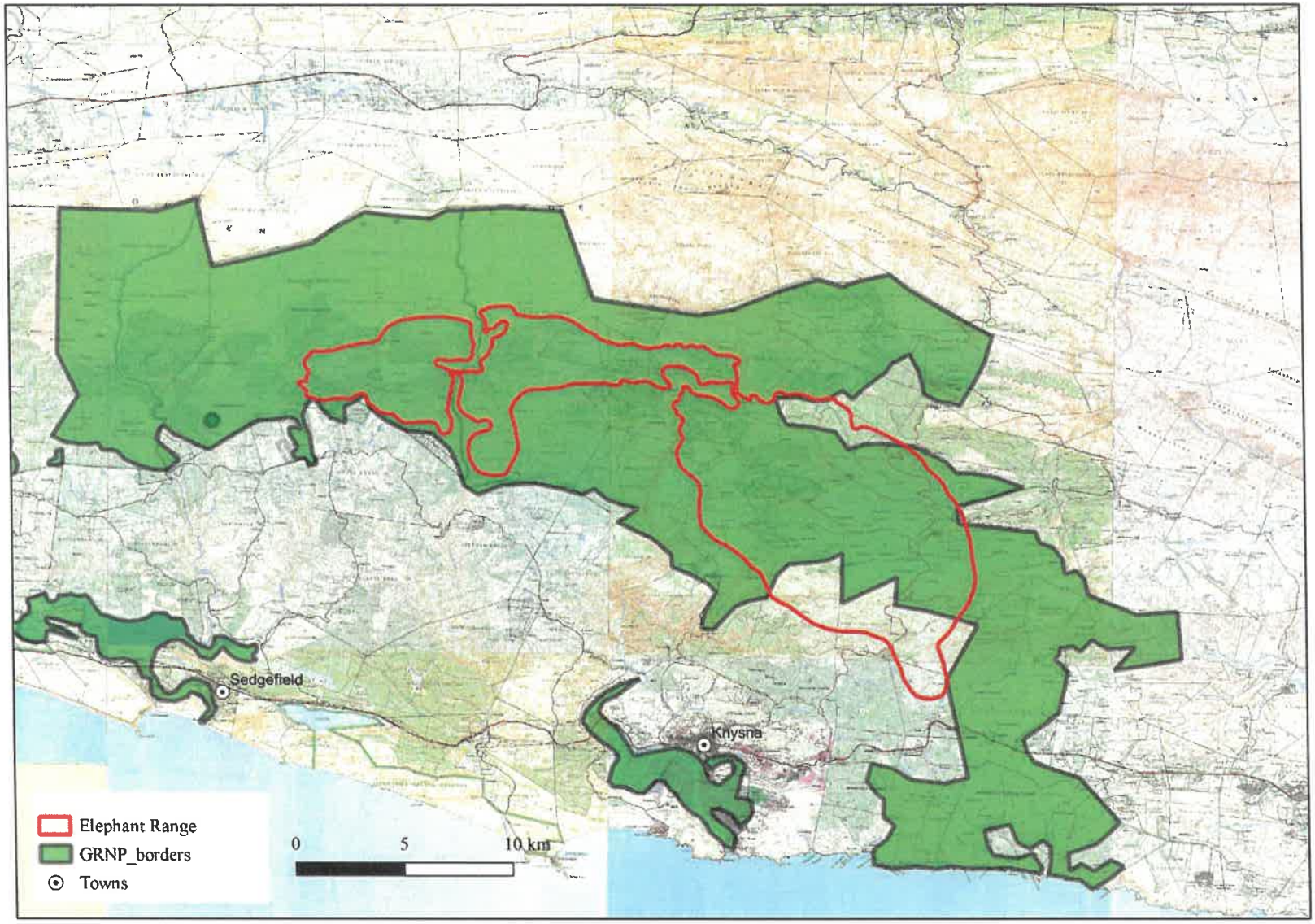

Figure 2. Map showing GRNP (Wilderness and Knysna sections) and elephant range.

4.1.1.7 Compilers

Name	Contact Details	Qualifications	Experience
Lizette Moolman	Tel: 072 237 6246 Email: Lizette.moolman@sanparks.org	MSc	Elephants: 20 years Conservation: 18 years
Sam Ferreira	Tel: 076 600 4152 Email: Sam.ferreira@sanparks.org	PhD	Elephants: 25 years Conservation: 30 years
Vuyiswa Radebe	Tel: 044 302 5600 Email: vuyiswa.radebe@sanparks.org	MSc	Elephants: 8 years Conservation: 25 years
Sandra Taljaard	Tel: 021741 2001 Email: sandra.taljaard@sanparks.or	PhD	Elephants: 9 years Conservation: 25 years
Pat Bopape	Tel: 044 302 5600 Email: pat.bopape@gmail.com	Postgraduate Diploma	Elephants: None Conservation: 13 years
Melanie de Morney	Tel: 044 302 5617 Email: melanie.demorney@sanparks.org	BSc	Elephants: 8 years Conservation: 11 years
Klaas Havenga	Tel: 082 8075652 Email: Klaas.havenga@sanparks.org	ND forestry	Elephants: 27 years Conservation: 27 years
Chamell Pluim	Tel: 021 741 1142 Email: Chamell.Pluim@sanparks.org	BTech	Elephants: 1.5 years Conservation: 17 years
Jonathan Britton	Tel: 084 7147793 Email: Jonathan.britton@sanparks.org	BTech	Elephants: 10 years (Knysna) Conservation: 22 years
Stef Freitag	Tel: 082 908 2678 Email: stef.Freitag@sanparks.org	PhD	Elephants: 26 years Conservation: 27 years
Izak Smit	Tel: 044 343 1302 Email: Izak.smit@sanparks.org	PhD	Elephants: 16 years Conservation:18 years
Jessica Hayes	Tel: 044 3025653 Email: jessica.hayes@sanparks.org	MSc	Elephants: 0 Conservation: 22 years

4.1.1.8 Proximity to settlements, rural communities, and tribal land

Settlements and rural communities are located immediately next to or close to most sections of the Park's borders.

4.1.1.9 Potential for enlarging the Park

The expansion and consolidation of the park remains a strategic priority for SANParks, given its recognised biodiversity, landscape interface and regional socio-economic importance. The park expansion and consolidation strategy is also aligned with the National Protected Areas Expansion Strategy[47] (NPAES); the Western Cape Protected Area Expansion Strategy: 2015 – 2020[48]; the Western Cape Biodiversity Spatial Plan Handbook[49]; the Eastern Cape Protected Area System Expansion Strategy; the SANParks Co-ordinated Policy Framework for Park Management Plans dated 01 September 2018; the SANParks Land Inclusion Policy[50], dated 21 August 2017 especially regarding the principles, criteria and mechanism for land inclusion; and the DEA Biodiversity Stewardship Guideline[51] (2018).

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[47] Department of Environmental Affairs. 2016. Draft National Protected Areas Expansion Strategy for South Africa. Department of Environmental Affairs, Pretoria, South Africa.
[48] Maree, K.S., Pence, G.Q.K. and Purnell, K., 2015. Western Cape Protected Area Expansion Strategy: 2015–2020. Unpublished report. Produced by CapeNature. Cape Town, South Africa.
[49] Pool-Stanvliet R, Duffell-Canham A, Pence G, Smart R. The Western Cape biodiversity spatial plan handbook. Stellenbosch: CapeNature. 2017.
[50] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/gmp/gmp-approved-plan.pdf
[51] Kershaw, P., Marnewick, D. and Purnell, A., 2018. Biodiversity Stewardship Guideline 2018.

The ultimate desired state for the park would include the consolidation of priority biodiversity areas in the buffer zone through a range of voluntary biodiversity stewardship partnerships where stewardship sites do not necessarily need to be managed by SANParks; and secondly, through contractual agreements, donations or land acquisition[52].

Areas adjacent to the GRNP, and bordering the section of the park within which the elephant range falls, that were identified as potential expansion areas, include a piece of 3,127 ha State Land on the eastern border, a 12,332 ha piece of State Land on the western border, a 3,407 ha piece of priority protected area on the southern border and a 8,878 ha piece of priority protected area on the north-eastern border (Figure 1).

Contractual agreements remain one of the options available for communities and private landowners to become part of the park and improve habitat connectivity, ecological functioning and ecosystem services. There are 11 farms included, by declaration, into the park[53].

4.1.1.10 Specifications of the perimeter fence

The GRNP and the elephant range are fenceless.

4.1.1.11 Financial plan and ability to manage elephants

SANParks follow an annual budget planning process and allocate funding for the management of national parks. Elephant management embeds within the implementation of the GRNP Management Plan[54]. Financing the implementation of this elephant management plan are thus provided through the SANParks annual budgeting process.

4.1.2 Ecological characteristics

4.1.2.1 Climate and hydrology

The GRNP extends roughly 150 km east-west and up to 40 km north-south with a variability in climate in both directions. In a north-south direction, altitude varies from sea-level to 1675 m.a.s.l. (Formosa Peak). Three rainfall patterns persist in the GRNP[55] with the wettest months spanning September to March, depending on the location within the park. Annual rainfall is between 600 and 700 mm[56] with limited seasonal variation[57], but slight peaks between January to March, and August to November[58]. Temperature in the park is moderate. In the rare event of snow or frost, temperatures can decrease to around freezing.

Wind is an important climatic driver in the area. A year-round feature of the south coast is the prevailing westerly winds[59], while onshore easterly winds are prevalent during summer[60]. The strong winds drive the fire patterns in the fynbos and thus the distribution of natural vegetation (forest and fynbos) on the landscape. Rain often follows bergwind conditions.

