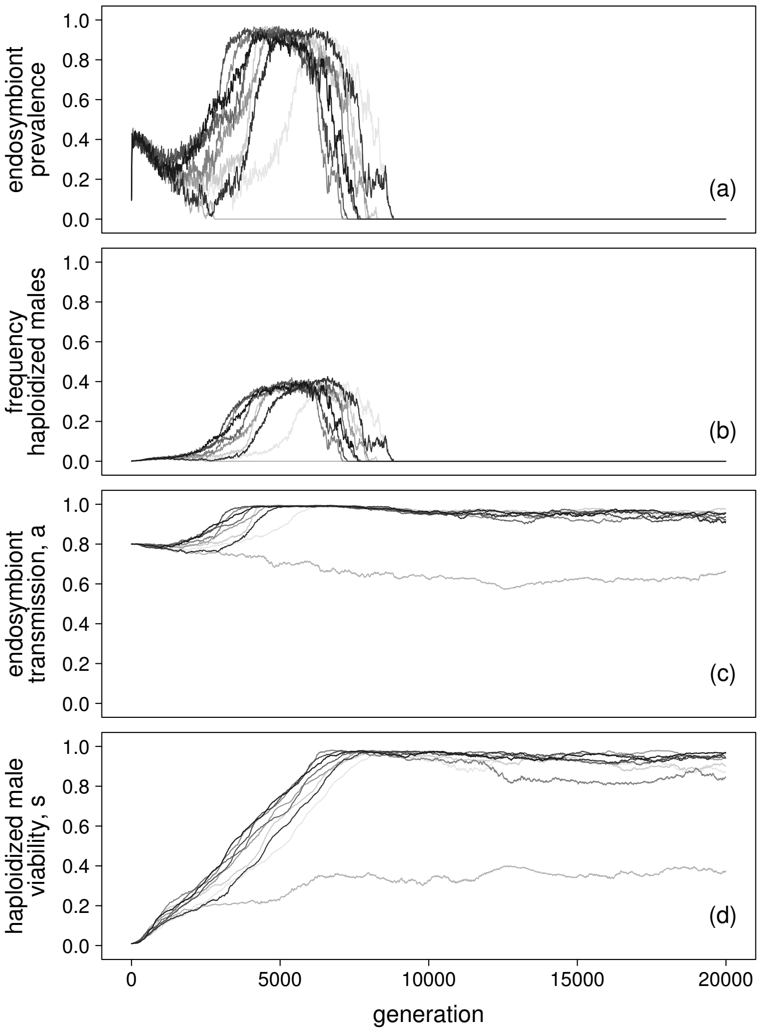

Figure S1. Ten replicate simulations showing the rise and fall of the male haploidizing endosymbiont and the transient presence of haploidized males in the population. Panel (a) shows the total frequency of the endosymbiont in the population, panel (b) the frequency of haploidized males in the population, panel (c) the average endosymbiont transmission rate *a* under host control and panel (d) the average survival probability *s* under host control. In 1 out of 10 replicates, the endosymbiont is purged from the population before generation 5000 (see text). If the endosymbiont manages to persist, hosts are selected that have ever higher levels of *s* (panels (b) and (d)) and more viable haploidized males will be present in the population. Subsequently, when most males are able to survive haploidization, resource reallocation from dead males to infected sisters will be diminished. Since this annihilates the competitive advantage of infected over uninfected females, this causes the decline of endosymbiont prevalence in the population until extinction. Once the endosymbiont goes extinct, both *a* and *s* are selectively neutral traits. Parameters: $b = 0.8$, $a_{t=0} = 0.8$, $m = 0$, $N = 20$.

