Table S1. Posterior estimates (median log-odds, 90% HDPI): Infection prevalence aggregated among all hosts

| **variable** | **Richness only** | **Richness + density of key hosts** | **Richness + community competency** |
| --- | --- | --- | --- |
| a0 | -0.2  (-0.43, 0.03) | -0.32  (-0.54, -0.09) | -0.16  (-0.37, 0.07) |
| Year\* | -0.09  (-0.42, 0.24) | 0.13  (-0.19, 0.48) | -0.05  (-0.4, 0.26) |
| Forest type\*\* | -0.42  (-0.77, -0.09) | -0.36  (-0.7, -0.02) | -0.57  (-0.91, -0.24) |
| Host vegetative coverage | 0.47  (0.14, 0.79) | 0.57  (0.21, 0.88) | 0.46  (0.16, 0.78) |
| Precipitation | -0.44  (-0.78, -0.13) | -0.17  (-0.52, 0.13) | -0.38  (-0.68, -0.08) |
| Potential solar induction | -0.08  (-0.4, 0.22) | -0.17  (-0.5, 0.12) | -0.19  (-0.51, 0.12) |
| Richness | -0.38  (-0.71, -0.1) | -0.35  (-0.66, -0.04) | -0.24  (-0.54, 0.08) |
| Bay laurel basal area | – | 1.26  (0.9, 1.57) | – |
| Tanoak basal area | – | 0.45  (0.1, 0.78) | – |
| Community competency | – | – | 0.69  (0.35, 0.99) |
| theta | 2.1  (2, 2.28) | 2.34  (2, 2.7) | 2.14  (2, 2.36) |
| \*Estimate for plots sampled in 2007. | | | |
| \*\*Estimate for redwood forests. | | | |

Table S2. Posterior estimates (median log-odds, 90% HDPI): Infection prevalence aggregated among highly susceptible hosts

| **variable** | **Richness only** | **Richness + density of key hosts** | **Richness + community competency** |
| --- | --- | --- | --- |
| a0 | 0.22  (-0.04, 0.45) | 0.03  (-0.2, 0.27) | 0.23  (0, 0.46) |
| Year\* | -0.22  (-0.54, 0.13) | 0.08  (-0.24, 0.44) | -0.15  (-0.49, 0.21) |
| Forest type\*\* | -0.15  (-0.47, 0.22) | 0.02  (-0.31, 0.39) | -0.28  (-0.62, 0.08) |
| Host vegetative coverage | 0.42  (0.09, 0.76) | 0.57  (0.21, 0.91) | 0.39  (0.03, 0.71) |
| Precipitation | -0.73  (-1.03, -0.38) | -0.37  (-0.7, -0.01) | -0.65  (-1.01, -0.33) |
| Potential solar induction | -0.04  (-0.35, 0.28) | -0.1  (-0.42, 0.22) | -0.16  (-0.49, 0.17) |
| Richness | -0.18  (-0.5, 0.16) | -0.15  (-0.49, 0.19) | -0.02  (-0.36, 0.33) |
| Bay laurel basal area | – | 1.43  (1.07, 1.79) | – |
| Tanoak basal area | – | 0.3  (-0.07, 0.65) | – |
| Community competency | – | – | 0.77  (0.41, 1.1) |
| theta | 2.06  (2, 2.17) | 2.14  (2, 2.38) | 2.06  (2, 2.2) |
| \*Estimate for plots sampled in 2007. | | | |
| \*\*Estimate for redwood forests. | | | |

Table S3. Posterior estimates (median log-odds, 90% HDPI): Individual-level infection risk for susceptible species

| **variable** | **Richness only** | **Richness + density of key hosts** | **Richness + community competency** |
| --- | --- | --- | --- |
| Tanoak intercept | 0.25  (-0.51, 1.01) | 0.17  (-0.62, 0.96) | 0.31  (-0.49, 1.03) |
| Coast live oak intercept | -1.25  (-2.16, -0.37) | -1.38  (-2.28, -0.39) | -1.21  (-2.04, -0.29) |
| Shreve oak intercept | -1.68  (-2.61, -0.58) | -1.85  (-2.91, -0.77) | -1.66  (-2.53, -0.53) |
| Bay laurel intercept | 0.83  (-0.07, 1.66) | 0.6  (-0.3, 1.42) | 0.89  (-0.03, 1.73) |
| Basal area of individual | 0.61  (0.43, 0.79) | 0.6  (0.4, 0.78) | 0.61  (0.42, 0.79) |
| Forest type\*\* | -0.67  (-1.28, -0.1) | -0.43  (-0.99, 0.16) | -0.8  (-1.39, -0.19) |
| Year\* | -0.41  (-1.01, 0.19) | -0.11  (-0.64, 0.49) | -0.35  (-0.97, 0.22) |
| Precipitation | -1.46  (-2.05, -0.92) | -1  (-1.54, -0.45) | -1.41  (-1.94, -0.84) |
| Potential solar induction | -0.1  (-0.63, 0.46) | -0.21  (-0.74, 0.33) | -0.22  (-0.76, 0.31) |
| Host vegetative coverage | 1.11  (0.56, 1.68) | 1.34  (0.79, 1.92) | 1.07  (0.53, 1.63) |
| Mean effect of richness | 0.27  (-0.43, 1.11) | 0.22  (-0.55, 1.03) | 0.37  (-0.32, 1.13) |
| Tanoak-specific richness | -0.48  (-1.65, 0.59) | -0.73  (-1.75, 0.27) | -0.37  (-1.51, 0.68) |
| Coast live oak-specific richness | 0.04  (-1.33, 1.24) | 0.01  (-1.19, 1.04) | 0.18  (-1.05, 1.53) |
| Shreve oak-specific richness | 0.59  (-0.75, 1.93) | 0.64  (-0.61, 1.94) | 0.7  (-0.68, 2.07) |
| Bay laurel-specific richness | 1.17  (-0.03, 2.42) | 1.2  (0.2, 2.37) | 1.25  (0.03, 2.47) |
| Bay laurel basal area | – | 1.72  (1.13, 2.34) | – |
| Tanoak basal area | – | -0.12  (-0.72, 0.45) | – |
| Community competency | – | – | 0.68  (0.13, 1.28) |
| Species SD | 2.18  (1.2, 3.38) | 2.23  (1.28, 3.48) | 2.15  (1.22, 3.35) |
| Richness slope SD | 0.6  (0.04, 1.23) | 0.79  (0.24, 1.53) | 0.6  (0, 1.22) |
| Plot SD | 1.78  (1.55, 2.03) | 1.68  (1.45, 1.9) | 1.79  (1.55, 2.02) |
| \*Estimate for plots sampled in 2007. | | | |
| \*\*Estimate for redwood forests. | | | |