

Ecography

ECOG-00540

Thornton, D. H. and Fletcher, Jr R. J. 2014. Body size and spatial scales in avian response to landscapes: a meta-analysis. – *Ecography* 37: xxx–xxx.

Supplementary material

Appendix 1: List of species and number of times each species appeared in the various studies of this meta-analysis.

Species	Family	Order	Number of occurrences across studies
Anas discors	Anatidae (Ducks, Geese, and Waterfowl)	Anseriformes	1
Anas platyrhynchos	Anatidae (Ducks, Geese, and Waterfowl)	Anseriformes	1
Archilochus colubris	Trochilidae (Hummingbirds)	Apodiformes	2
Selasphorus rufus	Trochilidae (Hummingbirds)	Apodiformes	1
Charadrius vociferus	Charadriidae (Plovers and Lapwings)	Charadriiformes	1
Vanellus vanellus	Charadriidae (Plovers and Lapwings)	Charadriiformes	1
Bartramia longicauda	Scolopacidae (Sandpipers and Allies)	Charadriiformes	1
Gallinago delicata	Scolopacidae (Sandpipers and Allies)	Charadriiformes	1
Limosa fedoa	Scolopacidae (Sandpipers and Allies)	Charadriiformes	1
Phalaropus tricolor	Scolopacidae (Sandpipers and Allies)	Charadriiformes	1
Columba oenas	Columbidae (Pigeons and Doves)	Columbiformes	1
Columba palumbus	Columbidae (Pigeons and Doves)	Columbiformes	1
Hemiphaga novaeseelandiae	Columbidae (Pigeons and Doves)	Columbiformes	1
Patagioenas fasciata	Columbidae (Pigeons and Doves)	Columbiformes	1
Patagioenas nigrirostris	Columbidae (Pigeons and Doves)	Columbiformes	1

Phaps elegans	Columbidae (Pigeons and Doves)	Columbiformes	1
Streptopelia turtur	Columbidae (Pigeons and Doves)	Columbiformes	1
Zenaida macroura	Columbidae (Pigeons and Doves)	Columbiformes	2
Megaceryle alcyon	Alcedinidae (Kingfishers)	Coraciiformes	1
Momotus momota	Momotidae (Motmots)	Coraciiformes	1
Cacomantis flabelliformis	Cuculidae (Cuckoos)	Cuculiformes	1
Chrysococcyx lucidus	Cuculidae (Cuckoos)	Cuculiformes	1
Chrysococcyx lucidus lucidus	Cuculidae (Cuckoos)	Cuculiformes	1
Coccyzus americanus	Cuculidae (Cuckoos)	Cuculiformes	4
Coccyzus erythrophthalmus	Cuculidae (Cuckoos)	Cuculiformes	2
Falco tinnunculus	Falconidae (Falcons and Caracaras)	Falconiformes	1
Falcipennis canadensis	Phasianidae (Pheasants, Grouse, and Allies)	Galliformes	1
Perdix perdix	Phasianidae (Pheasants, Grouse, and Allies)	Galliformes	1
Acanthisitta chloris	Acanthisittidae (New Zealand Wrens)	Passeriformes	1
Acanthiza lineata	Acanthizidae (Thornbills and Allies)	Passeriformes	1
Acanthiza pusilla	Acanthizidae (Thornbills and Allies)	Passeriformes	1
Acanthiza reguloides	Acanthizidae (Thornbills and Allies)	Passeriformes	1

Gerygone igata	Acanthizidae (Thornbills and Allies)	Passeriformes	1
Sericornis frontalis	Acanthizidae (Thornbills and Allies)	Passeriformes	1
Aegithalos caudatus	Aegithalidae (Long-tailed Tits)	Passeriformes	2
Psaltriparus minimus	Aegithalidae (Long-tailed Tits)	Passeriformes	2
Alauda arvensis	Alaudidae (Larks)	Passeriformes	2
Bombycilla cedrorum	Bombycillidae (Waxwings)	Passeriformes	2
Cardinalis cardinalis	Cardinalidae (Cardinals and Allies)	Passeriformes	2
Passerina caerulea	Cardinalidae (Cardinals and Allies)	Passeriformes	1
Passerina cyanea	Cardinalidae (Cardinals and Allies)	Passeriformes	4
Pheucticus ludovicianus	Cardinalidae (Cardinals and Allies)	Passeriformes	3
Pheucticus melanocephalus	Cardinalidae (Cardinals and Allies)	Passeriformes	3
Piranga ludoviciana	Cardinalidae (Cardinals and Allies)	Passeriformes	2
Piranga olivacea	Cardinalidae (Cardinals and Allies)	Passeriformes	3
Piranga rubra	Cardinalidae (Cardinals and Allies)	Passeriformes	1
Certhia americana	Certhiidae (Treecreepers)	Passeriformes	2
Certhia familiaris	Certhiidae (Treecreepers)	Passeriformes	1
Climacteris picumnus	Climacteridae (Australasian Treecreepers)	Passeriformes	1
Cormobates leucophaea	Climacteridae (Australasian Treecreepers)	Passeriformes	1
Corcorax melanorhamphos	Corcoracidae (White-winged Chough and Apostlebird)	Passeriformes	1

