

Appendix A. Articles meeting our review criteria (table A1); avian species studied in those articles (Table A2)

Article title: Patterns and mechanisms of invasive plant impacts on North American birds

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Table A1. Articles published through 2014 that quantify effects of invasive plants on a variety of metrics of avian ecology in North America, listed by the ecological metrics that each article reported. Studies are listed here multiple times if they report quantitative effects on multiple ecological metrics.

Ecological metric	Reference	Study season ^A	Location	Habitat type	Invasive species	Invasion magnitude	# ^B
Single-species prevalence	Arnold and Higgins 1986	B	North Dakota (USA)	Grassland	Silverberry (<i>Elaeagnus commutata</i>); Wolfberry (<i>Symphoricarpos occidentalis</i>)	30-80% cover	21
	Bakker and Higgins 2009	B	Minnesota (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Smooth brome (<i>Bromus inermis</i>); Yellow sweet clover (<i>Melilotus officinalis</i>)	~100% cover	20
	Beachy and Robinson 2008	B	New York (USA)	Savanna	Big-tooth aspen (<i>P. grandidentata</i>); Black locust (<i>Robinia pseudoacacia</i>); Trembling aspen (<i>Populus tremuloides</i>)	95% of stems	18

Single-species prevalence (continued)	Benoit and Askins 1999	B	Connecticut (USA)	Wetland	Common reed (<i>Phragmites australis</i>)	>50% cover	7
	Blank et al. 2011	B	Maryland (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red fescue (<i>Festuca rubra</i>); Sheep fescue (<i>Festuca ovina</i>)	~100% cover	1
	Block and Morrison 2010	B, W	Arizona, New Mexico (USA)	Grassland	Mesquite spp. (<i>Prosopis</i> spp.); Snakeweed (<i>Gutierrezia sarothrae</i>)	0-16% cover	28
	Bock and Bock 1992	B	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmannia</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	50 ± 20% cover	3
	Bock et al. 1986	B, W	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmannia</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	50 ± 20% cover	9
	Bradford et al. 1998	B	Idaho (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	No quantitative information	2
	Chapman et al. 2004	B	Oklahoma (USA)	Grassland	Old World bluestem (<i>Bothriochloa ischaemum</i>)	~100% cover	30
	Coppedge et al. 2001	B	Oklahoma (USA)	Grassland	Eastern redcedar (<i>Juniperus virginiana</i>); Lovegrasses (<i>Eragrostis</i> spp.); Old world bluestem (<i>Bothriochloa ischaemum</i>)	Redcedar: 0-39% landscape cover; Grasses: 0-70% landscape cover	73
	Davis and Duncan 1999	B	Saskatchewan (Canada)	Grassland	Alfalfa (<i>Medicago sativa</i>); Bluegrass (<i>Poa</i> spp.); Crested wheatgrass (<i>Agropyron cristatum</i>); Smooth brome (<i>Bromus inermis</i>)	Invasives described as dominant	9

Single-species prevalence (continued)	Davis et al. 2013	B	Alberta, Saskatchewan (Canada)	Grassland	Alfalfa (<i>Medicago sativa</i>); Crested wheatgrass (<i>Agropyron cristatum</i>); Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Sweet clover (<i>Melilotus officinalis</i>)	>75% cover	12
	Delisle and Savidge 1997	B, W	Nebraska (USA)	Grassland	Exotic cool-season grasses and legumes	Winter: $4.6 \pm 0.6\%$ cover; Breeding: $60.5 \pm 0.9\%$ cover	13
	Earnst and Holmes 2012	B	Washington (USA)	Shrubland	Cheatgrass (<i>Bromus tectorum</i>)	$29.6 \pm 1.8\%$ cover	8
	Eggebo et al. 2003	B	South Dakota (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Smooth brome (<i>Bromus inermis</i>); Tall wheatgrass (<i>Thinopyrum ponticum</i>)	No quantitative information	1
	Esler 1990	All	Texas (USA)	Wetland	Esthwaite waterweed (<i>Hydrilla verticillata</i>)	No quantitative information	7
	Esler 1992	All	Texas (USA)	Wetland	Esthwaite waterweed (<i>Hydrilla verticillata</i>)	No quantitative information	10
	Flanders et al. 2006	B	Texas (USA)	Grassland	Buffelgrass (<i>Cenchrus ciliaris</i>); Lehmann lovegrass (<i>Eragrostis lehmanniana</i>)	>50% of plots dominated by invasive grasses	5
	George et al. 2013	B	Oklahoma (USA)	Grassland	Old world bluestem (<i>Bothriochloa ischaemum</i>)	~100% cover	3
	Gifford and Armacost 2012	SM, B, FM, W	Texas (USA)	Woodland	Chinese tallow tree (<i>Triadica sebifera</i>)	70-100% of trees	28

Single-species prevalence (continued)	Giuliano and Daves 2002	B	Pennsylvania (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red clover (<i>Trifolium pratense</i>)	Invasives described as dominant	19
	Gleditsch and Carlo 2011	FM	Pennsylvania (USA)	Woodland; urban	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	~63% of fruits	6
	Grant et al. 2004	B	North Dakota (USA)	Grassland	Trembling aspen (<i>Populus tremuloides</i>); Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>)	Aspen: 0-9.9% of cover; Bluegrass: 13.8-31.5% of cover; Brome: 6.3-28.8% cover	30
	Hickman et al. 2006	B	Kansas (USA)	Grassland	Old World bluestem (<i>Bothriochloa ischaemum</i>)	~66.7% of vegetation	2
	Holimon et al. 2012	W	Arizona (USA)	Grassland	Bermuda grass (<i>Cynodon dactylon</i>)	Random points: 52% cover	1
	Holmes and Miller 2010	B	Oregon (USA)	Grassland	Cheatgrass (<i>Bromus tectorum</i>)	21.9% cover	1
	Holyoak et al. 2014	B	California (USA)	Shrubland; wetland	Himalayan blackberry (<i>Rubus armeniacus</i>)	No quantitative information	1
	Hunter et al. 1988	B	New Mexico, Texas (USA)	Riparian woodland	Chinese saltcedar (<i>Tamarix chinensis</i>)	No quantitative information	46
	Jacobs et al. 2012	B	Missouri (USA)	Grassland	Alfalfa (<i>Medicago sativa</i>); Meadow fescue (<i>Schedonorus pratensis</i>); Orchardgrass (<i>Dactylis glomerata</i>); Tall fescue (<i>Schedonorus phoenix</i>); Timothy grass (<i>Phleum pratense</i>)	No quantitative information	8

**Single-species
prevalence
(continued)**

Johnson and Sandercock 2010	B	Kansas (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>)	9-40% of biomass	3
Jones and Bock 2005	B	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmanniana</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	30-70% cover	1
Keller and Avery 2014	SM, FM	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	~100% of vegetation	84
Klaus and Keyes 2007	B	Georgia (USA)	Savanna	Sweetgum (<i>Liquidambar styraciflua</i>); Water oak (<i>Quercus nigra</i>)	>25% basal cover	35
Leston and Rodewald 2006	B, W	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Multiflora rose (<i>Rosa multiflora</i>)	49.6% of stems	2
Lloyd and Martin 2005	B	Montana (USA)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	99% cover	1
Madden et al. 2000	B	North Dakota (USA)	Grassland	Kentucky bluegrass (<i>Poa pratensis</i>); Quackgrass (<i>Elymus repens</i>); Smooth brome (<i>Bromus inermis</i>)	0-100% cover	8
McAdoo et al. 1989	B	Nevada (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	100% of vegetation	8
McCusker et al. 2010	B, W	Illinois (USA)	Woodland	Honeysuckle (<i>Lonicera</i> spp.)	24-72% cover	14
Medina 1988	All	Arizona (USA)	Shrubland	Lehmann lovegrass (<i>Eragrostis lehmannia</i>)	100% of vegetation	1

**Single-species
prevalence
(continued)**

Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	1
Osborne and Sparling 2013	B	Illinois (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>)	37-55% cover	10
Osborne et al. 2012	B	Illinois (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>)	37-55% cover	1
Rosenstock and Van Riper 2001	B	Arizona (USA)	Grassland	One-seed juniper (<i>Juniperus monosperma</i>)	No quantitative information	12
Scheiman et al. 2003	B	North Dakota (USA)	Grassland	Leafy spurge (<i>Euphorbia esula</i>)	>60% of cover	4
Schlossberg et al. 2010	B	Connecticut, Massachusetts, New Hampshire (USA)	Shrubland	Autumn olive (<i>Elaeagnus umbellata</i>); Japanese barberry (<i>Berberis thunbergii</i>); Japanese honeysuckle (<i>Lonicera japonica</i>); Multiflora rose (<i>Rosa multiflora</i>); Oriental bittersweet (<i>Celastrus orbiculatus</i>); Glossy buckthorn (<i>Rhamnus frangula</i>); Common buckthorn (<i>Rhamnus cathartica</i>)	0-20% cover	10
Schmidt et al. 2013	All	Ohio (USA)	Grassland	Clovers (<i>Trifolium</i> spp.); Kentucky bluegrass (<i>Poa pratensis</i>); Tall fescue (<i>Schedonorus phoenix</i>)	No quantitative information	13
Schneider and Miller 2014	B	Illinois (USA)	Woodland	Common buckthorn (<i>Rhamnus cathartica</i>); Japanese honeysuckle (<i>Lonicera japonica</i>)	Buckthorn: 5.6% cover; Honeysuckle: 14.9% of vegetation	40

Single-species prevalence (continued)	Scott et al. 2002	B	Indiana (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>); Smooth brome (<i>Bromus inermis</i>); Orchard grass (<i>Dactylis glomerata</i>)	20-100% cover	6
	Shanahan et al. 2011	B	Nevada (USA)	Riparian woodland	Common reed (<i>Phragmites australis</i>); Saltcedar (<i>Tamarix ramosissima</i>)	>90% cover	7
	Sutter and Brigham 1998	B	Saskatchewan (Canada)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	55% cover	7
	Sutter et al. 1995	B	Saskatchewan (Canada)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	Invasives described as dominant	1
	Tavernia and Reed 2012	B	Massachusetts (USA)	Wetland	Purple loosestrife (<i>Lythrum salicaria</i>)	62% plots occupied	7
	Taylor 2003	B	New Mexico (USA)	Riparian woodland	Chinese saltcedar (<i>Tamarix chinensis</i>); Russian olive (<i>Elaeagnus angustifolia</i>)	Saltcedar: 3-53%; Russian olive: 8-76%	1
	Thompson et al. 2009	B, W	Texas (USA)	Grassland	Old world bluestem (<i>Bothriochloa ischaemum</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	>90% cover	6
	van Riper et al. 2008	B	Arizona, New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix</i> spp.)	0-100% cover	47
	Walk and Warner 2000	B	Illinois (USA)	Grassland	Kentucky bluegrass (<i>Poa pratensis</i>); Meadow fescue (<i>Schedonorus pratensis</i>); Orchardgrass (<i>Dactylis glomerata</i>); Redtop (<i>Agrostis gigantea</i>); Smooth brome (<i>Bromus inermis</i>); Timothy grass (<i>Phleum pratense</i>)	No quantitative information	5

Single-species prevalence (continued)	Whitt et al. 1999	B	Michigan (USA)	Wetland	Purple loosestrife (<i>Lythrum salicaria</i>)	>30% cover	6
	Wicker and Endres 1995	W	North Carolina (USA)	Wetland	Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	No quantitative information	16
	Wilson and Belcher 1989	B	Manitoba (Canada)	Grassland	Kentucky Bluegrass (<i>Poa pratensis</i>); Leafy spurge (<i>Euphorbia esula</i>); Smooth brome (<i>Bromus inermis</i>)	Bluegrass: 33.4% cover; Brome: 20% cover; Spurge: 43.6%	32
Total avian abundance or density	Arnold and Higgins 1986	B	North Dakota (USA)	Grassland	Silverberry (<i>Elaeagnus commutata</i>); Wolfberry (<i>Symphoricarpos occidentalis</i>)	30-80% cover	1
	Benedict and Hepp 2000	W	Alabama (USA)	Wetland	Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	~100% cover	1
	Benoit and Askins 1999	B	Connecticut (USA)	Wetland	Common reed (<i>Phragmites australis</i>)	>50% cover	1
	Blank et al. 2011	B	Maryland (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red fescue (<i>Festuca rubra</i>); Sheep fescue (<i>Festuca ovina</i>)	~100% combined cover (no estimates for individual grasses)	4
	Bock and Bock 1992	B, FM	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmannia</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	50±20% cover	2
	Bock et al. 1986	B, W	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmannia</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	50±20% cover	2
	Bradford et al. 1998	B	Idaho (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	No quantitative information	1

**Total avian
abundance or
density
(continued)**

Chapman et al. 2004	B	Oklahoma (USA)	Grassland	Old World bluestem (<i>Bothriochloa ischaemum</i>)	~100% cover	1
Delisle and Savidge 1997	B, W	Nebraska (USA)	Grassland	Exotic cool-season grasses and legumes	Winter: $4.6 \pm 0.6\%$ cover; Breeding: $60.5 \pm 0.9\%$ cover	2
Finch and Yong 2000	SM, FM	New Mexico (USA)	Riparian woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	No quantitative information	1
Fischer et al. 2012	B, W	Washington (USA)	Riparian woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	0-100% cover	2
Flanders et al. 2006	B	Texas (USA)	Grassland	Buffelgrass (<i>Cenchrus ciliaris</i>); Lehmann lovegrass (<i>Eragrostis lehmanniana</i>)	>50% of plots dominated by invasive grasses	1
Fleishman et al. 2003	B	Nevada (USA)	Riparian woodland	Goosefoot (<i>Chenopodium spp.</i>); Grape (<i>Vitis spp.</i>); Saltcedar (<i>Tamarix ramosissima</i>); Russian knapweed (<i>Acroptilon repens</i>)	No quantitative information	
Gifford and Armacost 2012	SM, B, FM, W	Texas (USA)	Woodland	Chinese tallow tree (<i>Triadica sebifera</i>)	70-100% of trees	4
Giuliano and Daves 2002	B	Pennsylvania (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red clover (<i>Trifolium pratense</i>)	Invasives described as dominant	1
Gleditsch and Carlo 2011	FM	Pennsylvania (USA)	Woodland; urban	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	~63% of fruit	1
Hickman et al. 2006	B	Kansas (USA)	Grassland	Old World bluestem (<i>Bothriochloa ischaemum</i>)	~66.7% of vegetation	1
Klaus and Keyes 2007	B	Georgia (USA)	Savanna	Sweetgum (<i>Liquidambar styraciflua</i>); Water oak (<i>Quercus nigra</i>)	>25% basal cover	1

Total avian abundance or density (continued)	MacGregor-Fors et al. 2013	B	Sonora (Mexico)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	>90% cover	1
	McAdoo et al. 1989	B	Nevada (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	100% of vegetation	1
	Osborne and Sparling 2013	B	Illinois (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>)	37-55% cover	1
	Schmidt et al. 2013	All	Ohio (USA)	Grassland	Clovers (<i>Trifolium</i> spp.); Kentucky bluegrass (<i>Poa pratensis</i>); Tall fescue (<i>Schedonorus phoenix</i>)	No quantitative information	1
	Shanahan et al. 2011	B	Nevada (USA)	Riparian woodland	Common reed (<i>Phragmites australis</i>); Saltcedar (<i>Tamarix ramosissima</i>)	>90% cover	1
	Thompson et al. 2009	B, W	Texas (USA)	Grassland	Old world bluestem (<i>Bothriochloa ischaemum</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	>90% cover	2
	van Riper et al. 2008	B, FM	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix</i> spp.)	0-100% cover	3
	Villamagna et al. 2012	B, FM, W	Jalisco, Michoacán (Mexico)	Wetland	Water hyacinth (<i>Eichhornia crassipes</i>)	0-100% cover	1
	Walker 2008	FM	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>); Russian olive (<i>Elaeagnus angustifolia</i>)	No quantitative information	1
	Whitt et al. 1999	B	Michigan (USA)	Wetland	Purple loosestrife (<i>Lythrum salicaria</i>)	>30% cover	1

Total avian abundance or density (continued)	Wilcox and Beck 2007	B, FM, W	Georgia (USA)	Woodland	Chinese privet (<i>Ligustrum sinense</i>)	86-95.2% cover	3
	Wilson and Belcher 1989	B	Manitoba (Canada)	Grassland	Kentucky Bluegrass (<i>Poa pratensis</i>); Leafy spurge (<i>Euphorbia esula</i>); Smooth brome (<i>Bromus inermis</i>)	No quantitative information on combined cover	1
Nest abundance	Blank et al. 2011	B	Maryland (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red fescue (<i>Festuca rubra</i>); Sheep fescue (<i>Festuca ovina</i>)	~100% cover	3
	Cook and Toft 2005	B	California (USA)	Wetland; shrubland	Himalayan blackberry (<i>Rubus armeniacus</i>)	No quantitative information	1
	Gleditsch and Carlo 2014	B	Pennsylvania (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	>60% cover	1
	Kennedy et al. 2009	B	Oregon (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Timothy grass (<i>Phleum pratense</i>)	1-53% cover	1
	Maddox and Wiedenmann 2005	B	Illinois (USA)	Wetland	Purple loosestrife (<i>Lythrum salicaria</i>)	~100% of vegetation	4
	Miller et al. 2013	B	Texas (USA)	Grassland	Bermuda grass (<i>Cynodon dactylon</i>); Buffelgrass (<i>Cenchrus ciliaris</i>)	No quantitative information	1
	Reynolds and Trost 1980	B	Idaho (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	89-98% cover	11

Nest abundance (continued)	Scheiman et al. 2003	B	North Dakota (USA)	Grassland	Leafy spurge (<i>Euphorbia esula</i>)	>60% cover	1
Species richness	Arnold and Higgins 1986	B	North Dakota (USA)	Grassland	Silverberry (<i>Elaeagnus commutata</i>); Wolfberry (<i>Symphoricarpos occidentalis</i>)	30-80% cover	1
	Bakker and Higgins 2009	B	Minnesota (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Smooth brome (<i>Bromus inermis</i>); Yellow sweet clover (<i>Melilotus officinalis</i>)	~100% cover	2
	Benedict and Hepp 2000	W	Alabama (USA)	Wetland	Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	~100% cover	1
	Benoit and Askins 1999	B	Connecticut (USA)	Wetland	Common reed (<i>Phragmites australis</i>)	>50% cover	1
	Blank et al. 2011	B, W	Maryland (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red fescue (<i>Festuca rubra</i>); Sheep fescue (<i>Festuca ovina</i>)	~100% combined cover (no estimates for individual grasses)	4
	Bradford et al. 1998	B	Idaho (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	No quantitative information	1
	Brand et al. 2008	B	Arizona (USA)	Riparian woodland	Chinese saltcedar (<i>Tamarix chinensis</i>); Saltcedar (<i>Tamarix ramosissima</i>)	>75% cover	1
	Chapman et al. 2004	B	Oklahoma (USA)	Grassland	Old World bluestem (<i>Bothriochloa ischaemum</i>)	~100% cover	1

