

Evolutionary Dynamics

Figure 2: global infectivity and resistance

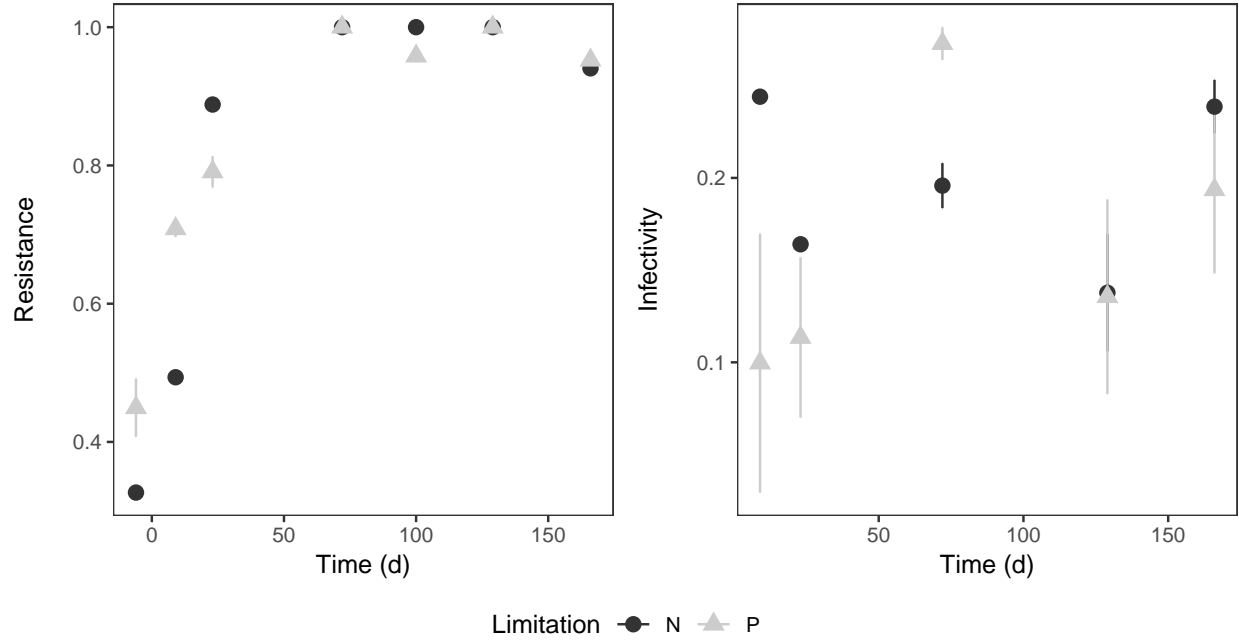


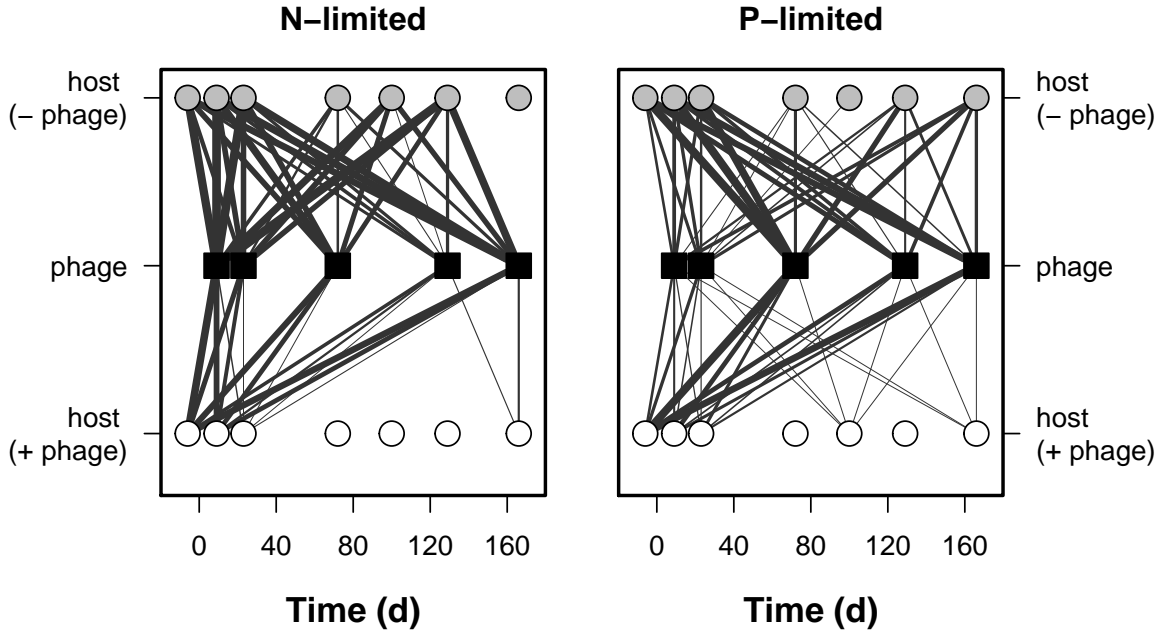
Table 1: Resistance RMANOVA results

| | numDF | denDF | F-value | p-value |
|---------------------|-------|-------|---------|---------|
| (Intercept) | 1 | 601 | 713.8 | 0 |
| lim | 1 | 4 | 6.29 | 0.0662 |
| bac.time | 1 | 601 | 222.7 | 0 |
| lim:bac.time | 1 | 601 | 4.397 | 0.03643 |

Table 2: Infectivity RMANOVA results

| | numDF | denDF | F-value | p-value |
|-----------------------|-------|-------|---------|----------|
| (Intercept) | 1 | 601 | 37.55 | 1.61e-09 |
| lim | 1 | 4 | 4.127 | 0.112 |
| phage.time | 1 | 601 | 0.6392 | 0.4243 |
| lim:phage.time | 1 | 601 | 7.533 | 0.006239 |

Figure 3: Co-evolutionary dynamics



RMANOVA for Interaction Strengths

Table 3: RMANOVA results for interaction strengths between phage and control hosts

| | numDF | denDF | F-value | p-value |