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[52] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/gmp/gmp-approved-plan.pdf
[53] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/gmp/gmp-approved-plan.pdf
[54] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/gmp/gmp-approved-plan.pdf
[55] Scriba, J. H. 1984. The indigenous forests of the Southern Cape: a location study. M. A. (Geography) Thesis, University of Stellenbosch.
[56] Schafer, G.N. 1992. Classification of Forest Land in the Southern Cape Region. MSc. Dissertation, Department of Agronomy, University of Natal, Pietermaritzburg.
[57] Whitfield, A.K., Allanson, B.R. & Heinecken, T.J.E. 1983. Estuaries of the Cape, Report No. 22: Swartvlei (CMS 11). CSIR, Stellenbosch. 62pp.
[58] Robinson, G.A. & De Graaff, G. 1994. Marine protected areas of the Republic of South Africa. Pretoria: Council for the Environment (The World Conservation Union, IUCN.).
[59] Stone, A.W., Weaver, A.B. & West, W.O. 1998. Climate and weather. In Field guide to the eastern and Southern Cape Coasts. Eds Lubke, R. & I. De Moor. University of Cape Town Press, Cape Town. 41 – 49.
[60] Schumann, E.H., Perrins I.A. & Hunter, I.T. 1982. Upwelling along the South Coast of the Cape Province. South African Journal of Science 78: 238 - 242.

4.1.2.2 Geology

The three main geomorphological formations are the Outeniqua and Tsitsikamma mountain ranges to the north of the park, the coastal plateau, and the coastal embayment[61]. The main features that characterise the topography of the park are the Outeniqua and Tsitsikamma mountain ranges to the north of the park, the foothills and the coastal plain. Peak Formosa at 1,675 m is the highest point in the park. On the higher portions, angles of declination are often 70 - 90 degrees[62].

Rocks of the Cape Supergroup underlie most of the area, while Pre-Cape and Cretaceous rocks and unconsolidated deposits of recent age occupy smaller areas. The Pre-Cape rocks comprise the Maalgaten Granite to the west and east of George (including the Woodville - Beervlei area), separated by a variety of sedimentary and metamorphic rocks of the Kaaimans Formation that include phyllite, quartzite, grit, hornfels and schist (Saasveld and Karatara areas).

River catchments in the Outeniqua Mountains comprise primarily sandstones and quartzites of the Table Mountain Group. Erosion resistant quartzites and sandstones of the Skurweberg (=Kouga) formation predominate with softer shales of the Goudini (=Tchando) Baviaanskloof and Cedarberg formations occurring in inter mountain valleys. The Goudini formation contains iron and manganese that often weathers brown on the surface[63].

The coastal plateau is an old sea floor dating back to the Tertiary period[64], which in places has been deeply incised by rivers (Touw, Duiwe, Hoëkraal, Karatara, Diep etc.). The plateau is underlain by pre-Cape granite, Kaaiman Group metal sediments (phyllites, schists, shales) and Table Mountain sandstones, mantled in places by alluvium and aeolian deposits. Remnant high-level terraces capped by silcrete and fellicrete occur in places[65], are particularly deep, and include fine textured sandy clay loams, solonetic and well drained soils.

4.1.2.3 Soils

The Garden Route area's soils are broadly classified into three types namely, youthful azonal soils on the steeper Table Mountain Sandstone slopes, brown and grey soils in the foothill zone and, Lateritic Paleaosols mainly on the coastal platform[66]. The soils are mostly acid, poor in nutrients and having a low buffering capacity[67].

Underlying local fynbos communities are acidic lithosol soils derived from Ordovician sandstones of the Table Mountain Group (TMG) with plinthic catenas prominent[68] (Rebelo et al. 2006). The forest soils vary from shallow Mispah, Glenrosa and Houwhoek forms to sandy humic Fernwood form, derived from TMG sandstone and shale of the Cape Supergroup and partly from Cape Granite[69] (Mucina & Geldenhuys, 2006).

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[61] Rust, I.C. 1989. Meetsterbeplanning: Wildernis Nasionale Park en Wildernis Nasionale Meergebied: Geomorphologie. Unpublished Report: 5pp.
[62] Phillips, J.F.V. 1931. Forest succession and ecology in the Knysna Region. Memoirs of the Botanical Survey of South Africa 14:1-327. Botanical Research Institute, Pretoria.
[63] Schafer, G.N. 1991. Forest Land Types of the Southern Cape, Part 1. Division of Forest and Science Technology Report No. FOR 22. CSIR, Pretoria.
[64] Rust, I.C. 1989. Meetsterbeplanning: Wildernis Nasionale Park en Wildernis Nasionale Meergebied: Geomorphologie. Unpublished Report: 5pp.
[65] Schafer, G.N. 1991. Forest Land Types of the Southern Cape, Part 1. Division of Forest and Science Technology Report No. FOR 22. CSIR, Pretoria.
[66] Scriba, J. H. 1984. The indigenous forests of the Southern Cape: a location study. M. A. (Geography) Thesis, University of Stellenbosch.
[67] Schafer, G.N. 1992. Classification of Forest Land in the Southern Cape Region. MSc. Dissertation, Department of Agronomy, University of Natal, Pietermaritzburg.
[68] Rebelo, A.G., Boucher, C., Helme, N., Mucina, L. & Rutherford, M.C., 2006, 'Fynbos Biome' in L. Mucina & M.C. Rutherford (eds.) The Vegetation of South Africa, Lesotho and Swaziland, Strelitzia 19, pp. 158–159, South African National Biodiversity Institute, Pretoria.
[69] Mucina, L. & Geldenhuys, C.J. 2006. Afrotemperate, Subtropical and Azonal Forests. In: Mucina,L. and Rutherford, M.C. (eds.) The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

The Outeniqua Mountain soils tend to be acidic, leached, low in nutrients, and have a poor buffering capacity. In the upper river catchments, soils are derived primarily from sandstones. Rocky well drained soils commonly occur on north-facing slopes, whereas poorly drained or peaty soils occur on southern aspects.

Soils on the coastal embayment are derived primarily from Pleistocene and Recent Coastal Sands rock[70] (Allanson & Whitfield 1983). Much of the floodplain of the lake systems are covered with a dark alluvium which is rich in organic matter.

4.1.2.4 Vegetation

The National Vegetation Map[71] delineates ten vegetation types, including eight fynbos and two forest types within the park (Figure 3). The more fine-scale vegetation map[72] delineates more than 30 terrestrial habitat types, representing more than 50 forest and fynbos communities within the boundaries of the park (Figure 4). Most of the Fynbos biome, and the fynbos in the park, form part of the Cape Floristic, Kingdom, characterised by a high plant species richness and endemicity[73]. Approximately 2,069 plant species, representing 727 genera and 185 families have been recorded for the park, including several listed Red Data species. The Least Threatened (LT) Southern Afrotemperate Forest and Vulnerable (VU) South Outeniqua Sandstone Fynbos cover the largest terrestrial area of the park.

South Outeniqua Sandstone Fynbos is characterized by its occurrence on sandstone-derived soils in the southern slopes of the Outeniqua Mountains. It exhibits a remarkable assemblage of plant species, adapted to the harsh environmental conditions of the area, including low nutrient availability, high wind exposure, and fire-prone landscapes[74]. This fynbos type is recognized for its rich floral diversity, with over 1,800 plant species recorded, many of which are endemic to the region[75].

More than 140 patches of fragmented fynbos, collectively covering 7,500 ha, occur within the GRNP[76]. These fynbos fragments are largely associated with scarp and coastal platform forest, and include (i) degraded forest patches, (ii) fynbos islands which are completely isolated and cut off from mainland fynbos, and (iii) fynbos fragments which are partially isolated from mainland fynbos.

The natural forests in the Southern Cape and Tsitsikamma form the biggest forest complex in southern Africa[77], with the largest area located in the park. These forests are home to various old iconic yellowwoods, referred to as 'Big Trees', in the region. Forests occur in three distinct zones with distinct stand structure and species composition[78]. The mountain forests (mostly wet forests) are typical Afromontane forest. Dry forests or scrub forests occur on the coastal scarp

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[70] Allanson, B.R. & Whitfield, A.K. 1983. The Limnology of the Touw River Floodplain. South African National Scientific Programs Report No. 79. CSIR, Pretoria. 35pp.

[71] A Dayaram, LR Harris, BA Grobler, S Van der Merwe, AG Rebelo, LW Powrie, JHJ Vlok, PG Desmet, M Qabaqaba, KM Hlahane, et al. vegetation map of south africa, lesotho and swaziland 2018: a description of changes since 2006. bothalia, 49 (1), a2452, 1–11, 2019.

[72] Vlok, J.H.J., Euston-Brown, D.I.W. & Wolf, T. 2008. A vegetation map for the Garden Route Initiative. Unpublished 1:50 000 maps and report supported by CAPE FSP task team.

[73] Low, A.B. & Rebelo, A.G. (eds.) 1996. Vegetation of South Africa, Lesotho and Swaziland. Department of Environmental Affairs & Tourism, Pretoria. 85 pp.

[74] Rebelo, A.G., Boucher, C., Helme, N., Mucina, L. & Rutherford, M.C., 2006, 'Fynbos Biome' in L. Mucina & M.C. Rutherford (eds.) The Vegetation of South Africa, Lesotho and Swaziland, Strelitzia 19, pp. 158–159, South African National Biodiversity Institute, Pretoria.

[75] Rebelo, A.G., Boucher, C., Helme, N., Mucina, L. & Rutherford, M.C., 2006, 'Fynbos Biome' in L. Mucina & M.C. Rutherford (eds.) The Vegetation of South Africa, Lesotho and Swaziland, Strelitzia 19, pp. 158–159, South African National Biodiversity Institute, Pretoria.

