Arroyo-Gerala, P., *et al.* 2024. Community of medium and large-sized mammals and functional diversity in a tropical rainforest of Southern México under different degrees of human pressure. Therya. DOI:10.12933/therya-24-5247.

**Supplementary material**

**Table S1.** Relative Abundance Indices of medium and large mammal species in the four study sites (records per 1000 camera trap days). The number of independent events is in parentheses.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | | | **Montes Azules** | | **Yaxchilán** | | | **Chan-Kin** | **Marqués de Comillas** |
| **Perissodactyla** |  |  | |  | |  |
| *Tapirus bairdii* | | | (157) 39.57 | | (70) 17.62 | | | **0** | (5) 1.77 |
| **Artiodactyla** |  |  | |  | |  |
| *Mazama temama* | | | (116) 30.2 | | (112) 28.19 | | | (74) 22.30 | (31) 10.98 |
| *Odocoileus virginianus* | | | (12) 3.12 | | **0** | | | **0** | (11) 3.9 |
| *Tayassu pecari* | | | (8) 2.08 | | **0** | | | (9) 2.71 | (5) 1.77 |
| *Pecari tajacu* | | | (52) 13.54 | | (65) 16.36 | | | (26) 7.84 | (57) 20.18 |
| **Carnivora** | | |  | |  | | |  |  |
| *Panthera onca* | | | (37) 9.63 | | (17) 4.28 | | | (12) 3.62 | (22) 7.79 |
| *Puma concolor* | | | (49) 12.76 | | (94) 23.66 | | | (20) 6.03 | (6) 2.12 |
| *Leopardus pardalis* | | | (79) 20.57 | | (41) 10.32 | | | (16) 4.82 | (33) 11.69 |
| *Leopardus wiedii* | | | (3) 0.78 | | (4) 1.01 | | | **0** | (2) 0.71 |
| *Puma yagoaroundi* | | | (3) 0.78 | | (3) 0.76 | | | (3) 0.90 | **0** |
| *Conepatus semistriatus* | | | (1) 0.26 | | (3) 0.76 | | | (1) 0.30 | (2) 0.71 |
| *Eira barbara* | | | (4) 1.04 | | (8) 2.01 | | | (6) 1.81 | (3) 1.06 |
| *Nasua narica* | | | (15) 3.91 | | (21) 5.29 | | | (13) 3.92 | (7) 2.48 |
| *Procyon lotor* | | | (3) 0.78 | | (2) 0.5 | | | **0** | (3) 1.06 |
| **Xenarthra** | | |  | |  | | |  |  |
| *Dasypus novemcinctus* | | | (5) 1.3 | | (32) 8.05 | | | (16) 4.82 | (9) 3.19 |
| *Tamandua mexicana* | | | **0** | | (1) 0.25 | | | **0** | (1) 0.35 |
| **Didelphimorphia** |  |  | |  | |  |
| *Didelphis sp* | | | (47) 12.24 | | (8) 2.01 | | | (6) 1.81 | (16) 5.67 |
| **Rodentia** | | |  | |  | | |  |  |
| *Cuniculus paca* | | | (194) 50.51 | | (131) 32.97 | | | (92) 27.73 | (37)13.1 |
| *Dasyprocta punctata* | | | (74) 19.27 | | (115) 28.95 | | | (368) 110.91 | (73) 25.85 |

