

Supplementary information

Supplementary Table 1. Extended version of Table 1. Model 1 results showing estimates and significance for each included fixed effect. Natural spline terms are indicated with “ns”.

Term	estimate	std.error	statistic	p.value
(Intercept)	-2.7222	0.1373	-19.8261	<0.0001
Actinic_15	-0.6022	0.0362	-16.6205	<0.0001
Actinic_20	-0.6028	0.0414	-14.5585	<0.0001
Actinic_40	-0.5058	0.0363	-13.9160	<0.0001
Actinic_6	-1.0947	0.0575	-19.0434	<0.0001
Actinic_60	-0.3306	0.0296	-11.1864	<0.0001
MV_80	-0.0699	0.0515	-1.3575	0.1746
trap type Robinson	0.0592	0.0362	1.6345	0.1022
trap type Skinner	0.0356	0.0316	1.1248	0.2607
meanMoonPhase	-0.2343	0.0066	-35.7320	<0.0001
ns(tasmax, df = 5)1	4.9130	0.1216	40.4034	<0.0001
ns(tasmax, df = 5)2	5.3660	0.1272	42.2001	<0.0001
ns(tasmax, df = 5)3	4.2601	0.0670	63.5624	<0.0001
ns(tasmax, df = 5)4	10.1303	0.2572	39.3866	<0.0001
ns(tasmax, df = 5)5	4.1533	0.0702	59.1948	<0.0001
ns(Week, df = 15)1	1.1265	0.0420	26.8202	<0.0001
ns(Week, df = 15)2	0.3017	0.0486	6.2146	<0.0001
ns(Week, df = 15)3	-0.2932	0.0451	-6.5064	<0.0001
ns(Week, df = 15)4	0.4767	0.0468	10.1826	<0.0001
ns(Week, df = 15)5	1.3311	0.0445	29.9038	<0.0001
ns(Week, df = 15)6	1.5171	0.0440	34.4743	<0.0001
ns(Week, df = 15)7	1.8485	0.0430	43.0051	<0.0001
ns(Week, df = 15)8	1.7480	0.0443	39.4899	<0.0001
ns(Week, df = 15)9	1.7048	0.0443	38.5243	<0.0001
ns(Week, df = 15)10	1.9739	0.0446	44.2315	<0.0001
ns(Week, df = 15)11	1.1033	0.0457	24.1294	<0.0001
ns(Week, df = 15)12	0.6994	0.0452	15.4691	<0.0001
ns(Week, df = 15)13	0.0356	0.0348	1.0231	0.3063
ns(Week, df = 15)14	0.6369	0.0900	7.0736	<0.0001
ns(Week, df = 15)15	-0.4864	0.0335	-14.5076	<0.0001
Log rainfall volume	-0.0177	0.0032	-5.5271	<0.0001

Supplementary Table 2. Extended version of Table 2. Source, significance, adjusted R², AIC, F values of available variables, produced by OrdR2step with 49,999 permutations. Variables were evaluated OrdR2step with 49,999 permutations. R² was adjusted using Holm's correction (adjR²). Degrees of Freedom (Df), AIC (Akaike Information Criterion), F-statistics (F), and F-statistic p-values (Pr(>F)) are provided. GMS variables originate from the Garden

11 Moth Scheme survey dataset. CEH variables were extracted from the 2021 CEH Landcover
 12 map.

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Variable	Cumulative adjR ²	Adj R ²	Df	AIC	F	Pr(>F)	Source
Bulb category	0.0619	0.0619	6	15268.43	32.47	0.00112	GMS
Latitude	0.1208	0.0589	1	15083.9	192.20	0.00112	
Distance to farmland	0.1681	0.0473	1	14926.7	163.19	0.00112	GMS
Longitude	0.2054	0.0373	1	14796.34	135.00	0.00112	
Year	0.2210	0.0156	1	14740.7	58.00	0.00112	
Garden size	0.2302	0.0092	3	14709.73	12.34	0.00112	GMS
Distance to woodland	0.2380	0.0079	1	14681.37	30.36	0.00112	GMS
% Suburban landcover	0.2443	0.0063	1	14658.7	24.64	0.00112	CEH
Distance to coastline	0.2499	0.0057	1	14638.19	22.46	0.00112	GMS
Soil Type	0.2554	0.0054	2	14619.41	11.36	0.00112	GMS
% Broadleaved woodland	0.2589	0.0036	1	14606.62	14.73	0.00112	CEH
% Arable and horticultural landcover	0.2622	0.0032	1	14595.11	13.44	0.00112	CEH
Native species hedgerow (y/n)	0.2649	0.0027	1	14585.41	11.63	0.00112	GMS
Distance to street lighting	0.2672	0.0023	1	14577.41	9.94	0.00112	GMS
Oak tree over 10m (y/n)	0.2693	0.0020	1	14570.43	8.91	0.00112	GMS
% Urban landcover	0.2711	0.0018	1	14564.34	8.04	0.00112	CEH
Wild ivy (y/n)	0.2728	0.0017	1	14558.62	7.66	0.00112	GMS
% Coniferous woodland	0.2744	0.0016	1	14553.22	7.35	0.00112	CEH
Pussy willow (y/n)	0.2759	0.0015	1	14548.12	7.03	0.00112	GMS
% Littoral rock	0.2774	0.0014	1	14543.49	6.57	0.00112	CEH
% Neutral grassland	0.2787	0.0014	1	14539.08	6.35	0.00112	CEH
% Improved grassland	0.2800	0.0013	1	14534.91	6.11	0.00112	CEH
% Acid grassland	0.2813	0.0013	1	14530.76	6.08	0.00112	CEH
Bird table (y/n)	0.2826	0.0013	1	14526.72	5.98	0.00112	GMS
% Supralitoral sediment	0.2838	0.0012	1	14522.76	5.90	0.00112	CEH
Tree over 10m (y/n)	0.2849	0.0011	1	14519.31	5.38	0.00112	GMS
Distance to water	0.2860	0.0011	1	14516.06	5.19	0.00112	GMS
Lawn over 25m (y/n)	0.2870	0.0011	1	14512.79	5.21	0.00112	GMS
Buddleia (y/n)	0.2879	0.0009	1	14510.25	4.48	0.00112	GMS
Nettle patch (y/n)	0.2889	0.0010	1	14507.29	4.90	0.00112	GMS
% Saltmarsh	0.2898	0.0009	1	14504.78	4.45	0.00112	CEH
% Heather grassland	0.2906	0.0008	1	14502.43	4.29	0.00112	CEH
Heather (y/n)	0.2914	0.0008	1	14500.18	4.18	0.00112	GMS
Pond (y/n)	0.2922	0.0008	1	14497.93	4.19	0.00112	GMS
Compost heap (y/n)	0.2931	0.0009	1	14495.43	4.44	0.00112	GMS
Log Pile (y/n)	0.2940	0.0009	1	14492.77	4.59	0.00112	GMS
% Freshwater	0.2947	0.0007	1	14490.93	3.79	0.00112	CEH
Wildflower meadow (y/n)	0.2953	0.0007	1	14489.2	3.66	0.00112	GMS
Distance to green space	0.2960	0.0006	1	14487.55	3.59	0.00112	GMS

% Littoral sediment	0.2966	0.0006	1	14486.11	3.39	0.00112	CEH
% Inland rock	0.2971	0.0006	1	14484.81	3.24	0.00032	CEH
% Saltwater	0.2977	0.0006	1	14483.52	3.24	0.00112	CEH
% Calcareous grassland	0.2981	0.0005	1	14482.63	2.84	0.00528	CEH
Wild honeysuckle (y/n)	0.2986	0.0005	1	14481.74	2.83	0.00112	GMS
Long grass (y/n)	0.2990	0.0004	1	14480.96	2.74	0.00112	GMS

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15 Supplementary Table 3. Typical minimum and maximum forewing length of moth
16 species examined. Gathered from Cook et al., (2021), with additional data from Waring and
17 Townsend (2018) and Sterling and Parsons (2012). Typical wing size was calculated for
18 analyses by averaging minimum and maximum forewing length.