[76] Kraaij, T. & Vermeulen, W.J. 2010. Fire management system for the fragmented fynbos patches of the Garden Route National Park, SANParks unpublished report, Garden Route Scientific Services, Rondevlei.

[77] Geldenhuys, C.J. 1991a. Distribution, size and ownership of forests in the southern Cape. South African Journal of Forestry 158: 51-66.

[78] Geldenhuys, C.J. 1982a. The management of the southern Cape indigenous forests. South African Forestry Journal 121: 4-10.

or on the steep slopes of the river valleys[79]. These forests are species-rich and include many species of Indian Ocean Coastal Belt forests[80]. The plateau forests are typically moist and medium moist forests and include mainly species of Afromontane affinity. Western Cape milkwood forest occurs as small patches at altitudes between 20 and 340m along the southern coast between Nature's Valley and the Cape Peninsula[81]. In the GRNP, patches occur at Nature's Valley, Sedgefield and Wilderness.

Within the elephant range, which occurs in the Wilderness and Knysna sections' terrestrial areas, the National Vegetation Map[82] delineates South Outeniqua Sandstone Fynbos (Vulnerable – VU), Southern Cape Afrotemperate Forests (Least Threatened – LT) and Southern Afrotemperate Forest (LT). The more fine-scale vegetation map (Vlok, et al., 2008) delineates Outeniqua Plateau Forest, Kleinplaat Grassy Fynbos (Critically Endangered – CE), Groot Brak River and Floodplain, Tsitsikamma Perennial Stream, Wolwedans Grassy Fynbos, Melville Mesic Proteoid Fynbos, Knysna Island Fynbos vegetation types.

Kleinplaat Grassy Fynbos, classified as Critically Endangered (CR), is characterized by its diverse assemblage of grasses and fynbos species[83]. It occurs predominantly on sandy soils in the transitional zone between Renosterveld and Sand Fynbos ecosystems[84]. Its threat status is primarily due to habitat loss and fragmentation caused by urbanization, agriculture expansion, and invasive alien plant species[85].

Groot Brak River and Floodplain is classified as Endangered (EN). A characteristic species is *Prionium serratum*. Within this vegetation type, there are Fynbos-Forest ecotone dominated communities in the upper areas where species such as *Brachylaena neriifolia*, *Laurophyllus capensis*, *Psoralea affinis* and *Virgilia divaricata* are abundant. Additionally, it has true forest communities mainly within the floodplain zone, with species such as *Afrocarpus falcatus*, *Calodendrum capense*, *Cunonia capensis*, *Nuxia floribunda*, *Platylophus trifoliatus* and *Rhus chirindensis*[86].

The Tsitsikamma Perennial Stream vegetation type is Critically Endangered (CR) and characterized by the presence of plant species that are adapted to the constant flow of water. The dominant plant species include ferns, mosses, and several species of water-loving shrubs[87]. These plants thrive in the moist environment created by the perennial streams, which provide a consistent water source throughout the year[88]. The Tsitsikamma Perennial Stream vegetation type plays a crucial role in maintaining the ecological balance of the region by stabilizing the stream banks, filtering water, and providing habitat for a variety of animal species[89].

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[79] Phillips, J.F.V. 1931. Forest succession and ecology in the Knysna Region. Memoirs of the Botanical Survey of South Africa 14:1-327. Botanical Research Institute, Pretoria.
[80] Moll, E.J. & White, F. 1978. The Indian Ocean Coastal Belt. In. WERGER M.J.A. (ed). Biogeography and ecology of southern Africa. W. Junk, The Hague. pp. 561 - 598.
[81] Mucina, L. & Rutherford, M.C. (eds.) 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria. 807 pp.
[82] A Dayaram, LR Harris, BA Grobler, S Van der Merwe, AG Rebelo, LW Powrie, JHJ Vlok, PG Desmet, M Qabaqaba, KM Hlahane, et al. vegetation map of south africa, lesotho and swaziland 2018: a description of changes since 2006. bothalia, 49 (1), a2452, 1–11, 2019.
[83] Rebelo, A. G., Boucher, C., Helme, N., Mucina, L., Rutherford, M. C., & Powrie, L. W. (2011). Fynbos Biome. In Vegetation of Southern Africa (pp. 160-281). Cambridge University Press.
[84] Mucina, L. & Rutherford, M.C. (eds). The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria, 2006.
[85] Rebelo, A. G., Boucher, C., Helme, N., Mucina, L., Rutherford, M. C., & Powrie, L. W. (2011). Fynbos Biome. In Vegetation of Southern Africa (pp. 160-281). Cambridge University Press. Holmes, P. M., Cowling, R. M., Rebelo, A. G., & Thuiller, W. (2019). Fynbos vegetation change over 60 years at Cape Point (South Africa) informs future conservation and restoration strategies. Journal of Vegetation Science, 30(2), 353-365.
[86] Smith, J., Williams, K., Johnson, A., & Davis, C. (2010). Garden Route Biodiversity Spatial Plan: Technical Report. Environmental Planning and Climate Protection Department, Western Cape Government.
[87] Smith, G.F., Van Wyk, B.E., & Burrows, J.E. Leucadendron linifolium. In: Fynbos, Ecology, Evolution, and Conservation of a Megadiverse Region (pp. 319-322). Oxford University Press, 2018.
[88] Jones, A. B., et al. (2019). Vegetation of the Fynbos Biome. In The Vegetation of South Africa, Lesotho and Swaziland (pp. 199-236). Springer.
[89] Johnson, P., & Brown, L. (2020). Stream ecology and management. John Wiley & Sons.

The Wolwedans Grassy Fynbos (CR) is characterized by a diverse array of grasses and fynbos species[90]. The dominant grass species include *Themeda triandra* and *Ehrharta villosa*, while fynbos species such as Erica species and Leucadendron species contribute to its floral diversity[91]. The Wolwedans Grassy Fynbos is considered an important habitat for various endemic plant species and provides critical forage resources for local wildlife, including antelope and rodents[92].

Melville Mesic Proteoid Fynbos is classified as Vulnerable (VU) and is characterized by a dense, low-growing shrub layer dominated by members of the Proteaceae family, such as Protea, Leucadendron, and Leucospermum. This fynbos type occurs in mesic conditions, where the annual rainfall ranges from 600 to 800 millimeters, and is usually found on nutrient-poor, acidic soils. The Melville Mesic Proteoid Fynbos is known for its high species richness and endemism, harboring numerous plant species that are found nowhere else in the world[93]. It plays a crucial role in maintaining local biodiversity and ecosystem functioning, providing habitat for various endemic bird species, small mammals, and invertebrates[94].

4.1.2.5 Preferred management density of elephants.

Not applicable until a decision is made about the prospects of maintaining the socio-ecological and cultural role of elephants in the Garden Route.

4.1.2.6 Game species and numbers

Indigenous medium to large mammal species, other than elephants, in the study area include bushpig (*Potamochoerus larvatus*), leopard (*Panthera pardus*), Chacma baboon (*Papio ursinus*), vervet monkey (*Chlorocebus pygerythrus*), caracal (*Caracal caracal*), small spotted genet (*Genetta genetta*), large spotted genet (*Genetta tigrina*), bushbuck (*Tragelaphus scriptus*), blue duiker (*Philantomba monticola*), Cape grysbok (*Raphicerus melanotis*), African clawless otter (*Aonyx capensis*), Cape porcupine (*Hystrix africaeaustralis*), honey badger (*Mellivora capensis*) and Cape grey mongoose (*Galerella pulverulenta*).

4.1.2.7 Sensitive habitats and species

The National Web based Environmental Screening Tool (https://screening.environment.gov.za/), henceforth referred to as the Screening Tool, identifies and describes the environmental sensitivity of sites as provided by input data from the South African National Biodiversity Institute (SANBI). Here we describe the plant, animal and terrestrial habitats' sensitivity, as delineated by the Screening Tool, of only the sections of the Park within which the elephant range falls (Wilderness and Knysna terrestrial sections).

The elephant range fall on or near the Endangered (EN) Eastern Coastal Shale Band Vegetation, Critically Endangered (CR) Knysna Sand Fynbos and Endangered (EN) Garden

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[90] Johnson, S. D., & Smith, G. F. (2019). Grassland ecosystems of South Africa: A review of current knowledge. Bothalia, 49(1), a2383.
[91] Van der Merwe, J. H., Van Wyk, A. E., & Van Rooyen, G. (2020). Major Plant Communities of the Cape Floristic Region. In A Phytosociological Analysis of the Grassland Vegetation of South Africa (pp. 73-92). Springer.
[92] Smith, G. F., Linder, H. P., & Ellis, A. G. (2021). Biomes and vegetation types of southern Africa: An overview. In The Vegetation of Southern Africa (pp. 25-59). Springer.
[93] Cowling, R. M., Proches, Ş., & Partridge, T. C. (1997). Explaining the uniqueness of the Cape flora: incorporating geomorphic evolution as a factor for explaining its diversification. Botanical Journal of the Linnean Society, 123(3), 263-282.
[94] Rebelo, A. G., Siegfried, W. R., & Oliver, E. G. H. (2006). Biodiversity planning and design: sustainable practices. Washington, D.C.: Island Press.

Route Shale Fynbos. Other sensitive vegetation types, as delineated by the finer-scale vegetation classification[95], within the elephant range are described in Section 2.4.

The Screening Tool identifies 60 plant Sensitive Species of Concern (SSCs) (Table 3) of which 14 were assigned a code as to withhold identities as these species are prone to illegal harvesting. The Screening tool identified 21 animal SSCs (Table 4) which include one sensitive species prone to illegal harvesting, 10 bird, one grasshopper, three butterfly, three spider and three mammal species.

