Eighteen-month update on the movements and social organization of a population of black rhinos introduced to a new area by 'same day' free release translocation in Kenya

F.J. Patton and P.E. Campbell

Munich 81547, Germany; email: felixp@africaonline.co.ke

Introduction

Details of the free-release translocation of 27 black rhinos into a new area of the Ol Pejeta Conservancy in the Laikipia area of central Kenya were presented in Patton et al. (2010). The results for the first six months after release suggested that all the rhinos bar one had settled in their new environment. Research, as described below, was continued for a further 12 months to determine how the population developed as the individuals became more used to their new environment.

Results

At day 550, the end of the reporting period, blocks J+K+L+O+P+T (Fig. 1) were the most utilized (at 77%) by 22 of the 27 rhinos (82%). Blocks Q+R+S+M+U+V were rarely utilized (at 18%) and by only 4 of the 27 rhinos (15%).

In the 18-month period, the furthest recorded distance (GPS location) from the release site averaged 8.54 km (range 4.22-14.96kms; n=27). Of the 27 rhinos, 18 moved no further than their furthest distance recorded in the first six months, while the other 9 moved a further 2.56 km (range 0.96-8.02kms; n=9).

Between 6 and 12 months of release, three rhinos made what we considered to be an important change to their centre of activity—two females and one male. Between 12 and 18 months, six rhinos made what we considered to be an important change to their centre of activity—all males.

The time taken for the rhinos to settle is shown in Table 1 and varied between one and 510 days (mean 351 days, n=27) with one rhino

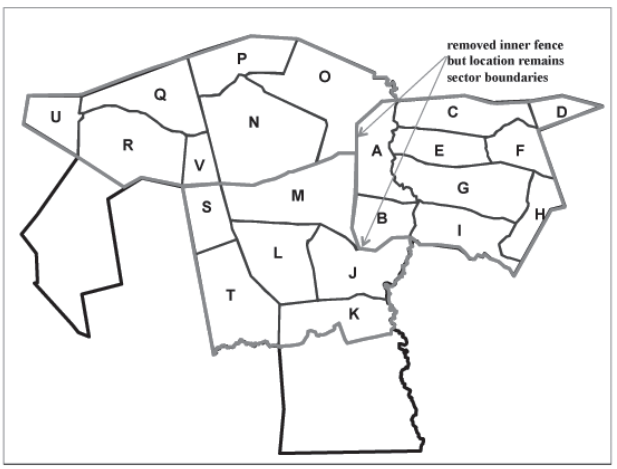

Figure 1. Ol Pejeta Conservancy sector map highlighting where inner fences were removed.

Table 1 Movement of rhinos into new areas prior to settling

No. of changes	No. of rhinos	Time taken to settle (days)	Mean
0	6	1, 1, 15, 32, 71, 351	78
1	6	122, 190, 243, 272, 400, 507	289
2	7	191, 214, 236, 359, 381, 438, 448	324
3	3	269, 475, 510	418
4	3	389, 450, 457	432
5	1	431	431
6	1	483	483

Table 2 Interactions recorded during the research period

Interaction sexes	0-18m	%	0-6m	%	7-12m	%	13-18m	%
Male/male	145	30	18	18	42	20	85	47
Female/female	4	1	0	0	1	0	3	2
Male/female	337	69	82	82	162	80	93	51
TOTAL	486		100		205		181	

changing its area of activity six times before settling.

Interactions

Table 2 shows the interactions, where two rhinos were sighted at the same location at the same time, recorded over the 18-month period of the research.

Discussion

Most of the blocks favoured in the first 6 months of the research continued to be so for the next 12 months when blocks L and T, further to the west of the new area, were favoured over blocks M and N. The least utilized blocks were in the far west of the Conservancy, some distance from a release site. These blocks contained equally good habitat for the black rhinos as the favoured blocks. This suggests that the translocated rhinos neither had desire to travel away from an area they found suitable nor to explore the potential extent of their territory.

While initially block data analysis suggested that 26 of the 27 rhinos in the new area settled their ranges within 6 months of release, the longer-term data showed that 21 of the 26 rhinos changed their area of activity in later periods. The data illustrates the difficulty in definitively stating when an individual has finally settled after translocation.

Black rhinos are considered solitary animals (Patton and Jones 2008). Over the 18-month period, our results indicate a general preference for solitude with rhinos sighted alone on 77% of occasions (3352 out of 4328 times). Six individuals were alone at between 90% and 100% of their sightings, 11 at between 75% and 89% of their sightings, 7 at between 50% and 74% of their sightings with only 2 rhinos at less than 50% of their sightings. There was no observable effect of age or sex.

At the end of the 18-month research period, female rhinos were largely spread out throughout the new area. Five occupied exclusive areas with no other females present while the other four shared space in one cluster of two and one cluster of three. The picture was less clear for the males with only four showing exclusive or near exclusive spacing but the majority clustering in groups o f two, three and four. These results may simply be a reflection of the low density population—27 rhinos in 180 km^2 is only 0.15 per km^2 compared to around 0.3 per km^2 in the old area of the Conservancy, the former Sweetwaters Game Reserve, especially with the females.

Despite the close spacing and sharing of territories of the males, there were only three observed male fights. It is not possible at this early stage of the research to determine whether this arrangement demonstrates a system of territorial breeding males tolerating non-breeding males within their territory or whether all males were potential breeding males but were not territorial tolerating the presence of other breeding males within the same space but not often meeting as shown by the limited number of recorded interactions—145 male/male out of 2858 male sightings (5%).

References

Patton FJ, Jones M. 2008. The demographics and use of space of the black rhino population of the Sweetwaters Game Reserve, an enclosed reserve in Kenya *Endangered Species Update* 25 (2):45–56.

Patton FJ, Mulama MS, Mutisya S, Campbell PE. 2010. The colonisation of a new area in the first six months following 'same-day' free release translocation of Black Rhinos in Kenya *Pachyderm* 47:66–79.