Species	Family	Forewing length maximum	Forewing length minimum
<i>Abraxas grossulariata</i>	Geometridae	25	18
<i>Abrostola tripartita</i>	Noctuidae	17	15
<i>Abrostola triplasia</i>	Noctuidae	18	14
<i>Acasis viretata</i>	Geometridae	14	10
<i>Acentria ephemerella</i>	Crambidae	8	6
<i>Achlya flavicornis</i>	Drepanidae	20	17
<i>Acleris forsskalearia</i>	Tortricidae	8	6
<i>Acleris variegana</i>	Tortricidae	9	6
<i>Acronicta aceris</i>	Noctuidae	22	18
<i>Acronicta leporina</i>	Noctuidae	21	16
<i>Acronicta psi</i>	Noctuidae	20	17
<i>Acronicta rumicis</i>	Noctuidae	20	16
<i>Acronicta tridens psi</i>	Noctuidae	20	17
<i>Acronicta tridens</i>	Noctuidae	20	17
<i>Agapeta hamana</i>	Tortricidae	12	8
<i>Agriopsis aurantiaria</i>	Geometridae	21	17
<i>Agriopsis leucophaearia</i>	Geometridae	17	14
<i>Agriopsis marginaria</i>	Geometridae	20	16
<i>Agriphila geniculea</i>	Crambidae	13	10
<i>Agriphila straminella</i>	Crambidae	10	8
<i>Agriphila tristella</i>	Crambidae	14	12
<i>Agrochola circellaris</i>	Noctuidae	19	14
<i>Agrochola helvola</i>	Noctuidae	18	16
<i>Agrochola litura</i>	Noctuidae	17	14
<i>Agrochola lota</i>	Noctuidae	18	15
<i>Agrochola lychnidis</i>	Noctuidae	18	15
<i>Agrochola macilenta</i>	Noctuidae	16	14
<i>Agrotis bigramma</i>	Noctuidae	20	16
<i>Agrotis clavis</i>	Noctuidae	18	14
<i>Agrotis exclamationis</i>	Noctuidae	19	15
<i>Agrotis ipsilon</i>	Noctuidae	25	15
<i>Agrotis puta</i>	Noctuidae	16	12

<i>Agrotis segetum</i>	Noctuidae	21	16
<i>Agrotis trux</i>	Noctuidae	19	16
<i>Agrotis vestigialis</i>	Noctuidae	18	14
<i>Alcis repandata</i>	Geometridae	26	19
<i>Allophyes oxyacanthae</i>	Noctuidae	20	17
<i>Alsophila aescularia</i>	Geometridae	19	16
<i>Alucita hexadactyla</i>	Alucitidae	9	7.5
<i>Amphipyra berbera</i>	Noctuidae	26	21
<i>Amphipyra pyramidea</i>	Noctuidae	26	21
<i>Amphipyra tragopoginis</i>	Noctuidae	18	16
<i>Anania coronata</i>	Crambidae	13	11
<i>Anania hortulata</i>	Crambidae	16	13
<i>Anaplectoides prasina</i>	Noctuidae	25	20
<i>Anarta trifolii</i>	Noctuidae	18	14
<i>Ancylis badiana</i>	Tortricidae	8	5
<i>Anorthoa munda</i>	Noctuidae	20	17
<i>Anticlea derivata</i>	Geometridae	16	14
<i>Antitype chi</i>	Noctuidae	19	15
<i>Apamea anceps</i>	Noctuidae	21	16
<i>Apamea crenata</i>	Noctuidae	22	18
<i>Apamea epomidion</i>	Noctuidae	20	17
<i>Apamea lithoxylaea</i>	Noctuidae	23	18
<i>Apamea monoglypha</i>	Noctuidae	26	19
<i>Apamea remissa</i>	Noctuidae	19	17
<i>Apamea scolopacina</i>	Noctuidae	17	14
<i>Apamea sordens</i>	Noctuidae	19	16
<i>Apamea unanimis</i>	Noctuidae	17	15
<i>Aphelia paleana</i>	Tortricidae	12	8
<i>Aphomia sociella</i>	Pyalidae	17	12
<i>Aplocera plagiata</i>	Geometridae	22	19
<i>Apocheima hispidaria</i>	Geometridae	17	15
<i>Aporophyla australis</i>	Noctuidae	17	14
<i>Aporophyla lutulenta</i>	Noctuidae	18	15
<i>Aporophyla nigra</i>	Noctuidae	21	17
<i>Archips podana</i>	Tortricidae	11	9
<i>Arctia caja</i>	Erebidae	37	28
<i>Arctia villica</i>	Erebidae	32	25
<i>Arenostola phragmitidis</i>	Noctuidae	16	14
<i>Argyresthia trifasciata</i>	Argyresthiidae	5	4
<i>Argyrotaenia ljugiana</i>	Tortricidae	6	8
<i>Aspitates ochrearia</i>	Geometridae	16	12
<i>Asteroscopus sphinx</i>	Noctuidae	22	17
<i>Atethmia centrargo</i>	Noctuidae	18	15
<i>Atolmis rubricollis</i>	Erebidae	18	15
<i>Autographa bractea</i>	Noctuidae	21	18
<i>Autographa gamma</i>	Noctuidae	21	13

