

Appendix A1

Validating the experiment

To validate whether our raccoon *Procyon lotor* removal effectively reduced raccoon numbers in removal woodlots, we 1) evaluated the number of raccoons captured in removal woodlots relative to control woodlots one year after the treatment, in 2008, and 2) evaluated the number of raccoons captured in removal woodlots in 2007 relative to the number of raccoons captured in removal woodlots in 2008. To validate whether raccoon scavenging was indeed diminished in removal woodlots, we used a χ^2 -test to determine whether the proportion of carcasses classified as scavenged by raccoons in removal woodlots differed from that observed in control woodlots. Because an increase in Virginia opossum *Didelphis virginiana* numbers could indicate that our desired experimental effect (i.e. raccoon removal) was confounded by a numerical response by opossums in removal woodlots (sensu Holling 1959), we used a paired sample t-test to identify whether a difference existed between the number of opossums captured in removal woodlots in 2007 (pre-removal) and in 2008 (post-removal).

We captured approximately half the number of raccoons in removal woodlots ($n = 68$) as in control woodlots ($n = 141$) in 2008. Also, we captured approximately half the number of raccoons in removal woodlots one year after treatment (2008) than we removed from those woodlots in 2007 ($n = 68$ and $n = 138$, respectively). Therefore, we successfully reduced raccoon numbers in removal woodlots for the duration of this study. Also, excluding non-trial fates, the overall proportion of mouse carcasses scavenged by raccoons was significantly reduced in removal woodlots relative to control woodlots (17.5% vs 38.5 %, $p < 0.001$; Table 2 in main paper), indicating that reduced raccoon abundance translated faithfully to a reduction in scavenging by raccoons. Finally, opossum numbers did not differ between 2007 ($n = 69$) and 2008 ($n = 67$) in removal woodlots indicating that our treatment effect was not confounded with a numerical response by opossums during the course of our study ($t = 0.1374$, $DF = 12$, $p = 0.893$).

Because unequal numbers of missed-detections between our experimental groups could represent a systematic bias in our study, we tabulated this fate category by trial and treatment and used a chi square test to determine whether missed detections occurred in unequal proportions in control and treatment woodlots (after the exclusion of non-trial fates). We also used a chi square test to determine whether non-trial fates occurred in equal proportions between the experimental groups, although no systematic bias was expected to result from unequal proportions.

Missed detections ($n = 82$, mean per trial \pm SE = 3.15 ± 0.45) and non-trial fates ($n = 141$, 5.42 ± 0.33) accounted for 33.0% of the data ($n = 223$), but, qualitatively, these fates were evenly distributed among trials (min per trial = 5, max = 12, mean \pm SE = 8.58 ± 0.41). Missed detections occurred in equal proportions between removal and control woodlots ($p = 0.134$; Table 2 in main paper) suggesting no systematic bias in our study. Though a definitive scavenger could not be assigned when fate was categorized as a missed detection, it is likely that these were instances of scavenging by vertebrates where the scavenger moved beyond the field of view before our camera could capture an image. Further, we acknowledge the possibility that missed detections could represent a non-random sample of vertebrate scavengers (i.e. coyote *Canis latrans*, red fox *Vulpes vulpes*, etc.) but consider this unlikely for 2 reasons: 1) our sample size was large enough to capture even rare scavengers, and 2) subsequent monitoring of larger carcasses in our study area demonstrated that these animals were, superficially at least, unaffected by the remote cameras (Olson unpubl.). Non-trial fates (i.e. instances of mechanical failure or human error) were slightly more prevalent in removal woodlots than in control woodlots (18% vs 24%; $p = 0.007$; Table 2 in main paper). This difference primarily served to reduce our sample sizes in removal woodlots and was unlikely to represent a systematic bias in our study.

References

Holling, C. S. 1959. The components of predation as revealed by a study of small-mammal predation of the European pine sawfly. – *Can. Entomol.* 91: 293–320.

Appendix A2

Frequency of scavengers identified taking mouse carcasses in an agriculturally fragmented landscape of north-central Indiana, USA, from June 2007 – May 2008. Carcasses were placed in woodlots with intact scavenger communities (Control) and woodlots subjected to a raccoon removal immediately prior to the study (Removal).

Scavenger	Scientific Name	Control	Removal	Total
Virginia opossum	<i>Didelphis virginiana</i>	80	97	177
Raccoon	<i>Procyon lotor</i>	107	45	152
Invertebrates	Multiple species	20	22	42
White-footed mouse	<i>Peromyscus leucopus</i>	4	8	12
Domestic cat	<i>Felis catus</i>	2	6	8
Blue jay	<i>Cyanocitta cristata</i>	3	1	4
Long-tailed weasel	<i>Mustela frenata</i>	2	1	3
Skunk	<i>Mephitis mephitis</i>	1	1	2
White-breasted nuthatch	<i>Sitta carolinensis</i>	0	2	2
White-tailed deer	<i>Odocoileus virginianus</i>	1	0	1
Fox squirrel	<i>Sciurus niger</i>	1	0	1
Red-tailed hawk	<i>Buteo jamaicensis</i>	0	1	1
Shrew	<i>Blarina</i> or <i>Sorex</i> spp.	0	1	1
Small Aves	Unknown	0	1	1
Total	14	221	186	407