4.1.2.8 Disturbed or degraded areas

Rehabilitation of degraded areas includes the re-establishment of natural biodiversity patterns and the restoration of key processes which support the long-term persistence of biodiversity[96]. The bulk of rehabilitation efforts are directed towards managing plant invasions and their consequences. These issues are dealt with in the IAS programme of the GRNP Management Plan. Since 2012 more than 10,000 ha of a total 18,000 ha of plantation areas, have been transferred from Cape Pine to SANParks. The exit procedure concluded in 2020. The plantation exit landscape restoration plan is updated annually with assessments done of the areas exited. These plans and maps are made available to park management for inclusion in an Annual Plan of Operations (APO) and for implementation[97].

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[95] Vlok, J.H.J., Euston-Brown, D.I.W. & Wolf, T. 2008. A vegetation map for the Garden Route Initiative. Unpublished 1:50 000 maps and report supported by CAPE FSP task team

[96] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf

[97] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf

Table 3. Plant Sensitive Species of Concern as identified by the Screening Tool, for the Knysna and Wilderness terrestrial sections of the Garden Route National Park.

Sensitivity level	Species	Sensitivity level	Species
High	*Ocotea bullata*	Medium	Sensitive species 419
High	Sensitive species 1252	Medium	*Oxalis fourcadei*
High	*Mimetes pauciflorus*	Medium	*Erica inconstans*
High	*Mimetes splendidus*	Medium	*Erica ingeana*
High	*Lobelia ardisiandroides*	Medium	*Erica onusta*
High	*Erica inconstans*	Medium	*Erica stylaris*
High	*Erica stylaris*	Medium	*Erica outeniquae*
High	Sensitive species 1171	Medium	*Erica glandulosa subsp. fourcadei*
Medium	*Faurea macnaughtonii*	Medium	*Centella longifolia*
Medium	*Ocotea bullata*	Medium	Sensitive species 1038
Medium	*Lampranthus pauciflorus*	Medium	Sensitive species 1024
Medium	*Ruschia duthiae*	Medium	Sensitive species 1032
Medium	*Argyrolobium rarum*	Medium	*Pterygodium newdigateae*
Medium	*Indigofera hispida*	Medium	*Zyrphelis outeniquae*
Medium	*Aspalathus bowieana*	Medium	*Osteospermum pterigoideum*
Medium	*Aspalathus glabrescens*	Medium	*Acmadenia alternifolia*
Medium	*Otholobium racemosum*	Medium	*Muraltia knysnaensis*
Medium	*Lebeckia gracilis*	Medium	*Phylica keetii*
Medium	Sensitive species 131	Medium	*Psoralea trullata*
Medium	*Lotononis elongata*	Medium	*Aristea nana*
Medium	*Amauropelta knysnaensis*	Medium	Sensitive species 1171
Medium	*Leucospermum glabrum*	Medium	Sensitive species 800
Medium	*Mimetes pauciflorus*	Medium	*Erica glumiflora*
Medium	*Mimetes splendidus*	Medium	*Erica setulosa*
Medium	*Selago burchellii*	Medium	Sensitive species 500
Medium	*Nemesia elata*	Medium	Sensitive species 53
Medium	*Psydrax capensis*	Medium	Sensitive species 728
Medium	Sensitive species 1081	Medium	*Acrolophia lunata*
Medium	*Lobelia ardisiandroides*	Medium	Sensitive species 763
Medium	*Pterygodium cleistogamum*	Medium	*Diosma passerinoides*

Table 4. Animal Sensitive Species of Concern as identified by the Screening Tool, for the Knysna and Wilderness terrestrial sections of the Garden Route National Park.

Sensitivity level	Species	Sensitivity level	Species
High	*Afrixalus knysnae* (Amphibia)	Medium	*Aneuryphymus montanus* (Invertebrate)
High	*Circus maurus* (Aves)	Medium	*Tsitana dicksoni* (Insecta)
High	*Stephanoaetus coronatus* (Aves)	Medium	*Aloeides thyra orientis* (Insecta)
High	*Neotis denhami* (Aves)	Medium	*Aloeides pallida jonathani* (Insecta)
High	*Bradypterus sylvaticus* (Aves)	Medium	*Quamtana Knysna* (Arachnida)
High	*Circus ranivorus* (Aves)	Medium	*Moggridgea intermedia* (Arachnida)
High	*Polemaetus bellicosus* (Aves)	Medium	*Izithunzi silvicola* (Arachnida)
High	*Falco biarmicus* (Aves)	Medium	*Dasymys capensis* (Mammalia)
Medium	*Sarothrura affinis* (Aves)	Medium	*Chlorotalpa duthieae* (Mammalia)
Medium	*Podica senegalensis* (Aves)	Medium	*Myosorex longicaudatus* (Mammalia)
		Medium	Sensitive species 8

4.1.2.9 Water bodies and distribution thereof

Freshwater ecosystems (rivers and wetlands) are a defining feature of the Garden Route landscape[98]. More than 70% of the rivers flowing through the GRNP are assessed to be in a good ecological condition. These rivers represent seven of South Africa's 223 river ecosystem types. Almost 75% of the river length in the GRNP has been selected as national freshwater ecosystem priority areas (FEPAs), the highest proportion of river length in any of the national parks. The Groot River (west) in the GRNP is one of only three free-flowing rivers in the country that have their entire length fully protected, although there is abstraction from this river to provide water to Nature's Valley and a small portion of the catchment support plantation. It is also one of South Africa's 19 flagship free-flowing rivers. Approximately 60% of the GRNP (primarily Outeniqua and Tsitsikamma Mountains) overlaps spatially with South Africa's strategic water source areas, which are those areas that supply a disproportionately high volume of the country's water in relation to their surface area. As such, this park makes the biggest contribution to strategic water source areas protection of all the national parks, contributing significantly to water security in downstream areas. The major, sixth order rivers that fall within the elephant range are the Homtini and Knysna rivers.

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[98] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf

4.1.2.10 Maps

Figure 3. Map showing the location and regional context of the GRNP.

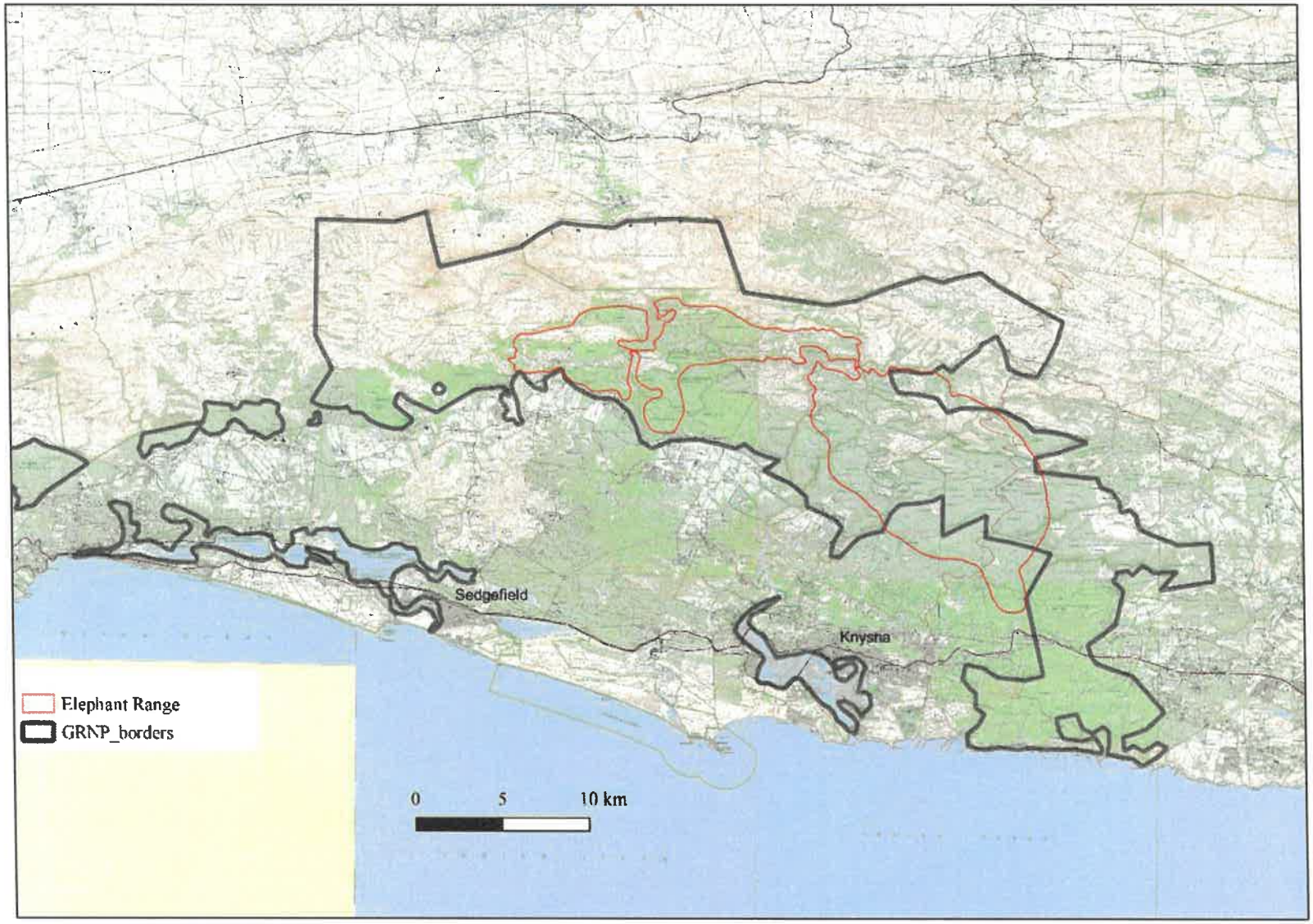

Figure 4. Topographic map of the GRNP section on which the elephant range falls and surrounding areas.