Corvus brachyrhynchos	Corvidae (Crows, Jays, and Magpies)	Passeriformes	3
Corvus caurinus	Corvidae (Crows, Jays, and Magpies)	Passeriformes	1
Corvus cornix	Corvidae (Crows, Jays, and Magpies)	Passeriformes	1
Corvus corone	Corvidae (Crows, Jays, and Magpies)	Passeriformes	1
Corvus frugilegus	Corvidae (Crows, Jays, and Magpies)	Passeriformes	1
Corvus monedula	Corvidae (Crows, Jays, and Magpies)	Passeriformes	2
Cyanocitta cristata	Corvidae (Crows, Jays, and Magpies)	Passeriformes	2
Cyanocitta stelleri	Corvidae (Crows, Jays, and Magpies)	Passeriformes	1
Pica pica	Corvidae (Crows, Jays, and Magpies)	Passeriformes	2
Strepera versicolor	Cracticidae (Bellmagpies and Allies)	Passeriformes	1
Ammodramus savannarum	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Emberiza calandra	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Emberiza cioides	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Emberiza citrinella	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	2
Emberiza schoeniclus	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Junco hyemalis	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Melospiza melodia	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	2

	and Allies)		
Passerculus sandwichensis	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Pipilo erythrophthalmus	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	5
Pipilo maculatus	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	2
Pooecetes gramineus	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Spizella pallida	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	1
Spizella passerina	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	2
Spizella pusilla	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	2
Zonotrichia albicollis	Emberizidae (Buntings, Sparrows, and Allies)	Passeriformes	3
Neochmia temporalis	Estrildidae (Waxbills and Allies)	Passeriformes	1
Carduelis cannabina	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	2
Carduelis carduelis	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	1
Chloris chloris	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	1

	Allies)		
Coccothraustes vespertinus	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	1
Fringilla coelebs	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	2
Haemorhous mexicanus	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	2
Haemorhous purpureus	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	2
Loxia curvirostra	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	2
Pyrrhula pyrrhula	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	2
Spinus pinus	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	2
Spinus tristis	Fringillidae (Siskins, Crossbills, and Allies)	Passeriformes	3
Xiphorhynchus flavigaster	Furnariidae (Ovenbirds and Woodcreepers)	Passeriformes	1
Delichon urbicum	Hirundinidae (Swallows)	Passeriformes	1
Hirundo rustica	Hirundinidae (Swallows)	Passeriformes	2
Tachycineta bicolor	Hirundinidae (Swallows)	Passeriformes	1
Agelaius phoeniceus	Icteridae (Troupials and Allies)	Passeriformes	3

Dolichonyx oryzivorus	Icteridae (Troupials and Allies)	Passeriformes	1
Icterus bullockii	Icteridae (Troupials and Allies)	Passeriformes	1
Icterus galbula	Icteridae (Troupials and Allies)	Passeriformes	2
Icterus spurius	Icteridae (Troupials and Allies)	Passeriformes	1
Molothrus ater	Icteridae (Troupials and Allies)	Passeriformes	2
Psarocolius montezuma	Icteridae (Troupials and Allies)	Passeriformes	1
Quiscalus quiscula	Icteridae (Troupials and Allies)	Passeriformes	2
Sturnella neglecta	Icteridae (Troupials and Allies)	Passeriformes	1
Lanius collurio	Laniidae (Shrikes)	Passeriformes	1
Acanthorhynchus tenuirostris	Meliphagidae (Honeyeaters)	Passeriformes	1
Anthornis melanura	Meliphagidae (Honeyeaters)	Passeriformes	1
Lichenostomus chrysops	Meliphagidae (Honeyeaters)	Passeriformes	1
Melithreptus lunatus	Meliphagidae (Honeyeaters)	Passeriformes	1
Phylidonyris novaehollandiae	Meliphagidae (Honeyeaters)	Passeriformes	1
Phylidonyris pyrrhopterus	Meliphagidae (Honeyeaters)	Passeriformes	1
Dumetella carolinensis	Mimidae (Mockingbirds and Thrashers)	Passeriformes	2
Mimus polyglottos	Mimidae (Mockingbirds and Thrashers)	Passeriformes	1

