

Willow warbler

Phylloscopus trochilus

Main Occurrence:	Summer visitor
Breeding Period:	Apr-Jul
Summer Season:	Mar-Oct
Winter Season:	n/a

Breeding habitat:	Young woodlands, scrub, woodland edges, rides and clearings and young conifer plantations
Passage habitat:	n/a
Wintering habitat:	n/a

Breeding (summer) season

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Woodland and scrub	Food availability	Abundance of shrub-layer and canopy invertebrates	Average biomass > [xxx], including e.g. flies, beetles, moths, butterflies, aphids, earthworms, spiders	Witherby et al. 1938; Snow & Perrins 1998	Specialist
Woodland and scrub	Vegetation characteristics	Many mature, dense patches of scrub/understorey/ground cover (nesting, concealment, roosting)	Dense vegetation 3-5m tall, plus [locally frequent] patches of ground vegetation of 10-50cm	Green et al. 1994; Macdonald & Johnson 1995; Snow & Perrins 1998; [estimated, Just Ecology]	EN COs
Woodland and scrub	Vegetation characteristics	Abundance of birch, either as standards or as scrub (feeding)	[>25%] birch overall	Virkkala 1988; Mason 1997	EN COs

Wood sandpiper

Tringa glareola

Main Occurrence	Passage migrant
Breeding Period	n/a
Summer Season	May-Jun; Aug-Sep
Winter Season	n/a

Breeding habitat	n/a
Passage habitat	Inland lakes, reservoirs and gravel pits, plus coastal lagoons
Wintering habitat	n/a

Non-breeding season

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Landscape	Open terrain, relatively free of obstructions (anti-predator, feeding, roosting)	Areas with unrestricted views over [$>200\text{m}$] and an effective field size [$>10\text{ha}$]	[estimated, Just Ecology]	EN COs
Any habitat	Food availability	Abundance of surface and sub-surface invertebrates	Average biomass $>$ [xxx], including e.g. beetles, bugs, flies, earthworm, spiders, Planorbis, Melania, Carcinus, ostracods	Cramp & Simmons 1983	Specialist
Any habitat	Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [$<10\text{cm}$] throughout areas used for roosting	[estimated, Just Ecology]	EN COs
Open water	Water depth	Extensive shallow water (feeding)	[1-2cm] over [$>25\%$] of water area	Lack 1986; [estimated, Just Ecology]	EN COs

Wood warbler

Phylloscopus sibilatrix

Main Occurrence:	Summer visitor
Breeding Period:	May-Jul
Summer Season:	Apr-Sep
Winter Season:	n/a

Breeding habitat:	Deciduous or mixed woodland, often in hilly terrain, with mature canopy, little secondary growth and sparse ground cover for nesting
Passage habitat:	n/a
Wintering habitat:	n/a

Breeding (summer) season

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Woodland and scrub	Food availability	Abundance of canopy invertebrates	Average biomass > [xxx], including e.g. caterpillars, flies, moths, beetles, aphids	Witherby et al. 1938; Smart & Andrews 1985; Snow & Perrins 1998	Specialist
Woodland and scrub	Vegetation characteristics	A predominantly closed woodland canopy (feeding) and patchy ground cover (nesting)	[>80%] canopy cover, patches of ground vegetation of <20cm [locally frequent] and [<25%] ground cover overall	Smart & Andrews 1985; Gibbons et al. 1993; Wesolowski 1985; Snow & Perrins 1998; [estimated, Just Ecology]	EN COs

Woodcock	Year-round	Extensive deciduous, coniferous or mixed woodlands
Scolopax rusticola	Mar-Jul	n/a
	Apr-Sep	Woodland, scrub and pasture
	Oct-Mar	

Year-round

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworms - >22.5g/sq.m - insect larvae, beetles, earwigs, millipedes	Cramp & Simmons 1983; Hirons 1986, 1987; Hirons & Johnson 1987	Specialist
Any habitat	Hydrology/flow	Frequent patches of wet ground, in woodlands or pastures (feeding), amidst dry areas (nesting, roosting)	[25-50%] of the area with soggy ground	Smart & Andrews 1985; [estimated, Just Ecology]	EN COs
Woodland and scrub	Vegetation characteristics	Mix of very dense undergrowth or scrub (nesting, roosting) interspersed with open areas (feeding)	Patches of undergrowth and clearings [2-4ha] each [locally frequent] within nesting and feeding areas	Cramp & Simmons 1983; Lack 1986; McKelvie 1986; [estimated, Just Ecology]	EN COs

Year-round

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Vegetation characteristics	Mix of shrub/tree cover (display), short-medium vegetation and bare ground (feeding, nesting, roosting)	Frequent bare patches of <0.5ha within mosaic of short (<5cm) to medium [10-20cm] ground vegetation, and small clumps of shrubs or trees	Bowden 1990; Bowden & Hoblyn 1990; EN 1997b; Sifters et al. 1996	EN COs

Woodpigeon
Columba palumbus

Main Occurrence:	Year-round
Breeding Period:	Apr-Oct
Summer Season:	Apr-Sep
Winter Season:	Oct-Mar

Breeding habitat:	Mixed farmland with woodlands, copses or mature hedgerows, parklands and large gardens
Passage habitat:	n/a
Wintering habitat:	[as breeding habitat]

Breeding (summer) season

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
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Woodland and scrub	Vegetation characteristics	Many mature, dense patches of scrub (nesting, concealment, roosting)	Dense, almost impenetrable vegetation of 2-3m tall [locally frequent]	Macdonald & Johnson 1995; [estimated, Just Ecology]	EN COs
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Year-round

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
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Cultivated/disturbed land	Food availability	Abundance of seed-bearing and other plants	[>25% cover] of one or more target species, e.g. <i>Sinapis arvensis</i> , <i>Cerastium holosteoides</i> , <i>Triticum aestivum</i>	Inglis et al. 1990; Snow & Perrins 1998; [estimated, Just Ecology]	EN COs
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Wren

Troglodytes troglodytes

Year-round

Main Occurrence:
Breeding Period:
Summer Season:
Winter Season:

Apr-Jul

Apr-Sep

Oct-Mar

Breeding habitat:
Passage habitat:
Wintering habitat:

n/a

[as breeding habitat] plus reedbeds

Herb and rich field layers of plant growth (within or outside of woodland), crops, aquatic vegetation, fallen trees, hedgerows, gardens, parks and shrubberies

Breeding (summer) season

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Vegetation characteristics	Many mature, dense patches of undergrowth (nesting, feeding, concealment)	Dense, almost impenetrable scrub or hedgerow of >2m wide and 2-3m tall [locally frequent]	Garson 1980; Smart & Andrews 1995; Macdonald & Johnson 1995; [estimated, Just Ecology]	EN COS

Year-round

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Food availability	Abundance of shrub-layer and ground-surface invertebrates	Average biomass > [xxx], including e.g. beetles, flies, moths, butterflies, spiders, aphids	Witherby et al. 1938; Snow & Perrins 1998	Specialist

Yellow wagtail
Motacilla flava

Main Occurrence:	Summer visitor
Breeding Period:	May-Aug
Summer Season:	Apr-Sep
Winter Season:	n/a

Breeding habitat:	Flood meadows, damp grassland, marsh, edges of lakes, sewage farms, arable land and dry heaths and moorlands
Passage habitat:	n/a
Wintering habitat:	n/a

Breeding (summer) season

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Food availability	Abundance of ground-surface invertebrates	Average biomass >[xxx], including e.g. flies, beetles, spiders	Gibbons et al. 1993	Specialist
Grassland - marsh/marshy	Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	RSPB/EN/ITE 1997; Newbold 1997; [estimated, Just Ecology]	EN COs
Grassland and marsh	Vegetation characteristics	Mix of very short swards (feeding) and taller tussocks (nesting)	Sward of [<2cm] over [>75%] of area overall, with tussocks of 15-80cm [locally frequent]	Brownett 1991; Gibbons et al. 1993; Newbold 1997; Snow & Perrins 1998; [estimated, Just Ecology]	EN COs

Yellowhammer	Year-round	Mixed farmland, with pastures, arable and mature hedgerows. Also scrub, heaths and woodland edges
Emberiza citrinella	Apr-Aug	n/a
	Apr-Sep	[as breeding habitat]
	Oct-Mar	

Breeding (summer) season

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Food availability	Abundance of ground-surface and shrub-layer invertebrates	Average biomass > [xxx], including e.g. spiders, caterpillars, beetles, snails, grasshoppers, flies	Gibbons et al. 1993; Snow & Perrins 1998	Specialist

Year-round

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Any habitat	Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Festuca, Lolium and Rumex spp., cereal crops	Snow & Perrins 1998; [estimated, Just Ecology]	EN COs
Any habitat	Vegetation characteristics	Open ground [feeding] with patches of mature scrub (nesting, concealment, roosting) and tall trees [display]	[3:1] ratio of open and bushy ground, in mosaic, with scrub/hedge >3m wide and trees [>5m]	Morgan & O'Connor 1980; Green et al. 1994; Kyrkos et al. 1998; [estimated, Just Ecology]	EN COs

Year-round

Habitat	Habitat Attribute	Preferred State	Monitoring Target	Citations	Task
Cultivated/disturbed land	Landscape	High frequency of seed-rich crops (feeding) and dense, thorny hedgerows (nesting, roosting)	[>50%] of field boundaries comprising hedgerows, with cereal stubbles [locally frequent]	Morgan & O'Conner 1980; Fuller et al. 1997; Kyrkos et al. 1998; Snow & Perrins 1998; [estimated, Just Ecology]	EN COs

Annex 5: Other Factors of Importance

Factor	Description	Examples
Habitat extent	A sufficient area of habitat is required to maintain sufficient food intake, sometimes involving territoriality	<ul style="list-style-type: none"> ▪ Average summer range: Black grouse (500-700ha); Buzzard (150ha); Corncrake (female – 5.5ha, male – 15.7ha); Dartford warbler (2.4ha); Dotterel (25ha); Firecrest (1ha); Goldcrest (0.5ha); Golden eagle (4450-5250ha); Goshawk (3500-5000ha); Great-spotted woodpecker (20ha); Lesser-spotted woodpecker (15-25ha); Marsh tit (2-6ha); Marsh warbler (1ha); Nightingale (1ha); Quail (1ha); Red grouse (>2ha); Short-eared owl (>100ha); Tree pipit (1.5ha); Turtle dove (100-460ha) ▪ Maximum summer range: Curlew (500ha); Hen harrier (500ha); Marsh harrier (500ha); Merlin (1200ha) ▪ Winter range: Golden plover (90-200ha); Woodcock (9-22ha) ▪ Summer or winter range: Hen harrier (>500ha); Long-eared owl (50-500ha); Marsh harrier (1000ha)
Habitat linkages	Maintenance of habitats used for different purposes (e.g. nesting as opposed to feeding) within appropriate distances, as well as the links between them	<ul style="list-style-type: none"> ▪ Foraging at <i>long</i> distances from the nest: Arctic tern (20km); Common tern (22km); Fulmar (120km); Gannet (50km); Grey heron (30km); Guillemot (50km); Kittiwake (60km); Razorbill (30km); Red kite (10-13km); Sandwich tern (25km) ▪ Foraging at <i>medium</i> distances from the nest: Dipper (2km); Golden oriole (1km); Golden plover (4km); Mute swan (1.5km); Nightjar (1-2km); Redshank (1.5km); Shag (7km) ▪ Foraging at <i>short</i> distances from the nest: Black-tailed godwit (150m); Common sandpiper (200m); Dunnock (550m); Grasshopper warbler (200m); Starling (500m); Woodlark (400m); Chicks led from nesting to feeding habitat: ducks; swans; waders ▪ Foraging away from winter roosts: Bean goose (<14km); other geese (<5km); Cormorant (<5km); Curlew (<3km); Little egret (<20km); Long-tailed duck (<12km); Pied wagtail (<12km); Red kite (25km); swans (<5km); Teal (<15km); Wigeon (<8km); Woodcock (<1km)
Habitat loss	All species are vulnerable to habitat loss and deterioration, removing or reducing the features needed to support the life cycle	<ul style="list-style-type: none"> ▪ Bank side erosion: Kingfisher; Sand Martin ▪ Beach erosion: Little tern; Oystercatcher; Ringed plover ▪ Cliff-top erosion: Cormorant; Manx shearwater; Puffin ▪ Encroachment of <i>Spartina</i> over mudflats used by feeding birds: Dunlin; Redshank; Shelduck

Habitat Attributes for England's Birds

Factor	Description	Examples
Use of crops	<p>Many species have become dependent on planted crops, especially for feeding during the autumn and winter months</p>	<ul style="list-style-type: none"> ▪ Stubbles (buntings, doves, ducks, geese, finches, gulls, swans, sparrows, waders); sugar beet (ducks, partridges, swans); cereals (buntings, ducks, swans, geese, finches, Montagu's harrier, partridges, doves, pigeons, Rook, Skylark, sparrows, waders, warblers, wagtails), potatoes (ducks, swans, geese); plough (gulls, Stock dove, waders); root crops (ducks, geese, Skylark); legumes (doves, pigeons)
Substrates or landform	<p>Some species have become partially dependent on fisheries whilst feeding inland or on the coast</p> <p>Requirement for particular substrates or landforms are important but sometimes outside the influence of management control</p>	<ul style="list-style-type: none"> ▪ Inland fisheries: Cormorant; Great-crested grebe; Grey heron; Red-breasted merganser ▪ Marine aquaculture facilities: Cormorant; Eider; Grey heron; Red-breasted merganser; Scaup; Shag
Sewage and freshwater outflows	<p>Some species require access to fresh water in intertidal areas, whilst others congregate at sewage outfalls to feed on waste and the high, associated invertebrate biomass</p>	<ul style="list-style-type: none"> ▪ Wet/soft intertidal substrates for sifting or probing whilst feeding: ducks; Little egret; swans; waders ▪ Soft, cliff-top soils for burrowing: Manx shearwater; Puffin ▪ Loose boulders with deep crevices: Goosander; Rock pipit; Shag; Storm petrel; Wheatear ▪ Broad cliff ledges for nesting: Cormorant; Fulmar; Gannet; Shag (>30cm) ▪ Narrow cliff ledges for nesting: Guillemot; Kittiwake (<20cm); Razorbill ▪ Steep rock faces: Golden eagle; House martin; Peregrine; Raven ▪ Shallow beaches offering broad littoral zone: Purple sandpiper; Turnstone ▪ Boulders, riffles and sand-banks in rivers/lakes: Goosander; Red-breasted merganser ▪ Freshwater outflows: ducks; Brent goose; Little gull ▪ Sewage outflows: Goldeneye; Little gull; Pochard; Scaup
Competition and Species associations	<p>Competition for food or other resources (e.g. nest sites) within or between species</p>	<ul style="list-style-type: none"> ▪ Intra-specific competition: Oystercatcher; Shelduck ▪ Inter-specific competition: Avocet vs gulls for nest sites; terns vs gulls for nest sites; fish compete with ducklings for food; Black grouse compete with sheep for food; competition between large owls for nest sites and habitat; competition amongst cavity nesters for nest sites; amongst tits and finches for foods

