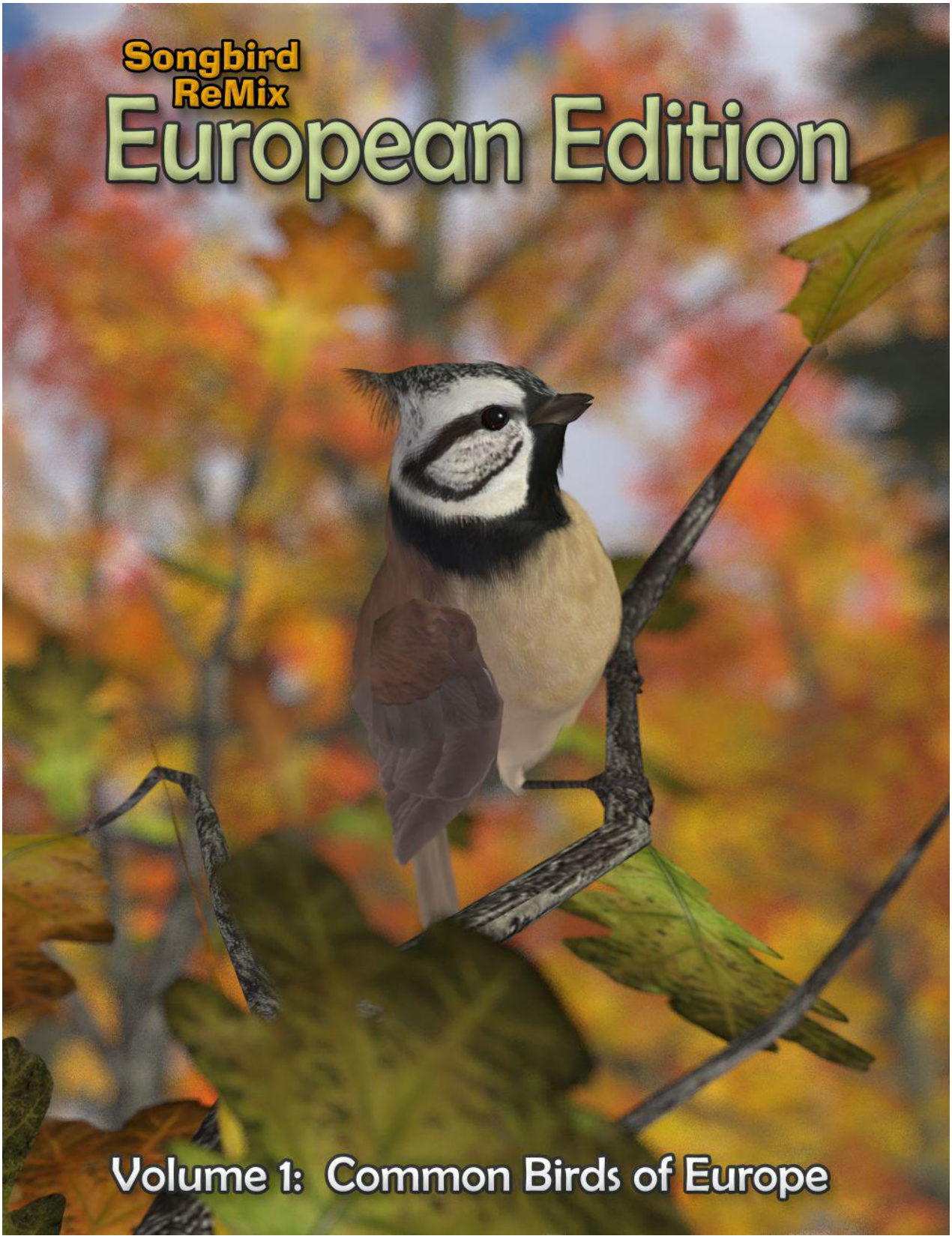


Avian Models for 3D Applications

Characters and Texture Mapping by Ken Gilliland

Songbird ReMix
European Edition

Manual

Field Guide

Opinions expressed on this booklet are solely that of the author, Ken Gilliland, and may or may not reflect the opinions of the publisher.

Songbird ReMix
European Edition

Introduction

European Edition includes many of the most common birds found in Europe such as the robin, chaffinch and linnet. Also included are the colorful avian species such as the vivid European Goldfinch or Eurasian Jay. The Jackdaw, Magpie or Starling are perfect for perching on castle walls or medieval villages. The entire Tit family is also included (the Blue Tit, the Crested Tit, Great Tit and even the Long-tailed Tit) are a perfect addition to wooded or even urban scenes.

Overview and Use

The set is located within the **Animals : Songbird ReMix** folder. Here is where you will find a number of folders, such as **Bird Library**, **Manuals** and **Resources** . Let's look at what is contained in these folders:

- **Bird Library:** This folder holds the actual species and poses for the "premade" birds. Birds are placed into a "type" folder (such as "Birds of Prey (Order Falconiformes)" which for example would hold falcons, hawks and eagles). The birds for this set can be found in the following folder(s):
  - **Perching Birds (Order Passerines)**
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your birds
  - **Bird Base Models:** This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species of bird. SBRM Cool and Unusual birds has two. When using physical renderers such as Iray and Superfly, SubD should be turned to at least “3”. For DAZ Studios 3Delight renders, the SubD must be turned from the “High Resolution” setting to the “Base” setting (otherwise some areas will render incorrectly transparent).
    - **SBRM Base Model**- This model is for use with all birds in this set.

Poser Use

Select **Figures** in the **Runtime** Folder and go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer *Firefly or Superfly*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts

(*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**.

DAZ Studio Use

Go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer (*3Delight or Iray*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**. **Note:** Using the "Apply this Character to the currently selected Figure(s)" option **will not** properly apply the correct scaling to the bird selected. It is better to delete the existing character first and load the one you want to use.

One Folder to Rule Them All

When I reworked the entire Songbird ReMix library starting in 2018, I decided to abandon the way the birds were sorted (by product name) and choose an Ornithological approach. All birds are found in the Bird Library folder and are arranged by type of bird. This approach is hopefully easier for most to find what bird they are looking for. Admittedly, it will take some getting use to for some longtime users, but I've always approached the Songbird ReMix series as a learning tool as well as a graphics tool, so hopefully some knowledge will rub off by seeing how birds are grouped.

Probably the most deceiving subfolder in the **Bird Library** is **"Perching Birds (Order Passeriformes)".** This is folder you probably will end up "favoriting" because this one folder (Passeriformes) **holds more than 50% of all birds.** Perching birds range from cardinals and jays to chickadees, crow and swallows.

Finding the bird you want within the **"Perching Birds (Order Passeriformes)"** folder can be daunting, even for an experienced birder (such as myself), so I've included an online reference tool within this folder that helps to make your search easier. Click the **"Perching Birds Finder"** icon and when loaded, look at the first column and search for the type of bird you want. For example, I want a "manakin" (a bird common to Central and South America). Scroll down the first column alphabetically and stop on "manakin". Looking across to the second column, you will now know that manakins can be found in the "Tyrant Flycatchers & their Allies" subfolder.

Where to find your birds

Type Folder	Bird Species
Perching Birds (Order Passeriformes) Chickadees, Tits & their Allies	Blue Tit Crested Tit Great Tit
Perching Birds (Order Passeriformes) Crows, Jays and their Allies	Eurasian Jay Eurasian Magpie Eurasian Jackdaw
Perching Birds (Order Passeriformes) Finches, OW Sparrows & their Allies	Eurasian Linnet Eurasian Goldfinch Eurasian Chaffinch
Perching Birds (Order Passeriformes) Leaf-warblers and their Allies	Long-tailed Tit
Perching Birds (Order Passeriformes) Thrushes, Oxpeckers & their Allies	European Robin European Starling
Perching Birds (Order Passeriformes) Wrens, Nuthatches & their Allies	Eurasian Nuthatch

Where to find your poses

Type Folder	For what species?
Perching Birds (Order Passeriformes) Poses can be found in “Universal Poses” & “type” folders	All Songbirds

Physical-based Rendering

Iray and **Superfly** requires more CPU and memory horsepower than the legacy renderers because of ray-trace bounces and higher resolution meshes needed for displacement. Poser’s **Superfly** renderer will require that the “Min Transparent Bounces” be set to **at least 16** and that the “Max Transparent Bounces” be set to **at least 32** in render settings. Superfly renders may show artifacts in the head area. This

is a known Poser issue and may be addressed in the future. Increasing the SubD may minimize this issue.

Posing & Shaping Considerations

This volume has various species, so when using generic poses not every pose will work perfectly with every bird. You may find that some minor alteration on the stock poses may be warranted.

Here are some of the most common alterations you may need to make:

- Birds will not be flat on the zero plane due to leg size and overall scale.

Specific Bird Controls

There are several controls with the ***Action Controls*** section of the model that are specific to certain species of bird.

- Under ***Fluff Controls*** *(in Creation Controls)**:***
  - These controls move the feathers on each side of the cheek towards the bill.
- **Raise Upper Beak** *(in Action Controls)**:***
  - This morph is a “one size fits all” control. Because of the variety of beak shapes. It may not work with all birds.
- **Tongue poke-through** (especially when the beak is open). This can be easily solved by using the **Throat-Fuller1 & 2** morphs (*found in Creation Control/Head Shapes*).

IK Concerns

Some poses may go askew when IK is turned on. By default, Poser’s IK feature is turned off when loading a bird. To turn it on, select the “Figure” category from the main tool bar and “Use Inverse Kinematics” from the submenu.

By default, DAZ Studio’s IK feature is turned on when loading a bird. This will cause the thigh and shin rotations change when the character is moved. The **CTRL K** keypress will turn IK on and off in DAZ Studio. IK doesn’t work that well in Studio, so I suggest selecting the character in the **Scene tab** and simply deleting the two IK body parts to remove IK.

Songbird ReMix

European Edition

Field Guide

Blue Tit

Crested Tit

Great Tit

Long-tailed Tit

Eurasian Jay

Eurasian Magpie

Eurasian Jackdaw

European Starling

Eurasian Chaffinch

Eurasian Linnet

Eurasian Goldfinch

European Robin

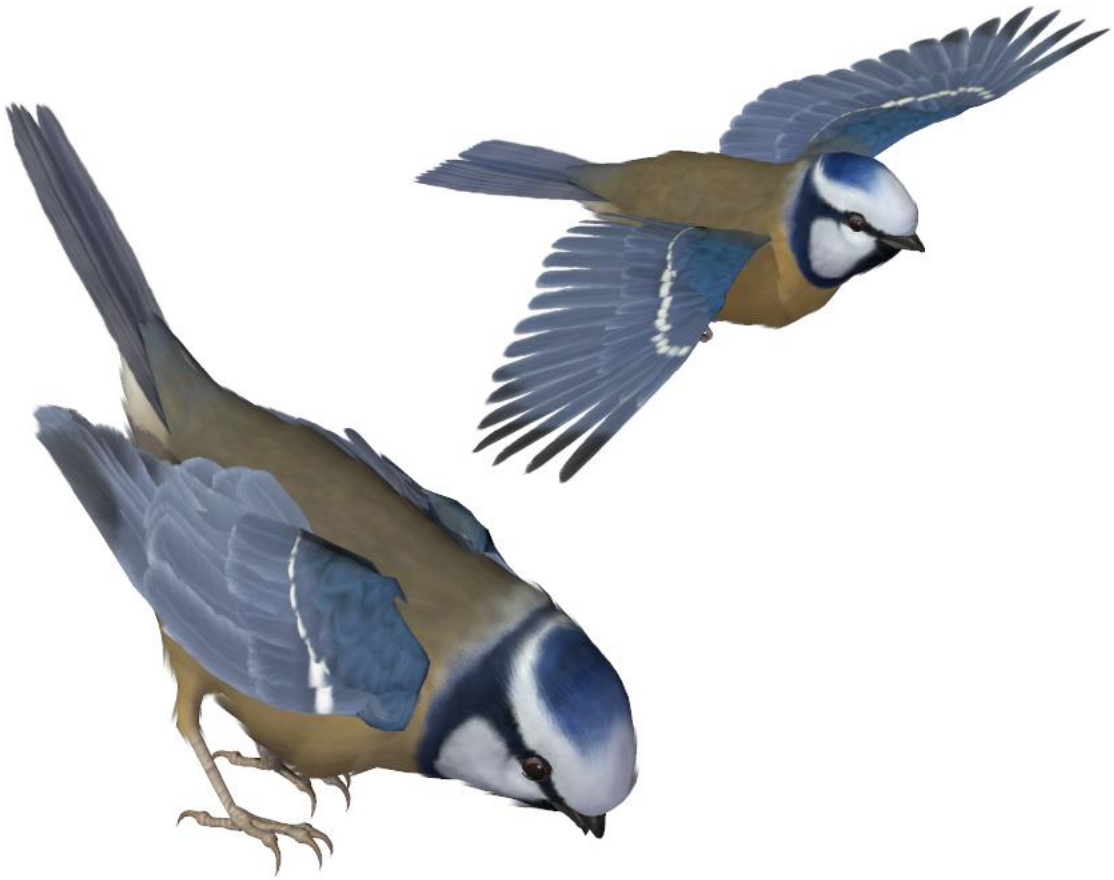
Eurasian Nuthatch

Common Name: Blue Tit
Scientific Name: *Cyanistes caeruleus*

Size: 4 ½ to 5 inches (11-12 cm)

Habitat: Eurasia and Africa; Found in Europe, Near East, Northwest Africa.

In Europe, it is found in mostly lowland and submontane deciduous woodlands, principally containing oak *(Quercus sp*) and birch (*Betulasp*), and broadleaf evergreen woods. It is also seen in thickets, copses, hedgerows, areas of scrub with scattered trees, edges of cultivation, orchards, parks and gardens, including suburban areas and city centers. It avoids large stands of conifers, although can occur in mature conifers in non-breeding season when with a mixed flock. In the Eastern Mediterranean, it occurs in high-altitude pine (*Pinus sp*) and oak in Jordan, cedar (*Cedrus sp*) forests in northwestern Syria and montane oak woodlands in Iran. In the more arid areas in the southeast of its range, it is found



in mainly in riverine woodlands, parks and gardens. In North Africa, it is found in cork oak (*Quercus suber*), Atlas oak (*Quercus faginea*), evergreen oak (*Quercus ilex*), cedar and montane juniper (*Juniperus*) forests in Morocco and northern Libya. Farther south, it is a resident in the palm groves of Saharan oases. In

non-breeding season, it is generally found in a wider range of habitats containing trees and shrubs from sea-level to mountains up yo the tree-line.

Status: Least Concern **Global Population:** 46,000,000 mature individuals with an increasing population trend. It is a common bird to locally abundant, but rare along the northern edge and in southeastern edge of its range. The European breeding population estimated at 16,500,000–23,000,000 pairs, most in Spain, the British Islands and Germany. The range has gradually extended northward in 20th century, to southern Finland from 1900, particularly since mid-1950s (when also increased in Netherlands), and in 1970s expanded into Norway and northern Scotland. It appears able successfully to withstand severe winter weather, suffering only short-term fluctuations in numbers. The provision of food at feeders is considered to account for considerable portion of winter sustenance enabling large numbers to survive in times of hard or severe weather.

Diet: Small invertebrates and larvae, also some fruit and seeds.

Breeding: It is a small, compact tit with rounded head shape and small bill. The nominate males forehead and upper lores are white and merging with a white supercilia, which join on in the center of the nape. The forecrown is blue, becoming deeper blue on the hindcrown. Its lores and eyestripe are narrowly blackish, merging with deep blue on the lower nape and the side of neck. The center ofthe lower nape and upper mantle are pale grayish-blue, while the rest of mantle, back and scapulars are bluish-green. The rump is lighter, more yellowish-green, the uppertail-coverts are bright blue and the tail is blackish-blue, broadly fringed bright blue. The outermost rectrix narrowly fringed whitish, the upperwing-coverts and alula are grayish, broadly fringed deep blue with the greater coverts tipped white, forming a narrow wingbar. The flight-feathers are dark gray, broadly fringed bright blue and the tertials are broadly tipped whitish. The cheek and ear-coverts are white, the chin and upper throat are black, merging narrowly across the throat side with deep blue on the lower side of the neck. The underparts are yellow, tinged greenish-olive on the breast, brighter yellow on the flanks. The center of breast may show narrow blackish line (often concealed), and center of the belly may be whitish. The undertail-coverts are creamywith the axillaries and underwing-coverts yellow. The iris is dark brown to blackish-brown with the bill being dark slate to black, paler on the cutting edges. The legs are slaty to blue or slate-gray. The female is on average slightly duller than male, but otherwise very similar. The juveniles forehead , supercilium and center of nape are dull yellow with the crown and neck sides darker. The upper parts are grayer; the tail is duller blue, upperwing-coverts fringed with greenish-blue, tips of the greater coverts and tertials are yellowish-white and flight-feathers edged grayish-blue. The face and underparts are dull yellow (becoming whiter with age). There is gray on chin and upper throat, and no dark central line on breast.

Races differ mainly in color tones, both above and below.

Season Apr to late Jun, with egg-laying, clutch size and breeding success closely linked to timing of emergence and abundance of caterpillars (principally of Tortrix moths); two broods frequent in parts of Europe, but rare Britain, Germany, Corsica and Morocco. Monogamous, but polygamous males not infrequent where breeding density high; pair-bond usually lifelong. Territorial and solitary breeder; territory usually well defined by early Feb, and defended against interlopers, but pairs sometimes nest in close proximity, including case of two pairs in same nestbox; all females mated to polygamous male nest within single territory, and male feeds young in all nests. Eight to ten eggs in hole in a tree and nest box. Pairs will return to the same nesting area year after year.

