**FIGURES**

**Figure 1**: **Annual reported cases of Lyme disease. By state from 2006–-2017 (left) and by counties in Pennsylvania from 2006–-2017 (right)**. Public data from Centers for Disease Control and Prevention.

**Figure 2: Distribution of the five most abundant tick species across Pennsylvania over time**. Prevalence rates (tick counts per 100,000 population, left) represent tick abundance adjusted by county population for time periods 1960-1969, 1990-1999, 2000-2009, and 2010-2018. Cumulative counts of ticks by species shown on the right.

**Figure 3: Annual submissions of tick specimens by year.** On the left is the annual sum of all tick counts (log-transformed) from 1900 to 2017. On the right are the proportional contribution of the five major tick species to the total tick counts (1900–2017). The grey shaded area represent area where there were no few or no tick submissions from the top five most abundant taxa.

**Figure 4:** **Seasonal distribution of tick submissions over time.** On the left is the total proportion of tick specimens received at different months of the years from 1900 to 2017. On the right are the proportional seasonal abundance of each of the five major tick species (1900–2017).

**Figure 5**: **The seasonal distribution of *D. variabilis*, *I. cookei*, *and I. scapularis* specimens by life stages from 1900-2017.** Proportion was calculated by comparing the monthly abundance of each life stage (larvae, nymphs, adults) to the cumulative sum of all stages by species.

**Figure 6: Chord diagram representing associations between tick species and vertebrate hosts parasitized.** Submissions (not counts) were used to quantify host association. We chose submissions over counts to avoid a skew in abundance by host. The wider the chord, the more submissions exist for any given tick species-to-host.

**SUPPLEMENTARY FIGURES**

**Figure S1**: **Total population of Pennsylvania counties over time.** Data taken from the US Census for 1960, 1990, 2000, and 2010.

**Figure S2: Dot-density map of all individual tick specimens across Pennsylvania from 1900–2017**. Each point represents an individual tick specimen with its placement randomized within the county and each colored dot represents a different tick species.

**Figure S3: Presence or absence map of species with less than 150**. Counties with zero submissions are dark, while the light areas represent presence of one or more specimens for each genus.

**Figure S4:** The monthly proportion of the tick specimens across different decades.

**Figure S5**: The monthly proportion of *D. variabilis* specimens at the larvae, nymphal, and adult stages across 1960 to 2010

**Figure S6**: The monthly proportion of *I.scapularis*  specimens at the larvae, nymphal, and adult stages across 1990 to 2017

**Figure S7:** The monthly proportion of *I. cookei* specimens at the larval, nymphal, and adult stages across 1980 to 2017

**TABLE**

**Table 1: The total submissions to the PSU Department of Entomology/Frost Entomological Museum from 1900 to 2017**. Generic names that have been changed since the submission date are shown in parentheses. Specimens which were not identified to species were listed under the genus and “sp.”

**SUPPLEMENTARY TABLES**

**Supplementary Table S1:** Specimens submitted from outside of the state of Pennsylvania.

**Supplementary Table S2:** Exotic specimens from known ranges outside PA, the continental USA, or North America.