Habitat Attributes for England's Birds

Factor	Description	Examples
	<ul style="list-style-type: none"> Association of one species with another, sometimes involving kleptoparasitism 	<ul style="list-style-type: none"> Kleptoparasites: Arctic skua; Great skua; Black-headed gull; Common gull; Gadwall Host for kleptoparasitism: seabirds; gulls; Lapwing; Golden Plover; Coot; ducks Nest parasite: Cuckoo vs Meadow pipit, Reed warbler, Dunnock etc. Shared responsibility for, or beneficiary of, nest defense: gulls and terns; Lapwing and Black-tailed godwit; ducks and gulls Close association when feeding, benefiting from shared cues: Golden plover and Lapwing Use of nests made by other species: raptors use of crow nests; hole nesters and woodpeckers Strong dependency on one key prey item: birds of prey and owls and vole cycles Dependency on foods provided by man: swans; ducks; gulls; garden birds
Disturbance and predation	<p>Human or other disturbance of nesting, roosting or feeding birds may result in reduced fitness and displacement</p> <p>A high local abundance of predators, usually mammals (cats, fox, stoat, weasel, rat, mink, polecat, pine martin) or predatory birds (e.g. birds of prey, gulls, crows, woodpeckers) may impact on breeding success and survival</p>	<ul style="list-style-type: none"> Nest disturbance: Cormorant; ducks; grebes; grouse; gulls; raptors; seabirds; swans; terns; waders Feeding or roost disturbance: Cormorant; ducks; finches; geese; gulls; Little egret; Long-eared owl; Hen harrier; Marsh harrier; martins; Pied wagtail; Shag; Short-eared owl; Starling; swallows; swans; thrushes; waders Predation of eggs or young: buntings; chats; Cormorant; ducks; grebes; grouse; Moorhen; Nightjar; partridges; rails; terns; seabirds; sparrows; thrushes; waders; warblers Predation of full-grown birds: buntings; ducks; finches; rails; seabirds; sparrows; swans; waders
Persecution/exploitation	<p>Excessive levels of human interference may impact on breeding success and survival</p>	<ul style="list-style-type: none"> Illegal control of predatory birds to protect game birds: Goshawk; Hen harrier; Kestrel; Peregrine; Raven; Sparrowhawk Control of predatory birds to protect other birds: gulls; Magpie Control of predatory birds to protect fish stocks: Cormorant; Eider; Goosander; Red-breasted merganser; Shag Control of predatory birds (often illegal) to protect livestock: Buzzard; Golden eagle; large gulls; Red kite Egg collecting for rare species: Avocet; Black-tailed godwit; Dartford warbler; Goshawk; Hobby; Little-ringed plover; Marsh harrier; Montagu's harrier; Osprey; Peregrine; Red kite; Roseate tern; Stone-curlew Hunting: all quarry species (some doves, geese, ducks, waders; partridges, pheasant; pigeons; quail) Theft of young birds for falconry: Goshawk; Peregrine

Habitat Attributes for England's Birds

Factor	Description	Examples
Other hazards	<p>A variety of additional factors may be hazardous, directly or indirectly through food supplies, to nesting or feeding birds or birds in flight</p>	<ul style="list-style-type: none"> ▪ Acidification: Dipper; Grey wagtail ▪ Afforestation of moorland areas: Curlew; Dunlin; Golden Plover; Merlin; Raven; Ring ouzel; Wheatear ▪ Collision with powerlines: Barn owl; Black grouse (fences also); Common tern; Corncrake; Golden eagle; Merlin; Osprey; swans ▪ Discarded fishing tackle, e.g. line, hooks: swans; ducks; rails; some passerines ▪ Disease outbreaks: ducks; gulls; waders ▪ Drainage and agricultural improvements: Black grouse; buntings; Corncrake; ducks; finches; Moorhen; owls; partridges; pipits; Red grouse; Skylark; sparrows; Spotted crane; waders; wagtails; warblers; Water rail; Whinchat ▪ Ingestion of lead used in fishing and wildfowling: ducks; geese; swans; birds of prey ▪ Fire, destroying nests and young: Dartford warbler; Merlin; Nightjar; Red grouse ▪ Flooding of nests: Avocet; Bittern; ducks; grebes; gulls; Marsh harrier; terns; waders ▪ Marine pollution: Cormorant; divers; grebes; gulls; Rock pipit; sea ducks; seabirds ▪ Mowing or other crop management, causing nest destruction: Corncrake; ducks; Montagu's harrier; Stone-curlew; other waders ▪ Pesticide poisoning: crows; birds of prey; doves; finches; Magpie; owls; Song thrush ▪ Severe weather: Bearded tit; Bittern; Cetti's warbler; Goldcrest; Grey heron; Kingfisher; Long-tailed tit; Moorhen; Nuthatch; Robin; Spotted crane; Stonechat; Teal; waders; Woodcock; Wren

Annex 6a: Coastal Seabirds Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Connectivity	Undisturbed islands or grassy cliff-top areas (nesting) very close to the sea (feeding)	Several suitable nesting areas [$<1\text{km}$] from the sea	Puffin
Food availability	Abundance of fish, mammals, birds, ground-surface and aquatic invertebrates and offal	Average biomass $> [xxx]$, including e.g. voles, small seabirds, waders, sandeel, cod, herring, roach, rudd, beetles, flies, earthworm, offal	Lesser black-backed gull
Food availability	Abundance of marine fish	Average biomass $> [xxx]$, including e.g. sandeel, whiting, herring, sprat and cod of 5-17cm	Arctic tern, Guillemot, Kittiwake, Puffin, Razorbill, Roseate tern, Sandwich tern, Shag
Food availability	Abundance of marine fish and crustaceans, or freshwater fish	Average biomass $> [xxx]$, including e.g. sandeel and sprat of 5-8cm, coarse fish, crustacea, annelids	Common tern
Food availability	Abundance of marine fish, crustaceans, worms and molluscs	Average biomass $> [xxx]$, including e.g. crustacea, annelids, sandeel, clupeidae	Little tern
Food availability	Abundance of marine fish, crustaceans, zooplankton and offal	Average biomass $> [xxx]$, including e.g. herring, sprat, gobies [size], jelly fish, ichthyoplankton, microzooplankton	Storm petrel
Landform	Abundance of ground-level cracks, crevices and fissures in coastal nesting areas (colonial nesting)	Potential nest sites of [xx cm wide, xx cm deep] [abundant] across nesting areas	Roseate tern
Substrate	Open ground with sparse vegetation and bare surfaces predominating in coastal nesting areas (colonial nesting)	Vegetation cover [$<20\%$] throughout the area used for nesting	Puffin
Vegetation characteristics	Frequent patches of short vegetation or bare ground (landing) amongst longer vegetation, in coastal nesting areas (colonial nesting)	Short vegetation of [$<3\text{cm}$], in rides of 1-2m wide through taller vegetation of [20-60cm], and [$<25\%$] overall	Roseate tern
Vegetation characteristics	Mix of short vegetation/bare ground (colonial nesting) and longer vegetation (concealment)	Short vegetation of $<3\text{cm}$, in patches not exceeding 100x30m, and [$<50\%$] overall	Arctic tern, Common tern
Vegetation characteristics	Predominantly medium to tall swards (colonial nesting)	[20-60cm] throughout areas used for nesting	Lesser black-backed gull
Vegetation characteristics	Predominantly open ground with sparse vegetation and bare surfaces (colonial nesting)	Vegetation cover [$<10\%$] throughout the areas used for nesting	Little tern, Sandwich tern

Annex 6b: Coastal Marshes and Mudflats Assemblage

Please note that this is a wintering bird assemblage, unlike all others which are for breeding birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Connectivity	Pastures (feeding) very close to open water (roosting, anti-predator)	Feeding pastures adjacent to or no more than 50m from open water	Wigeon
Food availability	Abundance of aquatic invertebrates	Average biomass > [xxx], including e.g. Hydrobia, crustaceans, caddisflies, diptera, beetles, Corophium, bugs	Shelduck, Shoveler, Teal
Food availability	Abundance of aquatic plants	[>25% cover] of one or more target species, e.g. Scirpus, Eleocharis, Carex, Potamogeton, Glyceria	Shoveler
Food availability	Abundance of aquatic plants	[>25% cover] of one or more target species, e.g. Potamogeton, Callitriche, Ceratophyllum, Zannichellia, Myriophyllum, Chara spp., Ranunculus,	Bewick's swan, Mute swan, Pochard, Tufted duck, Whooper swan
Food availability	Abundance of freshwater, benthic invertebrates	Average biomass > [xxx], including e.g. Trichoptera, chironomid larvae, Gammarus, Asellus, Dreissena polymorpha, Hydrobia	Goldeneye, Pochard, Tufted duck, Scaup
Food availability	Abundance of intertidal or freshwater insects, crustaceans, molluscs, fish or worms	Average biomass > [xxx], including e.g. Gammarus, Corophium, flies, beetles, Neries, Hydrobia, Cardium, gobies	Avocet
Food availability	Abundance of intertidal or terrestrial surface and sub-surface invertebrates	Average biomass > [xxx], including e.g. Cardium and Mytilus of 15-35mm, Arenicola, earthworm, leatherjackets	Oystercatcher
Food availability	Abundance of intertidal worms and molluscs	Average biomass > [xxx], including e.g. Arenicola, Nereis	Bar-tailed godwit
Food availability	Abundance of intertidal worms, molluscs and crustaceans	Average biomass > [xxx], including e.g. Nereis, Arenicola and Notomastus (biomass >1000/m ²)	Grey plover
Food availability	Abundance of intertidal, epibenthic invertebrates and insects amongst rotting seaweed	Average biomass > [xxx], including e.g. Balanus, Mytilus, Littorina, Nucella, kelp-fly larvae, Carcinus, Gammarus, dipertan flies	Purple sandpiper, Turnstone
Food availability	Abundance of intertidal, mud-surface plants and green algae	[>25% cover] of one or more target species, e.g. Zostera, Enteromorpha, Ruppia	Brent goose, Mute swan, Whooper swan, Wigeon
Food availability	Abundance of marine fish and aquatic invertebrates	Average biomass > [xxx], including e.g. stickleback, gobies, flatfish, herring of <11cm, shrimps, Nereis	Red-breasted merganser
Food availability	Abundance of marine molluscs and crustaceans	Average biomass > 25gm/m ³ , including e.g. Mytilus of <30mm, Carcinus and gastropods 12-15mm	Eider
Food availability	Abundance of marine molluscs and worms	Average biomass > [xxx], including e.g. Macoma, Cardium, Nereis, Mytilus, Littorina	Black-tailed godwit, Scaup
Food availability	Abundance of marine molluscs, gastropods and crustaceans	Average biomass > [xxx], including e.g. Mytilus and Cardium of <40mm	Common scoter
Food availability	Abundance of marine or freshwater fish	Average biomass > [xxx], including e.g. fish of 3-21cm for adults and <10cm for young	Great crested grebe

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of marine or freshwater fish and aquatic invertebrates	Average biomass >[xxx], including e.g. salmon, perch, trout, eel, carp, perch, rudd, herring, cod, sandeels of <10cm, chironomid larvae	Goosander
Food availability	Abundance of marine or freshwater fish, amphibians and aquatic invertebrates	Average biomass >[xxx], including e.g. fish [size], frogs, mayflies, stoneflies, beetles, Asellus	Little grebe
Food availability	Abundance of marine, benthic invertebrates	Average biomass >[xxx], including e.g. Mytilus, Cardium, Littorina, Hydrobia, Carcinus	Goldeneye
Food availability	Abundance of seed-bearing plants around freshwaters	[>25% cover] of one or more target species, e.g. Polygonum, Eleocharis, Rumex, Ranunculus	Teal
Food availability	Abundance of seed-bearing plants of saltmarsh	[>25% cover] of one or more target species, e.g. Salicornia, Atriplex	Teal
Food availability	Abundance of soft-leaved and aquatic plants	[>25% cover] of one or more target species, e.g. Glyceria, Agrostis, Chara, Potamogeton, Ceratophyllum, Elodea, Rumex	Gadwall, Pintail
Food availability	Abundance of soft-leaved and seed-bearing plants on pastures	[>25% cover] of one or more target species, e.g. Lolium perenne, Agrostis stolonifera, Juncus gerardii	Barnacle goose
Food availability	Abundance of soft-leaved plants on pastures	[>25% cover] of one or more target species, e.g. Lolium perenne, Glyceria fluitans, Phleum pratense, Rorippa amphibia, Alopecurus geniculatus	Bewick's swan
Food availability	Abundance of soft-leaved plants on pastures	[>25% cover] of one or more target species, e.g. Agrostis stolonifera, Lolium perenne	Brent goose
Food availability	Abundance of soft-leaved plants on pastures	[>25% cover] of one or more target species, e.g. Lolium perenne, Phleum pratense, Poa and Festuca spp.	Greylag goose
Food availability	Abundance of soft-leaved plants on pastures	[>25% cover] of one or more target species, e.g. Trifolium repens, Lolium perenne, Poa trivialis, Holcus lanatus	White-fronted goose
Food availability	Abundance of soft-leaved plants on pastures	[>25% cover] of one or more target species, e.g. Lolium perenne, Alopecurus geniculatus, Phleum pratense	Whooper swan
Food availability	Abundance of soft-leaved plants on pastures and marsh	[>25% cover] of one or more target species, e.g. Eleocharis palustris	Pintail
Food availability	Abundance of soft-leaved plants on pastures and marsh	[>25% cover] of one or more target species, e.g. Glyceria fluitans, Rorippa spp., Alopecurus geniculatus	Mute swan
Food availability	Abundance of soft-leaved plants on pastures and marsh	[>25% cover] of one or more target species, e.g. Trifolium repens, Poa pratensis, Alopecurus geniculatus	Pink-footed goose
Food availability	Abundance of soft-leaved plants on pastures and marsh	[>25% cover] of one or more target species, e.g. Lolium, Glyceria, Agrostis, Alopecurus spp.	Wigeon
Food availability	Abundance of soft-leaved plants on saltmarsh	[>25% cover] of one or more target species, e.g. Trifolium repens, Puccinellia maritima, Festuca rubra, Triglochin maritima	Barnacle goose
Food availability	Abundance of soft-leaved plants on saltmarsh	[>25% cover] of one or more target species, e.g. Spergularia, Puccinellia, Triglochin, Aster trifolium, Plantago, Salicornia spp.	Brent goose