|-------------------------|-------|-------|----------|-----------|
| (Intercept) | 1 | 282 | 57.34 | 5.257e-13 |
| lim | 1 | 4 | 14.63 | 0.01869 |
| phage.time | 1 | 282 | 2.084 | 0.1499 |
| bac.time | 1 | 282 | 0.01975 | 0.8883 |
| lim:phage.time | 1 | 282 | 7.253 | 0.007504 |
| lim:bac.time | 1 | 282 | 0.002479 | 0.9603 |
| phage.time:bac.time | 1 | 282 | 1.558 | 0.213 |
| lim:phage.time:bac.time | 1 | 282 | 0.02579 | 0.8725 |

Table 4: RMANOVA results for interaction strengths between phage and treatment hosts

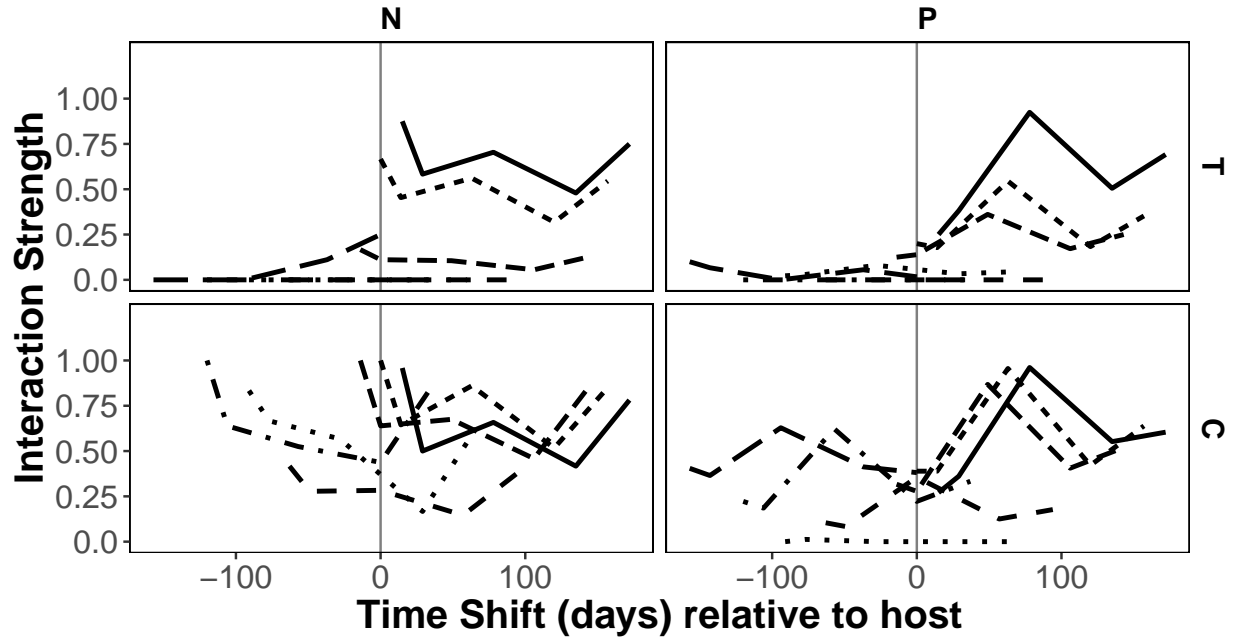
| | numDF | denDF | F-value | p-value |
|---------------------|-------|-------|---------|-----------|
| (Intercept) | 1 | 597 | 125.8 | 0 |
| lim | 1 | 4 | 18.28 | 0.01289 |
| phage.time | 1 | 597 | 2.97 | 0.08535 |
| bac.time | 1 | 597 | 98.06 | 0 |
| lim:phage.time | 1 | 597 | 32.17 | 2.207e-08 |
| lim:bac.time | 1 | 597 | 22.06 | 3.274e-06 |
| phage.time:bac.time | 1 | 597 | 1.611 | 0.2048 |