Cool Facts: The Blue Tit is considered a valuable destroyer of pests, although it has not an entirely a beneficial species. It is fond of young buds of various trees, and may pull them to bits in the hope of finding insects, thus destroying the flower and fruit of the tree.
But no species in Europe destroys more coccids and aphids, leaf miner grubs and green tortrix moths.

“An interesting example of culturally transmitted learning in birds was the phenomenon dating from the 1960s of Blue Tits teaching one another how to open traditional British milk bottles with foil tops to get at the cream underneath. This behaviour has declined recently because of the trend toward buying low-fat (skimmed) milk, and the replacement of doorstep delivery by supermarket purchases of milk.” (Wikipedia)

Blue tits and great tits can learn to avoid unpleasant foods without even tasting them. Seeing another bird’s disgusted response, even if it is just on video, helps them avoid unpalatable prey by recognized their markings.

Blue Tits, Great Tits and Crested Tits often form mixed winter flocks.

- *C. c. obscurus.* First reported by unknown. It is as the nominate, but its crown slightly darker blue, the mantle slightly darker or greener (less bluish-gray), white tips on greater coverts and tertials slightly narrower, underparts deeper yellow with usually obvious narrow line on central breast; ogliastrae is similar to previous, but mantle slightly bluer, wing-coverts deeper blue, underparts bright yellow. The female often is as brightly colored as male.
- *C. c. balearicus.* First reported by unknown. It is as nominate, but mantle paler or grayer, underparts slightly paler, whiter on breast and belly, line on centre of breast narrower; calamensis is very like nominate but slightly smaller
- *C. c. orientalis.* First reported by unknown. It is as the nominate, but upperparts olive-gray, tinged yellowish, and underparts brighter or paler yellow

- *C. c. satunini.* First reported by unknown. It is also as nominate, but upperparts slightly darker, olive-gray, underparts pale yellow, flanks are grayish
- *C. c.* raddei. First reported by unknown. It is similiar to *satunini*, but upperparts slightly darker olive (and less gray), underparts deep yellow.
- *C. c. persicus.* First reported by unknown. It has shorter and thinner bill, upperparts pale bluish-green, tinged grayish, underparts variable, from rich yellow on breast and whiter on belly and undertail-coverts to uniform whitish-yellow
- *C. c. ultramarinus*i. First reported by unknown. It resembles nominate, but crown black with glossy dark bluish tips, broad black eyestripe (narrow across lores) merging broadly on side of nape with black of hindneck, upperparts mostly dark bluish-gray (rump may be tinged greenish), tertials and secondaries broadly tipped white, lower neck side, chin and upper throat broadly black, underparts deep yellow with pronounced blackish ventral line
- *C. c. cyrenaicae*. First reported by unknown. It is similar *ultramarinus*i to but slightly smaller, and has narrower white band on forehead, darker or duller blue mantle, slightly duller yellow underparts.

Common Name: Crested Tit
Scientific Name: *Lophophanes cristatus*

Size: 5 inches (11.5-12 cm)

Habitat: Europe; found throughout Europe, mostly where conifers are found.

In northern Europe, it occurs in stands of pine (*Pinus*) and spruce (*Picea*), mainly Norway spruce (*Picea abies*), also often in conifers in mixed woodlands. In Scotland, it is apparently confined to stands of old (more than 20 years) Scots pine (*Pinus sylvestris*) with some deciduous trees, principally birch (*Betula*) and alder (*Alnus*). In Belgium, it favous mature tall spruces and old pines, avoided by other tits. In central, southern and southwestern Europe, it is found in wider

variety of habitats, including open woodland with well-developed ground layer or shrubs and with good numbers of decaying trees and stumps (for nest-sites) such as in beech (*Fagus*) forest in the Pyrenees, and in cork oak (*Quercus suber*) in southern Iberia. In western Russia, it is mostly found in spruce and pine forests, and avoids broadleaf and mixed forests. In southeastern Europe, it favors high-altitude conifer forests, mostly of Norway spruce, also Greek fir (*Abies cephalonica*) and black pine (*Pinus nigra*). In non-breeding season, it may make short-distance movements to forage in areas of shrubby juniper (*Juniperus*) or heather (*Erica, Calluna*).

It can be found locally in parks and orchards, and it often visits gardens . It occurs up to tree-line, to 615 m in Scotland. It is largely montane in southern Europe, to 1800 m in Austria and at 1000–2300 m in Balkans and northern Greece..

Status: Least Concern. **Global Population:** 8,600,000 - 9,600,000 mature individuals. Populations are declining moderately throughout Europe due to urbanization. Its range has expanded west in central and southern France, Belgium and Netherlands and northward in Denmark and parts of Finland following increase and spread of commercial conifer plantations. Conversely, there has been an overall decline of up to 50% in population in Finland between 1955 and 1985 owing to modernization of forestry practices, and in same period a decline by 20% in Sweden and Czech Republic. This has been balanced by increases in Spain, Italy and Hungary. In eastern Germany, there have been local declines of up to 30% (largely through increased adult mortality and reduced productivity) due to atmospheric pollution of conifer forests. In Scotland, range contracted during 18th century, following destruction of native Caledonian pine forest; some recovery in numbers occurred in latter half of 20th century, and population now stable at 900 pairs; despite abundance of new commercial forestry plantations, however, there has been no movement away from traditional range.

Diet: Mostly insects, spiders, winter, also plant material, especially conifer seeds. They will cache food.

They are active, agile and restless, occasionally inquisitive. They forages mostly in the upper and canopy levels of conifers during summer. At other times, they will descend to lthe ower levels to feed in lower branches of saplings, in the undergrowth and on the ground, where it forages for fallen seeds or insects. It often follows squirrels feeding on cones, and collects the spilled seeds. Occasionally it will visit feeders in areas close to their breeding sites. It searches foliage and lichen clumps, clings to branches, and extracts seeds from cones while hanging upside-down from slender twigs or occasionally while hovering. It also extracts grubs from behind bark or in dead wood. After the breeding season, Crested Tits often form social groups, sometimes with other species such Blue and Great tits.

Breeding: The male a has forehead to crown short spiky crestwhich is black with broad white feather fringes (creating scaled appearance). The fringes narrower on base of the crest (crest shorter and fringes absent in worn plumage). There is narrow vertical black line on nape connecting with the black collar on the upper edge of the mantle. The upper parts mostly a cool gray-brown, slightly warmer on the upper tail-coverts and pale or grayer on the upper wing-coverts. The alula and flight-feathers are dark gray to black with the primaries being finely edged gray. The tail is brown-gray and finely fringed gray-brown with the outer web of the outer-most feather edged white. The supercilium (flaring behind the

eye to include the side of rear crown), the cheek, ear-coverts and the neck side are white, sometimes lightly washed buff. There is a black eyestripe (indistinct in the front of the eye and not reaching the base of the bill) and the rear edge of the ear-coverts. The chin, throat and center of the upper breast is black, this narrowing at the side to join with black line along the upper mantle. The rest of the under parts are mostly white. There is light buffish-gray on the breast sides, flanks and under tail-coverts. The iris is variably pale brown to deep red and the bill is black. The legs are olive-gray to bluish-gray. The female is very like male (and sexes not separable in the field), but has, on average, a shorter crest, narrower stripes on head side, more buffish (less white) feather fringes on crown and crest, and more buff on flanks. The juvenile is very similar to adult, but has a browner crown and shorter crest with more rounded tips, the side of the head is washed buffish, the eyestripe and rear edge of the ear-coverts are browner and less well defined. The upper parts are duller, the bib browner with some whitish feather tips and not connected laterally to the side of the upper mantle.

Breeding season goes from March to June and there is usually only one brood. Crested Tits are monogamous and form a lifelong pair-bond. Their territory is maintained and defended throughout year. The display includes courtship-feeding of the female by the male. The nest built by female, which is a cup of moss, lichens, animal hair, wool, feathers and gossamer, placed mostly within 3 m of ground in hole in dead or decaying tree trunk, branch or stump. The nest-hole is excavated or enlarged by pair, principally by female. Nestboxes are regularly used. Five to six eggs are laid and the incubation is done by the female for a period 13–18 days. The chicks fed by both parents, with the nestling period lasting 16–22 days. The young are dependent on adults for up to further 23–25 days.

Cool Facts: This species was formerly placed in *Parus* (as are most other tits), but now *Lophophanes*is recognized by the American Ornithologists' Union and the British authorities as a distinct genus.

There are seven subspecies:

- *L. c. cristatus.* First reported by unknown. The nominate race is found in northern and eastern Europe southward to the Carpathian Mountains.
- *L. c. baschkirikus.* First reported by unknown. It is found in the southwestern and central Ural Mountains. It is very similar to the nominate but paler and grayer, and faintly creamy (not buff) on the flanks.
- *L. c. buresch.* First reported by unknown. It is very like both the nominate and *baschkirikus*, but has slightly duller and darker upper parts, yellowish flanks.
- *L. c. mitratus.* First reported by unknown. It is found in central Europe southward to northeastern Spain, the Alps, Croatia and northern Serbia. It differs from the nominate in having upper parts cinnamon-brown (browner and grayer individuals also occur), the rump and the upper tail-coverts are warmer brown with a pinkish tinge, the edges of the wing-coverts and the tail feathers are cinnamon-brown, the edges of the flight-feathers are gray-brown,

off-white below, the belly is washed buffish, the rest of the under parts are washed brownish-cinnamon.

- *L. c. scoticus.* First reported by unknown. It is found in north-central Scotland. It is similar to *mitratu*s, but with dull fringes on the forehead and crown, slightly duller or darker brown (not cinnamon) upper parts, also duller below, the flanks and the under tail-coverts are washed browner.
- *L. c. weigoldi.* First reported by unknown. It is endemic to western and southern Iberia. It resembles *scoticus*, but has pale fringes on the head top which are broader and whiter (creamy on female), the upper parts are paler or grayer and less olive, the under parts somewhat whiter.
- *L. c. abadiei.* First reported by unknown. It is found in western France. It differs from *weigoldi* in having feather tips of the forehead and crown washed buffish, the cheek is washed buffish, the upper parts are rich brown with a rufous tinge, the rump is a brighter orange-cinnamon, the under parts are strongly washed buff and the flanks are brighter cinnamon.

Common Name: Great Tit
Scientific Name: *Parus major*

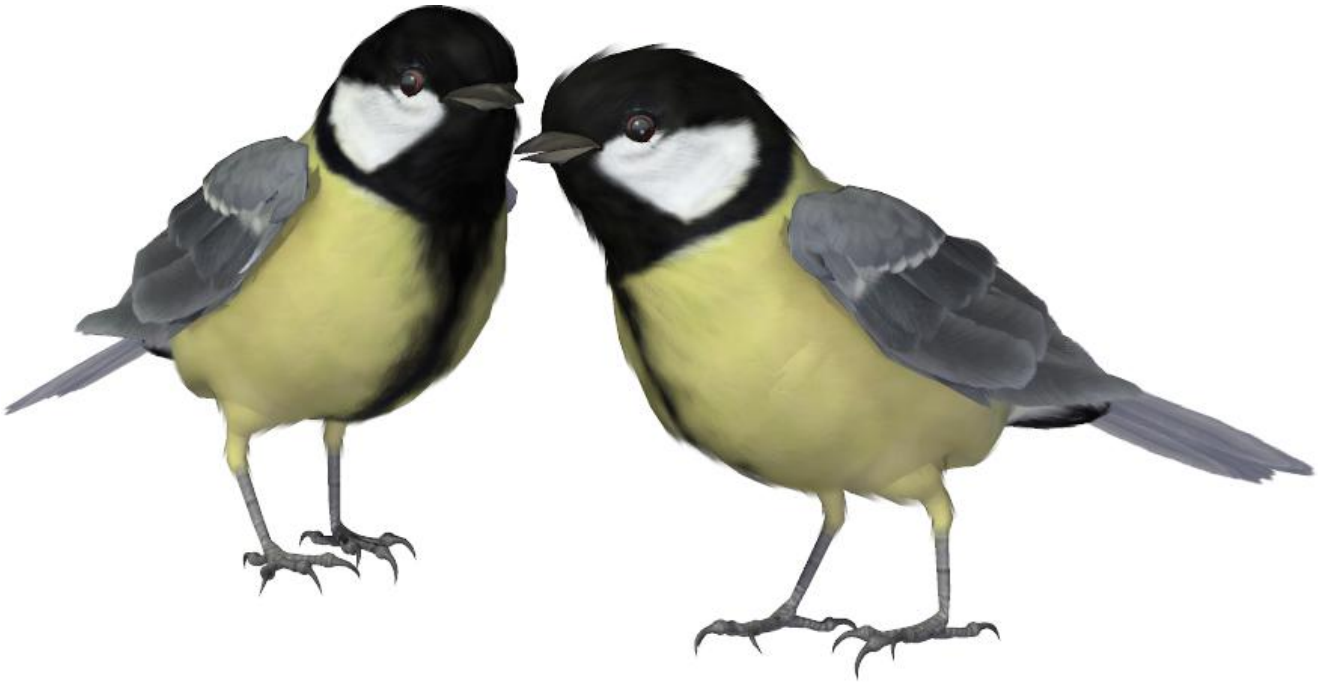
Size: 6 inches (14cm)

Habitat: Europe, Asia, and Northwest Africa. Found in forest, woodland areas, towns and mangrove groves.

Status: Least concern. **Global Population:** 300,000,000 - 110,000,000 Mature individuals. Populations are stable although populations in Europe have been in moderate decline since 1980.

Diet: Invertebrates, butterflies, beetles and spiders and in the winter, seeds and fruit.

Breeding: A large, black-headed tit with large white face patch and pale or yellow underparts divided by black ventral line. The male is forehead to crown and nape, glossy bluish black, with a dull whitish patch on center of lower nape becoming greenish yellow on the lower most hindneck and upper mantle. The



rest of the mantle, scapulars and upper back are green. The scapulars are tinged olive, with the lower back to upper tail-coverts light bluish gray. It is tinged green on rump, and the longest upper tail-coverts and tail are bluish gray with blackish inner webs. The outer three rectrices are tipped white (minutely on innermost of the three), on the outermost rectrix the white extends as a wedge to about half feather length on inner web and over the entire outer web. The lesser and median upper wing-coverts are grayish blue, the greaters with blackish on inner

webs and fringed finely with greenish on the outers which are broadly tipped white. The alula and primary-coverts are black, finely fringed with white. The flight-feathers are blackish gray, the tertials are broadly fringed pale greenish yellow (becoming white towards tip), the secondaries and inner primaries are finely fringed pale grayish blue. The cheek and ear-coverts are white while the chin, throat and neck side to center of the upper breast are black (there can be a slight blue gloss on throat and breast). There is a fairly broad but irregular black line from lower bib to vent. The sides of the breast and belly bright lemon-yellow, the flanks washed with gray-green, the under tail-coverts are white with tips of longest blackish. The axillaries and under wing-coverts are whitish. In worn plumage, the crown and nape are duller, less glossy, with the upper parts being duller green. The ventral line slightly broader, while the rest of the underparts paler yellow, or grayer on the flanks. The iris is dark reddish brown to blackish brown. The bill black with paler cutting edges. The legs slate-gray to blue-gray.

The female like the male, but slightly duller black on the crown, upper parts duller or darker green, fringes of the greater coverts and secondaries are greenish gray (not grayish blue). The black on the side of neck is narrower or brokenand the bib is duller black. The ventral line is narrower and less intensely black (may be broken or show white tips towards vent). The undertail-coverts more extensively white.

The juvenile is as female, but the crown to the nape is browner or brownish-olive. The nuchal spot small and dingy. The upper parts are dull olive-green, grayer on the rump and upper tail-coverts. The tail is duller and grayer with poorly defined whitish tips on outer two feathers. The wing-coverts is washed or fringed olive, while the flight-feathers are dark gray, fringed with gray-green on the secondaries and pale gray on the primaries. The cheeks, ear-coverts and neck-side are pale yellow (whiter when worn). The small dark gray bib in breast center and a trace of a narrow dark gray ventral line. The rest of the under parts are a pale yellow, grayish wash on flanks. The iris paler or grayer than the adults.

Races are fairly well defined, differing mainly in size, bill shape, the intensity of yellow in plumage, and the extent of white in outer tail.

Great tits are monogamous, rarely polygamous. The pair-bond lasts for duration of breeding season and may re-form in autumn and in following season (if both partners still alive). They are territorial with their boundaries usually established by late January and enforced with aggressive behavior (mostly towards trespassing first-year birds) from late winter to early spring. The defence usually declines following completion of the clutch but in some areas the maintenance of territory may be central to successful breeding. In the south of its range (the Middle East), it is territorial throughout year, and does not form flocks. They are generally solitary breeders, but pairs occasionally nest very close to each other.

The displaying male keeps slightly higher than female, perches horizontally or hops with wings slightly raised and opened, the tail raised and partly spread. Occasionally, he raises and lowers tail and shivers wings while giving warbling trill. Both birds then start flying with shallow wingbeats or gliding to a possible nesting sight such as a hole in a tree or nesting box. They inspect the potential nest-site. The male courtship involves feeds the female, which crouches on branch and shivers its wings. The begging by the female increases at start of egg-laying, during start of incubation and just before young leave nest.

The nest built by the female, mostly of plant fibers, grasses, moss, animal hair, wool and feathers. It is placed at a variable height in hole or cavity in tree, occasionally in a wall , rock face or building. It frequently uses nestboxes. A clutch of 5–12 eggs are laid. The incubation is performed by the female, and fed on nest by the male. The incubation period is 12–15 days, and once hatched, the chicks fed by both parents. The nestling period is 16–22 days and the young become independent 8 days later, although may be feed by the parents for up to 25 days longer.

Cool Facts: The black stripe on the belly of a male Great Tit is an indicator of its status; larger stripes are more attractive to females.