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of soft-leaved plants on saltmarsh	[>25% cover] of one or more target species, e.g. <i>Puccinellia marima</i> , <i>Hordeum marinum</i> , <i>Lolium perenne</i> , <i>Festuca rubra</i> , <i>Alopecurus bulbosus</i>	White-fronted goose
Food availability	Abundance of soft-leaved plants on saltmarsh	[>25% cover] of one or more target species, e.g. <i>Agrostis stolonifera</i> , <i>Puccinellia maritima</i> , <i>Salicornia</i> spp.	Wigeon
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, leatherjackets, beetles, spiders, dipteran flies	Curlew, Golden plover, Redshank, Ruff, Lapwing
Food availability	Abundance of surface and near-surface intertidal invertebrates	Average biomass > [xxx], including e.g. <i>Hydrobia</i>	Pintail
Food availability	Abundance of surface and near-surface invertebrates	Average biomass > [xxx], including e.g. lepidoptera, tipulids, beetles, mayflies, <i>Gammarus</i> , <i>Tubifex</i> worms, <i>Pisidium</i>	Ringed plover
Food availability	Abundance of surface and sub-surface intertidal invertebrates	Average biomass > [xxx], including e.g. <i>Carcinus</i> , <i>Nereis</i> , <i>Macoma</i> , <i>Hydrobia</i> , <i>Crangon</i> , <i>Corophium</i> , <i>Mytilus/Cerastoderma spat</i>	Curlew, Dunlin, Knot, Redshank
Food availability	Abundance of surface and sub-surface intertidal invertebrates	Average biomass > [xxx], including e.g. <i>Bathyporeia</i> and <i>Mytilus spat</i> , wrack flies, sandhoppers	Sanderling
Food availability	Abundance of surface and sub-surface intertidal invertebrates	Average biomass > [xxx], including e.g. <i>Nereis</i> , <i>Corophium</i> , <i>Hydrobia</i> - biomass >1000/m ² for <i>Hydrobia</i>	Shelduck
Hydrology/flow	Dropping water levels (providing a succession of surface water areas in standing waters for feeding)	Water levels falling by [5-15%] per month, from the time of mean hatch date	Shelduck
Hydrology/flow	Fluctuating water levels, providing a succession of surface water areas in standing waters (feeding)	Water levels fluctuating by [5-15%] per month	Bewick's swan, Whooper swan
Hydrology/flow	Frequent areas of shallow, flooded water of irregular shapes on pasture and marsh (feeding)	Shallow water [<10cm] across [30-50%] of area	Lapwing
Hydrology/flow	Wet pastures with many surface pools, ditches or channels (feeding)	[20-40%] of the area soggy or flooded with shallow water of [<6cm]	Bewick's swan, Oystercatcher, Redshank
Landscape	Open areas, relatively free of obstructions, including large fields (roosting)	Areas with unrestricted views over [>500m] with an effective field size [>16ha]	Lapwing
Landscape	Open areas, relatively free of obstructions, including large fields (anti-predator)	Areas with unrestricted views over [>500m] with an effective field size [>5ha]	Barnacle goose, Bewick's swan, Brent goose, Greylag goose, Pink-footed goose, White-fronted goose, Whooper swan, Wigeon
Landscape	Open areas, relatively free of obstructions, including large fields (anti-predator, roosting)	Areas with unrestricted views over [>200m] with an effective field size [>10ha]	Bar-tailed godwit, Black-tailed godwit, Curlew, Dunlin, Golden plover, Grey plover, Knot, Oystercatcher, Purple sandpiper, Redshank, Ringed plover, Ruff, Sanderling, Turnstone

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [$<10\text{cm}$] throughout areas used for roosting	Bar-tailed godwit, Black-tailed godwit, Curlew, Dunlin, Golden plover, Grey plover, Knot, Lapwing, Oystercatcher, Purple sandpiper, Redshank, Ringed plover, Ruff, Sanderling, Turnstone
Vegetation characteristics	Predominantly short grassland swards (feeding)	[$<15\text{cm}$] throughout areas used for feeding	Lapwing
Vegetation characteristics	Predominantly short grassland swards (feeding)	$<5\text{cm}$ throughout areas used for feeding	Wigeon
Vegetation characteristics	Predominantly short grassland swards (feeding)	$<10\text{cm}$ throughout areas used for feeding	Barnacle goose, Bewick's swan, Brent goose, Golden plover, Greylag goose, Whooper swan
Vegetation characteristics	Predominantly short to medium grassland swards (feeding)	[$10\text{-}20\text{cm}$] throughout areas used for feeding	Pink-footed goose, White-fronted goose
Water area	Large open areas of water (feeding, roosting)	One or more freshwaters of [$>10\text{ha}$]	Bewick's swan
Water area	Large open areas of water (feeding, roosting)	One or more salt or freshwaters of [$>10\text{ha}$]	Pink-footed goose, Red-breasted merganser, Whooper swan
Water area	Medium to large open areas of water (feeding, roosting)	One or more fresh or saltwaters of [$>5\text{ha}$]	Goldeneye, Mute swan
Water area	Medium to large open areas of water (feeding, roosting)	One or more freshwaters of [$>5\text{ha}$]	Pochard, Tufted duck
Water area	Small to large open areas of water (feeding, roosting)	One or more salt or freshwaters of $>1\text{ha}$	Great crested grebe, Little grebe
Water depth	Extensive shallow to medium depth water (feeding)	2-5m over [$>50\%$] of water area	Goldeneye, Pochard, Tufted duck
Water depth	Extensive shallow water (feeding)	[$1\text{-}3\text{cm}$] over [$>50\%$] of water area	Ruff
Water depth	Extensive shallow water (feeding)	[$<40\text{cm}$] over [$>50\%$] of water area	Shelduck
Water depth	Extensive shallow water (feeding)	1-3m over [$>50\%$] of the water area	Eider, Great crested grebe
Water depth	Extensive shallow water (feeding)	$<1\text{m}$ over [$>50\%$] of water area	Little grebe, Mute swan
Water depth	Extensive shallow water (feeding)	[$1\text{-}6\text{cm}$] over [$>50\%$] of water area	Redshank
Water depth	Extensive shallow water (feeding)	[$<25\text{cm}$] over [$>50\%$] of water area	Gadwall, Pintail, Shoveler, Teal,
Water depth	Extensive shallow water (feeding)	$<1\text{m}$ over [$>50\%$] of the water area	Bewick's swan, Whooper swan

Annex 6c: Sand dunes and Saltmarshes Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Cavities	High frequency of ground cavities (e.g. rabbit burrows, low tree-holes) (nesting)	Suitable cavities of 20-30cm wide and [>1 m deep] [locally frequent]	Shelduck
Connectivity	Large populations of host species (breeding) close to wooded habitat (feeding)	Abundance of hosts, e.g. breeding reed warbler, dunnock, meadow pipit, <5 km from wooded feeding habitats	Cuckoo
Food availability	Abundance of ground-surface and aquatic invertebrates and offal	Average biomass $>[xxx]$, including e.g. earthworm, wireworm, leatherjacket, Neires, Arenicola, Hydrobia	Black-headed gull
Food availability	Abundance of ground-surface and shrub-layer invertebrates	Average biomass $>[xxx]$, including e.g. spiders, caterpillars, beetles, snails, grasshoppers, flies, aphids, bugs, earthworms	Corn bunting, Cuckoo, Reed bunting, Whinchat
Food availability	Abundance of ground-surface invertebrates	Average biomass $>[xxx]$, including e.g. chironomid larvae, isopods, periwinkles, beetles, moths, flies, spiders, earthworm	Rock pipit, Stonechat
Food availability	Abundance of intertidal or terrestrial surface and sub-surface invertebrates	Average biomass $>[xxx]$, including e.g. Cardium and Mytilus of 15-35mm, Arenicola, earthworm, leatherjackets	Oystercatcher
Food availability	Abundance of live birds and mammals	Average biomass $>[xxx]$, including e.g. small to medium-sized birds - pipits to waders - and mammals - shrews to rabbit	Montagu's harrier, Short-eared owl
Food availability	Abundance of marine fish and crustaceans, or freshwater fish	Average biomass $>[xxx]$, including e.g. sandeel and sprat of 5-8cm, coarse fish, crustacea, annelids	Common tern
Food availability	Abundance of seed-bearing plants	[$>25\%$ cover] of one or more target species e.g. Triticum aestivum, Hordeum, Lolium, Polygonum, Rumex, Carex and Agrostis spp.	Corn bunting, Linnet, Reed bunting
Food availability	Abundance of shrub-layer invertebrates	Average biomass $>[xxx]$, including e.g. flies, moths, beetles, damselflies, bugs, aphids, spiders	Grasshopper warbler, Sedge warbler
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass $>[xxx]$, including e.g. earthworm, leatherjacket, dipteran flies, beetles, ants, caddis fly, spiders, lepidoptera	Curlew, Lapwing, Redshank, Snipe
Food availability	Abundance of surface and near-surface invertebrates	Average biomass $>[xxx]$, including e.g. lepidoptera, tipulids, beetles, mayflies, Gammarus, Tubifex worms, Pisidium, dipteran flies, caddisfly, wasps, sawflies	Dunlin, Ringed plover
Food availability	Abundance of water-surface invertebrates (feeding by young)	Average biomass $>[xxx]$, including e.g. hatching midges	Shelduck
Grazing animals	Low stock densities to reduce losses to trampling (nesting)	Bovine density <1.25 /ha and sheep density [<7.5 /ha]	Curlew, Lapwing, Oystercatcher, Redshank
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[$20-30\%$] of the area soggy or flooded	Snipe
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [$>30\%$] of wetland perimeter	Snipe
Landscape	Open areas, relatively free of obstructions, including large fields (anti-predator, display roosting)	Areas with unrestricted views over [>200 m] with an effective field size [>10 ha]	Black-tailed godwit, Curlew, Dunlin, Oystercatcher, Redshank, Ringed Plover, Snipe

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Landscape	Open areas, relatively free of obstructions, including large fields (roosting)	Areas with unrestricted views over [$>500\text{m}$] with an effective field size [$>16\text{ha}$]	Lapwing
Landscape	Open ground (feeding, display)	Areas with unrestricted views over [$>1\text{km}$] and [$<25\%$] tree or scrub cover	Short-eared owl
Landscape	Open terrain (feeding) with isolated trees, hedgerows or other song posts (display)	Areas with unrestricted views over [$>200\text{m}$] and song posts [locally frequent]	Corn bunting
Landscape	Open terrain with frequent bare or rocky substrates (nesting, feeding)	Areas with unrestricted views over [$>100\text{m}$] and [$>75\%$] rocky or bare ground	Rock pipit
Landscape	Open terrain with low or sparse vegetation predominating (feeding)	Areas with unrestricted views over [$>300\text{m}$] and predominantly low vegetation of [$<50\text{cm}$]	Montagu's harrier
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (colonial nesting)	Several patches of vegetation of [$20-60\text{cm}$], [$<100\text{m}$] from open water, within areas used for nesting	Eider
Vegetation characteristics	Frequent patches of tall vegetation, close to open water (nesting)	Several patches of vegetation of [$0.5-1\text{m}$], [$<50\text{m}$] from open water, within areas used for nesting	Red-breasted merganser
Vegetation characteristics	Frequent patches of tall vegetation, over or close to water (nesting, feeding)	Several patches of vegetation of [$>0.5\text{m}$], [$<50\text{m}$] from water, within areas used for nesting	Reed bunting, Sedge warbler
Vegetation characteristics	Mix of low scrub patches (nesting, roosting) amidst open ground (feeding)	Patches of scrub [$>100\text{sq.m}$] and [$<2\text{m}$] tall [locally frequent] amongst predominantly open ground	Linnet
Vegetation characteristics	Mix of medium height ground vegetation and scrub/low trees (feeding, nesting, display)	[1:1] ratio of open ground with vegetation [$>10\text{cm}$] and scrub/trees of [$2-3\text{m}$] within areas used for nesting	Grasshopper warbler
Vegetation characteristics	Mix of medium to tall (nesting, roosting) and low, sparse vegetation (feeding)	[Locally frequent] patches of dwarf-shrub, emergents or crops of $50-100\text{cm}$, in mosaic with short [$<30\text{cm}$] vegetation	Montagu's harrier
Vegetation characteristics	Mix of short (feeding) and long vegetation (nesting), with isolated trees (anti-predator)	[1:3] ratio of short [$<15\text{cm}$] to long [$>20-50\text{cm}$], in mosaic, with trees (or posts) [locally frequent], in nesting areas	Redshank
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short $<5\text{cm}$ to long $25-100\text{cm}$ vegetation, in mosaic, within breeding areas	Curlew
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short [$<5\text{cm}$] to long $10-30\text{cm}$ vegetation, in mosaic, within breeding areas	Dunlin
Vegetation characteristics	Mix of short grassland (feeding) and low trees or scrub (nesting)	Patches of trees or scrub of $>0.3-2\text{m}$ [locally frequent] within open grassland in nesting areas	Whinchat
Vegetation characteristics	Mix of short vegetation/bare ground (nesting) and longer vegetation (concealment)	Short vegetation of $<3\text{m}$, in patches not exceeding $100\times 30\text{m}$, and [$<50\%$] overall	Arctic tern, Common tern
Vegetation characteristics	Mix of very short swards (feeding) and taller scrub (nesting, display, roosting)	Sward mostly of [$<5\text{cm}$], tussocks/scrub of $0.5-2\text{m}$ [locally frequent], and [$25-75\%$] of scrub overall	Stonechat
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[$>80\%$] vegetation cover overall, [$20-100\text{cm}$] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Open ground with predominantly short vegetation and frequent bare patches (nesting)	Unrestricted views over [$>200\text{m}$] with most vegetation of [$10-30\text{cm}$] and [$10-20\%$] bare or sparsely vegetated ground	Oystercatcher

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Open ground with predominantly short vegetation and frequent bare patches (nesting, feeding)	Unrestricted views over [>200m] with most vegetation of [<5cm] and [10-20%] bare or sparsely vegetated ground	Ringed plover
Vegetation characteristics	Open ground with short vegetation predominating (feeding)	[<5cm] throughout the areas used for feeding	Rock pipit
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Black-tailed godwit, Curlew, Dunlin, Lapwing, Oystercatcher, Redshank, Ringed Plover, Snipe
Vegetation characteristics	Predominantly open ground with sparse vegetation and bare surfaces (colonial nesting)	Vegetation cover [<10%] throughout the areas used for nesting	Little tern, Sandwich tern
Vegetation characteristics	Predominantly short grassland swards (feeding)	[<15cm] throughout areas used for feeding	Lapwing
Vegetation characteristics	Predominantly short to medium ground vegetation, scrub or trees (nesting)	Ground layer of [0.3-1m] over {>75%} of area, or scrub/trees of [<2m] and [<50%] overall	Short-eared owl
Vegetation characteristics	Predominantly short to medium swards (colonial nesting)	10-30cm throughout areas used for nesting	Black-headed gull
Water depth	Extensive shallow water (feeding)	[<40cm] over [>50%] of water area	Shelduck
Water depth	Extensive water areas of medium depth (feeding)	2-4m over [>50%] of water area	Red-breasted merganser