Species richness (continued)	Ellis 1995	SM, B, FM	New Mexico (USA)	Riparian woodland	Chinese saltcedar (<i>Tamarix chinensis</i>)	98-98% of trees	3
	Esler 1990	All	Texas (USA)	Wetland	Esthwaite waterweed (<i>Hydrilla verticillata</i>)	No quantitative information	1
	Finch and Yong 2000	SM, FM	New Mexico (USA)	Riparian woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	No quantitative information	1
	Fischer et al. 2012	W	Washington (USA)	Riparian woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	0-100% cover	1
	Flanders et al. 2006	B	Texas (USA)	Grassland	Buffelgrass (<i>Cenchrus ciliaris</i>); Lehmann lovegrass (<i>Eragrostis lehmanniana</i>)	>50% of plots dominated by invasive grasses	1
	Fleishman et al. 2003	B	Nevada (USA)	Riparian woodland	Goosefoot (<i>Chenopodium</i> spp.); Grape (<i>Vitis</i> spp.); Saltcedar (<i>Tamarix ramosissima</i>); Russian knapweed (<i>Acroptilon repens</i>)	No quantitative information	1
	George et al. 2013	B	Oklahoma (USA)	Grassland	Old world bluestem (<i>Bothriochloa ischaemum</i>)	~100% cover	1
	Gifford and Armacost 2012	SM, B, FM, W	Texas (USA)	Woodland	Chinese tallow tree (<i>Triadica sebifera</i>)	70-100% of trees	4
	Giuliano and Daves 2002	B	Pennsylvania (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red clover (<i>Trifolium pratense</i>)	Invasives described as dominant	1
	Hickman et al. 2006	B	Kansas (USA)	Grassland	Old World bluestem (<i>Bothriochloa ischaemum</i>)	~66.7% of vegetation	1
	Keller and Avery 2014	SM, FM	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	~100% of vegetation	2

Species richness (continued)	Klaus and Keyes 2007	B	Georgia (USA)	Savanna	Sweetgum (<i>Liquidambar styraciflua</i>); Water oak (<i>Quercus nigra</i>)	>25% basal cover	1
	MacGregor-Fors et al. 2013	B	Sonora (Mexico)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	>90% cover	1
	Masse and Vulinec 2010	B	Delaware (USA)	Woodland	Multiflora rose (<i>Rosa multiflora</i>)	0-50% cover	1
	McAdoo et al. 1989	B	Nevada (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	100% of vegetation	1
	McCusker et al. 2010	B	Illinois (USA)	Woodland	Honeysuckle (<i>Lonicera</i> spp.)	24-72% cover	1
	Osborne and Sparling 2013	B	Illinois (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>)	37-55% cover	1
	Rosenstock and van Riper 2001	B	Arizona (USA)	Grassland	One-seed juniper (<i>Juniperus monosperma</i>)	No quantitative information	1
	Shanahan et al. 2011	B	Nevada (USA)	Riparian woodland	Common reed (<i>Phragmites australis</i>); Saltcedar (<i>Tamarix ramosissima</i>)	>90% cover	1
	Sutter and Brigham 1998	B	Saskatchewan (Canada)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	55% of cover	1
	Thompson et al. 2009	B, W	Texas (USA)	Grassland	Old world bluestem (<i>Bothriochloa ischaemum</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	>90% cover	2
	Villamagna et al. 2012	B, FM, W	Jalisco, Michoacán (Mexico)	Wetland	Water hyacinth (<i>Eichhornia crassipes</i>)	0-100% cover	1
	Walker 2008	FM	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>); Russian olive (<i>Elaeagnus angustifolia</i>)	No quantitative information	1

Species richness (continued)	Whitt et al. 1999	B	Michigan (USA)	Wetland	Purple loosestrife (<i>Lythrum salicaria</i>)	>30% cover	1
	Wilcox and Beck 2007	B, FM, W	Georgia (USA)	Woodland	Chinese privet (<i>Ligustrum sinense</i>)	86-95.2% cover	3
Species evenness	Bradford et al. 1998	B	Idaho (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	No quantitative information	1
	Fleishman et al. 2003	B	Nevada (USA)	Riparian woodland	Goosefoot (<i>Chenopodium spp.</i>); Grape (<i>Vitis spp.</i>); Saltcedar (<i>Tamarix ramosissima</i>); Russian knapweed (<i>Acroptilon repens</i>)	No quantitative information	1
	Knopf and Olsen 1984	B	Colorado, Idaho, Utah (USA)	Woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	40-80% cover	1
	Sutter and Brigham 1998	B	Saskatchewan (Canada)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	55% of cover	1
	Walker 2008	FM	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>); Russian olive (<i>Elaeagnus angustifolia</i>)	No quantitative information	1
Species diversity	Bradford et al. 1998	B	Idaho (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	No quantitative information	1
	Knopf and Olsen 1984	B	Colorado, Idaho, Utah (USA)	Woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	40-80% cover	1
	McAdoo et al. 1989	B	Nevada (USA)	Shrubland	Crested wheatgrass (<i>Agropyron cristatum</i>)	100% of vegetation	1
	Osborne and Sparling 2013	B	Illinois (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>)	37-55% cover	1

Species diversity (continued)	Sutter and Brigham 1998	B	Saskatchewan (Canada)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	55% of cover	1
	Villamagna et al. 2012	B, FM, W	Jalisco, Michoacán (Mexico)	Wetland	Water hyacinth (<i>Eichhornia crassipes</i>)	0-100% cover	1
	Walker 2008	FM	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>); Russian olive (<i>Elaeagnus angustifolia</i>)	No quantitative information	1
	Whitt et al. 1999	B	Michigan (USA)	Wetland	Purple loosestrife (<i>Lythrum salicaria</i>)	>30% cover	1
Home range or territory size	Ausprey and Rodewald 2013	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>)	17-23% cover	4
	Jones and Bock 2005	B	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmanniana</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	30-70% cover	1
	Morrison and Humphrey 2001	B	Florida (USA)	Grassland	Bahiagrass (<i>Paspalum notatum</i>); Common carpetgrass (<i>Axonopus fissifolius</i>); Digitgrass (<i>Digitaria eriantha</i>); Limpograss (<i>Hemathria altissima</i>)	No quantitative information	1
Site fidelity	Jones and Bock 2005	B	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmanniana</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	30-70% cover	1
	Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	2

Distribution of dominant individuals	Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	1
	Rodewald et al. 2011	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>)	No quantitative information	1
Settlement timing	Lloyd and Martin 2005	B	Montana (USA)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	99% cover	1
	Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	1
	Rodewald et al. 2011	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>)	No quantitative information	1
	Ruehmann et al. 2011	B	Wyoming (USA)	Shrubland	Smooth brome (<i>Bromus inermis</i>)	No quantitative information	1
Nest-site selection	Brown 1992	B	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	Invasives described as dominant	1
	Brown and Trosset 1989	B	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	Invasives described as dominant	11
	Gleditsch and Carlo 2014	B	Pennsylvania (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	>60% cover	1
	Gazda et al. 2002	B	Idaho (USA)	Grassland	Russian olive (<i>Elaeagnus angustifolia</i>)	>50% cover	1

Nest-site selection (continued)	Heckscher 2004	B	Delware (USA)	Woodland	Burning bush (<i>Euonymus alatus</i>); Chinese privet (<i>Ligustrum sinense</i>); Honeysuckle (<i>Lonicera</i> spp.); Japanese honeysuckle (<i>Lonicera japonica</i>); Multiflora rose (<i>Rosa multiflora</i>)	Random points: 37.3% of vegetation	2
	Leston and Rodewald 2006	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Multiflora rose (<i>Rosa multiflora</i>)	54.3% of stems	1
	Miller and Jordan 2011	B	Pennsylvania (USA)	Grassland	Autumn olive (<i>Elaeagnus umbellata</i>); Multiflora rose (<i>Rosa multiflora</i>); Tartarian honeysuckle (<i>Lonicera tartarica</i>)	3.3-10.9% of total stems	1
	Scheiman et al. 2003	B	North Dakota (USA)	Grassland	Leafy spurge (<i>Euphorbia esula</i>)	2.4-7.7% average cover at random points near nests, with the average varying among bird species' nests	4
	Schlossberg and King 2010	B	Massachusetts (USA)	Shrubland	Autumn olive (<i>Elaeagnus umbellata</i>); Japanese barberry (<i>Berberis thunbergii</i>); Japanese honeysuckle (<i>Lonicera japonica</i>); Multiflora rose (<i>Rosa multiflora</i>); Oriental bittersweet (<i>Celastrus orbiculatus</i>)	1.4-50.4% cover	3
	Schmidt and Whelan 1999	B	Illinois (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Common buckthorn (<i>Rhamnus cathartica</i>)	No quantitative information	2
	Schmidt et al. 2005	B	New York (USA)	Woodland	Japanese barberry (<i>Berberis thunbergii</i>)	No quantitative information	1

Nest-site selection (continued)	Stoleson and Finch 2001	B	New Mexico (USA)	Riparian woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	3.7% of stems	10
	Taylor 2003	B	New Mexico (USA)	Riparian woodland	Chinese saltcedar (<i>Tamarix chinensis</i>); Russian olive (<i>Elaeagnus angustifolia</i>)	No quantitative information	1
	Whelan and Dilger 1992	B	Illinois (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Common buckthorn (<i>Rhamnus cathartica</i>); Multiflora rose (<i>Rosa multiflora</i>)	No quantitative information	1
Nest-site selection using landscape-scale features	Coates et al. 2014	B	Idaho (USA)	Shrubland	Cheatgrass (<i>Bromus tectorum</i>); Crested wheatgrass (<i>Agropyron cristatum</i>)	No quantitative information	4
	Howe et al. 2014	B	Idaho (USA)	Shrubland	Cheatgrass (<i>Bromus tectorum</i>); Crested wheatgrass (<i>Agropyron cristatum</i>); Desert madwort (<i>Alyssum desertorum</i>)	No quantitative information	1
Fledgling habitat selection	Ausprey and Rodewald 2011	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>)	17-23% cover	2
Nest attempts	Leston and Rodewald 2006	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Multiflora rose (<i>Rosa multiflora</i>)	54.3% of stems	1
	Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	2

Clutch size	Brand and Noon 2011	B	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix</i> spp.)	>75% cover	3
	Kennedy et al. 2009	B	Oregon (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Timothy grass (<i>Phleum pratense</i>)	1-53% cover	1
	Miller et al. 2013	B	Texas (USA)	Grassland	Bermuda grass (<i>Cynodon dactylon</i>); Buffelgrass (<i>Cenchrus ciliaris</i>)	No quantitative information	1
	Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	1
	Ruehmann et al. 2011	B	Wyoming (USA)	Shrubland	Smooth brome (<i>Bromus inermis</i>)	No quantitative information	1
Nest survival rates	Blank et al. 2011	B	Maryland (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red fescue (<i>Festuca rubra</i>); Sheep fescue (<i>Festuca ovina</i>)	~100% cover	1
	Borgmann and Rodewald 2004	B	Ohio (USA)	Woodland	Japanese honeysuckle (<i>Lonicera japonica</i>); Multiflora rose (<i>Rosa multiflora</i>)	No quantitative information	2
	Brand et al. 2010	B	Arizona (USA)	Riparian woodland	Chinese saltcedar (<i>Tamarix chinensis</i>)	>75% cover	3
	Cook and Toft 2005	B	California (USA)	Wetland; shrubland	Himalayan blackberry (<i>Rubus armeniacus</i>)	No quantitative information	1
	Galligan et al. 2006	B	Indiana (USA)	Grassland	Tall fescue (<i>Schedonorus phoenix</i>)	No quantitative information	6

**Nest survival
rates
(continued)**

Gazda et al. 2002	B	Idaho (USA)	Grassland	Russian olive (<i>Elaeagnus angustifolia</i>)	>50% cover	4
Giuliano and Daves 2002	B	Pennsylvania (USA)	Grassland	Orchardgrass (<i>Dactylis glomerata</i>); Red clover (<i>Trifolium pratense</i>)	Invasives described as dominant	1
Gleditsch and Carlo 2014	B	Pennsylvania (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	>60% cover	2
Grant et al. 2006	B	North Dakota (USA)	Grassland	Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Trembling aspen (<i>Populus tremuloides</i>)	Bluegrass: 0-80% cover; Brome: 0-93% cover	6
Holyoak et al. 2014	B	California (USA)	Wetland; shrubland	Himalayan blackberry (<i>Rubus armeniacus</i>)	No quantitative information	1
Hovick et al. 2012	B	Iowa (USA)	Grassland	Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Tall fescue (<i>Schedonorus phoenix</i>)	No quantitative information	2
Jones and Bock 2005	B	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmanniana</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	30-70% cover	1
Kennedy et al. 2009	B	Oregon (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Timothy grass (<i>Phleum pratense</i>)	1-53% cover	1
Lloyd and Martin 2005	B	Montana (USA)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	99% cover	1

**Nest survival
rates
(continued)**

Miller et al. 2013	B	Texas (USA)	Grassland	Bermuda grass (<i>Cynodon dactylon</i>); Buffelgrass (<i>Cenchrus ciliaris</i>)	No quantitative information	1
Nordby et al. 2009	B	California (USA)	Wetland	Smooth cordgrass (<i>Spartina alterniflora</i>); Smooth x California cordgrass hybrid (<i>Spartina alterniflora</i> x <i>foliosa</i>)	No quantitative information	1
Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	1
Rodewald et al. 2010	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Multiflora rose (<i>Rosa multiflora</i>)	No quantitative information	2
Ruehmann et al. 2011	B	Wyoming (USA)	Shrubland	Smooth brome (<i>Bromus inermis</i>)	No quantitative information	1
Scheiman et al. 2003	B	North Dakota (USA)	Grassland	Leafy spurge (<i>Euphorbia esula</i>)	2.4-7.7% average cover at random points near nests	4
Schlossberg and King 2010	B	Massachusetts (USA)	Shrubland	Autumn olive (<i>Elaeagnus umbellata</i>); Japanese barberry (<i>Berberis thunbergii</i>); Japanese honeysuckle (<i>Lonicera japonica</i>); Multiflora rose (<i>Rosa multiflora</i>); Oriental bittersweet (<i>Celastrus orbiculatus</i>)	1.4-50.4% cover	4
Schmidt and Whelan 1999	B	Illinois (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Common buckthorn (<i>Rhamnus cathartica</i>)	No quantitative information	4
Schmidt et al. 2005	B	New York (USA)	Woodland	Japanese barberry (<i>Berberis thunbergii</i>)	No quantitative information	1
Smith et al. 2009	B	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix</i> spp.); Russian olive (<i>Elaeagnus angustifolia</i>)	Saltcedar: 76.7% of woody plants; Olive: 12.2% of woody plants	2

Nest survival rates (continued)	Stoleson and Finch 2001	B	New Mexico (USA)	Riparian woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	3.7% of stems	3
Brood parasitism	Hovick and Miller 2013	B	Iowa (USA)	Grassland	Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Tall fescue (<i>Schedonorus phoenix</i>); Eastern redcedar (<i>Juniperus virginiana</i>)	Fescue: 30% cover; Redcedar: 23.7% cover	2
	Rodewald 2009	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>)	No quantitative information	1
	Stoleson and Finch 2001	B	New Mexico (USA)	Riparian woodland	Russian olive (<i>Elaeagnus angustifolia</i>)	3.7% of stems	2
Seasonal fecundity	Brand and Noon 2011	B	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix</i> spp.)	>75% cover	3
	Jones and Bock 2005	B	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmanniana</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	30-70% cover	1
	Leston and Rodewald 2006	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Multiflora rose (<i>Rosa multiflora</i>)	54.3% of stems	1
	Ortega et al. 2006	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4% cover	1
	Rodewald et al. 2010	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>)	No quantitative information	1
Fledgling survival	Ausprey and Rodewald 2011	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>)	17-23% cover	2
	Fisher and Davis 2011	B	Saskatchewan (Canada)	Grassland	Alfalfa (<i>Medicago sativa</i>); Blugrass (<i>Poa</i> spp.); Smooth brome (<i>Bromus inermis</i>)	No quantitative information	1

Fledgling survival (continued)	Hovick et al. 2011	B	Iowa (USA)	Grassland	Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Tall fescue (<i>Schedonorus phoenix</i>)	30% cover	2
Adult mortality	Leston and Rodewald 2006	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Multiflora rose (<i>Rosa multiflora</i>)	54.3% of stems	2
Song diversity	Ortega et al. 2014a	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	16.4±3.4% cover	2
Provisioning rates	Gleditsch and Carlo 2014	B	Pennsylvania (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	>60% cover	2
Nestling condition	Gleditsch and Carlo 2014	B	Pennsylvania (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	>60% cover	2
	Jones and Bock 2005	B	Arizona (USA)	Grassland	Lehmann lovegrass (<i>Eragrostis lehmanniana</i>); Weeping lovegrass (<i>Eragrostis curvula</i>)	30-70% cover	1
	Kennedy et al. 2009	B	Oregon (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Timothy grass (<i>Phleum pratense</i>)	1-53% cover	2
	Lloyd and Martin 2005	B	Montana (USA)	Grassland	Crested wheatgrass (<i>Agropyron cristatum</i>)	99% cover	5
Adult body condition and plumage	Cerasale and Guglielmo 2010	SM	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix</i> spp.)	70-80% cover	6

Adult body condition and plumage (continued)	Hudon et al. 2013	FM	Quebec (Canada)	Woodland	Tartarian honeysuckle (<i>Lonicera tartarica</i>)	N/A	1
	Jones et al. 2010	B	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); multiflora rose (<i>Rosa multiflora</i>)	N/A	1
	Owen et al. 2005	B	Arizona, New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	>90% of vegetation	12
	Witmer 1996	B	New York (USA)	Aviary	Morrow's honeysuckle (<i>Lonicera morrowii</i>)	N/A	1
Energy intake and diet preferences	Baldwin and Lovvorn 1994	W	British Columbia (Canada)	Wetland	Japanese eelgrass (<i>Zostera japonica</i>)	N/A	10
	Cerasale and Guglielmo 2010	B	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix</i> spp.)	N/A	1
	Drummond 2005	W	Maine (USA)	Woodland	Multiflora rose (<i>Rosa multiflora</i>); Tartarian honeysuckle (<i>Lonicera tatarica</i>)	N/A	3
	Durst et al. 2008	B	Arizona (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	N/A	1
	Gleditsch and Carlo 2011	FM	Pennsylvania (USA)	Woodland; urban	Amur honeysuckle (<i>Lonicera maackii</i>); Morrow's honeysuckle (<i>Lonicera morrowii</i>)	N/A	1
	Greenberg et al. 2001	FM, W, SM	North Carolina (USA)	Woodland	Oriental bittersweet (<i>Celastrus orbiculatus</i>)	N/A	1