<i>Autographa jota</i>	Noctuidae	21	17
<i>Autographa pulchrina</i>	Noctuidae	20	17
<i>Axylia putris</i>	Noctuidae	16	14
<i>Biston betularia</i>	Geometridae	28	22
<i>Biston betularia f carbonaria</i>	NA	28	22
<i>Biston betularia f insularia</i>	NA	28	22
<i>Biston strataria</i>	Geometridae	27	17
<i>Blastobasis adustella</i>	Blastobasidae	9	6
<i>Blastobasis lacticolella</i>	Blastobasidae	11	6
<i>Brachylomia viminalis</i>	Noctuidae	15	13
<i>Bryophila domestica</i>	Noctuidae	14	12
<i>Bupalus piniaria</i>	Geometridae	19	17
<i>Cabera exanthemata</i>	Geometridae	16	14
<i>Cabera pusaria</i>	Geometridae	17	15
<i>Cacoecimorpha pronubana</i>	Tortricidae	9	7
<i>Callimorpha dominula</i>	Erebidae	27	23
<i>Calliteara pudibunda</i>	Erebidae	21	21
<i>Campaea margaritaria</i>	Geometridae	26	18
<i>Camptogramma bilineata</i>	Geometridae	16	13
<i>Caradrina clavipalpis</i>	Noctuidae	15	12
<i>Caradrina kadenii</i>	Noctuidae	15	13
<i>Caradrina morpheus</i>	Noctuidae	16	13
<i>Carcina quercana</i>	Depressariidae	10	8
<i>Cataclysta lemnata</i>	Crambidae	11	8
<i>Catocala nupta</i>	Erebidae	40	33
<i>Celypha lacunana</i>	Tortricidae	8.5	6.5
<i>Celypha striana</i>	Tortricidae	10.5	7.5
<i>Ceramica pisi</i>	Noctuidae	20	16
<i>Cerapteryx graminis</i>	Noctuidae	17	12
<i>Cerastis rubricosa</i>	Noctuidae	17	14
<i>Cerura vinula</i>	Notodontidae	38	29
<i>Charanyca trigrammica</i>	Noctuidae	17	15
<i>Chesias legatella</i>	Geometridae	19	17
<i>Chiasmia clathrata</i>	Geometridae	15	11
<i>Chloroclysta miata</i>	Geometridae	17	15
<i>Chloroclysta siterata</i>	Geometridae	17	14
<i>Chloroclystis v ata</i>	Geometridae	11	8
<i>Chrysoteuchia culmella</i>	Crambidae	12	9
<i>Cidaria fulvata</i>	Geometridae	14	12
<i>Cilix glaucata</i>	Drepanidae	13	10
<i>Cirrhia icteritia</i>	Noctuidae	17	14
<i>Cleorodes lichenaria</i>	Geometridae	18	14
<i>Clostera curtula</i>	Notodontidae	18	13
<i>Colocasia coryli</i>	Noctuidae	17	14
<i>Colostygia multistrigaria</i>	Geometridae	17	13
<i>Colostygia pectinataria</i>	Geometridae	15	12

<i>Colotois pennaria</i>	Geometridae	23	19
<i>Conisania andalusica</i>	Noctuidae	19	15
<i>Conistra ligula</i>	Noctuidae	15	13
<i>Conistra vaccinii</i>	Noctuidae	15	14
<i>Cosmia pyralina</i>	Noctuidae	16	13
<i>Cosmia trapezina</i>	Noctuidae	16	13
<i>Cosmorhoe ocellata</i>	Geometridae	15	13
<i>Crambus lathonellus</i>	Crambidae	11	9
<i>Crambus pascuella</i>	Crambidae	13	11
<i>Crambus perlella</i>	Crambidae	14	11
<i>Craniophora ligustri</i>	Noctuidae	19	17
<i>Crocallis elinguaris</i>	Geometridae	22	18
<i>Crociosema plebejana</i>	Tortricidae	8	5.5
<i>Cucullia umbratica</i>	Noctuidae	26	22
<i>Cucullia verbasci</i>	Noctuidae	24	19
<i>Cyclophora punctaria</i>	Geometridae	16	13
<i>Cydia pomonella</i>	Tortricidae	10.5	6.5
<i>Cydia splendana</i>	Tortricidae	10	7
<i>Dasypolia templi</i>	Noctuidae	23	18
<i>Deilephila elpenor</i>	Sphingidae	33	28
<i>Deilephila porcellus</i>	Sphingidae	25	21
<i>Deltote pygarga</i>	Noctuidae	12	11
<i>Denticucullus pygmina</i>	Noctuidae	14	10
<i>Diachrysia chrysis</i>	Noctuidae	19	16
<i>Diaphora mendica</i>	Erebidae	19	14
<i>Diarsia brunnea</i>	Noctuidae	20	16
<i>Diarsia mendica</i>	Noctuidae	17	13
<i>Diarsia rubi</i>	Noctuidae	16	12
<i>Diloba caeruleocephala</i>	Noctuidae	19	15
<i>Ditula angustiorana</i>	Tortricidae	8	6
<i>Diurnea fagella</i>	Lypusidae	14	13
<i>Drepana falcataria</i>	Drepanidae	21	17
<i>Drymonia ruficornis</i>	Notodontidae	20	16
<i>Dryobota labecula</i>	Noctuidae	15	12
<i>Dryobotodes eremita</i>	Noctuidae	17	15
<i>Dypterygia scabriuscula</i>	Noctuidae	16	16
<i>Dyseriocrania subpurpurella</i>	Eriocraniidae	7	5
<i>Dysstroma citrata</i>	Geometridae	19	14
<i>Dysstroma truncata</i>	Geometridae	19	14
<i>Earias clorana</i>	Nolidae	12	10
<i>Earophila badiata</i>	Geometridae	18	14
<i>Ecliptopera silaceata</i>	Geometridae	17	13
<i>Ectropis crepuscularia</i>	Geometridae	19	16
<i>Eilema caniola</i>	Erebidae	17	15
<i>Eilema complana</i>	Erebidae	18	15
<i>Eilema depressa</i>	Erebidae	17	15

<i>Eilema griseola</i>	Erebidae	18	15
<i>Eilema lurideola</i>	Erebidae	17	14
<i>Eilema sororcula</i>	Erebidae	16	13
<i>Electrophaes corylata</i>	Geometridae	16	14
<i>Elophila nymphaeata</i>	Crambidae	16	12
<i>Emmelina monodactyla</i>	Pterophoridae	13	9
<i>Endotricha flammealis</i>	Pyralidae	10	8
<i>Endrosis sarcitrella</i>	Oecophoridae	9	6
<i>Ennomos alniaria</i>	Geometridae	20	16
<i>Ennomos erosaria</i>	Geometridae	21	17
<i>Ennomos fuscantaria</i>	Geometridae	21	17
<i>Epinotia bilunana</i>	Tortricidae	8	6
<i>Epiphyas postvittana</i>	Tortricidae	12	7
<i>Epirrhoe alternata</i>	Geometridae	14	13
<i>Epirrhoe galiata</i>	Geometridae	15	13
<i>Epirrita dilutata</i>	Geometridae	20	15
<i>Epirrita dilutata agg.</i>	Geometridae	20	15
<i>Epirrita filigrammaria</i>	Geometridae	18	14
<i>Erannis defoliaria</i>	Geometridae	25	18
<i>Eremobia ochroleuca</i>	Noctuidae	16	14
<i>Eudonia angustea</i>	Crambidae	11	8
<i>Eudonia mercurella</i>	Crambidae	9	7
<i>Eugnorisma depuncta</i>	Noctuidae	20	16
<i>Eugnorisma glareosa</i>	Noctuidae	16	15
<i>Eulithis mellinata</i>	Geometridae	18	16
<i>Eulithis populata</i>	Geometridae	18	13
<i>Eulithis prunata</i>	Geometridae	19	17
<i>Eulithis testata</i>	Geometridae	19	13
<i>Euphyia unangulata</i>	Geometridae	15	13
<i>Eupithecia abbreviata</i>	Geometridae	12	10
<i>Eupithecia centaureata</i>	Geometridae	12	10
<i>Eupithecia exiguata</i>	Geometridae	12	11
<i>Eupithecia icterata</i>	Geometridae	13	11
<i>Eupithecia nanata</i>	Geometridae	12	9
<i>Eupithecia phoeniceata</i>	Geometridae	11	10
<i>Eupithecia pulchellata</i>	Geometridae	12	10
<i>Eupithecia succenturiata</i>	Geometridae	13	12
<i>Eupithecia vulgata</i>	Geometridae	12	10
<i>Euplagia quadripunctaria</i>	Erebidae	33	28
<i>Euplexia lucipara</i>	Noctuidae	17	14
<i>Euproctis chrysorrhoea</i>	Erebidae	20	16
<i>Euproctis similis</i>	Erebidae	23	16
<i>Eupsilia transversa</i>	Noctuidae	20	17
<i>Euthrix potatoria</i>	Lasiocampidae	35	21
<i>Euxoa nigricans</i>	Noctuidae	18	15
<i>Euxoa tritici</i>	Noctuidae	17	13