Annex 6d: Lowland Damp Grasslands Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Cavities	High frequency of ground cavities (e.g. rabbit burrows, low tree-holes) (nesting)	Suitable cavities of 20-30cm wide and [>1 m deep] [locally frequent]	Shelduck
Connectivity	Large populations of host species (breeding) close to wooded habitat (feeding)	Abundance of hosts, e.g. breeding reed warbler, dunnock, meadow pipit, <5 km from wooded feeding habitats	Cuckoo
Food availability	Abundance of aquatic invertebrates	Average biomass $>[xxx]$, including e.g. snails, chironomids, water beetles, caddisfly larvae, bugs, Hydrobia, crustaceans, diptera, Corophium, flies	Garganey, Shoveler, Shelduck, Teal
Food availability	Abundance of aquatic plants	[$>25\%$ cover] of one or more target species, e.g. Potamogeton, Sparganium, Scirpus, Carex, Glyceria, Rumex, Ranunculus, Eleocharis, Callitriche, Myriophyllum, Chara spp.	Garganey, Shoveler, Mute swan
Food availability	Abundance of ground-surface invertebrates	Average biomass $>[xxx]$, including e.g. beetles, ants, earwigs, crickets, flies, spiders	Quail, Yellow wagtail
Food availability	Abundance of ground-surface and shrub-layer invertebrates	Average biomass $>[xxx]$, including e.g. aphids, caterpillars, spiders, bugs, beetles, flies, earthworms, snails	Cuckoo, Reed bunting, Whinchat
Food availability	Abundance of live mammals and birds	Average biomass $>[xxx]$, including e.g. small-medium sized mammals - voles, mice, shrews, rabbits and birds - pipits, waders, ducks	Marsh harrier, Short-eared owl
Food availability	Abundance of seed-bearing plants	[$>25\%$ cover] of one or more target species, e.g. Stellaria, Spargularia and Galeopsis spp.	Quail
Food availability	Abundance of seed-bearing plants	[$>25\%$ cover] of one or more target species, e.g. Carex and Agrostis spp.	Reed bunting
Food availability	Abundance of seed-bearing plants	[$>25\%$ cover] of one or more target species, e.g. Polygonum, Eleocharis, Rumex, Ranunculus	Teal
Food availability	Abundance of shrub-layer invertebrates	Average biomass $>[xxx]$, including e.g. flies, moths, beetles, damselflies, bugs, aphids, spiders	Grasshopper warbler, Sedge warbler
Food availability	Abundance of soft-leaved and aquatic plants	[$>25\%$ cover] of one or more target species, e.g. Glyceria fluitans, Agrostis stolonifera, Chara, Potamogeton, Ceratophyllum spp., Elodea, Rumex, Glyceria, Chara	Gadwall, Pintail
Food availability	Abundance of soft-leaved plants	[$>25\%$ cover] of one or more target species, e.g. Glyceria fluitans, Rorippa spp., Alopecurus geniculatus	Mute swan
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass $>[xxx]$, including e.g. earthworm, leatherjacket, chironomids, dipteran flies, beetles, ants, caddis fly, spiders, lepidoptera	Black-tailed godwit, Curlew, Redshank, Ruff, Snipe
Food availability	Abundance of surface and near-surface invertebrates	Average biomass $>[xxx]$, including e.g. earthworm, leatherjackets	Lapwing
Food availability	Abundance of surface and sub-surface invertebrates	Average biomass $>[xxx]$, including e.g. Nereis, Corophium, Hydrobia - biomass $>1000/m^2$ for Hydrobia	Shelduck

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of water-surface invertebrates (feeding by young)	Average biomass > [xxx], including e.g. hatching midges	Gadwall, Mute swan, Pintail, Shelduck, Shoveler, Teal
Grazing animals	Low stock densities to reduce losses to trampling (nesting)	Bovine density <1.25/ha and sheep density [<7.5/ha]	Black-tailed godwit, Curlew, lapwing, redshank, snipe.
Hydrology/flow	Dropping water levels (providing a succession of surface water areas for feeding)	Water levels falling by [5-15%] per month, from the time of mean hatch date	Gadwall, Garganey, Mute swan, Pintail, Shelduck, Shoveler, Teal
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	Black-tailed godwit, garganey, lapwing, ruff, shoveler, snipe, yellow wagtail
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-40%] of the area soggy or flooded with shallow water of [<6cm]	Redshank
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [>30%] of wetland perimeter	Snipe
Landform	Pools, ditches or channels mostly with shallow gradients for easy access by chicks (feeding)	Most [>75% by area] water features with shallow slopes [<10%] along [>30%] length/perimeter	Black-tailed godwit, lapwing, redshank
Landscape	Large, unbroken expanse of emergent vegetation (nesting, feeding)	Continuous reed over >25ha	Marsh harrier
Landscape	Open areas, including large fields (anti-predator, display)	Areas with unrestricted views over [>200m] with an effective field size [>10ha]	Black-tailed godwit, snipe Curlew, Redshank, Ruff
Landscape	Open areas, including large fields (roosting)	Areas with unrestricted views over [>500m] with an effective field size [>16ha]	Lapwing
Landscape	Open ground (feeding, display)	Areas with unrestricted views over [>1km] and [<25%] tree or scrub cover	Short-eared owl
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<50m] from open water, within areas used for nesting	Gadwall, Garganey, Pintail, Shoveler, Teal
Vegetation characteristics	Frequent patches of tall vegetation, over or close to water (nesting)	Several patches of vegetation of [>0.5m], [<50m] from water, within areas used for nesting	Reed bunting
Vegetation characteristics	Frequent patches of tall vegetation, over or close to water (nesting, feeding)	Several patches of vegetation of [>1m], [<50m] from water, within areas used for nesting	Sedge warbler
Vegetation characteristics	High frequency of favoured tall grass and scrub plant species (nesting, feeding)	[>25% cover] of one or more target species, including e.g. Pteridium aquilinum, Ulex europaeus, Deschampsia cespitosa	Whinchat
Vegetation characteristics	Mix of medium height ground vegetation and scrub/low trees (feeding, nesting, display)	[1:1] ratio of open ground with vegetation [>10cm] and scrub/trees of [2-3m] within areas used for nesting	Grasshopper warbler
Vegetation characteristics	Mix of short (display) and moderately tall vegetation (nesting)	[1:1] ratio of short [<5cm] to medium/long [>10cm] vegetation, in mosaic, throughout areas used for nesting	Ruff
Vegetation characteristics	Mix of short (feeding) and long vegetation (nesting), with isolated trees (anti-predator)	[1:3] ratio of short [<15cm] to long [>20-50cm], in mosaic, with trees (or posts) [locally frequent], in nesting areas	Redshank

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short <5cm to long 25-100cm vegetation, in mosaic, within breeding areas	Curlew
Vegetation characteristics	Mix of short and taller, tussocky, wet vegetation (nesting)	Patches of vegetation of 20-30cm tall [frequent] amidst a shorter sward overall	Black-tailed godwit
Vegetation characteristics	Mix of short grassland (feeding) and low trees or scrub (nesting)	Patches of trees or scrub of >0.3-2m [locally frequent] within open grassland in nesting areas	Whinchat
Vegetation characteristics	Mix of very short swards (feeding) and taller tussocks (nesting)	Sward of [<2cm] over [>75%] of area overall, with tussocks of 15-80cm [locally frequent]	Yellow wagtail
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[>80%] vegetation cover overall, [20-100cm] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Open ground with medium to tall vegetation predominating (nesting, concealment)	30-100cm throughout the area used for nesting and feeding	Quail
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Black-tailed godwit, Curlew, Lapwing, Redshank, Ruff
Vegetation characteristics	Predominantly short grassland swards (feeding)	[<15cm] throughout areas used for feeding	Lapwing
Vegetation characteristics	Predominantly short to medium ground vegetation, scrub or trees (nesting)	Ground layer of [0.3-1m] over {>75%} of area, or scrub/trees of [<2m] and [<50%] overall	Short-eared owl
Vegetation characteristics	Pure reed stand with vigorous growth over whole area (nesting, concealment)	[At least 30% reedbed uncut, remainder not more than 6 years old with no more than 20% cut in any year]	Marsh harrier
Water area	Medium to large open areas of water (feeding, roosting)	One or more salt or freshwaters of [>5ha]	Mute swan
Water depth	Extensive shallow water (feeding)	<25cm over [>50%] of water area	Gadwall, Garganey
Water depth	Extensive shallow water (feeding)	<1m over [>50%] of water area	Mute swan
Water depth	Extensive shallow water (feeding)	[<30cm] over [>50%] of water area	Pintail, Shoveler, Teal
Water depth	Extensive shallow water (feeding)	[1-3cm] over [>50%] of water area	Ruff
Water depth	Extensive shallow water (feeding)	[<40cm] over [>50%] of water area	Shelduck
Water depth	Shallow water throughout reedbed	10-30cm throughout	Marsh harrier

Annex 6e: Lowland Fen without Open Water Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Connectivity	Large populations of host species (breeding) close to wooded habitat (feeding)	Abundance of hosts, e.g. breeding reed warbler, dunnoek, meadow pipit, <5km from wooded feeding habitats	Cuckoo
Food availability	Abundance of aquatic invertebrates	Average biomass >[xxx], including e.g. snails, chironomids, water beetles, caddisfly larvae, bugs, Hydrobia, crustaceans, diptera	Garganey, Shoveler
Food availability	Abundance of aquatic plants	[>25% cover] of one or more target species, e.g. Potamogeton, Sparganium, Scirpus, Carex, Glyceria, Rumex, Ranunculus, Eleocharis	Garganey, Shoveler
Food availability	Abundance of fish and amphibians	Average biomass > [xxx], including e.g. eel, rudd, roach of 6-35cm, frogs, toads	Bittern
Food availability	Abundance of fish, amphibians and aquatic invertebrates	Average biomass >[xxx], including e.g. fish [size], frogs, mayflies, stoneflies, beetles, Asellus	Little grebe
Food availability	Abundance of ground-surface and semi-aquatic invertebrates	Average biomass >[xxx], including e.g. caddisflies, damselflies, moth larvae, bugs, ants, snails, slugs	Spotted crane
Food availability	Abundance of ground-surface and shrub-layer invertebrates	Average biomass > [xxx], including e.g. aphids, caterpillars, spiders, bugs, beetles, flies, earthworms, snails	Cetti's warbler, Cuckoo, Reed bunting, Whinchat
Food availability	Abundance of live birds and mammals	Average biomass >[xxx], including e.g. small to medium-sized birds - pipits to ducks - and mammals - voles to rabbit	Montagu's harrier, Marsh harrier
Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Carex and Agrostis spp.	Reed bunting
Food availability	Abundance of shrub-layer invertebrates	Average biomass > [xxx], including e.g. flies, moths, beetles, damselflies, bugs, stoneflies, spiders, snails, aphids, chironomids	Bearded tit, Grasshopper warbler, Reed warbler, Sedge warbler
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, dipteran flies, beetles, ants, caddis fly, spiders, lepidoptera	Snipe
Food availability	Abundance of soil and ground-surface invertebrates and amphibians	Average biomass >[xxx], including e.g. caddisfly, earwig, water bugs, beetles, snails, small frogs	Water rail
Grazing animals	Low stock densities on pasture or marsh to reduce losses to trampling (nesting)	Bovine density <1.25/ha and sheep density [<7.5/ha]	Snipe
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	Garganey, Shoveler, Snipe, Spotted crane
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [>30%] of wetland perimeter	Snipe
Landscape	Large, unbroken expanse of emergent vegetation (feeding, nesting, cover)	Continuous reed over [>20ha]	Bearded tit, Bittern, Cetti's warbler, Marsh harrier
Landscape	Open areas, including large fields (anti-predator, display)	Areas with unrestricted views over [>200m] and an effective field size of [>10ha]	Snipe
Landscape	Open terrain with low or sparse vegetation predominating (feeding)	Areas with unrestricted views over [>300m] and predominantly low vegetation of [<50cm]	Montagu's harrier
Salinity	Freshwater wetlands (feeding)	Fresh water: salinity [<5%]	Bittern

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<50m] from open water, within areas used for nesting	Garganey, Shoveler, Teal, Gadwall
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to water (nesting, concealment)	Several patches of vegetation of [20-60cm], [<25m] from water, within areas used for nesting	Spotted crake
Vegetation characteristics	Frequent patches of tall vegetation, over or close to water (nesting, feeding)	Several patches of vegetation of [>0.5m], [<50m] from water, within areas used for nesting	Reed bunting
Vegetation characteristics	Frequent patches of tall vegetation, over or close to water (nesting, feeding)	Several patches of vegetation of [>1m], [<50m] from water, within areas used for nesting	Reed warbler, Sedge warbler
Vegetation characteristics	Mix of medium height ground vegetation and scrub/low trees (feeding, nesting, display)	[1:1] ratio of open ground with vegetation [>10cm] and scrub/trees of [2-3m] within areas used for nesting	Grasshopper warbler
Vegetation characteristics	Mix of medium to tall (nesting, roosting) and low, sparse vegetation (feeding)	[Locally frequent] patches of dwarf-shrub, emergents or crops of 50-100cm, in mosaic with short [<30cm] vegetation	Montagu's harrier
Vegetation characteristics	Mix of short grassland (feeding) and low trees or scrub (nesting)	Patches of trees or scrub of >0.3-2m [locally frequent] within open grassland in nesting areas	Whinchat
Vegetation characteristics	Mix of transitional, young and old reedbed, including drier areas with dense understory (nesting)	[x:y:z ratio] of transitional, young and old overall, and [locally frequent] dry patches	Bearded tit
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[>80%] vegetation cover overall, [20-100cm] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Predominantly tall, emergent vegetation, interspersed with scrub/trees (feeding, concealment)	Tall vegetation [>1m] predominating with trees/scrub [locally frequent] within nesting areas	Water rail
Vegetation characteristics	Pure reed stand with vigorous growth over whole area (nesting, concealment)	[At least 30% reedbed uncut, remainder not more than 6 years old with no more than 20% cut in any year]	Bittern, Marsh harrier
Vegetation characteristics	Wet, swampy areas with low and fragmented scrubby cover (nesting, feeding, display)	[3:1] ratio of pure swamp vegetation, e.g. reedbed, to low scrub of [0.5-2m], in mosaic	Cetti's warbler
Water depth	Shallow water throughout reedbed	10-30cm throughout	Marsh harrier
Water depth	Shallow water within reeds, plus frequent deep pools and dykes (feeding)	Water throughout reedbed of 10-30cm, with pools and dykes 2-4m deep	Bittern

