**Supplementary Material**

Migration patterns and seasonal forest use by birds in the Brazilian Pantanal

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Appendix S1. Frequency of occurrence (FO) and index of point abundance (IPA) for bird species registered in the region of Pirizal, Pantanal of Poconé, in the flood, run-off and dry seasons. (NM) Number of months that the species was registered; Migration Status: RS, resident; BM, dry (*breeding*) migrant; RM, run-off migrant; RD, run-off and dry migrant; FM, flooding migrant; FR, flooding and run-off migrant; DF, dry and flooding migrant ; UC, uncommon; Forest Habitat: 1, SD-F, semi-deciduous forest; 2, EG-F, evergreen forest; 3, SD-D, semi-deciduous dry forest; 4, D-D, deciduous dry forest; and Habitat Use Status: TG, total generalist; FG, forest generalist; FHS, flooded habitat specialist; FFS, flooded forest specialist; FS, forest habitat specialist; DFS, dry forest specialist; and (-), no status set.

| FAMILY/SPECIES | NM | Migration Status  | Forest Habitat  | Habitat Use Status  | Mist Net (FO/IPA) | Point Counts (FO/IPA) |
| --- | --- | --- | --- | --- | --- | --- |
| Flood | Run-off | Dry | Flood | Run-off | Dry |
| TINAMIDAE |  |   |   |   |  |  |   |  |  |  |
| *Crypturellus undulatus* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 0 | 8.1/0.089 | 10.2/0.228 | 12.2/0.127 |
| *Crypturellus parvirostris* | 8 | BM | 1,2,3,4 | FG | 0 | 0 | 0 | 0 | 4.1/0.045 | 2.0/0.024 |
| *Rhynchotus rufescens* | 6 | RM | 1,2 | FHS | 0 | 0 | 0 | 0 | 0 | 1.0/0.01 |
| CRACIDAE |   |   |   |   |  |  |   |  |  |  |
| *Penelope ochrogaster* | 12 | RS | 1,2,3,4 | FG | 0 | 0 | 0 | 0 | 0 | 1.0/0.029 |
| *Aburria cujubi* | 8 | RD | 4 | FS | 0 | 0 | 0 | 0 | 0.4/0.004 | 0.5/0.02 |
| *Ortalis canicollis* | 12 | RS | 1,2,3,4 | FG | 0 | 0 | 0 | 16.3/0.512 | 15.4/0.423 | 19.5/0.58 |
| *Crax fasciolata* | 12 | RS | 1,2,3 | FG | 0 | 0 | 0 | 4.1/0.065 | 1.6/0.024 | 3.9/0.049 |
| ANATIDAE |   |   |   |   |  |  |   |  |  |  |
| *Dendrocygna viduata* | 2 | UC | 3 |  - | 0 | 0 | 0 | 0.8/0.016 | 0 | 0 |
| ARDEIDAE |   |   |   |   |  |  |   |  |  |  |
| *Ardea cocoi* | 12 | RS | 1,2 | FHS | 0 | 0 | 0 | 1.6/0.016 | 0.4/0.004 | 0 |
| *Ardea alba* | 12 | RS | 1,2 | FHS | 0 | 0 | 0 | 4.1/0.049 | 2.4/0.037 | 0 |
| *Egretta caerulea* | 7 | RD | 1,2 | FHS | 0 | 0 | 0 | 0.8/0.008 | 0 | 1.0/0.01 |
| *Egretta thula* | 12 | RS | 1,2 | FHS | 0 | 0 | 0 | 2.4/0.024 | 0.8/0.024 | 0 |
| *Butorides striata* | 6 | FM | 1,2 | FHS | 12.0/0.18 | 1.8/0.018 | 1.5/0.015 | 7.3/0.106 | 0.8/0.008 | 0 |
| *Pilherodius pileatus* | 1 | UC | 1 |  -  | 0 | 0 | 0 | 0 | 0.4/0.008 | 0 |
| *Tigrisoma lineatum* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 0 | 8.9/0.089 | 1.6/0.016 | 0.5/0.01 |
| THRESKIORNITHIDAE |   |   |   |   |  |  |   |  |  |  |
| *Theristicus caudatus* | 3 | RM | 4 | FHS | 0 | 0 | 0 | 0 | 0 | 0.5/0.005 |
| *Mesembrinibis cayannensis* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 1.5/0.015 | 6.5/0.098 | 4.9/0.069 | 5.4/0.068 |
| *Phimosus infuscatus* | 7 | RD | 1,2,4 | TG | 0 | 0 | 0 | 2.4/0.065 | 0.8/0.016 | 1.0/0.029 |
| CICONIIDAE |   |   |   |   |  |  |   |  |  |  |
| *Mycteria americana* | 8 | RD | 2,4 | FHS | 0 | 0 | 0 | 0 | 0.8/0.033 | 0 |
| *Jabiru mycteria* | 12 | RS | 2 | FHS | 0 | 0 | 0 | 0 | 0.4/0.004 | 0 |
| CATHARTIDAE |   |   |   |   |  |  |   |  |  |  |
| *Coragyps atratus* | 4 | RM | 2,3 | FG | 0 | 0 | 0 | 0 | 0 | 1.0/0.029 |
| *Cathartes aura* | 6 | BM | 2,3 | FG | 0 | 0 | 0 | 0 | 1.6/0.024 | 0.5/0.005 |