Energy intake and diet preferences (continued)	Greenberg and Walter 2010	W	North Carolina (USA)	Woodland	Chinese privet (<i>Ligustrum sinense</i>); English ivy (<i>Hedera helix</i>); Japanese honeysuckle (<i>Lonicera japonica</i>); Multiflora rose (<i>Rosa multiflora</i>); Oriental bittersweet (<i>Celastrus obriculatus</i>)	N/A	5
	Jung 1992	B	Wisconsin (USA)	Aviary	Bella honeysuckle (<i>Lonicera x bella</i>); White mulberry (<i>Morus alba</i>)	N/A	1
	Kennedy et al. 2009	B	Oregon (USA)	Grassland	Intermediate wheatgrass (<i>Thinopyrum intermedium</i>); Kentucky bluegrass (<i>Poa pratensis</i>); Smooth brome (<i>Bromus inermis</i>); Timothy grass (<i>Phleum pratense</i>)	N/A	2
	LaFleur et al. 2007	SM, W	Connecticut (USA)	Aviary	Autumn olive (<i>Elaeagnus umbellata</i>); Multiflora rose (<i>Rosa multiflora</i>); Oriental bittersweet (<i>Celastrus orbiculatus</i>)	N/A	4
	Ortega et al. 2014b	B	Montana (USA)	Savanna	Spotted knapweed (<i>Centaurea maculosa</i>)	N/A	2
	Smith et al. 2013	B	New York (USA)	Woodland	Common buckthorn (<i>Rhamnus cathartica</i>); European cranberrybush (<i>Viburnum opulus</i>); Honeysuckle (<i>Lonicera</i> spp.); Multiflora rose (<i>Rosa multiflora</i>)	N/A	4
	Stiles 1982	W	11 states (USA); 5 provinces (Canada)	Multiple (unspecified)	Multiflora rose (<i>Rosa multiflora</i>)	N/A	1
	Walker 2008	FM	New Mexico (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>); Russian olive (<i>Elaeagnus angustifolia</i>)	N/A	1

Energy intake and diet preferences (continued)	Weisenborn and Heydon 2007	B	Arizona, Nevada (USA)	Riparian woodland	Saltcedar (<i>Tamarix ramosissima</i>)	N/A	1
	Whelan and Willson 1994	FM	Illinois (USA)	Aviary; woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Autumn olive (<i>Elaeagnus umbellata</i>)	N/A	4
	Yard et al. 2004	B	Arizona (USA)	Riparian woodland	Chinese saltcedar (<i>Tamarix chinensis</i>)	N/A	6
Food quality	Drummond 2005	W	Maine (USA)	Woodland	Multiflora rose (<i>Rosa multiflora</i>); Tartarian honeysuckle (<i>Lonicera tatarica</i>)	N/A	1
	Greenberg and Walter 2010	W	North Carolina (USA)	Woodland	Chinese privet (<i>Ligustrum sinense</i>); English ivy (<i>Hedera helix</i>); Japanese honeysuckle (<i>Lonicera japonica</i>); Multiflora rose (<i>Rosa multiflora</i>); Oriental bittersweet (<i>Celastrus obriculatus</i>)	N/A	3
	Ingold and Craycraft 1983	FM	Ohio (USA)	Woodland	Amur honeysuckle (<i>Lonicera maackii</i>); Dwarf honeysuckle (<i>Lonicera xylosteum</i>)	N/A	2
	Smith et al. 2013	FM	New York (USA)	Woodland	Common buckthorn (<i>Rhamnus cathartica</i>); European cranberrybush (<i>Viburnum opulus</i>); Honeysuckle (<i>Lonicera</i> spp.); Multiflora rose (<i>Rosa multiflora</i>)	N/A	3

^A Season in which measurements were conducted: SM=spring migration; B=breeding; FM=fall migration; W=overwintering.

^B Number of statistical tests reported in the paper between plant invasions and the given metric. Multiple tests on a given metric would be reported in individual articles because (a) relationships were assessed between multiple invasive plant species and multiple bird species, (b) tests were conducted on measurements taken in different seasons, and (c) some tests examined multiple, more specific, metrics each included under the metric headings listed here.

Table A2. North American bird species on which the ecological impacts of invasive plants have been reported in articles published through 2014. A list of species is given for each ecological metric reported in the literature, and thus species are listed multiple times if multiple aspects of their ecology have been studied with respect to invasive plants. Species are not listed if no statistical tests were reported on their ecology or if they were part of a whole-community analysis (e.g. if examined in an analysis of species richness).

Ecological metric	Avian species	Articles examining
Single-species prevalence	Abert's towhee	Van Riper et al. 2008, Shanahan et al. 2011
	Acadian flycatcher	Klaus and Keyes 2007
	Alder flycatcher	Schlossberg et al. 2010
	American black duck	Wicker and Endres 1995
	American coot	Esler 1990, Wicker and Endres 1995
	American crow	Coppedge et al 2001, Klaus and Keyes 2007
	American goldfinch	Arnold and Higgins 1986, Coppedge et al 2001, Giuliano and Daves 2002, Klaus and Keyes 2007, McCusker et al. 2010, Gleditsch and Carlo 2011, Schmidt et al. 2013, Keller and Avery 2014
	American robin	Giuliano and Daves 2002, Chapman et al. 2004, Van Riper et al. 2008, McCusker et al. 2010, Gleditsch and Carlo 2011, Gifford and Armacost 2012, Keller and Avery 2014, Schneider and Miller 2014
	American tree sparrow	Delisle and Savidge 1997, Giuliano and Daves 2002
	American white pelican	Esler 1992
	American wigeon	Wicker and Endres 1995

**Single-species
prevalence
(continued)**

American woodcock	Osborne and Sparling 2013
Ash-throated flycatcher	Hunter et al. 1988, Rosenstock and Van Riper 2001, Van Riper et al. 2008, Block and Morrison 2010
Bachman's sparrow	Klaus and Keyes 2007
Baird's sparrow	Arnold and Higgins 1986, Wilson and Belcher 1989, Sutter et al. 1995, Davis and Duncan 1999, Madden et al. 2000, Grant et al 2004, Davis et al. 2013
Baltimore oriole	Hunter et al. 1988, Coppedge et al. 2001, Chapman et al. 2004,
Barn swallow	Giuliano and Daves 2002
Bell's vireo	Van Riper et al. 2008
Bewick's wren	Coppedge et al. 2001, Rosenstock and Van Riper 2001, Taylor 2003, Van Riper et al. 2008, Shanahan et al. 2011
Black phoebe	Van Riper et al. 2008
Black-and-white warbler	Schlossberg et al. 2010
Black-capped chickadee	Schneider and Miller 2014
Black-chinned hummingbird	Keller and Avery 2014
Black-headed grosbeak	Keller and Avery 2014
Black-tailed gnatcatcher	Van Riper et al. 2008
Black-throated gray warbler	Van Riper et al. 2008
Black-throated sparrow	McAdoo et al. 1989, Flanders et al. 2006, Block and Morrison 2010

**Single-species
prevalence
(continued)**

Blue grosbeak	Hunter et al. 1988, Klaus and Keyes 2007, Van Riper et al. 2008, Block and Morrison 2010, Keller and Avery 2014
Blue jay	Chapman et al. 2004, Klaus and Keyes 2007, McCusker et al. 2010, Keller and Avery 2014, Schneider and Miller 2014
Blue-gray gnatcatcher	Klaus and Keyes 2007, Van Riper et al. 2008, Schneider and Miller 2014
Bobolink	Arnold and Higgins 1986, Delisle and Savidge 1997, Madden et al. 2000, Giuliano and Daves 2002, Scheiman et al. 2003, Grant et al. 2004, Bakker and Higgins 2009, Jacobs et al. 2012, Davis et al. 2013, Schmidt et al. 2013
Botteri's sparrow	Bock et al. 1986, Bock and Bock 1992, Jones and Bock 2005
Brewer's sparrow	McAdoo et al. 1989, Bradford et al. 1998, Block and Morrison 2010
Brown thrasher	Arnold and Higgins 1986, Coppedge et al. 2001
Brown-headed cowbird	Arnold and Higgins 1986, Hunter et al. 1988, Madden et al. 2000, Chapman et al. 2004, Grant et al. 2004, Klaus and Keyes 2007, Bakker and Higgins 2009, Shanahan et al. 2011, Jacobs et al. 2012, Keller and Avery 2014, Schneider and Miller 2014
Brown-headed nuthatch	Klaus and Keyes 2007
Bufflehead	Wicker and Endres 1995
Bullock's oriole	Van Riper et al. 2008, Keller and Avery 2014
Cactus wren	Hunter et al. 1988, Van Riper et al. 2008, Block and Morrison 2010
California towhee	Block and Morrison 2010
Canada goose	Wicker and Endres 1995

**Single-species
prevalence
(continued)**

Canvasback	Wicker and Endres 1995
Canyon wren	Van Riper et al. 2008
Carolina chickadee	Coppedge et al. 2001, Klaus and Keyes 2007
Carolina wren	Klaus and Keyes 2007, McCusker et al. 2010, Gifford and Armacost 2012
Cassin's sparrow	Bock et al. 1986, Bock and Bock 1992, Coppedge et al. 2001, Flanders et al. 2006, Thompson et al. 2009, Block and Morrison 2010
Cattle egret	Esler 1992, Coppedge et al. 2001
Cedar waxwing	Gifford and Armacost 2012, Keller and Avery 2014, Schneider and Miller 2014
Chestnut-collared longspur	Arnold and Higgins 1986, Sutter and Brigham 1998, Davis and Duncan 1999, Grant et al. 2004, Lloyd and Martin 2005, Block and Morrison 2010
Chestnut-sided warbler	Beachy and Robinson 2008, Schlossberg et al. 2010
Chihuahuan raven	Keller and Avery 2014
Chimney swift	Giuliano and Daves 2002
Chipping sparrow	Rosenstock and Van Riper 2001, Giuliano and Daves 2002, Ortega et al. 2006, Klaus and Keyes 2007, Van Riper et al. 2008, Block and Morrison 2010, Keller and Avery 2014
Chuck-will's-widow	Coppedge et al 2001
Clay-colored sparrow	Arnold and Higgins 1986, Wilson and Belcher 1989, Davis and Duncan 1999, Madden et al. 2000, Grant et al 2004, Bakker and Higgins 2009, Keller and Avery 2014

**Single-species
prevalence
(continued)**

Cliff swallow	Coppedge et al. 2001
Common bushtit	Rosenstock and Van Riper 2001
Common grackle	Coppedge et al. 2001, Chapman et al. 2004, Keller and Avery 2014
Common nighthawk	Coppedge et al. 2001
Common yellowthroat	Arnold and Higgins 1986, Delisle and Savidge 1997, Whitt et al. 1999, Madden et al. 2000, Giuliano and Daves 2002, Scott et al. 2002, Grant et al. 2004, Klaus and Keyes 2007, Van Riper et al. 2008, Bakker and Higgins 2009, McCusker et al. 2010, Schlossberg et al. 2010, Blank et al. 2011, Shanahan et al. 2011, Gifford and Armacost 2012, Tavernia and Reed 2012, Schmidt et al. 2013, Keller and Avery 2014, Schneider and Miller 2014
Crissal thrasher	Hunter et al. 1988, Van Riper et al. 2008
Curve-billed thrasher	Keller and Avery 2014
Dark-eyed junco	Gleditsch and Carlo 2011
Dickcissel	Delisle and Savidge 1997, Walk and Warner 2000, Coppedge et al. 2001, Scott et al. 2002, Chapman et al. 2004, Hickman et al. 2006, Bakker and Higgins 2009, Johnson and Sandercock 2010, Jacobs et al. 2012, George et al. 2013, Osborne and Sparling 2013
Downy woodpecker	Klaus and Keyes 2007, McCusker et al. 2010, Gleditsch and Carlo 2011, Gifford and Armacost 2012, Schneider and Miller 2014
Eastern bluebird	Coppedge et al. 2001, Klaus and Keyes 2007
Eastern kingbird	Arnold and Higgins 1986, Chapman et al. 2004, Osborne and Sparling 2013
Eastern meadowlark	Bock et al. 1986, Bock et al. 1986, Bock and Bock 1992, Walk and Warner 2000, Coppedge et al. 2001, Giuliano and Daves 2002, Scott et al. 2002, Chapman et al.

Single-species prevalence (continued)		2004, Block and Morrison 2010, Johnson and Sandercock 2010, Jacobs et al. 2012, George et al. 2013, Osborne and Sparling 2013, Schmidt et al. 2013
	Eastern/western meadowlark	Delisle and Savidge 1997, Rosenstock and Van Riper 2001
	Eastern phoebe	Gifford and Armacost 2012
	Eastern towhee	Klaus and Keyes 2007, Beachy and Robinson 2008, McCusker et al. 2010, Schlossberg et al. 2010, Schneider and Miller 2014
	Eastern wood-pewee	McCusker et al. 2010, Schneider and Miller 2014
	<i>Empidonax</i> flycatchers	Giuliano and Daves 2002
	Eurasian collared-dove	Keller and Avery 2014
	European starling	Coppedge et al. 2001, Giuliano and Daves 2002, Schmidt et al. 2013, Keller and Avery 2014
	Field sparrow	Walk and Warner 2000, Coppedge et al. 2001, Giuliano and Daves 2002, Chapman et al. 2004, Beachy and Robinson 2008, Schlossberg et al. 2010, Jacobs et al. 2012, Osborne and Sparling 2013
	Gadwall	Wicker and Endres 1995
	Gambel's quail	Van Riper et al. 2008, Block and Morrison 2010
	Gila woodpecker	Van Riper et al. 2008
	Grasshopper sparrow	Arnold and Higgins 1986, Bock et al. 1986, Wilson and Belcher 1989, Delisle and Savidge 1997, Sutter and Brigham 1998, Davis and Duncan 1999, Madden et al. 2000, Coppedge et al. 2001, Giuliano and Daves 2002, Scott et al. 2002, Scheiman et al. 2003, Chapman et al. 2004, Grant et al. 2004, Hickman et al. 2006, Bakker and Higgins 2009, Thompson et al. 2009, Block and Morrison 2010, Holmes and Miller 2010, Johnson and Sandercock 2010, Earnst and Holmes 2012, Jacobs et al.

Single-species prevalence (continued)		2012, George et al. 2013, Osborne and Sparling 2013, Schmidt et al. 2013
	Gray catbird	Arnold and Higgins 1986, McCusker et al. 2010, Schlossberg et al. 2010, Gleditsch and Carlo 2011, Gifford and Armacost 2012, Keller and Avery 2014, Schneider and Miller 2014
	Great blue heron	Esler 1992
	Great egret	Esler 1992
	Great-crested flycatcher	Coppedge et al. 2001, Chapman et al. 2004, Klaus and Keyes 2007, Schneider and Miller 2014
	Greater roadrunner	Hunter et al. 1988
	Greater scaup and lesser scaup	Wicker and Endres 1995
	Great-tailed grackle	Chapman et al. 2004, Van Riper et al. 2008, Keller and Avery 2014
	Green heron	Esler 1992
	Green-tailed towhee	Keller and Avery 2014
	Green-winged teal	Wicker and Endres 1995
	Hairy woodpecker	Schneider and Miller 2014
	Henslow's sparrow	Walk and Warner 2000, Scott et al. 2002, Jacobs et al. 2012, Osborne and Sparling 2013
	Hermit thrush	Keller and Avery 2014
	Hermit warbler	Van Riper et al. 2008
	Horned lark	Arnold and Higgins 1986, McAdoo et al. 1989, Bradford et al. 1998, Sutter and Brigham 1998, Davis and Duncan 1999, Coppedge et al. 2001, Rosenstock and Van Riper 2001, Grant et al. 2004, Thompson et al. 2009, Block and Morrison

Single-species prevalence (continued)		2010, Earnst and Holmes 2012, Schmidt et al. 2013
	House finch	Van Riper et al. 2008, Keller and Avery 2014
	House sparrow	Keller and Avery 2014
	House wren	Beachy and Robinson 2008, Keller and Avery 2014, Schneider and Miller 2014
	Indigo bunting	Chapman et al. 2004, Klaus and Keyes 2007, Schneider and Miller 2014
	Killdeer	Chapman et al. 2004
	Kingbird spp.	Block and Morrison 2010
	Ladder-backed woodpecker	Hunter et al. 1988, Van Riper et al. 2008, Keller and Avery 2014
	Lark sparrow	McAdoo et al. 1989, Coppedge et al. 2001, Rosenstock and Van Riper 2001, Chapman et al. 2004, Flanders et al. 2006, Earnst and Holmes 2012, Keller and Avery 2014
	Lazuli bunting	Keller and Avery 2014
	LeConte's sparrow	Grant et al. 2004, Davis et al. 2013
	Lesser goldfinch	Van Riper et al. 2008
	Lincoln's sparrow	Keller and Avery 2014
	Little blue heron	Esler 1992, Coppedge et al. 2001
	Loggerhead shrike	Bock et al. 1986, Hunter et al. 1988, Coppedge et al. 2001, Block and Morrison 2010, Earnst and Holmes 2012
	Long-billed curlew	Earnst and Holmes 2012

**Single-species
prevalence
(continued)**

Lucy's warbler	Van Riper et al. 2008
MacGillivray's warbler	Van Riper et al. 2008, Keller and Avery 2014
Mallard	Wicker and Endres 1995, Giuliano and Daves 2002
Marbled godwit	Sutter and Brigham 1998
Marsh wren	Benoit and Askins 1999, Whitt et al. 1999, Shanahan et al. 2011, Tavernia and Reed 2012
McCown's longspur	Sutter and Brigham 1998
Mississippi kite	Coppedge et al. 2001, Keller and Avery 2014
Mourning dove	Delisle and Savidge 1997, Rosenstock and Van Riper 2001, Chapman et al. 2004, Klaus and Keyes 2007, Van Riper et al. 2008, Block and Morrison 2010, Keller and Avery 2014
Nashville warbler	Van Riper et al. 2008
Northern bobwhite	Delisle and Savidge 1997, Coppedge et al. 2001, Chapman et al. 2004, Flanders et al. 2006, Klaus and Keyes 2007, Jacobs et al. 2012, Osborne et al. 2012, Osborne and Sparling 2013
Northern cardinal	Coppedge et al. 2001, Chapman et al. 2004, Leston and Rodewald 2006, Klaus and Keyes 2007, McCusker et al. 2010, Gifford and Armacost 2012, Schneider and Miller 2014
Northern flicker	Coppedge et al. 2001, Chapman et al. 2004, Van Riper et al. 2008, Keller and Avery 2014
Northern mockingbird	Hunter et al. 1988, Coppedge et al. 2001, Rosenstock and Van Riper 2001, Chapman et al. 2004, Flanders et al. 2006, Block and Morrison 2010, Gifford and