Annex 6f: Lowland Open Waters and their Margins Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Cavities	High frequency of ground cavities (e.g. rabbit burrows, low tree-holes) (nesting)	Suitable cavities of 20-30cm wide and [$>1m$ deep] [locally frequent]	Shelduck
Connectivity	Large populations of host species (breeding) close to wooded habitat (feeding)	Abundance of hosts, e.g. breeding reed warbler, dunnock, meadow pipit, $<5km$ from wooded feeding habitats	Cuckoo
Connectivity	Undisturbed islands in fresh or brackish waters (nesting) very close to the sea (feeding)	Several suitable nesting areas [$<2km$] from the sea	Common tern
Food availability	Abundance of aquatic invertebrates	Average biomass $>[xxx]$, including e.g. snails, chironomids, water beetles, caddisfly larvae, bugs, Hydrobia, crustaceans, diptera, caddisfly, mayfly, stonefly, true flies, Corophium, beetles	Garganey, Shoveler, Grey wagtail, Shelduck, Teal
Food availability	Abundance of aquatic plants	[$>25\%$ cover] of one or more target species, e.g. Potamogeton, Sparganium, Scirpus, Carex, Glyceria, Rumex, Ranunculus, Eleocharis, Callitriche, Myriophyllum, Chara spp., Nitella	Garganey, Shoveler, Mute swan, Pochard, Tufted duck
Food availability	Abundance of benthic invertebrates	Average biomass $>[xxx]$, including e.g. Dreissena polymorpha, chironomid larvae, Gammarus, Hydrobia, chironomid larvae	Pochard, Tufted duck
Food availability	Abundance of fish	Average biomass $> [xxx]$, including e.g. fish of 3-21cm for adults and $<10cm$ for young	Great crested grebe
Food availability	Abundance of fish	Average biomass $>[xxx]$, including e.g. minnows, bullheads, roach, sticklebacks of 3-7cm	Kingfisher
Food availability	Abundance of fish	Average biomass $>[xxx]$, including e.g. salmon, brook lamprey, minnow, gobies, eels of $<11cm$	Red-breasted merganser
Food availability	Abundance of fish and amphibians	Average biomass $> [xxx]$, including e.g. eel, rudd, roach of 6-35cm, frogs, toads	Bittern
Food availability	Abundance of fish, amphibians and aquatic invertebrates	Average biomass $>[xxx]$, including e.g. fish [size], frogs, mayflies, stoneflies, beetles, Asellus	Little grebe
Food availability	Abundance of fish, amphibians, young waterbirds and small mammals	Average biomass $>[xxx]$, including e.g. carp, roach, trout, eel of $<60cm$, frogs, ducklings, voles, rats	Grey heron
Food availability	Abundance of ground-surface invertebrates	Average biomass $>[xxx]$, including e.g. flies, beetles, spiders	Yellow wagtail
Food availability	Abundance of ground-surface and semi-aquatic invertebrates	Average biomass $>[xxx]$, including e.g. caddisflies, damselflies, moth larvae, bugs, ants, snails, slugs, beetles, spiders, bugs, ants, flies, mayfly nymphs	Spotted crane, Little ringed plover
Food availability	Abundance of ground-surface and shrub-layer invertebrates	Average biomass $[xxx]$, including e.g. caterpillars, beetles, spiders, aphids, bugs, snails	Cuckoo, Reed bunting, Cetti's Warbler
Food availability	Abundance of live birds and mammals	Average biomass $>[xxx]$, including e.g. small to medium-sized birds - pipits to ducks - and mammals - voles to rabbit	Montagu's harrier, Marsh harrier

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of marine fish and crustaceans, or freshwater fish	Average biomass > [xxx], including e.g. sandeel and sprat of 5-8cm, coarse fish, crustacea, annelids	Common tern
Food availability	Abundance of marine fish and aquatic invertebrates	Average biomass >[xxx], including e.g. stickleback, gobies, flatfish, herring of <11cm, shrimps, Nereis	Red-breasted merganser
Food availability	Abundance of marine or freshwater insects, crustaceans, molluscs, fish or worms	Average biomass > [xxx], including e.g. Gammarus, Corophium, flies, beetles, Neries, Hydrobia, Cardium, gobies	Avocet
Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Carex, Agrostis spp., Polygonum, Eleocharis, Rumex, Ranunculus	Reed bunting, Teal
Food availability	Abundance of shrub-layer invertebrates	Average biomass > [xxx], including e.g. flies, moths, beetles, damselflies, bugs, stoneflies, spiders, snails, aphids, chironomids	Bearded tit, Grasshopper warbler, Reed warbler, Sedge warbler
Food availability	Abundance of soft-leaved plants	[>25% cover] of one or more target species, e.g. Glyceria fluitans, Rorippa spp., Alopecurus geniculatus	Mute swan
Food availability	Abundance of soft-leaved and aquatic plants	[>25% cover] of one or more target species, e.g. Glyceria fluitans, Agrostis stolonifera, Chara, Potamogeton, Ceratophyllum spp., Elodea, Rumex	Gadwall, Pintail
Food availability	Abundance of soil invertebrates	Average biomass > [xxx], including e.g. earthworm, leatherjacket	Redshank
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, dipteran flies, beetles, ants, caddis fly, spiders, lepidoptera	Snipe
Food availability	Abundance of soil and ground-surface invertebrates and amphibians	Average biomass >[xxx], including e.g. caddisfly, earwig, water bugs, beetles, snails, small frogs	Water rail
Food availability	Abundance of surface and near-surface invertebrates	Average biomass > [xxx], including e.g. lepidoptera, tipulids, beetles, mayflies, Gammarus, Tubifex worms, Pisidium	Ringed plover
Food availability	Abundance of surface and sub-surface invertebrates	Average biomass > [xxx], including e.g. Nereis, Corophium, Hydrobia - biomass >1000/m ² for Hydrobia	Shelduck
Food availability	Abundance of water-surface invertebrates (feeding by young)	Average biomass > [xxx] , including e.g. hatching midges	Gadwall, Mute swan, Pintail, Shelduck, Shoveler, Teal.
Grazing animals	Low stock densities to reduce losses to trampling (nesting)	Bovine density <1.25/ha and sheep density [<7.5/ha]	Redshank, Snipe
Hydrology/flow	Dropping water levels (providing a succession of surface water areas for feeding)	Water levels falling by [5-15%] per month, from the time of mean hatch date	Gadwall, Garganey, Mute swan, Pintail, Shelduck, Shoveler, Teal.
Hydrology/flow	Stable water levels (nesting)	[<2cm] fluctuation	Avocet
Hydrology/flow	Stable water levels (nesting)	[<4cm] fluctuation	Great crested grebe
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	Garganey, Shoveler, Spotted crane, Yellow wagtail
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-40%] of the area soggy or flooded with shallow water of [<6cm]	Redshank

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Landform	Ditches predominantly with shallow margins and not too deep (feeding)	Most [>75% by area] ditches up to 2.5m deep, consisting of a deep central channel (>1.5m) and 1m deep/5m wide shallow margin on at least one side	Bittern
Landform	Frequent low, shallow-sloping islands affording maximum protection against flooding (colonial nesting)	Several low islands/spits [grading to <30cm above water level] or platforms	Common tern
Landform	Frequent secure islands with tall grasses and/or mature scrub (nesting)	Several inaccessible islands with [>25 sq.m] dense vegetation	Red-breasted merganser
Landform	Frequent steep/vertical sandy or clay banks over water (nesting)	Nesting banks near-vertical, 1-2m tall, sparsely vegetated and above water [locally frequent]	Kingfisher
Landform	Frequent steep, well vegetated banks, cliffs, waterfalls or bridges (nesting)	Suitable nest sites over water or on steep (>75o) slopes, [>75%] vegetated and [locally frequent]	Grey wagtail
Landform	High frequency of wide river sections (anti-predator)	10-30m wide over [>50%] of length	Red-breasted merganser
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [>30%] of wetland perimeter	Snipe
Landform	Many shallow-sloping banks along the waters' edge, not too steep for fishing (feeding)	All water features with shallow [<25%] slopes along [>50%] length/perimeter	Grey heron
Landform	Pools, ditches or channels mostly with shallow gradients for easy access by chicks (feeding)	Most [>75% by area] water features with shallow slopes [<10%] along [>30%] length/perimeter	Redshank, Little ringed plover
Landform	Shallow-sloping ground adjacent to water (colonial nesting)	Sloping land, [grading to <30cm above water level], including or islands, spits or platforms	Avocet
Landscape	Large, unbroken expanse of emergent vegetation (feeding, nesting, cover)	Continuous reed over [>20ha]	Bearded tit, Bittern, Cetti's warbler, Marsh harrier
Landscape	Open areas, including large fields(anti-predator, display, roosting)	Areas with unrestricted views over [>200m] and an effective field size of [>10ha]	Snipe, Redshank, Ringed plover
Landscape	Open terrain with low or sparse vegetation predominating (feeding)	Areas with unrestricted views over [>300m] and predominantly low vegetation of [<50cm]	Montagu's harrier
Salinity	Freshwater wetlands (feeding)	Fresh water: salinity [<5%]	Bittern
Salinity	Wetlands that are not too salty (feeding)	Fresh or brackish water: salinity <25%	Avocet
Substrate	Frequent patches of shingle or gravel next to open water (nesting, feeding)	Shingle/gravel present on [>30%] of land area and in patches >0.2ha	Little ringed plover
Vegetation characteristics	Frequent patches of mature trees, over or close to open water (nesting, roosting)	Several patches of trees of [>20m] and [<1km] from open water	Grey heron
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<50m] from open water, within areas used for nesting	Gadwall, Garganey, Pintail, Pochard, Shoveler, Teal, Tufted duck.
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to water (nesting, concealment)	Several patches of vegetation of [20-60cm], [<25m] from water, within areas used for nesting	Spotted crane

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Frequent patches of tall vegetation, close to open water (nesting)	Several patches of vegetation of [0.5-1m], [<50m] from open water, within areas used for nesting	Red-breasted merganser
Vegetation characteristics	Frequent patches of tall vegetation, over or close to water (nesting, feeding)	Several patches of vegetation of [>1m], [<50m] from water, within areas used for nesting	Reed warbler, Sedge warbler
Vegetation characteristics	Frequent patches of tall vegetation, over or close to water (nesting)	Several patches of vegetation of [>0.5m], [<50m] from water, within areas used for nesting	Reed bunting
Vegetation characteristics	Many dense patches of vegetation, with overhanging branches at water level (nesting)	Patches of emergent or marginal vegetation of [>2 sq.m] [locally frequent]	Little grebe
Vegetation characteristics	Many patches of overhanging, marginal vegetation providing perches from which to hunt (feeding)	Patches of overhanging vegetation [locally frequent]	Kingfisher
Vegetation characteristics	Mix of medium height ground vegetation and scrub/low trees (feeding, nesting, display)	[1:1] ratio of open ground with vegetation [>10cm] and scrub/trees of [2-3m] within areas used for nesting	Grasshopper warbler
Vegetation characteristics	Mix of medium to tall (nesting, roosting) and low, sparse vegetation (feeding)	[Locally frequent] patches of dwarf-shrub, emergents or crops of 50-100cm, in mosaic with short [<30cm] vegetation	Montagu's harrier
Vegetation characteristics	Mix of short (feeding) and long vegetation (nesting), with isolated trees (anti-predator)	[1:3] ratio of short [<15cm] to long [>20-50cm], in mosaic, with trees (or posts) [locally frequent], in nesting areas	Redshank
Vegetation characteristics	Mix of short vegetation/bare ground (colonial nesting) and longer vegetation (concealment)	Short vegetation of <3cm, in patches not exceeding 100x30m, and [<50%] overall	Common tern
Vegetation characteristics	Mix of transitional, young and old reedbed, including drier areas with dense understory (nesting)	[x:y:z ratio] of transitional, young and old overall, and [locally frequent] dry patches	Bearded tit
Vegetation characteristics	Mix of very short swards (feeding) and taller tussocks (nesting)	Sward of [<2cm] over [>75%] of area overall, with tussocks of 15-80cm [locally frequent]	Yellow wagtail
Vegetation characteristics	Open ground with predominantly short vegetation and frequent bare patches (nesting, feeding)	Unrestricted views over [>200m] with most vegetation of [<5cm] and [10-20%] bare or sparsely vegetated ground	Ringed plover
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[>80%] vegetation cover overall, [20-100cm] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Redshank, Ringed plover
Vegetation characteristics	Predominantly open ground with sparse vegetation and bare surfaces (nesting)	Vegetation cover [<20%] throughout the areas used for nesting	Little ringed plover
Vegetation characteristics	Predominantly tall, emergent vegetation, interspersed with scrub/trees (feeding, concealment)	Tall vegetation [>1m] predominating with trees/scrub [locally frequent] within nesting areas	Water rail
Vegetation characteristics	Pure reed stand with vigorous growth over whole area (nesting, concealment)	At least 30% reedbed uncut and remainder not more than 6 years old with no more than 20% cut in any year	Bittern, Marsh Harrier

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Wet, swampy areas with low and fragmented scrubby cover (nesting, feeding, display)	[3:1] ratio of pure swamp vegetation, e.g. reedbed, to low scrub of [0.5-2m], in mosaic	Cetti's warbler
Water area	Large open areas of water (feeding)	Several freshwater pools of [>0.5ha], but <20% of reedbed area overall	Bittern
Water area	Large open areas of water (feeding, roosting)	One or more salt or freshwaters of >15ha	Red-breasted merganser
Water area	Medium to large open areas of water (feeding, roosting)	One or more salt or freshwaters of [>5ha]	Mute swan
Water area	Medium to large open areas of water (feeding, roosting)	One or more freshwaters of >6ha	Pochard
Water area	Medium to large open areas of water (feeding, roosting)	One or more freshwaters of [>5ha]	Tufted duck
Water area	Medium to large wetlands (concealment, feeding)	One or more freshwaters of >4ha	Water rail
Water area	Small to large open areas of water (feeding, roosting)	One or more salt or freshwaters of >1ha	Great crested grebe
Water area	Small to medium open areas of water (feeding)	One or more freshwaters of [>0.5ha]	Little ringed plover
Water area	Small to medium open areas of water (feeding, nesting)	One or more freshwaters of >1ha	Little grebe
Water depth	Extensive shallow to medium depth water (feeding)	2-5m over [>50%] of water area	Pochard
Water depth	Extensive shallow water (feeding)	3-5cm over [>50%] of water area	Avocet
Water depth	Extensive shallow water (feeding)	<25cm over [>50%] of water area	Gadwall, Garganey
Water depth	Extensive shallow water (feeding)	1-3m over [>50%] of water area	Great crested grebe
Water depth	Extensive shallow water (feeding)	<0.5m over [>50%] of water area	Grey heron
Water depth	Extensive shallow water (feeding)	0.5-1m over [>50%] of water area	Little grebe
Water depth	Extensive shallow water (feeding)	[1-3cm] over [>50%] of the water area	Little ringed plover
Water depth	Extensive shallow water (feeding)	<1m over [>50%] of water area	Mute swan
Water depth	Extensive shallow water (feeding)	[<30cm] over [>50%] of water area	Pintail, Shoveler, Teal.
Water depth	Extensive shallow water (feeding)	[<40cm] over [>50%] of water area	Shelduck
Water depth	Extensive water areas of medium depth (feeding)	2-4m over [>50%] of water area	Red-breasted merganser
Water depth	Extensive water areas of shallow to medium depth water (feeding)	2-5m over [>50%] of water area	Tufted duck
Water depth	Shallow water throughout reedbed	10-30cm throughout	Marsh harrier
Water depth	Shallow water within reeds, plus frequent deep pools and dykes (feeding)	Water throughout reedbed of 10-30cm, with pools and dykes 2-4m deep	Bittern