**Table S2.** Top-ranked models of functional groups using the *site* covariate for occupancy probability and null model (without covariates).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Functional group** | **Model** | **k** | **AIC** | **Δ AIC** | **wi** |
| M-FO-High | *λ(.)r(Effort)* | 3 | 462.77 | 0 | 0.39 |
|  | *λ(.)r(Effort+People)* | 4 | 464.2 | 1.44 | 0.19 |
|  | *λ(.)r(Effort+Trail)* | 4 | 464.73 | 1.97 | 0.15 |
|  | *(Null)* | 2 | 470.63 | 7.87 | 0.01 |
| M-FO-Regular | *λ(.)r(Effort)* | 3 | 196.48 | 0 | 0.35 |
|  | *λ(.)r(Effort+People)* | 4 | 196.66 | 0.17 | 0.32 |
|  | *λ(.)r(Effort+Trail)* | 4 | 198.27 | 1.79 | 0.14 |
|  | *(Null)* | 2 | 207.92 | 11.44 | 0 |
| M-FG-High | *λ(Site)r(Effort+Trail)* | 7 | 623.67 | 0 | 0.27 |
|  | *λ(Site)r(Effort)* | 6 | 623.89 | 0.22 | 0.24 |
|  | *λ(Site)r(Effort+People)* | 7 | 625.14 | 1.47 | 0.13 |
|  | *λ(Site)r(Effort+People+Trail)* | 8 | 625.32 | 1.65 | 0.12 |
|  | *(Null)* | 2 | 649.55 | 25.88 | 0 |
| M-IN-Regular | *λ(.)r(Effort+Trail)* | 4 | 278.24 | 0 | 0.27 |
|  | *λ(Site)r(Effort+Trail)* | 7 | 279 | 0.76 | 0.18 |
|  | *λ(.)r(Effort+People+Trail)* | 5 | 280.24 | 2 | 0.1 |
|  | *(Null)* | 2 | 283.5 | 5.27 | 0.02 |
| L-FH-Low | *λ(Site)r(Effort+Trail)* | 7 | 440.5 | 0 | 0.57 |
|  | *λ(Site)r(Effort+People+Trail)* | 8 | 441.23 | 0.73 | 0.39 |
|  | *(Null)* | 2 | 478.94 | 38.43 | 0 |
| L-FH-Regular | *λ(.)r(Effort)* | 3 | 680.77 | 0 | 0.34 |
|  | *λ(.)r(Effort+People)* | 4 | 680.93 | 0.16 | 0.31 |
|  | *λ(.)r(Effort+Trail)* | 4 | 682.66 | 1.89 | 0.13 |
|  | *(Null)* | 2 | 714.14 | 33.37 | 0 |
| L-HB-Low | *λ(Site)r(Effort+People+Trail)* | 8 | 118.96 | 0 | 0.24 |
|  | *λ(Site)r(Effort+Trail)* | 7 | 119.08 | 0.11 | 0.22 |
|  | *λ(Site)r(Trail)* | 6 | 119.31 | 0.35 | 0.2 |
|  | *λ(Site)r(People+Trail)* | 7 | 119.55 | 0.59 | 0.18 |
|  | *(Null)* | 2 | 129.77 | 10.81 | 0 |
| M-CA-Low | *λ(Site)r(Effort+Trail)* | 7 | 542.21 | 0 | 0.42 |
|  | *λ(Site)r(Effort+People+Trail)* | 8 | 543.61 | 1.39 | 0.21 |
|  | *(Null)* | 2 | 560.84 | 18.62 | 0 |
| L-CA-Low | *λ(Site)r(Trail)* | 6 | 586.62 | 0 | 0.29 |
|  | *λ(.)r(Trail)* | 3 | 587.78 | 1.16 | 0.16 |
|  | *λ(Site)r(People+Trail)* | 7 | 587.85 | 1.24 | 0.15 |
|  | *λ(Site)r(Effort+Trail)* | 7 | 588.11 | 1.5 | 0.13 |
|  | *(Null)* | 2 | 613.04 | 26.43 | 0 |

**Table S3.** Predicted abundance and detection probability of functional groups using the averaged models among the study sites.

|  |  |  |  |
| --- | --- | --- | --- |
| **Functional Group** | **Site** | **Predicted abundance (SE)** | **Detection probability (SE)** |
| M-FO-Regular | - | - | 0.05 (0.03) |
| M-FO-High | - | - | 0.05 (0.03) |
| M-FG-High | Montes Azules | 1.73 (0.53) | 0.22 (0.04) |
|  | Chan-Kin | 3.53 (1.12) |  |
|  | Yaxchilan | 2.47 (0.63) |  |
|  | Marques de Comillas | 2.23 (0.55) |  |
| M-IN-Regular | Montes Azules | 0.31 (0.19) | 0.16 (0.05) |
|  | Chan-Kin | 0.67 (0.35) |  |
|  | Yaxchilan | 1.35 (0.63) |  |
|  | Marques de Comillas | 0.87 (0.41) |  |
| L-FH-Low | Montes Azules | 2.93 (0.99) | 0.13 (0.03) |
|  | Chan-Kin | 0.32 (0.19) |  |
|  | Yaxchilan | 2.07 (0.83) |  |
|  | Marques de Comillas | 0.47 (0.25) |  |
| L-FH-Regular | - | - | 0.16 (0.04) |
| L-HB-Low | Montes Azules | 1.36 (0.84) | 0.03 (0.04) |
|  | Chan-Kin | - |  |
|  | Yaxchilan | - |  |
|  | Marques de Comillas | 0.87 (0.71) |  |
| M-CA-Low | Montes Azules | 7.05 (5.48) | 0.04 (0.02) |
|  | Chan-Kin | 3.81 (2.26) |  |
|  | Yaxchilan | 5.36 (3.61) |  |
|  | Marques de Comillas | 4.35 (2.84) |  |
| L-CA-Low | Montes Azules | 4.35 (1.74) | 0.05 (0.02) |
|  | Chan-Kin | 2.80 (1.14) |  |
|  | Yaxchilan | 4.33 (1.76) |  |
|  | Marques de Comillas | 2.47 (0.97) |  |