Single-species prevalence (continued)		Armacost 2012, Keller and Avery 2014
	Northern pintail	Wicker and Endres 1995
	Olivaceous and double-crested cormorant	Esler 1992
	Orange-crowned warbler	Van Riper et al. 2008, Keller and Avery 2014
	Osprey	Benoit and Askins 1999
	Painted bunting	Hunter et al. 1988, Coppedge et al. 2001, Chapman et al. 2004
	Pied-billed grebe	Esler 1992
	Pileated woodpecker	Klaus and Keyes 2007
	Pine siskin	Keller and Avery 2014
	Pine warbler	Klaus and Keyes 2007, Beachy and Robinson 2008, Beachy and Robinson 2008, Gifford and Armacost 2012
	Pinyon jay	Rosenstock and Van Riper 2001
	Prairie warbler	Klaus and Keyes 2007, Beachy and Robinson 2008, Schlossberg et al. 2010
	Pyrrhuloxia	Hunter et al 1988
	Red-bellied woodpecker	Coppedge et al. 2001, Klaus and Keyes 2007, McCusker et al. 2010, Gleditsch and Carlo 2011, Gifford and Armacost 2012, Schneider and Miller 2014

Red-breasted nuthatch

Beachy and Robinson 2008, Keller and Avery 2014

Red-cockaded woodpecker

Klaus and Keyes 2007

**Single-species
prevalence
(continued)**

Red-eyed vireo	Klaus and Keyes 2007, Beachy and Robinson 2008, Schneider and Miller 2014
Redhead	Wicker and Endres 1995
Red-headed woodpecker	Coppedge et al. 2001, Chapman et al 2004, Klaus and Keyes 2007, Keller and Avery 2014
Red-naped sapsucker	Van Riper et al. 2008, Keller and Avery 2014
Red-winged blackbird	Arnold and Higgins 1986, Delisle and Savidge 1997, Whitt et al. 1999, Giuliano and Daves 2002, Scott et al. 2002, Chapman et al. 2004, Bakker and Higgins 2009, Tavernia and Reed 2012, Schmidt et al. 2013, Keller and Avery 2014, Schneider and Miller 2014
Ring-necked duck	Wicker and Endres 1995
Ring-necked pheasant	Delisle and Savidge 1997, Coppedge et al 2001, Eggebo et al. 2003, Chapman et al 2004
Rock pigeon	Keller and Avery 2014
Rose-breasted grosbeak	Beachy and Robinson 2008
Ruby-crowned kinglet	Van Riper et al. 2008, Gifford and Armacost 2012, Keller and Avery 2014
Ruddy duck	Wicker and Endres 1995
Sage sparrow	McAdoo et al. 1989, Earnst and Holmes 2012
Sage thrasher	McAdoo et al. 1989
Saltmarsh sharp-tailed sparrow	Benoit and Askins 1999
Savanna sparrow	Arnold and Higgins 1986, Wilson and Belcher 1989, Sutter and Brigham 1998, Davis and Duncan 1999, Giuliano and Daves 2002, Scheiman et al. 2003, Grant et

Single-species prevalence (continued)		al. 2004, Bakker and Higgins 2009, Thompson et al. 2009, Block and Morrison 2010, Earnst and Holmes 2012, Davis et al. 2013, Osborne and Sparling 2013, Schmidt et al. 2013
	Say's phoebe	Van Riper et al. 2008
	Scaled quail	Medina 1988, Block and Morrison 2010, Keller and Avery 2014
	Scissor-tailed flycatcher	Coppedge et al. 2001, Chapman et al. 2004
	Scott's oriole	Rosenstock and Van Riper 2001
	Seaside sparrow	Benoit and Askins 1999
	Sedge wren	Delisle and Savidge 1997, Whitt et al. 1999, Grant et al. 2004, Bakker and Higgins 2009, Osborne and Sparling 2013
	Smith's longspur	Holimon et al. 2012
	Snow goose	Wicker and Endres 1995
	Snowy egret	Esler 1992, Benoit and Askins 1999
	Song sparrow	Arnold and Higgins 1986, Giuliano and Daves 2002, Van Riper et al. 2008, Schlossberg et al. 2010, Shanahan et al. 2011, Tavernia and Reed 2012, Schmidt et al. 2013
	Southwestern willow flycatcher	Keller and Avery 2014
	Spotted towhee	Rosenstock and Van Riper 2001
	Sprague's pipit	Wilson and Belcher 1989, Sutter and Brigham 1998, Davis and Duncan 1999, Madden et al. 2000, Grant et al. 2004, Davis et al. 2013
	Summer tanager	Hunter et al. 1988, Klaus and Keyes 2007, Van Riper et al. 2008, Keller and

Single-species prevalence (continued)		Avery 2014
	Swamp sparrow	Benoit and Askins 1999, Whitt et al. 1999, Tavernia and Reed 2012
	Townsend's warbler	Van Riper et al. 2008, Keller and Avery 2014
	Tree swallow	Giuliano and Daves 2002
	Tricolored blackbird	Holyoak et al. 2014
	Tufted titmouse	Coppedge et al. 2001, Klaus and Keyes 2007
	Upland sandpiper	Wilson and Belcher 1989, Chapman et al. 2004, Grant et al. 2004
	Verdin	Van Riper et al. 2008
	Vesper sparrow	Arnold and Higgins 1986, Bock et al. 1986, McAdoo et al. 1989, Wilson and Belcher 1989, Sutter and Brigham 1998, Davis and Duncan 1999, Giuliano and Daves 2002, Grant et al. 2004, Block and Morrison 2010, Keller and Avery 2014
	Virginia rail	Tavernia and Reed 2012
	Warbling vireo	Van Riper et al. 2008, Keller and Avery 2014
	Western flycatcher	Van Riper et al. 2008
	Western kingbird	Arnold and Higgins 1986, Hunter et al. 1988, Chapman et al. 2004, Van Riper et al. 2008, Keller and Avery 2014,
	Western meadowlark	Arnold and Higgins 1986, McAdoo et al. 1989, Wilson and Belcher 1989, Sutter and Brigham 1998, Davis and Duncan 1999, Madden et al. 2000, Coppedge et al. 2001, Scheiman et al. 2003, Chapman et al. 2004, Grant et al. 2004, Bakker and Higgins 2009, Thompson et al. 2009, Earnst and Holmes 2012, Davis et al. 2013
	Western tanager	Van Riper et al. 2008, Keller and Avery 2014

**Single-species
prevalence
(continued)**

Western wood-pewee	Keller and Avery 2014
Whistling swan	Wicker and Endres 1995
White-breasted nuthatch	Schneider and Miller 2014
White-crowned sparrow	Van Riper et al. 2008, Keller and Avery 2014
White-eyed vireo	Klaus and Keyes 2007, Gifford and Armacost 2012
White-winged dove	Van Riper et al. 2008, Keller and Avery 2014
Wild turkey	Coppedge et al. 2001, Chapman et al. 2004
Willet	Benoit and Askins 1999
Willow flycatcher	Arnold and Higgins 1986
Wilson's warbler	Van Riper et al. 2008, Keller and Avery 2014
Wood thrush	Klaus and Keyes 2007, McCusker et al. 2010
Yellow warbler	Arnold and Higgins 1986, Whitt et al. 1999, Van Riper et al. 2008, Schlossberg et al. 2010, Shanahan et al. 2011, Tavernia and Reed 2012, Keller and Avery 2014
Yellow-billed cuckoo	Hunter et al. 1988, Coppedge et al. 2001, Chapman et al. 2004, Klaus and Keyes 2007
Yellow-breasted chat	Hunter et al. 1988, Klaus and Keyes 2007, Van Riper et al. 2008
Yellow-headed blackbird	Arnold and Higgins 1986
Yellow-rumped warbler	Van Riper et al. 2008, Gifford and Armacost 2012, Keller and Avery 2014

Single-species prevalence (continued)	Yellow-throated vireo	Klaus and Keyes 2007
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Nest abundance	Common grackle	Maddox and Wiedenmann 2005
	Marsh wren	Maddox and Wiedenmann 2005
	Red-winged blackbird	Maddox and Wiedenmann 2005
	Tricolored blackbird	Cook and Toft 2005

Home range or territory size	Acadian flycatcher	Ausprey and Rodewald 2013
	Botteri's sparrow	Jones and Bock 2005
	Crested caracara	Morrison and Humphrey 2001
	Northern cardinal	Ausprey and Rodewald 2013

Site fidelity	Botteri's sparrow	Jones and Bock 2005
	Chipping sparrow	Ortega et al. 2006

Distribution of dominant individuals	Chipping sparrow	Ortega et al. 2006
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**Distribution of
dominant
individuals
(continued)**

Northern cardinal

Rodewald et al. 2011

Settlement timing

Brewer's sparrow

Ruehmann et al. 2011

Chestnut-collared longspur

Lloyd and Martin 2005

Chipping sparrow

Ortega et al. 2006

Northern cardinal

Rodewald et al. 2011

American robin

Schmidt and Whelan 1999

American woodcock

Miller and Jordan 2011

Bewick's wren

Taylor 2003

Black-chinned hummingbird

Stoleson and Finch 2001

Blue grosbeak

Stoleson and Finch 2001

Bobolink

Scheiman et al. 2003

Chestnut-sided warbler

Schlossberg and King 2010

Common raven

Coates et al. 2014, Howe et al. 2014

Ferruginous hawk

Coates et al. 2014

Grasshopper sparrow

Scheiman et al. 2003

Gray catbird

Schlossberg and King 2010

Settlement timing (continued)	Mourning dove	Stoleson and Finch 2001
	Northern cardinal	Leston and Rodewald 2006
	Red-tailed hawk	Coates et al. 2014
	Savanna sparrow	Scheiman et al. 2003
	Southwestern willow flycatcher	Stoleson and Finch 2001
	Swainson's hawk	Coates et al. 2014
	Veery	Heckscher 2004, Schmidt et al. 2005
	Western meadowlark	Scheiman et al. 2003
	Wood thrush	Whelan and Dilger 1992, Schmidt and Whelan 1999
	Yellow-breasted chat	Stoleson and Finch 2001

Nest-site selection	American coot	Brown and Trosset 1989
	Bell's vireo	Brown and Trosset 1989
	Bewick's wren	Taylor 2003
	Black-billed magpie	Gazda et al. 2002
	Black-chinned hummingbird	Brown 1992
	Blue grosbeak	Brown and Trosset 1989
	Brewer's sparrow	Reynolds and Trost 1980

Nest-site selection (continued)	Bullock's oriole	Brown and Trosset 1989
	Common yellowthroat	Brown and Trosset 1989
	Great-tailed grackle	Brown and Trosset 1989
	Hooded oriole	Brown and Trosset 1989
	Horned lark	Reynolds and Trost 1980
	Indigo bunting	Brown and Trosset 1989
	Loggerhead shrike	Reynolds and Trost 1980
	Mourning dove	Reynolds and Trost 1980
	Sage grouse	Reynolds and Trost 1980
	Sage sparrow	Reynolds and Trost 1980
	Sage thrasher	Reynolds and Trost 1980
	Short-eared owl	Reynolds and Trost 1980
	Vesper sparrow	Reynolds and Trost 1980
	Western meadowlark	Reynolds and Trost 1980
	Willow flycatcher	Brown and Trosset 1989
	Yellow warbler	Brown and Trosset 1989
	Yellow-breasted chat	Brown and Trosset 1989

Fledgling habitat selection	Acadian flycatcher	Ausprey and Rodewald 2011
	Northern cardinal	Ausprey and Rodewald 2011
Number of nest attempts	Chipping sparrow	Ortega et al. 2006
	Northern cardinal	Leston and Rodewald 2006
Clutch size	Abert's towhee	Brand and Noon 2011
	Bell's vireo	Brand and Noon 2011
	Botteri's sparrow	Miller et al. 2013
	Brewer's sparrow	Ruehmann et al. 2011
	Chipping sparrow	Ortega et al. 2006
	Horned lark	Kennedy et al. 2009
	Savanna sparrow	Kennedy et al. 2009
	Vesper sparrow	Kennedy et al. 2009
	Western meadowlark	Kennedy et al. 2009
	Yellow-breasted chat	Brand and Noon 2011

Nest survival rates	Abert's towhee	Brand et al. 2010
	Alameda song sparrow	Nordby et al. 2009
	American robin	Schmidt and Whelan 1999
	American woodcock	Miller and Jordan 2011
	Bell's vireo	Brand et al. 2010
	Black-billed magpie	Gazda et al. 2002
	Black-chinned hummingbird	Smith et al. 2009
	Bobolink	Scheiman et al. 2003
	Botteri's sparrow	Jones and Bock 2005, Miller et al. 2013
	Brewer's sparrow	Ruehmann et al. 2011
	Chestnut-collared longspur	Lloyd and Martin 2005
	Chestnut-sided warbler	Schlossberg and King 2010
	Chipping sparrow	Ortega et al. 2006
	Clay-colored sparrow	Grant et al. 2006
	Dickcissel	Galligan et al. 2006
	Eastern meadowlark	Galligan et al. 2006
	Field sparrow	Galligan et al. 2006
	Grasshopper sparrow	Galligan et al. 2006, Hovick et al. 2012, Scheiman et al. 2003

Nest survival rates (continued)	Gray catbird	Schlossberg and King 2010
	Henslow's sparrow	Galligan et al. 2006
	Mallard	Gazda et al. 2002
	Mourning dove	Stoleson and Finch 2001
	Northern cardinal	Rodewald et al. 2010
	Red-winged blackbird	Galligan et al. 2006
	Savanna sparrow	Scheiman et al. 2003
	Southwestern willow flycatcher	Stoleson and Finch 2001
	Tricolored blackbird	Cook and Toft 2005, Holyoak et al. 2014
	Veery	Schmidt et al. 2005
	Vesper sparrow	Grant et al. 2006
	Western meadowlark	Scheiman et al. 2003
	Wood thrush	Schmidt and Whelan 1999
	Yellow-breasted chat	Brand et al. 2010 , Stoleson and Finch 2001

Brood parasitism	Acadian flycatcher	Rodewald 2009
	Grasshopper sparrow	Hovick and Miller 2013
	Southwestern willow flycatcher	Stoleson and Finch 2001

Seasonal fecundity	Abert's towhee	Brand and Noon 2011
	Bell's vireo	Brand and Noon 2011
	Botteri's sparrow	Jones and Bock 2005
	Chipping sparrow	Ortega et al. 2006
	Northern cardinal	Leston and Rodewald 2006, Rodewald et al. 2010
	Yellow-breasted chat	Brand and Noon 2011
Fledgling survival	Acadian flycatcher	Ausprey and Rodewald 2011
	Grasshopper sparrow	Hovick et al. 2011
	Northern cardinal	Ausprey and Rodewald 2011
	Sprague's pipit	Fisher and Davis 2011
Adult mortality	Northern cardinal	Leston and Rodewald 2006
Song diversity	Chipping sparrow	Ortega et al. 2014a
Provisioning rates	Gray catbird	Gleditsch and Carlo 2014

Nestling condition	Botteri's sparrow	Jones and Bock 2005
	Chestnut-collared longspur	Lloyd and Martin 2005
	Gray catbird	Gleditsch and Carlo 2014
	Savanna sparrow	Kennedy et al. 2009
	Southwestern willow flycatcher	Owen et al. 2005
	Wilson's warbler	Cerasale and Guglielmo 2010
	Baltimore oriole	Hudon et al. 2013
	Cedar waxwing	Witmer 1996

Energy intake and diet preferences	American robin	Jung 1992, LaFleur et al. 2007
	American wigeon	Baldwin and Lovvorn 1994
	Ash-throated flycatcher	Yard et al. 2004
	Bell's vireo	Yard et al. 2004
	Bewick's wren	Yard et al. 2004
	Brant	Baldwin and Lovvorn 1994
	Cedar waxwing	Drummond 2005
	European starling	LaFleur et al. 2007

**Energy intake and
diet preferences
(continued)**

Gray catbird	Whelan and Willson 1994
Green-winged teal	Baldwin and Lovvorn 1994
Lucy's warbler	Yard et al. 2004
Mallard	Baldwin and Lovvorn 1994
Northern mockingbird	Stiles 1982
Northern pintail	Baldwin and Lovvorn 1994
Southwestern willow flycatcher	Durst et al. 2008
Wilson's warbler	Cerasale and Guglielmo 2010
Yellow warbler	Cerasale and Guglielmo 2010, Yard et al. 2004
Yellow-breasted chat	Yard et al. 2004



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Article title: Patterns and mechanisms of invasive plant impacts on North American birds

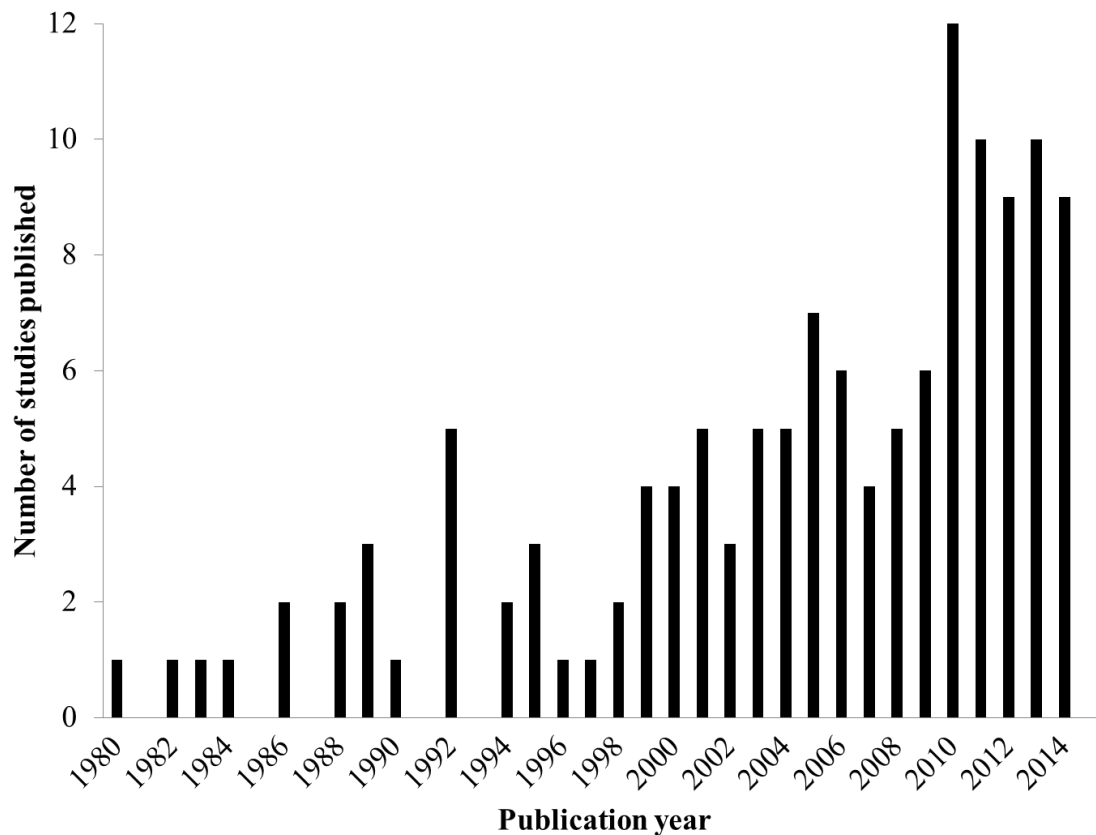
Authors: Scott B. Nelson, Jaime J. Coon, Courtney J. Duchardt, Jason D. Fischer, Samniqueka J. Halsey, Adam J. Kranz, Christine M. Parker, Sarah C. Schneider, Timothy M. Swartz, James R. Miller

Journal: Biological Invasions

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Appendix B. The number of articles published each year through 2014 that quantify effects of invasive plants on avian ecology in North America.



