

This page lists the spatial acuity values measured for a large range of species (currently over 60 species). If you are aware of any other species to be added please get in touch via the forum. The “cycles-per-degree” values listed can be used in the [AcuityView](#) tool, or the [Gaussian Acuity Control](#) tool. If the acuity of your receiver species isn’t listed, these lists should help you determine a likely “upper estimate” and “lower estimate” based on taxonomic relatedness, eye size and behavioural ecology. Repeat your analysis with both upper and lower estimates.

Collected Species

This table is based on table S1 published with AcuityView: Caves, E. M., & Johnsen, S. (2018). AcuityView: An r package for portraying the effects of visual acuity on scenes observed by an animal. *Methods in Ecology and Evolution*, 9(3), 793–797. doi:[10.1111/2041-210X.12911](#)

If you use any of the values from this table please cite the original source in addition to Caves & Johnsen et al. (2018).

Common Name	Species Name	Acuity (cyc/deg)	Citation
Eagle	<i>Aquila audax</i>	140	(Reymond, 1985)
Human	<i>Homo sapiens</i>	73	(Land 1981)
		72	(Land and Nilsson 2012)
Octopus	<i>Octopus vulgaris</i>	46	(Young 1962; Land 1981)
Jumping Spider	<i>Portia fimbriata</i>	12	(Williams & McIntyre 1980)
Cat	<i>Felis catus</i>	10	(Wässle 1971)
Goldfish	<i>Carassius auratus</i>	7	(Penzlin & Stubbe 1977)
Triggerfish	<i>Rhinecanthus aculeatus</i>	2.75	(Champ et al. 2014)
Dragonfly	<i>Aeschna grandis</i>	2	(Mazokhin-Porshnyakov 1969; Land 1997)
Hooded Rat	<i>Rattus norvegicus</i>	1	(Wiesenfeld & Branchek 1975)
Worker	<i>Apis mellifera</i>	0.5	(Wehner 1981; Land

Bee			1997)
Crab	<i>Leptograspus variegatus</i>	0.3	(Stowe 1980)
Scallop	<i>Pecten maximus</i>	0.3	(Land 1981)
Wolf Spider	<i>Lycosa spp.</i>	0.2	(Widmann 1908; Homann 1931)
Fly	<i>Drosophila melanogaster</i>	0.09	(Wehner 1981; Land 1997)
Horseshoe Crab	<i>Limulus polyphemus</i>	0.08	(Barlow, Chamberlain & Levinson 1980)
Nautilus	<i>Nautilus spp.</i>	0.06	(Land 1981)
Flatworm	<i>Euplanaria gonocephala</i>	0.01	(Land 1981)

Birds

This table is from [Graham Martin’s “Sensory Ecology of Birds” \(2017\) Oxford University Press](#), reproduced with the kind permission of the author. This textbook is an excellent introduction to avian sensory ecology and is highly recommended reading! If you use any value from this table please cite the original source, and Graham Martin’s textbook.

Order	Family	Species	Acuity (cyc/deg)	Acuity (minutes of arc)	Method	Sources
Struthioniformes	Struthionidae (Ostriches)	Common Ostrich <i>Struthio camelus</i>	19.8	1.5	ganglion	(Boire et al. 2001)
Anseriformes	Anatidae (Ducks, Geese and Swans)	Mallard <i>Anas platyrhynchos</i>	11.9	2.52	ganglion	(Lisney et al. 2013a)
		Canada Goose <i>Branta canadensis</i>	9.6	3.1	ganglion	(Fernandez-Juricic et al. 2011)
Galliformes	Phasianidae (Pheasants and allies)	Grey Partridge <i>Perdix perdix</i>	10.2	2.9	ganglion	(Lisney et al. 2012)
		Japanese Quail <i>Coturnix coturnix</i>	9.7	3.1	ganglion	“
		Red Jungle	8.3	3.6	ganglion	(Ehrlich