<i>Euzophera pinguis</i>	Pyalidae	13	11
<i>Evergestis forficalis</i>	Crambidae	15	13
<i>Furcula furcula</i>	Notodontidae	18	14
<i>Galleria mellonella</i>	Pyalidae	19	14
<i>Gandaritis pyraliata</i>	Geometridae	18	15
<i>Geometra papilionaria</i>	Geometridae	29	24
<i>Gortyna flavago</i>	Noctuidae	19	16
<i>Graphiphora augur</i>	Noctuidae	21	18
<i>Griposia aprilina</i>	Noctuidae	23	18
<i>Gymnoscelis rufifasciata</i>	Geometridae	10	8
<i>Habrosyne pyritoides</i>	Drepanidae	20	17
<i>Hada plebeja</i>	Noctuidae	17	14
<i>Hadena bicruris</i>	Noctuidae	17	14
<i>Hadena compta</i>	Noctuidae	15	13
<i>Hadena confusa</i>	Noctuidae	16	14
<i>Hadena perplexa</i>	Noctuidae	15	13
<i>Hecatera bicolorata</i>	Noctuidae	15	13
<i>Hedya nubiferana</i>	Tortricidae	10	7
<i>Helotropha leucostigma</i>	Noctuidae	17	14
<i>Hemistola chrysoprasaria</i>	Geometridae	20	17
<i>Hemithea aestivaria</i>	Geometridae	17	14
<i>Hepialus humuli</i>	Hepialidae	35	21
<i>Herminia grisealis</i>	Erebidae	13	11
<i>Herminia tarsipennalis</i>	Erebidae	16	13
<i>Hofmannophila pseudospretella</i>	Oecophoridae	11	7
<i>Hoplodrina ambigua</i>	Noctuidae	15	13
<i>Hoplodrina blanda</i>	Noctuidae	16	13
<i>Hoplodrina octogenaria</i>	Noctuidae	16	14
<i>Hoplodrina octogenaria blanda</i>	Noctuidae	16	14
<i>Hydraecia micacea</i>	Noctuidae	21	14
<i>Hydriomena furcata</i>	Geometridae	18	14
<i>Hydriomena impluviata</i>	Geometridae	16	13
<i>Hylaea fasciaria</i>	Geometridae	21	17
<i>Hypena proboscidalis</i>	Erebidae	19	15
<i>Hypsopygia costalis</i>	Pyalidae	10	8
<i>Idaea aversata</i>	Geometridae	16	14
<i>Idaea biselata</i>	Geometridae	11	10
<i>Idaea degeneraria</i>	Geometridae	15	13
<i>Idaea dimidiata</i>	Geometridae	11	9
<i>Idaea emarginata</i>	Geometridae	13	11
<i>Idaea fuscovenosa</i>	Geometridae	11	9
<i>Idaea rusticata</i>	Geometridae	11	9
<i>Idaea seriata</i>	Geometridae	11	9
<i>Idaea subsericeata</i>	Geometridae	12	10
<i>Idaea trigeminata</i>	Geometridae	11	10
<i>Korscheltellus fusconebulosa</i>	Hepialidae	26	14

<i>Korscheltellus lupulina</i>	Hepialidae	20	11
<i>Lacanobia oleracea</i>	Noctuidae	19	14
<i>Lacanobia thalassina</i>	Noctuidae	20	16
<i>Lacanobia w latinum</i>	Noctuidae	21	18
<i>Lampropteryx suffumata</i>	Geometridae	17	14
<i>Laothoe populi</i>	Sphingidae	46	30
<i>Larentia clavaria</i>	Geometridae	22	19
<i>Lasiocampa quercus</i>	Lasiocampidae	40	25
<i>Lasiocampa trifolii</i>	Lasiocampidae	30	21
<i>Laspeyria flexula</i>	Erebidae	15	13
<i>Lateroligia ophiogramma</i>	Noctuidae	16	13
<i>Leptologia lota</i>	Noctuidae	18	15
<i>Leptologia macilenta</i>	Notodontidae	16	14
<i>Leucania comma</i>	Noctuidae	19	16
<i>Leucochlaena oditis</i>	Noctuidae	16	14
<i>Lithophane leautieri</i>	Noctuidae	20	17
<i>Lithophane ornitopus</i>	Noctuidae	19	17
<i>Lithophane socia</i>	Noctuidae	20	17
<i>Lithosia quadra</i>	Erebidae	26	18
<i>Litoligia literosa</i>	Noctuidae	13	10
<i>Lomaspilis marginata</i>	Geometridae	14	11
<i>Lomographa bimaculata</i>	Geometridae	14	13
<i>Lomographa temerata</i>	Geometridae	15	13
<i>Lozotaenia forsterana</i>	Tortricidae	14	10
<i>Luperina testacea</i>	Noctuidae	18	14
<i>Lycia hirtaria</i>	Geometridae	23	19
<i>Lycophotia porphyrea</i>	Noctuidae	15	12
<i>Lymantria monacha</i>	Erebidae	28	18
<i>Lyonetia clerkella</i>	Lyonetiidae	4.5	4
<i>Macaria alternata</i>	Geometridae	15	13
<i>Macaria liturata</i>	Geometridae	17	14
<i>Macrothylacia rubi</i>	Lasiocampidae	31	22
<i>Malacosoma neustria</i>	Lasiocampidae	21	13
<i>Mamestra brassicae</i>	Noctuidae	22	14
<i>Meganola albula</i>	Nolidae	11	10
<i>Melanchra persicariae</i>	Noctuidae	21	16
<i>Menophra abruptaria</i>	Geometridae	21	18
<i>Mesapamea secalis</i>	Noctuidae	16	12
<i>Mesapamea secalis</i>	Noctuidae	16	12
<i>Mesoligia furuncula</i>	Noctuidae	12	10
<i>Mesotype didymata</i>	Geometridae	15	11
<i>Miltochrista miniata</i>	Erebidae	15	12
<i>Mimas tiliae</i>	Sphingidae	39	23
<i>Mniotype adusta</i>	Noctuidae	21	18
<i>Mormo maura</i>	Noctuidae	36	30
<i>Myelois circumvoluta</i>	Pyalidae	17	13