**Appendix 4**

**Table S4.** Top-ranked models of functional groups using -landscape covariates

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Functional group** | **Model** | **k** | **AICc** | **Δ AICc** | **wi** |
| M-FO-High | *λ(.)r(Effort)* | 3 | 463.23 | 0 | 0.1 |
|  | *λ(River)r(Effort)* | 4 | 463.88 | 0.65 | 0.07 |
|  | *λ(.)r(Effort+People)* | 4 | 464.99 | 1.76 | 0.04 |
|  | *λ(Towns)r(Effort)* | 4 | 465.13 | 1.91 | 0.04 |
|  | *(Null)* | 2 | 470.86 | 7.63 | 0 |
| M-FO-Regular | *λ(.)r(Effort)* | 3 | 196.95 | 0 | 0.1 |
|  | *λ(.)r(Effort+People)* | 4 | 197.44 | 0.5 | 0.08 |
|  | *(Null)* | 2 | 208.15 | 11.2 | 0 |
| M-FG-High | *λ(Edge+Towns)r(Effort)* | 5 | 624.2 | 0 | 0.08 |
|  | *λ(Edge+Towns)r(Effort+Trail)* | 6 | 624.84 | 0.64 | 0.05 |
|  | *λ(Edge+Towns+River)r(Effort)* | 6 | 624.96 | 0.76 | 0.05 |
|  | *λ(Edge+Towns+River)r(Effort+Trail)* | 7 | 625.61 | 1.41 | 0.04 |
|  | *λ(Edge+Towns)r(Effort+People)* | 6 | 626.11 | 1.91 | 0.03 |
|  | *λ(Edge)r(Effort+Trail)* | 5 | 626.13 | 1.93 | 0.03 |
|  | *(Null)* | 2 | 649.77 | 25.57 | 0 |
| M-IN-Regular | *λ(River)r(Effort+Trail)* | 5 | 274.53 | 0 | 0.08 |
|  | *λ(Towns+River)r(Effort+Trail)* | 6 | 274.9 | 0.37 | 0.07 |
|  | *λ(River)r(Effort)* | 4 | 275.05 | 0.52 | 0.06 |
|  | *λ(Towns+River)r(Effort)* | 5 | 276.01 | 1.48 | 0.04 |
|  | *(Null)* | 2 | 283.73 | 9.2 | 0 |
| L-FH-Low | *λ(Towns+River)r(Effort+Trail)* | 6 | 450.28 | 0 | 0.11 |
|  | *λ(Edge+River)r(Effort+Trail)* | 6 | 450.83 | 0.55 | 0.08 |
|  | *λ(Towns+River)r(Effort+People+Trail)* | 7 | 450.92 | 0.64 | 0.08 |
|  | *λ(Edge+Towns+River)r(Effort+Trail)* | 7 | 451.02 | 0.73 | 0.08 |
|  | *λ(Forest+Towns+River)r(Effort+Trail)* | 7 | 451.98 | 1.7 | 0.05 |
|  | *(Null)* | 2 | 479.16 | 28.88 | 0 |
| L-FH-Regular | *λ(.)r(Effort)* | 3 | 681.23 | 0 | 0.08 |
|  | *λ(.)r(Effort+People)* | 4 | 681.71 | 0.48 | 0.06 |
|  | *λ(Roads)r(Effort)* | 4 | 682.28 | 1.05 | 0.04 |
|  | *λ(Towns)r(Effort)* | 4 | 682.63 | 1.4 | 0.04 |
|  | *λ(Roads)r(Effort+People)* | 5 | 682.77 | 1.54 | 0.04 |
|  | *λ(Towns)r(Effort+People)* | 5 | 682.81 | 1.58 | 0.03 |
|  | *λ(Edge)r(Effort)* | 4 | 683.07 | 1.84 | 0.03 |
|  | *λ(River)r(Effort)* | 4 | 683.19 | 1.96 | 0.03 |
|  | *(Null)* | 2 | 714.37 | 33.14 | 0 |