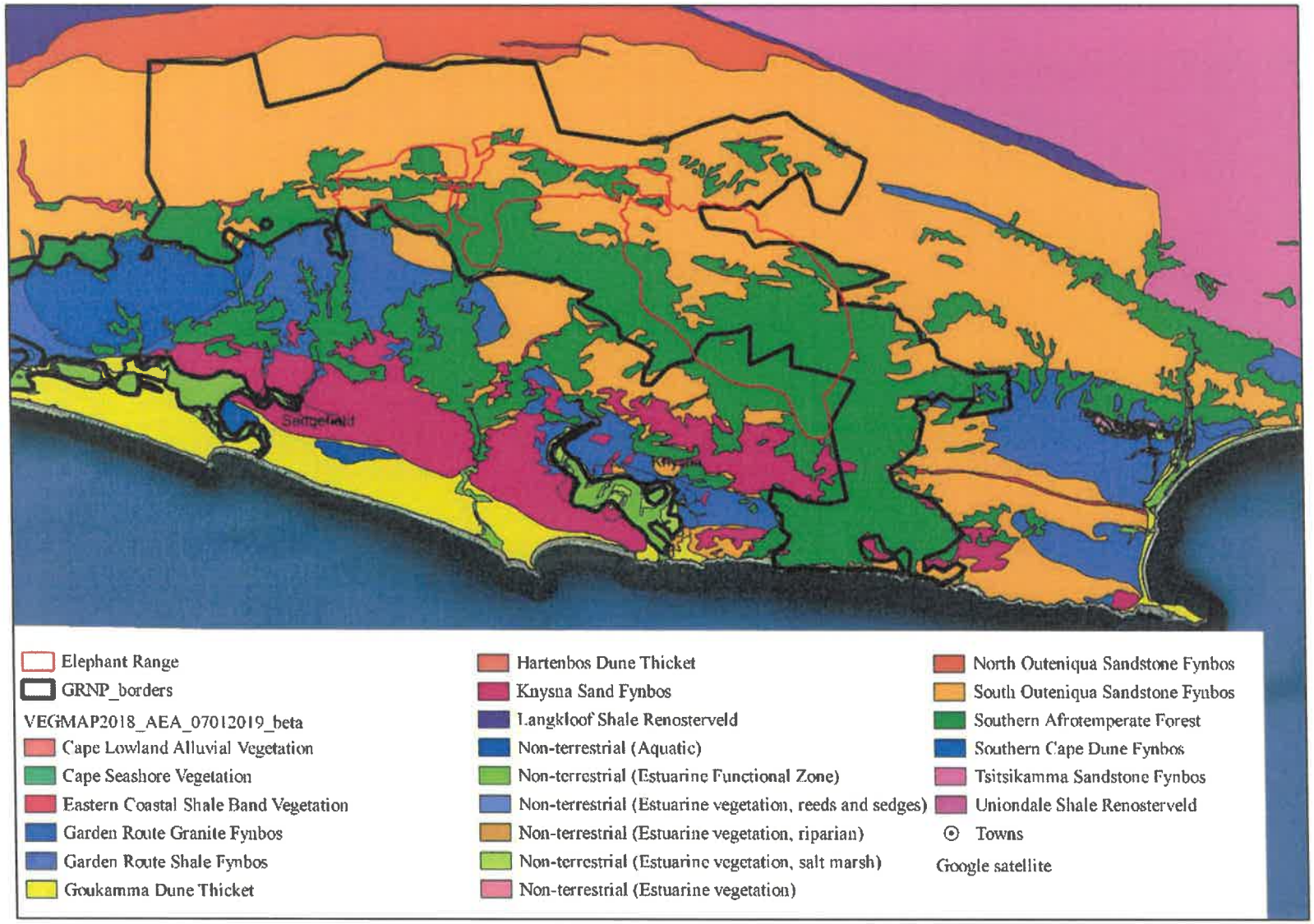

Figure 5. Map showing the vegetation types of the GRNP section on which the elephant range falls and surrounding areas.

4.2 Section B: Management goals and objectives

4.2.1 Habitat

4.2.1.1 Veld condition

Veld condition monitoring in the GRNP relates to rehabilitation and alien invasive plant clearing goals described in Section 2.8.

4.2.1.2 Fire management plan

The GRNP Management Plan[99] incorporates and Integrated Fire Management Programme to provide guidance on fire management particular in fynbos. Fire is the most important disturbance agent in fynbos vegetation and is essential for maintaining biodiversity and natural ecological processes. Of critical importance is fire frequency, fire season and fire intensity. The ideal fire regime for the maintenance of natural diversity in fynbos exhibits a natural range of variability in respect of fire frequency, fire intensity and fire season, creating numerous transient niches maintaining fynbos in a near-natural state, whilst specifically considering optimal biodiversity and ecosystem services and protection of human life and infrastructure.

The following acts are key references which support the fire programme: National Veld and Forest Fire Act No. 101 of 1998 and National Environmental Management: Biodiversity Act No. 10 of 2004. The SBFPA and SCFPA members includes park officials, forestry companies, conservation agencies and private landowners. Its primary objectives are to empower local communities in assisting them to become more aware of the risks of fire, capacitate them to act proactively to reduce the hazards and vulnerability of assets, and allow them to act as a first response to fire emergencies.

The minimum fire frequency is determined by time required for the vegetation to reach maturity and species to complete their life cycles[100]. The programme entails developing and implementing a fire management system that would incorporate the different aspects of a natural fynbos fire regime to ensure the conservation of biodiversity and the maintenance of natural ecological processes, but within the constraints of fire protection considerations. The fire management system should also meet the requirements of the National Veld and Forest Fire Act and be cost-effective and implementable.

4.2.1.3 Water provision

The Homtini and Knysna river gorges divide the elephant range into three sub-sections (Figure 2). The drainage density of these rivers is high because of well-distributed rainfall which maintains the perennial flow of these master sixth order rivers and their major tributaries[101]. Water provisioning is therefore not needed in the Garden Route.

4.2.1.4 Population management of other wildlife species

The GRNP is an open (fenceless) system and wildlife therefore move in-and-out of the park. There is therefore not a need to control or intensely manage wildlife species. Most wildlife related

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[99] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/gmp/gmp-aporoved-plan.pdf

[100] Southwood, A.J. and De Lange, C. 1984. Policy memorandum. Tsitsikamma Catchment Area. Department of Water Affairs and Forestry, Knysna.
Kraaij, T., Baard, J.A., Cowling, R.M., van Wilgen, B.W. & Das, S. 2013a. Historical fire regimes in a poorly understood, fire-prone ecosystem: eastern coastal fynbos. International Journal of Wildland Fire 22(3): 277-287. doi:10.1071/WF11163.

[101] Marker, M.E. 2003. The Knysna Basin, South Africa: geomorphology, landscape sensitivity and sustainability. The Geographical Journal 169 (1): 32–42.

issues, relevant to management, relate to the Human-Wildlife-Interface (HWI) or conflict (HWC) as described in the Terrestrial Ecosystem Management Program in the Park Plan[102]. Actions around HWI or HWC include mitigating threats related to Damage Causing Animals (DCAs) mainly on the park perimeters and the effects of human disturbances on animal behaviours mainly inside the park.

4.2.2 Information pertaining to elephants

4.2.2.1 Purpose of introduced elephant.

The GRNP was established as a national park in 2009 when about 52,000 ha of newly proclaimed land, previously managed by DWAF was handed over to SANParks and integrated with the already existing Tsitsikamma, Knysna Lakes and Wilderness National Parks. The newly proclaimed land were mostly terrestrial areas representing afrotemperate forests and mountain catchment fynbos areas which also included the Knysna elephant range. Since SANParks took over the management of the elephant range and surrounding areas, no introduction of elephants from elsewhere have taken place. However, in 1994, DWAF attempted an introduction of cull-orphaned elephants from the KNP, a project which was abandoned in 1999 when the introduced elephants were relocated after causing damage on neighbouring farmlands (see Section 2.3).

4.2.2.2 Public consultation

Following a detailed stakeholder perception analysis, SANParks is conducting an internal process to identify potential intervention options, mainly centred around the introduction of more elephants, related to there being only one female elephant left. Once a decision is made, and it points to the potential introduction of elephants, a public consultation process will be ensued.

4.2.2.3 Specifications for the release camp

SANParks typically does veld-to-veld translocations. An approach will be developed when needed if the collective decision with stakeholders identifies the option to introduce more elephants.

4.2.2.4 Control of elephant population size

SANParks does not anticipate a need to control populations in the GRNP.

4.2.2.5 Sex and age ratios

At present there is only one cow. SANParks does not anticipate a fixed sex and age ratio even if the co-decision identifies the option to introduce more elephants.

4.2.2.6 Measures to prevent poaching.

Poaching risks are extremely low. No explicit measures other than the safety and security requirements of the GRNP as a whole will focus on specific elephant effects.

4.2.2.7 Provision for adequate insurance

Insurance is provided within the SANParks general insurance of risks linked to the GRNP.

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[102] SANParks 2020

4.2.2.8 Contingency plans

Although SANParks addresses damages caused by elephants under the Damage Causing legislation, the present one elephant provides only small and local incidences of damage to property. Damage causing legislation will guide SANParks' response if the co-decision identifies the option to introduce more elephants.

4.2.2.9 Feeding scheme in case of a natural food supply shortfall.

The elephant range are not confined and under free-ranging conditions SANParks do not provide additional feeding.