Annex 6g: Upland Waters and their Margins Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Cavities	Abundance of large tree cavities (nesting)	Suitable cavities of 110-125mm across and >45cm deep [locally frequent]	Goldeneye
Connectivity	Undisturbed islands in fresh or brackish waters (nesting) very close to the sea (feeding)	Several suitable nesting areas [<2km] from the sea	Common tern
Food availability	Abundance of aquatic invertebrates and fish	Average biomass > [xxx], including e.g. mayfly nymphs, caddisfly larvae, Gammarus, true flies, stoneflies, bullheads	Dipper
Food availability	Abundance of aquatic invertebrates	Average biomass > [xxx], including e.g. caddisfly, mayfly, stonefly, true flies, Hydrobia, crustaceans, caddisflies, diptera, beetles, bugs	Grey wagtail, Shoveler, Teal
Food availability	Abundance of aquatic plants	[>25% cover] of one or more target species, e.g. Scirpus, Eleocharis, Carex, Potamogeton, Glyceria, Chara, Nitella	Shoveler, Tufted duck
Food availability	Abundance of benthic invertebrates	Average biomass > [xxx], including e.g. Trichoptera, chironomid larvae, Gammarus, Asellus, Dreissena polymorpha, Hydrobia	Goldeneye, Tufted duck
Food availability	Abundance of fish	Average biomass > [xxx], including e.g. fish of 3-21cm for adults and <10cm for young	Great crested grebe
Food availability	Abundance of fish	Average biomass > [xxx], including e.g. salmon, brook lamprey, minnow, gobies, eels of <11cm	Red-breasted merganser
Food availability	Abundance of fish, amphibians, young waterbirds and small mammals	Average biomass > [xxx], including e.g. carp, roach, trout, eel of <60cm, frogs, ducklings, voles, rats	Grey heron
Food availability	Abundance of fish, amphibians and aquatic invertebrates	Average biomass > [xxx], including e.g. fish [size], frogs, mayflies, stoneflies, beetles, Asellus	Little grebe
Food availability	Abundance of intertidal or terrestrial surface and sub-surface invertebrates	Average biomass > [xxx], including e.g. Cardium and Mytilus of 15-35mm, Arenicola, earthworm, leatherjackets	Oystercatcher
Food availability	Abundance of marine fish and crustaceans, or freshwater fish	Average biomass > [xxx], including e.g. sandeel and sprat of 5-8cm, coarse fish, crustacea, annelids	Common tern
Food availability	Abundance of marine or freshwater fish and aquatic invertebrates	Average biomass > [xxx], including e.g. salmon, perch, trout, eel, carp, perch, rudd, herring, cod, sandeels of <10cm, chironomid larvae	Goosander
Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Polygonum, Eleocharis, Rumex, Ranunculus	Teal
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, leatherjackets, dipteran flies, beetles, ants, caddis fly, spiders, lepidoptera	Curlew, Redshank, Snipe
Food availability	Abundance of surface and sub-surface invertebrates	Average biomass > [xxx], including e.g. beetles, bugs, flies, Gammarus, spiders, Hydrobia, Littorina, earthworm, caddisfly, wasps, sawflies, mayflies	Common sandpiper, Dunlin
Food availability	Abundance of surface and near-surface invertebrates	Average biomass > [xxx], including e.g. lepidoptera, tipulids, beetles, mayflies, Gammarus, Tubifex worms, Pisidium	Ringed plover

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of water-surface invertebrates (feeding by young)	Average biomass > [xxx], including e.g. hatching midges	Shoveler, Teal, Wigeon
Grazing animals	Low stock densities to reduce losses to trampling (nesting)	Bovine density <1.25/ha and sheep density [<7.5/ha]	Curlew, Oystercatcher, Redshank, Snipe
Hydrology/flow	Dropping water levels (providing a succession of surface water areas for feeding)	Water levels falling by [5-15%] per month, from the time of mean hatch date	Shoveler, Teal
Hydrology/flow	Predominantly moist boggy ground, with pools or flowing water (feeding)	[25-50%] of the area soggy or flooded or comprising permanent waterbodies	Dunlin
Hydrology/flow	Stable water levels (nesting)	[<4cm] fluctuation	Great crested grebe
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-50%] of the area soggy or flooded	Oystercatcher
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-40%] of the area soggy or flooded with shallow water of [<6cm]	Redshank
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	Shoveler, Snipe
Landform	Frequent low, shallow-sloping islands affording maximum protection against flooding (colonial nesting)	Several low islands/spits [grading to <30cm above water level] or platforms	Common tern
Landform	Frequent secure islands with tall grasses and/or mature scrub (nesting)	Several inaccessible islands with [>25 sq.m] dense vegetation	Red-breasted merganser
Landform	Frequent steep, well vegetated banks, cliffs, waterfalls or bridges (nesting)	Suitable nest sites over water or on steep (>75o) slopes, [>75%] vegetated and [locally frequent]	Dipper, Grey wagtail
Landform	High frequency of wide river sections (anti-predator)	10-30m wide over [>50%] of length	Goosander, Red-breasted merganser
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [>30%] of wetland perimeter	Snipe
Landform	Many shallow-sloping banks along the waters' edge, not too steep for fishing (feeding)	All water features with shallow [<25%] slopes along [>50%] length/perimeter	Grey heron
Landform	Pools, ditches or channels mostly with shallow gradients for easy access by chicks (feeding)	Most [>75% by area] water features with shallow slopes [<10%] along [>30%] length/perimeter	Redshank
Landscape	Open areas, including large fields (anti-predator, feeding, roosting display)	Areas with unrestricted views over [>200m] and an effective field size of [>10ha]	Snipe, Common sandpiper, Curlew, Dunlin, Oystercatcher, Redshank, Ringed plover
Substrate	Frequent patches of shingle or gravel next to open water (nesting, feeding)	Shingle/gravel present on [>30%] of land area and in patches of 2-6m wide	Common sandpiper
Vegetation characteristics	Abundance of large tree cavities (nesting)	Suitable cavities >10cm across and >60cm deep [locally frequent]	Goosander
Vegetation characteristics	Frequent patches of mature trees, over or close to open water (nesting, roosting)	Several patches of trees of [>20m] and [<1km] from open water	Grey heron

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<50m] from open water, within areas used for nesting	Wigeon, Tufted duck, Teal, Shoveler
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<100m] from open water, within areas used for nesting	Common sandpiper
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of trees of [>3m], [<30m] from open water, within areas used for nesting	Goldeneye
Vegetation characteristics	Frequent patches of tall vegetation, close to open water (nesting)	Several patches of vegetation of [0.5-1m], [<50m] from open water, within areas used for nesting	Red-breasted merganser
Vegetation characteristics	Many dense patches of vegetation, with overhanging branches at water level (nesting)	Patches of emergent or marginal vegetation of [>2 sq.m] [locally frequent]	Little grebe
Vegetation characteristics	Many patches of tall bankside vegetation (nesting)	Vegetation of [0.5-1m] [locally frequent] along the water's edge in nesting areas	Goosander
Vegetation characteristics	Mix of short (feeding) and long vegetation (nesting), with isolated trees (anti-predator)	[1:3] ratio of short [<15cm] to long [>20-50cm], in mosaic, with trees (or posts) [locally frequent], in nesting areas	Redshank
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short <5cm to long 25-100cm vegetation, in mosaic, within breeding areas	Curlew
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short [<5cm] to long 10-30cm vegetation, in mosaic, within breeding areas	Dunlin
Vegetation characteristics	Mix of short vegetation/bare ground (colonial nesting) and longer vegetation (concealment)	Short vegetation of <3cm, in patches not exceeding 100x30m, and [<50%] overall	Common tern
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[>80%] vegetation cover overall, [20-100cm] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Open ground with predominantly short vegetation and frequent bare patches (nesting)	Unrestricted views over [>200m] with most vegetation of [10-30cm] and [10-20%] bare or sparsely vegetated ground	Oystercatcher
Vegetation characteristics	Open ground with predominantly short vegetation and frequent bare patches (nesting, feeding)	Unrestricted views over [>200m] with most vegetation of [<5cm] and [10-20%] bare or sparsely vegetated ground	Ringed plover
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Common sandpiper, Curlew, Dunlin, Oystercatcher, Redshank, Ringed plover
Vegetation characteristics	Predominantly short grassland swards (feeding)	<5cm throughout areas used for feeding	Wigeon
Water depth	Extensive shallow water (feeding)	1-3m over [>50%] of water area	Great crested grebe
Water depth	Extensive shallow water (feeding)	<0.5m over [>50%] of water area	Grey heron
Water depth	Extensive shallow water (feeding)	0.5-1m over [>50%] of water area	Little grebe
Water depth	Extensive shallow water (feeding)	<30cm over [>50%] of water area	Shoveler, Teal, Wigeon
Water depth	Extensive water areas of medium depth (feeding)	[2-3m] over [>50%] of water area	Goldeneye
Water depth	Extensive water areas of medium depth (feeding)	2-4m over [>50%] of water area	Red-breasted merganser

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Water depth	Extensive water areas of shallow to medium depth water (feeding)	2-5m over [>50%] of water area	Tufted duck
Water area	Large open areas of water (feeding, roosting)	One or more salt or freshwaters of >15ha	Red-breasted merganser
Water area	Medium to large open areas of water (feeding, roosting)	One or more freshwaters of [>5ha]	Goldeneye, Tufted duck
Water area	Small to large open areas of water (feeding, roosting)	One or more salt or freshwaters of >1ha	Great crested grebe
Water area	Small to medium open areas of water (feeding, nesting)	One or more freshwaters of >1ha	Little grebe

Annex 6h: Upland Moorland and Grassland with Waterbodies Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Cavities	Abundance of large tree cavities (nesting)	Suitable cavities of 110-125mm across and >45cm deep [locally frequent]	Goldeneye
Connectivity	Heather moorland (nesting) very close to pasture or reseeded upland grassland (feeding)	Several suitable grassland feeding areas <2km from nesting sites	Twite
Food availability	Abundance of aquatic invertebrates	Average biomass > [xxx], including e.g. caddisfly, mayfly, stonefly, true flies, Hydrobia, beetles, bugs	Grey wagtail, Teal
Food availability	Abundance of aquatic invertebrates and fish	Average biomass > [xxx], including e.g. mayfly nymphs, caddisfly larvae, Gammarus, true flies, stoneflies, bullheads	Dipper
Food availability	Abundance of benthic invertebrates	Average biomass > [xxx], including e.g. Trichoptera, chironomid larvae, Gammarus, Asellus	Goldeneye
Food availability	Abundance of carrion, live mammals, birds, amphibians and reptiles	Average biomass > [xxx], including e.g. carrion, small to medium-sized birds and mammals, beetles, frogs, lizards	Raven
Food availability	Abundance of fish	Average biomass > [xxx], including e.g. salmon, brook lamprey, minnow, gobies, eels of <11cm	Red-breasted merganser
Food availability	Abundance of fish, amphibians and aquatic invertebrates	Average biomass > [xxx], including e.g. fish [size], frogs, mayflies, stoneflies, beetles, Asellus	Little grebe
Food availability	Abundance of fruit-bearing plants	[>25% cover] of one or more target species, e.g. hawthorn, juniper, crowberry	Ring ouzel
Food availability	Abundance of ground-surface invertebrates	Average biomass > [xxx], including e.g. caterpillars, beetles, earthworms, sawflies, moths, spiders, grasshoppers, craneflies, bees, ants, molluscs	Ring ouzel, Stonechat, Wheatear
Food availability	Abundance of ground-surface and shrub-layer invertebrates (feeding of young)	Average biomass > [xxx], including e.g. sawflies, caterpillars, spiders, beetles, harvestmen, craneflies	Black grouse, Red grouse
Food availability	Abundance of live birds	Average biomass > [xxx], including e.g. small-medium sized birds - pipits to gamebirds	Peregrine
Food availability	Abundance of live birds and day-flying moths	Average biomass > [xxx], including e.g. small birds - pipits to waders - moths	Merlin
Food availability	Abundance of live mammals and birds	Average biomass > [xxx], including e.g. mice, shrews, voles, rabbits and birds - pipits, waders, gamebirds	Short-eared owl, Hen harrier
Food availability	Abundance of live mammals, birds, reptiles, amphibians, ground-surface invertebrates and carrion	Average biomass > [xxx], including e.g. small to medium-sized mammals - voles to hares - and birds, earthworms, carrion	Buzzard
Food availability	Abundance of live mammals, birds, reptiles and carrion	Average biomass > [xxx], including e.g. small to medium-sized prey of 300-3000g or >50kg of carrion	Golden eagle

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of marine or freshwater fish and aquatic invertebrates	Average biomass >[xxx], including e.g. salmon, perch, trout, eel, carp, perch, rudd, herring, cod, sandeels of <10cm, chironomid larvae	Goosander
Food availability	Abundance of seed and fruit-bearing plants	[>50% cover] of one or more target species, e.g. larch, Scots pine, birch, juniper, rowan, hawthorn, Eriophorum vaginatum, Empetrum nigrum, Juncus squarrosus, Carex spp., Calluna vulgaris, Vaccinium myrtillus	Black grouse, Red grouse
Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Polygonum, Eleocharis, Rumex, Ranunculus, Taraxacum, Compositae and Caryophyllaceae spp.	Teal, Twite
Food availability	Abundance of shrub-layer and ground-surface invertebrates	Average biomass > [xxx], including e.g. beetles, flies, caterpillars, spiders, earthworms	Whinchat
Food availability	Abundance of soft-leaved and aquatic plants	[>25% cover] of one or more target species, e.g. Potamogeton, Elodea, Rumex, Glyceria, Chara	Pintail
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, dipteran flies, beetles, ants, caddis fly, spiders, lepidoptera, leatherjackets	Snipe, Golden plover, Curlew, Redshank
Food availability	Abundance of surface and sub-surface invertebrates	Average biomass > [xxx], including e.g. beetles, bugs, flies, Gammarus, spiders, Hydrobia, Littorina, earthworm, beetles, caddisfly, wasps, sawflies, mayflies	Common, sandpiper Dunlin
Food availability	Abundance of water-surface invertebrates (feeding by young)	Average biomass > [xxx], including e.g. hatching midges	Pintail, Teal Wigeon
Grazing animals	Low stock densities to reduce losses to trampling (nesting)	Bovine density <1.25/ha and sheep density [<7.5/ha]	Curlew, Redshank, Snipe
Hydrology/flow	Dropping water levels (providing a succession of surface water areas for feeding)	Water levels falling by [5-15%] per month, from the time of mean hatch date	Pintail, Teal
Hydrology/flow	Predominantly moist boggy ground, with pools or flowing water (feeding)	[25-50%] of the area soggy or flooded or comprising permanent waterbodies	Dunlin
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	Snipe
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-40%] of the area soggy or flooded with shallow water of [<6cm]	Redshank
Landform	Frequent secure islands with tall grasses and/or mature scrub (nesting)	Several inaccessible islands with [>25 sq.m] dense vegetation	Red-breasted merganser
Landform	Frequent steep, well vegetated banks, cliffs, waterfalls or bridges (nesting)	Suitable nest sites over water or on steep (>75o) slopes, [>75%] vegetated and [locally frequent]	Dipper, Grey wagtail
Landform	High frequency of wide river sections (anti-predator)	10-30m wide over [>50%] of length	Goosander, Red-breasted merganser
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [>30%] of wetland perimeter	Snipe