| L-HB-Low | *λ(Forest+Towns+River)r(People+Trail)* | 7 | 114.26 | 0 | 0.06 |
|  | *λ(Forest+Towns)r(People+Trail)* | 6 | 114.31 | 0.05 | 0.06 |
|  | *λ(Forest+Towns)r(Trail)* | 5 | 114.71 | 0.46 | 0.05 |
|  | *λ(Forest+Towns+River)r(Trail)* | 6 | 114.72 | 0.46 | 0.05 |
|  | *λ(Forest+Towns)r(.)* | 4 | 115.09 | 0.84 | 0.04 |
|  | *λ(Forest+Towns+River)r(Effort+People+Trail)* | 8 | 115.46 | 1.21 | 0.04 |
|  | *λ(Forest+River)r(Trail)* | 5 | 115.63 | 1.37 | 0.03 |
|  | *λ(Forest+Towns)r(People)* | 5 | 115.7 | 1.45 | 0.03 |
|  | *λ(Forest+Towns)r(Effort+People+Trail)* | 7 | 115.73 | 1.47 | 0.03 |
|  | *λ(Forest+River)r(People+Trail)* | 6 | 115.98 | 1.72 | 0.03 |
|  | *λ(Forest+Towns+River)r(Effort+Trail)* | 7 | 116.22 | 1.96 | 0.02 |
|  | *(Null)* | 2 | 130 | 15.74 | 0 |
| M-CA-Low | *λ(River)r(Effort+Trail)* | 5 | 545.12 | 0 | 0.06 |
|  | *λ(Towns)r(Effort+Trail)* | 5 | 545.44 | 0.32 | 0.05 |
|  | *λ(Towns+River)r(Effort+Trail)* | 6 | 545.44 | 0.32 | 0.05 |
|  | *λ(Towns)r(Effort)* | 4 | 545.73 | 0.61 | 0.04 |
|  | *λ(Roads+Towns)r(Effort+Trail)* | 6 | 546.03 | 0.91 | 0.04 |
|  | *λ(Towns+River)r(Effort)* | 5 | 546.04 | 0.92 | 0.04 |
|  | *λ(Roads+Towns)r(Effort)* | 5 | 546.27 | 1.15 | 0.03 |
|  | *λ(Edge+River)r(Effort+Trail)* | 6 | 546.71 | 1.59 | 0.03 |
|  | *λ(.)r(Effort+Trail)* | 4 | 546.88 | 1.76 | 0.02 |
|  | *λ(Forest+Towns)r(Effort)* | 5 | 547.03 | 1.91 | 0.02 |
|  | *λ(Forest+Towns)r(Effort+Trail)* | 6 | 547.08 | 1.96 | 0.02 |
|  | *λ(Towns)r(Effort+People)* | 5 | 547.11 | 1.99 | 0.02 |
|  | *(Null)* | 2 | 561.06 | 15.94 | 0 |
| L-CA-Low | *λ(Towns)r(Trail)* | 4 | 587.5 | 0 | 0.06 |
|  | *λ(Forest+Edge)r(Trail)* | 5 | 588.16 | 0.65 | 0.04 |
|  | *λ(Edge+Towns)r(Trail)* | 5 | 588.18 | 0.68 | 0.04 |
|  | *λ(.)r(Trail)* | 3 | 588.24 | 0.73 | 0.04 |
|  | *λ(Forest+Edge+Towns)r(Trail)* | 6 | 588.24 | 0.74 | 0.04 |
|  | *λ(River)r(Trail)* | 4 | 588.34 | 0.84 | 0.04 |
|  | *λ(Roads+River)r(Trail)* | 5 | 588.62 | 1.11 | 0.03 |
|  | *λ(Towns+River)r(Trail)* | 5 | 588.69 | 1.19 | 0.03 |
|  | *λ(Forest+River)r(Trail)* | 5 | 588.8 | 1.3 | 0.03 |
|  | *λ(Roads+Edge)r(Trail)* | 5 | 589.27 | 1.77 | 0.02 |
|  | *λ(Towns)r(People+Trail)* | 5 | 589.39 | 1.89 | 0.02 |
|  | *(Null)* | 2 | 613.27 | 25.77 | 0 |