Appendix C. Habitat, invasive plant functional group, and season-specific effects of invasive plants on birds

Article title: Patterns and mechanisms of invasive plant impacts on North American birds

Authors: Scott B. Nelson, Jaime J. Coon, Courtney J. Duchardt, Jason D. Fischer, Samniqueka J. Halsey, Adam J. Kranz, Christine M. Parker, Sarah C. Schneider, Timothy M. Swartz, James R. Miller

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Description:

These figures show how the frequency of different directions of impact (e.g. negative, neutral, etc.) of invasive plants on avian ecology vary across habitat types, functional groups of invasive plants under consideration, and seasons in which impacts were assessed. In each graph, groups are listed along the x-axis and the y-axis shows what percentage of reported effects revealed different directions of impacts on avian metrics. The frequencies of different effect directions are shown as percentages, but these distributions are based on unequal numbers of studies and tests across different groups and metrics. The number of effects reported across the 126 reviewed studies that fall within each group for each ecological metric is listed above each bar (n). Only groups for which there were at least **five** effects reported are shown here.

Effects reported across all reviewed studies

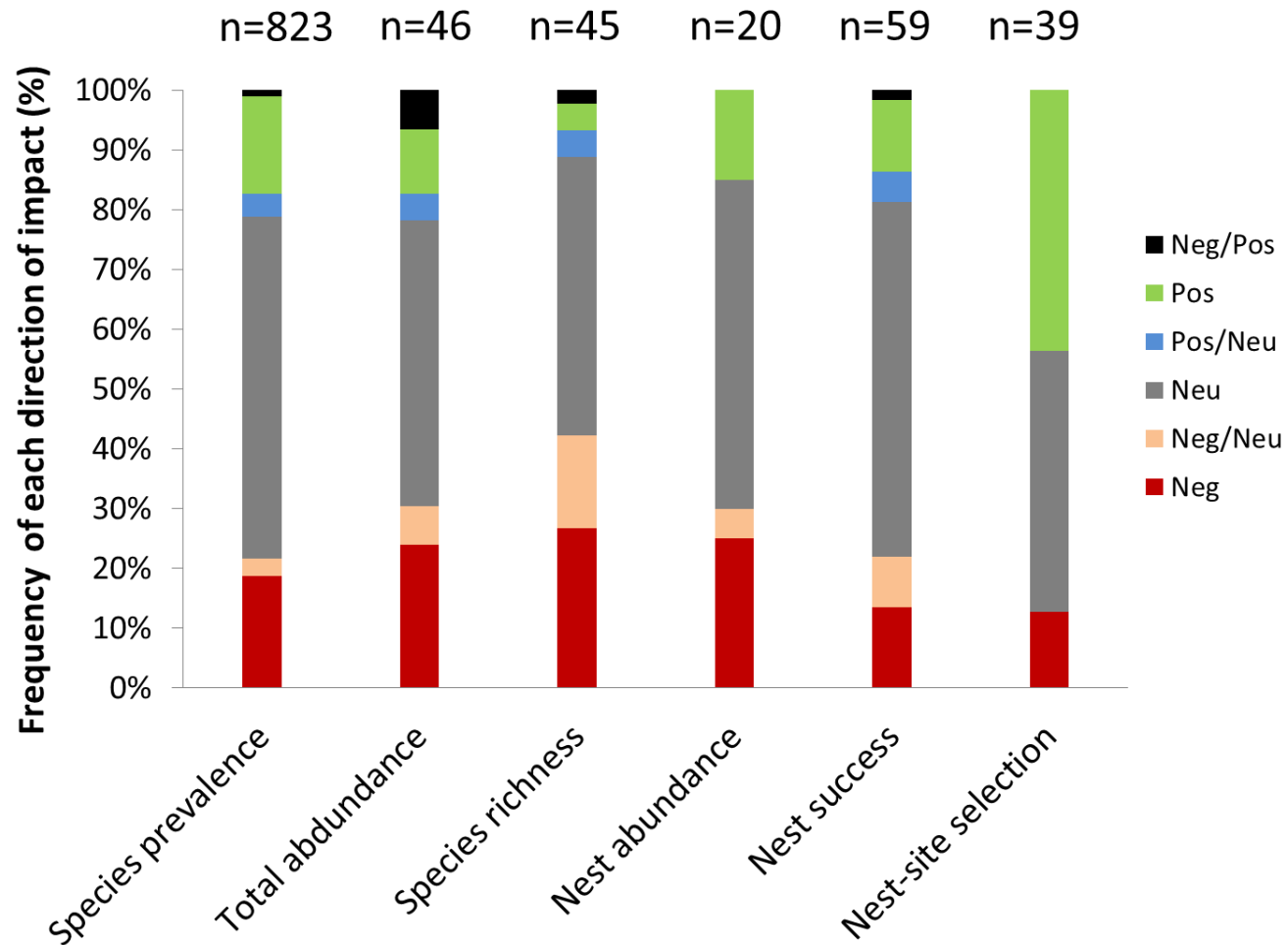


Fig C1. The relative frequencies of negative, neutral, positive, and variable impacts of invasive plants on six different metrics of avian ecology, reported in 126 articles. This graph is an alternative presentation of the data shown in manuscript Fig. 1, and is given as a reference against which to compare the group-specific distributions shown in the figures below.

Variation in the distribution of effect directions as a function of the habitat in which a study was conducted

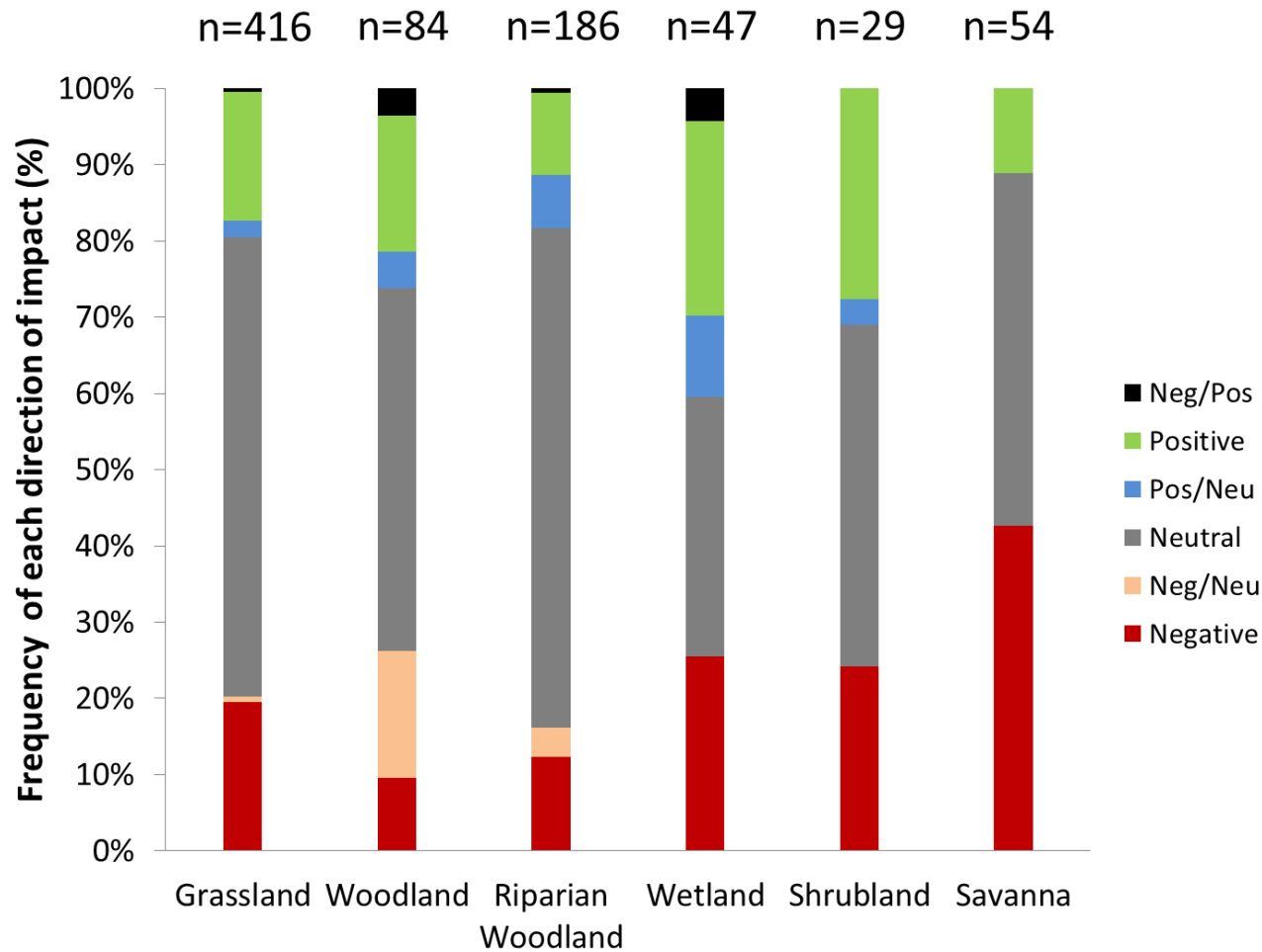


Fig C2. Comparison across major habitat types of the relative frequencies of invasive plant impacts on the prevalence (abundance, density, or occupancy) of individual bird species.

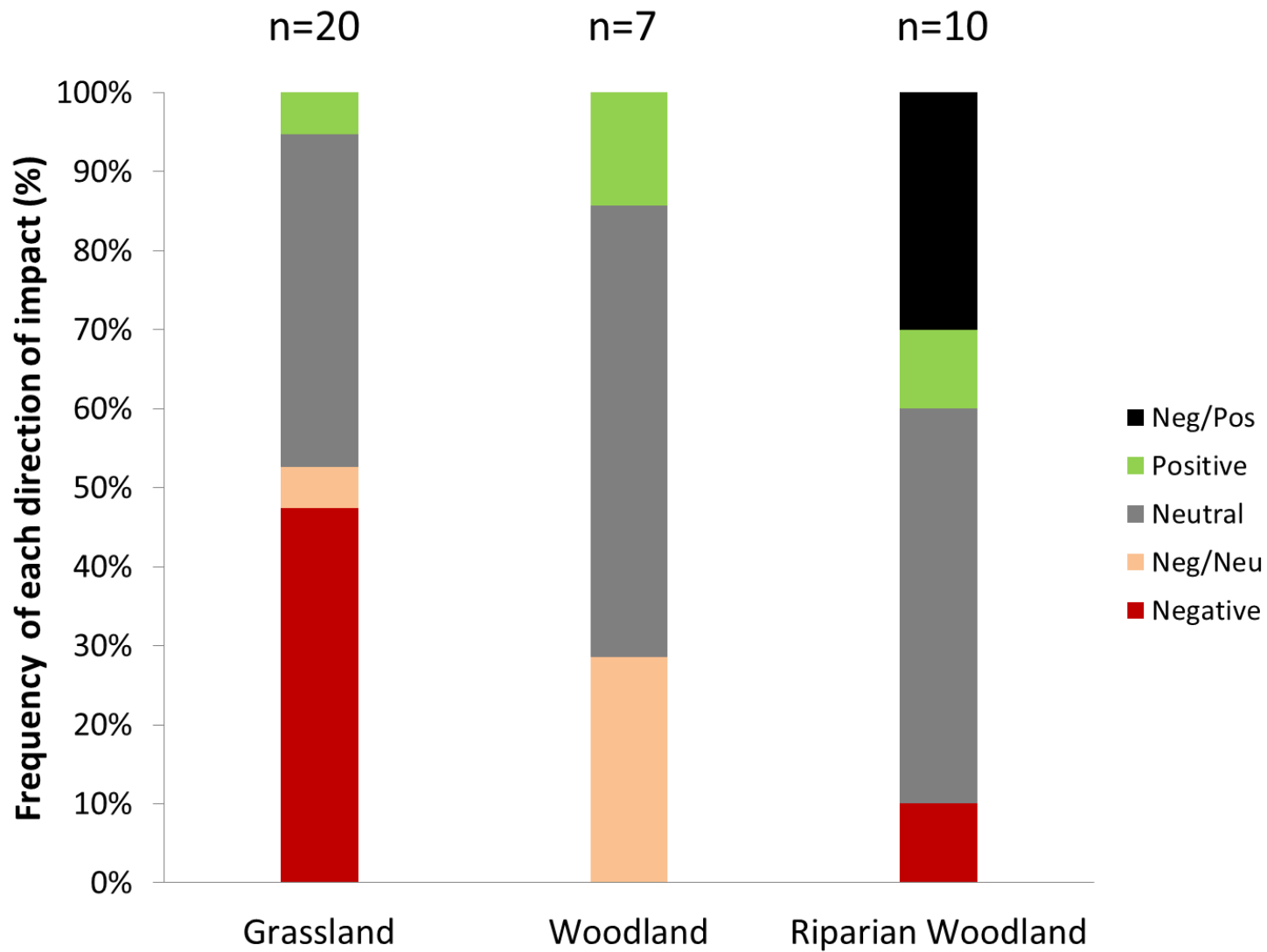


Fig C3. Comparison across major habitat types of reported impacts of invasive plants on the total abundance or density of birds in avian communities.

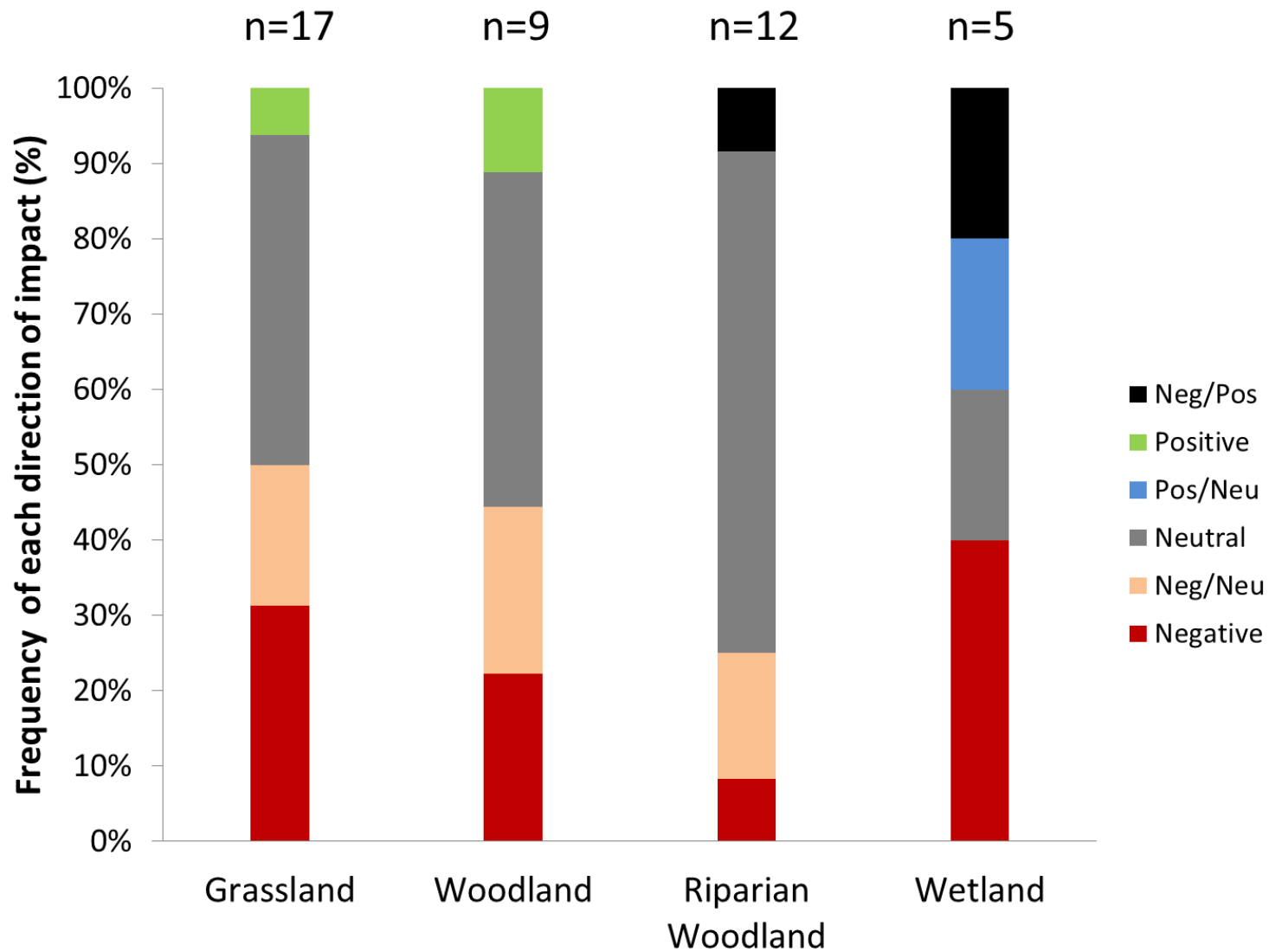


Fig C4. Comparison across major habitat types of reported impacts of invasive plants on the richness of avian communities.

