

Supplemental Tables and Figures

Table S1. The number (proportion %) of questing *Ixodes scapularis* nymphs positive for each host type characterized by collection sites on Block Island, RI using blood meal analysis. Mixed blood meals are counted in each host category.

| Site | Bird | Mouse | WTD | Cat | Rat | Vole | Und | Total |
|--------------|------------|------------|------------|-----------|----------|----------|-------------|-------|
| NR | 9 (13.43) | 15 (22.39) | 13 (19.40) | 2 (2.99) | 0 | 1 (1.49) | 27 (40.30) | 67 |
| BS | 15 (35.71) | 14 (33.33) | 1 (2.38) | 0 | 0 | 2 (4.76) | 10 (23.81) | 42 |
| CH | 4 (26.67) | 4 (26.67) | 0 | 0 | 0 | 1 (6.67) | 6 (40.00) | 15 |
| HP | 12 (17.91) | 11 (16.42) | 9 (13.43) | 6 (8.96) | 5 (7.46) | 1 (1.49) | 23 (34.33) | 67 |
| EI | 17 (28.81) | 11 (18.64) | 12 (20.34) | 2 (3.39) | 0 | 0 | 17 (28.81) | 59 |
| MZ | 6 (17.65) | 11 (32.35) | 4 (11.76) | 0 | 1 (2.94) | 1 (2.94) | 11 (32.35) | 34 |
| RH | 31 (40.79) | 16 (21.05) | 7 (9.21) | 1 (1.32) | 1 (1.32) | 0 | 20 (26.32) | 76 |
| Total | 94 (26.11) | 82 (22.78) | 46 (12.78) | 11 (3.06) | 7 (1.94) | 6 (1.67) | 114 (31.67) | 360 |

NR = BI National Wildlife Refuge, BS = Boy Scout camp, CH = Clayhead trail, HP = Hodge Family

Wildlife Preserve, EI = East Island private property, MZ = Maze trail, RH = Rodman Hollow, WTD = white-tailed deer, Und = undetermined host

Table S2. The number of questing *Ixodes scapularis* nymphs positive for more than one host type (mixed) based on pathogen infection using blood meal analysis and quantitative real-time PCR.

| Pathogen | PI/WTD | PI/vole | PI/cat | bird/cat | bird/WTD |
|----------------|--------|---------|--------|----------|----------|
| <i>B. burg</i> | 1 | 2 | 1 | - | 1 |
| <i>B. micr</i> | 1 | 1 | 1 | - | - |
| <i>A. phag</i> | 2 | - | - | - | - |
| <i>B. miya</i> | - | - | - | 1 | - |
| Total | 4 | 3 | 2 | 1 | 1 |

B. burg = *Borrelia burgdorferi*, *B. micr* = *Babesia microti*, *A. phag* = *Anaplasma phagocytophilum*, *B.*

miya = *Borrelia miyamotoi*, PI = white-footed mouse, WTD = white-tailed deer

Table S3. The number of questing *Ixodes scapularis* nymphs ($n = 18$) positive for more than one host type (mixed) based on collection sites on Block Island, RI using blood meal analysis.

| Site | PI/WTD | PI/vole | PI/bird | PI/cat | WTD/cat | bird/cat | bird/WTD | PI/bird/WTD |
|--------------|--------|---------|---------|--------|---------|----------|----------|-------------|
| NR | 1 | - | - | - | - | - | - | - |
| BS | 1 | 2 | - | - | - | - | - | - |
| CH | - | - | - | - | - | - | - | - |
| HP | - | - | - | - | 1 | 1 | - | 1 |
| EI | 1 | - | - | - | 1 | 1 | 1 | - |
| MZ | 2 | 1 | 1 | - | - | - | - | - |
| RH | 2 | - | - | 1 | - | - | - | - |
| Total | 7 | 3 | 1 | 1 | 2 | 2 | 1 | 1 |

NR = BI National Wildlife Refuge, BS = Boyscout camp, CH = Clayhead trail, HP = Hodge Family

Wildlife Preserve, EI = East Island private property, MZ = Maze trail, RH = Rodman Hollow, PI = white-footed mouse, WTD = white-tailed deer

Table S4. The number of questing *Ixodes scapularis* nymphs (infection prevalence %) infected with each pathogen calculated at each collection site on Block Island, RI. The total column is the number of nymphs tested from each sampling location.

| Site | <i>B. burgdorferi</i> | <i>B. microti</i> | <i>A. phagocytophilum</i> | <i>B. miyamotoi</i> | Total |
|--------------|-----------------------|-------------------|---------------------------|---------------------|-------|
| NR | 16 (20.00) | 6 (7.50) | 11 (13.75) | 0 | 80 |
| BS | 9 (17.65) | 3 (5.88) | 1 (1.96) | 0 | 51 |
| CH | 6 (37.50) | 3 (18.75) | 0 | 0 | 16 |
| HP | 15 (23.81) | 5 (7.94) | 2 (3.17) | 1 (1.59) | 63 |
| EI | 9 (11.25) | 6 (7.50) | 7 (8.75) | 0 | 80 |
| MZ | 5 (16.13) | 4 (12.90) | 4 (12.90) | 0 | 31 |
| RH | 20 (19.42) | 9 (8.74) | 4 (3.88) | 0 | 103 |
| Total | 80 (18.87) | 36 (8.49) | 29 (6.84) | 1 (0.24) | 424 |

NR = BI National Wildlife Refuge, BS = Boyscout camp, CH = Clayhead trail, HP = Hodge Family

Wildlife Preserve, EI = East Island private property, MZ = Maze trail, RH = Rodman Hollow