| ACCIPITRIDAE |   |   |   |   |  |  |   |  |  |  |
| *Gampsonyx swainsonii* | 1 | UC | 3 |  - | 0 | 0 | 1.5/0.015 | 0 | 0 | 0 |
| *Ictinia plumbea* | 7 | RD | 1,3,4 | TG | 0 | 0 | 1.5/0.015 | 0.8/0.016 | 0.8/0.012 | 3.4/0.034 |
| *Rostrhamus sociabilis* | 7 | RD | 1 | FHS | 0 | 0 | 0 | 0 | 0.4/0.004 | 0 |
| *Accipter bicolor*  | 6 | BM | 1,4 | FG | 0 | 0 | 0 | 0 | 0 | 1.0/0.015 |
| *Accipter striatus* | 6 | BM | 1,3,4 | TG | 0 | 1.8/0.018 | 3.0/0.03 | 0 | 0 | 0 |
| *Rupornis magnirostris* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 9.1/0.091 | 3.0/0.03 | 12.2/0.154 | 11.0/0.122 | 12.7/0.137 |
| *Busarellus nigricollis* | 10 | RS | 1 | FHS | 0 | 0 | 0 | 0 | 0.4/0.004 | 0.5/0.005 |
| *Buteogallus urubitinga* | 7 | FR | 1,4 | TG | 0 | 0 | 0 | 1.6/0.016 | 0.4/0.004 | 0 |
| *Spizaetus melanoleucus* | 7 | RD | 4 | FS | 0 | 0 | 0 | 0 | 0 | 0.5/0.005 |
| FALCONIDAE |   |   |   |   |  |  |   |  |  |  |
| *Herpetotheres cachinnans* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 0 | 0.8/0.008 | 3.3/0.033 | 0.5/0.005 |
| *Milvago chimachima* | 12 | RS | 1 | FHS | 0 | 0 | 0 | 0 | 0.4/0.004 | 0 |
| ARAMIDAE |   |   |   |   |  |  |   |  |  |  |
| *Aramus guarauna* | 10 | RS | 1,4 | FG | 0 | 0 | 0 | 1.6/0.016 | 0.4/0.004 | 0 |
| RALLIDAE |   |   |   |   |  |  |   |  |  |  |
| *Aramides cajanea* | 12 | RS | 1,2,3,4 | TG | 0 | 1.8/0.018 | 0 | 1.6/0.016 | 2.0/0.037 | 0.5/0.01 |
| EURYPYGIDAE |   |   |   |   |  |  |   |  |  |  |
| *Eurypyga helias* | 8 | RD | 1,2,4 | FG | 0 | 0 | 0 | 0 | 0.8/0.008 | 0.5/0.005 |
| CARIAMIDAE |   |   |   |   |  |  |   |  |  |  |
| *Cariama cristata* | 8 | RD | 2 | FHS | 0 | 0 | 0 | 0 | 0.4/0.008 | 0 |
| JACANIDAE |   |   |   |   |  |  |   |  |  |  |
| *Jacana jacana* | 12 | RS | 1 | FHS | 0 | 0 | 0 | 0.8/0.016 | 0 | 0 |
| CHARADRIIDAE |   |   |   |   |  |  |   |  |  |  |
| *Vanellus chilensis* | 2 | UC | 2 |  - | 0 | 0 | 0 | 0.8/0.008 | 0 | 0 |
| COLUMBIDAE |   |   |   |   |  |  |   |  |  |  |
| *Patagioenas speciosa* | 9 | RD | 2,3 | FG | 0 | 0 | 0 | 1.6/0.024 | 2.0/0.049 | 3.4/0.049 |
| *Patagioenas cayanensis* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 1.8/0.018 | 0 | 2.4/0.033 | 4.5/0.081 | 5.4/0.059 |
| *Columbina talpacoti* | 12 | RS | 1,2,3,4 | TG | 14/0.16 | 14.5/0.382 | 10.4/0.687 | 10.6/0.187 | 5.7/0.065 | 7.3/0.088 |
| *Columbina picui* | 10 | RS | 1,2,3 | FG | 0 | 1.8/0.055 | 0 | 1.6/0.016 | 2.0/0.028 | 1.0/0.01 |
| *Claravis pretiosa* | 12 | RS | 1,2,3,4 | TG | 16/0.24 | 10.9/0.182 | 17.9/0.373 | 2.4/0.024 | 0.4/0.004 | 0 |
| *Columbina squammata* | 12 | RS | 1,3 | TG | 0 | 1.8/0.018 | 0 | 4.1/0.065 | 3.3/0.065 | 5.9/0.073 |
| *Leptotila verreauxi* | 12 | RS | 1,2,3,4 | TG | 6.0/0.1 | 20.0/0.236 | 17.9/0.269 | 23.6/0.309 | 19.5/0.207 | 26.8/0.302 |
| *Leptotila rufaxilla* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 3.6/0.055 | 4.5/0.045 | 3.3/0.033 | 2.4/0.037 | 4.4/0.054 |
| PSITTACIDAE |   |   |   |   |  |  |   |  |  |  |
| *Anodorhynchus hyacinthinus* | 12 | RS | 1 | FG | 0 | 0 | 0 | 0 | 0.4/0.008 | 0 |
| *Primolius auricollis* | 10 | RS | 2,3,4 | TG | 0 | 0 | 1.5/0.015 | 2.4/0.073 | 1.6/0.033 | 0 |
| *Diopsittaca nobilis* | 8 | RD | 2,4 | FG | 0 | 0 | 0 | 0 | 0.8/0.033 | 0.5/0.005 |
| *Aratinga aurea* | 10 | RS | 1,4 | TG | 0 | 0 | 0 | 0.8/0.016 | 0.4/0.012 | 0 |
| *Brotogeris chiriri* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 0 | 0.8/0.024 | 6.9/0.187 | 5.4/0.166 |
| *Amazona aestiva* | 12 | RS | 1,3,4 | TG | 0 | 1.8/0.018 | 0 | 9.8/0.309 | 12.2/0.317 | 10.2/0.263 |
