Bests fit models and values of coefficients for best fit models

**Table S1.** Best fit models for each group-response combination measured by AIC. Simple models only include threat status (NT or T) and log-citations. Complete models include all host traits and all interactions with threat status. Reduced models include all host traits and some interactions as included if lower AIC.

|  |  |  |  |
| --- | --- | --- | --- |
| Group | Response | Best.model.overall | Best.complex.model |
| Carnivores | Host parasite richness | Complete | Complete |
| Primates | Host parasite richness | Reduced | Reduced |
| Ungulates | Host parasite richness | Reduced | Reduced |
| Carnivores | Proportion closely transmitted | Reduced | Reduced |
| Primates | Proportion closely transmitted | Complete | Complete |
| Ungulates | Proportion closely transmitted | Simple | Reduced |
| Carnivores | Proportion microparasites | Complete | Complete |
| Primates | Proportion microparasites | Simple | Complete |
| Ungulates | Proportion microparasites | Reduced | Reduced |
|  |  |  |  |

**Table S2.** Model coefficients and highest posterior density region for best fit model of host-parasite species richness.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group | predictor | Estimate | Est.Error | Q2.5 | Q97.5 |
| Carnivores | Intercept | 2.610 | 0.047 | 2.517 | 2.700 |
|  | threat | -0.276 | 0.224 | -0.736 | 0.142 |
|  | citations | 0.856 | 0.026 | 0.805 | 0.906 |
|  | range | -0.088 | 0.036 | -0.159 | -0.016 |
|  | group size | -0.205 | 0.076 | -0.355 | -0.059 |
|  | mass | -0.070 | 0.028 | -0.126 | -0.015 |
|  | lifespan | 0.017 | 0.004 | 0.009 | 0.026 |
|  | latitude | 0.000 | 0.002 | -0.003 | 0.004 |
|  | threat:citations | 0.384 | 0.140 | 0.128 | 0.671 |
|  | threat:range | 0.206 | 0.049 | 0.112 | 0.304 |
|  | threat:group size | -0.294 | 0.193 | -0.679 | 0.083 |
|  | threat:mass | 1.117 | 0.300 | 0.546 | 1.729 |
|  | threat:lifespan | -0.158 | 0.040 | -0.238 | -0.083 |
|  | threat:latitude | 0.100 | 0.024 | 0.054 | 0.150 |
| Primates | Intercept | 1.689 | 0.106 | 1.478 | 1.894 |
|  | threat | -0.177 | 0.170 | -0.511 | 0.153 |
|  | citations | 0.976 | 0.092 | 0.801 | 1.162 |
|  | range | -0.008 | 0.049 | -0.102 | 0.088 |
|  | group size | -0.083 | 0.080 | -0.240 | 0.074 |
|  | mass | 0.088 | 0.043 | 0.003 | 0.173 |
|  | lifespan | 0.018 | 0.005 | 0.008 | 0.029 |
|  | latitude | 0.002 | 0.005 | -0.009 | 0.013 |
|  | threat:citations | -0.161 | 0.123 | -0.402 | 0.079 |
|  | threat:range | -0.303 | 0.073 | -0.447 | -0.162 |
|  | threat:group size | 0.165 | 0.102 | -0.034 | 0.368 |
| Ungulates | Intercept | 3.042 | 0.041 | 2.962 | 3.121 |
|  | threat | 0.075 | 0.112 | -0.150 | 0.296 |
|  | citations | 0.789 | 0.031 | 0.729 | 0.850 |
|  | range | -0.125 | 0.025 | -0.173 | -0.077 |
|  | group size | -0.036 | 0.016 | -0.068 | -0.005 |
|  | mass | 0.019 | 0.036 | -0.050 | 0.090 |
|  | lifespan | -0.023 | 0.006 | -0.036 | -0.011 |
|  | latitude | -0.008 | 0.002 | -0.012 | -0.005 |
|  | threat:citations | 0.298 | 0.096 | 0.114 | 0.490 |
|  | threat:range | 0.116 | 0.035 | 0.049 | 0.185 |
|  | threat:group size | -0.048 | 0.031 | -0.109 | 0.012 |
|  |  |  |  |  |  |