4.2.2.10 Threat analysis and security plan.

The ten vital attributes of the park and the major threats to each were identified from a targeted stakeholder engagement process[103]. Fire, alien invasive plant species and land fragmentation through development were some of the recurring identified threats. Mitigation efforts to these are discussed in the GRNP management Plan[104] and form the basis of maintaining park integrity.

4.2.2.11 Identification of the long-term population structure in view of the management objectives of the population.

SANParks does not expect to have a typical and set population structure as a target if the co-decision identifies the option to introduce more elephants.

4.3 Section C: Information to be provided after approval for the introduction of elephants, but before a permit may be issued

4.3.1 Details of the elephants

4.3.1.1 The complete translocation history of each individual:

(a) Origin of the elephants (*e.g.*, location, habitat, fencing and size of reserve/farm); and

The present one elephant a remnant of a natural population.

(b) The age of elephants and selection of elephants to be translocated (e.g., exposure to tourists, fences and boma).

SANParks will comply with the requirements in the Norms and Standards for elephant management if the co-decision identifies the option to introduce more elephants.

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

Not applicable to GRNP at present.

4.3.1.3 The management of the capture, transport and keeping in boma (including sedation) of elephants, as well as the name of the acting veterinary practitioner.

Not applicable to GRNP. SANParks will however comply if the co-decision identifies the option to introduce more elephants.

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[103] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf
[104] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf

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.

Several 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 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

Elephant management objectives and strategic actions are centred around the collaborative decision-making process which will determine the future persistence of elephant and are formulated within the prescripts of the Norms and Standards for lawful elephant interventions and recognizing some trade-off will have to be made.

The elephant management objectives for GRNP are not mutually exclusive and several objectives can be addressed by the same management action. In this plan, actions are grouped to address each of the four elephant management objectives (Table 5). Links to the GRNP Management Plan and specific lower-level plans are made explicit. SANParks also provide clear indication how each action will be evaluated and which SANParks Divisions will be responsible for implementation (PM-Park Management; CSD-Conservation Services Division; SET-Socio-Economic Transformation Division, Comms) (Table 5).

Table 5. Elephant management objectives and implementation actions, responsible division, reporting and reference to the Park Plan.

No.	Action	Responsible Division/ Unit*	Reporting /Evaluation	Reference to Park Management Plan Programmes
Objective 1 To make a collaborative, transparent decision around the persistence and ongoing existence, or not, of elephant in the GRNP, guided by best available scientific/ecological knowledge and consideration of potential benefits and risks to people.				
1.1	Collaboratively decide with primary stakeholders on elephant persistence and options into the future through an appropriate engagement process.	PM, CSD	Report	Learning, Interpretation and Research and Monitoring; Stakeholder Engagement; Terrestrial Ecosystems Management; Landscape Functionality
1.2	Develop an implementation plan, based on the collaborative decision, within the prescripts of the Norms & Standards for lawful interventions, recognising some trade-offs will have to be made	PM, CSD	Implementation Plan	Terrestrial Ecosystems Management; Stakeholder Engagement
Objective 2 To celebrate and appropriately appreciate the value of elephants as important components of the cultural and historic heritage of the GRNP and region.				
2.1	Communicate / share / disseminate knowledge advancements and understanding around GR elephant – includes natural/ecological and historic context and changes over time	PM, SS, Communication, SET	Media articles & posts, Meeting minutes, brochures.	Learning, Interpretation and Research and Monitoring; Stakeholder Engagement; Communication; Cultural Heritage; Responsible Tourism.
2.2	Generate appropriate material on elephants' cultural and historic value, including oral histories where possible	PM, SET, SS	Posters, brochures, blog posts, EE Programmes	Cultural Heritage
Objective 3 To enhance potential benefits and mitigate dis-benefits to people from elephants				
3.1	Consider the impact of elephant on accessibility of areas of GRNP and, where appropriate, manage the potential risks of elephant presence to accessibility	PM	Risk-benefit consideration incorporated into way forward decision; appropriate safety awareness implemented where appropriate	Responsible Tourism
3.2	Manage activities, events and access and associated impacts, as deemed necessary, on the elephant	PM, SS	Event & access management decisions	Terrestrial Ecosystems Management; Landscape Functionality; Responsible Tourism
Objective 4 To inform and evaluate elephant management through collaborative research and monitoring				
4.1	Maintain basic elephant monitoring and situational awareness across the range	CSD	Data and/or reports	Learning, Interpretation and Research and Monitoring
4.2	Evaluate and learn from past elephant management actions to inform future options	CSD	Report	Learning, Interpretation and Research and Monitoring

*PM-Park management; CSD – Conservation Services; SS-Scientific Services; SET-Socio-Economic Transformation

7 Reporting and reflection

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.

Appendix A: Detailed objectives hierarchy for the Garden Route National Park.

The GRNP high-level objectives are progressively disaggregated through a series of subobjectives of increasing focus, set-out below in Figures A1 – A7 below and was extracted from the GRNP Management plan[105].

1. Natural heritage high-level objective: To conserve the diverse terrestrial and aquatic ecosystems of the park on a landscape scale through adaptive, collaborative and innovative management approaches.

- **1.1 Integrated fire management objective:** To maintain and / or simulate natural patterns and processes through the implementation of appropriate fire regimes by applying integrated fire management practices.
- **1.2 Alien invasive species objective:** To control and eliminate, alien biota to maintain and/or facilitate the re-establishment of natural biodiversity.
- **1.3 Aquatic ecosystem management objective:** To maintain functionality and diversity of freshwater, estuarine and marine ecosystems by minimising impacts on natural processes and by appropriately responding to change.
- **1.4 Terrestrial ecosystem management objective:** To maintain functionality and diversity of terrestrial ecosystems by minimizing impacts on natural processes and appropriately responding to change.
- **1.5 Landscape functionality objective:** To promote landscape connectivity associated with the park and maintain the park's environmental integrity through various collaborative interventions.

Figure A1. Natural heritage high-level objective and supporting objectives.

[105] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf

2. Cultural heritage high-level objective: To effectively preserve, interpret and present the diverse cultural heritage and history associated with the park through allowing access, engagement, responsible utilisation and research.

- **2.1 Heritage site accessibility objective:** To provide access to people to their heritage sites and facilitate sensitive and appropriate use of sites for tourism.
- **2.2 Site management objective:** To identify and effectively manage cultural heritage sites by developing and implementing a cultural heritage management plan for the park.
- **2.3 Collection management objective:** To effectively manage the park's heritage objects through identification, documentation, preservation, conservation, protection and appropriate presentation.
- **2.4 Intangible heritage objective:** To preserve intangible heritage through identification, documentation, presentation and enabling access for cultural practices.
- **2.5 Research objective:** To improve and diversify the cultural heritage knowledge of the park through quality and inclusive research partnerships with communities, universities and researchers.

Figure A2. Cultural heritage high-level objective and supporting objectives.

3. Responsible tourism high-level objective: To optimise the authentic nature- and culture-based opportunities and experiences while generating revenue without compromising the integrity of the bio-cultural assets.

- **3.1 Responsible Tourism performance objective:** To establish, maintain and continuously improve the park's responsible tourism performance, by implementing SANS1162 and meeting minimum requirements.
- **3.2 Visitor experiences objective:** To continually enhance the authentic visitor experience within the park, by effective visitor management, interpretation and quality of facilities offered.
- **3.3 Service excellence objective:** To provide excellent service to customers at all times by innovative approaches and enhancing staff motivation and competency.
- **3.4 Grow tourism revenue objective:** To sustainably grow income through tourism by optimising the range of authentic nature- and culture-based opportunities and experiences, products and services.
- **3.5 Diversified access objective:** To appeal to and attract a broader market by understanding changing visitor needs, expectations or preferences and adapting tourism operations.
- **3.6 Marketing objective:** To contribute to multi-level marketing efforts promoting the park's opportunities by developing and implementing a variety of sales, marketing and communication initiatives.
- **3.7 Universal access objective:** To enable appropriate access for differently abled visitors by providing adequate infrastructure and services, and access to experiences.
- **3.8 Mitigating impacts objective:** To minimise the impact of tourism infrastructure and activities, and balance various visitor expectations and demands across stakeholder groups by applying appropriate zonation and visitor management tools.

Figure A3. Responsible tourism high-level objective and supporting objectives.

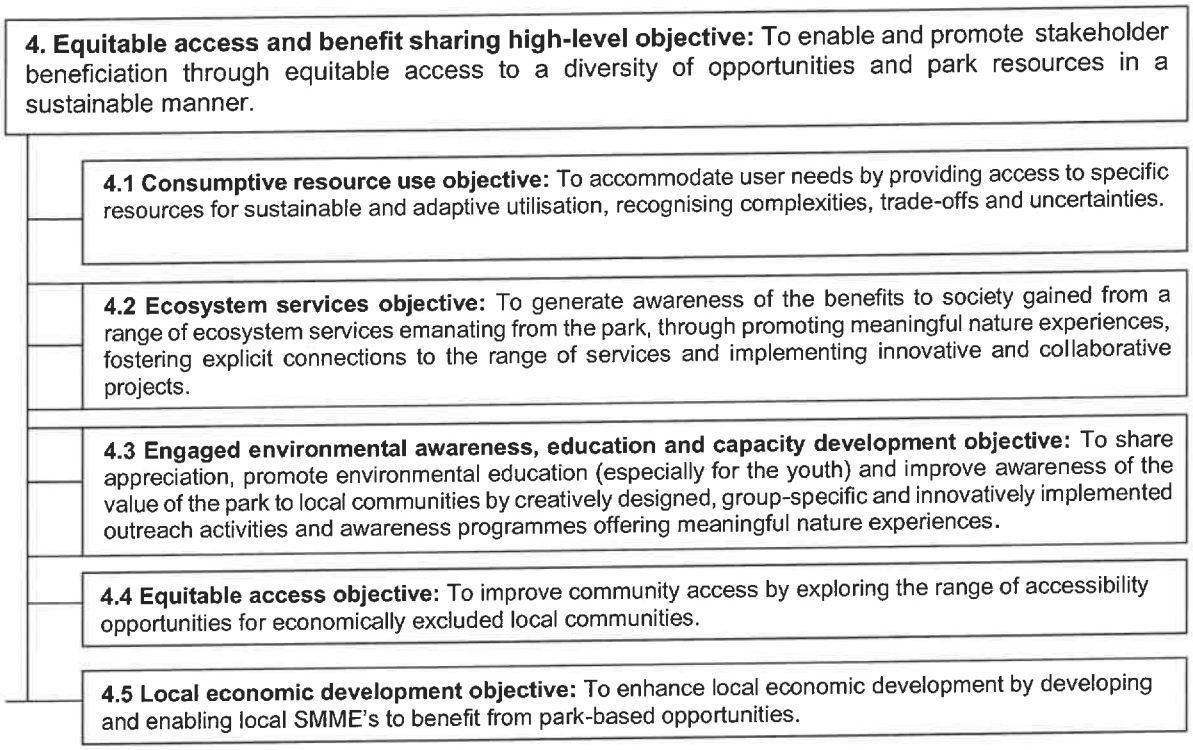

Figure A4. Equitable access and benefit sharing high-level objective and supporting objectives.