In England, Great Tits learned to break open the foil caps sealing bottles of milk that had been delivered to homes to get at the cream floating on top.

- *P. m. major.* First reported by Linnaeus in 1758. The nominate species is found throughout much of Europe, Asia Minor, northern and eastern Kazakhstan, southern Siberia and northern Mongolia, as far as the mid-Amur Valley.
- *P. m. newtoni.* First reported by Pražák in 1894, It is found across the British Isles.It is as nominate, but the bill slightly longer (and the culmen less curved), The mantle slightly deeper green and there is less white in the outer tail. The male has the ventral line broadly black and widening on belly, while the females black areas are duller and the ventral line is narrower and can be broken on the lower belly.
- *P. m. excelsus.* First reported by Buvry in 1857. It is found in northwestern Africa. It is as nominate, but brighter olive-green above, very little or no white on the outer tail feather, the underparts bright yellow (deeper than in previous two)
- *P. m. corsus.* First reported by Kleinschmidt in 1903. It is found in Portugal, southern Spain, and Corsica. It is as nominate, but the upper parts are slightly duller or darker, grayish olive. It has less yellow on the nape and less white in the tail, and the under partsare paler yellow except for a grayish wash on flanks
- *P. m. mallorcae.* First reported by von Jordans in 1913. It is found in the Balearic Islands. It differs from nominate in slightly larger bill, more grayish-

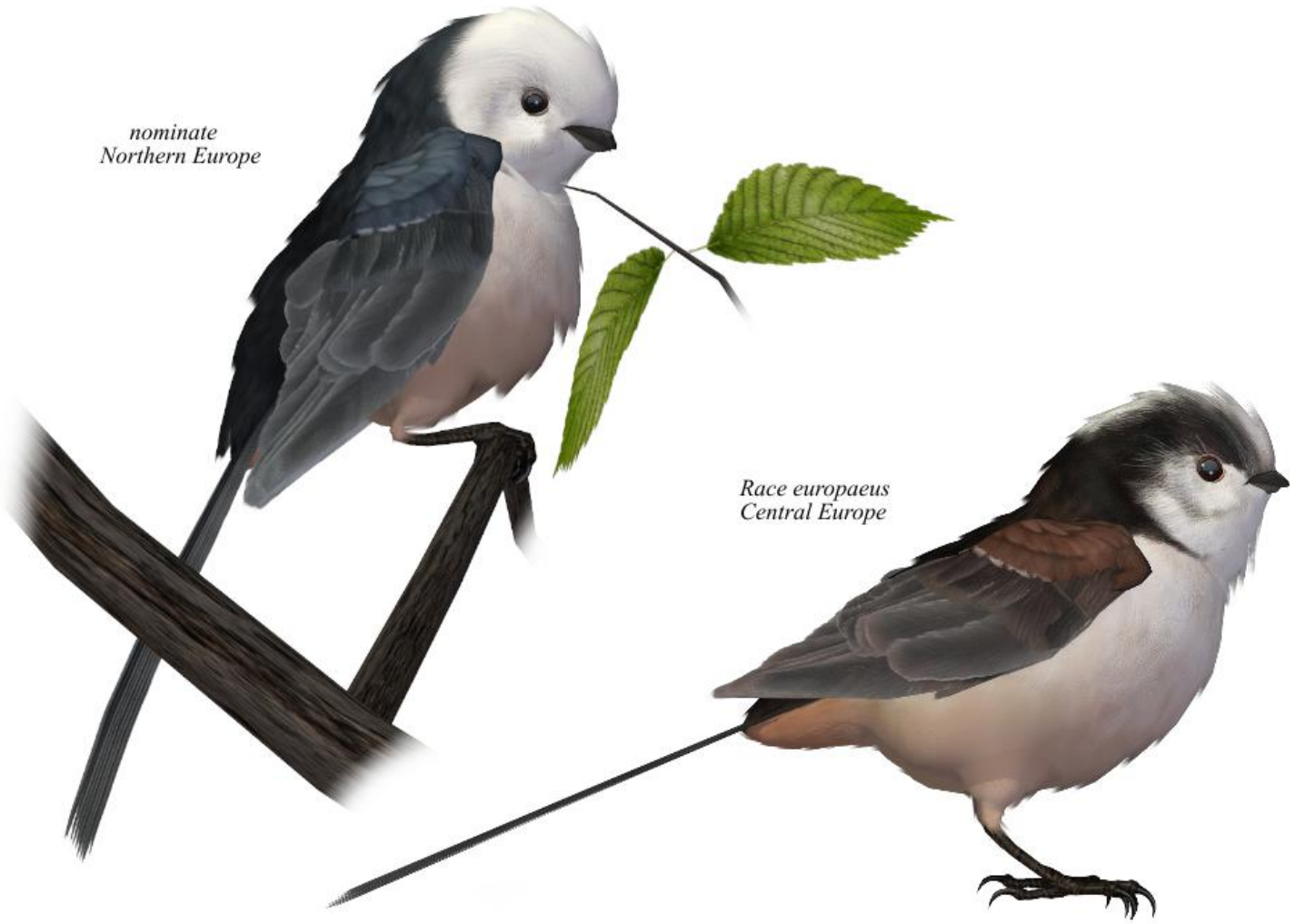
blue upper parts, slightly paler (pale yellow to grayish-white) underparts and less white in the tail.

- *P. m. ecki.* First reported by von Jordans in 1970. It is found on Sardinia. It resembles *mallorcae*, but with the bluish tinge on the upper parts and slightly paler under parts.
- *P. m.* niethammeri. First reported by von Jordans in 1970. It is found on Crete. It is very similar to *ecki* but with a slightly larger bill, the upper parts are slightly duller or darker, less green, and the under parts are very pale yellow.
- *P. m. aphrodite.* First reported by Madarász in 1901. It is found in southern Italy, southern Greece, Cyprus and the Aegean Islands.It has upper parts that are slightly darker than nominate, more olive-gray, and the under parts are variably yellow to pale cream.
- *P. m. terraesanctae.* First reported by Hartert in 1910. It is found in Lebanon, Israel, Jordan and Syria. It is as previous two, but the upper parts slightly paler.
- *P. m. karelini.* First reported by Zarudny in 1910. It is found in southeastern Azerbaijan and northwestern Iran. It is very similar to last or *intermediate* between it and nominate, but with less white in the tail.
- *P. m. blanfordi.* First reported by Pražák in 1894. It is found in north central and southwestern Iran. It is as nominate, but the mantle and scapulars are duller or grayer. The under parts are pale yellow (but darker in the eastern and southern Eburz Mountains and into northern Iraq), and there is more white in the outer tail feather.
- *P. m. bokharensis.* First reported by Lichtenstein in 1823. It is found in southern Kazakhstan, Uzbekistan, Turkmenistan and far north of Iran and Afghanistan. It has a slightly smaller white cheek patch, bluer-gray fringes to flight-feathers, a slightly larger size and a larger bill. It has a shorter tail; some with greener (less gray) upper parts, bright yellow (not whitish) on under parts.
- *P. m. turkestanicus.* First reported by Zarudny & Loudon in 1905. It ranges from east Kazakhstan to extreme north west China and west Mongolia.It is like *bokharensis*, but the bill is slightly larger and the upper parts are darker (but paler than *bokharensis*).
- *P. m. kapustini.* First reported by Portenko in 1954, and is found in north west China (north west Xinjiang) to Mongolia and Siberia. It is paler below than the nominate.

Common Name: Long-tailed Tit
Scientific Name: *Aegithalos caudatus*

Size: 6 inches (13-16 cm)

Habitat: Eurasia. It is a resident in temperate and Mediterranean regions, but partially migratory farther north. Birds from northern Siberia undertake regular migration late August, returning in May, with some dispersal to the north in autumn, but the bulk of movement is in a southward direction. Some remain in the northern part of the range. In northeastern China, it is an irregular migrant and winter visitor at Beidaihe (coastal Hebei) from September to February, occurring in larger numbers during dense migration years. White-headed birds (nominate race) occur in winter south of breeding range in China, Japan and



irregularly southward to extreme southern Korea). Northern populations also make irregular, sometimes large-scale irruptions in the west, when large numbers may reach Finland, Baltic region and eastern Europe, and much smaller numbers appear in western Europe, such movements reaching peak in mid-

October and at least some individuals returning to the natal areas in spring. Tits from north and east sometimes penetrate farther west, but the crossing of water avoided, thus nominate race very rarely recorded in Britain. Within the British Isles, the resident *rosaceus* only the an irregular autumn wanderer to Isle of Scilly, Italy of May, the Outer Hebrides and Orkney, and very rarely to the Shetland Islands. It is a vagrant in Morocco. Populations breeding in mountainous areas presumably undertake some attitudinal movement, spreading to adjacent foothills and plains in winter.

It prefers deciduous and mixed woodlands with well-developed shrub layer, especially willows (*Salix*), favoring edge habitats. It also likes riverine woodlands and in western Europe, scrub, heathland with scattered trees, bushes and hedges in farmland, and well-wooded suburban parks, cemeteries and gardens.

In the Mediterranean region, it prefers maquis and open pine (*Pinus*) forest. Otherwise, it avoids pure stands of conifers in west of range.

Status: Least Concern. **Global Population:** 30,000,000 - 150,000,000 mature individuals. Populations are suspected to be fluctuating owing to the effects of severe winters and recorded range expansions and regional declines in recent decades. There has been a marked decline in Sweden since 19th century, and similar decline in recent years in Finland, most probably a result of modern forestry practices and the replacement of old-growth habitats with commercial monocultures. Flocks require large winter territories, and habitat fragmentation and degradation can lead to local extinctions. Notably, very vulnerable to harsh winter weather, following which numbers may decline by up to 80%; can take several years to recover from these setbacks, perhaps owing to high loss of nests (sometimes over 50%) to predators. Success often low, e.g. fledging rate in various studies 16%-28%; main nest predators crows (*Corvidae*), weasels (*Mustela*) and snakes.

Diet: Mostly arthropods, insect eggs, larvae of butterflies/moths.

It forages mostly in shrub layer and canopy, only occasionally on ground, delicately picking items from surface of twigs, leaves and buds. It can hover, and sometimes flycatches. When dealing with an insect too big to be swallowed immediately, it will hang from a twig by one foot and hold the item in other foot in order to peck at it. They appear tame and very gregarious, for most of year forming stable flocks of 3–30 individuals based around parents and offspring of previous breeding season, together with any adult helpers that had been involved in raising brood. Periods of quiet feeding alternate with noisy rapid movement, in follow-the-leader fashion, to a new area; when traversing open areas, flock-members gather together, calling excitedly, before crossing over in single file. Flocks occasionally group temporarily, with up to 300 individuals. It may join mixed-species foraging flocks.

Breeding: A tiny, round-bodied passerine with short stubby bill and very long, narrow tail. Sexes are alike. The plumage is mainly black and white, with variable amounts of gray and pink. The nominate race has its head, throat and most of under parts snow-white with flanks to vent a clean pink. The upper mantle is black; the lower mantle and back are mixed black and a dull pinkish-white to whitish. The scapulars and rump are pale pink-tinged white with black and white mottling. The upper tail-coverts and tail are black. The outer three rectrices are extensively white (especially on outer web) while the upper wing-coverts and alula are black. The inner greater coverts are broadly tipped and fringed white. The flight-feathers are dark brown, tertials and secondaries are broadly fringed whitish. The iris is dark hazel with the eyelid being yellow to red (yellow is the commonest) The bill is black and the legs are blackish-brown. Juveniles are darker overall than adults, with their rear lores to cheek and ear-coverts being dusky which accentuates the pale eye-ring. Only the center of the forehead and crown are whitish. The mantle and back are brown, and the pinkish tone is confined to distal half of scapulars. The tail is shorter and blackish-brown with the white in outer tail reduced and sullied brown. The inner greater coverts are more narrowly fringed and tipped buffish-white and the flight-feathers are paler and browner/ The under parts appear dirty white and the belly has a buff tinge.

Breeding season starts mid-March to June in Europe and Japan; and from March onwards in Iran, and March–April in northeastern China. There ia only a single-brood. Co-operative breeding is common with up to eight helpers recorded at single nest. These helpers are often adults from failed breeding attempts.

In late winter or early spring flock breaks up, and unmated females move off to pair with males in adjacent flock. Displays includes a butterfly-like jerky flight, with presumed male flying up to height of 5–6 m above ground, alternately fanning and closing tail, then diving vertically down. Three to four birds may display in quick succession or even simultaneously. Each pair sets up loosely defended territory within area occupied by male's winter flock, but continues to roost with other flock-members until nest so far advanced that it can be used for roosting (usually when dome complete).

The nest built by both sexes, over period of up to 33 days. A compact, domed, oval ball of moss, cobweb and hair, is covered with up to 3000 flakes of lichen (which provide excellent camouflage). It is placed usually less than 3 m above ground in low thorny bush, or less common, 6–25 m up in tree fork or against trunk, or hanging among terminal twigs of conifer. A clutch 6–15 eggs are laid and the incubation is performed by female. She is fed, while sitting on the nest, by male for 12–18 days. Once the chicks hatch, they are cared for by both sexes, and assisted by variable number of helpers. The presence of helpers significantly increases breeding success of pair. The young leave nest after 14–18 days, and continue to be fed by parents and helpers for at least a further 14 days,. Family members will remain together throughout winter.

Cool Facts: Their call is loud trisyllabic "*srih-srih-srih*". They are very gregarious and travel in small flocks of about 20 in winter months.

The subspecies races exhibit marked variation, mostly in plumage pattern and tones.

Europaeus Group

- *A. c. caudatus.* First reported by unknown. The nominate species.
- *A. c. rosaceus.* First reported by unknown. It is found in Britain and Ireland. It is smaller than nominate, and is forehead to nape white. It has an irregularly spotted dark brown, band from just in front of the eye (occasionally from the bill) to the side of nape which is dull black. The ear-coverts and the side of neck are finely streaked dark brown with pale areas above darker dull pink, and less white in the wings (edgings narrower). The under parts are off-white, the flanks are dull vinaceous pink, sometimes there is a faint necklace of darker streaks across the upper breast;
- *A. c. aremoricus.* First reported by unknown. It is found in northwestern France (eastward to central and south to the Poitou area), Î d'Yeu and Channel Island. It has a center of crown and underparts that are whiter than previous, lateral crownstripes broader and blacker;
- *A. c. taiti.* First reported by unknown. It is found in southwestern and southern France (including Î d'Oléron) southward to the central Iberian Peninsula (South to Tagus Valley), also Mallorca. It is small and dark, with lateral crown stripes even broader and blacker. The upper parts (especially the rump) are blacker, with less pink.
- *A. c. macedonicus.* First reported by unknown. It is found in Albania, Macedonia, mainland Greece, southern Bulgaria and northwestern Turkey (southwestern Thrace). It resembles *taiti*, but the gorget is better marked, and the lateral crown stripe extends farther forward, often to bill.
- *A. c. europaeus.* First reported by unknown. It is found in northeastern France northward to Denmark, eastward to Germany, southward to northern Italy, Serbia, western and southern Romania (intergrading with nominate race in Moldova), Bulgaria and northwestern Turkey (northern Thrace). It typically resembles *rosaceus* but is brighter and paler, with the lateral crown stripe narrower, and the crown, cheek, ear-coverts and underparts clearer white, but very variable. The lateral crown stripe is sometimes broken or almost absent (thus resembling nominate, but always at least some indication of dark stripe) or very broad (leaving only a small white patch in center of crown).
- *A. c. tauricus.* First reported by unknown. It is found in southern Crimea. It resembles *europaeus*, but the lateral crown stripe is blacker and better defined. The mantle is blacker with reduced (and paler) pink, scapulars often grayish.

- *A. c. trivirgatus.* First reported by unknown. It is found in central Japan (Honshu, Awa-shima, Sado and Oki) and Jeju Island (off southern Korea). It also is similar to *europaeus,* but the white areas purer white, the black on upper parts restricted to the upper mantle. The lower mantle is paler and with greater mixture of brighter pink.
- *A. c. kiusiuensis.* First reported by unknown. It is found in southern Japan (Shikoku, Kyushu and Yakushima). It is like *trivirgatus* but darker, with the gorget less distinct or lacking.
- *A. c. magnus.* First reported by unknown. It is found in central and southern Korea and Tsushima Island. It is close to nominate, but with a blackish lateral crown stripe and usually a well-marked gorget of blackish spots.

Alpinus Group

- *A. c. irbii.* First reported by unknown. It is found in the southern Iberian Peninsula (south of Tagus Valley) and Corsica. It has a narrow black band across upper mantle with the rest of the mantle and scapulars being gray. The scapulars are sometimes tinged pink.
- *A. c. italiae.* First reported by unknown. It is found in mainland Italy and southwestern Slovenia. It is similar to *irbii*, but has a broader black band on the upper mantle, a slightly darker slate-gray lower mantle, and with the scapulars more broadly tipped pink.
- *A. c. siculus.* First reported by unknown. It is found in Sicily. It also is similar, but the lateral crown stripe are duller and browner, the white center of the crown is washed buff, the dark band on the upper mantle is reduced and more brownish-black, the rest of upper parts are paler and grayer, virtually lacking pink, may show vague sooty-black spot on the lower throat.
- *A. c. tephronotus.* First reported by unknown. It is found in Lesbos and Samos (east Greece), western and central Turkey (including extreme east Thrace), also northwestern Syria and extreme northern Iraq. It resembles *siculus*, but the lateral crown stripe is black, the dark upper-mantle band lacking or reduced to a small brown spot, the underparts are buffish with well-defined blackish throat spot.
- *A. c. major.* First reported by unknown. It is found in Caucasus (from northern foothills of Great Caucasus), northeastern Turkey (eastward at least from Sebinkarahisar), Georgia, Armenia and north and central Azerbaijan. It is similar, but the lateral crown stripe is blackish-brown, the center of crown whiter (not buffish) with a few small brown streaks, the band on the upper mantle brown to black and varying in width, the rump is bright pink, the breast is whiter, the lower belly and the flanks are brighter pink, the dark spot on the lower throat faint or absent. The tail relatively is long.
- *A. c. alpinus.* First reported by unknown. It is found in southeastern Azerbaijan (Talis Mountains and Lenkoran lowlands), northern Iran (eastward through Elburz and southern Caspian districts to about Gorgan) and southwestern Turkmenistan (Kopet Dag). It is like *tephronotus*, but the center of the crown is brown-streaked and buffish-white, the upperparts are darker,

the upper mantle is gray with some mixed black. The ower throat is usually sooty and the under parts are washed buffy brown (pink flanks contrasting little).