| *Amazona amazônica* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 0 | 0.8/0.024 | 3.3/0.085 | 3.4/0.063 |
| CUCULIDAE |   |   |   |   |  |  |   |  |  |  |
| *Coccyzus melacoryphus* | 5 | FM | 2,3 | FG | 0 | 1.8/0.018 | 1.5/0.015 | 0 | 0 | 0 |
| *Coccyzus americanus* | 2 | UC | 2 |  -  | 0 | 0 | 3.0/0.03 | 0 | 0 | 0 |
| *Piaya cayana* | 12 | RS | 1,2,3 | TG | 2.0/0.02 | 1.8/0.018 | 1.5/0.015 | 0.8/0.08 | 0 | 0.5/0.005 |
| *Coccycua minuta* | 1 | UC | 1 |  - | 0 | 0 | 1.5/0.015 | 0 | 0 | 0 |
| CROTOPHAGINAE |   |   |   |   |  |  |   |  |  |  |
| *Crotophaga ani* | 2 | RS | 3 |  - | 0 | 0 | 0 | 0 | 0.4/0.041 | 0 |
| *Crotophaga major* | 6 | DF | 1,2,3,4 | TG | 0 | 0 | 0 | 5.7/0.163 | 0 | 3.4/0.049 |
| *Guira guira* | 10 | RS | 1,3,4 | TG | 0 | 0 | 0 | 0 | 0.4/0.057 | 2.4/0.034 |
| NEOMORPHINAE |   |   |   |   |  |  |   |  |  |  |
| *Tapera naevia* | 8 | RD | 1,2 | FHS | 0 | 0 | 0 | 0 | 0.8/0.008 | 2.0/0.02 |
| STRIGIDAE |   |   |   |   |  |  |   |  |  |  |
| *Megascops choliba* | 8 | RD | 2,4 | FG | 0 | 0 | 0 | 0 | 0.4/0.004 | 1.0/0.01 |
| *Glaucidium brasilianum* | 8 | RD | 2,3 | FG | 0 | 1.8/0.018 | 3.0/0.03 | 0 | 0 | 0 |
| CAPRIMULGIDAE |   |   |   |   |  |  |   |  |  |  |
| *Nyctiprogne leucopyga* | 5 | RM | 1 | FS | 0 | 1.8/0.018 | 0 | 0 | 0 | 0 |
| TROCHILIDAE |   |   |   |   |  |  |   |  |  |  |
| *Glaucis hirsuta* | 9 | DF | 1,2,3,4 | TG | 10/0.18 | 3.6/0.091 | 17.9/0.313 | 1.6/0.016 | 0 | 1.5/0.015 |
| *Phaethornis pretrei* | 9 | RD | 1,2,3,4 | TG | 2.0/0.02 | 5.5/0.055 | 6.0/0.06 | 0 | 0 | 0 |
| *Phaethornis nattereri* | 10 | RS | 1,2,3,4 | TG | 2.0/0.02 | 7.3/0.073 | 3.0/0.03 | 0 | 0 | 0.5/0.005 |
| *Phaethornis subochraceus* | 2 | UC | 1 |  - | 0 | 1.8/0.018 | 0 | 0 | 0 | 0 |
| *Phaethornis ruber* | 10 | RS | 1,2,3,4 | TG | 8.0/0.1 | 5.5/0.055 | 9.0/0.104 | 1.6/0.024 | 4.5/0.053 | 3.4/0.054 |
| TROCHILINAE |   |   |   |   |  |  |   |  |  |  |
| *Eupetomena macroura* | 5 | FM | 1, 4 | TG | 0 | 0 | 1.5/0.03 | 0 | 0.4/0.004 | 0 |
| *Anthracothorax nigricollis* | 8 | DF | 1,2,3,4 | TG | 0 | 5.5/0.055 | 11.9/0.299 | 0.8/0.008 | 0 | 1.5/0.02 |
| *Chrysolampis mosquitus* | 8 | DF | 1,2,3,4 | TG | 2.0/0.02 | 0 | 10.4/0.194 | 0.8/0.008 | 0 | 4.9/0.054 |
| *Chlorostilbon lucidus* | 7 | RD | 2,3,4 | FG | 2.0/0.02 | 10.9/0.164 | 1.5/0.075 | 0 | 1.6/0.016 | 1.0/0.01 |
| *Calliphlox amethystine* | 1 | UC | 1 |  - | 0 | 0 | 0 | 0.8/0.008 | 0 | 0 |
| *Thalurania furcata* | 6 | FM | 1,2,3 | FG | 4.0/0.04 | 0 | 3.0/0.03 | 0 | 0 | 0 |
| *Hylocharis cyanus* | 2 | UC | 3,4 |  - | 0 | 0 | 3.0/0.09 | 0 | 0 | 0 |
| *Hylocharis chrysura* | 9 | RD | 1,2,3,4 | TG | 4.0/0.06 | 9.1/0.182 | 0 | 0.8/0.008 | 6.5 /0.093 | 1.0/0.01 |
| *Amazilia versicolor* | 9 | RD | 1,2,3,4 | FG | 2.0/0.02 | 1.8/0.018 | 4.5/0.045 | 0 | 0.4/0.004 | 0 |
| *Amazilia fimbriata* | 12 | RS | 1,2,3,4 | FG | 16.0/0.22 | 14.5/0.255 | 41.8/0.746 | 8.9/0.089 | 17.9/0.22 | 6.3/0.073 |
| TROGONIDAE |   |   |   |   |  |  |   |  |  |  |
| *Trogon curucui* | 12 | RS | 1,2,3 | TG | 4.0/0.004 | 0 | 4.5/0.045 | 1.6/0.016 | 1.6/0.016 | 2.0/0.02 |
| *Trogon melanurus* | 12 | RS | 1,2 | FFS | 0 | 1.8/0.018 | 3.0/0.03 | 4.9/0.049 | 5.3/0.057 | 5.4/0.054 |
| ALCEDINIDAE |   |   |   |   |  |  |   |  |  |  |
| *Ceryle torquata* | 12 | RS | 1,2,3 | TG | 2.0/0.02 | 0 | 0 | 1.6/0.024 | 0.8/0.008 | 0 |
| *Chloroceryle americana* | 5 | FM | 1,2 | FHS | 2.0/0.02 | 0 | 0 | 0.8/0.008 | 0.4/0.004 | 0 |
| *Chloroceryle inda* | 7 | FR | 1,2,3 | TG | 12.0/0.22 | 3.6/0.055 | 1.5/0.015 | 8.9/0.089 | 2.0/0.028 | 0.5/0.005 |
| *Chloroceryle aenea* | 8 | DF | 1,2,3,4 | TG | 28.0/0.38 | 14.5/0.182 | 3.0/0.03 | 4.9/0.065 | 2.0/0.02 | 0 |
