**First insight into the spatio-temporal ecology of sympatric large carnivores in Niokolo-Koba National Park, Senegal**

Robin Horion, Zoe Woodgate and Marine Drouilly

Supplementary material is published as supplied by the authors. It is not checked for accuracy, copyedited, typeset or proofread. The responsibility for accuracy and file functionality remains with the authors.

Supplementary Table 1 Table ranking the three best occupancy models for spotted hyena, leopard, lion and wild dog in Niokolo-Koba National Park, Senegal. Detection probability (*ρ*) and site use (*ψ*) were modelled using covariates. AICc is the Akaike information criterion corrected for small sample sizes, used for model selection; ΔAIC is the difference in AICc values between the best-performing models; AICw is Akaike weight, a measure of the relative plausibility of each model; and GOF is a measure of the goodness-of-fit using the overdispersion parameter *ĉ*.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  Species | Model | AICc | ΔAIC | AICw | GOF |
| Spotted hyena *Crocuta crocuta* | *ρ* (Effort + Lion + Leopard + Wild dog) ~ *ψ* (RAI\_Leopard + NDVI) | 781.0 | 0.00 | 0.26 | 1.41 |
| *ρ* (Effort + Leopard + Wild dog) ~ *ψ* (RAI\_Leopard + NDVI) | 781.4 | 0.36 | 0.22 | 1.65 |
| *ρ* (Effort + Leopard + Wild dog + Type) ~ *ψ* (RAI\_Leopard + NDVI) | 782.4 | 1.40 | 0.13 | 1.66 |
| Leopard *Panthera pardus* | *ρ* (Hyena) ~ *ψ* (Dist\_Road) | 495.90 | 0.00 | 0.24 | 0.91 |
| *ρ* (Hyena) ~ *ψ* (Dist\_Road + RAI\_Hyena) | 496.46 | 0.55 | 0.18 | 1.12 |
| *ρ* (Hyena) ~ *ψ* (Dist\_Road + RAI\_Wild dog) | 496.64 | 0.73 | 0.16 | 1.10 |
| West African lion *Panthera leo leo* | *ρ* (1) ~ *ψ* (NDVI+ Dist\_Gambie + RAI\_Leopard) | 212.12 | 0.00 | 0.06 | 2.17 |
| *ρ* (Effort + Leopard) ~ *ψ* (NDVI + Dist\_Gambie + RAI\_Leopard) | 212.49 | 0.37 | 0.05 | 2.17 |
| *ρ* (Effort + Leopard) ~ *ψ* (NDVI + Dist\_Gambie) | 212.60 | 0.48 | 0.04 | 3.09 |
| African wild dog*Lycaon pictus* | *ρ* (1) ~ *ψ* (dist\_Road + RAI\_Leopard + RAI\_Lion + RAI\_Hyena) | 98.03 | 0.00 | 0.11 | 1.19 |
| *ρ* (1) ~ *ψ* (dist\_Road + dist\_Edge + RAI\_Lion) | 98.84 | 0.80 | 0.07 | 10.65 |
| *ρ* (1) ~ *ψ* (dist\_Road + dist\_Edge RAI\_Leopard + RAI\_Lion) | 99.50 | 1.47 | 0.05 | 11.91 |

Supplementary Table 2 Scientific names corresponding to the categorical taxon names used in the nMDS plot (Figure 2).

|  |  |
| --- | --- |
| **Categorical name** | **Scientific name** |
| Aardvark | *Orycteropus afer* |
| Roan antelope | *Hippotragus equinus* |
| Guinea baboon | *Papio papio* |
| Honey badger | *Mellivora capensis* |
| African buffalo | *Syncerus caffer ssp. brachyceros* |
| Bushbuck | *Tragelaphus sylvaticus* |
| Caracal | *Caracal caracal* |
| Chimpanzee | *Pan troglodytes ssp. versus* |
| African civet | *Civettictis civetta* |
| African palm civet | *Nandinia binotata* |
| Red colobus | *Piliocolobus badius* |
| Grey duiker | *Sylvicapra grimmia* |
| Red-flanked duiker | *Cephalophus rufilatus* |
| Giant eland | *Tragelaphus derbianus ssp. derbianus* |
| African elephant | *Loxodonta spp* |
| Unspecified genet | *Genetta spp* |
| Unspecified hare | *Lepus spp* |
| Hartebeest | *Alcelaphus buselaphus ssp. major* |
| Hippopotamus | *Hippopotamus amphibius* |
| Red river hog | *Potamochoerus porcus* |
| Human | *Homo sapiens* |
| Spotted hyaena | *Crocuta crocuta* |
| Side-striped jackal | *Canis adustus* |
| Western kob | *Kobus kob* |
| African leopard | *Panthera pardus ssp. pardus* |
| Lion | *Panthera leo ssp. leo* |
| Banded mongoose | *Mungos mungo* |
| Gambian mongoose | *Mungos gambianus* |
| Large grey mongoose | *Herpestes ichneumon* |
| Slender mongoose | *Herpestes sanguineus* |
| Water mongoose | *Atilax paludinosus* |
| White-tailed mongoose | *Ichneumia albicauda* |
| Green monkey | *Chlorocebus sabaeus* |
| Patas monkey | *Erythrocebus patas* |
| Oribi | *Ourebia ourebi* |
| Spotted-necked otter | *Hydrictis maculicollis* |
| Crested porcupine | *Hystrix cristata* |
| Greater cane rat | *Thryonomys swinderianus* |
| Reedbuck bohor  | *Redunca redunca* |
| Serval | *Leptailurus serval* |
| Warthog | *Phacochoerus africanus* |
| Waterbuck | *Kobus ellipsiprymnus* |
| Wild dog  | *Lycaon pictus* |
| African wildcat | *Felis lybica* |