<i>Mythimna albipuncta</i>	Noctuidae	17	14
<i>Mythimna conigera</i>	Noctuidae	17	15
<i>Mythimna ferrago</i>	Noctuidae	18	15
<i>Mythimna impura</i>	Noctuidae	18	14
<i>Mythimna l album</i>	Noctuidae	16	15
<i>Mythimna pallens</i>	Noctuidae	17	14
<i>Mythimna turca</i>	Noctuidae	23	18
<i>Mythimna unipuncta</i>	Noctuidae	21	18
<i>Mythimna vitellina</i>	Noctuidae	14	12
<i>Naenia typica</i>	Noctuidae	22	17
<i>Noctua comes</i>	Noctuidae	21	16
<i>Noctua fimbriata</i>	Noctuidae	27	22
<i>Noctua interjecta</i>	Noctuidae	17	14
<i>Noctua janthe</i>	Noctuidae	20	16
<i>Noctua pronuba</i>	Noctuidae	26	21
<i>Nola confusalis</i>	Nolidae	11	9
<i>Nola cucullatella</i>	Nolidae	10	8
<i>Nomophila noctuella</i>	Crambidae	15	12
<i>Nonagria typhae</i>	Noctuidae	24	20
<i>Notocelia cynosbatella</i>	Tortricidae	10.5	7.5
<i>Notocelia uddmanniana</i>	Tortricidae	10	7
<i>Notodonta dromedarius</i>	Notodontidae	24	18
<i>Notodonta ziczac</i>	Notodontidae	24	17
<i>Nudaria mundana</i>	Erebidae	12	10
<i>Nyctobrya muralis</i>	Noctuidae	15	12
<i>Ochropacha duplaris</i>	Drepanidae	18	14
<i>Ochropleura plecta</i>	Noctuidae	15	12
<i>Odontopera bidentata</i>	Geometridae	24	20
<i>Oegoconia quadripuncta</i>	Autostichidae	7.5	5.5
<i>Oligia fasciuncula</i>	Noctuidae	12	10
<i>Oligia strigilis</i>	Noctuidae	13	11
<i>Oligia strigilis agg.</i>	Noctuidae	13	11
<i>Omphaloscelis lunosa</i>	Noctuidae	17	14
<i>Operophtera brumata</i>	Geometridae	16	13
<i>Operophtera fagata</i>	Geometridae	18	14
<i>Opisthograptis luteolata</i>	Geometridae	21	14
<i>Orgyia antiqua</i>	Erebidae	17	12
<i>Orthonama vittata</i>	Geometridae	14	11
<i>Orthosia cerasi</i>	Noctuidae	17	13
<i>Orthosia cruda</i>	Noctuidae	15	12
<i>Orthosia gothica</i>	Noctuidae	17	15
<i>Orthosia gracilis</i>	Noctuidae	19	15
<i>Orthosia incerta</i>	Noctuidae	20	16
<i>Ostrinia nubilalis</i>	Crambidae	18	13
<i>Ourapteryx sambucaria</i>	Geometridae	30	22
<i>Pammene aurita</i>	Tortricidae	7	6.5

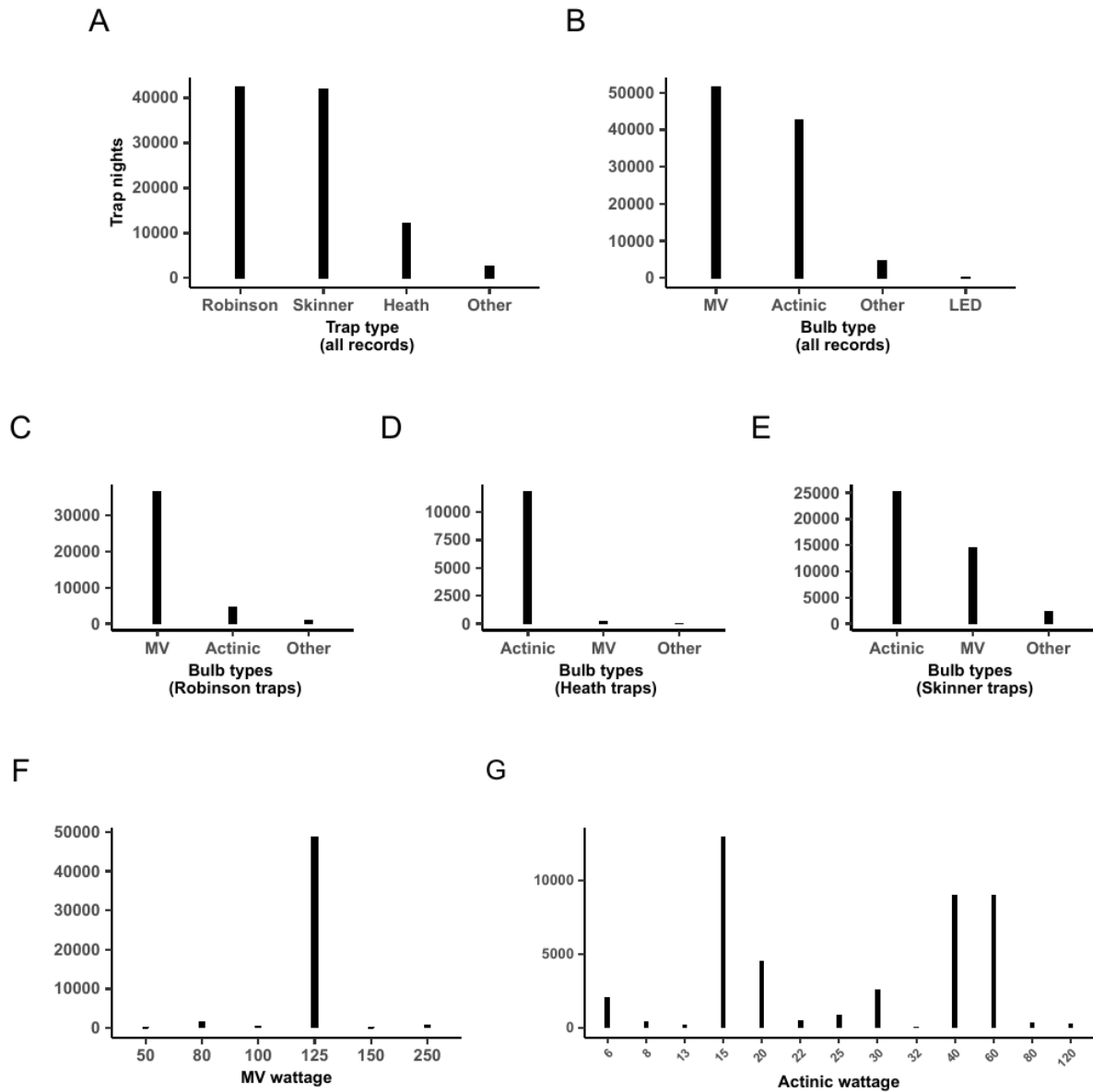
<i>Pandemis cerasana</i>	Tortricidae	11	8
<i>Pandemis corylana</i>	Tortricidae	12	9
<i>Pandemis heparana</i>	Tortricidae	12	8
<i>Panolis flammea</i>	Noctuidae	16	15
<i>Parastichtis suspecta</i>	Noctuidae	16	14
<i>Pasiphila rectangulata</i>	Geometridae	11	8
<i>Patania ruralis</i>	Crambidae	17	15
<i>Pennithera firmata</i>	Geometridae	16	13
<i>Peribatodes rhomboidaria</i>	Geometridae	24	17
<i>Peridea anceps</i>	Notodontidae	32	23
<i>Perizoma affinitata</i>	Geometridae	15	12
<i>Perizoma alchemillata</i>	Geometridae	11	9
<i>Perizoma flavofasciata</i>	Geometridae	14	11
<i>Petrophora chlorosata</i>	Geometridae	18	15
<i>Phalera bucephala</i>	Notodontidae	34	22
<i>Pheosia gnoma</i>	Notodontidae	26	20
<i>Pheosia tremula</i>	Notodontidae	28	22
<i>Phigalia pilosaria</i>	Geometridae	24	19
<i>Phlogophora meticulosa</i>	Noctuidae	25	21
<i>Photodes minima</i>	Noctuidae	14	11
<i>Phragmatobia fuliginosa</i>	Erebidae	19	14
<i>Plagodis dolabraria</i>	Geometridae	19	16
<i>Pleuroptya ruralis</i>	Crambidae	17	15
<i>Plusia festucae</i>	Noctuidae	19	14
<i>Plusia putnami</i>	Noctuidae	15	14
<i>Plutella xylostella</i>	Plutellidae	8.5	6
<i>Poecilocampa populi</i>	Lasiocampidae	22	15
<i>Polia nebulosa</i>	Noctuidae	26	21
<i>Polychrysia moneta</i>	Noctuidae	20	17
<i>Polymixis flavicincta</i>	Noctuidae	22	17
<i>Polymixis lichenea</i>	Noctuidae	18	15
<i>Polyploca ridens</i>	Drepanidae	17	15
<i>Prays fraxinella</i>	Praydidae	8	7
<i>Pseudargyrotoza conwagana</i>	Tortricidae	7	5
<i>Pseudoips prasinana</i>	Nolidae	19	16
<i>Pseudoterpna pruinata</i>	Geometridae	19	14
<i>Pterostoma palpina</i>	Notodontidae	25	18
<i>Ptilodon capucina</i>	Notodontidae	22	17
<i>Pyrausta aurata</i>	Crambidae	9	7
<i>Pyrausta purpuralis</i>	Crambidae	11	7
<i>Rhizedra lutosa</i>	Noctuidae	23	16
<i>Rivula sericealis</i>	Erebidae	15	13
<i>Rusina ferruginea</i>	Noctuidae	18	14
<i>Schranksia costaestrigalis</i>	Erebidae	11	9
<i>Scoliopteryx libatrix</i>	Erebidae	23	19
<i>Scoparia ambigualis</i>	Crambidae	11	8

