**SUPPLEMENTARY MATERIAL**

*Results*

*Birds of prey densities*:

Using the matrix-specific detection functions (Figure S1), we estimated the total density of potential predators in each experimental matrix (Table S1 and S2). Specific detection functions were selected using AIC. For pastures, the selected function was the semi-normal with a cosine adjustment term and detection probability of 0.45; for cornfields, the selected function was the hazard-rate with a cosine adjustment term and detection probability of 0.07; and for *Eucalyptus*, the selected function was the uniform with polynomial adjustment term and detection probability of 0.58.

**Figure S1.** Birds of prey detection curves (red) selected for (a) pasture, (b) cornfield and (c) *Eucalyptus* matrices. Bars (blue) represent the proportion of individuals detected in different distances orthogonally to the transect.



**Table S1.** Species of predators by matrices.

|  |  |  |  |
| --- | --- | --- | --- |
| **Specie** | **Pasture** | **Cornfield** | ***Eucalyptus*** |
| *Amadonastur lacernulatus* | 0 | 1 | 0 |
| *Athene cunicularia* | 27 | 1 | 0 |
| *Buteo albicaudatus* | 9 | 1 | 0 |
| *Caracara plancus* | 53 | 20 | 1 |
| *Elanus leucurus* | 1 | 0 | 0 |
| *Falco deiroleucus* | 0 | 2 | 0 |
| *Falco femoralis* | 3 | 3 | 1 |
| *Falco rufigularis* | 0 | 1 | 0 |
| *Falco sparverius* | 9 | 2 | 0 |
| *Heterospizias meridionalis* | 4 | 1 | 0 |
| *Milvago chimachima* | 12 | 5 | 6 |
| *Rupornis magnirostris* | 36 | 16 | 18 |
| *Urubitinga coronata* | 2 | 0 | 0 |
| *Falco sp* | 2 | 0 | 1 |
| *Buteo sp* | 1 | 7 | 0 |
| Not identified | 2 | 6 | 1 |
| TOTAL | 161 | 66 | 28 |

**Table S2.** Birds of prey densities based on the selected detection functions, individual permanence time in the matrix (hours), matrix-transfer success (1-success, 0-failure) and fractal dimension for each movement trajectory (D-Fractal).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Matrix** | **Site** | **Density (ind./ha)** | **Time (h)** | **Success** | **D-Fractal** |
| 1 | Pasture | Lucilene | 0.15 | 1.88 | 0 | 1.27 |
| 2 | Pasture | Represas | 0.19 | 4.50 | 0 | 1.23 |
| 3 | Pasture | Neco | 0.30 | 1.67 | 1 | 1.12 |
| 4 | Pasture | Hermes | 0.21 | 0.17 | 1 | 1.01 |
| 5 | Pasture | Adao | 0.19 | 1.00 | 1 | 1.14 |
| 6 | Pasture | Nha Moca | 0.14 | 0.75 | 1 | 1.15 |
| 7 | Pasture | Tamoyo | 0.18 | 0.33 | 1 | 1.04 |
| 8 | Pasture | Modulo | 0.29 | 0.25 | 1 | 1.08 |
| 9 | Pasture | Carlos | 0.19 | 0.70 | 1 | 1.10 |
| 10 | Pasture | Portugues | 0.37 | 1.25 | 1 | 1.19 |
| 11 | Cornfield | Sta Terezinha | 0.33 | 3.00 | 1 | 1.23 |
| 12 | Cornfield | Leno | 0.50 | 1.42 | 1 | 1.12 |
| 13 | Cornfield | Miguel | 0.92 | 0.67 | 0 | 1.71 |
| 14 | Cornfield | Cabecao | 1.00 | 2.33 | 0 | 1.13 |
| 15 | Cornfield | Dirceu | 1.17 | 18.58 | 1 | 1.36 |
| 16 | Cornfield | Ed Carlos | 0.83 | 5.33 | 1 | 1.38 |
| 17 | Cornfield | Bechara | 0.25 | 2.25 | 0 | 1.68 |
| 18 | Cornfield | Fernando | 0.25 | 28.50 | 0 | 1.21 |
| 19 | Cornfield | Agrimpa | 0.08 | 26.00 | 0 | 1.17 |
| 20 | Cornfield | Tomo | 0.17 | 22.83 | 1 | 1.21 |
| 21 | *Eucalyptus* | Sede Velha | 0.05 | 21.00 | 1 | 1.22 |
| 22 | *Eucalyptus* | Valinhos | 0.04 | 23.50 | 1 | 1.28 |
| 23 | *Eucalyptus* | Ingles | 0.02 | 2.00 | 1 | 1.41 |
| 24 | *Eucalyptus* | 36 | 0.03 | 0.75 | 1 | 1.24 |
| 25 | *Eucalyptus* | Tijuco | 0.04 | 4.50 | 1 | 1.19 |
| 26 | *Eucalyptus* | Boa Vista | 0.03 | 2.42 | 1 | 1.53 |
| 27 | *Eucalyptus* | Retiro | 0.03 | 20.25 | 1 | 1.28 |
| 28 | *Eucalyptus* | Lavrinhas 11 | 0.02 | 0.50 | 1 | 1.12 |
| 29 | *Eucalyptus* | Lavrinhas 3 | 0.02 | 3.75 | 1 | 1.17 |
| 30 | *Eucalyptus* | Grupo | 0.00 | 7.92 | 1 | 1.14 |

*Movement patterns in the matrix:*

**Figure S2.** Relationship between trajectory tortuosity (Fractal Dimension) and permanence time in (a) pastures, (b) cornfields and (c) *Eucalyptus* matrices.