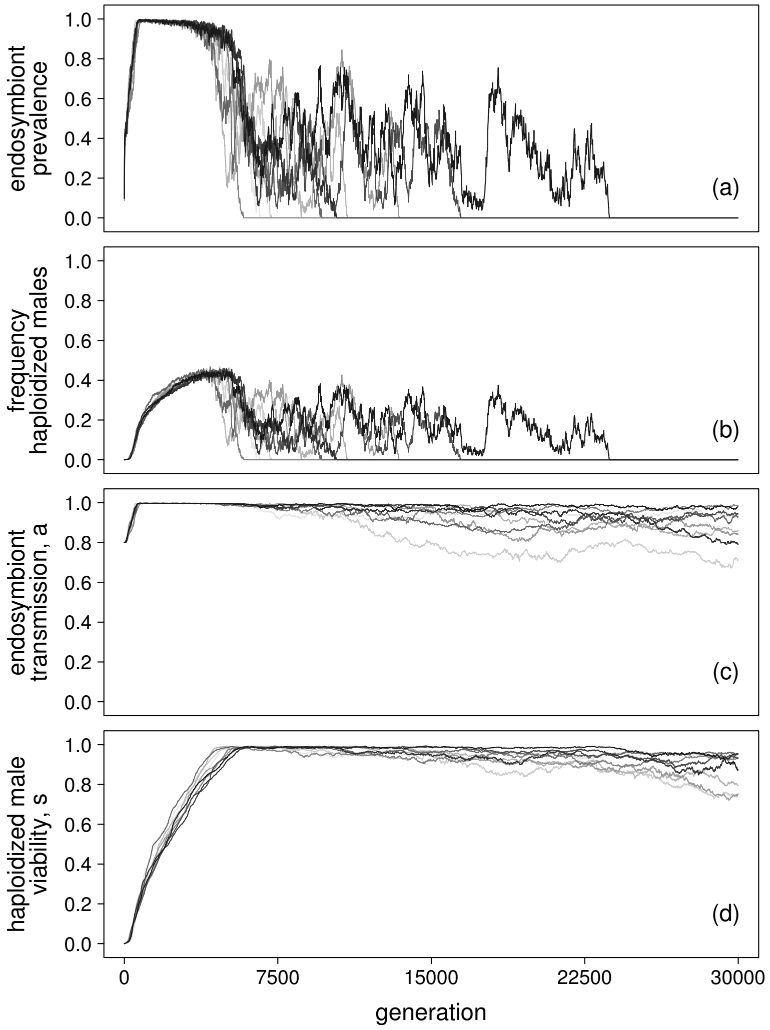

Figure S2. Ten replicate simulations showing the rise and subsequent decline of the endosymbiont, when it is in control of its own transmission rate, while the host controls s. Once viability has reached maximal levels ($s = 1$), resource reallocation ceases and infected hosts accrue no net fitness benefit compared to uninfected hosts. Drift subsequently leads to extinction of the endosymbiont. Parameters: $b = 0.8$, $a_{t=0} = 0.8$, $m = 0$, $N = 20$.

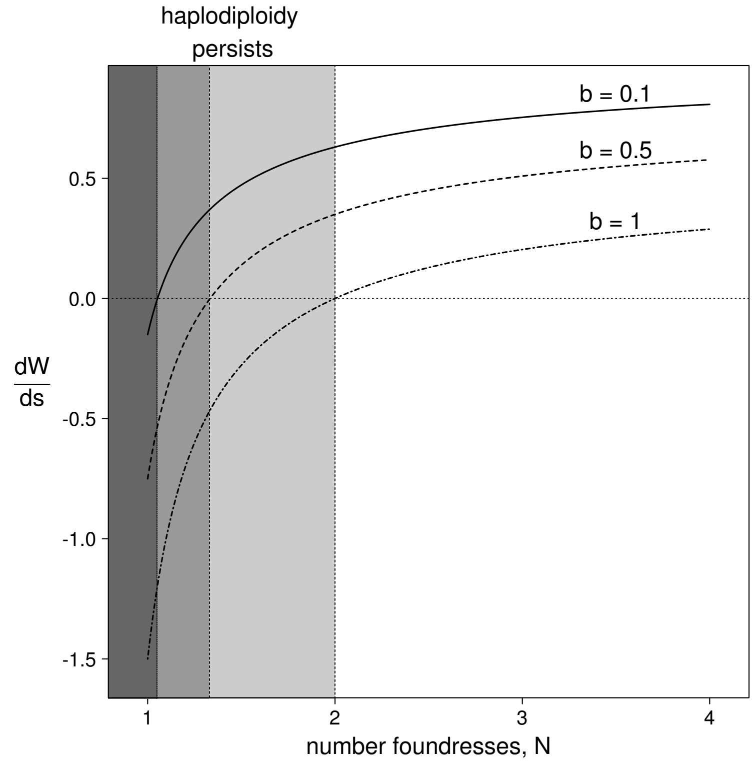

Figure S3. Stable persistence of haplodiploidy is only possible under very high local relatedness. The fitness gradient $\frac{\mathrm{d}W}{\mathrm{d}s}\,_{s^*=\bar{s}=\tilde{s}=1}$ is shown for different values of resource reallocation efficiency, *b*. Corresponding to each value of *b*, the grey areas indicate the range of local relatedness (expressed in number of foundresses, *N*) in which the selection gradient evaluated at $s = 1$ is negative, implying selection towards lower levels of s. Since $1 - s$ males of each brood are still killed in these grey areas, resource reallocation is maintained, assuring the stable coexistence of the haploidizing endosymbiont and viable haploidized males.