<i>Scopula imitaria</i>	Geometridae	15	13
<i>Scopula marginepunctata</i>	Geometridae	15	12
<i>Scotopteryx chenopodiata</i>	Geometridae	19	16
<i>Selenia dentaria</i>	Geometridae	23	14
<i>Selenia lunularia</i>	Geometridae	22	16
<i>Selenia tetralunaria</i>	Geometridae	23	17
<i>Sideridis rivularis</i>	Noctuidae	16	14
<i>Smerinthus ocellata</i>	Sphingidae	44	36
<i>Sphinx ligustri</i>	Sphingidae	55	41
<i>Sphinx pinastri</i>	Sphingidae	41	35
<i>Spilosoma lubricipeda</i>	Erebidae	23	18
<i>Spilosoma lutea</i>	Erebidae	22	17
<i>Stauropus fagi</i>	Notodontidae	33	24
<i>Stilbia anomala</i>	Noctuidae	17	13
<i>Subacronicta megacephala</i>	Noctuidae	20	17
<i>Sunira circellaris</i>	Noctuidae	19	14
<i>Tachystola acroxantha</i>	Oecophoridae	9	6
<i>Tethea ocularis</i>	Drepanidae	20	16
<i>Thalpophila matura</i>	Noctuidae	20	17
<i>Thera britannica</i>	Geometridae	17	13
<i>Thera cupressata</i>	Geometridae	15	12
<i>Thera juniperata</i>	Geometridae	14	11
<i>Thera obeliscata</i>	Geometridae	17	13
<i>Theria primaria</i>	Geometridae	17	14
<i>Tholera cespitis</i>	Noctuidae	19	15
<i>Tholera decimalis</i>	Noctuidae	22	16
<i>Thyatira batis</i>	Drepanidae	19	16
<i>Tiliacea aurago</i>	Noctuidae	16	14
<i>Tiliacea citrargo</i>	Noctuidae	17	15
<i>Timandra comae</i>	Geometridae	18	15
<i>Tortricodes alternella</i>	Tortricidae	11	9
<i>Tortrix viridana</i>	Tortricidae	12	9
<i>Trichiura crataegi</i>	Lasiocampidae	17	14
<i>Trichopteryx carpinata</i>	Geometridae	18	13
<i>Trigonophora flammea</i>	Noctuidae	23	20
<i>Triodia sylvina</i>	Hepialidae	26	12
<i>Tyria jacobaeae</i>	Erebidae	23	17
<i>Udea ferrugalis</i>	Crambidae	11	9
<i>Udea lutealis</i>	Crambidae	12	11
<i>Udea olivalis</i>	Crambidae	13	12
<i>Udea prunalis</i>	Crambidae	13	11
<i>Venusia cambrica</i>	Geometridae	15	13
<i>Watsonalla binaria</i>	Drepanidae	18	13
<i>Xanthia togata</i>	Noctuidae	16	13
<i>Xanthorhoe designata</i>	Geometridae	14	11
<i>Xanthorhoe ferrugata</i>	Geometridae	13	12

<i>Xanthorhoe fluctuata</i>	Geometridae	16	13
<i>Xanthorhoe montanata</i>	Geometridae	17	14
<i>Xanthorhoe spadicearia</i>	Geometridae	13	12
<i>Xestia baja</i>	Noctuidae	21	17
<i>Xestia c nigrum</i>	Noctuidae	19	14
<i>Xestia castanea</i>	Noctuidae	18	16
<i>Xestia ditrapezium</i>	Noctuidae	19	17
<i>Xestia sexstrigata</i>	Noctuidae	17	15
<i>Xestia triangulum</i>	Noctuidae	19	17
<i>Xestia xanthographa</i>	Noctuidae	17	14
<i>Xylena vetusta</i>	Noctuidae	29	24
<i>Xylocampa areola</i>	Noctuidae	18	15
<i>Yponomeuta evonymella</i>	Yponomeutidae	12.5	9.5
<i>Ypsolopha dentella</i>	Ypsolophidae	11	10
<i>Ypsolopha scabrella</i>	Ypsolophidae	11	7
<i>Zelotherses paleana</i>	Tortricidae	11	8
<i>Zeuzera pyrina</i>	Cossidae	35	22