Toxostoma rufum	Mimidae (Mockingbirds and Thrashers)	Passeriformes	2
Anthus hodgsoni	Motacillidae (Wagtails and Pipits)	Passeriformes	1
Anthus pratensis	Motacillidae (Wagtails and Pipits)	Passeriformes	1
Anthus trivialis	Motacillidae (Wagtails and Pipits)	Passeriformes	1
Motacilla alba	Motacillidae (Wagtails and Pipits)	Passeriformes	1
Motacilla flava	Motacillidae (Wagtails and Pipits)	Passeriformes	1
Erithacus rubecula	Muscicapidae (Old World Flycatchers)	Passeriformes	2
Ficedula narcissina	Muscicapidae (Old World Flycatchers)	Passeriformes	1
Larvivora cyane	Muscicapidae (Old World Flycatchers)	Passeriformes	1
Oenanthe oenanthe	Muscicapidae (Old World Flycatchers)	Passeriformes	1
Saxicola rubetra	Muscicapidae (Old World Flycatchers)	Passeriformes	1
Mohoua novaeseelandiae	Pachycephalidae (Whistlers and Allies)	Passeriformes	1
Pachycephala pectoralis	Pachycephalidae (Whistlers and Allies)	Passeriformes	1
Pardalotus punctatus	Pardalotidae (Pardalotes)	Passeriformes	1
Baeolophus bicolor	Paridae (Chickadees and Tits)	Passeriformes	4

<i>Baeolophus inornatus</i>	Paridae (Chickadees and Tits)	Passeriformes	1
<i>Parus major</i>	Paridae (Chickadees and Tits)	Passeriformes	1
<i>Poecile atricapillus</i>	Paridae (Chickadees and Tits)	Passeriformes	1
<i>Poecile carolinensis</i>	Paridae (Chickadees and Tits)	Passeriformes	3
<i>Poecile hudsonica</i>	Paridae (Chickadees and Tits)	Passeriformes	1
<i>Poecile montanus</i>	Paridae (Chickadees and Tits)	Passeriformes	1
<i>Poecile rufescens</i>	Paridae (Chickadees and Tits)	Passeriformes	1
<i>Cardellina canadensis</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Cardellina pusilla</i>	Parulidae (New World Warblers)	Passeriformes	1
<i>Geothlypis formosa</i>	Parulidae (New World Warblers)	Passeriformes	2
<i>Geothlypis tolmiei</i>	Parulidae (New World Warblers)	Passeriformes	1
<i>Geothlypis trichas</i>	Parulidae (New World Warblers)	Passeriformes	6
<i>Helmitheros vermivorum</i>	Parulidae (New World Warblers)	Passeriformes	1
<i>Icteria virens</i>	Parulidae (New World Warblers)	Passeriformes	2
<i>Mniotilta varia</i>	Parulidae (New World Warblers)	Passeriformes	5
<i>Oreothlypis ruficapilla</i>	Parulidae (New World Warblers)	Passeriformes	3
<i>Parkesia motacilla</i>	Parulidae (New World Warblers)	Passeriformes	1
<i>Protonotaria citrea</i>	Parulidae (New World Warblers)	Passeriformes	2
<i>Seiurus aurocapilla</i>	Parulidae (New World Warblers)	Passeriformes	5
<i>Setophaga americana</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Setophaga caeruleascens</i>	Parulidae (New World Warblers)	Passeriformes	3
<i>Setophaga castanea</i>	Parulidae (New World Warblers)	Passeriformes	2