- *A. c. passekii.* First reported by unknown. It is found in extreme southeastern Turkey and western Iran (Zagros Mountains southward to Fars). It resembles *alpinus*, but overall is rather paler, especially below, with only a faint brown wash on belly. The center of crown is white (not buff), and it lacks the gorget marking (although has dark throat spot).

Common Name: Eurasian Jay
Scientific Name: *Garrulus glandarius*

Size: 13.5 inches (32-37 cm); wingspan 52–58 cm

Habitat: Eurasia; A vast region from Western Europe and Northwest Africa to the eastern seaboard of Asia and down into Southeast Asia. It is mainly resident, with irregular movements, including irruptions and seasonal altitudinal movements. In some autumns, when the acorn crop fails, those in Scandinavia form huge flocks and travel towards the southwest. Such movements occur also further east, but are less well documented. Movements are regular in southeastern Russia (Ussuriland) and in northern Altai ranges in central Asia.

It inhabits woodlands and forests of all kinds, especially beech (*Fagus*) and hornbeam (*Carpinus*), although oak (*Quercus*) preferred. Northern populations occur also in conifers and birch (*Betula*) foress and are found in parks, orchards and large gardens. It is only rarely seen in the open country.

Status: Least Concern. **Global Population:** 40,000,000 - 150,000,000 mature

individuals with a stable population trend. In early 20th century, this species' colourful blue wing feathers became very fashionable, both as a hat decoration and in the making of "flies" for salmon-fishing. It has been long persecuted by gamekeepers and farmers owing to its egg-stealing and nest-robbing habits, but reduction in keepering intensity since 1920s has allowed a steady increase, which accelerated in 1950s as the creation of larger suburban gardens and city and town parks provided habitats safer from human persecution. Over much of its European range this jay is now increasing; surprisingly, the Irish population contracted considerably between 1970s and 1990s, reasons for which uncertain. Further eastward, it is thinly distributed across Siberia, but becomes more numerous in China and Japan.

Diet: Omnivorous. It chiefly eats invertebrates during breeding season, notably caterpillars and beetles (*Coleoptera*) gleaned from foliage of trees. The diet also includes eggs and nestlings of a range of birds up to size of a sparrowhawk (*Accipiter*), much less frequently killing adult passerines, and is among the most frequent predators of other small birds' nests in some areas. A wide variety of seeds and berries eaten, especially in autumn and winter, including grain, beech mast, chestnuts and acorns. In Siberian taiga, it feeds mainly on pine (*Pinus*) seeds.

Like some other corvids, it will occasionally dunk prey in water prior to consumption. Throughout autumn and into winter builds up caches of acorns, burying them individually in leaf litter on forest floor or beneath clumps of brambles or ferns, and has been estimated that a single jay could store 3,000+ acorns in one month, making this species one of the most prolific planters of oaks.

It is normally extremely shy and wary, keeping very much to cover of dense foliage, although in city parks can become remarkably confiding. It is typically solitary, and rarely found in numbers greater than a family group, but small gatherings of unmated birds form in spring, with much posturing to attract a mate, and quite large communal roosts sometimes develop in late summer and autumn. It utilizes lowest airspace, flying between trees with hesitant action; during sporadic eruptive movements.

Breeding: It is a distinctive,broad-winged jay with hesitant, shallow-flapping wing action. It has a small to medium-sized bill, nostrils just concealed by soft nasal tuft, slightly elongated crown feathers which can be elevated into short, ruffled crest, medium-length tail with square tip. The plumage is pinkish gray or reddish brown with an all-black tail and a contrasting white rump. Sexes similar. The nominate race has its forehead and crown, lores and area around eye all whitish. The crown is streaked black, the nasal tuft is whitish or buff. The chin and throat are whitish with a bold black malar stripe. The rear crown, sides of head and most of body plumage are light to medium pinkish brown to reddish brown. The vent and both upper tail-coverts and under tail-coverts are white. The tail is black,

becoming grayer towards base. The upper wing patterning is complex, but essentially the lesser and median coverts are rufous, the primary-coverts and outer greater coverts are bright blue with fine black barring, the inner greater coverts are black, primaries grayish black with narrow whitish edges on outer webs, secondaries blackish with white bases on the outermost five feathers, and the innermost tertial is chestnut with a black tip. The iris is bluish white and the bill is brownish horn. The legs are fleshy-brown.

The juvenile is similar to the adult, but the body is darker reddish brown, the legs brighter fleshy yellow, the iris ismore bluish and the bill grayer. It appears much like the adult by the first autumn, but with more irregular black barring on blue wing patch.

Races differ mainly in tone of body plumage, and in crown and wing patterns, also in size.

It breeds mainly from mid-April in most of range, towards end of April in the north. Jays form a long-term (probably lifelong) pair-bond. They are solitary nesters and have a single brood. The nest built by both sexes, which is a well constructed platform of twigs around a relatively deep cup which is lined with soft plant materials It is placed 3–6 m above ground and often at junction of substantial branch and main trunk that is well concealed by foliage. A clutch of 2–10 eggs is laid and incubated by the female alone for 16–19 days. The chicks are fed by both parents for 20–22 days. It young are independent of parents at 7–8 weeks, when parents can become aggressive towards them.

Cool Facts: The Jay is well known for its mimicry, often sounding so like a different species that it is virtually impossible to distinguish its true identity. It has even been known to imitate the sound of the bird it is attacking, such as a Tawny Owl, which it does mercilessly it finds one during the day. The tables are turned at night though with the Jays being on the menu for the owls.

Glandarius Group

- *G. g. glandarius.* First reported by unknown. The nominate species is found in N and C Europe E to Urals.
- *G. g. rufitergum.* First reported by unknown. It is found in central and southern Scotland, England, Wales and northwestern France. It is more reddish, less gray, than nominate.
- *G. g. hibernicus.* First reported by unknown. It is found in Ireland and is even redder brown than *rufitergum* (especially below).
- *G. g. severtzow.* First reported by unknown. It is found in Scandinavia and western Russia
- *G. g. fasciatus.* First reported by unknown. It is found in southern, central and eastern Spain. It is much grayer and has bolder crown streaks.

- *G. g. slusitanicus.* First reported by unknown. It is found in northern Portugal and northern Spain
- *G. g. corsicanus.* First reported by unknown. It is found in Corsica and is close to nominate, but richer vinous above and below.
- *G. g. albipectus*. First reported by unknown. It is found in Italy, coastal Balkans from Croatia to Albania, and Ionian Islands (western Greece). It is paler above and below than nominate, and has more extensive white on belly.
- *G. g. jordansi.* First reported by unknown. It is found in Sicily.
- *G. g. ichnusae.* First reported by unknown. It is found in Sardinia and is smaller and redder above than *hibernicus* , and has finer crown streaks;
- *G. g. graecus.* First reported by unknown. It is found inthe western Balkans, including mainland Greece. Its similar to *albipectus*, but has less white on belly.
- *G. g. cretorum.* First reported by unknown. It is found in Crete and has even less, or no, white on belly.
- *G. g. glaszneri.* First reported by unknown. It is found in Cyprus. It is rather dark dull brownish, with rufous forehead and weak bill.
- *G. g. ferdinandi.* First reported by unknown. It is found in eastern Bulgaria and adjacent northern Thrace. It is pinker, less gray, overall.

Eurasian Jay (Black-capped) Atricapillus Group

- *G. g. atricapillus.* First reported by unknown. The Black-capped Eurasian Jay is found in western Syria, western Jordan and adjacent part of Israel. It has solidly black rear crown (like *cervicalis* of North Africa), an extensive white forecrown, uniform upper parts coloration, and dark iris
- *G. g. anatoliae.* First reported by unknown. It is found in W, C and E Turkey E to N Iraq and W Iran. anatoliae is darker than last with white of face and forecrown washed vinous
- *G. g. samios*. First reported by unknown. It is found in Samos and possibly Kos (Greece), in SE Aegean Sea. samios also is dark and has vinous and reddish-brown feathering mixed on underparts
- *G. g. iphigenia*. First reported by unknown. It is found in Crimea. It is paler and grayer than *krynicki*, with whiter forecrown and face.
- *G. g. krynicki.* First reported by unknown. It is found in Caucasus and NE Turkey. It is darker, with pale areas of face and forecrown washed vinous-pink.

Eurasian Jay (Black-crowned) Cervicalis Group

- *G. g. minor.* First reported by unknown. It is found in central Morocco and Saharan Atlas Range of Algeria. It is smaller and darker, with pinkish head-sides and boldly streaked crown.
- *G. g. cervicalis.* First reported by unknown. The Black-crowned Eurasian Jay is found in northern and northeastern Algeria and northwestern Tunisia. It

has whitish sides of head and neck, two-toned upper parts coloration, and solidly black cap.
- *G. g. whitakeri.* First reported by unknown. It is found in northern Morocco and northwestern Algeria. It has cap broadly streaked and less extensive white on the head,

Eurasian Jay (Iranian) Hycranus Group

- *G. g. hyrcanus.* First reported by unknown. The Iranian Eurasian Jay is found in southern Caspian forests of southeastern Azerbaijan and northern Iran. It is rather small, dark vinous-pink in overall tone, the crown feathers shorter than in adjacent *krynicki* and is black fringed with grayish-white tinged vinous-pink, appearing streaked

Eurasian Jay (Brandt's) Brandtii Group

- *G. g. brandtii.* First reported by unknown. Brandt's Eurasian Jay is found in the Ural Mountains to Siberia, Lake Baikal and Altai and Sayan Mountains. It has dark iris, dusky nasal tuft and blackish lores, bright rufous head and neck contrasting with gray upper parts
- *G. g. bambergi.* First reported by unknown. It is found in Mongolia to Sakhalin, southern Kuril Islands, Hokkaido and Korea
- *G. g. kansuensis.* First reported by unknown. It is found in central China (Qinghai, Gansu and northwestern Sichuan). It has less black on face, is less gray than *brandtii* and has less white in secondaries
- *G. g. pekingensis.* First reported by unknown. It is found in eastward China (south Liaoning, Beijing, Shanxi, Hebei). It is a variable form, close to *leucotis* but with white secondary patch.

Eurasian Jay (Himalayan) Bispecularis Group

- *G. g. sinensis.* First reported by unknown. It is found in south-central, southern and eastern China and northern Myanmar.
- *G. g. haringtoni.* First reported by unknown. It is found in W Myanmar.
- *G. g. interstinctus*. First reported by unknown. The Himalayan Eurasian Jay is found in eastern Himalayas and southeastern Tibet
- *G. g. persaturatus.* First reported by unknown. It is found in N India (Khasi Hills of Assam)
- *G. g. bispecularis.* First reported by unknown. It is found in western Himalayas from northern Pakistan (Murree Hills) eastward to western Nepal.
- *G. g. taivanus.* First reported by unknown. It is found in Taiwan.

Eurasian Jay (White-faced) Leucotis/oatesi Group

- *G. g. oatesi.* First reported by unknown. It is found in northwestern Myanmar.

- *G. g. leucotis*. First reported by unknown. It is found in eastern Myanmar to southern Yunnan, Thailand to central Vietnam

Eurasian Jay (Japanese) Japonicus Group

- *G. g. japonicus.* First reported by unknown. It is found in Japan (Honshu, Shikoku, northern Kyushu, and Tsushima). It is quite large, has pale eyes, dusky face, blackish but streaked crown and a large white secondary patch
- *G. g. tokugawae.* First reported by unknown. It is found in Sado Island (off Honshu). It is larger and paler
- *G. g. hiugaensis.* First reported by unknown. It is found in Kyushu (south-centralJapan). Itis darker and has brownish rear crown
- *G. g. orii.* First reported by unknown. It is found in Yakushima (southern Japan). It has less white in wings and isthe darkest of group.
- G. g. namiyei. First reported by unknown. It is found in Tsushima Islands (southwestern Japan).

Common Name: Eurasian Magpie
Scientific Name: *Pica pica*

Size: 17-18 inches (46-50 cm)

Habitat: Eurasia; mostly a resident of the western Palearctic, with any movement following adverse weather conditions, such as in Scandinavia and Siberia. Being in general remarkably sedentary, the species is not prone to vagrancy, but vagrants reported from Singapore, Israel, Lebanon, and Scilly Island (off extreme southwestern England).

It inhabits a tremendous variety of open country, preferably with at least scattered trees. It avoids both tracts of treeless country and extensive woodland or forests. In man-modified landscapes, it favors mixed farmland, parks and gardens, with overgrown hedges and small stands of trees. In recent decades, it

has been increasingly common in urban areas, especially in places with avenues of trees. It can reach very high densities in parts of urbanized Europe. It has been observed to at least 4800 m in Tibet (where nests recorded as high as 4400 m).

Status: Least Concern. **Global Population:** 58,600,00 mature individuals with a stable population trend. It is a widespread and common bird in much of its range and it is locally abundant. In most European countries has apparently increased over recent decades, most notable being its spread into cities from the countryside.

It as for long been persecuted as “vermin” by gamekeepers and farmers owing to its egg-stealing and nest-robbing habits. Its habit of feeding on ectoparasites on livestock sometimes results in aggravated sores for the host animal. A reduction in keepering intensity, especially in west of range, since 1920s, however, has allowed a steady increase, which accelerated in 1950s as the creation of larger suburban gardens and city and town parks provided safer habitats from human persecution. Members of the general public now witnessing its nest-raiding habits in their own gardens, although extent of damage done by this species to garden bird populations is minimal compared with that inflicted by domestic cats.

In southeast of its global range, there have been no recent records from Laos and it could well be extinct there. It has also become very rare in adjacent Vietnam. As with other corvids, old nests of this species are used by a number of other birds, including Long-eared Owls (*Asio otus*), sparrowhawks (*Accipiter*) and various falcons (*Falco*). It was introduced from Korea to north Kyushu, in southwestern Japan, more than 400 years ago, and since the 1990s a new breeding population of unknown origin has become established in southwestern Hokkaido, northern Japan, where it is expanding in urban environments

Diet: Omnivorous. The diet varies according to locality, but it’s primarily a carnivorous scavenger. It eats invertebrates, especially beetles (*Coleoptera*), and small mammals and lizards, frogs, bird eggs and nestlings, as well as carrion and rarely even, adult birds. This is done by surprising prey, such as Common Swifts (*Apus apus*). Comparative study of diet of nestlings in urban and rural areas in Czech Republic reported differences between the different environments, but that invertebrates, especially *Coleoptera*, were the most frequent prey in both, and that *Annelida* and *Lepidoptera* were preferentially selected versus *Isopoda, Diplopoda, Orthoptera* and *Hymenoptera*. In rural Spain, during breeding season, arthropods and cereal seeds were the most frequently consumed food groups, whereas eggs and birds were consumed only occasionally).

Pairs patrol roadsides in the early mornings, exploiting overnight roadkills. In addition, various seeds, berries and fruits are taken seasonally. Takes a variety of food scraps, and where unmolested can become cautiously confiding around picnic sites and in city parks, regularly visiting refuse bins. It feeds almost entirely on ground, walking with bold, strutting gait, carrying tail upwards as it searches for insects; side-hops to catch prey. It perches on cattle and sheep to feed on ectoparasites, such actions sometimes resulting in aggravated sores for the host animal.

It stores food, but usually retrieves items within a few days. Although not known for its agility in the air, will pursue other birds to force them to drop or regurgitate food item. Although often encountered in pairs or family parties, larger groups are not uncommon, and assemblages of 20 or more gather for communal roosts.

Breeding: Very distinctive magpie which it mostly black and white with long, graduated tail. It has a mid-sized bill that is relatively wide at base. The culmen is downcurved distally. Sexes are similar.The nominate race has its head to breast and most of the upper parts black with inconspicuous purple and green sheen. The scapulars are white, with a narrow grayish band across rump. The upper wing is black, with a highly glossed green or greenish blue on the secondaries and tertials. The inner webs of the primaries are white with black tips and bases, the white is usually concealed when bird at rest (but forms a huge band on open wing). The tail is black and highly glossed with a green and reddish purple, becoming almost matte black at very tip. The flanks and central under parts are white with the lower belly, tibia feathering and unde rtail-coverts bring black. The iris is dark brown and the bill and legs are black. Juveniles are similar to the adult but duller, with black areas of plumage unglossed and sooty black. White areas are tinged buffy. When recently fledged, it has patches of bare gray or gray-blue skin around eyes and on the malar.

Races differ mainly in intensity of gloss in black areas of plumage, extent of white in wing, prominence or absence of white in rump, comparative tail length and size

Breeding season commences with nest building as early as December in Britain, mid-April being peak time for first egg-laying. Dates are similar elsewhere in Europe and in Turkmenistan. Egg laying begins the last week April in central Siberia with a single-brood.