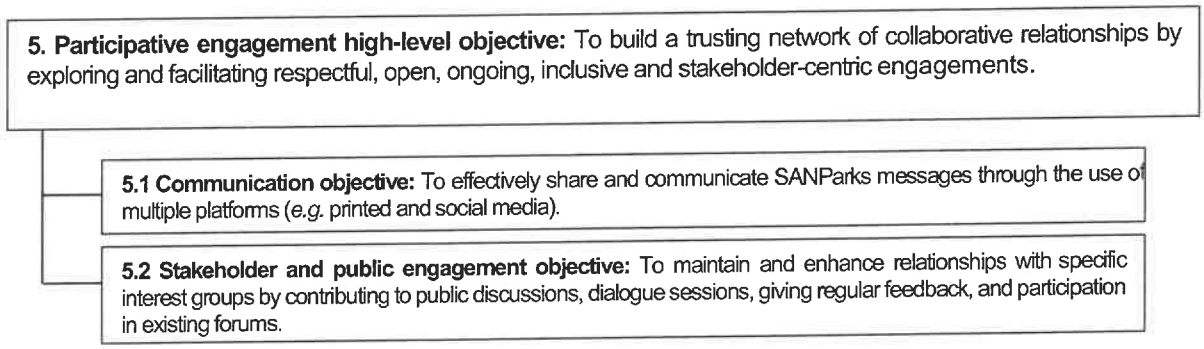

Figure A5. Participative engagement high-level objective and supporting objectives.

6. Learning, interpretation and research and monitoring high-level objective: To promote up-to-date knowledge and awareness related to biodiversity and cultural heritage by dynamically and collaboratively producing, translating and sharing relevant knowledge and experiences across boundaries and generations.

- **6.1 Research objective:** To constantly update knowledge by enabling and encouraging a diverse range of relevant internal and external research of a high standard across habitats, species and research disciplines, promoting both multi and transdisciplinary research work with an emphasis on collaboration.
- **6.2 Monitoring objective:** To allow adaptive management and reflective learning through maintaining key monitoring programmes (both biophysical and cultural/social).
- **6.3 Mutual learning objective:** To promote collective understanding about natural and cultural assets through facilitating targeted mutual learning events.

Figure A6. Learning, interpretation and research and monitoring high-level objective and supporting objectives.

7. Good governance and effective park management high-level objective: To ensure effective and efficient management and administrative support services through good corporate governance enabling the park to achieve its objectives.

- **7.1 Environmental management objective:** To strive for best practise and ensure compliance with environmental legislation through improved governance and environmental risk management.
- **7.2 Risk management objective:** To establish and maintain effective, efficient and transparent risk management systems by creating an enabling environment for the management of risk.
- **7.3 Financial management and administration objective:** To ensure sound financial management and administration through proficient budget management, effective internal controls and compliance to corporate governance prescripts.
- **7.4 Human capital development objective:** To ensure sufficient and effective staff capacity to achieve management objectives by adhering to legislation, corporate human resource policies and guidelines.
- **7.5 Information and records management objective:** To achieve best practice in the field of information and records management by complying with the Records Management Legislative framework and policies, thereby ensuring care of all vital records in SANParks.
- **7.6 Infrastructure objective:** To maintain, upgrade and develop new park infrastructure through proper planning and efficient management.
- **7.7 Safety and security objective:** To provide a safe and secure environment for both visitors and SANParks employees and to ensure that the integrity of the natural and cultural resources and assets are secured.
- **7.8 Safety health, environment and quality objective:** To continuously reduce the disabling injury frequency rate through the implementation of an efficient and effective Occupational Health and Safety management system.
- **7.9 Climate change objective:** To respond adaptively, and where appropriate innovatively, in managing the bio-cultural assets and tourism infrastructure and operations in the park by recognising and better understanding the impacts of climate change effects.

Figure A7. Good governance high-level objective and supporting objectives.

Appendix B: A summary of the stakeholder study of expectations and perceptions regarding elephants in the Garden Route National Park.

Findings from a survey to explore the value stakeholders hold of the presence of free roaming elephants in the Knysna forest and fynbos.

Undertaken by SANParks through an online and face-to-face questionnaire between November 2020 and August 2021.

Lizette Moolman[1]

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Summary

A recent and extended camera trap study running continuously since 2016 confirmed that only one wild Knysna elephant remains and roams the afrotemperate forest and fynbos between Diepwalle and Farleigh. Here we report on the findings of a survey which aimed to investigate the value and expectations that stakeholders hold for the Knysna elephant, in light of there being only one female elephant remaining. The survey was conducted in the form of an online questionnaire, which was conducted face-to-face with individuals who did not have access to the internet, for example SANParks field rangers who work in the elephant range. The targeted stakeholder groups consisted of 847 individuals representing local landowners, businesses, interest groups, managing authorities of protected areas, specialists, and NGOs. A total of 387 responses were received and analysed using Atlas.ti and R. Respondents were generally well informed and showed a very high interest in the Knysna elephant. There was a strong connection made between the Knysna forest and the elephant, with some misperceptions relating to the belief that only forest habitat is available to elephant in the area. Respondents predominantly indicated that they considered an intervention necessary and preferred an intervention in the form of more elephants being introduced to the Knysna elephant range. All the stakeholder groups predominantly wished for a cautionary approach to be taken and that if introduction is to be undertaken, the first step must be to introduce only one naturally orphaned calf. Generally, stakeholders also understood the risks and complexities involved in such an intervention. It is also important to be cognisant that the potential impact on livelihoods/safety, management responsibility and possible liability issues are not equal across all stakeholders. This needs to be considered in future decision-making processes. Respondents showed the highest preference for elephant specialists to be involved in the decision making processed, followed by the landowners of the elephant range and relevant conservation authorities. Ecological, rather than commercial or economic factors, were the main reasons why respondents expected intervention, and the cultural and historical value and appreciation of the Knysna elephant were also clearly noticeable in responses. The survey result is in itself not a decision but can be a valuable source of information to assist decision-makers in future. We recommend that the decision whether to intervene or not, should be undertaken through a well-planned decision-making process that include participation from experts and specialists from a range of fields including elephant translocations, wild elephant behaviour, wild elephant range management and legislation to name a few.

Appendix C: Details of properties comprising the Garden Route National Park.

C1. Land declared[106]

Government Notice 294 / Government Gazette 6216 of 17 November 1978 declared the following land to be part of the Tsitsikamma Forest and Coastal National Park in terms of the National Parks Act 1976 (Act No. 57 of 1976).

The farm No. 777, Humansdorp Registration Division, in extent of 234.6736 ha.

Government Notice 2509 / Government Gazette 11026 of 06 November 1987 declared the following land to be part of the Wilderness National Park in terms of the National Parks Act 1976 (Act No. 57 of 1976).

Portion 136 (a portion of portion 26) of the farm Klein Krantz No. 192, George Registration Division, in extent of 4.08 ha.
Portion 135 (a portion of portion 25) of the farm Klein Krantz No. 192, George Registration Division, in extent of 3.73 ha.
Portion 134 (a portion of portion 8) of the farm Klein Krantz No. 192, George Registration Division, in extent of 4.47 ha.
Portion 131 (a portion of portion 24) of the farm Klein Krantz No. 192, George Registration Division, in extent of 13.38 ha.
Portion 64 of the farm Klein Krantz No. 192, George Registration Division, in extent of 488.91 ha. Portion 31 of the farm Klein Krantz No. 192, George Registration Division, in extent of 14 ha.
Portion 33 (a portion of portion 6) of the farm No. 191, George Registration Division, in extent of 4.95 ha.
Portion 32 (a portion of portion 5) of the farm No. 191, George Registration Division, in extent of 5.688 ha.
Portion 31 (a portion of portion 4) of the farm No. 191, George Registration Division, in extent of 5.87 ha.
Portion 30 (a portion of portion 3) of the farm No. 191, George Registration Division, in extent 5.77 ha.
Portion 29 (a portion of portion 2) of the farm No. 191, George Registration Division, in extent of 5.24 ha.
Portion 28 (a portion of portion 1) of the farm No. 191, George Registration Division, in extent of 3.50 ha.
Portion 38 of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 9.91 ha.
Portion 37 of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 27.27 ha.
Portion 36 (a portion of portion 28) of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 1.65 ha.
Portion 35 (a portion of portion 16) of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 10.43 ha.
Portion 34 (a portion of portion 15) of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 15.34 ha.
Portion 11 (a portion of portion 3) of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 5.35 ha.