| | numDF | denDF | F-value | p-value |
|--------------------------------|-------|-------|---------|-----------|
| lim:phage.time:bac.time | 1 | 597 | 24.68 | 8.861e-07 |

| | AIC | BIC | logLik | L.Ratio | p-value |
|--------------------|-------|-------|--------|---------|-----------|
| model.ar | 169.1 | 260.1 | -65.57 | NA | NA |
| model.arma1 | 115.5 | 211.3 | -37.76 | 55.63 | 8.769e-14 |
| model.arma2 | 98.61 | 199.2 | -28.31 | 18.91 | 1.37e-05 |

| | Std.Error | t-value | p-value |
|-------------------------------|------------------|---------------|------------------|
| (Intercept) | 0.07713 | 9.872 | 7.099e-22 |
| trtT | 0.08638 | -3.702 | 0.0002276 |
| limP | 0.09298 | -4.93 | 0.007875 |
| phage.time | 0.0006172 | -1.916 | 0.05569 |
| bac.time | 0.001005 | 0.1231 | 0.9021 |
| trtT:limP | 0.1078 | 1.856 | 0.06381 |
| trtT:phage.time | 0.0007027 | 1.008 | 0.3136 |
| limP:phage.time | 0.0007399 | 3.511 | 0.0004695 |
| trtT:bac.time | 0.001097 | -3.091 | 0.00206 |
| limP:bac.time | 0.001136 | -0.02436 | 0.9806 |
| phage.time:bac.time | 8.462e-06 | -1.811 | 0.07056 |
| trtT:limP:phage.time | 0.0008774 | -0.9831 | 0.3258 |
| trtT:limP:bac.time | 0.001294 | 1.933 | 0.05351 |
| trtT:phage.time:bac.time | 9.205e-06 | 2.014 | 0.04427 |
| limP:phage.time:bac.time | 9.576e-06 | 0.4493 | 0.6533 |
| trtT:limP:phage.time:bac.time | 1.086e-05 | -1.801 | 0.07197 |

Fig 4: Evolutionary Time-shifts



Time-shift statistics

Table 7: RMANOVA results for time shifts (Figure 4).

| | Std.Error | t-value | p-value |
|----------------------|-----------|---------|-----------|
| (Intercept) | 0.03853 | 16.31 | 1.635e-52 |
| trtT | 0.04353 | -10.05 | 0.0001667 |
| limP | 0.04541 | -6.084 | 0.001735 |
| time.shift | 0.0003838 | -2.211 | 0.02726 |
| trtT:limP | 0.05345 | 4.45 | 0.006701 |
| trtT:time.shift | 0.0004238 | 4.997 | 7.002e-07 |
| limP:time.shift | 0.0004391 | 3.912 | 9.853e-05 |
| trtT:limP:time.shift | 0.0005044 | -3.341 | 0.0008681 |