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Landform	Pools, ditches or channels mostly with shallow gradients for easy access by chicks (feeding)	Most [>75% by area] water features with shallow slopes [<10%] along [>30%] length/perimeter	Redshank
Landscape	Many small to large woodlands amidst open country (nesting, feeding)	Several woodlands of >1ha and representing [>50%] of the area overall	Black grouse
Landscape	Open areas, including large fields (anti-predator, feeding, roosting, display)	Areas with unrestricted views over [>200m] with an effective field size [>10ha]	Golden plover, Snipe, Common sandpiper, Curlew, Dunlin, Redshank
Landscape	Open ground (feeding, display)	Areas with unrestricted views over [>1km] and [<25%] tree or scrub cover	Short-eared owl
Landscape	Open ground [feeding, nesting]	Areas with unrestricted views over [>1000m] and [<10%] tree or scrub cover	Red grouse
Landscape	Open terrain (feeding) containing small to large woodlands (nesting)	Areas with unrestricted views over [>200m] but with several woodlands of [>1ha]	Buzzard
Landscape	Open terrain (feeding) with frequent rocky areas, crags, scree, walls etc. (nesting)	Areas with unrestricted views over [>500m] with dry, accessible, rocky nest sites [locally frequent]	Wheatear
Landscape	Open terrain (feeding) with tall trees (nesting) where cliffs/crags not available	Areas with unrestricted views over [>500m] and mature trees [locally frequent]	Raven
Landscape	Open terrain (feeding) with tall trees (nesting, roosting) where cliffs/crags not available	Areas with unrestricted views over [>1km] and mature trees [locally frequent]	Golden eagle
Substrate	Frequent patches of shingle or gravel next to open water (nesting, feeding)	Shingle/gravel present on [>30%] of land area and in patches of 2-6m wide	Common sandpiper
Vegetation characteristics	Abundance of large tree cavities (nesting)	Suitable cavities >10cm across and >60cm deep [locally frequent]	Goosander
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<50m] from open water, within areas used for nesting	Wigeon
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of trees of [>3m], [<30m] from open water, within areas used for nesting	Goldeneye, Pintail, Teal
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<100m] from open water, within areas used for nesting	Common sandpiper
Vegetation characteristics	Frequent patches of open ground with short vegetation, close to cover (display)	Several patches of >0.5ha containing vegetation of 5-20cm and <50m from cover	Black grouse
Vegetation characteristics	Frequent patches of tall heather or young forestry (nesting, roosting), plus grasslands, bracken or low trees/scrub (feeding)	[1:3] ratio of nesting - ground layer of 60-100cm; [conifers of <2m] - to foraging habitats, in mosaic throughout the breeding area	Hen harrier
Vegetation characteristics	Frequent patches of tall vegetation, close to open water (nesting)	Several patches of vegetation of [0.5-1m], [<50m] from open water, within areas used for nesting	Red-breasted merganser
Vegetation characteristics	High frequency of favoured tall grass and scrub plant species (nesting, feeding)	[>25% cover] of one or more target species, including e.g. <i>Pteridium aquilinum</i> , <i>Ulex europaeus</i> , <i>Deschampsia cespitosa</i>	Whinchat

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	High frequency of mature trees (nesting)	Trees of >14m abundant throughout the nesting area	Buzzard
Vegetation characteristics	Isolated tall trees in remote areas (nesting)	Mature trees of >50cm diameter at breast height, and <100 trees/ha, within nesting areas	Golden eagle
Vegetation characteristics	Many dense patches of vegetation, with overhanging branches at water level (nesting)	Patches of emergent or marginal vegetation of [>2 sq.m] [locally frequent]	Little grebe
Vegetation characteristics	Many patches of tall bankside vegetation (nesting)	Vegetation of [0.5-1m] [locally frequent] along the water's edge in nesting areas	Goosander
Vegetation characteristics	Medium to tall ground vegetation predominant, plus small clusters of scattered trees (nesting)	Ground vegetation of 30-70cm throughout, plus trees of 4-5m in [0.5-2ha] clumps with <30% trees overall	Merlin
Vegetation characteristics	Mix of open ground (feeding) and patches of trees or scrub (nesting)	Patches of scrub/trees of [25-100cm] [locally frequent] within more open areas, but [<50%] scrub cover overall	Twite
Vegetation characteristics	Mix of open, short vegetation (feeding) and taller grasses, scrub or woodland cover (nesting, feeding)	[>75%] of area with shrub, tall grass, understorey of >1m tall and remainder >0.5m tall	Black grouse
Vegetation characteristics	Mix of short (feeding) and long vegetation (nesting), with isolated trees (anti-predator)	[1:3] ratio of short [<15cm] to long [>20-50cm], in mosaic, with trees (or posts) [locally frequent], in nesting areas	Redshank
Vegetation characteristics	Mix of short (feeding) and medium height (nesting) vegetation, in gullies, on rocky slopes etc.	Patches of short [<2cm] and taller [>20cm] vegetation, in mosaic, within nesting areas	Ring ouzel
Vegetation characteristics	Mix of short (feeding) and medium to tall heather (nesting, concealment)	Patches of pioneer heather of <13cm and [>xx ha], [locally frequent] amongst taller stands of >20cm	Red grouse
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short <5cm to long 25-100cm vegetation, in mosaic, within breeding areas	Curlew
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short <5cm to medium 10-15cm vegetation, in mosaic, within breeding areas	Golden plover
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short [<5cm] to long 10-30cm vegetation, in mosaic, within breeding areas	Dunlin
Vegetation characteristics	Mix of short grassland (feeding) and low trees or scrub (nesting)	Patches of trees or scrub of >0.3-2m [locally frequent] within open grassland in nesting areas	Whinchat
Vegetation characteristics	Mix of very short swards (feeding) and taller scrub (nesting, display, roosting)	Sward mostly of [<5cm], tussocks/scrub of 0.5-2m [locally frequent], and [25-75%] of scrub overall	Stonechat
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[>80%] vegetation cover overall, [20-100cm] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Common sandpiper, Curlew, Dunlin, Golden plover, Redshank
Vegetation characteristics	Predominantly short grassland swards (feeding)	<5cm throughout areas used for feeding	Wigeon
Vegetation characteristics	Predominantly short swards (feeding)	<3cm throughout areas used for feeding	Wheatear
Vegetation characteristics	Predominantly short to medium ground vegetation, scrub or trees (nesting)	Ground layer of [0.3-1m] over {>75%} of area, or scrub/trees of [<2m] and [<50%] overall	Short-eared owl

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Water area	Large open areas of water (feeding, roosting)	One or more salt or freshwaters of >15ha	Red-breasted merganser
Water area	Medium to large open areas of water (feeding, roosting)	One or more fresh or saltwaters of [>5ha]	Goldeneye
Water area	Small to medium open areas of water (feeding, nesting)	One or more freshwaters of >1ha	Little grebe
Water depth	Extensive shallow water (feeding)	0.5-1m over [>50%] of water area	Little grebe
Water depth	Extensive shallow water (feeding)	[<30cm] over [>50%] of water area	Pintail, Teal, Wigeon
Water depth	Extensive water areas of medium depth (feeding)	[2-3m] over [>50%] of water area	Goldeneye
Water depth	Extensive water areas of medium depth (feeding)	2-4m over [>50%] of water area	Red-breasted merganser

Annex 6i: Upland Moorland and Grassland without Waterbodies Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Connectivity	Heather moorland (nesting) very close to pasture or reseeded upland grassland (feeding)	Several suitable grassland feeding areas <2km from nesting sites	Twite
Food availability	Abundance of aquatic invertebrates	Average biomass > [xxx], including e.g. Hydrobia, flies, caddisfly, beetles, bugs	Teal
Food availability	Abundance of carrion, live mammals, birds, amphibians and reptiles	Average biomass > [xxx], including e.g. carrion, small to medium-sized birds and mammals, beetles, frogs, lizards	Raven
Food availability	Abundance of fruit-bearing plants	[>25% cover] of one or more target species, e.g. hawthorn, juniper, crowberry	Ring ouzel
Food availability	Abundance of ground-surface and shrub-layer invertebrates (feeding of young)	Average biomass > [xxx], including e.g. sawflies, caterpillars, spiders, beetles, harvestmen, craneflies	Black grouse, Red grouse
Food availability	Abundance of ground-surface invertebrates	Average biomass > [xxx], including e.g. beetles, moths, flies, spiders, earthworm, grasshoppers, craneflies bees, ants, molluscs	Ring ouzel, Stonechat, Wheatear
Food availability	Abundance of live birds	Average biomass > [xxx], including e.g. small-medium sized birds - pipits to gamebirds	Peregrine
Food availability	Abundance of live birds and day-flying moths	Average biomass > [xxx], including e.g. small birds - pipits to waders - moths	Merlin
Food availability	Abundance of live mammals, birds, reptiles, amphibians, ground-surface invertebrates and carrion	Average biomass > [xxx], including e.g. small to medium-sized mammals - voles to hares - and birds, earthworms, carrion	Buzzard
Food availability	Abundance of live mammals, birds, reptiles and carrion	Average biomass > [xxx], including e.g. small to medium-sized prey of 300-3000g or >50kg of carrion	Golden eagle
Food availability	Abundance of live mammals and birds	Average biomass > [xxx], including e.g. small-medium sized mammals - voles, mice, shrews, rabbits - and birds - pipits, gamebirds, waders	Hen harrier, Short-eared owl
Food availability	Abundance of seed and fruit-bearing plants	[>50% cover] of one or more target species, e.g. larch, Scots pine, birch, juniper, rowan, hawthorn, Eriophorum vaginatum, Empetrum nigrum, Juncus squarrosus, Carex spp., Calluna vulgaris, Vaccinium myrtillus	Black grouse, Red grouse
Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Polygonum, Eleocharis, Rumex, Ranunculus, Taraxacum, Compositae, Caryophyllaceae spp	Teal, Twite
Food availability	Abundance of shrub-layer and ground-surface invertebrates	Average biomass > [xxx], including e.g. beetles, flies, caterpillars, spiders, earthworms	Whinchat
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, leatherjackets, beetles, spiders dipteran flies, ants, caddis fly, spiders, lepidoptera	Curlew, Redshank, Golden plover, Snipe
Food availability	Abundance of surface and sub-surface invertebrates	Average biomass > [xxx], including e.g. dipteran flies, beetles, caddisfly, wasps, sawflies, mayflies	Dunlin

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of water-surface invertebrates (feeding by young)	Average biomass > [xxx], including e.g. hatching midges	Teal
Grazing animals	Low stock densities to reduce losses to trampling (nesting)	Bovine density <1.25/ha and sheep density [<7.5/ha]	Redshank, Curlew, Snipe
Hydrology/flow	Dropping water levels (providing a succession of surface water areas for feeding)	Water levels falling by [5-15%] per month, from the time of mean hatch	Teal
Hydrology/flow	Predominantly moist boggy ground, with pools or flowing water (feeding)	[25-50%] of the area soggy or flooded or comprising permanent waterbodies	Dunlin
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-40%] of the area soggy or flooded with shallow water of [<6cm]	Redshank
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	Snipe
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [>30%] of wetland perimeter	Snipe
Landform	Pools, ditches or channels mostly with shallow gradients for easy access by chicks (feeding)	Most [>75% by area] water features with shallow slopes [<10%] along [>30%] length/perimeter	Redshank
Landscape	Many small to large woodlands amidst open country (nesting, feeding)	Several woodlands of >1ha and representing [>50%] of the area overall	Black grouse
Landscape	Open areas, including large fields (anti-predator, display)	Areas with unrestricted views over [>200m] and an effective field size of [>10ha]	Snipe, Golden plover, Curlew, Dunlin, Redshank
Landscape	Open ground (feeding, display)	Areas with unrestricted views over [>1km] and [<25%] tree or scrub cover	Short-eared owl
Landscape	Open ground (feeding, nesting)	Areas with unrestricted views over [>1000m] and [<10%] tree or scrub cover	Red grouse
Landscape	Open terrain (feeding) containing small to large woodlands (nesting)	Areas with unrestricted views over [>200m] but with several woodlands of [>1ha]	Buzzard
Landscape	Open terrain (feeding) with tall trees (nesting, roosting) where cliffs/crags not available	Areas with unrestricted views over [>1km] and mature trees [locally frequent]	Golden eagle
Landscape	Open terrain (feeding) with tall trees (nesting) where cliffs/crags not available	Areas with unrestricted views over [>500m] and mature trees [locally frequent]	Raven
Landscape	Open terrain (feeding) with frequent rocky areas, crags, scree, walls etc. (nesting)	Areas with unrestricted views over [>500m] with dry, accessible, rocky nest sites [locally frequent]	Wheatear
Vegetation characteristics	Frequent patches of medium to tall vegetation, close to open water (nesting)	Several patches of vegetation of [20-60cm], [<50m] from open water, within areas used for nesting	Teal
Vegetation characteristics	Frequent patches of open ground with short vegetation, close to cover (display)	Several patches of >0.5ha containing vegetation of 5-20cm and <50m from cover	Black grouse
Vegetation characteristics	Frequent patches of tall heather or young forestry (nesting, roosting), plus grasslands, bracken or low trees/scrub (feeding)	[1:3] ratio of nesting - ground layer of 60-100cm; [conifers of <2m] - to foraging habitats, in mosaic throughout the breeding area	Hen harrier