		Fowl <i>Gallus gallus</i>				1981)
		Common Pheasant <i>Phasianus colchicus</i>	12.9	2.3	ganglion	(Lisney et al. 2012)
		Indian Peafowl <i>Pavo cristatus</i>	20.6	1.5	ganglion	(Hart 2002)
Procellariiformes	Hydrobatidae (Northern Storm Petrels)	Leach's Storm Petrel <i>Oceanodroma leucorhoa</i>	7.1	4.2	ganglion	(Mitkus 2015)
	Procellariidae (Petrels, Shearwaters)	Northern Fulmar <i>Fulmarus glacialis</i>	44.7	0.7	ganglion	"
Suliformes	Phalacrocoracidae (Cormorants, Shags)	Great Cormorant <i>Phalacrocorax carbo</i>	3.3 (underwater)	9.1	behaviour	(White et al. 2007)
Accipitriformes	Cathartidae (New World Vultures)	Turkey Vulture <i>Cathartes atratus</i>	15.4	1.9	ganglion	(Lisney et al. 2013b)
		Black Vulture <i>Coragyps aura</i>	15.8	1.9	ganglion	"
	Accipitridae (Kites, Hawks and Eagles)	Indian Vulture <i>Gyps indicus</i>	135	0.2	behaviour	(Fischer 1969)
		Griffon Vulture <i>Gyps fulvus</i>	104	0.3	behaviour	"
		Egyptian vulture <i>Neophron percnopterus</i>	135	0.2	behaviour	"
		Wedge-tailed Eagle <i>Aquila audax</i>	142	0.2	behaviour	(Reymond 1985)
		Black Kite <i>Milvus migrans</i>	37.3	0.8	behaviour	(Potier et al. 2016)
		Harris's Hawk <i>Parabuteo unicinctus</i>	29.3	1.0	behaviour	"
Columbiformes	Columbidae	American	7.6	3.9	ganglion	(Dolan and

Strigiformes	(Pigeons, Doves)	Mourning Dove <i>Zenaida macroura</i>				Fernandez-Juricic 2010)
		Rock Dove <i>Columba livia</i>	18	1.7	behaviour	(Hodos et al. 1976)
	Tytonidae (Barn Owls)	Western Barn Owl <i>Tyto alba</i>	4.0	7.5	behaviour	(Harmening et al. 2009)
	Strigidae (Owls)	Great Horned Owl <i>Bubo virginianus</i>	7.5	4.0	behaviour	(Fite 1973)
Coraciiformes		Tawny Owl <i>Strix aluco</i>	11.1	2.7	behaviour	(Martin and Gordon 1974)
		Laughing Kookaburra <i>Dacelo novaeguineae</i>	41	0.7	ganglion	(Moroney and Pettigrew 1987)
Falconiformes		Sacred Kingfisher <i>Todiramphus sanctus</i>	26	1.2	ganglion	“
		American Kestrel <i>Falco sparverius</i>	40	0.75	behaviour	(Hirsch 1982)
		Brown Falcon <i>Falco berigora</i>	73	0.4	behaviour	(Reymond 1987)
Psittaciformes	Psittaculidae (Old World Parrots)	Bourke’s Parrot <i>Neopsephotus bourkii</i>	9.4	3.2	behaviour	(Lind et al. 2012)
		Budgerigar <i>Melopsittacus undulatus</i>	11.7	2.6	behaviour	“
Passeriformes	Meliphagidae (Honeyeaters)	Brown Honeyeater <i>Lichmera indistincta</i>	20.2	1.5	photoreceptor spacing	(Coimbra et al. 2015)
		Red Wattlebird <i>Anthochaera carunculata</i>	40.8	0.7	photoreceptor spacing	“
	Acanthizidae (Australasian Warblers)	Yellow-rumped Thornbill <i>Acanthiza chrysorrhoa</i>	25.6	1.2	photoreceptor spacing	“

Corvidae (Crows, Jays)	Blue Jay <i>Cyanocitta cristata</i>	19	1.6	ganglion	(Fite and Rosenfield-Wessels 1975)
	Eurasian Magpie <i>Pica pica</i>	33.3	0.9	behaviour	(Dabrowska 1975)
	Rook <i>Corvus frugilegus</i>	29.5	1.0	behaviour	“
Paridae (Tits, Chickadees)	Tufted Titmouse <i>Baeolophus bicolor</i>	6.6	4.5	ganglion	(Moore et al. 2013)
	Carolina Chickadee <i>Poecile carolinensis</i>	5	0.6	ganglion	“
Zosteropidae (White-eyes)	Silvereye <i>Zosterops lateralis</i>	18.5	1.6	photoreceptor spacing	(Coimbra et al. 2015)
Turdidae (Thrushes)	Common Blackbird <i>Turdus merula</i>	22.5	1.3	behaviour	(Donner 1951)
	European Robin <i>Erithacus rubecula</i>	6	5.0	behaviour	“
Passeridae (Old World Sparrows)	House Sparrow <i>Passer domesticus</i>	4.8	6.3	ganglion	(Dolan and Fernandez-Juricic 2010)
Fringillidae (Finches)	Common Chaffinch <i>Fringilla coelebs</i>	22.5	1.3	behaviour	(Donner 1951)
	House Finch <i>Haemorhus mexicanus</i>	4.7	6.4	ganglion	(Dolan and Fernandez-Juricic 2010)
Emberizidae (Buntings, New World Sparrows)	Yellowhammer <i>Emberiza citrinella</i>	9.7	3.1	behaviour	(Donner 1951)
	Common Reed Bunting <i>Emberiza schoeniclus</i>	7.8	3.8	behaviour	“

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