| MOMOTIDAE |   |   |   |   |  |  |   |  |  |  |
| *Momotus momota* | 6 | BM | 1,2,3 | FG | 0 | 1.8/0.018 | 0 | 0 | 0.4/0.004 | 1.0/0.02 |
| GALBULIDAE |   |   |   |   |  |  |   |  |  |  |
| *Galbula ruficauda* | 12 | RS | 1,2,3 | FG | 14.0/0.22 | 25.5/0.273 | 25.4/0.328 | 19.5/0.236 | 16.3/0.195 | 20.0/0.224 |
| BUCONIDAE |   |   |   |   |  |  |   |  |  |  |
| *Nystalus chacuru* | 2 | UC | 2, 3 |  - | 0 | 0 | 0 | 0 | 0.4/0.016 | 0.5/0.005 |
| *Nystalus maculatus* | 2 | UC | 1,3 |  - | 0 | 0 | 0 | 0 | 0.4/0.008 | 0.5/0.01 |
| *Monasa nigrifrons* | 12 | RS | 1,2,3,4 | FG | 6.0/0.1 | 7.3/0.109 | 9.0/0.179 | 8.9/0.268 | 10.6/0.232 | 9.3/0.244 |
| RAMPHASTIDAE |   |   |   |   |  |  |   |  |  |  |
| *Ramphastos toco* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 1.5/0.015 | 4.1/0.041 | 4.9/0.069 | 7.8/0.102 |
| *Pteroglossus castanotis* | 12 | RS | 1,2,3,4 | TG | 0 | 3.6/0.055 | 1.5/0.015 | 0.8/0.033 | 1.6/0.028 | 2.0/0.029 |
| PICIDAE |   |   |   |   |  |  |   |  |  |  |
| *Picumnus albosquamatus* | 12 | RS | 1,2,3,4 | TG | 14.0/0.22 | 30.9/0.455 | 29.9/0.463 | 13.8/0.154 | 16.7/0.187 | 17.1/0.195 |
| *Colaptes campestris* | 6 | BM | 1,3 | TG | 0 | 0 | 1.5/0.015 | 0 | 0.8/0.008 | 1.5/0.02 |
| *Celeus lugubris* | 10 | RS | 1,2,3,4 | TG | 4.0/0.04 | 1.8/0.018 | 4.5/0.045 | 1.6/0.016 | 2.0/0.02 | 2.9/0.029 |
| *Celeus flavescens* | 6 | RD | 1,2,3,4 | FG | 6.0/0.08 | 3.6/0.055 | 9.0/0.09 | 1.6/0.016 | 0.4/0.004 | 3.4/0.039 |
| *Celeus flavus* | 12 | RS | 1,2,3,4 | FG | 6.0/0.06 | 5.5/0.055 | 4.5/0.075 | 0 | 0 | 0 |
| *Dryocopus lineatus* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 5.5/0.055 | 1.5/0.015 | 7.3/0.081 | 12.2/0.134 | 7.8/0.088 |
| *Melanerpes candidus* | 9 | RD | 1,4 | TG | 0 | 0 | 0 | 0.8/0.008 | 0.4/0.012 | 0.5/0.015 |
| *Veniliornis passerinus* | 12 | RS | 1,2,3,4 | TG | 6.0/0.06 | 7.3/0.145 | 7.5/0.075 | 2.4/0.024 | 4.5/0.045 | 2.4/0.029 |
| *Campephilus melanoleucos* | 8 | RD | 1,2,3 | TG | 0 | 0 | 3.0/0.03 | 0 | 0 | 0.5/0.005 |
| THAMNOPHILIDAE |   |   |   |   |  |  |   |  |  |  |
| *Taraba major* | 12 | RS | 1,2,3,4 | TG | 6.0/0.1 | 1.8/0.036 | 11.9/0.164 | 11.4/0.163 | 13,0/0.211 | 12.7/0.195 |
| *Thamnophilus doliatus* | 12 | RS | 1,2,3 | TG | 0 | 7.3/0.127 | 1.5/0.015 | 4.1/0.057 | 4.5/0.053 | 6.8/0.098 |
| *Thamnophilus pelzelni* | 12 | RS | 1,2,3 | FG | 20.0/0.24 | 10.9/0.2 | 20.9/0.403 | 16.3/0.236 | 15.0/0.224 | 9.3/0.151 |
| *Dysithamnus mentalis* | 1 | UC | 1,2 |  - | 2.0/0.04 | 1.8/0.018 | 0 | 0 | 0 | 0 |
| *Herpsilochmus longirostris* | 12 | RS | 1,2,3 | FG | 6.0/0.08 | 9.1/0.109 | 16.4/0.194 | 24.4/0.48 | 29.3/0.516 | 26.8/0.488 |
| *Formicivora rufa* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 7.3/0.091 | 9.0/0.09 | 6.5/0.106 | 7.3/0.114 | 5.9/0.083 |
| *Cercomacra melanaria* | 12 | RS | 1,2,4 | FG | 2.0/0.02 | 14.5/0.345 | 20.9/0.582 | 22.8/0.52 | 21.5/0.443 | 29.3/0.629 |
| *Pyriglena leuconota* | 12 | RS | 1,2 | FFS | 0 | 0 | 3.0/0.03 | 0.8/0.016 | 0.8/0.008 | 1.0/0.01 |
| *Hypocnemoides maculicauda* | 12 | RS | 1,2 | FFS | 10.0/0.1 | 12.7/0.218 | 20.9/0.328 | 4.9/0.089 | 2.8/0.053 | 4.4/0.073 |
| DENDROCOLAPTIDAE |   |   |   |   |  |  |   |  |  |  |
| *Sittasomus griseicapillus* | 12 | RS | 1,2,3,4 | TG | 14.0/0.2 | 21.8/0.364 | 25.4/0.343 | 4.9/0.049 | 16.7/0.211 | 7.8/0.083 |
| *Xiphocolaptes major* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 0 | 4.5/0.075 | 1.6/0.016 | 6.5/0.069 | 6.8/0.068 |
| *Dendroplex picus* | 12 | RS | 1,2,3,4 | TG | 20.0/0.22 | 12.7/0.182 | 28.4/0.448 | 20.3/0.211 | 12.6/0.146 | 13.2/0.132 |