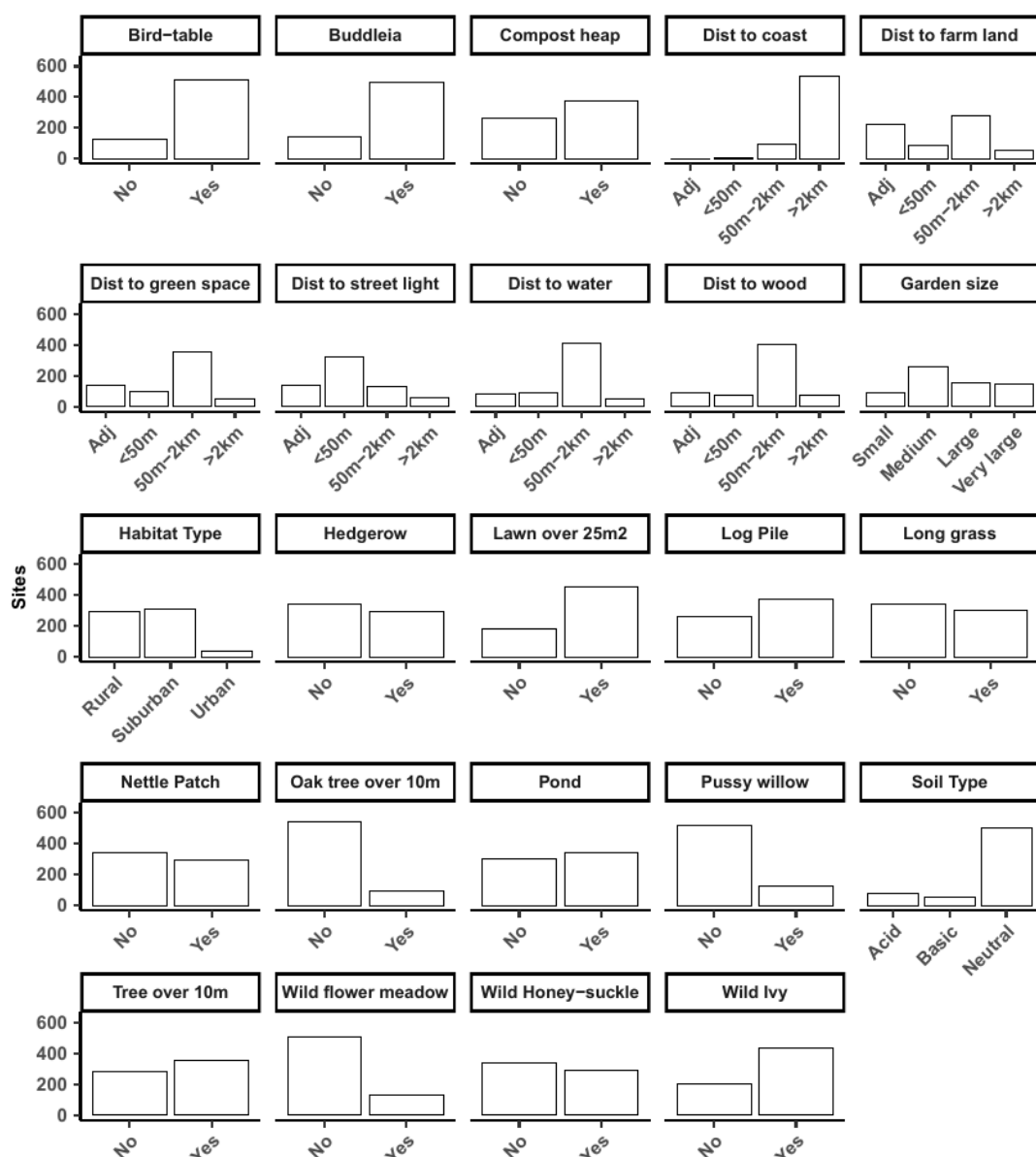
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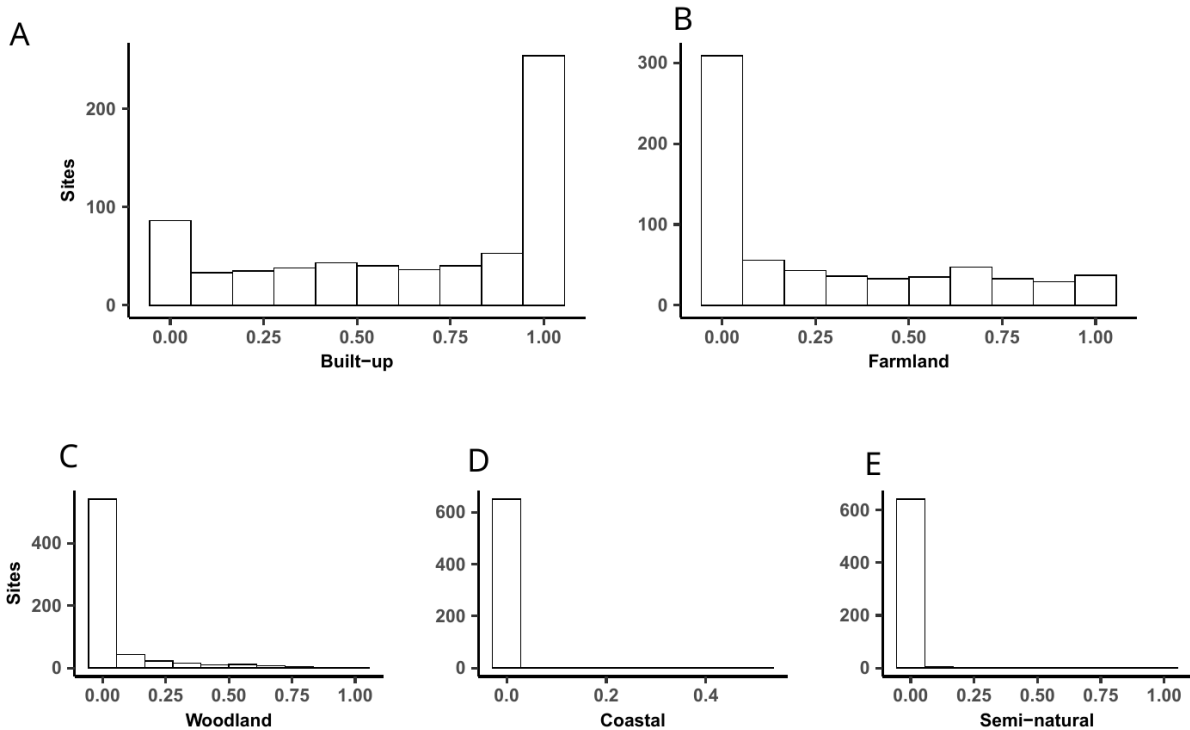
22 SI Figure 1. Descriptive statistics showing variation in trap and bulb type among GSM
 23 records from Great Britain prior to filtering. Number of samples (single trap-nights)
 24 across all records grouped by trap type (A) and bulb type (B). Variation in bulb type
 25 among Robinson-type traps (C), Heath-type traps (D) and Skinner-type traps (E).
 26 Variation in bulb wattage across all Mercury Vapor (MV) bulbs (F) and Actinic bulbs (G).



