**Supplementary Material**

**Ancillary Results for White-footed Mice**

Abundance of white-footed mice allowed for several additional analyses, presented here for reference. During the period of tick collection (1989–2019), 77% (4272/5551) of all captures were adults (Table 1). During the period of establishment (2007–2019), prevalence of *I. scapularis* was greater in adult males (34.4% [387/1124]), than adult females (24.2% [217/897]), juvenile females (20.9% [46/220]) and juvenile males (21.4% [44/206], χ2 test for differences in proportions, *P* < 0.0001). *B. burgdorferi* prevalence in *I. scapularis* larvae hosted by adult white-footed mice was greater than in larvae hosted by juveniles (57.1% [137/240] versus 34.0% [18/53], *P* = 0.002). We note that among subadult *I. scapularis* hosted by white-footed mice, there was no difference in *B. burgdorferi* prevalence in larvae versus nymphs (57.9% [150/259], versus 61.8% [21/34], respectively, *P* = 0.67). Pertaining to interstadial cofeeding, 12.7% (96/755) of *I. scapularis* larvae on were cofeeding with nymphs. Pertaining to cofeeding among tick species, there were only three instances where *I. scapularis* and *I. angustus* from the same individual white-footed mouse were tested (two instances were of cofeeding *I. scapularis* and *I. angustus* nymphs (all negative), and one instance of an *I. scapularis* larva (positive) cofeeding with one nymph each of *I. scapularis* and *I. angustus* (both negative).

**Indicators of Increasing White-tailed Deer Abundance in the Holt Research Forest and Surrounding Region**

Two lines of evidence suggest rising regional white-tailed deer abundance. First, due to deer browsing pressure, hardwood tree regeneration on the Holt Research Forest has declined (Fig. S1a) and oak seedlings in particular have low survival rates (Fig. S1b). Second, buck kill data furnished by the Maine Department of Inland Fisheries and Wildlife show rising trends beginning in 1997 in Arrowsic and adjacent Georgetown compared to neighboring Woolwich (Fig. S2).

Figure S1. High white-tailed deer density as indicated by a) declining hardwood tree regeneration (>0.5m height and ≤9.5 cm diameter breast height) over time due to browsing pressure, assessed by counting number of stems per damage class in 25m2</sup> circular plots in 1997, 2002, and 2010 (annual *n* provided) and summarized as stems per hectare by year, tree species and damage class; and b) decline of red oak seedlings due to deer browsing pressure, assessed by counting number of seedlings (<0.5m height) in 1m2</sup> plots 2011–2016 (annual *n* provided), summarized as stem count by year and browse class.

Figure S2. White-tailed deer buck kill index (bucks killed per 259km2 [100mi2]) for Arrowsic and Georgetown, and neighboring town, Woolwich, 1986–2018. The horizontal dotted line represents the equivalent of 6/km2 (15/mi2) which is the deer density goal for the wildlife management district in which the towns fall. Data were obtained from the Maine Department of Inland Fisheries and Wildlife.