Spatial cognition in free-ranging Guinea baboons (Papio papio) – A natural experiment

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Résumé

The ability of animals to effectively navigate through space while looking for food can have major implications for their survival, and thus might be an important driver of cognitive evolution. We assessed whether free-ranging Guinea baboons (*Papio papio*) in the vicinity of Simenti, Senegal, keep track of the spatio-temporal availability of a preferred food resource, the natal orange (*Strychnos spinosa*). More specifically, we estimated linearity and speed of travel, as well as the time of departure from sleeping sites towards this food resource ("orange area") when ripe fruit was available ("orange season") compared to when it was not. We further evaluated how space use patterns changed when this food resource was not available unexpectedly during its expected season. Therefore, we used a "natural experiment" in the dry season of 2019. In late January 2019, the Niokolo Koba National Park experienced extensive bushfires, during which most of the fruits of *S. spinosa* burned. We examined whether the study parties showed a shift in their space use patterns in 2019 compared to two years prior and two years after the destruction of fruits by bushfires. Guinea baboons travelled more linearly and faster and started earlier towards the orange area when *S. spinosa* was in season compared to when it was not. Our study parties showed a substantial shift in space use patterns in the orange season of 2019 compared to other years. These results indicate that Guinea baboons keep track of the spatio-temporal availability of a high-value food resource within their home range. They further show the Guinea baboons' capacity for flexible decision-making and goal-directedness in their foraging strategies instead of purely relying on habitual space use patterns. The exact mechanisms with which Guinea baboons navigate through space remain to be investigated but are likely to resemble route-based navigation as found for other baboon species.

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