

TABLE S9 | Results from MRM based on GLMs with the three facets after excluding 09 undersampled river basins. The sub-drainages Demini, Paru_Este, Jari, Jamanxim, Grande, Tapaua, Apurimac1, Ucayali2, Curaray have minus than 60% of completeness estimated based on Chao 2 richness estimators (Jézéquel *et al.*, 2020b). For this reason, we opt to eliminate those sub-drainages from our data set and refit the models.

| predictors | TaxoBsim | pvalue_TaxoBsim | PBsim3k | pvalue_PBsim3k | Fun_Bsim | pvalue_Fun_Bsim |
|----------------------|--------------|-----------------|--------------|----------------|--------------|-----------------|
| (Intercept) | 0.07 | 0 | -1.16 | 0 | -2.51 | 0 |
| D_energ_s | -0.16 | 0.43 | -0.21 | 0.14 | -0.39 | 0.17 |
| D_water_s | -0.02 | 0.87 | 0.02 | 0.82 | 0.11 | 0.51 |
| D_temp_s | 0.37 | 0.05 | 0.15 | 0.28 | -0.14 | 0.6 |
| D_Habitat_size_s | -0.06 | 0.43 | 0.05 | 0.41 | 0.06 | 0.6 |
| D_Habitat_Div_s | 0.15 | 0.04 | 0.09 | 0.1 | 0.02 | 0.83 |
| D_Habitat_harsh_s | 0.4 | 0 | 0.25 | 0 | 0.15 | 0.28 |
| D_Habitat_position_s | 0.14 | 0.21 | 0.03 | 0.72 | 0.04 | 0.8 |
| D_Habitat_fragm_s | 0.02 | 0.77 | -0.02 | 0.8 | -0.13 | 0.26 |
| D_Habitat_water_s | -0.2 | 0 | -0.12 | 0.01 | -0.07 | 0.45 |
| D_Habitat_SampEff_s | -0.07 | 0.4 | -0.25 | 0 | -0.58 | 0 |
| D_Marine_Incurs_s | -0.24 | 0.06 | -0.13 | 0.17 | -0.29 | 0.11 |
| D_CurrentLGM_s | 0.17 | 0.1 | 0.13 | 0.1 | 0.22 | 0.14 |
| D_Pebas23mya_s | -0.22 | 0.05 | -0.13 | 0.1 | -0.09 | 0.55 |
| D_hydro_s | -0.03 | 0.54 | 0.03 | 0.5 | 0.16 | 0.04 |
| D_spat_s | 0.54 | 0 | 0.4 | 0 | 0.2 | 0.18 |
| dev | 324.39 | 4640 | 186.92 | 4640 | 409.81 | 4640 |

REFERENCE

- Jézéquel C, Tedesco PA, Darwall W, Dias MS, Frederico RG, Hidalgo M *et al.* Freshwater fish diversity hotspots for conservation priorities in the Amazon Basin. *Conserv Biol.* 2020b; 34(4):956–65. <https://doi.org/10.1111/cobi.13466>

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