Magpies have a monogamous long-term pair-bond with partners keeping together throughout year, even when flocking. They are solitary nesters. Nest construction is undertaken by both sexes with the female doing bulk of the building and the male supplying most of materials. The work takes one to eight weeks (depending on experience of the builders and availability of materials). The nest a large distinctively domed structure (occasionally undomed, 32% of nests in urban areas are open),. It is made from sticks and twigs, with a side entrance protected by thorny twigs. The nest cup is thickly lined with soft materials such as wool, animal fur, soft grasses and feathers, usually placed at variable height in crown of tall tree. Normally a fresh nest built each year, although in some cases (e.g. where availability of nest-sites limited) an old nest may be repaired. In more open habitats, electricity pylons also used as nest-site. five to seven eggs are laid.

Cool Facts: Until very recently, the Black-billed Magpie of North America was considered the same species as the Eurasian Magpie. Vocal and behavioral

differences suggest that the American magpie with the black bill is more closely related to the Yellow-billed Magpie.

When seeing a Magpie, one would say, “One for sorrow, two for joy; three for a girl, four for a boy; five for silver, six for gold; seven for a secret, never to be told; eight for a wish, nine for a kiss; ten for a bird that's best to miss.” When this rhyme originated Magpies were actually a lot less common.

Known for its noisy chattering, the European Magpie may have acquired its name as an allusion to nagging; in old English it was called the “Chatterpie”. And while the English appeared to be annoyed by the magpie and it’s chatter, the magpie is a symbol of happiness in Chinese culture.

- *P. p. pica.* First reported by unknown. It is found in the British Isles and southern Scandinavia eastward to eastern Europe, southward to the Mediterranean, including most islands.
- *P. p. bactriana.* First reported by unknown. It is found in Siberia eastward to Lake Baikal, southward to Caucasus, Iraq, Iran, central Asia and Pakistan. It has prominent white rump, more extensive white in primaries (showing as white tips on closed wing).
- *P. p. serica.* First reported by unknown. It is small and dark, remarkably similar to the nominate but with relatively shorter tail and a greener gloss on secondaries.
- *P. p. anderssoni.* First reported by unknown. It resembles *serica*, but is somewhat larger and paler.
- *P. p. bottanensis.* First reported by unknown. It is very distinctive, having a black rump, a relatively short tail, a stout bill and very little gloss in the plumage.
- *P. p. leucoptera.* First reported by unknown. It is found in southern Transbaikalia (Russia), Mongolia and northeastern China (Inner Mongolia and northwestern Heilongjiang). It has very extensive white in the primaries, and the tail gloss is yellowish brass-green;
- *P. p. camtschatica.* First reported by unknown. The Kamchatkan Magpie is found in the North Sea of Okhotsk, Kamchatka and Anadyrland (in Russian Far East). It has the most extensive white in primaries, showing as white tips on folded wing, also it has brightest and most extensive green gloss of all races.
- *P. p. melanotos.* First reported by unknown. It has a black rump, the extent of white in the primaries much the same as the nominate, in the south of its range, sometimes there is a blue spot of bare skin behind eye.

Common Name: Eurasian Jackdaw
Scientific Name: *Corvus monedula*

Size: 13 inches (34-39 cm)

Habitat: Eurasia and Northwest Africa. In western and southern Europe it is a resident or short-distance migrant with some reaching North Africa. There is a native North African population which is resident. In Britain, they leaves higher ground, dispersing southwest with many reaching Ireland. Central European birds seem to disperse northward to the Netherlands and adjacent low-lying areas. Those from north of the range, particularly in western Siberia, move farther, although most winter in the southern and western Caspian region within southern limits of breeding range in central Asia.

It is found in a great variety of open country, preferably with scattered trees. It favors mixed farmland, parks and gardens, churchyards, wooded steppe, quarries and coastal cliffs. It tends to avoid both tracts of treeless country and extensive woodland or forests. Ascends to 2000 m in parts of Asia and Morocco; non-breeding birds reported up to 3500 m in Kashmir.

Status: Status: Least Concern. **Global Population:** 20,000,000 –100,000,000 Mature individuals. Abundant in most of range, but apparent population decreases over recent decades in most European countries.

Diet: Omnivorous , but less of a carnivorous scavenger than most congeners. In one study, 84% of diet plant materials, including grain, seeds and berries, but primarily carnivorous during breeding season. Normal summer diet includes wide variety of invertebrates, e.g. grasshoppers (*Orthoptera*), ants (*Formicidae*) and great variety of flies (*Diptera*); moth caterpillars (especially *Tortrix viridana*) and beetles (*Coleoptera*) also important components. Some individuals specialize, and become adept at taking eggs of both small and large birds. It forages along tideline, primarily for sandhoppers (*Talitridae*).

It takes household scraps of different kinds, and may become cautiously confiding about picnic sites and in city parks. It feeds chiefly on the ground, walking with bold, strutting gait, as it searches for insects. It will side-hop to catch prey items. It often perches on cattle and sheep to feed on ectoparasites. It will fly high during ant emergences of flying ants, catching the ants on the wing and pursue other birds to make them drop food items. It is sociable in non-breeding season and seen in large numbers joining *C. frugilegus* and *C. corax* on short-cropped grassland and fields. It rarely stores food items, and even then seems not to bury them.

Breeding: It is a small, sociable crow with moderately long tail somewhat rounded at tip. It has a small and short bill and a flat forecrown. Feathers can be raised to form slight mid-crown crest. Sexes are similar. The nominate race has a forecrown blackish with a slight bluish gloss. The rear crown, nape and side of head are a contrastingly pale gray. It has a distinct whitish collar at base of the nape with the remainder of the plumage bring dark gray. The upper parts with weak bluish sheen, the upper wing and the tail are similar but darker. The iris is light gray-white. The bill and legs are black.

The juvenile has a dark iris and the entire head and body plumage is softer, tinged brownish and without gloss. By the first autumn, most of the head and body plumage are replaced with adult-like colors. The dark iris may persist until end of the first winter.

Breeding season starts in late April in Britain and northern Europe, mid-April in central Europe, and first half May in northwestern Russia and in central Asia and Kashmir. Jackdaws form a long-term pair bond. They are semi-colonial, with several pairs nesting in close proximity on rooftop chimneys and in quarries and caves. Both sexes take part in construction of the nest. The foundation is a mass of branches and twigs, interspersed with mud and dung, inner cup quite deep and thick, of mosses, rotten wood, feathers and fur and wool, usually in some cavity of some kind, e.g. tree hole , rock crevice in quarry, or in sea cliff alongside Razorbills (*Alca torda*) and Black-legged Kittiwakes (*Rissa tridactyla*), in rabbit (*Oryctolagus*) burrow, chimney, mine-shaft, or bridge. A clutch 3–8 eggs is laid and the female incubates for about 17–19 days. The chicks fed by both parents with the nestling period lasting about 30 days. Family-members soon join up with others and form quite substantial summer flocks.

Cool Facts: The jackdaw is one of the smallest species from the Crow family.

“The complex social interactions that occur in groups of Jackdaws was studied by Konrad Lorenz and a detailed description of the Jackdaw's social behaviour is described in his book "King Solomon's Ring". Lorenz put coloured rings on Jackdaws' legs so that individual birds could be easily identified and he caged them in the winter because of their migration from Austria. Lorenz observed Jackdaws' hierarchical group structure with dominance of the higher-ranking birds over others. He noticed Jackdaws' strong male–female bonding and that each bird of a pair occupy about the same position in the hierarchy. He reported that a low-ranked female Jackdaw rocketed up the Jackdaw social ladder when she became the mate of a high-ranking male. He also described some Jackdaw calls.” (Wikipedia)

Races differ mainly in color saturation and in prominence of pale collar at side and rear of nape:

- *C. m. monedula*. First reported by unknown. The nominate species is found in Scandinavia to the northern Alps, Carpathian Mountains and western Russia.
- *C. m. spermologus.* First reported by unknown. It is found in Western and Southern Europe from British Isles, eastward to Italy, southward to Morocco and northwestern Algeria. It is darker than nominate, especially on the nape, with the blacker face, lores and throat, and lacks the pale hind collar or has only a weak, diffuse grayish-white line at base of neck;
- *C. m. soemmerringii.* First reported by unknown. It is found in southern and southeastern Europe to Turkey, Cyprus and northern Israel, eastward in Asia to south-central Siberia, western Mongolia, western China (Northern and Western Xinjiang) and Kashmir. It winters in the northern Middle East and eastward to northwestern India. It is paler gray than *soemmerringii.* especially on the nape , and it has very distinct pale collar which, in southern and eastern populations, finishes in wider whitish blotch at side of neck.
- *C. m. cirtensis.* First reported by unknown. Found in northeastern Algeria. It is uniformly slate-grey, with far less contrast on the head and nape than other races.

Common Name: European Starling
Scientific Name: *Sturnus vulgaris*

Size: 8-9 inches (22 cm)

Habitat: Worldwide; the native breeding range of the European Starling covers much of Eurasia, from the British Isles and Scandinavia southward to France, central Italy, the Middle East, and east to Lake Baikal. The wintering range extending into northern Africa. Some areas, such as Iceland, northern and western Europe have been colonized by population expansion over the last 100 years. In addition, starlings have been introduced in a number of areas, allowing for rapid population expansion and colonization. These areas include South Africa, Australia, New Zealand and adjacent islands, Jamaica, and some of the West Indies.

They are widely distributed resident across nearly all of North America, but more uniformly distributed in the eastern half of the continent. In the west, less suitable habitat, particularly in mountainous and forested areas, may make distribution more patchy. Along the margins of the range (especially in the north), starlings are found mainly around cities and towns where supplemental food is available and buildings provide protected or warmer roosts and daytime perches.

Owing to their close association with man and behavioral plasticity, starlings inhabit a wide variety of areas if a few crucial needs are met. They forage in open country on short, mown, or grazed fields, which are abundantly produced in

urban areas and by many types of agriculture. These areas also provide accessory food resources, nesting cavities, and water. In North America, starlings seem to avoid only large expanses of undisturbed non-grassland native habitats such as wooded or forested areas, arid chaparral and deserts. Although habitat use may vary seasonally, areas which are inhospitable for breeding are also not usually suitable for wintering birds. Habitat use in North America parallels that seen in Europe, with highest densities seen in agricultural and settled (disturbed) areas. During non-breeding season exploits wide range of habitats, including moorland, saltmarshes, seashore and tidal flats, stubble fields, orchards, refuse dumps and sewage-treatment works. Roosting sites include reedbeds, scrub and trees, also bridges and buildings, even in town centers; huge winter roosts in Europe may contain more than one million birds, while in Israel reported as reaching five to eight million.

Status: Least Concern. **Global Population:** 310,000,000 Mature individuals. Threatened in England, European populations are in decline. It is considered an invasive pest in North America. Human activities have without question allowed starlings to both increase in numbers and expand their range. Man-made structures are an important addition to available nest sites, agriculture has provided much more of the open habitat starlings favor, and garbage, livestock feeding, and certain crops have provided an immense amount of additional food resources which may be crucial to survival at certain times of the year. Starlings are so numerous in many areas that they are considered an undesirable nuisance.

Their abundance and accessibility have also made them favorite subjects of many basic studies of avian biology. Among others, studies of their flight mechanics, energy metabolism, endocrinology, renal function, and sensory perception have greatly augmented our knowledge of birds in general.

Diet: Extremely diverse diet that varies geographically, with the age of individuals, and with season. Generally, they eat invertebrates when available, fruits and berries, grains and certain seeds during other times of the year. Unusual abundances of food items such as arboreal insects, spilled garbage, livestock feed, etc. are also exploited.

The foraging rate varies with habitat type and prey sought Juveniles are less adept than adults at feeding on soil invertebrates and may spend less time feeding in these areas. Foraging success of juveniles searching for insects is lower than for adults, perhaps leading to the observed preference of juveniles for more easily obtained plant foods. Dominant individuals can restrict access to food sources, especially when group numbers are small. Aerial flycatching is used occasionally.

Their olfactory sense important during foraging. Different patterns of behavior may be followed at different times of day, at least in the winter. Early and late in

the day, the birds forage close to the roost, but group in larger flocks to forage later in the morning. The type of food taken is also important; starlings feeding on soil invertebrates spend more time foraging than those eating grain at feedlots.

Breeding: A compact, stocky passerine, easily recognized by its predominantly glossy black plumage and short, squared tail, pointed wings, and long bill. The body plumage shows purple and greenish iridescence, especially on the head, back, and breast. Following the annual molt (mid-summer through fall), most head and body feathers have whitish or buff terminal spots, tending to mask gloss of plumage.The wings and tail are brownish-black with very narrow buff margins, some gloss on outer webs. These light spots gradually wear away to produce the glossy black appearance of spring, although most birds retain at least a few of these spots, with strong purple gloss on head and throat, green gloss on the mantle, rump and breast, feathers of throat and the upper breast elongated (erected in display). The chin and throat are blackish with some purple gloss; the breast and upper belly dark brown, glossed green, more purple gloss on flanks; lower belly and under tail coverts lack gloss, have broader and whiter tips. Sexes are similar, though female with more extensive pale tips of body feathers (tips still evident even after abrasion) and the plumage is generally less glossy, lanceolate feathers of the head and neck shorter and less glossy.

Juveniles are shaped like adults, with long blackish bill and fairly pale , uniform gray-brown plumage, with the wing and tail feathers edged buff. The chin is whitish, the breast buffy white with brown tips and the belly feathers pale with dark shafts and tips (producing streaked or blotched appearance). During its molt, the juvenile is very variable in appearance as the pale-tipped dark adult feathers appea. The head feathers are last to be replaced.

Resident males begin investigating suitable nesting sites in late winter, migratory males by February or March. Females choose mates and may make choices based on male song, but may also choose on the basis of the site itself. Males begin depositing nest materials into the nest cavity soon after the site selection. Systematic construction occurs after the pair formation, beginning in late February in Arizona, the third week of March in New York and Vancouver, Britisih Columbia. Four to five eggs in nest boxes and woodpecker holes.

Cool Facts: Starlings have diverse and complex vocalizations, and have been known to imbed sounds from their surroundings into their own calls, such as car alarms and human speech patterns. The birds can recognize particular individuals by their calls.

They are very gregarious. “During spring in Denmark, at approximately half an hour before sunset, flocks of more than a million European starlings gather from all corners to join in incredible formations. This phenomenon is called “Black Sun” and can be witnessed in early spring throughout the marshlands of western Denmark, from March through to the middle of April. The starlings migrate from

the south and spend the day in the meadows gathering food, sleeping in the reeds during the night. The best place to view this amazing aerial dance is in the place called Tøndermarsken." (Wikipedia)

All the European Starlings in North America have descended from 100 birds released in New York's Central Park in the early 1890s. A group dedicated to introducing America to all the birds mentioned in Shakespeare's works set the birds free. Today, European Starlings range from Alaska to Florida and northern Mexico, and their population is estimated at over 200 million birds. Its successful spread is believed to have come at the expense of many native birds that compete with the starling for nest holes. North American starlings have measurably lower amounts of genetic variation than those in their native range.

- *S. v. vulgaris.* First reported by Linnaeus in 1758. The nominate species is found Iceland eastward to Ural Mountains, southward to northern and northeastern Spain, southern Italy, southeastern Europe and northern Ukraine, also on Canary Islands. It winters also southward throughout Iberia and to northern Africa.
- *S. v. faroensis.* First reported by Feilden in 1872. The Faroe starling is endemic to Faroe Island. It is larger and heavier than nominate; juveniles are much darker.
- *S. v. zetlandicus.* First reported by Harter in 1918. The Shetland starling is endemic to the Outer Hebrides and Shetland Island. It is intermediate between *faroensis* and nominate.
- *S. v. granti.* First reported by Harter in 1903. The Azores starling is endemic to the Azores. It is very like nominate but slightly smaller and shorter-legged, with more extensively purple above.
- *S. v. poltaratskyi.* First reported by Finsch in 1878. The Siberian starling is found in the Ural Mountains eastward to Lake Baikal, southward to northern and eastern Kazakhstan, northern Kyrgyz Steppes and through northern Dzungaria to Mongolia. It winters in southwestern Asia to northwestern India. It is more purple on the head and bluer below than nominate, the gloss on the wing-coverts are greenish-purple;
- *S. v. tauricus.* First reported by Buturlin in 1904. The Black Sea Starling is found in southern and eastern Ukraine and Crimea eastward to southern Russia (Stavropol), and Asia Minor (except in the east). It winters also in the Middle East. It has a greenish head, bluish mantle, purplish breast, a bronze sheen on belly as well as on the flanks, wing-coverts and secondaries.
- *S. v. purpurascens.* First reported by Gould in 1868. the Eastern Turkey starling is found in western Transcaucasia, eastern Turkey, Georgia and Armenia. It winters also in Egypt. It has coppery head and throat, bluish-green back and rump;
- *S. v. caucasicus*. First reported by Lorenz in 1887. The Caucasian starling is found in the Volga Delta, North Caucasus and eastern Transcaucasia, Azerbaijan, the southern Caspian Sea region and western and southern Iran. It has a green head and upper parts with a purplish-violet belly.

- *S. v. nobilior.* First reported by Hume in 1879. Hume's starling
- or the Afghan starling is found in northeastern Iran, southern Turkmenistan and northern Afghanistan. It winters in the northwestern Indian Subcontinent. It is similar to *caucasicus*, but with the head more purplish.
- *S. v. porphyronotus*. First reported by Sharpe in 1888. The Central Asian starling is found in eastern Kazakhstan and extreme northwestern China (West Xinjiang) southward to eastern Uzbekistan and Tajikistan. It winters in the western Indian Subcontinent. It has a greenish head which is sharply demarcated from the reddish-purple upper parts and the bronzy-purple under parts, and is virtually unspotted in breeding season (but more glossy and colorful than the Spotless Starling (*Sturnus unicolo*r).
- *S. v. humii.* First reported by Brooks in 1876. The Himalayan starling is found in the western Himalayas (Kashmir and Punjab). It winters in the northern Indian Subcontinent. It has a bluish head.
- *S. v. minor.* First reported by Hume in 1873. The Sindh starling is found in Pakistan (Indus Valley) and is notably smaller than other races.