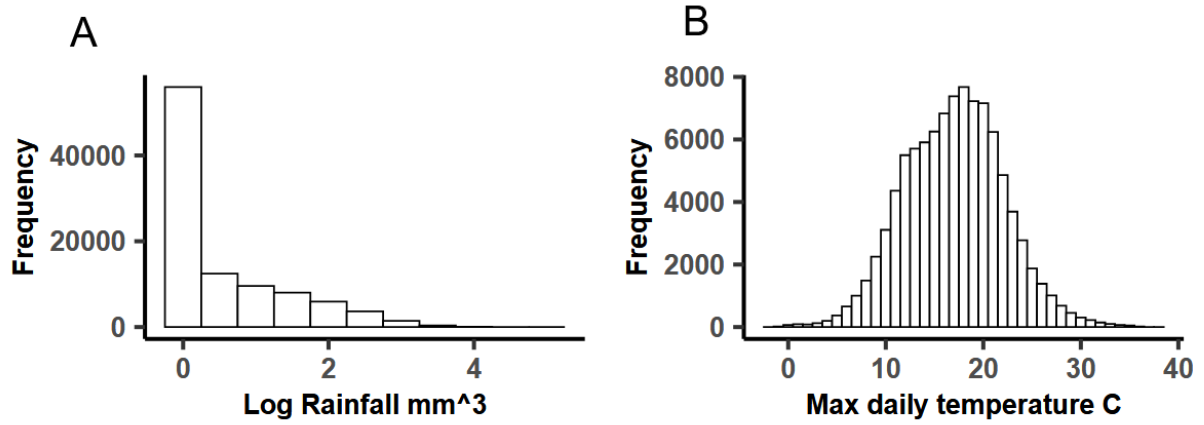
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28 SI Figure 2. Variation in participant-reported garden habitat features among GMS garden
 29 sites in Great Britain prior to filtering. Participants return a garden habitat form as part of
 30 the monitoring scheme, detailing presence or distance to the following features, from
 31 left to right: (1) presence of a bird table, (2) presence of *Buddleia davidii*, (3) presence of
 32 a compost heap, (4) distance to coastline (5) distance to farmland (6) Distance to green
 33 space of any kind, (7) distance to street lighting, (8) distance to woodland, (9) distance
 34 to open bodies of water of any kind, (10) distance to woodland, (11) garden size among
 35 four categories, (12) garden size among four categories, (13) 'habitat' type among three
 36 broad land-use categories, (14) presence of a native species hedgerow, (15) presence of
 37 a lawn over 25 m², (16) presence of a log pile, (17) presence of long grass, (18) presence
 38 of a nettle patch, (18) presence of an oak tree over 10 m in height, (19) presence of a
 39 pond, (20) presence of a pussy willow (*Salix caprea*), (21) Soil type among three
 40 categories, (22) presence of any tree over 10 m in height, (23) presence of a wild flower

meadow of any type, (24) presence of a wild honey-suckle (*Lonicera periclymenum*),
 (25) presence of wild ivy (*Hedera spp.*)

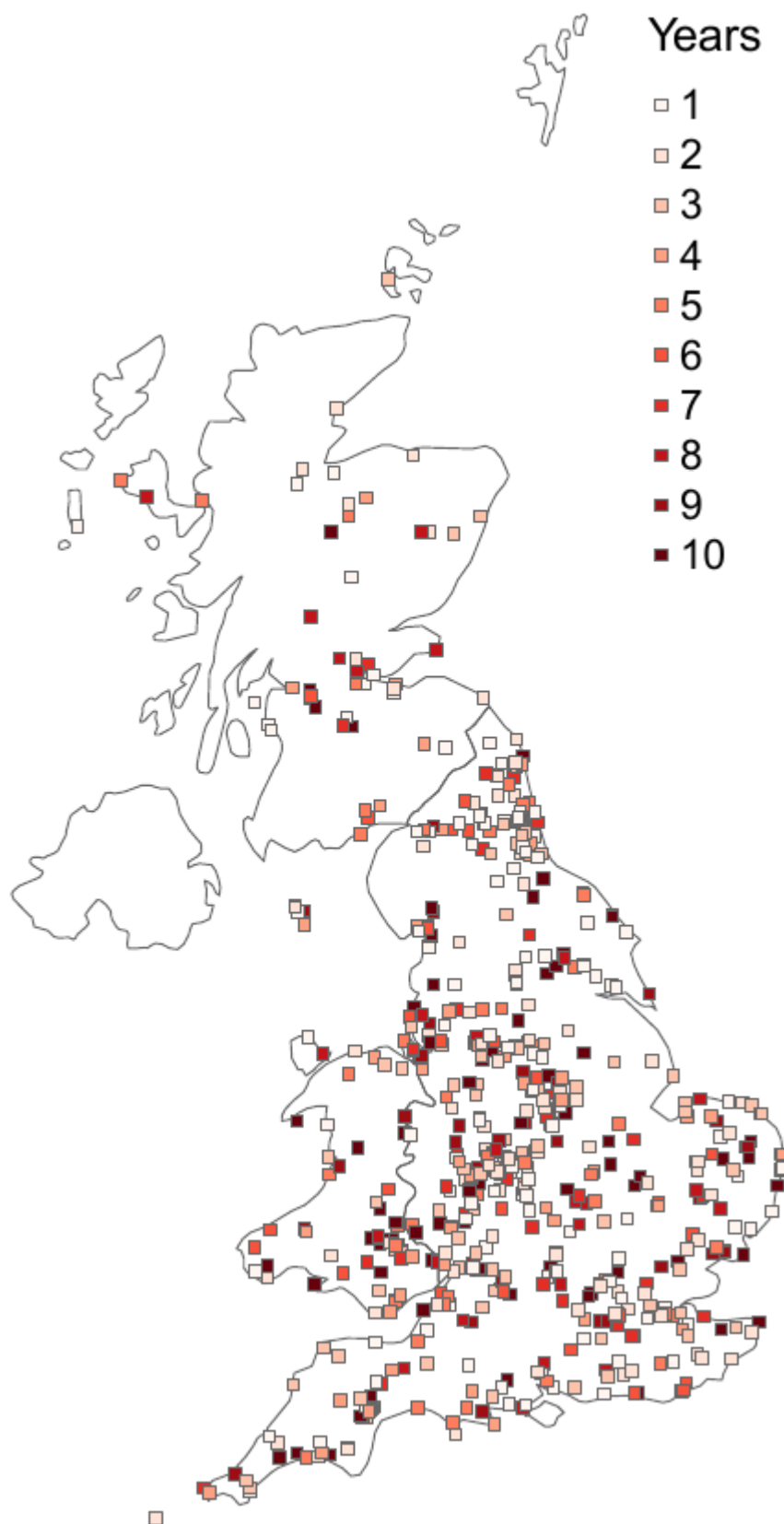


SI Figure 3. Histograms showing variation landcover in a 100m radius surrounding GMS garden sites in Great Britain prior to filtering. The following aggregated 2021 UKCEH Landcover Classes (Marston, 2022) were calculated for each site: built-up, comprised of summed urban and suburban landcover (A); farmland cover, comprised of summed improved grassland, arable and horticultural cover (B); Woodland, comprised of summed coniferous and broadleaf woodland cover (C); Coastal cover, comprised of summed open seawater, littoral sediment, littoral rock, supralittoral sediment, supralittoral rock, saltwater and saltmarsh cover (D), and Semi-natural cover, comprised of summed neutral grassland, calcareous grassland, acid grassland, heather, heather grassland, bog, fen, marsh and swamp cover (E).



58

59 SI Figure 4. Histograms showing variation in rainfall volume (A) and maximum daily
 60 temperature (B) conditions across GMS samples. Weather data were collected for each
 61 sample from the CEDA Archive HadUK Gridded Climate Observations v1.2.0 dataset
 62 (Hollis et al., 2019).



63

64 SI Figure 5. Map showing the spatial position of GMS garden sites included in analyses.

65 We exclude sites in Northern Ireland and site-years which did not complete a full 33-36

66 week set of trap-nights. Colours illustrate variation in the number of years included in
67 analyses at each site.

68

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70 References

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