Appendix 4: Robustness analysis with species that occur at both high and low-quality landscapes

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Given that bird species pool are slightly different in both regions (see Appendix 1), the results we found comparing both high- and low-quality landscapes could be confounded by groups os species that respond differently but doesn't occur at both regions. In order to check for the robustness of our results, we performed separate analysis with only those species that occur in both regions, **57 forest specialists** and **64 forest generalists**, and compared them with the results presented in the main text with all species.

The analyses were done with the combined trait models, the same presented at Figure 2 and 3 in the main text.

We found that even with the same groups of species analyzed, we get very similar results for the differences between high- and low-quality matrix landscapes.

1. Datasets

Separating only species that occur at both regions.

Table S3.1: Checking the number of species in all 4 assemblages datasets.

assemblage	N_of_species
High-quality specialists	57
Low-quality specialists	57
High-quality generalists	64
Low-quality generalists	64

2. Local and landscape forest cover effects

Comparing effect sizes and 95% IC for fixed effects forest cover a local and landscape scale for each dataset: the original and the subsets of the same species (1). We see that estimates almost didn't change with the dataset.

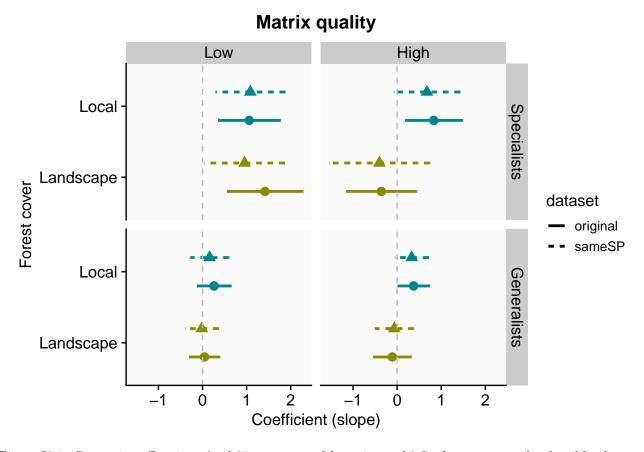


Figure S3.1: Comparing effect sizes (and 95 percent confidence intervals) for forest cover at local and landscape scale for both datasets: original with all species (triangles and continuous lines) and the subset of species that occur at both regions (circles and dashed lines).

3. R^2 models

Comparing partial R^2 of the models' terms in both datasets, the original and the subsets of the same species (2). Qualitatively, we see that R^2 almost didn't change with the dataset, expect for specialists in low-quality matrix landscapes where fixed effects (trait*env) decreased from 22% to 17%.

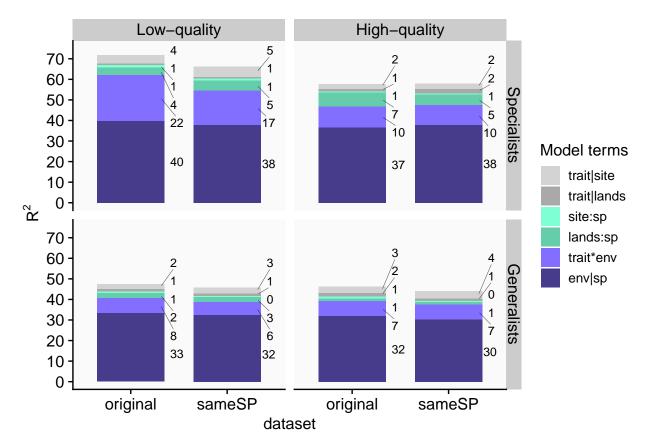


Figure S3.2: Comparing partial R-squares for models terms in both datasets: original with all species (left) and the subset of species that occur at both regions (right).

4. Predictions for each species local forest cover

Predictions of species occurrence probability with forest cover at the local scale for the species that occur at both regions with models fitted for both datasets: the original and the subsets of the same species for forest specialists (3) and generalists (4). Landscape forest cover was fixed in 30%.

Forest specialists dataset — original --- sameSP Matrix quality — High — Low Celeus_fla Chamaeza_meru Chirox_caud 0.75 0.50 0.25 0.00 Conop_line Crypt_obsol Dend_platyros 0.75 0.50 0.25 0.00 Drym_uchro Drym_ferruginea Dysith_ment Gral_varia Herps_ruf 0.75 0.50 0.25 0.00 Hypoed_gut Lepid_squa Loch_nem Mach_leachi Lathro_eul 0.75 0.50 0.25 Occurrence probability 0.25 0.00 0.00 Myio_caniceps Pach_viridis Pachy_castane Pene_obs Phily_rufum Phyllos_vent Platyr_myst Poecilo_plum Pyrigl_leu 0.75 0.50 0.25 0.00 0.75 0.50 0.25 0.00 Thricoth_melan 0.75 0.50 0.25 0.00 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 Xyphor_fusc 0.75 0.50 0.25 0.00 20 40 60 80

Figure S3.3: Predictions for forest specialist birds.

Local forest cover (%)

Forest generalists dataset - original -- sameSP Matrix quality - High - Low Aramid_sarac Arati_leuco Brotoger_chi Campto_obso Chlor_cyanea Amazilia_lact Aphant_cirr 0.6 0.4 0.2 0.0 0.6 0.4 0.2 0.0 0.6 0.4 0.2 0.0 0.6 0.4 0.2 0.0 0.6 Occurrence probability 0.0 0.0 0.0 0.0 0.4 0.0 Phae_eury 0.6 0.2 0.0 Ramph_dicol Ramphas_toco 0.6 0.4 0.2 0.0 Thalur_gla Tham_ruficap 0.6 0.4 0.2 0.0 Turd_leuco Turdus_ruf Tyran_melan 0.6 0.4 0.2 0.0 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 0.6 0.4 0.2 0.0 20 40 60 80 Local forest cover (%)

Figure S3.4: Predictions for forest generalist birds.