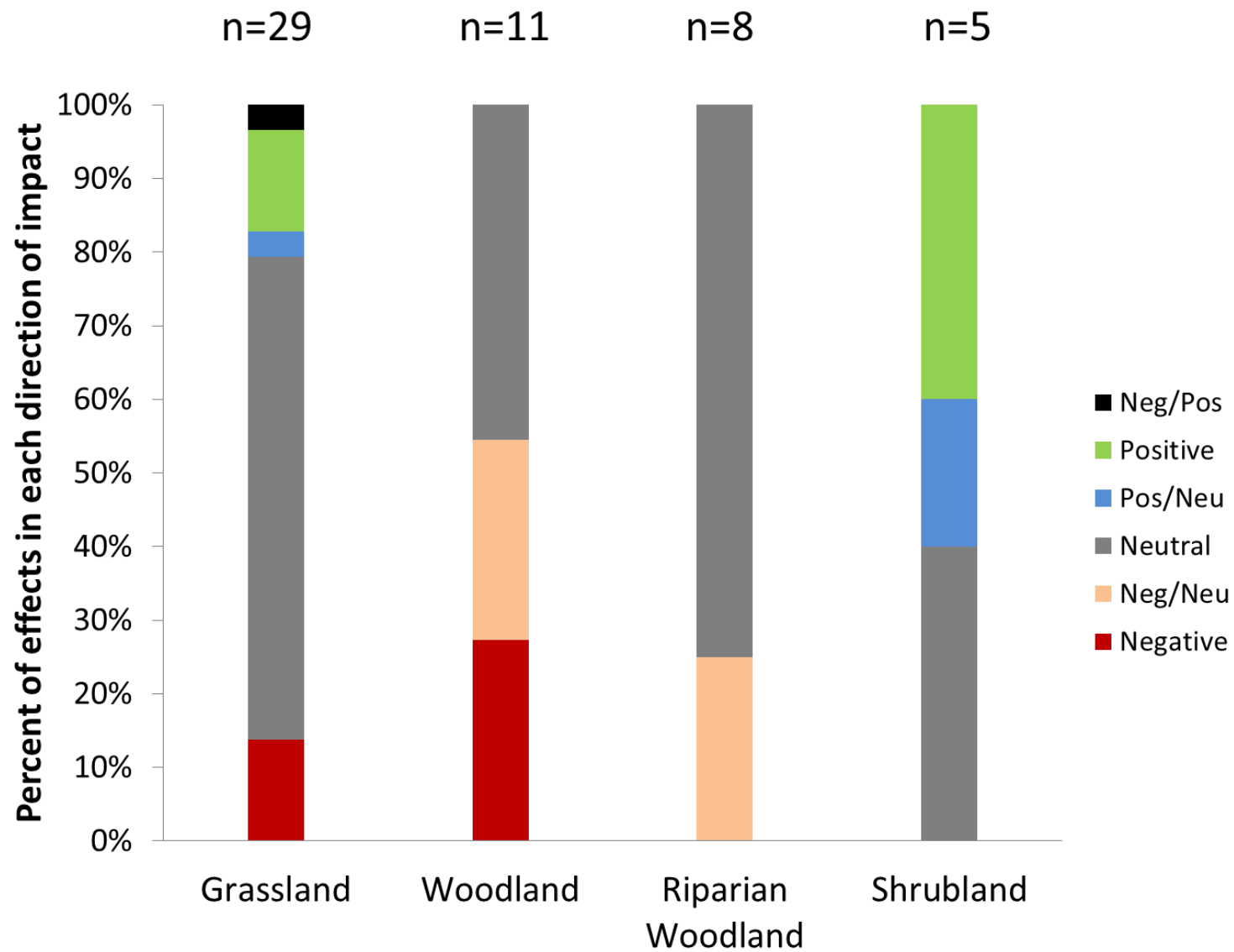


Fig C5. Comparison across major habitat types of reported impacts of invasive plants on avian nest success.

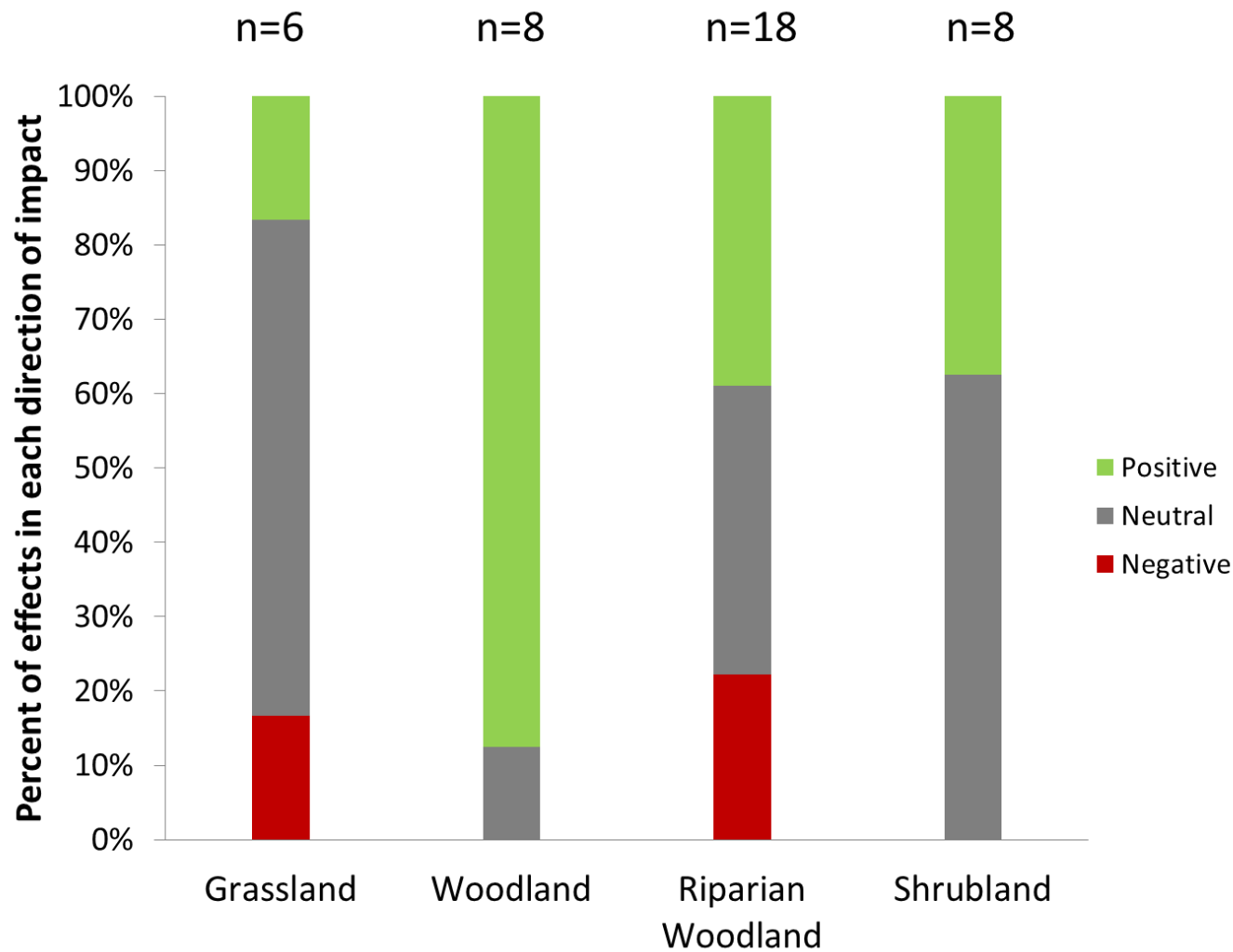


Fig C6. Comparison across major habitat types of reported impacts of invasive plants on avian nest-site selection. Positive impacts indicate that birds preferred to nest in or around invasive plants, while negative effects indicate an avoidance of invasive plant nest sites and neutral effects indicate no preference between invasive and non-invasive plant nest sites.

Variation in the distribution of effect directions as a function of the broad functional group of the invasive plant species whose impacts are being assessed

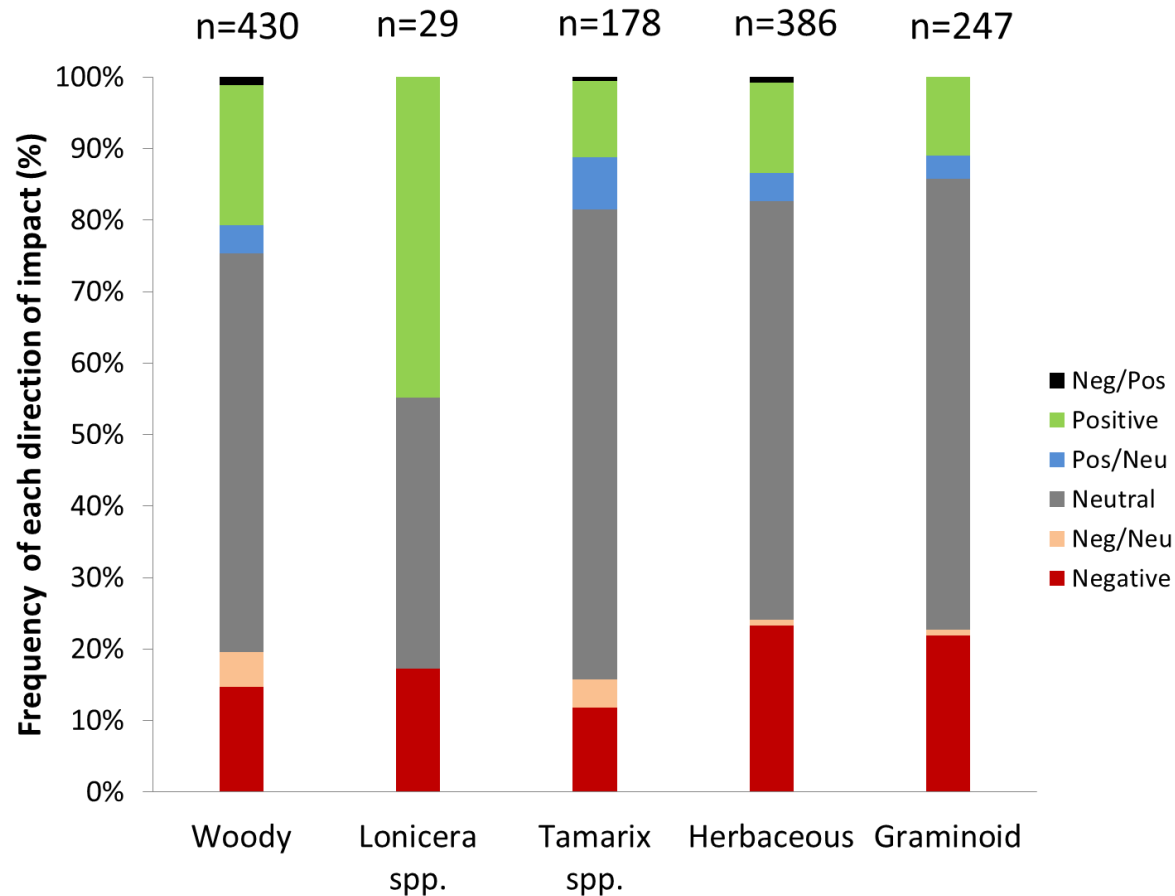


Fig C7. Comparison across invasive plant functional groups of the relative frequencies of invasive plant impacts on the prevalence (abundance, density, or occupancy) of individual bird species. Important note: the effects of honeysuckle (*Lonicera* spp., n=29) and saltcedar (*Tamarix* spp., n=178) shown here are also included within the more general ‘Woody’ category. Similarly, the effects of ‘Graminoid’ invasive species (e.g. grasses, sedges) are also included within the more general ‘Herbaceous’ category.

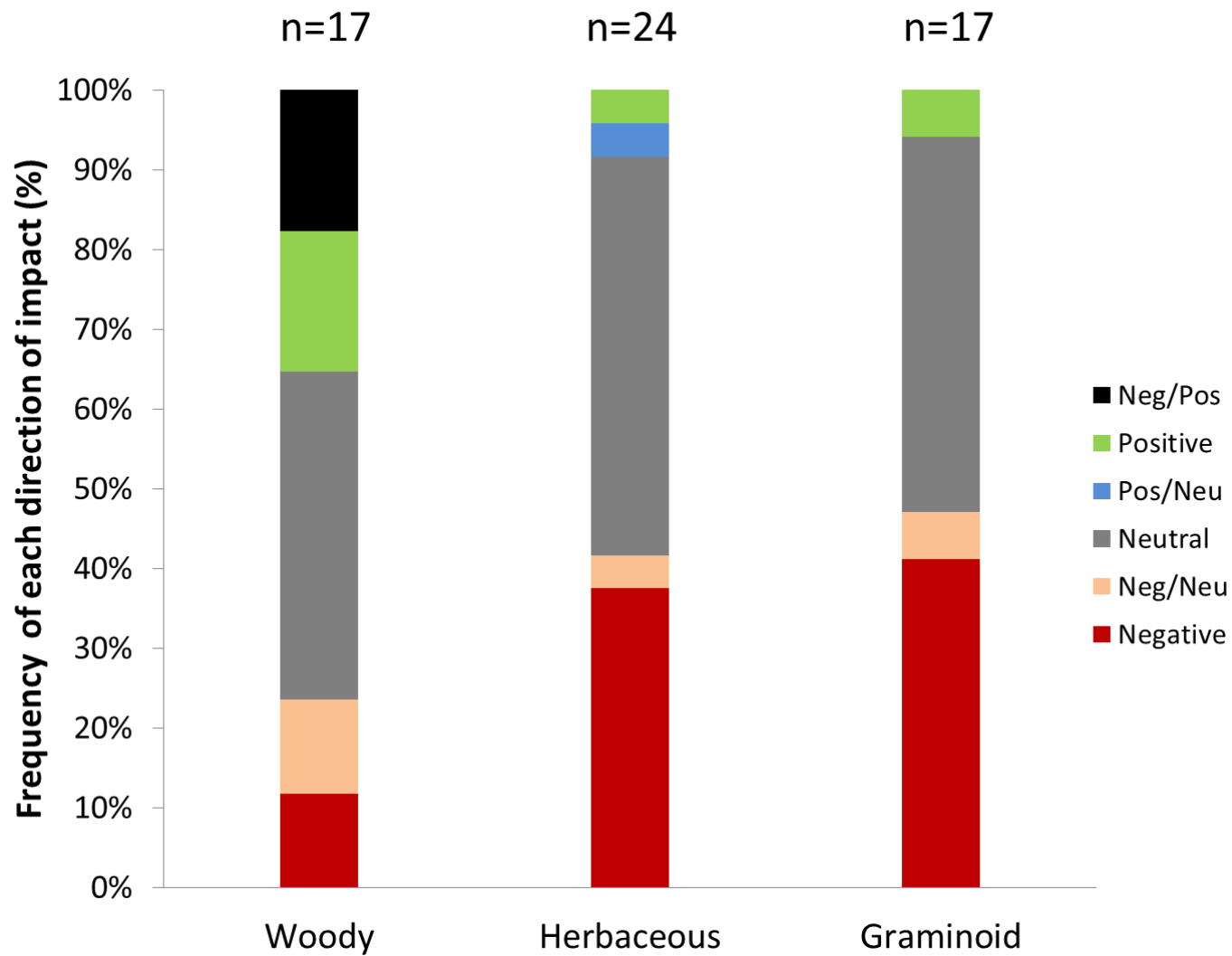


Fig C8. Comparison across invasive plant functional groups of reported impacts of invasive plants on the total abundance or density of birds in avian communities. Important note: the effects of ‘Graminoid’ invasive species (e.g. grasses, sedges) shown here are also included within the more general ‘Herbaceous’ category.

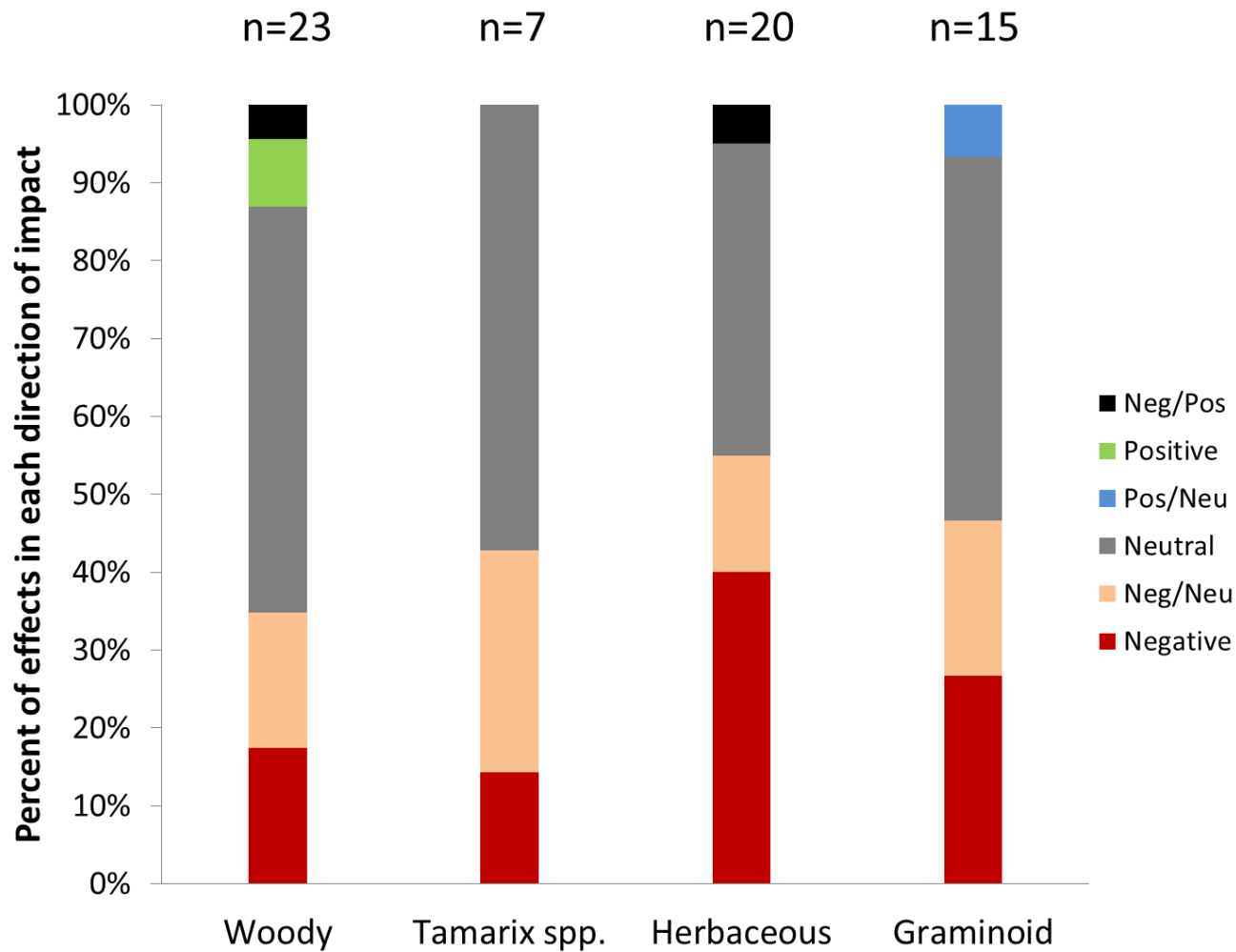


Fig C9. Comparison across invasive plant functional groups of reported impacts of invasive plants on the richness of avian communities. Important note: the effects of saltcedar (*Tamarix* spp., n=7) shown here are also included within the more general ‘Woody’ category. Similarly, the effects of ‘Graminoid’ invasive species (e.g. grasses, sedges) are also included within the more general ‘Herbaceous’ category.