**Table S3.** Model coefficients and highest posterior density region for best fit model of proportion of only closely transmitted parasites.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group | predictor | Estimate | Est.Error | Q2.5 | Q97.5 |
| Carnivores | Intercept | -1.660 | 0.140 | -1.939 | -1.389 |
|  | threat | -0.498 | 0.331 | -1.166 | 0.133 |
|  | citations | -0.405 | 0.092 | -0.585 | -0.226 |
|  | range | 0.084 | 0.139 | -0.190 | 0.353 |
|  | group size | 0.120 | 0.262 | -0.409 | 0.618 |
|  | mass | 0.214 | 0.093 | 0.034 | 0.394 |
|  | lifespan | 0.007 | 0.015 | -0.022 | 0.035 |
|  | latitude | -0.006 | 0.006 | -0.017 | 0.006 |
|  | threat:citations | 0.672 | 0.305 | 0.106 | 1.295 |
|  | threat:range | -0.262 | 0.151 | -0.550 | 0.040 |
|  | threat:group size | -0.870 | 0.647 | -2.181 | 0.350 |
| Primates | Intercept | -2.791 | 0.497 | -3.841 | -1.895 |
|  | threat | -1.436 | 1.073 | -3.771 | 0.422 |
|  | citations | -0.718 | 0.328 | -1.359 | -0.083 |
|  | range | 0.593 | 0.193 | 0.229 | 0.988 |
|  | group size | 1.282 | 0.430 | 0.484 | 2.142 |
|  | mass | 0.369 | 0.250 | -0.106 | 0.877 |
|  | lifespan | -0.132 | 0.049 | -0.234 | -0.043 |
|  | latitude | 0.062 | 0.023 | 0.017 | 0.108 |
|  | threat:citations | 0.035 | 0.618 | -1.232 | 1.202 |
|  | threat:range | -0.929 | 0.388 | -1.714 | -0.198 |
|  | threat:group size | -0.780 | 0.544 | -1.829 | 0.306 |
|  | threat:mass | 0.638 | 0.475 | -0.269 | 1.606 |
|  | threat:lifespan | 0.210 | 0.066 | 0.085 | 0.343 |
|  | threat:latitude | 0.026 | 0.055 | -0.082 | 0.134 |
| Ungulates | Intercept | -2.091 | 0.138 | -2.369 | -1.823 |
|  | threat | 0.302 | 0.259 | -0.219 | 0.791 |
|  | citations | 0.069 | 0.083 | -0.092 | 0.233 |
|  | threat:citations | 0.199 | 0.235 | -0.238 | 0.690 |
|  |  |  |  |  |  |

**Table S4.** Model coefficients and highest posterior density region for best fit model of proportion of only microparasites (bacteria, viruses, protozoa, fungi).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group | predictor | Estimate | Est.Error | Q2.5 | Q97.5 |
| Carnivores | Intercept | -0.523 | 0.098 | -0.719 | -0.331 |
|  | threat | -0.415 | 0.423 | -1.294 | 0.359 |
|  | citations | -0.179 | 0.054 | -0.282 | -0.072 |
|  | range | 0.039 | 0.080 | -0.117 | 0.193 |
|  | group size | -0.083 | 0.159 | -0.401 | 0.224 |
|  | mass | 0.227 | 0.059 | 0.114 | 0.343 |
|  | lifespan | 0.014 | 0.009 | -0.004 | 0.032 |
|  | latitude | 0.002 | 0.004 | -0.006 | 0.009 |
|  | threat:citations | 1.593 | 0.292 | 1.064 | 2.209 |
|  | threat:range | -0.080 | 0.106 | -0.287 | 0.125 |
|  | threat:group size | -0.428 | 0.432 | -1.294 | 0.414 |
|  | threat:mass | 0.220 | 0.560 | -0.831 | 1.386 |
|  | threat:lifespan | -0.175 | 0.078 | -0.334 | -0.031 |
|  | threat:latitude | 0.012 | 0.045 | -0.073 | 0.105 |
| Primates | Intercept | 0.569 | 0.175 | 0.236 | 0.912 |
|  | threat | -0.542 | 0.217 | -0.961 | -0.122 |
|  | citations | -0.169 | 0.159 | -0.490 | 0.136 |
|  | threat:citations | 0.395 | 0.186 | 0.032 | 0.770 |
| Ungulates | Intercept | -1.166 | 0.121 | -1.408 | -0.932 |
|  | threat | -0.402 | 0.286 | -0.968 | 0.162 |
|  | citations | 0.199 | 0.090 | 0.022 | 0.381 |
|  | range | 0.080 | 0.065 | -0.049 | 0.205 |
|  | group size | 0.124 | 0.034 | 0.055 | 0.191 |
|  | mass | 0.167 | 0.090 | -0.009 | 0.344 |
|  | lifespan | 0.071 | 0.017 | 0.038 | 0.104 |
|  | latitude | 0.020 | 0.004 | 0.012 | 0.028 |
|  | threat:citations | -0.575 | 0.191 | -0.950 | -0.199 |
|  | threat:range | -0.310 | 0.090 | -0.485 | -0.137 |
|  | threat:group size | 0.056 | 0.073 | -0.084 | 0.201 |