| *Lepidocolaptes angustirostris* | 12 | RS | 1,2,3,4 | TG | 12.0/0.16 | 14.5/0.145 | 9.0/0.119 | 9.8/0.12 | 15.0/0.154 | 18.5/0.21 |
| *Campylorhamphus trochilirostris* | 9 | RS | 1,2,3,4 | TG | 8.0/0.08 | 10.9/0.127 | 9.0/0.104 | 0 | 0.4/0.004 | 2.0/0.024 |
| FURNARIIDAE |   |   |   |   |  |  |   |  |  |  |
| *Furnarius rufus* | 12 | RS | 1,2,3 | TG | 2.0/0.02 | 1.8/0.018 | 0 | 4.1/0.065 | 8.5/0.142 | 5.4/0.078 |
| *Furnarius leucopus* | 12 | RS | 1,2,3 | TG | 10.0/0.18 | 18.2/0.236 | 17.9/0.328 | 13.8/0.203 | 14.6/0.24 | 12.7/0.205 |
| *Schoeniophylax phryganophilus* | 3 | RM | 3,4 | DFS | 0 | 0 | 1.5/0.015 | 0 | 0 | 0 |
| *Certhiaxis cinnamomeus* | 12 | RS | 1,4 | TG | 0 | 0 | 0 | 0 | 1.6/0.024 | 0.5/0.01 |
| *Synallaxis albilora* | 12 | RS | 1,2,3,4 | FG | 12.0/0.14 | 16.4/0.309 | 25.4/0.537 | 15.4/0.268 | 14.6/0.228 | 14.6/0.224 |
| *Cranioleuca vulpina* | 12 | RS | 1,2,3 | TG | 2.0/0.02 | 5.5/0.055 | 13.4/0.299 | 5.7/0.114 | 5.7/0.11 | 5.9/0.112 |
| *Phacellodomus rufifrons* | 10 | RS | 1,2,3,4 | FG | 2.0/0.04 | 1.8/0.036 | 0 | 1.6/0.024 | 2.4/0.037 | 0.5/0.005 |
| *Phacellodomus ruber* | 10 | RS | 1,2,3,4 | TG | 0 | 0 | 0 | 4.9/0.073 | 2.0/0.037 | 3.9/0.054 |
| *Pseudoseisura cristata* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 1.5/0.015 | 2.4/0.049 | 2.0/0.033 | 1.0/0.02 |
| *Xenops rutilans* | 9 | RD | 1,4 | FG | 0 | 3.6/0.036 | 1.5/0.015 | 0 | 0 | 0 |
| TYRANIIDAE |   |   |   |   |  |  |   |  |  |  |
| PIPROMORPHINAE |   |   |   |   |  |  |   |  |  |  |
| *Hemitriccus striaticollis* | 12 | RS | 1,2,3 | FG | 6.0/0.08 | 3.6/0.073 | 13.4/0.194 | 0.8/0.008 | 0.8/0.012 | 2.0/0.02 |
| *Hemitriccus margaritaceiventer* | 12 | RS | 1,2,3,4 | TG | 32.0/0.56 | 38.2/0.891 | 40.3/0.716 | 43.1/0.52 | 50.8/0.622 | 40.0/0.478  |
| *Leptopogon amaurocephalus* | 1 | UC | 2 |  -  | 0 | 0 | 1.5/0.015 | 0 | 0 | 0 |
| *Todirostrum cinereum* | 8 | RD | 1,2 | FHS | 2.0/0.02 | 0 | 0 | 0 | 1.6/0.02 | 1.0/0.015 |
| *Poecilotriccus latirostis* | 12 | RS | 1,2,3 | TG | 10.0/0.18 | 10.9/0.145 | 13.4/0.239 | 3.3/0.033 | 3.7/0.037 | 1.5/0.02 |
| ELAENIINEA |   |   |   |   |  |  |   |  |  |  |
| *Camptostoma obseletum* | 12 | RS | 1,2,3,4 | TG | 4.0/0.04 | 10.9/0.164 | 6.0/0.075 | 5.7/0.065 | 16.7/0.195 | 14.6/0.156 |
| *Phaeomyias murina* | 10 | RS | 1,2,3 | TG | 8.0/0.1 | 3.6/0.036 | 3.0/0.03 | 0 | 0 | 0.5/0.005 |
| *Myiopagis viridicata* | 12 | RS | 1,2,3,4 | TG | 10.0/0.1 | 5.5/0.055 | 11.9/0.134 | 16.3/0.179 | 11.8/0.13 | 11.2/0.122 |
| *Myiopagis gaimardii* | 12 | RS | 1,2,3,4 | TG | 4.0/0.04 | 5.5/0.055 | 10.4/0.119 | 19.5/0.252 | 39.0/0.447 | 35.6/0.434 |
| *Elaenia flavogaster* | 7 | FR | 1,2,3 | TG | 4.0/0.04 | 3.6/0.036 | 0 | 0 | 0.4/0.004 | 0 |
| *Elaenia mesoleuca* | 2 | UC | 1,2 |  -  | 0 | 0 | 0 | 0 | 0 | 1.5/0.02 |
| *Elaenia albiceps* | 9 | RD | 1,2,3 | TG | 6.0/0.14 | 12.7/0.182 | 11.9/0.119 | 0.8/0.016 | 0.4/0.008 | 0.5/0.005 |
| *Elaenia cristata* | 2 | UC | 1,2 |  - | 0 | 1.8/0.055 | 0 | 0 | 0 | 0.5/0.005 |
| *Elaenia obscura* | 1 | UC | 1 |  - | 0 | 1.8/0.018 | 0 | 0 | 0 | 0 |
| *Euscarthmus meloryphus* | 10 | RS | 1,2,3 | TG | 6.0/0.006 | 14.5/0.2 | 7.5/0.149 | 1.6/0.024 | 2.8/0.033 | 6.3/0.063 |
| *Capsiempis flaveola* | 1 | UC | 1 |  -  | 0 | 0 | 1.5/0.015 | 0 | 0 | 0 |
| *Myiornis ecaudatus* | 1 | UC | 1,3 |  -  | 0 | 0 | 3.0/0.03 | 0 | 0 | 0 |
| *Sublegatus modestus* | 2 | UC | 1,2 |  -  | 0 | 1.8/0.018 | 1.5/0.015 | 0 | 0 | 0 |
| *Tolmomyias sulphurescens* | 3 | RM | 1,3 | TG | 0 | 1.8/0.018 | 4.5/0.075 | 0 | 0 | 0 |
