<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>How to move around and where to settle: environmental determinants of spatial behaviour in reintroduced lions (Panthera leo)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Yiu, SW; Keith, M; Parrini, F; Karczmarski, L</td>
</tr>
<tr>
<td><strong>Citation</strong></td>
<td>The 14th Savanna Science Network Meeting, Kruger National Park, South Africa, 13-17 March 2016.</td>
</tr>
<tr>
<td><strong>Issued Date</strong></td>
<td>2016</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10722/235495">http://hdl.handle.net/10722/235495</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
<td>This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.</td>
</tr>
</tbody>
</table>
How to move around and where to settle: Environmental determinants of spatial behaviour in reintroduced lions (*Panthera leo*)

Sze-Wing Yiu¹,², Mark Keith³, Francesca Parrini² & Leszek Karczmarski¹

¹The Swire Institute of Marine Sciences, The University of Hong Kong
²Centre for African Ecology, University of the Witwatersrand
³Centre for Wildlife Management, University of Pretoria
Methodology

Dinokeng Game Reserve

Lions reintroduction

11 lions ($4\,\text{♂} \, 7\,\text{♀}$)

3 separate releases (2011-13)

Satellite collared

6 GPS locations/day
**Methodology**

**Habitat selection analyses**

Oct 2011 – Sep 2014

2\(^{nd}\) order: Home range (HR)
Utilization distribution
Time Local Convex Hull (T-LoCoH)

3\(^{rd}\) order: Habitat features
Resource Selection Function (RSF)

**Lions reintroduction**

11 lions (4♂, 7♀)

3 separate releases (2011-13)

Satellite collared
6 GPS locations/day
RESULTS: 2nd order - Home Range Establishment

- Males 1st release
- Males 2nd release
- Females 3rd release

- Females 1st release
- Females 2nd release
- Females 3rd release

- N 50% HR 95% HR

- Release site
- Translocation

0 4 8 km
Results: 2\textsuperscript{nd} order - Home Range Establishment

Effects of territorial conflicts on HR overlap %

Event: Lions-2\textsuperscript{nd} release killed by lions-1\textsuperscript{st} release

Males-1\textsuperscript{st} release: $\uparrow$ 66.72%  
Females-1\textsuperscript{st} release: $\uparrow$ 67.55%  
Surviving male-2\textsuperscript{nd} release: $\downarrow$ 90.69%
Results: 3rd order - Habitat features

Areas close to dams, rivers & with high % tree cover

Riparian vegetation & seasonal floodplains

Response of lions to one unit increase in distance to dam

- Lions-1st release
- Lions-2nd release

(Avoidance)

(Preference)

Before fight    After fight    Before fight    After fight
Concluding thoughts

- Release location affects long-term establishment

- Intra-specific competition leads to selections for sub-optimal resources

- Behavioural differences of animals reintroduced in different orders should be considered
Acknowledgements

Dinokeng Management Association
Kwalata Game Ranch
Mongena Game Lodge
iKhaya LamaDube Game Lodge
Mongena rangers

The Rufford Foundation:
Rufford Small Grants for Nature Conservation