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	High frequency of favoured tall grass and scrub plant species (nesting, feeding)	[>25% cover] of one or more target species, including e.g. Pteridium aquilinum, Ulex europaeus, Deschampsia cespitosa	Whinchat
Vegetation characteristics	High frequency of mature trees (nesting)	Trees of >14m abundant throughout the nesting area	Buzzard
Vegetation characteristics	Isolated tall trees in remote areas (nesting)	Mature trees of >50cm diameter at breast height, and <100 trees/ha, within nesting areas	Golden eagle
Vegetation characteristics	Medium to tall ground vegetation predominant, plus small clusters of scattered trees (nesting)	Ground vegetation of 30-70cm throughout, plus trees of 4-5m in [0.5-2ha] clumps with <30% trees overall	Merlin
Vegetation characteristics	Mix of open ground (feeding) and patches of trees or scrub (nesting)	Patches of scrub/trees of [25-100cm] [locally frequent] within more open areas, but [<50%] scrub cover overall	Twite
Vegetation characteristics	Mix of open, short vegetation (feeding) and taller grasses, scrub or woodland cover (nesting, feeding)	[>75%] of area with shrub, tall grass, understorey of >1m tall and remainder >0.5m tall	Black grouse
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short <5cm to long 25-100cm vegetation, in mosaic, within breeding areas	Curlew
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short [<5cm] to long 10-30cm vegetation, in mosaic, within breeding areas	Dunlin
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short <5cm to medium 10-15cm vegetation, in mosaic, within breeding areas	Golden plover
Vegetation characteristics	Mix of short (feeding) and medium to tall heather (nesting, concealment)	Patches of pioneer heather of <13cm and [>xx ha], [locally frequent] amongst taller stands of >20cm	Red grouse
Vegetation characteristics	Mix of short (feeding) and long vegetation (nesting), with isolated trees (anti-predator)	[1:3] ratio of short [<15cm] to long [>20-50cm], in mosaic, with trees (or posts) [locally frequent], in nesting areas	Redshank
Vegetation characteristics	Mix of short (feeding) and medium height (nesting) vegetation, in gullies, on rocky slopes etc.	Patches of short [<2cm] and taller [>20cm] vegetation, in mosaic, within nesting areas	Ring ouzel
Vegetation characteristics	Mix of short grassland (feeding) and low trees or scrub (nesting)	Patches of trees or scrub of >0.3-2m [locally frequent] within open grassland in nesting areas	Whinchat
Vegetation characteristics	Mix of very short swards (feeding) and taller scrub (nesting, display, roosting)	Sward mostly of [<5cm], tussocks/scrub of 0.5-2m [locally frequent], and [25-75%] of scrub overall	Stonechat
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[>80%] vegetation cover overall, [20-100cm] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Golden plover, Redshank, Dunlin, Curlew
Vegetation characteristics	Predominantly short swards (feeding)	<3cm throughout areas used for feeding	Wheatear
Vegetation characteristics	Predominantly short to medium ground vegetation, scrub or trees (nesting)	Ground layer of [0.3-1m] over {>75%} of area, or scrub/trees of [<2m] and [<50%] overall	Short-eared owl
Water depth	Extensive shallow water (feeding)	<30cm over [>50%] of the water area	Teal

Annex 6j: Montane Grasslands and Heaths Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Food availability	Abundance of carrion, live mammals, birds, amphibians and reptiles	Average biomass > [xxx], including e.g. carrion, small to medium-sized birds and mammals, beetles, frogs, lizards	Raven
Food availability	Abundance of fruit-bearing plants	[>25% cover] of one or more target species, e.g. hawthorn, juniper, crowberry	Ring ouzel
Food availability	Abundance of ground-surface invertebrates	Average biomass > [xxx], including e.g. beetles, flies, caterpillars, earthworms, snails, spiders, sawflies	Dotterel, Ring ouzel
Food availability	Abundance of live birds	Average biomass > [xxx], including e.g. small-medium sized birds - pipits to gamebirds	Peregrine
Food availability	Abundance of live mammals, birds, reptiles, amphibians, ground-surface invertebrates and carrion	Average biomass > [xxx], including e.g. small to medium-sized mammals - voles to hares - and birds, earthworms, carrion	Buzzard
Food availability	Abundance of live mammals, birds, reptiles and carrion	Average biomass > [xxx], including e.g. small to medium-sized prey of 300-3000g or >50kg of carrion	Golden eagle
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, leatherjackets, beetles, spiders	Golden plover
Food availability	Abundance of surface and sub-surface invertebrates	Average biomass > [xxx], including e.g. dipteran flies, beetles, caddisfly, wasps, sawflies, mayflies	Dunlin
Hydrology/flow	Predominantly moist boggy ground, with pools or flowing water (feeding)	[25-50%] of the area soggy or flooded or comprising permanent waterbodies	Dunlin
Landscape	Open areas, including large fields (anti-predator, display)	Areas with unrestricted views over [>200m] with an effective field size [>10ha]	Golden plover, Dunlin
Landscape	Open ground (nesting, feeding)	Areas with unrestricted views over [>500m] and [>75%] montane heath/dwarf herb	Dotterel
Landscape	Open terrain (feeding) containing small to large woodlands (nesting)	Areas with unrestricted views over [>200m] but with several woodlands of [>1ha]	Buzzard
Landscape	Open terrain (feeding) with tall trees (nesting, roosting) where cliffs/crags not available	Areas with unrestricted views over [>1km] and mature trees [locally frequent]	Golden eagle
Landscape	Open terrain (feeding) with tall trees (nesting) where cliffs/crags not available	Areas with unrestricted views over [>500m] and mature trees [locally frequent]	Raven
Vegetation characteristics	High frequency of mature trees (nesting)	Trees of >14m abundant throughout the nesting area	Buzzard
Vegetation characteristics	Isolated tall trees in remote areas (nesting)	Mature trees of >50cm diameter at breast height, and <100 trees/ha, within nesting areas	Golden eagle
Vegetation characteristics	Mix of montane bog (feeding) and <i>Rhacomitrium lanuginosum</i> heath offering bare or sparsely vegetated ground (nesting)	[x:y] ratio of bog and heath habitat, in mosaic, within nesting areas	Dotterel
Vegetation characteristics	Mix of short (feeding) and medium height (nesting) vegetation, in gullies, on rocky slopes etc.	Patches of short [<2cm] and taller [>20cm] vegetation, in mosaic, within nesting areas	Ring ouzel
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short [<5cm] to long 10-30cm vegetation, in mosaic, within breeding areas	Dunlin

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[1:3] ratio of short <5cm to medium 10-15cm vegetation, in mosaic, within breeding areas	Golden plover
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Dunlin, Golden Plover

Annex 6k: Lowland Heath Assemblage

Habitat Attribute	Preferred State	Monitoring Target	Species
Connectivity	Large populations of host species (breeding) close to wooded habitat (feeding)	Abundance of hosts, e.g. breeding reed warbler, dunnock, meadow pipit, <5km from wooded feeding habitats	Cuckoo
Food availability	Abundance of ground-surface and shrub-layer invertebrates	Average biomass >[xxx], including e.g. earthworms, beetles, flies, spiders, bugs, bees, wasps, caterpillars	Cuckoo, Tree pipit, Whinchat
Food availability	Abundance of ground-surface invertebrates	Average biomass >[xxx], including e.g. beetles, ants, earwigs, crickets, moths, flies, spiders, earthworm, weevils, caterpillars, grasshoppers, craneflies, bees, ants	Quail, Stonechat, Wheatear, Woodlark
Food availability	Abundance of invertebrates from soil and dung	Average biomass > [xxx], including e.g. beetles, grasshoppers, flies, earthworm, snails, slugs	Stone-curlew
Food availability	Abundance of live birds and airborne insects	Average biomass >[xxx], including e.g. small birds - swallows, martins - moths, flying ants, beetles, dragonflies	Hobby
Food availability	Abundance of live birds and mammals	Average biomass >[xxx], including e.g. small to medium-sized birds - pipits to doves - and mammals - shrews to rabbit	Long-eared owl, Montagu's harrier
Food availability	Abundance of night-flying insects	Average biomass > [xxx], including e.g. moths, beetles	Nightjar
Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Polygonaceae, Cruciferae, Caryophyllaceae and Compositae spp.	Linnet
Food availability	Abundance of seed-bearing plants	[>25% cover] of one or more target species, e.g. Stellaria, Spergularia and Galeopsis spp.	Quail
Food availability	Abundance of shrub-layer invertebrates	Average biomass > [xxx], including e.g. flies, moths, beetles, damselflies, bugs, spiders, caterpillars	Dartford warbler, Grasshopper warbler
Food availability	Abundance of soil and ground-surface invertebrates	Average biomass > [xxx], including e.g. earthworm, , leatherjackets, dipteran flies, beetles, ants, caddis fly, spiders, lepidoptera	Curlew, Redshank, Snipe
Grazing animals	Low stock densities to reduce losses to trampling (nesting)	Bovine density <1.25/ha and sheep density [<7.5/ha]	Curlew, Redshank
Hydrology/flow	Wet fields with many surface pools, ditches or channels (feeding)	[20-30%] of the area soggy or flooded	Snipe
Landform	High frequency of wide, shallow margins around standing or running water (feeding)	Shallow margins of 20-30m wide on [>30%] of wetland perimeter	Snipe
Landscape	Open areas, relatively free of obstructions, including large fields (anti-predator, display)	Areas with unrestricted views over [>200m] and an effective field size of [>10ha]	Curlew, Redshank, Snipe
Landscape	Open heath (feeding) with frequent rocky areas, crags, scree, walls etc. (nesting)	Areas with unrestricted views over [>500m] with dry, accessible, rocky nest sites [locally frequent]	Wheatear
Landscape	Open heath with largely unbroken dwarf-shrub layer (concealment, nesting)	Areas with unrestricted views over [>500m] and [>75%] dwarf-shrub cover	Dartford warbler
Landscape	Open terrain (feeding) and occasional tree or scrub patches (nesting, roosting)	Areas with unrestricted views over [>300m] and [locally frequent] tree or scrub patches	Long-eared owl

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Landscape	Open terrain with low or sparse vegetation predominating (feeding)	Areas with unrestricted views over [$>200\text{m}$] and predominantly low vegetation of [$<1\text{m}$]	Hobby, Montagu's harrier
Vegetation characteristics	Frequent mature trees, as singles or in patches (nesting), amidst open ground or low scrub (feeding)	Ground predominantly open ($>75\%$ by area) or with low scrub, with tree clusters of [$<0.5\text{ha}$] [locally frequent]	Hobby
Vegetation characteristics	Frequent patches of medium height grass swards (roosting)	Dense vegetation of [$10\text{-}30\text{cm}$] [locally frequent] within roosting areas	Stone-curlew
Vegetation characteristics	Frequent patches of trees and dwarf scrub amongst a heather-dominated landscape (feeding, nesting)	$>50\%$ heather, <25 trees/ha and [$5\text{-}25\%$] scrub of $0.5\text{-}3\text{m}$ overall	Dartford warbler
Vegetation characteristics	High frequency of dense scrub amidst open ground (nesting, roosting)	Patches of dense, almost impenetrable vegetation of [$>100\text{sq.m}$] [locally frequent]	Long-eared owl
Vegetation characteristics	High frequency of favoured tall grass and scrub plant species (nesting, feeding)	[$>25\%$ cover] of one or more target species, including e.g. <i>Pteridium aquilinum</i> , <i>Ulex europaeus</i> , <i>Deschampsia cespitosa</i>	Whinchat
Vegetation characteristics	Mix of low scrub patches (nesting, roosting) amidst open ground (feeding)	Patches of scrub [$>100\text{sq.m}$] and [$<2\text{m}$] tall [locally frequent] amongst predominantly open ground	Linnet
Vegetation characteristics	Mix of medium height ground vegetation and scrub/low trees (feeding, nesting, display)	[$1:1$] ratio of open ground with vegetation [$>10\text{cm}$] and scrub/trees of [$2\text{-}3\text{m}$] within areas used for nesting	Grasshopper warbler
Vegetation characteristics	Mix of medium to tall (nesting, roosting) and low, sparse vegetation (feeding)	[Locally frequent] patches of dwarf-shrub, emergents or crops of $50\text{-}100\text{cm}$, in mosaic with short [$<30\text{cm}$] vegetation	Montagu's harrier
Vegetation characteristics	Mix of short (feeding) and long vegetation (nesting), with isolated trees (anti-predator)	[$1:3$] ratio of short [$<15\text{cm}$] to long [$>20\text{-}50\text{cm}$], in mosaic, with trees (or posts) [locally frequent], in nesting areas	Redshank
Vegetation characteristics	Mix of short (feeding) and patches of taller vegetation (nesting)	[$1:3$] ratio of short $<5\text{cm}$ to long $25\text{-}100\text{cm}$ vegetation, in mosaic, within breeding areas	Curlew
Vegetation characteristics	Mix of short grassland (feeding) and low trees or scrub (nesting)	Patches of trees or scrub of $>0.3\text{-}2\text{m}$ [locally frequent] within open grassland in nesting areas	Whinchat
Vegetation characteristics	Mix of short to medium height swards (nesting) and taller trees or scrub (display)	Vegetation mostly [$<40\text{cm}$] but with patches of trees/scrub of $>2\text{m}$ [locally frequent] but representing [$<25\%$] cover overall	Tree pipit
Vegetation characteristics	Mix of shrub/tree cover (display), short-medium vegetation and bare ground (feeding, nesting, roosting)	Frequent bare patches of $<0.5\text{ha}$ within mosaic of short ($<5\text{cm}$) to medium [$10\text{-}20\text{cm}$] ground vegetation, and small clumps of shrubs or trees	Woodlark
Vegetation characteristics	Mix of very short swards (feeding) and taller scrub (nesting, display, roosting)	Sward mostly of [$<5\text{cm}$], tussocks/scrub of $0.5\text{-}2\text{m}$ [locally frequent], and [$25\text{-}75\%$] of scrub overall	Stonechat
Vegetation characteristics	Open ground with dense cover of wet vegetation predominating (feeding, nesting, concealment, roosting)	[$>80\%$] vegetation cover overall, [$20\text{-}100\text{cm}$] tall, and over wet and muddy ground	Snipe
Vegetation characteristics	Open ground with medium to tall vegetation predominating (nesting, concealment)	$30\text{-}100\text{cm}$ throughout the area used for nesting and feeding	Quail

Habitat Attributes for England's Birds

Habitat Attribute	Preferred State	Monitoring Target	Species
Vegetation characteristics	Open ground with predominantly low vegetation (feeding), bare patches (nesting) and sparse woodland/scrub cover (feeding, roosting)	Vegetation mostly of 20-60cm with frequent bare patches of >2sq.m, 10-20% bare ground and <50% tree/scrub cover overall	Nightjar
Vegetation characteristics	Open stony or sandy ground with sparse vegetation and bare soil (nesting, feeding)	Unrestricted views over [>200m] with vegetation of <2cm tall and <30% cover overall	Stone-curlew
Vegetation characteristics	Open, short vegetation or bare ground predominating (roosting)	Vegetation of [<10cm] throughout areas used for roosting	Curlew, Redshank
Vegetation characteristics	Predominantly short grassland swards (feeding)	<3cm throughout areas used for feeding	Wheatear