Avian Models for 3D Applications

Characters and Texture Mapping by Ken Gilliland

Songbird ReMix

Woodland Jewels

Contents

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Introduction

The majority of the birds found in this collection are migratory, traveling great distances to stay in the most comfortable climates where they can harvest the fruit as it ripens and insects as they emerge.

The set is evenly divided into Eurasian and American Birds with plumage for both. Some of the birds have seasonal changes, which are included. While others, such as the male Scarlet Tanager, turns from the scarlet red to yellow from summer to winter.

All-in-all, Woodland Jewels will add the proper dressing to any forested scene, as well as bring rich detail to any image.

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. 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).

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.

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.
- Because of the numerous beak shapes, closing the beak may range from 0.5 to 1. Usually 0.8 is about right.
- **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.

Where to find your birds

Type Folder	Bird Species
Perching Birds (Order Passeriformes) Cardinals, Tanagers & their Allies	Scarlet Tanager
Perching Birds (Order Passeriformes) Crows, Jays and their Allies	Pinyon Jay
Perching Birds (Order Passeriformes) Finches, OW Sparrows & their Allies	Blue Grosbeak Eurasian Siskin
Perching Birds (Order Passeriformes) Kinglets & their Allies	Goldcrest
Perching Birds (Order Passeriformes) NW Warblers and their Allies	Audubon's Warbler Wilson's Warbler Yellow Warbler
Perching Birds (Order Passeriformes) OW Warblers and their Allies	Garden Warbler Icterine Warbler
Perching Birds (Order Passeriformes) Thrushes, Oxpeckers & their Allies	Bluethroat Common Redstart Redwing Varied Thrush
Perching Birds (Order Passeriformes) Wrens, Nuthatches & their Allies	White-breasted 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

Songbird ReMix

Woodland Jewels

Field Guide

Europe, Asia and Africa

Garden Warbler
Icterine Warbler
Goldcrest
Redwing
Common Redstart
Bluethroat
Eurasian Siskin

The Americas

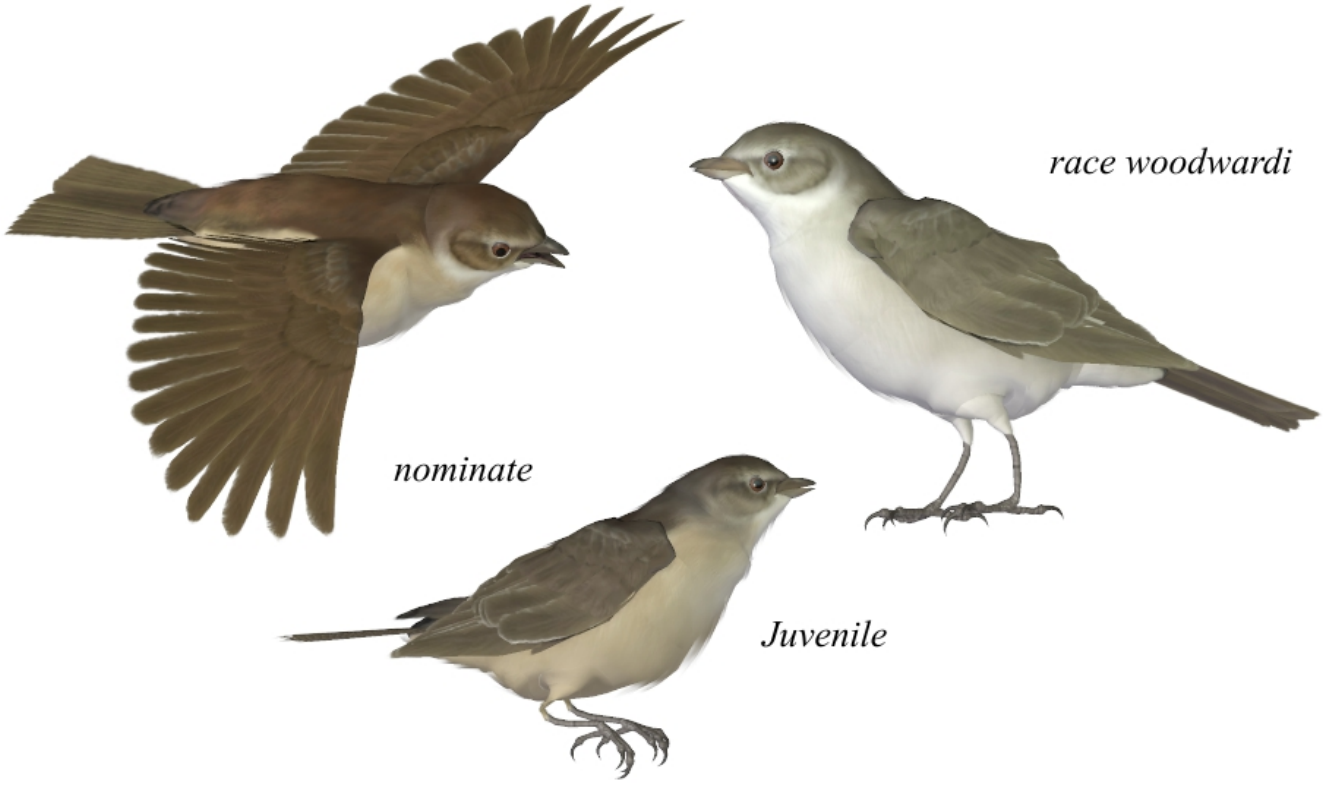
Pinyon Jay
White-breasted Nuthatch
Varied Thrush
Wilson's Warbler
Yellow Warbler
Yellow-rumped Warbler
Scarlet Tanager
Blue Grosbeak