| *FLUVICOLINAE* |   |   |   |   |  |  |   |  |  |  |
| *Contopus cinereus* | 5 | FM | 1 | FS | 4.0/0.04 | 0 | 1.5/0.015 | 0 | 0 | 0 |
| *Cnemotriccus fuscatus* | 12 | RS | 1,2,3,4 | FG | 46.0/0.64 | 47.3/0.964 | 43.3/1.224 | 30.1/0.407 | 29.3/0.346 | 17.1/0.2 |
| *Pyrocephalus rubinus* | 1 | UC | 1 |  -  | 0 | 0 | 0 | 0 | 0.4/0.004 | 0 |
| *Fluvicola albiventer* | 1 | UC | 1 |  -  | 0 | 1.8/0.018 | 0 | 0 | 0 | 0 |
| TYRANNNINAE |   |   |   |   |  |  |   |  |  |  |
| *Attila bolivianus* | 6 | RM | 1,2 | FFS | 0 | 3.6/0.036 | 0 | 0 | 0 | 0 |
| *Attila phoenicurus* | 3 | FM | 1,2 | FFS | 4.0/0.04 | 0 | 0 | 0 | 0 | 0 |
| *Casiornis rufa* | 12 | RS | 1,2,3,4 | TG | 12.0/0.16 | 29.1/0.4 | 25.4/0.358 | 16.3/0.187 | 26.8/0.329 | 24.4/0.307 |
| *Myiarchus ferox* | 12 | RS | 1,2,3,4 | TG | 12.0/0.14 | 21.8/0.273 | 41.8/0.836 | 27.6/0.333 | 33.3/0.398 | 21.5/0.278 |
| *Myiarchus tyrannulus* | 12 | RS | 1,2,3,4 | TG | 8.0/0.12 | 16.4/0.218 | 29.9/0.567 | 17.9/0.244 | 48.8/0.634 | 29.3/0.424 |
| *Myiarchus swainsoni* | 9 | DF | 1,2,3,4 | TG | 8.0/0.08 | 1.8/0.018 | 6.0/0.075 | 4.1/0.041 | 3.3/0.045 | 1.5/0.02 |
| *Philohydor lictor* | 12 | RS | 1,2,3 | TG | 0 | 0 | 0 | 1.6/0.024 | 1.2/0.012 | 2.4/0.029 |
| *Pitangus sulphuratus* | 12 | RS | 1,2,3,4 | TG | 2.0/0.04 | 7.3/0.109 | 4.5/0.06 | 17.9/0.244 | 24.8/0.325 | 19.5/0.249 |
| *Megarynchus pitangua* | 12 | RS | 1,2,3,4 | TG | 4.0/0.06 | 3.6/0.036 | 1.5/0.015 | 4.9/0.065 | 8.5/0.11 | 4.9/0.063 |
| *Myiozetetes cayanensis* | 12 | RS | 1 | FHS | 2.0/0.02 | 1.8/0.018 | 0 | 2.4/0.024 | 3.7/0.049 | 1.0/0.015 |
| *Myiozetetes similis* | 10 | RS | 1,3 | TG | 0 | 0 | 1.5/0.03 | 0.8/0.008 | 0.8/0.008 | 0 |
| *Myiodynastes maculatus* | 9 | RD | 1,2,3,4 | TG | 6.0/0.1 | 1.8/0.018 | 13.4/0.164 | 1.6/0.016 | 3.3/0.053 | 8.8/0.122 |
| *Legatus leucophaius* | 12 | RS | 1,2,3,4 | TG | 0 | 0 | 1.5/0.015 | 4.9/0.057 | 1.2/0.016 | 6.8/0.088 |
| *Tyrannus melancholicus* | 12 | RS | 1,3 | TG | 0 | 1.8/0.018 | 1.5/0.03 | 1.6/0.033 | 0.8/0.008 | 1.5/0.02 |
| PIPRIDAE |   |   |   |   |  |  |   |  |  |  |
| *Pipra fasciicauda* | 6 | FM | 1,3 | FG | 4.0/0.04 | 0 | 1.5/0.015 | 0 | 0 | 0.5/0.005 |
| *Antilophia galeata* | 12 | RS | 1,2,3 | FG | 18.0/0.24 | 23.6/0.436 | 35.8/0.836 | 12.2/0.171 | 8.1/0.106 | 14.1/0.195 |
| *Neopelma pallescens* | 12 | RS | 1,2,4 | TG | 6.0/0.08 | 5.5/0.073 | 14.9/0.209 | 0 | 0 | 1.0/0.024 |
| *Neopelma sulphureiventer* | 1 | UC | 3 |  - | 0 | 0 | 1.5/0.045 | 0 | 0 | 0 |
| TITYRIDAE |   |   |   |   |  |  |   |  |  |  |
| *Pachyramphus viridis* | 9 | DF | 1,2,3 | TG | 2.0/0.02 | 1.8/0.018 | 3.0/0.045 | 0.8/0.008 | 0 | 0.5/0.005 |
| *Pachyramphus polychopterus* | 12 | RS | 1,2,3,4 | FG | 6.0/0.08 | 0 | 10.4/0.119 | 0 | 0 | 0 |
| *Pachyramphus marginatus* | 3 | RM | 1,2,4 | TG | 2.0/0.02 | 0 | 3.0/0.045 | 3.3/0.073 | 3.3/0.033 | 1.5/0.015 |
| *Tityra cayana* | 8 | RD | 1,2,3,4 | TG | 0 | 0 | 1.5/0.015 | 1.6/0.033 | 0.4/0.008 | 2.9/0.054 |
| *Tityra inquisitor* | 3 | UC | 2,4 |  -  | 0 | 0 | 1.5/0.015 | 0.8/0.024 | 0.4/0.004 | 0 |
| VIREONIDAE |   |   |   |   |  |  |   |  |  |  |
| *Cyclarhis gujanensis* | 8 | DF | 1,3 | TG | 2.0/0.02 | 0 | 3.0/0.03 | 0 | 0.4/0.004 | 3.4/0.044 |
| *Vireo olivaceus* | 10 | RS | 1,2,3,4 | TG | 0 | 1.8/0.018 | 9.0/0.104 | 1.6/0.024 | 2.8/0.041 | 9.3/0.132 |
| *Hylophilus pectoralis* | 12 | RS | 1,2,3 | TG | 10.0/0.12 | 16.4/0.309 | 11.9/0.224 | 8.9/0.171 | 13.0/0.244 | 14.6/0.254 |
| CORVIDAE |   |   |   |   |  |  |   |  |  |  |
| *Cyanocorax cyanomelas* | 12 | RS | 1,2,3,4 | TG | 0 | 5.5/0.109 | 7.5/0.149 | 21.1/0.472 | 25.2/0.496 | 28.3/0.478 |