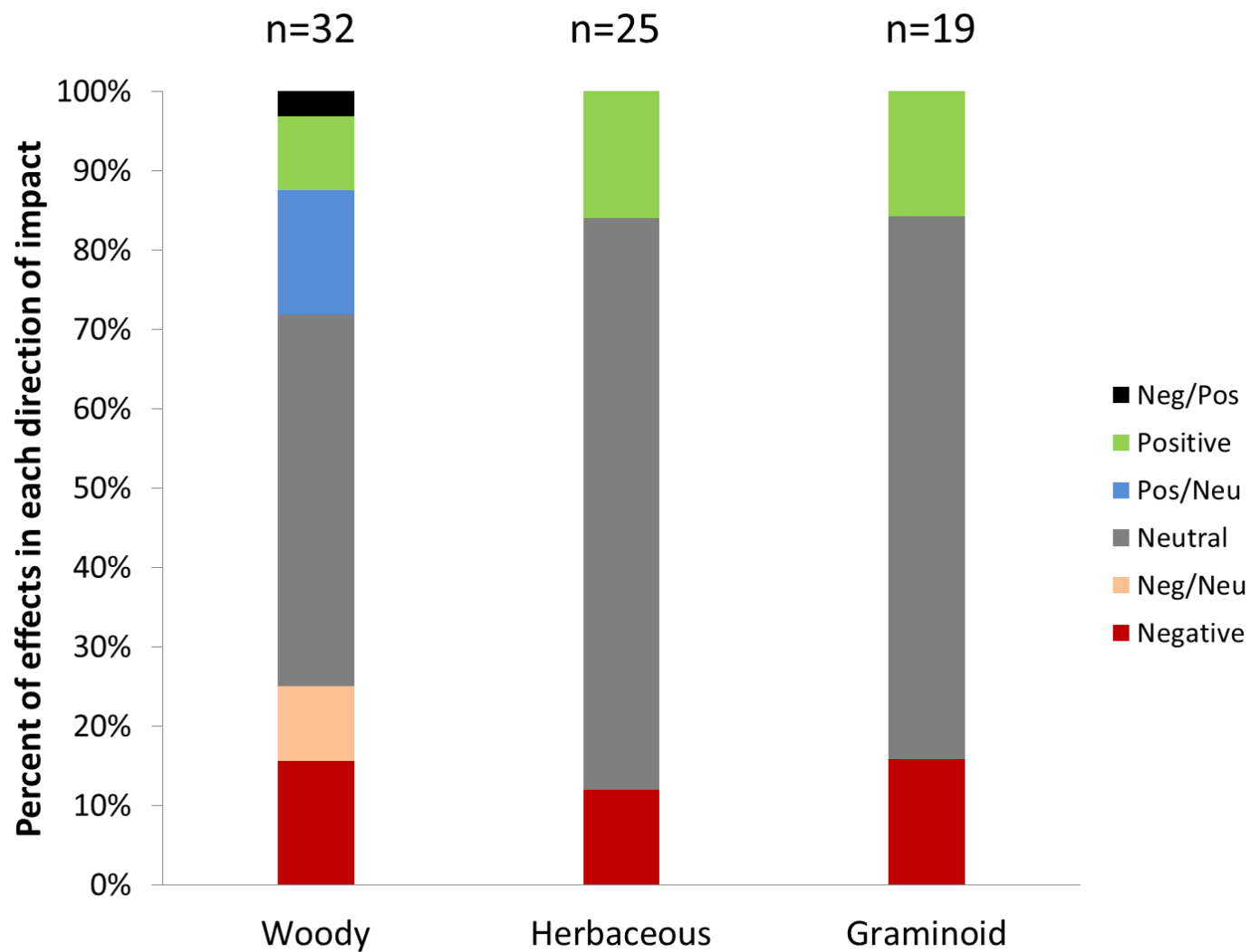


Fig C10. Comparison across invasive plant functional groups of reported impacts of invasive plants on avian nest success. Important note: the effects of ‘Graminoid’ invasive species (e.g. grasses, sedges) shown here are also included within the more general ‘Herbaceous’ category.

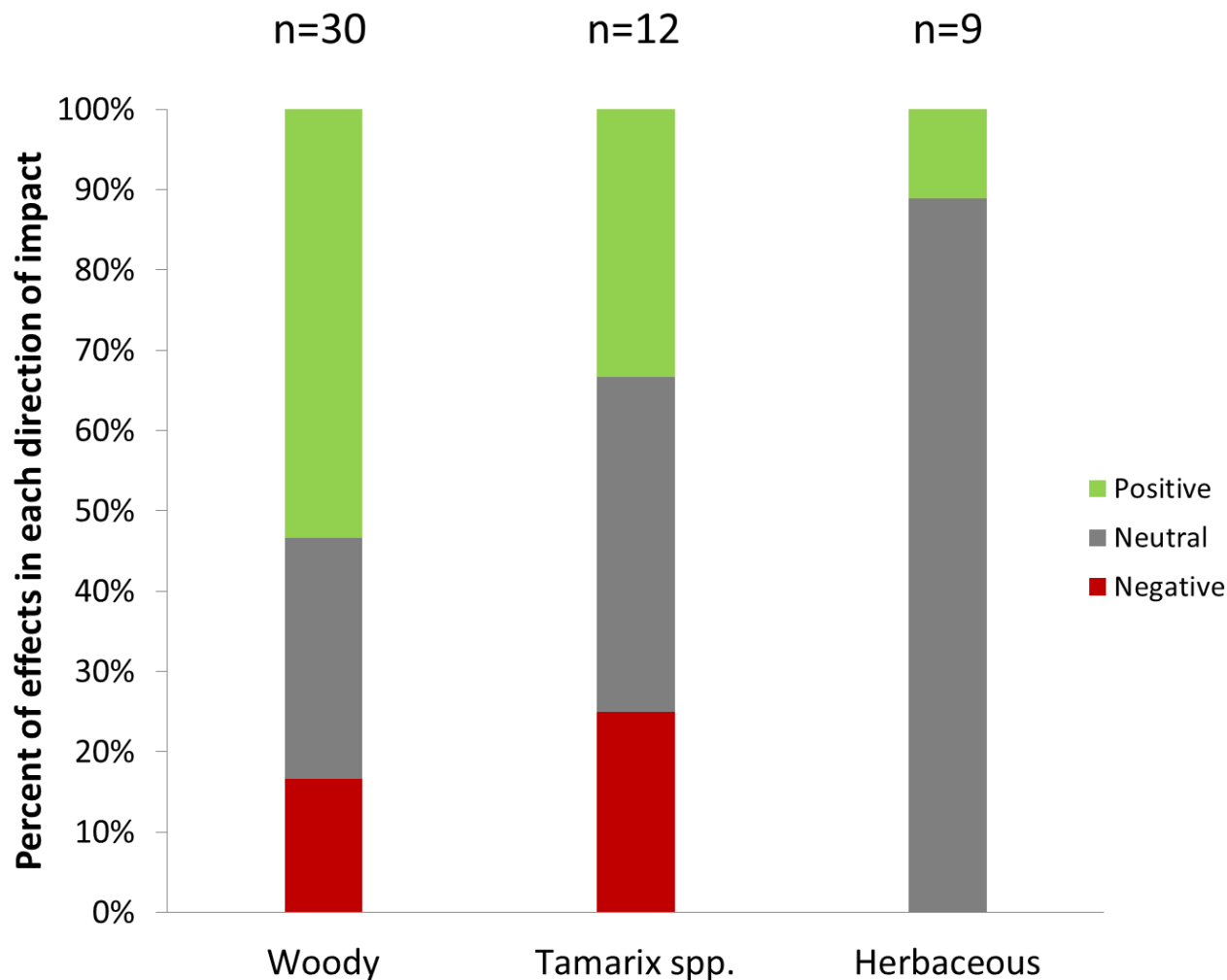


Fig C11. Comparison across invasive plant functional groups of reported impacts of invasive plants on avian nest-site selection. Positive impacts indicate that birds preferred to nest in or around invasive plants, while negative effects indicate an avoidance of invasive plant nest sites and neutral effects indicate no preference between invasive and non-invasive plant nest sites. Important note: the effects of saltcedar (*Tamarix* spp., n=7) shown here are also included within the more general ‘Woody’ category.

Variation in the distribution of effect directions as a function of the season in which invasive plant impacts were assessed

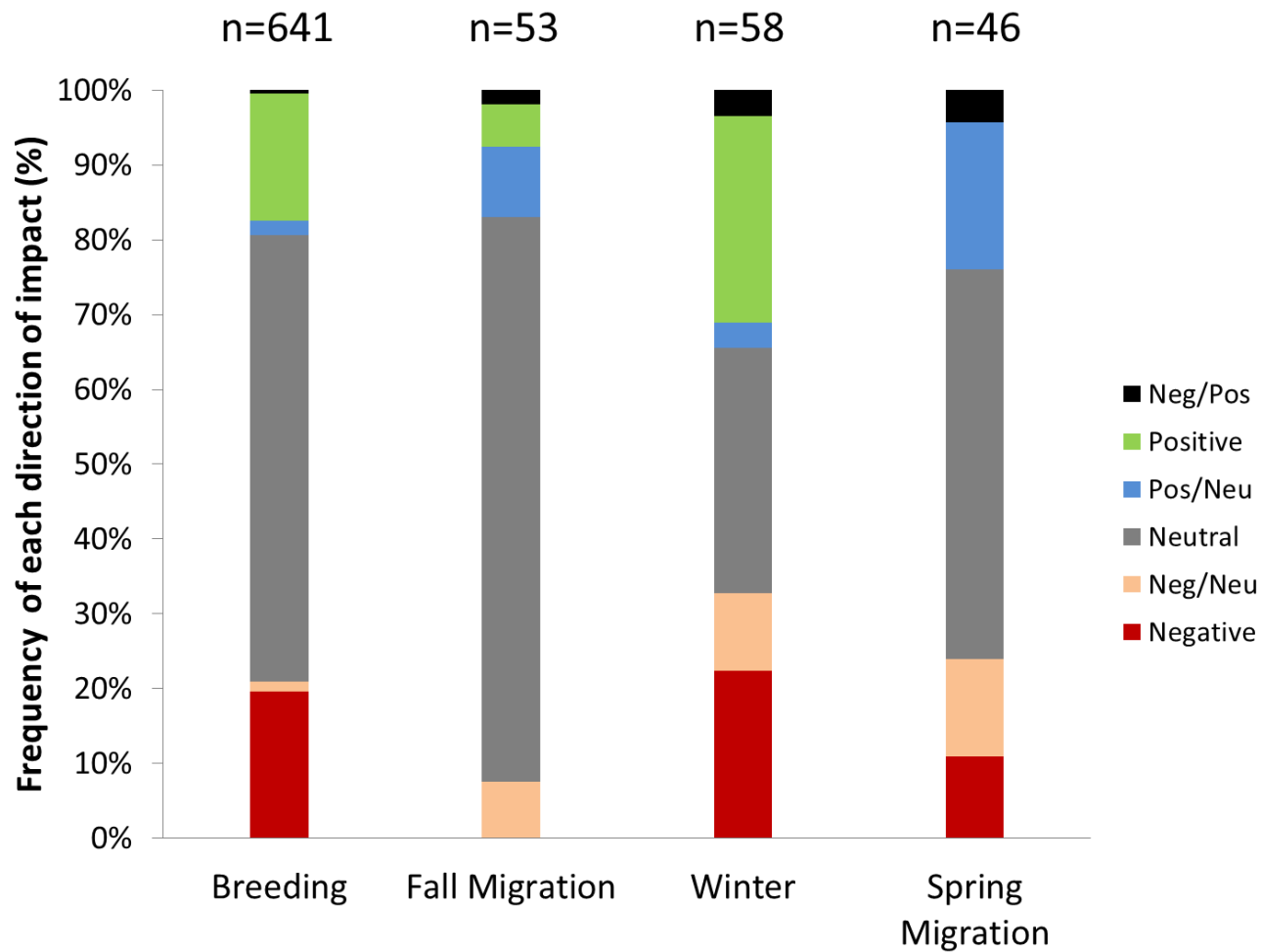


Fig C12. Comparison across seasons of the relative frequencies of invasive plant impacts on the prevalence (abundance, density, or occupancy) of individual bird species. Note, the grand majority of effects are assessed during the breeding season.

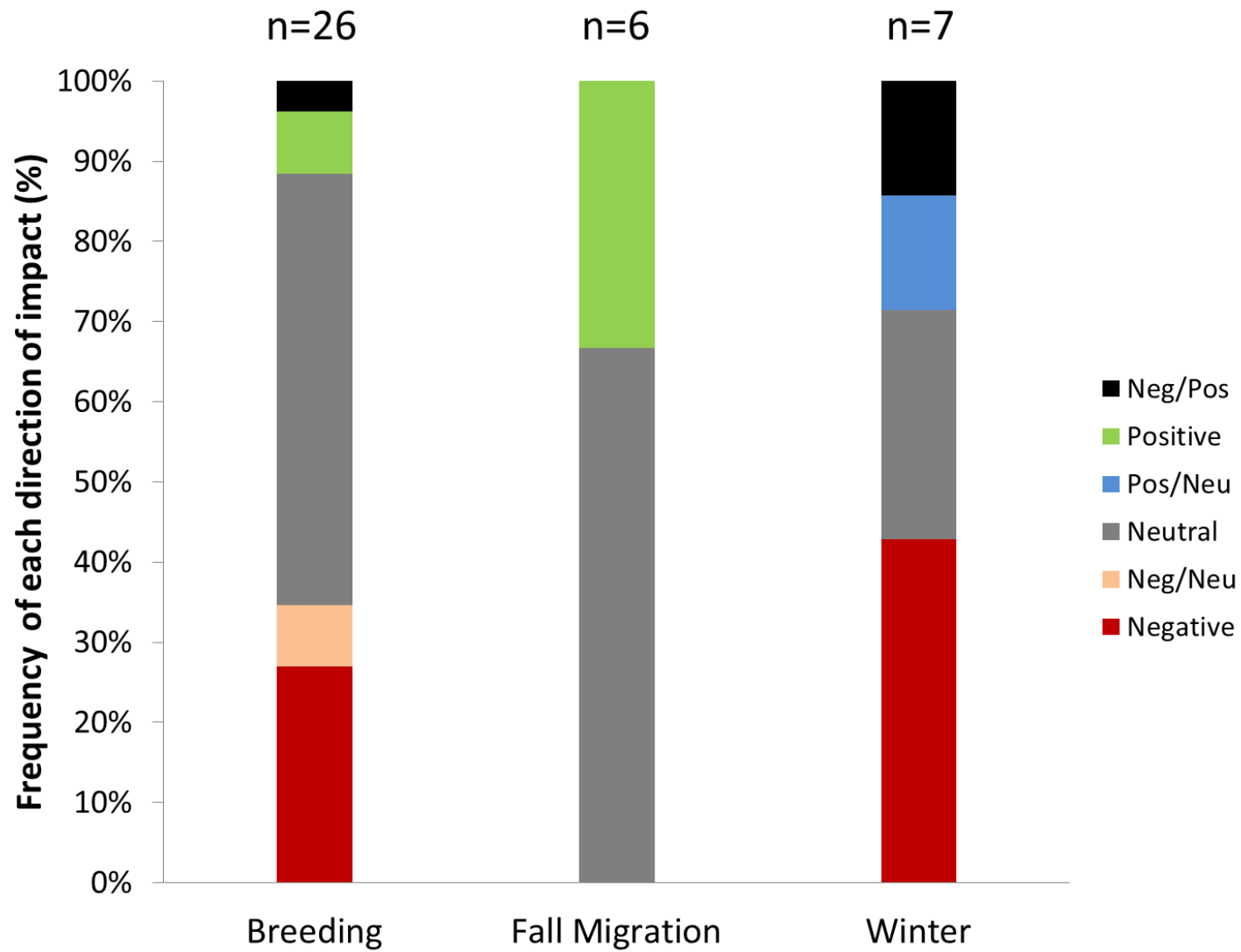


Fig C13. Comparison across seasons of reported impacts of invasive plants on the total abundance or density of birds in avian communities.