Common Name: Garden Warbler
Scientific Name: *Sylvia borin*

Size: 5.5 inches (14 cm); Wingspan: 6-6.6 inches (15.2-16.8 cm)

Habitat: Eurasia and Africa; the Garden Warbler breeds in most of temperate Europe (12–28°C (54–75°F)), east across temperate Asia, to the Yenisei River in Siberia. Its range extends further north than any other *Sylvia warbler*. All populations are migratory, wintering in sub-Saharan Africa and as far south as South Africa. Birds from central Europe initially migrate to the southwest, reorientating to the south or southeast once in Africa. Scandinavian migrants may head south through the Alps and across the Mediterranean Sea. *S. b. woodwardi* reaches Africa by a more easterly route, with many birds passing through the Arabian Peninsula.

The nominate subspecies occurs in the western and central parts of the winter range, although some birds occur as far east as Kenya. *S. b. woodwardi* winters in eastern and southern Africa. This warbler has occurred as a vagrant in Afghanistan, Djibouti, Iceland, São Tomé and Príncipe, Somalia, Yemen, Svalbard, Jan Mayen and Madeira.



Despite its name, the Garden Warbler is not a bird of gardens. Its breeding habitat includes open spaces with shady areas of thickets or herbaceous undergrowth and woodland edges adjacent to rivers or reed beds. A tolerance for willow, alder and birch allows it to breed farther north and at higher altitudes than any other European Sylvia

warbler. Mature conifers and dense plantations are avoided, although young conifer plantations with thick undergrowth are suitable for nesting. In Africa, a wide range of habitats with trees are used, although closed forests and arid areas are again avoided. This warbler occurs at altitudes of up to 2,600 m (8,500 ft) in suitable mountain woodland, although in East Africa it is usually found at a lower altitude than the Blackcap, and in moister areas than the Common Whitethroat

Status: Least Concern. **Global population**: 54,300,000-124,000,000 individuals. In Europe, trends since 1980 show that populations have undergone a moderate decline. The Garden Warbler is hunted by Eurasian Sparrowhawks and domestic cats, and its eggs and nestlings are taken by a variety of mammalian and avian predators. It may be host to various fleas, mites and internal parasites. Also its population is under threat from the Common Cuckoo, which is a brood parasite, laying its eggs in the nests of other bird species. Despite a small population decline in much of its European range, the bird's breeding distribution is expanding northwards in Scandinavia.