Common Name: Eurasian Chaffinch
Scientific Name: *Fringilla coelebs*

Size: 5½ - 6 inches (14-18 cm)

Habitat: Europe, North Africa, and Northwest Asia; it is a Resident which is partially migratory. It winters in Southern Europe to Southern Asia. It has been introduced to South Africa and New Zealand. Breeders in the north and northeast of range move southward and southwest between mid-September and the end of November to wintering areas within breeding range in central and eastern Europe, around the eastern Mediterranean, and also to northwestern Africa, and farther south in central Asia. Onward or further movements within its range are usually triggered by onset of severe weather. They return North from late February to early May with adult males making the earliest movements, ahead of adult females and first-year individuals. Its wintering population in Sweden, Britain, Belgium and Netherlands are mostly males, and in Ireland predominantly females. Some evidence of winter site-fidelity among migrants wintering in Britain in subsequent years. Most movement diurnal, in small to medium-sized flocks, often visibly along lines of hills, river valleys, and coasts (particularly at headlands). North

African breeders are largely sedentary or move short distances south of breeding range to the northern edge of the Sahara. It is a vagrant to Saudi Arabia (recently more regular in eastern provinces), Kuwait, United Arab Emirates, and eastward to northwestern Thailand, eastern China (some regular overwintering), Korea and Japan; also eastern North America. It is introduced (nominate race or gengleri) in southern South Africa (Cape Town area) and New Zealand.

It is found primarily in lowland and lower montane deciduous, mixed and conifer woods with slight preference for beech (*Fagus*), hornbeam (*Carpinus*), mature oak (*Quercus*), spruce (*Picea*) and pine (*Pinus)*, forest edges and glades. It is also found in copses, heaths, edges of tundra and agricultural areas, hedgerows, orchards, parks and gardens. In the Canary Islands, it is found in laurel (*Lauraceae*) forests and areas of dense vegetation. In non-breeding season, they are more widespread in similar habitat and open agricultural areas, particularly weedy fallow and stubble fields, olive groves, palms, wadis and desert oases. They occur from sea-level to 2500 m.

Status: Least Concern. **Global Population:** 460,000,000 Mature individuals with a stable population trend. Common to locally abundant but scarce or uncommon in China. Race *spodiogenys* is uncommon or locally common in northern Africa. There has been a slight increase in Spain, Britain, Denmark, Croatia and Ukraine during 20th century as a result of changes in forest structure and management.

Diet: Mostly seed with some invertebrates in summer.

They forage on the ground primarily. Also at all levels in bushes and trees in spring and summer. It; perches briefly on near-vertical tree trunks (particularly during outbreaks of bark beetles), and occasionally pursues and catches flying insects, also hovers briefly to take invertebrates from leaves or beside suspended suet or peanuts at garden feeders. They will wade in shallow water and put their heads beneath surface to collect caddis fly larvae. On ground, they have a distinctive shuffling or jerky, forward-hopping or walking motion, simultaneously nodding head.

Breeding: It is a medium-sized finch with conical bill, peaked hind crown and broad white wingbars. Sexes are dimorphic. The male nominate has a black forehead, a slaty gray-blue crown to the upper mantle, with the lores and face being vinous-pink with orange tinge. The mantle and back are reddish-brown or chestnut, the lower back to upper tail-coverts are olive-green and the center of tail is a blue-slate. The tail is narrowly edged green with the rest of tail black, the outer two feathers broadly tipped white. The inner lesser upper wing-coverts and scapulars are blue-green, with the median coverts and tips of outer lesser coverts being white. The greater coverts are black, tipped white and the alula, primary coverts and flight-feathers are black with a finely edged pale yellow or greenish-yellow (forming pronounced panel on secondaries in winter). The bases of all except outermost three remiges is white or yellowish-white (small white patch on closed wing). The tertials are black, broadly edged and tipped pale buff. The under parts like face, a vinous-pink, paler on the lower breast and flanks, white on the belly to under tail-coverts. In breeding plumage, the forehead is dark gray, the crown to upper mantle washed browner, the mantle browner, the upper tail-coverts are gray-brown, the tips of greater coverts are yellowish, and pink on fthe ace and under parts is duller. The iris is dark brown and the bill is pale

bluish-gray with a dark tip. In winter, it becomes yellowish or buffish at base. The legs are pale pinkish-brown to dark gray.

The female has its head and most of upper parts dull earth-brown, tinged grayish, a paler on center of the nape, diffuse dark brown the sides of the crown and nape, the sides of the head and nape washed grayish (prominent in fresh plumage in autumn); the mantle olive-brown, lower back and rump yellowish-green, upper tail-coverts duller yellowish-brown. The flight-feathers and tail as for male, but the center of the tail is browner and entire the outer tail feathers is white, It is dull buffish-brown below, often tinged grayer on the breast and upper belly (sometimes pink tinge on the breast), lower belly whitish, becoming whiter on the under tail-coverts. The bill is brownish, darkest at tip and palest at the base of the lower mandible. The juvenile is similar to winter female, but has a more conspicuous buffish-white patch on the nape. The upper parts are more uniformly brown except for a duller green rump. The under parts are washed yellowish.

The juvenile male has a warmer tinge on mantle, and buffish-brown cheeks and ear-coverts. Races differ mainly in pattern and plumage of male.

Breeding season occurs from mid-March to mid-July with usually only one brood. Chaffinches are can be exceptionally bigamous. For those that are mongamous, the pair-bond is frequently maintained into subsequent years. It is a solitary nester. Territorial males, with sleeked plumage (highlighting wingbars), displays to female by singing and by making low, short, undulating moth-like flight with wings extended and beaten rapidly while the head and tail held low. On landing crouches,it turns sideways to female, becomes motionless, lifting or flicking wings. It then tilts body on side closest to the female and raises its wing for several seconds, revealing flanks and belly (may also alternately switch wings depending on location of female, each time raising wing closest to her), before relaxing and moving off in moth-like flight to repeat display, or female flies in rapid zigzag chase with male in pursuit. Mating usually takes place towards start of nest-building, may be initiated by either sex, but successful only if female solicits with wings lowered and shivered, tail partly raised and breast feathers fluffed while giving loud "seep" calls. In early courtship, the male initially dominant, but the female gradually assumes dominance during egg-laying and incubation. The nest is built entirely by female; creating a deep cup of plant fibers, grass, fine roots, lichens, moss, bark strips, animal hair and feathers, placed up to 35 m above ground on branch, against trunk or in fork of tree or bush. The clutch of 4–5 eggs is incubated by the female for a period 10–16 days. The chicks are fed and cared for mostly by the female, the male contributes little or up to one-third of food for young. The nestling period lasts 11–18 days and the young are fed by both parents for up to 21 days after fledging. The young are fed almost exclusively insects.

Cool Facts: Although, it is now illegal to catch birds in the wild, in a number of countries such as Belgium, the Chaffinch is a popular pet bird.

In Western Belgium, *"finching"* is a popular sport. In a finching contest, a number of cages each housing a male finch are lined up, usually along a street. Every time the bird sings its song this is marked with a chalk stripe on a wooden stick, and the bird singing its song the most times during one hour wins the contest.

The song of the Chaffinch is very well known, and the "*fink"* contact call gives the finch family its English name. Males typically sing two or three different song types, and there are regional dialects too. The learning of the chaffinch song by its' young was the subject of an influential study by British ethologist William Thorpe. "Thorpe determined that if the chaffinch is not exposed to the adult male's song during a certain critical period after hatching, it will never properly learn the song. He also found that in adult Chaffinches, castration eliminates song, but injection of testosterone induces such birds to sing even in November, when they are normally silent" (Thorpe 1958).

Has hybridized with F. montifringilla. Geographical variation complex. Races commonly considered to form three groups, "coelebs group" (European and Asian races), "spodiogenys group" (also including africana, harterti, moreletti and maderensis), and "canariensis group" (also including ombriosa and palmae), with Canarian taxa appearing dramatically different from those in mainland Europe, but African and Madeiran taxa intermediate (and sometimes further subdivided into two separate groups, as here); in genetic studies, large differences between "coelebs group" and "canariensis group", but less clearly so between "spodiogenys group" and "coelebs group", with nominate and africana evidently closely related; further study required. Nevertheless, some authorities have treated Atlantic Is taxa as forming three species (1). Considerable variation within races, especially nominate, and wide degree of intermediates. Nominate race varies clinally; races sarda, syriaca, solomkoi and alexandrovi possibly represent extreme limit of variation of nominate, but further research required; proposed races hortensis (from Anhalt, in C Germany), balearica (Mallorca), tyrrhenica (Corsica), schiebeli (Crete), caucasica (S Caucasus region) and wolfgangi (Tomsk, in W Siberia) all considered to fall within range of variation of nominate. Additional races are scotica (described from Carmunnock, in SW Scotland) and hibernicus (Glengariff, in SW Ireland), both synonymized with gengleri, and tintillon (Tenerife), treated as a synonym of canariensis. Race transcaspia sometimes misspelt "transcaspica". Fifteen subspecies currently recognized. Subspecies

Coelebs group

- *F. c. alexandrovi.* First reported by Zarudny in 1916. The Northern Iranian chaffinch is found in northern Iran. It is very like nominate, but the mantle is

slightly darker (and less chestnut than *solomkoi*), and the face and under parts between vinaceous and rufous-brown (less pinkish-brown).

- *F. c. caucasica.* First reported by Serebrovski in 1925. The Caucasian chaffinchis found in the Balkans and northern Greece to northern Turkey, central and eastern Caucasus and northwestern Iran.
- *F. c. coelebs.* First reported by Linnaeus in 1758. The European chaffinch, the nominate subspecies, is found in Eurasia, from western Europe and Asia Minor to Siberia.
- *F. c. balearica.* First reported by von Jordans in 1923. The Iberian chaffinch is found on the Iberian Peninsula and the Balearic Islands.
- *F. c. gengleri.* First reported by O. Kleinschmidt in 1909. The British chaffinch is found on the British Isles. It is like nominate, but the mantle is slightly deeper brown, the lores darker and the face browner (between rufous-cinnamon and ochre-brown), the under parts dark rufous-cinnamon, and paler on the belly.
- *F. c. sarda.* First reported by Rapine in 1925. The Sardinian chaffinch is endemic to Sardinia. It has abroad bill base, the mantle dull brown or tinged green, the rump duller olive-green, the face and under parts cinnamon, tinged tawny or vinous on the belly.
- *F. c. schiebeli.* First reported by Erwin Stresemann in 1925. The Cretan chaffinch is found in southern Greece, Crete and western Turkey
- *F. c. solomko.* First reported by Menzbier & Sushkin in 1913. The Crimean chaffinch is found in the Crimean Peninsula and the southwestern Caucasus. It is slightly larger than the nominate, the bill is slightly larger and heavier, the mantle tinged dull brown or umber-brown (tinged green in fresh plumage), the rump dull olive-green, the under parts are paler vinous-pink.
- *F. c. syriaca.* First reported by J. M. Harrisson in 1945. The Levant chaffinch is found in Cyprus, southeastern Turkey to northern Iran and Jordan. It has the mantle tawny or orange-brown, the rump is yellowish-green, the side of the head is deep vinous with cinnamon tinge, the under parts are pale pinkish-mauve or vinous-pink, the center of the belly to under tail-coverts are white. The female is paler brown, the under parts are drab brown with an ash-gray tinge.
- *F. c. transcaspia.* First reported by Zarudny in 1916. The Northeastern Iranian chaffinch is found in northeastern Iran and southwestern Turkmenistan. It is like *alexandrovi* but is slightly larger, the mantle duller and the under parts are paler.
- *F. c. tyrrhenica.* First reported by Schiebel in 1910. The Corsican chaffinch is endemic to Corsica.

Spondiogenys group

- *F. c. africana.* First reported by J. Levaillant in 1850. The Atlas chaffinch is found in Morocco to northwestern Tunisia, northeastern Libya. It has crown and nape bluish-gray, the face to side of the neck are slightly paler, it has a broken white eyering and white postocular spot, the mantle to rump are bright

olive-green, the scapulars and the upper tail-coverts are blue to blue-gray (occasionally the lower back to the rump are all blue-gray), the outer rectrices extensively white, underparts pink or washed peach-buff, side of breast and flanks tinged light gray. The center of the belly to the under tail-coverts are white. The female is similar to nominate but paler above, tinged green on the mantle and scapulars, brighter green on the rump (duller when worn), bluish-gray upper tail-coverts, the outer two rectrices are white, the wings are paler and duller, the white tips on the median coverts, pale yellowish tips on the greater coverts and the edges of secondaries, whitish-buff below, often grayer on the breast and flanks (under parts are tinged yellowish-buff in northeastern Libya).

- *F. c. spodiogenys.* First reported by Bonaparte in 1841. The Tunisian chaffinch is found in eastern Tunisia and northwestern Libya. The male is very similar to *africana*, but has a paler crown and nape, a bright olive-green upper mantle merging into bluish-gray scapulars and back, blue rump, more white in the outer tail feathers, broad white edges on the secondaries and tertials, pale pinkish-white on the throat and breast, otherwise washed grayish below. The female is like *africana*.

Canariensis group

- *F. c. canariensis.* First reported by Vieillot in 1817. The Tenerife chaffinch is endemic to the central Canary Islands (La Gomera and Tenerife). It has crown to back deep slate-blue, the rump bright green (duller when worn), upper tail-coverts and the center of tail is bluish-tinged slate-gray, the outer two tail feathers with variable amount of white tips with a blackish terminal edge, tip of the next inner rectrix is white, the wing is mostly black except for the white median coverts and the narrow white tips of the greaters, pale green edges of the remiges, face and underparts pinkish or peach-buff, whitish on the belly and undertail-coverts. The bill is black or dark bluish-horn. The female has upper parts that are dark olive-brown, but generally lacks the dark streaks on sides of crown and nape, the rump is bright green rump (darker brown with green tinge in worn plumage). The face and under parts are light olive-brown, tinged buff-brown on the chin to breast
- *F. c. bakeri.* First reported by Illera et al. in 2018. The Gran Canaria chaffinch is endemic to the central Canary Islands (Gran Canaria).
- *F. c. maderensis.* First reported by Sharpe in 1888. The Madeiran chaffinch is endemic to Madeira. It has a deep blue crown and nape (forehead black), slightly paler or grayer blue on the lower mantle (forming a saddle) and the back, bright olive-green on the upper mantle and rump, the flight-feather edges buff or yellowish, the face to the breast are light pink or peach-buff, the belly and the flanks are pale grayish-white. The female like *canariensi*s but the sides of the crown and nape are darker, the mantle greener, the back darker, only the outer tail feather is white
- *F. c. moreletti.* First reported by Pucheran in 1859. The Azores chaffinch is endemic to the Azores. It is similar to *maderensis*, but the bill larger and

slightly longer, the blue on crown to the upper mantle paler, the rump blue, the face to the breast deeper peach-buff or tinged brownish. The female is similar to the nominate female.

- *F. c. ombriosa.* First reported by Hartert in 1913. The El Hierro chaffinch is endemic to El Hierro, the Canary Islands. It is similar to *palmae*, but with a dull green lower mantle to the rump, a small white patch at base of primaries, narrow yellowish edges of the secondaries, paler peachy-buff color below usually not reaching the flanks. The bill is black.
- *F. c. palmae.* First reported by Tristram in 1889. The La Palma chaffinch is endemic to La Palma, the Canary Islands. It is similar to *canariensis* but slightly larger, with a larger bill, the upper parts deep are slate-blue, the rump is dark bluish-gray, more prominent yellowish-green edges of the flight-feathers and tertials. The central tail feathers are gray. It is mostly white below, with pinkish to peach wash on the chin to the upper breast, grayish wash on the flanks

Common Name: Eurasian Linnet
Scientific Name: *Carduelis cannabina*

Size: 5½ -6 inches (13-14 cm)

Habitat: Europe, North Africa, West and Central Asia. It is resident, migratory and partially migratory.The southern European, the Mediterranean and the Atlantic island races are entirely sedentary. Elsewhere, numbers making post-breeding movement vary annually, and some individuals migrate in some years but not in others. Northern breeders of nominate race, mainly those from Fennoscandia, northeastern Europe and western Russia, move southward & southwestward to winter within and slightly south of breeding range in central and southern Europe from northern Belgium (with small numbers also in Britain) southward to coastal north Africa, southern Israel (the Negev Desert), northern Egypt and southward along the river Nile. In Central Asia, the nominate race is

common on passage through western Kazakhstan late August to November, and at same time, race *bella* moves southward through lower levels of breeding range and both races scarce in winter mostly in the extreme south. Race *bella* is an altitudinal migrant in northwestern China. They are vagrants northward to Iceland, Faeroes and Lapland Sea to Mauritania, Senegal, the Libyan desert, Sudan, United Arab Emirates, northwestern India and Nepal.

They prefer open country and farmlands, lowland open heaths and commons, especially with gorse (*Ulex*) and broom, moorlands and hills with scattered trees and light woodlands. They are found in forest clearings and edges, edges of cultivation, fallow fields, scrub and weed patches, plantations, orchards, vineyards, hedgerows, parks and large gardens. Also sighted on open rocky hillsides, mountain slopes, alpine meadows and maquis or valleys with low shrubs, and in non-breeding season, coastal dunes, saltmarshes, shingle banks and along tideline.

Status: Least Concern. **Global Population:** 14,000,000 - 20,000,000 Mature individuals. It is threatened in England and European populations are in moderate decline. It is common to locally common in the northern parts of its range. It is fairly common in Madeira and the eastern Canary Islands, occasionally abundant in Spain and Israel and uncommon in northwestern China.