| TROGLODITIDAE |   |   |   |   |  |  |   |  |  |  |
| *Campylorhynchus turdinus* | 12 | RS | 1,3,4 | TG | 0 | 0 | 0 | 8.9/0.154 | 10.2/0.171 | 11.7/0.21 |
| *Donacobius atricapilla* | 12 | RS | 1,4 | TG | 0 | 0 | 0 | 0 | 1.2/0.016 | 1.0/0.015 |
| *Pheugopedius genibarbis* | 12 | RS | 1,2,3 | TG | 2.0/0.02 | 1.8/0.055 | 3.0/0.03 | 9.8/0.138 | 10.2/0.142 | 9.3/0.156 |
| *Cantorchilus leucotis* | 12 | RS | 1,2,3,4 | FG | 0 | 10.9/0.145 | 4.5/0.09 | 22.0/0.309 | 17.5/0.317 | 12.7/0.234 |
| *Troglodytes musculus* | 12 | RS | 1,3,4 | TG | 2.0/0.02 | 0 | 0 | 3.3/0.057 | 4.9/0.077 | 5.9/0.073 |
| POLIOPTILIDAE |   |   |   |   |  |  |   |  |  |  |
| *Polioptila dumicola* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 14.5/0.2 | 4.5/0.06 | 23.6/0.472 | 26.4/0.598 | 28.3/0.522 |
| TURDIDAE |   |   |   |   |  |  |   |  |  |  |
| *Turdus rufiventris* | 12 | RS | 1,2,3 | TG | 10.0/0.1 | 3.6/0.036 | 3.0/0.03 | 0.8/0.008 | 2.0/0.02 | 2.4/0.024 |
| *Turdus amaurochalinus* | 12 | RS | 1,2,3,4 | FG | 12.0/0.12 | 40.0/1.236 | 9.0/0.09 | 7.3/0.098 | 11.8/0.159 | 10.7/0.122 |
| MIMIDAE |   |   |   |   |  |  |   |  |  |  |
| *Mimus saturninus* | 12 | RS | 1,3 | TG | 0 | 0 | 0 | 0 | 0.4/0.004 | 0.5/0.005 |
| COEREBIDAE |   |   |   |   |  |  |   |  |  |  |
| *Coereba flaveola* | 12 | RS | 1,2,3 | TG | 0 | 9.1/0.109 | 6.0/0.06 | 0.8/0.008 | 2.8/0.037 | 1.5/0.02 |
| THRAUPIDAE |   |   |   |   |  |  |   |  |  |  |
| *Nemosia pileata* | 12 | RS | 1,2,4 | TG | 2.0/0.02 | 0 | 1.5/0.015 | 4.1/0.106 | 3.7/0.102 | 4.9/0.102 |
| *Eucometis penicillata* | 10 | RS | 1,2 | FFS | 4.0/0.06 | 5.5/0.055 | 9.0/0.119 | 0 | 0 | 1.5/0.02 |
| *Tachyphonus rufus* | 3 | RM | 1,3 | FG | 0 | 7.3/0.073 | 0 | 0 | 0 | 0 |
| *Ramphocelus carbo* | 12 | RS | 1,2,3,4 | TG | 8.0/0.18 | 12.7/0.291 | 20.9/0.612 | 9.8/0.22 | 15.4/0.354 | 15.1/0.298 |
| *Thraupis sayaca* | 12 | RS | 1,2,3,4 | TG | 2.0/0.02 | 12.7/0.2 | 3.0/0.045 | 7.3/0.114 | 11.0/0.142 | 8.8/0.117 |
| *Thraupis palmarum* | 8 | RD | 1,2,3 | TG | 0 | 3.6/0.036 | 0 | 1.6/0.041 | 2.8/0.045 | 1.0/0.015 |
| *Euphonia chlorotica* | 12 | RS | 1,2,3,4 | FG | 0 | 0 | 0 | 14.6/0.203 | 14.6/0.187 | 11.2/0.122 |
| *Conirostrum speciosum* | 12 | RS | 1,2,3,4 | TG | 0 | 3.6/0.055 | 13.4/0.134 | 15.4/0.341 | 11.8/0.28 | 7.3/0.127 |
| EMBERIZIDAE |   |   |   |   |  |  |   |  |  |  |
| *Ammodramus humeralis* | 8 | BM | 1,4 | TG | 0 | 0 | 0 | 0 | 0.4/0.004 | 0.5/0.005 |
| *Volatina jacarina* | 12 | RS | 1,3,4 | TG | 6.0/0.1 | 16.4/0.436 | 7.5/0.149 | 0 | 2.0/0.028 | 1.0/0.015 |
| *Sporophila lineola* | 4 | RM | 1 | FS | 0 | 0 | 0 | 1.6/0.016 | 0 | 0.5/0.005 |
| *Sporophila angolensis* | 12 | RS | 1,2,3,4 | TG | 18.0/0.22 | 16.4/0.236 | 19.4/0.313 | 13.8/0.179 | 1.6/0.02 | 3.9/0.039 |
| *Arremon taciturnus* | 2 | UC | 2 |  - | 2.0/0.02 | 0 | 0 | 0 | 0 | 0.5/0.005 |
| *Arremon flavirostris* | 1 | UC | 2 |  -  | 0 | 1.8/0.018 | 0 | 0 | 0 | 0 |
| *Coryphospingus cucullatus* | 12 | RS | 1,2,4 | TG | 2.0/0.04 | 10.9/0.182 | 7.5/0.075 | 3.3/0.033 | 2.0/0.02 | 8.3/0.112 |
| *Paroaria capitata* | 12 | RS | 1,2,3 | TG | 2.0/0.04 | 3.6/0.036 | 4.5/0.209 | 0 | 1.2/0.028 | 1.5/0.024 |
| CARDINALIDAE |   |   |   |   |  |  |   |  |  |  |
| *Saltator similis* | 8 | BM | 1,3 | FG | 0 | 0 | 6.0/0.06 | 1.6/0.024 | 1.2/0.016 | 2.4/0.029 |
| *Saltator coerulescens* | 12 | RS | 1,2,4 | TG | 2.0/0.02 | 1.8/0.036 | 4.5/0.075 | 10.6/0.179 | 6.5/0.085 | 14.1/0.215 |
| PARULIDAE |   |   |   |   |  |  |   |  |  |  |
