

Movement patterns of two reintegrated African elephant (*Loxodonta africana*) herds: transitioning from captivity to free-living (#93577)

Comments to second reviewing process

The authors have adequately answered all comments from the first reviewing. This version has greatly improved. The data is well presented, the text well structured. The Conclusions align with the research questions and results, pointing out the most important factors. This research is the first of its kind in showing that previously captive elephants can adapt to a new specific environment. A positive is the long time spanning this research. I am happy for it to be published after some small amendments to the text as following:

Line 60-61 ...leading to an animal being deemed as unmanageable due it either killing humans or conspecifics.

Something grammatically wrong here

Line 62-63 *Some facilities either sell or give away animals to other facilities or zoos if there is no longer commercial incentive.*

Please rephrase, not clear.

Animals, being elephants?

...if they are no longer of commercial value??

...if there is no longer a commercial value in keeping them?

Line 60 *Researchers have argued*

Some researchers have suggested? Surely not all?

Line 75-79 *Although reintegration is not new in southern Africa, studies (Ashraf et al., 2005; Angkavanish & Thitaram, 2012; Evans, Moore & Harris, 2013a,b; Perera et al., 2018; Goldenberg et al., 2021; Pretorius, Eggeling & Ganswindt, 2023) analysing the behavioural adaptations of elephants post-reintegration remain scarce and detractors still question the credibility and viability of this practice.*

You state reintegration is not new in southern Africa, but then you reference two Asian studies. Maybe add *Although reintegration is not new in southern Africa and Asia, studies...*

Or: *Although reintegration is not new in southern Africa, studies of both Asian and African elephants (.....)*

Or: *Although reintegration is not new in southern Africa, studies (Ashraf et al., 2005; Angkavanish & Thitaram, 2012; Evans, Moore & Harris, 2013a,b; Perera et al., 2018; Goldenberg et al., 2021; Pretorius, Eggeling & Ganswindt, 2023) analysing the behavioural adaptations of both African and Asian elephants post-reintegration remain scarce.....*

Line 83: *National Norms and Standards for the Management of Elephants in South Africa*
As this is a title, perhaps place it in inverted commas?

Allow or allows?

Line 119-121: *contrary, Evans et al. (2013b) demonstrated that reintegration can indeed be successful for individual elephants after monitoring a reintegrated African elephant cow for over five years post-release (Evans, et al. 2013b).*

I don't think you need to reference the paper twice

Line 141-146: *To better understand and evaluate the long-term impact of reintegration on the ranging behaviour of formerly captive elephants, it is vital to examine the natural movement patterns of wild elephants. This understanding is necessary not only for improving management and scientific knowledge but also as a benchmark for the expected behaviour of reintegrated elephants. The movement patterns of elephants can offer unique insights into their behaviour at an ecological level.*

Now that you have removed the comparison to wild elephants in MS, I don't think this paragraph is relevant any longer.

Line 156: *...reintroducing various wildlife species such as the elephant (Duffy et al., 2002).*
reintroducing various wildlife species including the elephant (Duffy et al., 2002).

Line 158: *These unnatural behavioural occurrences is are often a consequence of limited space*

Line 161-162: *the introduction of cull orphans originally translated from KNP*

This the first mention of KNP, so write out full name

..... as well as conflicts with other species within the fenced system

Line 163: *Artificial boundaries could have a confounding effect on elephants.*

Why??? What do you mean by this??

Localised movement patterns and reduction of food for other species, is not a confounding effect on the elephants.

Movement data

Line 284: *and through daily observation sessions conducted by the handlers*

Line 301-302: *All requirements as per the necessary regulations, TOPS legislation / Veterinary Regulations and the EMP were adhered for this procedure.*

And N&S???

You need to give full title of TOPS and EMP, and both references (i.e. websites) in reference section

Line 333-334: *...to 23 m for all locations (Purdon & Van Aarde, 2017). The resolution of 334 the square raster cells was set at 30m,*
no gap

Line 350-352: Four periods of the day were chosen to replicate what previous studies have chosen and comprised of dawn (05:00-07:00), midday (12:00-14:00), dawn **dusk** (18:00-20:00) and night (22:00-352 02:00)

Discussion

Line 585: ... and individuals. initial movements **s** patterns...
Delete s

Line 596-7: due to their decreased **d** dependency on water during this season

Line 621-623: *Addo National Park is considered a large-fenced system and researchers have shown 100% mean range size for females is 5500-hectare (reserve size = 70000-hectare), which amounts to 8% of the reserve being utilized (Whitehouse & Schoeman, 2003).*
I find this confusing, if you say 100% mean range size, but then state they only used 8% of the available area. I feel this needs clarification. Maybe leave out the 100%?

Line 636 -638: *When the SPGR elephants were still in captivity, they roamed in the areas between water sources 5, 6, 7, 8 and 11 under the guidance of their handlers.*

I don't see how this relates to the previous sentence, or the following one. Why do you mention this? Is there a comparison the new UD? If not, rather leave it out as the next sentence refers to the small area explored being positive (Another positive observation....) Or place it somewhere more appropriate. Possibly after this sentence, but then discuss the difference/similarity (why you mention it, as you did with KKR).

Line 654-658: *During the dry season, the density of water sources were less, forcing them to travel longer distances to locate new water sources and settle once they have found adequate sources. However, if they don't locate such sources, they either need to return to sources they know or increase their distance of movement to search for other sources.*

I find the usage of present and past tense confusing. Either make it all past or if still applicable all present tense, and maybe mention it is still like that. As your observations and all other text are in the past, I prefer past, things may have changed since then.

Are there no artificial water sources on KKR??

Line 663-668:

Did you see them walking together as one herd?? If so mention it. If not then separate the sentences:

E.g.

The translocation of a wild herd in September 2020, could also have contributed towards the expansion into these novel areas. **Due to elephants' ability to remember the spatial location of other elephants (Bates et al., 2008), **they may** possibly **want** to either avoid competition (Dunbar, 1992) or move together as one herd **for increased** security (Hamilton, 1971) demonstrating social learning (Lee & Moss, 1999) and fusion patterns (Goldenberg et al., 2022).**

Line 672-673: *The more prominent peaks in movement during Phase 2 could indicate.....*

For which reserve???

References

**In the Intro you mention DEAT, maybe also need to mention if its NEMBA or N&S.
In the references I think you should also give the website for the N&S 2008, or the new one (not sure if it's been signed off?).**

In the text references you sometimes cite Name et al ... and sometimes you write all names. Please amend according to specs for Journal

Table 2 Characteristics of the reserves

Animal Species KKR. You forgot to write the scientific name after African buffalo