Table S5. The number of questing *Ixodes scapularis* nymphs coinfecting with two or more tick-borne pathogens based on collection sites on Block Island, RI using a quantitative real-time PCR (qPCR) assay.

| Site | n | <i>B.burg/B.micr</i> | <i>B.burg/A.phag</i> | <i>B.micr/A.phag</i> | <i>B.burg/B.micr/A.phag</i> |
|--------------|-----------|-----------------------------|-----------------------------|-----------------------------|------------------------------------|
| NR | 6 | 3 | 1 | 1 | 1 |
| BS | 2 | 2 | - | - | - |
| CH | 2 | 2 | - | - | - |
| HP | 4 | 3 | 1 | - | - |
| EI | 4 | 2 | 1 | - | 1 |
| MZ | 1 | - | 1 | - | - |
| RH | 8 | 5 | 3 | - | - |
| Total | 27 | 17 | 7 | 1 | 2 |

NR = BI National Wildlife Refuge, BS = Boy Scout camp, CH = Clayhead trail, HP = Hodge Family

Wildlife Preserve, EI = East Island private property, MZ = Maze trail, RH = Rodman Hollow, *B. burg* =

Borrelia burgdorferi, *B. micr* = *Babesia microti*, *A. phag* = *Anaplasma phagocytophilum*

Table S6. The number of questing *Ixodes scapularis* nymphs coinfecting with two or more tick-borne pathogens based on host type on Block Island, RI using bloodmeal analysis and quantitative real-time PCR (qPCR).

| Host | n | <i>B.burg/B.micr</i> | <i>B.burg/A.phag</i> | <i>B.micr/A.phag</i> | <i>B.burg/B.micr/A.phag</i> |
|--------------|-----------|-----------------------------|-----------------------------|-----------------------------|------------------------------------|
| PI | 19 | 12 | 5 | - | 2 |
| Cat | 1 | 1 | - | - | - |
| Vole | 3 | 3 | - | - | - |
| Und | 4 | 1 | 2 | 1 | - |
| Total | 27 | 17 | 7 | 1 | 2 |

PI = white-footed mouse, *B. burg* = *Borrelia burgdorferi*, *B. micr* = *Babesia microti*, *A. phag* =

Anaplasma phagocytophilum, Und = undetermined host

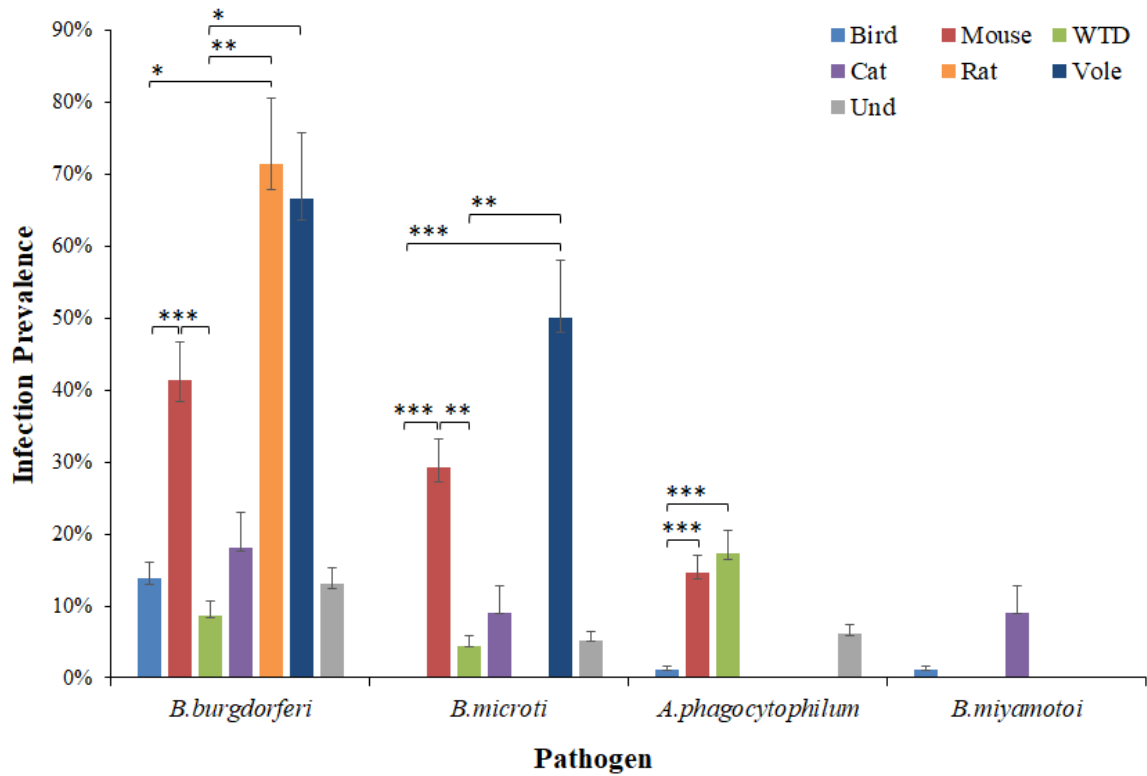


Figure S1. *Ixodes scapularis* nymphal pathogen infection prevalence among the host types determined from blood meal analysis on Block Island, RI (Und = undetermined hosts). Overall significant differences were determined followed by pairwise post hoc Fisher exact tests to assess comparisons between all pairs of host types for each pathogen. Bars indicate 95% confidence limits and asterisks denote significant differences between bracketed host types (* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$).