| *Parula pitiayumi* | 10 | RS | 1,2,3 | TG | 0 | 1.8/0.018 | 1.5/0.045 | 2.4/0.033 | 4.9/0.069 | 5.4/0.78 |
| *Basileuterus flaveolus* | 12 | RS | 1,2,3 | TG | 22.0/0.3 | 32.7/0.545 | 3.3/0.627 | 20.3/0.244 | 23.6/0.276 | 17.6/0.229 |
| ICTERIDAE |   |   |   |   |  |  |   |  |  |  |
| *Psarocolius decumanus* | 12 | RS | 1,2,3,4 | TG | 2.0/0.08 | 5.5/0.073 | 3.0/0.03 | 6.5/0.073 | 11.0/0.138 | 13.2/0.185 |
| *Cacicus cela* | 12 | RS | 1,2,3,4 | TG | 0 | 1.8/0.055 | 3.0/0.224 | 5.7/0.089 | 2.8/0.049 | 15.1/0.215 |
| *Procacicus solitarius* | 12 | RS | 1 | FHS | 0 | 0 | 1.5/0.03 | 4.1/0.065 | 2.4/0.049 | 3.4/0.049 |
| *Icterus cayanensis* | 8 | RS | 1,2,3,4 | TG | 0 | 1.8/0.018 | 0 | 1.6/0.024 | 4.5/0.061 | 2.9/0.044 |
| *Icterus jamacai* | 9 | RD | 1,2,3,4 | TG | 0 | 1.8/0.055 | 0 | 5.7/0.065 | 6.5/0.085 | 9.3/0.122 |
| *Agelasticus cyanopus* | 3 | RM | 2 | FS | 0 | 0 | 1.5/0.03 | 0 | 0 | 0 |
| *Gnorimopsar chopi* | 1 | UC | 4 |  - | 0 | 0 | 0 | 0 | 0 | 0.5/0.005 |
| *Molothrus bonariensis* | 1 | UC | 2 |  - | 0 | 0 | 0 | 0 | 0 | 0.5/0.005 |

Appendix S2. The estimators of richness and changes on composition of birds’ species of each migration pattern. Estimators were provided by the best model of the set. Naive estimation is the fraction of the number of species remained after the exclusion of 6 survey points by all the species of the group. Legend: SD-F, semi-deciduous flooded forest; D-D, deciduous dry forest; SD-D, semi-deciduous dry forest; EG-F, evergreen flooded forest. The selected model for uncommon is ψ(.), γ(season), ε(season), p(season), and for the 5 other groups is ψ(.), γ(season), ε(season), p(phytophysiognomy)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of migration |  | Probability of detection (95% CI) |  | Fraction of species present (95% CI) | Naïve |
|  | Dry | Flooding | Runoff |  | Dry | Flooding | Runoff |  |
| Uncommon |  | 0,07(0.04-0.13) | 0,09(0.01-0.34) | 0,31(0.19-0.45) |  | 0,91(0.27-0.99) | 0,29(0-0.72) | 0,22(0-0.49) | 0,88 |
|  |  |  |  |  |  |  |  |  |  |
|  | SD-F | D-D | SD-D | EG-F | Dry | Flooding | Runoff | Naïve |
| Residents | 0,46(0.44-0.49) | 0,19(0.18-0.21) | 0,31(0.29-0.33) | 0,36(0.33-0.38) | 0,84(0.77-0.89) | 0,85(0.79-0.91) | 0,87(0.81-0.93) | 0,97 |
| Flooding runoff | 0,34(0.21-0.49) | 0,02(0-0.15) | 0(0-1) | 0,29(0.17-0.44) | 0,25(0.03-0.76) | 1(1-1) | 1(1-1) | 0,66 |
| Runoff-dry | 0,23(0.18-0.29) | 0,10(0.07-0.14) | 0,09(0.06-0.14) | 0,10(0.07-0.15) | 0,77(0.56-0.89) | 0,43(0.21-0.64) | 0,79(0.52-0.87) | 0,89 |
| Breeding | 0,09(0.05-0.16) | 0,04(0.01-0.09) | 0,04(0.02-0.09) | 0,00(0-0.04) | 1,00 (0-1) | 0,32 (0.10-0.74) | 0,76 (0.38-1) | 0,92 |
| Summer | 0,26(0.16-0.39) | 0,04(0.01-0.14) | 0,11(0.05-0.22) | 0,11(0.05-0.22) | 0,86(0.41-0.98) | 0,86(0.60-1) | 0,29(0.05-0.63) | 0,85 |

Appendix S3. Locality, geographical coordinates, straight distance to the Pantanal and sampling period of 17 migratory or uncommon species of the Pantanal - MT.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Locality | Coordinates | Distance to Pantanal (km) | Period | Source |
| Pirizal | 16º15' S56º20' W | 7 | Feb-Dec/2001 | Luid Novak, pers. comm. |
| Jaciara | 15º55' S55º00' W | 53 | Mar/2000 - May/2002 | Peter Peterman, pers. comm. |
| Chapada dos Guimarães National Park | 15º24' S55º50' W | 60 | Sep/2005 and May/2006 | Pinho et al., unpub. Data |
| Chapada dos Guimarães (Rio da Casca) | 15º20' S55º30' W | 75 | Feb/2003 - Mar/2004 (- Jan) | Tatiana Rubio, pers. comm. |
| UHE Manso | 14º40' S55º30' W | 83 | Mar/2000 -Mar/2001 | Fátima Sonoda, pers. comm. |