In late 20th century, it has declined over large parts of central and northwestern Europe owing to intensification of agriculture, which resulted in destruction of hedgerows (enlarged fields), improved harvesting of cereals, and eradication of fallow and weedy fields through application of herbicides. There is some evidence of recovery in parts of range (Britain and Finland), following redistribution in alternative habitats in parks, gardens and urban areas and improved foraging opportunities provided by new crops, such as oilseed rape (*Brassica napus*).

Diet: Mostly small to medium-sized seeds of a wide range of flowers and shrubs. They will also eat flower buds and some small invertebrates.

They are ground foragers.

Breeding: It is a small to medium-sized, brown finch with a gray head, a conical bill and a notched tail. Sexes are dimorphic. The male nominate in breeding plumage has its lower forehead, lores and short supercilium and subocular crescent pale buff. The fore crown is a rich crimson (over blackish feather bases), from crown to lower nape, side of neck, cheek and ear-covert, it is pale gray, with finely streaked blackish tones on the crown. There are pale buffish centers on the ear-covertsand a broad pale or whitish-buff submoustachial stripe to side of throat with a lightly brown-streaked malar stripe. The upper parts, including most of upper wing-coverts, are bright chestnut, slightly paler or sandy (may also be tinged pinkish) on lthe ower back and rump. The upper tail-coverts and tail are black, finely fringed pale buff or whitish-buff, broadly so at side of the tail base. The outer greater coverts are black, finely fringed pale buff, while the alula, primary coverts and flight-feathers are black. The primaries are broadly edged white (forming broad panel in flight), the secondaries and tertials are darker brown, edged warm buff-brown. The chin and throat are pale whitish-buff. The upper breast and side of the breast are crimson or crimson-pink (with browner feather bases). The extreme side of bthe reast and flanks are a warm buff brown

(flanks sometimes with slightly darker tips). The center of lower breast and upper belly are pale buff to pale pink, while the rest of under parts are white or pale sandy-buff. The iris is dark brown to black and the bill is blackish-brown with a gray base. The legs are dark pinkish-brown to blackish. The non-breeding male has forehead buff brown, the crown to nape is edged pale buff, the upper parts are slightly darker brown, streaked finely blackish, and the breast is a warm buff or brownish-buff, streaked blackish-brown.

Female breeding plumage is similar to male, but duller and lacks pink on forehead and breast. The forehead to nape is gray-brown, finely streaked darker, the upper parts are dull warm brown, broadly streaked darker, rump and upper tail-coverts brown. The wing and tail is similar to the male, but the median and greater upper wing-coverts are fringed a warmer brown, the greater coverts with broad buff-brown tips, the white on primaries not so broad creating a smaller panel on open wing than the male. There are distinctive pale areas around the eye and on the cheek. It is pale buff-brown (may be tinged pinkish) below, washed more heavily buffish and streaked dark brown on the breast and flanks. The bill is more horn-brown than male's. The non-breeding female is slightly more heavily streaked, with pale buffish-brown feather edges on the upper parts and pale buff tips of the primaries.

The juvenile is like female, but browner above, streaked darker brown on the head to the side of the neck and upper parts. The face is buffish-brown with darker brown cheek and ear-coverts. The wings and tail are as on adult, and under parts are pale sandy or light buff, streaked dark brown. The first-winter plumage is like the adult female.

Races differ mainly in wing length, bill size (length, depth and width), and intensity of plumage coloration (mostly of hind neck and upper parts).

Breeding season starts mid-April to early August with two or three broods. Linnets are monogamous, rarely polygamous. There is a strong pair-bond, but only for duration of season. They are solitary and semi-colonial nesters. They defends the nest and immediately surrounding area. Most of their foraging is outside of the nesting territory. The displaying male ruffles crown and breast feathers, droops wings and spreads tail while swaying slightly from side to side, singing loudly, and hopping around female on ground or on level perch. The two may also bill-touch, and the male pursue the female in erratic flight through low bushes. Courtship feeding of the female by the male continues through incubation stage. The nest of small twigs, plant fibres and down, roots, moss, animal fur and feathers is built by female. It is placed low down, within 3 m of ground, in dense bush or shrub, usually thorn bush. A clutch 4–6 eggs is laid and the incubation is performed by the female alone for about 11–13 days. The chicks fed and cared for by both parents for about 10–14 days until they fledge. The young are independent after 14 more days.

Cool Facts: The Linnet is also used on the crest of the town of King's Lynn (Norfolk, England) and 'The Linnets' has become the nickname of King's Lynn Football Club.

- *L. c. autochthona.* First reported by Clancey in 1946. The Scottish linnet is found in Scotland. It differs little from nominate, having a slightly longer wing, a more slender bill, a darker gray hind neck, and a dull dark brown mantle and scapulars with darker streaks.
- *L. c. cannabina.* First reported by Linnaeus in 1758. The Eurasian linnet. The nominate subspecies, is found in western, central and northern Europe, western and central Siberia. Non-breeding in North Africa and Southwest Asia.
- *L. c. bella.* First reported by Brehm in 1845. The Eastern linnet is found from the Middle East to Mongolia and northwestern China. It is is slightly larger than the nominate except for the wings. The bill is slightly thicker at base, paler above and below. The male in summer has a pale gray crown and nape with smaller crimson patch on the forehead. The upper parts are more cinnamon-brown (lacking chestnut), the lower back and rump sometimes tinged rose-pink. The lower rump and uppertail-coverts are pale grayish or whitish, finely streaked blackish (occasionally unstreaked). The breast is rose-pink, the flanks are tawny-buff. The female is paler and grayer than the nominate with the upper parts being buffish-brown (less warm) and the under parts less heavily streaked.
- *L. c. mediterranea.* First reported by Tschusi in 1903. The Mediterranean linnet is found on the Iberian Peninsula, Italy, Greece, Northwest Africa and the Mediterranean islands. It is slightly paler than the nominate, has a shorter wing, and a more slender bill. The upper parts are more rufous-brown, sometimes there is a pale buff nape patch and more prominent streaks on the crown. The rump is spotted dusky olive or blackish, and flanks darker rufous-brown.
- *L. c. guentheri.* First reported by Wolters in 1953. The Madeiran linnet is endemic to Madeira. It has a slightly shorter wing and a more slender bill than the nominate. The upper parts (including upper rump) are dark rufous-brown, the flanks deep rufous-cinnamon, and has a bright pinkish or ruby-red forehead and breast. The female is more heavily streaked below.
- *L. c. meadewaldoi.* First reported by Hartert in 1901. The West Canary Islands linnet is found in the western and central Canary Islands (El Hierro and Gran Canaria). It resembles *guentheri* in size and bill shape and in the forehead and breast color. It differs from the nominate in a slightly darker gray nape and hindneck, darker rufous-brown upper parts and a brighter pinkish-red forehead and breast.
- *L. c. harterti.* First reported by Bannerman in 1913. The East Canary Islands linnet is found in the eastern Canary Islands (Alegranza, Lanzarote and Fuerteventura). It is similar to *guentheri,* but the males gray of hind neck is tinged buff, the upper parts are paler or lighter brown and the flanks are rufous-cinnamon.

Common Name: European Goldfinch
Scientific Name: *Carduelis carduelis*

Size: 5 inches (10.5-13.5cm)

Habitat: Eurasia and introduced to Southeast Australia; a resident, migratory, partially migratory and nomadic. It moves sunlight hours, and usually into flocks of up to 100 individuals. Within Europe and western Russia, part of population is sedentary (remains there throughout the winter in southern Scandinavia, Baltic countries and Poland). Some move altitudinally, and many breeders in the north of its range move south and southwest between the end July and November to winter mostly within the southern areas of its breeding range (some slightly further into North Africa and Middle East). The peak arrival in Spain is mid-October to early November with the return movement northward in March to early May. There is some movement northward across the Strait of Gibraltar in January as well. Evidence from tracking flocks shows that more females than

males are involved in the passage movements. Juveniles also move considerable distances to the wintering grounds. The nominate race winters within the southern areas of its range or heads southwest to southern France and Spain. There is a higher proportion of females in the south, indicating that these travel further, regularly reaching northern Africa and southern Israel. Vagrants have been recorded northward to Iceland, southward to Bahrain, United Arab

Emirates and Oman. The nominate race and *frigoris* has occurred in Japan (but could be of captive origin).

It is found in open or sparse deciduous woodland and mixed deciduous and conifer woods. It prefers forest edges, thickets, heaths, hedgerows, stream, riverine and marshy areas with bushes and trees, roadside verges, steppe grasslands with scattered trees to edges of semi-desert areas, scrub, orchards, edges of cultivation(including fallow, rough and overgrown fields with tall vegetation), and parks and gardens . It is found in lowlands to submontane levels (1,000 m) in in breeding season in Europe. In non-breeding season, descends from higher parts of range to lower-level foothills and plains.

Status: Least Concern. **Global Population:** 16,354,000 - 21,550,000 mature individuals. It is common to very common and widely distributed in western Europe. The breeding range has expanded northward in Scotland and Fennoscandia since early 1960s as a result of increased irrigation and human developments.

Diet: Mostly seeds (ripe and unripe), buds, flowers and fruit of plants; also some arthropods. Small seeds especially daisies and thistle; some invertebrates are eaten in summer months.

Breeding: A small to medium-sized, brightly colored finch with fine pointed bill and notched tail. The males have a forehead and fore crown (to just behind eye), cheek and chin to upper throat that are deep red, The lores are black. The sides of the crown down to the side of the neck and the throat are broadly white, bordered by band of black on the crown, upper nape and side of nape. The center of the nape is white or pale buff, becoming light sandy to cinnamon-brown on upper part. The rump is paler buff-brown and the upper tail-coverts are white. The tail is black with the feathers broadly tipped white (amount of white largest on central feathers, decreasing outwards). The outermost two feathers are broadly white on inner webs, a large white spot on the next inner feather. The upper wings are black, the greater coverts (except for black outermost feather) are broadly tipped golden-yellow, central feathers are largely yellow. The flight-feathers are tipped white, broadly on the secondaries (but white can be lost through wear in summer). The basal half of the secondaries and the primaries are golden-yellow. The tertials are broadly tipped cream or white. The lower throat and the side of the breast to the flanks are warm sandy or buffish cinnamon-brown with the rest of the underparts white, tinged sandy-brown on under tail-coverts. The iris is dark brown to black. The bill is whitish-horn to pale pinkish, tipped darker in non-breeding plumage. The legs are pale brown to pinkish-brown.

The female is like male, but the red on face is less extensive, reaching back to anterior cheek and chin, the red of the chin more a rounded patch (less square than on male) and the feathers often tipped black. The black of the crown is

mottled grayish-buff, the side of the head is washed buffish and less extensively white. There is less white in outer two tail feathers, lesser and inner median coverts fringed gray-brown, and buff-brown usually forming complete band across the breast.

The juvenile has the head pale buffish-brown, finely streaked darker or blackish on the crown. The ear-coverts are faintly streaked darker, slightly warmer buff-brown upper parts are also dark-streaked, more continuously so on the mantle and the scapulars. The upper wing and the tail, as on the adult. The tips of median coverts, the flight-feathers and the tertials yellowish to buffish brown (broadly on the tertials), yellow on the greater coverts and the bases of the flight-feathers is paler than on the adult. The under parts are like the face or browner, with fine dark streaks on the breast and the flanks. The red on the face is acquired through the molt into first-winter plumage in August–September. Its first-winter and first-summer is like the adult plumage, but slightly duller, with the blackish-brown wings (some juvenile feathers are often retained) and the tail has buffish tips.

Breeding season goes from April to early August usually with two broods. They are monogamous and nesting is solitary or loosely colonial with up to five nests in same tree. They are territorial (area of up to 250 m²). The pair formation takes place during late winter within flock. Partners perch about 15 cm apart, either upright or crouching horizontally, showing their red faces and swinging body from side to side, wings slightly lowered and tail semi-spread. The two pivoting at different speeds, also repeated bill-touching by both and courtship-feeding of female by male (which continues through incubation and brooding stages). A short, vigorous chase is initiated by either sex. The chasing is usually followed by perched pivoting display, singing and copulation (usually near nest-site).

The nest built by the female. The male may assist in collection of material, a compact small cup of grasses, moss, plant fibers and down, cobwebs , animal hair and feathers, a few aromatic flowers on outside and is placed up to 10 m from ground and concealed beneath foliage in outer twigs or slender branches of bush or tree. A clutch 4–6 eggs is laid and the incubation is performed by the female for 9–12 days. The chicks fed and cared for by both parents and the nestling period lasts 13–18 days. The young continue to be fed bythe parents for at least ten days after fledging.

Cool Facts: Throughout history, the European goldfinch was kept as a caged songbird for its pleasant medley of trills and twiters, but always including the trisyllabic call phrase or a “*teLLIT-teLLIT-teLLIT”*.

Races differ mainly in intensity of plumage tone of upper parts and under parts, and in size.

- *C. c. balcanica.* First reported by Sachtleben in 1919. The East European goldfinch is found in the Balkans, Greece, Crete and northwestern Turkey. It is very similar to the nominate in size and to *niediecki* in plumage, except the upper parts and side of the breast (sometimes extending as narrow breast band) is dull cinnamon-brown.
- *C. c. brevirostris.* First reported by Zarudny in 1889. The East Caspian goldfinch is found in eastern Turkey to northern Iran. It is slightly darker brown upperparts and more extensive patch on side of breast.
- *C. c. britannica.* First reported by Hartert in 1903. The British goldfinch is found on the British Isles, the Channel Islands, northwestern France to the western Netherlands. It is slightly smaller than nominate and darker, generally less cinnamon, on mantle, back and side of breast, ear-coverts browner and underparts duller white.
- *C. c. carduelis.* First reported by Linnaeus in 1758. The Northern European goldfinch, the nominate species,is found through most of the European mainland and southern Scandinavia.
- *C. c. colchica.* First reported by Koudashev in 1915. the Caucasian goldfinch is found on the Crimean Peninsula to the northern Caucasus and northeastern Turkey. It is very similar to nominate in size and to *niediecki* in plumage, except upper parts and side of breast (sometimes extending as narrow breast band) dull cinnamon-brown.
- *C. c. frigoris.* First reported by Wolters in 1953. The West Siberian goldfinch is found in western Siberia. It resembles *volgensis*, but is larger, larger-billed, and the upper parts and side of the breast and belly paler.
- *C. c. niediecki.* First reported by Reichenow in 1907. The Southeastern European goldfinch is found in southeastern Europe (Rhodes, Karpathos, Cyprus), Egypt to Asia Minor, northern Iraq, southwestern Iran, northeastern Africa. It is like the nominate in size, but paler drab brown on the mantle and back (grayer in worn plumage), and paler buff (less cinnamon) or yellowish on the side of the breast and belly.
- *C. c. parva.* First reported by Tschusi in 1901. The Southwestern European goldfinch is found on the Atlantic Macaronesic islands (the Canary Islands, Madeira), the Iberian Peninsula, southern France, the Balearic Islands and northwestern Africa. It has shorter bill, wing and tail than the nominate and is paler or grayer and usually less warm brown on the upper parts.
- *C. c. tschusii.* First reported by Arrigoni degli Oddi in 1902. The Central Mediterranean goldfinch is found on Corsica, Sardinia, Sicily. It is similar to *parva* in size, but bill slightly shorter, upper parts dull earth-brown, ear-coverts browner, and side of breast and belly also olive-brown.
- *C. c. volgensis.* First reported by Buturlin in 1906. The Southern Ukraine goldfinch is found in southern Ukraine, southwestern Russia and northwestern Kazakhstan. It is slightly larger and longer-billed than nominate, also bill broader-based, upper parts slightly paler (bases of back feathers white) and side of nape paler.

Caniceps (grey-headed) group

- *C. c. caniceps.* First reported by Vigors in 1831. The Grey-crowned goldfinch is found in south-central Asia (the western Himalayas - Kashmir to Nepal and western Tibet)
- *C. c. paropanisi.* First reported by Kollibay in 1910. The Grey-headed goldfinch is found in Afghanistan to the western Himalayas and Tian Shan Mountains
- *C. c. subulata.* First reported by Gloger in 1833. The Central Asian goldfinch is found in south-central Siberia to Lake Baikal and northwestern Mongolia
- *C. c. ultima.* First reported by Koelz in 1949. It is found in southern Iran.

Common Name: European Robin
Scientific Name: *Erithacus rubecula*

Size: 5½ -6 inches (14 cm)

Habitat: Eurasia; populations eastward of line from Norway and Sweden southward to central Europe are full migrants, moving southward to Mediterranean Basin, Black Sea hinterland, southern Caspian, Mesopotamia and Gulf region (although races *caucasicus* and *hyrcanus* are partial and/or vertical migrants). Those western of line from Germany to Balkans are partially migratory or largely resident (sedentary on Canary Islands, with little vertical movement). In

British Isles partial migration occurs (main passage mid-August to end October, peak early October), as indicated by male bias in wintering population, suggesting that females migrate (75% of males in four study areas sedentary)

It is found in forest undergrowth and edge, preferring conifer tracts in some parts of range and deciduous woodland in others. It is also found in farmland woodlots, thickets along watercourses, hedgerows with some tall trees, orchards, gardens and parks; key requirements for long-term site-occupancy are cool shade,

medium-height cover with perches, and patches of bare ground. It is found in urban areas in parts of Europe. Breeding habitat in northwestern Africa is mainly montane forest (Atlas cedar and oak) with thick undergrowth (*Viburnum, Ilex, Erica*), humid leaf litter and dead wood. Non-breeding migrants in northern Africa and Middle East occupy woodland, farmland, dense macchia, large gardens, orchards and plantations.

Status: Least Concern. **Global Population:**86,000,000 - 166,000,000 mature adults with a slight decreasing population trend.