Diet: Insects, berries and fruit. The Garden Warbler feeds mainly on insects in the breeding season, with other small invertebrates, such as spiders, also being eaten. It picks its prey off leaves and twigs, sometimes hovering to do so; there is a record of a mulberry fruit being taken in flight. Garden Warblers often feed with conspecifics and other fruit-eating passerines. It normally forages at less than 6 m (20 ft) above the ground. After nesting, there is a genetically controlled switch to a fruit diet, although insects are still consumed while the birds fatten prior to their migration south; birds gain weight more rapidly from a diet containing both fruit and insects than either alone. Berries and other soft fruit are preferred, and figs are particularly important for birds preparing to migrate. This predilection gives rise to the Italian beccafico (fig pecker) and Portuguese felosa-das-figueiras (fig-tree warbler) as names for this species. On this diet a bird can gain weight quickly and the liver increases the rate at which it produces fatty acids for storage in adipose tissue.

In Africa, before the birds northward migration, the warbler again eats insects as well as berries and fruit. The birds fattening even more rapidly than prior to their southward journey. Most internal organs (including the liver, spleen, intestines, kidneys and heart) and the flight muscles lose weight during the journey over the Sahara, although the testes quadruple in mass in preparation for the breeding season.

Nesting: Sexes are alike. It is a plain, long-winged and long-tailed bird with unstreaked olive-brown upper parts and dull white under parts. It has a whitish eye ring and a faint pale supercilium, and there is a buff wash to the throat and flanks. The eye is black, the legs are bluish-grey and the strong bill has a grey upper and paler grey lower mandible. Juveniles have a looser plumage than an adult, with paler and greyer upper parts and a buff tone to the under parts. The eastern subspecies *S. b. woodwardi* is slightly larger and paler than the nominate form with a greyer tone to the upper parts and whiter under parts.

Garden Warblers first breed when they are one year old. They are mainly monogamous. The male attracts a female to his territory through song and a display which involves rapid wing beating while perched. He will also build a number of simple nests (cock's nests) to show to his mate, although only rarely will she complete the structure, usually starting afresh. The nest is concealed in vegetation, the nature of which depends on local availability. The nest is a cup of dry grass, moss and twigs, with a soft lining of finer plant material or hair.

The first eggs are laid in late April in southern Germany, early May in northwest Europe, and late May in Finland. The season may be prolonged with some birds nesting as late as July. The clutch is typically four or five eggs, which are usually whitish or buff with grey, purple and brown blotches. The eggs are incubated for 11–12 days by both adults, although only the female stays on the nest at night. They fledge about 10 days after hatching.

Cool Facts: The Garden Warbler and its nearest relative, the Blackcap, are an ancient species pair which diverged very early from the rest of the *Sylvia* genus, between 12 and 16 million years ago. In the course of time, these two species have become sufficiently distinctive that they have been placed in separate subgenera, with the Blackcap in subgenus *Sylvia* and the Garden Warbler in *Epilais*. These sister species have a breeding range which extends farther northeast than all other Sylvia species except the Lesser Whitethroat and Common Whitethroat.

When Garden Warblers cross the Sahara, they fly at night, resting motionless and without feeding in suitable shade during the day. During their journey, they can metabolize not only body fat but also up to 19% of their breast and leg muscles and 39% of their digestive tract. Many birds pause for a few days to feed after the desert crossing before continuing further south.

- S. b. borin. First reported by unknown. The nominate species is found in western and central Europe eastward to Finland, central Poland, western Hungary and the west Balkans. It winters in sub-Saharan Africa.
- S. b. woodwardi. First reported by unknown. It is found from Finland and Central Poland eastward to centralSiberia (upper River Yenisey) and southward into the Balkans, Bulgaria, northern Turkey and Caucasus. It winters in eastern and southern Africa. Race *woodwardi* is paler and grayer than nominate, without cream or buff tinge.