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[106] Garden Route National Park Plan 2020-2029. https://www.sanparks.org/assets/docs/conservation/park_man/grnp/grnp-approved-plan.pdf

Portion 32 (a portion of portion 7) of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 3.99 ha.
Portion 31 (a portion of portion 3) of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 5.95 ha.
Portion 26 of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 0.8009 ha.
Portion 4 of the farm Boven Lange Valley No. 189, George Registration Division, in extent of 9.74 ha.
Portion 22 (a portion of portion 13) of the farm Drie Valleyen No. 186, George Registration Division, in extent of 2.2232 ha.
Portion 21 (a portion of portion 10) of the farm Drie Valleyen No. 186, George Registration Division, in extent of 2.3299 ha.

Government Notice 2814 / Government Gazette 11068 of 18 December 1987 declared the following land to be part of the Tsitsikama Forest and Coastal National Park in terms of the National Parks Act 1976 (Act No. 57 of 1976).

The farm Salt River No. 241, Humansdorp Registration Division, in extent of 2,533 ha.

Government Notice 368 / Government Gazette 16293 of 10 March 1995 declared the following land to be part of the Tsitsikama Forest and Coastal National Park in terms of the National Parks Act 1976 (Act No. 57 of 1976).

Farm 382 of Natures Valleys No. 382, Knysna Registration Division, extent unknown Farm 444 of Natures Valleys No. 444, Knysna Registration Division, extent unknown.
Remainder of Farm 434 of Natures Valleys No. 434, Knysna Registration Division, extent unknown.

Government Notice 1732 / Government Gazette 16804 of 10 November 1995 declared the following land to be part of the Wilderness National Park in terms of the National Parks Act 1976 (Act No. 57 of 1976).

Portion 10 of the farm Ronde Valley No. 187, George Registration Division, in extent of 208.14 ha.
Portion 11 of the farm Ronde Valley No. 187, George Registration Division, in extent of 56.8756 ha.
Portion 23 of the farm Ronde Valley No. 187, George Registration Division, in extent of 147.0419 ha.

Government Notice 30 / Government Gazette 16927 of 19 January 1996 declared the following land to be part of the Tsitsikama Forest and Coastal National Park in terms of the National Parks Act 1976 (Act No. 57 of 1976).

Portion 1 of the farm No. 299, Knysna Registration Division, in extent of 185.8228 ha.
Portion 3 of the farm Matjies River No. 295, Knysna Registration Division, extent unknown

Government Notice 379 / Government Gazette 17728 17 January of 1997 declared the following land to be part of the Wilderness and Tsitsikamma National Parks in terms of the National Parks Act 1976 (Act No. 57 of 1976).

Farm Slaaps Bosch No. 15, Knysna Registration Division, in extent of 3497.9483 ha.
Farm Langbosch No. 16, Knysna Registration Division, in extent of 2598.9893 ha.
Farm Keur River No. 18, Knysna Registration Division, in extent of 1595.4907 ha.
Farm Zoetkraal No. 19, Knysna Registration Division, in extent of 2268.2109 ha.
Farm Boven Palmiet River No. 20, Knysna Registration Division, in extent of 3390.5249 ha.

Farm Onder Palmiet River No. 22, Knysna Registration Division, in extent of 2592.8366 ha.
Farm Dwars River No. 23, Knysna Registration Division, in extent of 3026.4702 ha.
Farm Adjoining Klipheuwel No. 296, Knysna Registration Division, in extent of 31097.4631 ha.
Farm Hoekwil No. 108, George Registration Division, in extent of 72.1909 ha.

Government Notice 248 / Government Gazette 31981 of 06 March 2009 declared the following land to be part of the Garden Route National Park in terms of the National Environmental Management: Protected Areas Act 2003 (Act No. 57 of 2003).

Portion 1 of the farm Robbe Hoek Forest Reserve No. 583, Humansdorp Registration Division, in extent of 131.6838 ha.
Portion 1 of the farm Langebosch Forest Reserve No. 446, Humansdorp Registration Division, in extent 133.2781 ha.
Portion 1 of the farm Kwaibrand Forest Reserve No. 524, Humansdorp Registration Division, in extent of 440.3524 ha.
Portion 1 of the farm Koomans Bush Reserve No. 523, Humansdorp Registration Division, in extent of 380.14 ha.
Remainder of Portion 1 of the farm Palmiet River No. 584, Humansdorp Registration Division, in extent of 109.44 ha.
Portion 1 of No. 881, Humansdorp Registration Division, in extent of 139.85 ha.
Portion 3 of (Portion 1) of the farm Palmiet River No. 584, Humansdorp Registration Division, in extent of 58.8805 ha.
Portion 2 of the farm No. 880, Humansdorp Registration Division, in extent of 86.4151 ha.
Portion 1 of the farm No. 463, Humansdorp Registration Division, in extent of 61.64 ha.
The farm Tsitsikamabos Park B No. 465, Humansdorp Registration Division, in extent of 6.76 ha.
Remainder of the farm Tsitsikamabos Park A No. 464, Humansdorp Registration Division, in extent of 327.5140 ha.
Remainder of farm Gouna No. 89, Knysna Registration Division, extent unknown
Remainder of farm Blaauw Krantz No. 250, (Portion outside Tsitsikama National Park as declared by proclamation No. 61, Government Gazette No. 4237 dated 29 March 1974) Knysna Registration Division, extent unknown
Portion 1 of the farm No. 226, Knysna Registration Division, in extent of 292.18 ha.
Remainder of Portion 2 of the farm Saltrifor No. 241, Knysna Registration Division, in extent of 248.64 ha.
Remainder of farm Saltrifor No. 241, (Portion outside Tsitsikama National Park as declared by proclamation No. 2814, Government Gazette No. 11068 dated 01 December 1987) Knysna Registration Division, extent unknown
Portion 1 of the farm No. 225, Knysna Registration Division, in extent of 239.58 ha.
Remainder of farm Goudveld No. 515, Knysna Registration Division, in extent, 3,653.35 ha.
Portion 2 of the farm Keurbooms River Forest Reserve No. 522, Knysna Registration Division, in extent of 418.46 ha.
The farm Klein Palmiet River No. 14, Knysna Registration Division, in extent of 3,923.07 ha.
Remainder of farm Keurbooms River Forest Reserve No. 522, (Excluding the portion south west of the Whiskey Creek Forest Nature Reserve as declared by proclamation No. 2675, Government Gazette No. 9519 dated 7 December 1984) Knysna Registration Division, extent unknown
Remainder of farm No. 558, Knysna Registration Division, in extent, 4,672.63 ha.
Remainder of farm No. 556, Knysna Registration Division, in extent, 3,910.5064 ha.
Portion 2 of the farm Outeniquaberg No. 352, George Registration Division, in extent of 1,208.4537 ha.
Farm No. 291, George Registration Division, in extent of 28.35 ha.

Remainder of Portion 3 of the farm Roode Kraal No. 184, Knysna Registration Division, in extent of 227.91 ha.
The farm Katara No. 512, Knysna Registration Division, in extent of 4,079.96 ha.
Remainder of Portion 3 of the farm Lawn Wood No. 186, Knysna Registration Division, in extent of 1,019.26 ha.
Remainder of the farm Deep Wall No. 218, Knysna Registration Division, in extent of 4,139.36 ha.
Portion 117 (portion of portion 116) of the farm East Brook No. 183, Knysna Registration Division, in extent of 61.75 ha.
The farm Yzernek No. 527, knysna Registration Division, in extent of 1,620.0092 ha.
Remainder of the farm Buffelsnek No. 529, Knysna Registration Division, in extent of 3,270.80 ha.
Portion 1 of the farm Buffelsnek No. 529, Knysna Registration Division, in extent of 52.57 ha.
Remainder of portion 2 (Klein River Nek) of the farm Roode Muur No. 6, Knysna Registration Division, in extent of 641.69 ha.
Portion 3 of the farm Roode Muur No. 6, Knysna Registration Division, in extent of 93.85 ha.
Portion 25 (a portion of portion 3) of the farm Roode Kraal No. 184, Knysna Registration Division, in extent of 21.59 ha.
Remainder of the farm Van Der Wattsbos No. 513, Knysna Registration Division, in extent of 616.67 ha.
The farm Gouna North No. 530, knysna Registration Division, in extent of 2,339.95 ha.
The farm No. 173, knysna Registration Division, in extent of 8.93 ha.
The farm No. 174, knysna Registration Division, in extent of 10.50 ha.
The farm Taitskop No. 516, Knysna Registration Division, in extent of 265.51 ha.
The farm Church Millwood Bush No. 117, knysna Registration Division, in extent of 1,006.09 ha.
The farm No. 517, Knysna Registration Division, in extent of 731.22 ha.
Remainder of the farm Boven Diep River No. 5, Knysna Registration Division, in extent of 400.6 ha.
Portion 1 of the farm Boven Diep River No. 5, Knysna Registration Division, in extent of 433.69 ha.
The farm Farleigh No. 511, Knysna Registration Division, in extent of 4,353.11 ha.
The farm Millwood No. 519, Knysna Registration Division, in extent of 2,211.44 ha.
Barkhuis Berg Forest Reserve No. 2, Knysna Registration Division, in extent of 4,502.2538 ha.
Portion 5 of the farm Outeniquaberg No. 352, George Registration Division, in extent of 12.01 ha.

Government Notice 95 / Government Gazette 34017 of 11 February 2011 declared the Wilderness and Tsitsikamma National Parks to be part of the Garden Route National Park in terms of the National Environmental Management: Protected Areas Act 2003 (Act No. 57 of 2003).