**Supplementary Material**

Distribution of a habitat specialist: Mopane woodland structure determines occurrence of Near Threatened Lilian’s Lovebird *Agapornis lilianae*

TIWONGE I. MZUMARA, ROWAN O. MARTIN, HEMANT TRIPATHI, CHAONA PHIRI and ARJUN AMAR

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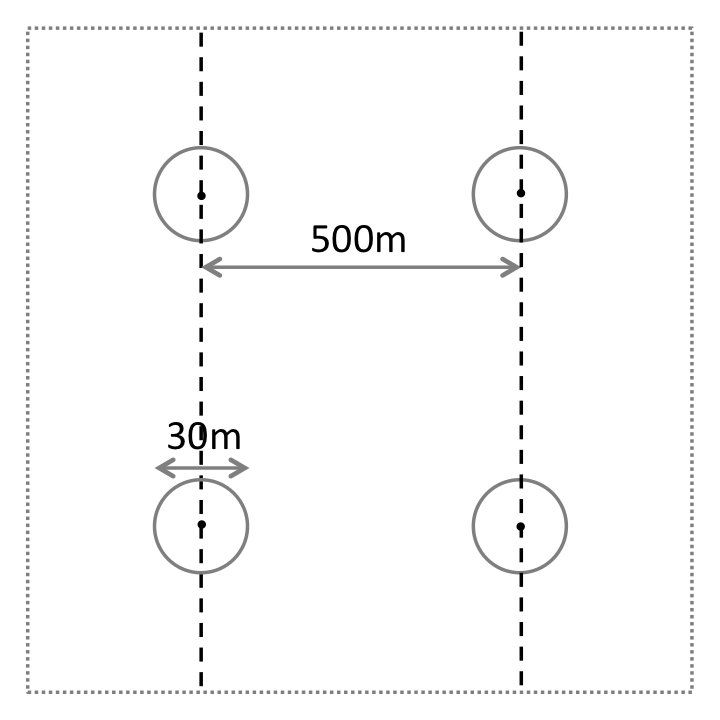


Figure S1. Study design. Sampling square was 1 km x 1 km, two plots were located along each transect, 250m from the end of each 1-km transect i.e. 500 m apart. Transects run across the square and were 500 m apart. The four circular plots have a radius of 15 m.

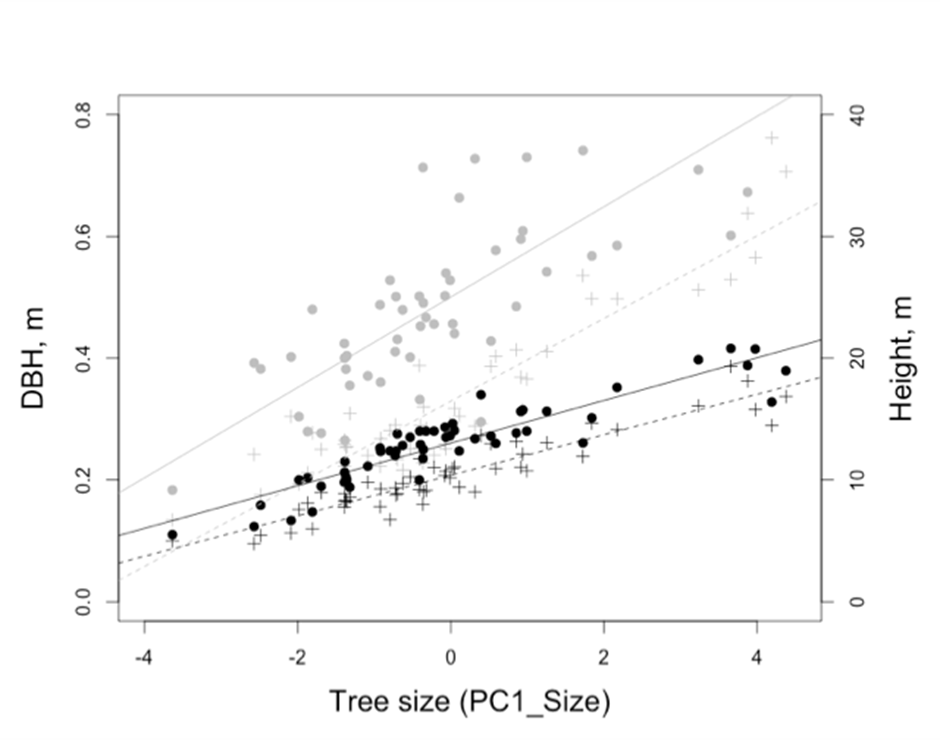


Figure S2. Relationship between PC1 and measures of tree ‘size’, mean and maximum dbh and height.



Figure S3. Mopane trees fallen after being burned at the root.