Diet: Invertebrates (including fish and lizards), fruits and seeds. They will eat carrion, left-overs and use bird feeders.

They forage on the ground, generally staying to low, dense undergrowth.

Breeding: Sexes are alike. The nominate is olive-brown above, with an orange face and breast fringed by band of pale blue-gray on the neck side to the breast side. It has buff lower flanks with white on the belly extending to the vent. The bill is blackish and the legs are pinkish-brown. The juvenile is extensively mottled brown and buff.

Breeding begins early April to mid-June and is a single-brood in north of its range (elsewhere two broods, rarely three). The nest a cup of moss, grass, leaves and twigs, lined with fine grass and hair, placed on bulky mat of leaves and always sited in recess, usually in low undergrowth, hedge, grass bank, wall, rock face, tree cavity , tree roots, nestbox , usually low down, not above 5 m and fairly often on ground under tussock. It is very fond of ivy-clad walls and tree trunks for nesting. The clutch is 4–7 eggs and the incubation period lasts usually about 14 days. The nestling period is 10–18 days.

Cool Facts: The distinctive orange breast of both sexes contributed to the European robin's original name of "redbreast", orange as a color name being unknown in English until the 16th century, by which time the fruit had been introduced. In the 15th century, when it became popular to give human names to familiar species, the bird came to be known as robin redbreast, which was eventually shortened to robin.

The European Robin is tough bird; fighting with its own kind and attacking other birds, with or without prevarication, and merrily singing his threats and challenges during the altercation.

In “Birds of Briton”, an attack was described as follows:

> “Initial attacks between rival robins usually involve striking the opponent single blows with feet and wings, or bowling it off a perch. But as fighting develops, both adversaries begin rolling over and over on the ground, before fluttering

face to face while striking with legs then tumbling to the ground interlocked. Each robin then attempts to pin its rival to the ground. The victor rains blows down on the vanquished bird's head particularly around the eyes even blinding or killing it. The majority of fights last less than a minute before the loser (almost always the intruder) flees. But some encounters continue off and on for an hour or more and exceptionally over several days."

"In the event of a prolonged contest the fighting alternates with rapid pursuits, outbursts of song, threat displays and even bouts of foraging. The final loser wisely terminates a particularly aggressive encounter with a rapid retreat."

- *E. r. melophilus.* First reported by unknown. British Isles; non-breeding also in southwestern Europe. It is warmer and darker above, deeper orange-rufous on the face and breast, darker buff flanks.
- *E. r. rubecula.* First reported by unknown. The nominate species is found in western Europe, northwestern Morocco, the Azores, Madeira and western Canary Islands.
- *E. r. superbus.* First reported by unknown. It is found on the Canary Islands (Tenerife, Gran Canaria). It is dark grayish-olive above, a wider ash-gray band from the crown side to breast side, still deeper orange-rufous below, belly and vent whiter, with somewhat different wing shape.
- *E. r. witherbyi.* First reported by unknown. It is found in northern Algeria and northern Tunisia. It is like *melophilus* but smaller.
- *E. r. balcanicus.* First reported by unknown. It is found in the Balkan Peninsula to western Turkey
- *E. r. valens.* First reported by unknown. It is found in Southern Crimea. It is slightly paler than nominate, with rufous upper tail-coverts and tail base.
- *E. r. hyrcanus.* First reported by unknown. It is found in southeastern Azerbaijan and northern Iran; non-breeding also in Middle East. It is longer-billed, browner above, rufous-orange below, with rufous-chestnut upper tail-coverts.
- *E. r. tataricus.* First reported by unknown. It is found in the Urals and southwestern Siberia; non-breeding in southwestern Asia. It is paler and grayer above, paler orange below.

Common Name: Eurasian or Wood Nuthatch
Scientific Name: *Sitta europaea*

Size: 4.7-6.7 inches (12-17 cm)

Habitat: Eurasia; Central and Northeastern Siberia from Yenisey Basin and Yakutia (from c. 105–106° E) E to Anadyrland, upper R Penzhina and NW Koryak Highlands.

It favors mature forest with large old trees and well-developed canopy providing extensive foraging areas, as well as nesting cavities. In much of Europe, deciduous and mixed forest, especially oak (*Quercus*), but found also in riverine woodland, parkland, old orchards, cemeteries, and sometimes large gardens

Status: Least Concern. **Global Population:** 1,000,000 - 50,000,000 mature adults with a stable population trend. The population is suspected to be fluctuating owing to fluctuations in food availability.

Diet: Insects and spiders. Nuts and seeds are important in winter and are often hoarded for harder times ahead.

It forages on tree trunks, usually head downward.

Breeding: A medium-sized nuthatch.
Male nominate race has crown and upperparts blue-grey, black eyestripe; upperwing-coverts blue-grey, inner webs of greater coverts dark grey; flight-feathers, primary-coverts and alula dark grey-brown, secondaries, inner primaries and primary-coverts fringed blue-grey (fringes widest on inner secondaries); central pair of tail feathers dull blue-grey, remainder blackish with blue-grey tip (broadest on outermost), outer three pairs with white subterminal spot on inner web and sometimes extending as bar across outer web (especially on outermost pair); throat and underparts off-white or creamy, with extensive deep rufous on flanks, lower vent and sides of undertail-coverts, pale centres of undertail-coverts forming mottled patch; underwing grey, underside of primary-coverts black, contrasting white bases of primaries; in worn plumage, upperparts

duller and not so blue, rufous on underparts slightly paler; iris brown to blackish brown; stout and moderately blunt bill dark grey, darkest on culmen and tip, base of mandible bluish white or horn-grey; legs greenish yellow to pale brown or dark grey. Female is very similar to male, but often slightly paler above, eyestripe somewhat browner (less black), and underparts usually lightly washed buff, with rufous of flanks to vent strongly tinged buff. Juvenile resembles adult (especially adult female) but upperparts slightly duller, with faint brown cast and sometimes paler feather centres (especially on forehead), eyestripe duller, slightly browner and less well defined (especially female), also slightly duller below; base of bill pale bluish, legs generally paler than adult.

Races differ mainly in plumage coloration, especially of underparts, also in size.

Six to eight eggs are laid. Old woodpecker holes and nest boxes are usually used for breeding, with the hole adjusted to the correct size by using mud plastered around the entrance.

Cool Facts: This is the **only** European bird that can climb headfirst down a tree trunk.

The Eurasian or Wood Nuthatch is very vocal in the breeding season producing a loud, rapidly repeated, ringing call note. It can also produce a series of whistles and musical trills and churrs.

Western Group

- *S. e. caesia.* First reported by unknown. It is found in western Europe from Britain eastward to Denmark, Poland and western Belarus, southward to northern Spain (Cantabrian Mountains and Pyrenees), the Alps, the Balkans (except Dalmatian coast), Greece and western Turkey (Thrace and northwestern Anatolia). It has cheeks, ear-coverts and throat white, tinged buff, merging into dull orange-buff or cinnamon-buff on underparts, with flanks and rear vent deep rufous or brick-red, side of belly and anterior vent streaked chestnut, under tail-coverts whitish with broad deep rufous fringes and very narrow rufous tips (latter sometimes absent).
- *S. e. europaea.* First reported by unknown. The nominate subspecies is found in southern Scandinavia (including most islands in the south Baltic) and western Russia (eastward to the Volga and Vyatka Basins) southward to eastern Poland, eastern Romania, eastern Bulgaria, northwestern Turkey (northern Thrace) and Ukraine.
- *S. e. hispaniensis.* First reported by unknown. It is found on the Iberian Peninsula. It is very similar to *caesia*, but underparts paler (pinkish cinnamon or pinkish buff), flanks more contrasting, also smaller, with bill on average slightly more slender and pointed
- *S. e. atlas.* First reported by unknown. It is found in Morocco.

- *S. e. cisalpina.* First reported by unknown. It is found in Switzerland (south of the Alps), Italy, northern Sicily, coastal Croatia and southwestern Montenegro.It is also very similar to *caesia*, but the under parts brighter, more orange-buff or orange-cinnamon (less brownish buff), bill on average shorter and more slender and pointed.
- *S. e. levantina.* First reported by unknown. It is found in southern Turkey (southwestern Anatolia eastward to eastern Taurus) and western Syria. It is poorly differentiated, as *hispaniensis* but underparts more pinkish (less buff), flanks slightly paler and less contrasting, upperparts on average slightly paler grey (especially in the south-east), often with a faint white forehead, the bill is slender and the culmen is almost straight.
- *S. e. caucasica.* First reported by unknown. It is found in northeastern Turkey, southwestern Russia (in Caucasus southward from basins of Terek and Kuban), Georgia, Armenia and Azerbaijan. It is rather small, has upper parts dark gray, the forehead is often whitish, the under parts are bright orange-tinged cinnamon-buff. The bill is short, thick and blunt.
- *S. e. rubiginosa.* First reported by unknown. It is found in southeastern Transcaucasia (Talyshskiye Gory Mountains and Lenkoran area) and northern Iran (Elburz and Caspian districts eastward to extreme northwestern Khorasan). It resembles *caucasica*, but the upper parts are darker and more slaty, the under parts on are average paler orange-buff, usually lacksthe white forehead and supercilium. It has less white in the tail and the bill slightly longer.
- *S. e. persica.* First reported by unknown. It is found in extreme southeastern Turkey, northern Iraq (Kurdistan) and western Iran (Zagros Mountains southward to Fars Province). It is smaller than *levantina*, differs also in having upper parts a paler gray, the white forehead and supercilium always present and better marked, under parts are creamy with yellow-ochre wash.The bill is relatively short, very slender and attenuated.

Siberian Group

- *S. e. arctica.* First reported by unknown. It is found in central and northeastern Siberia from Yenisey Basin and Yakutia eastward to Anadyrland, upper River Penzhina and northwestern Koryak Highlands. The wing is more pointed than that of the nominate, the tarsus and toes are short (but the hindclaw appears rather long). The bill is more slender with a straight culmen (appears uptilted with sharply pointed tip). The male has the lowermost forehead and narrow supercilium white or whitish, the lores and narrow eyestripe black. The crown, nape and upperparts are blue-gray, the upperwing mostly blue-gray, the flight-feathers darker; the tail blue-gray, the rectrices except the central pair tipped white, two outermost rectrices almost wholly white. The chin and throat to the ear-coverts, neck-side and under parts are white, flanks chestnut, under tail-coverts are cinnamon with white tips, the underwing-coverts are dark gray. The iris is dark brown to blackish. The bill is dark gray, darkest on the culmen and at tip, the base of mandible

is bluish white or horn-gray. The legs are brownish yellow to dark gray. Sexes very similar. Juvenile is like adult but somewhat duller overall.

White-bellied Group

- *S. e. asiatica.* First reported by unknown. It is found in central Russia (western foothills of middle Urals eastward to central Siberia and the western shore of Lake Baikal) southward to northern and northeastern Kazakhstan (southward to Kokchetau and the Tarbagatai Mountains) and western Mongolian Altai. It resembles the nominate but rather smaller, the bill shorter and sharply pointed. The culmen only gently downcurved. The forehead and supercilium are white (especially in eastern populations). The upper parts are slightly darker, in fresh plumage, the greater coverts are tipped white (distinct wingbar), under parts white, chestnut of flanks to vent rather more restricted. The females belly is often washed buff and under tail-coverts are paler rufous.
- *S. e. baicalensis.* First reported by unknown. It is found in eastern Siberia from western Yakutia (Vilyui Valley) and Lake Baikal eastward to Sea of Okhotsk and northern Amurland, southward to Transbaikalia, central Mongolia and northeastern China (northeastern Inner Mongolia and northwestern Heilongjiang). It is slightly larger, with a slightly longer bill and darker upper parts, but the white forehead and supercilium is reduced or absent.
- *S. e. albifrons.* First reported by unknown. It is found in northeastern Russia (southern Koryak Highlands and Kamchatka Peninsula) and northern Kuril Island (Paramushir). It is large and pale, the bill long and slender, the culmen is nearly straight, the upper parts slightly paler than *takatsukasai*, slightly less white in tail. The belly of female is faintly, or not at all, washed buff.
- *S. e. sakhalinensis.* First reported by unknown. It is found in Sakhalin. It is much smaller than *baicalensis*, the upper parts are somewhat less dark, the white forehead is fairly prominent, the bill is short (on average, shorter than all other races). The near-straight culmen giving distinct upturned appearance.
- *S. e. takatsukasai.* First reported by unknown. It is found in south-central Kuril Island (Urup, Iturup). It is as *clara*, the bill similarly conical in shape but larger (most massive bill of all races), upper parts are similarly pale but not so bluish, the white tail spots are larger. The white forehead and supercilium are bolder and the bellies of both sexes are pure white.
- *S. e. clara.* First reported by unknown. It is found in southern Kurils (Kunashir, Shikotan) and northern Japan (Hokkaido). It is larger than *asiatica*, the bill is shorter and more conical (the culmen is more noticeably curved), the upper parts arepaler, the white forehead and supercilium are more pronounced.

Buff-bellied Group

- *S. e. seorsa.* First reported by unknown. It is found in northern and eastern Xinjiang (Altai region, in the Altai Mountains; Hami, in extreme eastern Tien

Shan). First reported by unknown. in northwestern China. It is pale, the bill and upperparts as *asiatica* but slightly larger, the white of forehead and supercilium more prominent. The belly is pale buff.

- *S. e. amurensis.* First reported by unknown. It is found in the Russian Far East (South and Eastern Amurland, Ussuriland), northeastern China (northern Heilongjiang southward to northeastern Hebei) and Korea. It is large (largest Asian race), the bill is massive with gently curved culmen, the upper parts are relatively dark (slightly darker than *baicalensis)*, the white of the forehead and supercilium is faint or absent. There are no pale tips on the greater coverts (unlike other races), the white of the throat and breast grading to cinnamon-buff on belly (but nearly white in Sikhote-Alin Range).
- *S. e. bedfordi.* First reported by unknown. It is found on Jeju Island, off South Korea. It is as *roseilia*, but the throat and breast are whiter and the belly is contrastingly a darker orange-buff.
- *S. e. hondoensis.* First reported by unknown. It is found in central and southern Japan (Honshu, Shikoku and northern Kyushu). It is similar to *amurensis*, but slightly paler and bluer above, the white of the forehead and especially the supercilium more prominent, the belly paler (pale pinkish buff), the bill only slightly smaller.
- *S. e. roseilia.* First reported by unknown. It is found in extreme southern Japan (southern Kyushu). It also is similar to *hondoensis*, but the upperparts rather darker, the lower breast and belly more rufous-tinged brownish buff.

Chinese Group

- *S. e. sinensis.* First reported by unknown. It is found in eastern China from southern Gansu eastward to Shanxi, Beijing and northeastern Hebei, southward to central Sichuan (to Wanyuan and the western border of the Red Basin), Guizhou, northern Guangxi, Hunan, Jiangxi and Fujian. It has bill medium-long with strongly decurved culmen, the male throat and underparts are pale cinnamon-buff, grading to white on the chin, and the whitish on the cheeks and below eye, the side of the neck is slightly richer and brighter orange-buff, the rear flanks are brick-red with a slight orange wash (contrasting with rest of the under parts), the feathers of the under tail-coverts are rufous with a gray base and off-white shaft-streak, latter broadening at tip (appearing as white inverted triangle). The femaleis as male but the chin and cheeks are lightly washed buff, the rear flanks are rufous-orange (little contrast with rest of the under parts), the under tail-coverts are rufous-orange (paler than the male and contrasting less with the vent). Both sexes in worn plumage are slightly duller below (more cinnamon, even hint of drab-grey wash) and the cheeks and chin are not so pure white, some variation (populations at higher elevations slightly larger, with grayer under parts).
- *S. e. formosana.* First reported by unknown. It is found on Taiwan. It is like *sinensis* but slightly smaller, with a longer, thinner bill, the upper parts much paler, the forehead and supercilium are whitish, the under parts are slightly paler.

Acknowledgments:

This package wouldn't have been possible without the support of Rhonda (my wife), B.L.Render (aka Bloodsong) for her contributions to Songbird ReMix, and my dad, for making me do all those birding trips I hated as a kid.

2006 Re-release: Jan, Rhonda and Sandra
2010 Re-release: Ali, Bea, Jan, Kelvin, Sandra & Katt
2020 Re-release: FlintHawk & Carey

Species Accuracy & Reference Materials

Many birds of the same species do vary considerably in color. This package tries to emulate the colors and markings in the most commonly found variants. Also, there are many subspecies of most of the birds represented. Subspecies in a particular area may be significantly different than the one depicted in this set. As a rule, subspecies will be labeled on the bird icon. Usually the the nominate (main species) and/or the Southern California subspecies (where the author's home is) is chosen as the represented species. In some cases, additional subspecies, dimorphic females or juveniles will appear in Songbird ReMix "freebie" section (found in the SongbirdReMix.com store area).

The author-artist has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create hundreds of unique bird species, some give and take is bound to occur. The goal is to give a somewhat believable approximation of the bird species rather than a scientifically accurate depiction.

Field Guide Sources:

- **"The Sibley Guide to Birds"** by David Allen Sibley
  - https://www.sibleyguides.com/
- **Wikipedia** (https://www.wikipedia.com)
- **BirdGuides.com** (https://www.birdguides.com)
- **BirdLife International** (https://www.birdlife.org)
- **Birds of the World** (https://birdsoftheworld.org)
- **All About Birds** (https://www.allaboutbirds.org)


Shirts, jerseys, sweatshirts,
prints, cards, posters, pillows,
coffee cups, calendars & more
Birds of Hawaiian Island
Pelicans of the World
Try, try, try... again
Songbird ReMix
BIRD BRAINS
JANUARY 2010
O MINORS
ALLOWED
PREMISES
Songbird
ReMix
www.empken.com/store