

**Table S4. Co-occurrence analyses of foraging guilds.**

Each entry represents the probability value for a one-tailed test of the null hypothesis that species co-occurrence patterns are random. Tan-shaded cells indicate statistically significant segregation. Yellow-shaded cells indicate statistically significant aggregation. No shading indicates a non-significant pattern ( $p > 0.05$  for both tails of the distribution). Number of species in each guild is given in parentheses.

Foraging Guild	Fixed-Fixed Model 5 × 5	Fixed-Fixed Model 10 × 10	Habitat Model 5 × 5	Habitat Model 10 × 10	Population Model 5 × 5	Population Model 10 × 10	Biomass Model 5 × 5	Biomass Model 10 × 10
aquatic pursuers (8)	0.042	< 0.001	< 0.001	< 0.001	< 0.001	0.006	< 0.001	< 0.001
wading birds (6)	0.145	0.423	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
grazing waterfowl (5)	0.372	0.567	< 0.001	< 0.001	0.049	0.001	0.049	0.003
dabbling ducks (7)	< 0.001	< 0.001	> 0.999	> 0.999	> 0.999	> 0.999	> 0.999	> 0.999
diving ducks (4)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
diurnal raptors (12)	< 0.001	< 0.001	> 0.999	< 0.001	0.997	0.164	> 0.999	0.001
gallinaceous birds (4)	< 0.001	0.291	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
rails (5)	0.131	< 0.001	0.933	< 0.001	0.788	< 0.001	0.002	< 0.001
plovers (8)	< 0.001	< 0.001	> 0.999	< 0.001	> 0.999	0.037	0.960	< 0.001
sandpipers (11)	< 0.001	0.013	< 0.001	< 0.001	< 0.001	0.001	0.626	0.261
gulls (7)	< 0.001	< 0.001	< 0.001	< 0.001	0.007	< 0.001	0.256	0.991
terns (6)	0.833	0.210	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001
pigeons (4)	0.031	0.020	0.022	< 0.001	< 0.001	0.002	< 0.001	< 0.001
owls (6)	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
woodpeckers (5)	0.079	0.926	0.761	> 0.999	0.104	0.327	0.001	0.001
aerial insectivores (4)	0.109	0.214	0.976	< 0.001	> 0.999	< 0.001	> 0.999	< 0.001
openland insectivores (9)	0.009	0.780	0.021	< 0.001	0.033	< 0.001	< 0.001	< 0.001
terrestrial & low strata flycatchers (10)	< 0.001	< 0.001	0.306	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
thrushes(5)	0.002	0.191	0.089	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
marsh warblers (7)	0.755	0.941	0.953	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
foliage gleaners (12)	< 0.001	0.627	> 0.999	0.024	< 0.001	0.975	0.967	0.918
tit-like birds (12)	< 0.001	< 0.001	> 0.999	< 0.001	0.569	< 0.001	0.783	< 0.001
corvids (7)	< 0.001	0.642	0.740	< 0.001	0.001	< 0.001	0.001	< 0.001
passerine seedeaters (7)	< 0.001	0.887	> 0.999	< 0.001	0.259	< 0.001	< 0.001	< 0.001
SEGREGATED	17	12	11	22	16	20	16	20
RANDOM	7	12	5	0	4	2	3	2
AGGREGATED	0	0	8	2	4	2	5	2