Table S1. Variables used in the analysis.

|  |  |
| --- | --- |
| **Variable** | **Description** |
| Elevation | Elevation recorded using GPS (metres above sea level) |
| MeanDBH | Mean of the Mean dbh of Mopane trees in each plot in a sampled square (metres) |
| MaxDBH | Mean of the Maximum dbh of Mopane trees in each plot in a sampled square (metres) |
| MeanHgt | Mean of the mean height of Mopane trees in each plot in a sampled square (metres) |
| MaxHgt | Mean of the Maximum height of Mopane trees in each plot in a sampled square (metres) |
| MaxNoMop | Maximum number of Mopane trees (>0.1m dbh) in each plot |
| MeanMop | Mean number of Mopane trees (>0.1m dbh) in each plot |
| MeanOther | Mean number of other (non-Mopane) trees (>0.1m dbh) in each plot |
| meanTTrees | Mean of the total number of all trees (>0.1m dbh) in each plot |

Table S2. Variables used in the PCA construction.

|  |  |  |
| --- | --- | --- |
| **Variable** | **Eigen values** | **% explanation** |
| PC1Size | 1.8362 | 42% |
| PC2Mopane | 1.5380 | 29% |
| PC3Other | 1.1116 | 15% |

Table S3. Plausible models testing the association between the presence of Lilian's lovebirds and various habitat and environmental parameters.

|  |  |  |  |
| --- | --- | --- | --- |
| **Model Discription** | **Df** | **∆ AICc** | **AICc weight** |
| PCA Size | 2 | 0 | 0.317 |
| PCA Size + PCA Mopane | 3 | 1.24 | 0.17 |
| PCA Size + PCA Other trees | 3 | 1.49 | 0.151 |
| PCA Size + Elevation | 3 | 2.13 | 0.109 |
| PCA Size +PCA Mopane + PCA Other Trees | 4 | 2.74 | 0.08 |
| PCA Size + PCA Mopane + Elevation | 4 | 3.16 | 0.065 |
| PCA Size + PCA Other trees + Elevation | 4 | 3.29 | 0.061 |
| PCA Size +PCA Mopane + PCA Other Trees+ Elevation | 5 | 3.84 | 0.046 |

Table S4. Parameter estimates and 95% Confidence intervals for the top three variables with AICc difference of less than 2. Estimates were generated using the MuMIn package (Barton 2013).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | confidence Interval | |  |
| Variable | Parameter estimate | 0.025 | 0.975 | Relative Importance |
| PCA Mopane Size | 1.0223 | 0.3978784 | 1.6467151 | 1 |
| PCA Mopane Density | 0.2667 | -0.2722225 | 0.8057108 | 0.27 |
| PCA Other Tree Density | -0.2843 | -0.96271 | 0.3940785 | 0.24 |

Table S5. Sampling squares where Lilian’s Lovebirds were recorded during the survey.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Square** | **lat** | **long\_** | **Elevation** | **MopDescription** |
| D11S1 | -15.6018 | 29.7708 | 339.5137 | Cathedral Mopane |
| D11S2 | -15.5995 | 29.79115 | 359.3781 | Cathedral Mopane |
| D12S2 | -15.5593 | 29.72457 | 382.0468 | Cathedral Mopane |
| P2D10S1 | -12.9234 | 32.04191 | 556.8739 | Degraded Mopane |
| P2D10S2 | -12.883 | 32.01931 | 539.8154 | Cathedral Mopane |
| P2D10S3 | -13.0948 | 31.89741 | 528.9733 | Degraded Mopane |
| P2D12S1 | -12.0992 | 32.47207 | 614.386 | Degraded Mopane |
| P2D13S1 | -11.8682 | 32.43751 | 599.9202 | Cathedral Mopane |
| P2D13S2 | -11.9152 | 32.40935 | 599.196 | Cathedral Mopane |
| P2D1S1 | -14.2099 | 30.62586 | 443.0349 | Cathedral Mopane |
| P2D2S1 | -14.1954 | 30.63865 | 454.8366 | Cathedral Mopane |
| P2D2S2 | -14.2369 | 30.60442 | 435.3586 | Mixed Mopane |
| P2D3S1 | -14.1639 | 30.62865 | 435.5966 | Degraded Mopane |
| P2D5S1 | -13.1161 | 31.78596 | 510.0022 | Degraded Mopane |
| P2D5S2 | -13.1602 | 31.76057 | 533.3138 | Cathedral Mopane |
| P2D6S1 | -13.0794 | 31.78463 | 522.1318 | Degraded Mopane |
| P2D6S2 | -13.16 | 31.70915 | 530.7375 | Degraded Mopane |
| P2D9S2 | -13.0272 | 31.92675 | 533.1633 | Cathedral Mopane |
| D12S1 | -15.5593 | 29.72457 | 382.0468 | Cathedral Mopane |
| P2D7S2 | -12.9237 | 32.04657 | 561.8122 | Mopane |