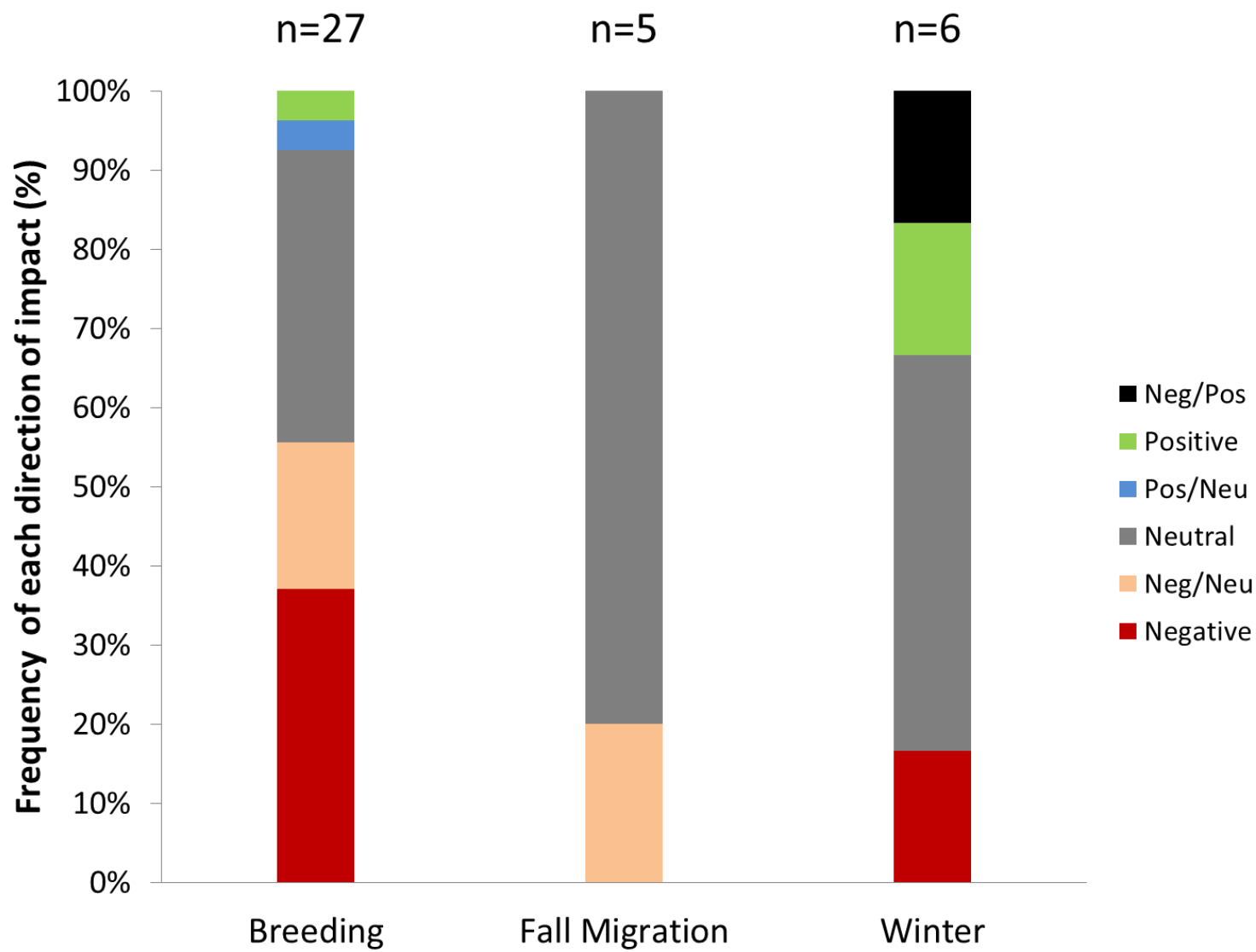


Fig C14. Comparison across seasons of reported impacts of invasive plants on the richness of avian communities.

Appendix D. Quantifying support for mechanisms explaining the impacts of plant invasions on North American birds

Article title: Patterns and mechanisms of invasive plant impacts on North American birds: a review

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Journal: Biological Invasions

Table D1. Mechanisms proposed to explain the impacts (or lack of impacts) of invasive plants on North American birds, and articles (published through 2014) that support or contradict each proposed hypothesis. Support from a given article was classified as ‘direct’ if the variables indicated in the mechanism were explicitly compared to the variables indicated in the associated pattern. Support was classified as ‘indirect’ if the mechanism variables were not explicitly compared to the pattern variables, but other observations reported in the study are consistent (or inconsistent) with the mechanism. Note, this table broadly mirrors Table 1 in the manuscript.

Hypotheses related to effects on avian distributions

Pattern	Avian species richness and abundances increase, decrease, or are unchanged by invasions
Mechanism	Avian species richness and abundances are dependent on the effects of invasions on habitat structure (e.g. stem density, plant architecture, total vegetation cover, litter depth, litter and bare ground cover, vegetation height)
Papers directly supporting	Some species respond positively, some negatively, some neutrally: McAdoo et al. 1989; Davis and Duncan 1998; Sutter and Brigham 1998; Finch and Yong 2000; Madden et al. 2000; Rosenstock and van Riper 2001; Stoleson and Finch 2001; Scott et al. 2002; Scheiman et al. 2003; Grant et al. 2004; Brand et al. 2008; McCusker et al. 2010; Fischer et al. 2012; Jacobs et al. 2012; George et al. 2013; Osborne and Sparling 2013; Schneider and Miller 2014; Smith and Finch 2014; Species respond positively to structural change: Jones and Bock 2005; Leston and Rodewald 2006; Knopf and Olsen 1984
Papers directly contradicting	Sutter and Brigham 1998; Chapman et al. 2004; Flanders et al. 2006; Kennedy et al. 2009

Papers indirectly supporting	Some species respond positively, some negatively, some neutrally: Reynolds and Trost 1980; Arnold and Higgins 1986; Brown and Trosset 1989; Bock and Bock 1992; Sutter et al. 1995; Delisle and Savidge 1997; Benoit and Askins 1999; Davis and Duncan 1999; Fleishman et al. 2003; Beachy and Robinson 2008; Thompson et al. 2009; Block and Morrison 2010; Johnson et al. 2010; Earnst and Holmes 2012; Gifford and Armacost 2012; Osborne et al. 2012; Species respond positively to structural change: Eggebo 2003; Heckscher 2004
Papers indirectly contradicting	Brown and Trosset 1989; Lloyd and Martin 2005; Smith et al. 2009; Miller et al. 2013

Pattern	Avian species richness and abundances increase, decrease, or are unchanged by invasions
Mechanism	Avian species richness and abundances are dependent on the effects of invasions on floristic composition
Papers directly supporting	Fleischman et al. 2003; Walker 2008; Schlossberg et al. 2010
Papers directly contradicting	None
Papers indirectly supporting	Flanders et al. 2006
Papers indirectly contradicting	None

Pattern	Avian species richness and abundances increase, decrease, or are unchanged by invasions
Mechanism	Avian species richness and abundances are dependent on the effects of invasions on habitat heterogeneity
Papers directly supporting	Moderate invasion increases heterogeneity and avian richness: McAdoo et al. 1989; van Riper et al. 2008; Walker 2008; Fischer et al. 2012; Invasions do not change heterogeneity or avian richness: Sutter and Brigham 1998; Chapman et al. 2004
Papers directly contradicting	None
Papers indirectly supporting	Heavy invasions homogenize habitat structure and reduce avian richness: Benoit and Askins 1999; Whitt et al. 1999; Hickman et al. 2006; Brand et al. 2008; Invaded habitats have greater heterogeneity and higher richness: Finch and Yong 2000; Fleischman et al. 2003; Heckscher 2004
Papers indirectly contradicting	None

Pattern	Avian species richness and abundances increase, decrease, or are unchanged by invasions
Mechanism	Encroachment by invasive plants reduces the size of uninvaded habitat patches but increases the size of invaded habitat patches
Papers directly supporting	Coppedge et al. 2001; Davis et al. 2013
Papers directly contradicting	None
Papers indirectly supporting	None

Papers indirectly contradicting	None
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Pattern	Birds will inhabit invaded areas regardless of habitat quality
Mechanism	Birds are using invaded habitats only because no other habitat is available
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	Fischer et al. 2012
Papers indirectly contradicting	None

Hypotheses related to effects on nesting

Pattern	Avian species richness and nest abundances increase or decrease with invasion
Mechanism	Impacts of invasive plants on birds are mediated through their effects on nest-site availability

Papers directly supporting	Nest sites increase: Brown and Trosset 1989; Brown 1992; Heckscher 2004; Smith et al. 2014; Nest sites decrease: McAdoo et al. 1989; Taylor 2003; Smith and Finch 2014
Papers directly contradicting	Nest-site availability is unchanged: Ortega et al. 2006
Papers indirectly supporting	Nest sites increase: Arnold and Higgins 1986; Hunter et al. 1988; McCusker et al. 2010; Nest sites decrease: Maddox and Wiedenmann 2005; Klaus and Keyes 2007; Brand et al. 2008; Schneider and Miller 2014
Papers indirectly contradicting	None

Pattern	Some species of birds appear to prefer nesting in invasive plants
Mechanism	Some species of birds competitively exclude other species from nesting in native plants
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	None
Papers indirectly contradicting	Maddox and Wiedenmann 2005

Pattern	Birds will nest early in the season in plant species that leaf out first, whether invasive or not
Mechanism	Birds prefer nesting in plants and habitats that grow leaves and accumulate biomass early in the breeding season
Papers directly supporting	Maddox and Wiedenmann 2005; Rodewald et al. 2010
Papers directly contradicting	Lloyd and Martin 2005
Papers indirectly supporting	Schmidt and Whelan 1999
Papers indirectly contradicting	None

Hypotheses related to effects on habitat selection and avian fitness

Pattern	Nests experience elevated mortality and parasitism rates when placed in heavily invaded patches
Mechanism	High vegetation densities indicate to predators a high probability of areas containing nests, and predators thus increase their foraging efforts
Papers directly supporting	None
Papers directly contradicting	None

Papers indirectly supporting	Schmidt and Whelan 1999; Rodewald et al 2010
Papers indirectly contradicting	None

Pattern	Nest predation is greater when all nests are placed in the same substrate species
Mechanism	Nests in monocultures of invasive plants tend to be placed in similar strata, increasing predator search efficiency
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	Rodewald et al 2010
Papers indirectly contradicting	None

Pattern	Nest-site and fledgling perch-site preferences increase with increasing concealment and vegetation density, while nest and fledgling predation decrease
Mechanism	Birds select nest sites on the basis of vegetation density and concealment, and nest predation risk is mediated by these factors

Papers directly supporting	Grant et al. 2006; Smith et al. 2009
Papers directly contradicting	Borgmann and Rodewald 2004
Papers indirectly supporting	Stoleson and Finch 2001; Heckscher 2004; Jones and Bock 2005; Ausprey and Rodewald 2011; Ruehmann et al. 2011
Papers indirectly contradicting	Smith et al. 2009

Pattern	As nest site/perching height increases, predation declines. As height decreases, predation increases.
Mechanism	When nests must be placed lower and fledglings must perch lower in the canopy, accessibility by predators increases; this effect may be mediated by nest substrate structure
Papers directly supporting	Schmidt and Whelan 1999
Papers directly contradicting	Borgmann and Rodewald 2004; Smith et al. 2009; Rodewald et al. 2010; Ausprey and Rodewald 2011
Papers indirectly supporting	Schmidt et al. 2005; Effect mediated by nest substrate structure: Smith et al. 2009
Papers indirectly contradicting	Ausprey and Rodewald 2011

Pattern	Nest predation is lower in thorny substrates
Mechanism	Thorns deter nest predators
Papers directly supporting	Schmidt and Whelan 1999; Schmidt et al. 2005
Papers directly contradicting	Borgmann and Rodewald 2004; Schlossberg and King 2010
Papers indirectly supporting	None
Papers indirectly contradicting	None

Pattern	Nests experience similar mortality rates when placed in invaded and uninvaded patches
Mechanism	Invasions create functionally redundant habitats: invasive plants are equivalent in structure to native plants
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	Jones and Bock 2005; Maddox and Wiedenmann 2005

Papers indirectly contradicting	None
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Pattern	Invasions increase nest failure rates caused by flooding
Mechanism	Birds nest in invasive plants that grow in flood-prone microhabitats
Papers directly supporting	Nordby et al. 2009
Papers directly contradicting	None
Papers indirectly supporting	None
Papers indirectly contradicting	None

Pattern	Birds prefer to settle in invaded habitats in which they actually achieve reduced fitness relative to uninvaded habitats
Mechanism	Evolution has shaped avian behavior to select habitat on the basis of cues that are now associated with low habitat quality
Papers directly supporting	Lloyd and Martin 2005; Nordy et al. 2009; Rodewald et al. 2011
Papers directly contradicting	Jones and Bock 2005, Ortega et al. 2006

Papers indirectly supporting	Schmidt and Whelan 1999
Papers indirectly contradicting	Leston and Rodewald 2006

Hypotheses related to predator communities

Pattern	Nests experience lower mortality rates when placed in invaded patches if nest predators are restricted to native vegetation patches
Mechanism	When some predator species depend on native vegetation and native vegetation is disappearing from the landscape, predators are concentrated in uninvaded areas
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	None
Papers indirectly contradicting	None

Pattern	Invasions have differing effects on nest and fledgling predation that depend on the ecology of local predators
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Mechanism	Invasion effects on nest and fledgling predation depend on predator responses to accompanying changes to habitat structure and composition; these responses may depend on the spatial scale of invasions
Papers directly supporting	Gazda et al. 2002; Schmidt et al. 2005; Grant et al. 2006; Fisher and Davis 2011
Papers directly contradicting	None
Papers indirectly supporting	Smith et al. 2009; Fisher and Davis. 2011; Hovick and Miller 2013
Papers indirectly contradicting	None

Hypotheses related to effects on adult mortality and behavior

Pattern	Invasive plants increase adult mortality
Mechanism	Small birds become entangled in invasive plants and die
Papers directly supporting	Hinam et al. 2004
Papers directly contradicting	None
Papers indirectly supporting	None

Papers indirectly contradicting	None
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Pattern	Invasive plants increase adult mortality
Mechanism	Invasive plants support the growth of novel pathogens or toxin-producing microbes
Papers directly supporting	Wilde et al. 2005
Papers directly contradicting	None
Papers indirectly supporting	None
Papers indirectly contradicting	None

Pattern	Plant invasions indirectly reduce the diversity of songs learned by young male songbirds
Mechanism	Invaded patches are avoided by older males and colonized by young males that have low diversity of song types
Papers directly supporting	Ortega et al. 2014
Papers directly contradicting	None

Papers indirectly supporting	None
Papers indirectly contradicting	None

Hypotheses related to effects on food accessibility

Pattern	Invasions reduce avian abundance, richness, or body condition; or the taxa of arthropods consumed by birds change with invasion
Mechanism	Non-native plants structurally inhibit birds from foraging on arthropod taxa that comprise diets in uninvaded habitats
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	Benoit and Askins 1999; Kennedy et al. 2009
Papers indirectly contradicting	None

Pattern	Birds forage in habitats dominated by invasive plants, or avian species richness and abundance increases with invasion
Mechanism	The structure of invaded habitats improves arthropod habitat quality and avian foraging access
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	Walker 2008
Papers indirectly contradicting	None

Hypotheses related to effects on food preference

Pattern	Avian diets consist primarily of foods supplied by invasive plants, or birds remove invasive plant food first
Mechanism	Birds prefer to eat fruits and arthropods found on invasive plants
Papers directly supporting	Fruits: Lafleur et al. 2007
Papers directly contradicting	Fruits: Greenberg et al. 2001; Drummond 2005; Arthropods: Durst et al. 2008

Papers indirectly supporting	None
Papers indirectly contradicting	Fruits: Greenberg and Walter 2010

Pattern	Avian diets consist primarily of foods supplied by native plants, or birds remove native plant food first
Mechanism	Birds prefer to eat fruits, leaves, and arthropods found on native plants
Papers directly supporting	Fruits: Jung 1992; Whelan and Wilson 1994; Smith et al. 2013; Leaves: Benedict and Hepp 2000; Arthropods: Yard et al. 2004; Weisenborn and Heydon 2007
Papers directly contradicting	Fruits: Greenberg et al. 2001; Drummond 2005; Arthropods: Durst et al. 2008
Papers indirectly supporting	Fruits: Ingold and Craycraft 1983
Papers indirectly contradicting	Fruits: Greenberg and Walter 2010

Hypotheses related to effects on food quality

Pattern	Invasion reduces body condition or increases foraging rate requirements
Mechanism	Invasive fruits are low in nutrition

Papers directly supporting	Food quality: Ingold and Craycraft 1983; Smith et al. 2013 (none of these actually showed a link to body condition, just measured nutrient content; also, more articles have tested fruit nutrient contents but did not meet the criteria for this review)
Papers directly contradicting	Food quality: Greenberg and Walter 2010 (the latter did not measure body condition, just nutrients)
Papers indirectly supporting	Foraging rate: Gleditsch and Carlo 2014
Papers indirectly contradicting	None

Pattern	Invasive plants do not reduce bird body condition
Mechanism	Fruits and arthropods on invasive plants provide sufficient nutrients for birds to maintain normal or improved body condition, or sufficient quantity of food to make up for nutrient deficits
Papers directly supporting	Witmer 1996; Owen et al. 2005; Cerasale and Guglielmo 2010
Papers directly contradicting	None
Papers indirectly supporting	Gleditsch and Carlo 2014
Papers indirectly contradicting	None

Pattern	Consuming invasive fruits improves avian body condition
Mechanism	Invasive fruits contain unique secondary chemical compounds
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	None
Papers indirectly contradicting	None

Pattern	Consuming invasive fruits alters avian plumage coloration
Mechanism	Nutritional content of invasive fruits differs from native fruits
Papers directly supporting	Witmer 1996; Jones et al. 2010; Hudon et al. 2013
Papers directly contradicting	None
Papers indirectly supporting	None

Papers indirectly contradicting	None
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Hypotheses related to effects on food quantity

Pattern	Birds are <i>more</i> abundant in invaded habitats, expand their ranges to include invaded areas, and track seasonal phenology of invasive plants
Mechanism	Non-native plants increase the abundance of food available to herbivorous birds.
Papers directly supporting	Baldwin and Lovvorn 1994; Gleditsch and Carlo 2011
Papers directly contradicting	Medina 1988
Papers indirectly supporting	Stiles 1982; Wicker and Endres 1995; Benedict and Hepp 2000; Leston and Rodewald 2006; McCusker et al. 2010
Papers indirectly contradicting	Wilcox and Beck 2007; Villamagna et al. 2012

Pattern	Avian abundance and species richness decrease with invasion, territory sizes increase, and birds select invaded habitats later leading to fewer nesting attempts
Mechanism	Invasions reduce abundance of arthropods that birds depend on for food

Papers directly supporting	Settlement and nesting decrease: Ortega et al. 2006
Papers directly contradicting	None
Papers indirectly supporting	Abundance and richness decrease concurrently with arthropods (no direct proof of linkage): Bock et al. 1986; Flanders et al. 2006; Hickman et al. 2006; Cerasale and Guglielmo 2010; George et al. 2013; Yard et al. 2004 (but no abundance data); Abundance and richness of insectivores decrease: Schneider and Miller 2014; Territory size increases: Rodewald et al. 2013;
Papers indirectly contradicting	Yard et al. 2004; Durst et al. 2008; Kennedy et al. 2009; Cerasale and Guglielmo 2010

Pattern	Avian abundance and species richness increase with invasion, territory sizes decrease
Mechanism	Invasions increase abundance of palatable arthropods
Papers directly supporting	None
Papers directly contradicting	None
Papers indirectly supporting	Abundance and richness increase: Smith and Finch 2008; Smith and Hatch 2008; Walker et al. 2008; Fisher and Davis 2011; Territory size decreases: Rodewald et al. 2013
Papers indirectly contradicting	Shanahan et al. 2011

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