<i>Setophaga cerulea</i>	Parulidae (New World Warblers)	Passeriformes	1
<i>Setophaga citrina</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Setophaga coronata</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Setophaga discolor</i>	Parulidae (New World Warblers)	Passeriformes	2
<i>Setophaga fusca</i>	Parulidae (New World Warblers)	Passeriformes	3
<i>Setophaga magnolia</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Setophaga nigrescens</i>	Parulidae (New World Warblers)	Passeriformes	1
<i>Setophaga pensylvanica</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Setophaga petechia</i>	Parulidae (New World Warblers)	Passeriformes	1
<i>Setophaga pinus</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Setophaga ruticilla</i>	Parulidae (New World Warblers)	Passeriformes	4
<i>Setophaga townsendi</i>	Parulidae (New World Warblers)	Passeriformes	2
<i>Setophaga virens</i>	Parulidae (New World Warblers)	Passeriformes	3
<i>Passer domesticus</i>	Passeridae (Old World Sparrows)	Passeriformes	1
<i>Passer montanus</i>	Passeridae (Old World Sparrows)	Passeriformes	3
<i>Petroica macrocephala</i>	Petroicidae (Australasian Robins)	Passeriformes	1
<i>Petroica multicolor</i>	Petroicidae (Australasian Robins)	Passeriformes	1
<i>Polioptila caerulea</i>	Poliptilidae (Gnatcatchers)	Passeriformes	4
<i>Prunella modularis</i>	Prunellidae (Accentors)	Passeriformes	1
<i>Regulus calendula</i>	Regulidae (Kinglets)	Passeriformes	4
<i>Regulus satrapa</i>	Regulidae (Kinglets)	Passeriformes	2
<i>Rhipidura fuliginosa</i>	Rhipiduridae (Fantails)	Passeriformes	2
<i>Sitta canadensis</i>	Sittidae (Nuthatches)	Passeriformes	3

<i>Sitta carolinensis</i>	Sittidae (Nuthatches)	Passeriformes	3
<i>Sitta europaea</i>	Sittidae (Nuthatches)	Passeriformes	1
<i>Sturnus vulgaris</i>	Sturnidae (Starlings)	Passeriformes	2
<i>Chamaea fasciata</i>	Sylviidae (Old World Warblers)	Passeriformes	1
<i>Sylvia atricapilla</i>	Sylviidae (Old World Warblers)	Passeriformes	1
<i>Sylvia borin</i>	Sylviidae (Old World Warblers)	Passeriformes	1
<i>Sylvia communis</i>	Sylviidae (Old World Warblers)	Passeriformes	2
<i>Sylvia curruca</i>	Sylviidae (Old World Warblers)	Passeriformes	1
<i>Saltator atriceps</i>	Thraupidae (Tanagers and Allies)	Passeriformes	1
<i>Cistothorus palustris</i>	Troglodytidae (Wrens)	Passeriformes	1
<i>Cistothorus platensis</i>	Troglodytidae (Wrens)	Passeriformes	1
<i>Pheugopedius maculipectus</i>	Troglodytidae (Wrens)	Passeriformes	1
<i>Thryomanes bewickii</i>	Troglodytidae (Wrens)	Passeriformes	2
<i>Thryothorus ludovicianus</i>	Troglodytidae (Wrens)	Passeriformes	2
<i>Troglodytes aedon</i>	Troglodytidae (Wrens)	Passeriformes	2
<i>Troglodytes troglodytes</i>	Troglodytidae (Wrens)	Passeriformes	2
<i>Catharus fuscescens</i>	Turdidae (Thrushes and Allies)	Passeriformes	2
<i>Catharus guttatus</i>	Turdidae (Thrushes and Allies)	Passeriformes	3
<i>Catharus ustulatus</i>	Turdidae (Thrushes and Allies)	Passeriformes	4
<i>Hylocichla mustelina</i>	Turdidae (Thrushes and Allies)	Passeriformes	5
<i>Ixoreus naevius</i>	Turdidae (Thrushes and Allies)	Passeriformes	1

Myadestes townsendi	Turdidae (Thrushes and Allies)	Passeriformes	1
Sialia sialis	Turdidae (Thrushes and Allies)	Passeriformes	1
Turdus merula	Turdidae (Thrushes and Allies)	Passeriformes	1
Turdus migratorius	Turdidae (Thrushes and Allies)	Passeriformes	2
Turdus philomelos	Turdidae (Thrushes and Allies)	Passeriformes	1
Turdus viscivorus	Turdidae (Thrushes and Allies)	Passeriformes	1
Contopus cooperi	Tyrannidae (Tyrant Flycatchers)	Passeriformes	1
Contopus sordidulus	Tyrannidae (Tyrant Flycatchers)	Passeriformes	2
Contopus virens	Tyrannidae (Tyrant Flycatchers)	Passeriformes	4
Empidonax alorum	Tyrannidae (Tyrant Flycatchers)	Passeriformes	1
Empidonax difficilis	Tyrannidae (Tyrant Flycatchers)	Passeriformes	1
Empidonax flaviventris	Tyrannidae (Tyrant Flycatchers)	Passeriformes	2
Empidonax minimus	Tyrannidae (Tyrant Flycatchers)	Passeriformes	1
Empidonax oberholseri	Tyrannidae (Tyrant Flycatchers)	Passeriformes	1
Empidonax traillii	Tyrannidae (Tyrant Flycatchers)	Passeriformes	1
Empidonax virescens	Tyrannidae (Tyrant Flycatchers)	Passeriformes	5
Myiarchus cinerascens	Tyrannidae (Tyrant Flycatchers)	Passeriformes	2
Myiarchus crinitus	Tyrannidae (Tyrant Flycatchers)	Passeriformes	3
Sayornis phoebe	Tyrannidae (Tyrant Flycatchers)	Passeriformes	2
Tyrannus tyrannus	Tyrannidae (Tyrant Flycatchers)	Passeriformes	1
Hylophilus decurtatus	Vireonidae (Vireos)	Passeriformes	1
Vireo flavifrons	Vireonidae (Vireos)	Passeriformes	1
Vireo gilvus	Vireonidae (Vireos)	Passeriformes	2

Vireo griseus	Vireonidae (Vireos)	Passeriformes	1
Vireo olivaceus	Vireonidae (Vireos)	Passeriformes	7
Vireo solitarius	Vireonidae (Vireos)	Passeriformes	2
Zosterops lateralis	Zosteropidae (Yuhinas, White-eyes, and Allies)	Passeriformes	1
Colaptes auratus	Picidae (Woodpeckers)	Piciformes	6
Dendrocopos kizuki	Picidae (Woodpeckers)	Piciformes	1
Dendrocopos major	Picidae (Woodpeckers)	Piciformes	1
Dryocopus pileatus	Picidae (Woodpeckers)	Piciformes	4
Jynx torquilla	Picidae (Woodpeckers)	Piciformes	1
Melanerpes carolinus	Picidae (Woodpeckers)	Piciformes	4
Melanerpes erythrocephalus	Picidae (Woodpeckers)	Piciformes	1
Picoides nuttallii	Picidae (Woodpeckers)	Piciformes	1
Picoides pubescens	Picidae (Woodpeckers)	Piciformes	5
Picoides villosus	Picidae (Woodpeckers)	Piciformes	4
Sphyrapicus varius	Picidae (Woodpeckers)	Piciformes	1
Ramphastos sulfuratus	Ramphastidae (Toucans)	Piciformes	1
Calyptorhynchus funereus	Cacatuidae (Cockatoos)	Psittaciformes	1
Glossopsitta concinna	Psittacidae (Parrots)	Psittaciformes	1
Platycercus elegans	Psittacidae (Parrots)	Psittaciformes	1
Platycercus eximius	Psittacidae (Parrots)	Psittaciformes	1

Tyto alba	Tytonidae (Barn-Owls)	Strigiformes	1
Trogon melanocephalus	Trogonidae (Trogons)	Trogoniformes	1

Appendix 2: Results from mixed model analysis including just one instance of each species. We randomly generated 5 datasets by selecting only one instance of each species that appeared in more than one study, and then re-ran the mixed model analysis detailed in the manuscript. Results are shown from the best-fitting model that included (log) body mass as a fixed effect and study as a random intercept. Parameter estimates listed below are for the fixed effect (log body mass). Models were run using scale coded as areal extent. Note the high degree of concordance between these parameter estimates and the parameter estimate for the model that included all instances of each species presented in the manuscript (0.30 ± 0.09). All parameter estimates in the replicate models presented below were significant at the 0.05 level.

Replicate 1: 0.30 ± 0.13

Replicate 2: 0.31 ± 0.12

Replicate 3: 0.26 ± 0.13

Replicate 4: 0.32 ± 0.13

Replicate 5: 0.38 ± 0.14