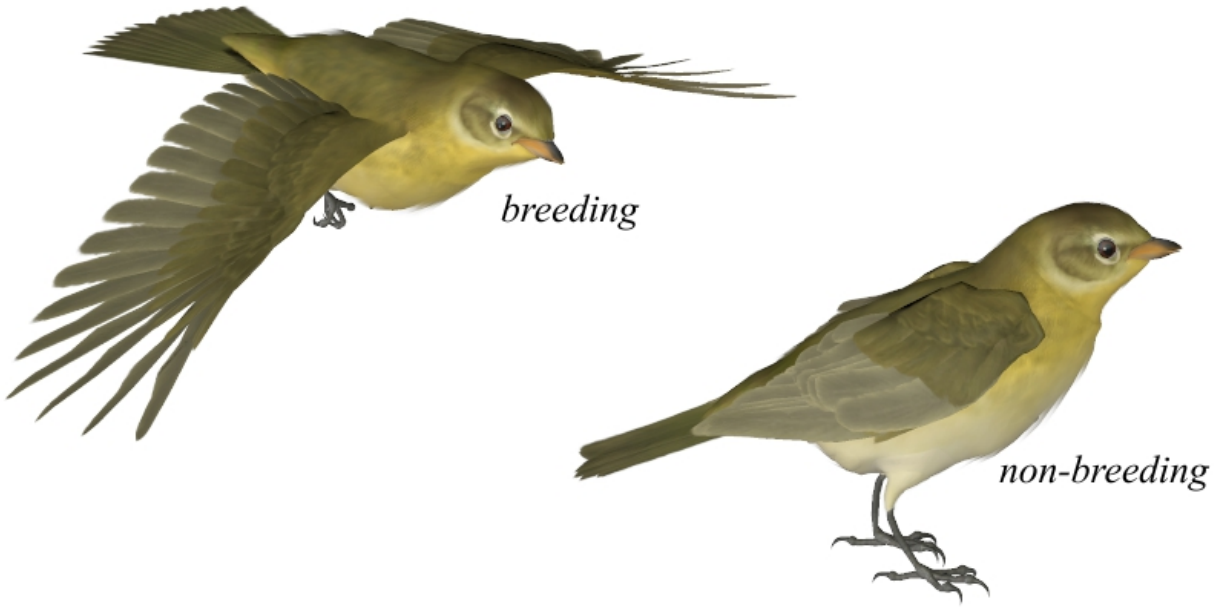
Common Name: Icterine Warbler
Scientific Name: *Hippolais icterina*

Size: 4.7-5.3 inches (12-13.5 cm); Wingspan: 7.5-9.1 inches (19-23 cm)

Habitat: Europe; breeds in mainland Europe except the southwest, where it is replaced by its western counterpart, Melodious Warbler (*H. polyglotta*). It is migratory, wintering in sub-Saharan Africa.

It is found in open deciduous woodland with bushes and also parks and gardens, often near water.

Status: Least Concern. **Global population**: 11,200,000-28,400,000 individuals. In Europe, trends since 1980 show that populations have undergone a moderate decline. In the west of its range the decline is suspected to be partially due to competition from the Melodious Warbler (*H. polyglotta*).



Diet: Icterine warblers eat mostly insects, although they will also eat berries in the summer.

Nesting: Sexes are alike. Icterine Warblers resemble the more common Willow Warbler, but are larger and particularly have larger heads. They have greyish green upper parts and pale yellow under parts. The pale edges of their secondary wing

feathers form a pale wing panel that stands out on their otherwise dark wings. Their tails have a straight edged tip and white edging on their outermost feathers. Their wings are relatively long, reflected in the length of the protruding tips of their primary wing feathers compared to the length of their tertial feathers.

Younger birds have paler yellow or even whitish under parts with no yellow coloring, making them resemble the rare Olivaceous Warbler (which can be distinguished by its much shorter primary wing feathers). Icterine Warblers have bluish grey legs, dark brown irises, and brown beaks with a broad base (lower mandible yellowish pink). Bright orange coloring may be seen in the gapes of singing Icterine Warblers.

Its first choice for constructing its nest is between the branches of the Elderberry. The nest consists of skillfully woven grass, spiders' webs and beard lichen, which is covered with birch bark scales and lichen. They are lined with hair, root fibers and thin grass stalks. There are usually 4–6 eggs laid in the deep bowl-shaped nest.

Cool Facts: The term *icterine* refers to its yellowish coloration. Birders refer to this bird as an "Icky"

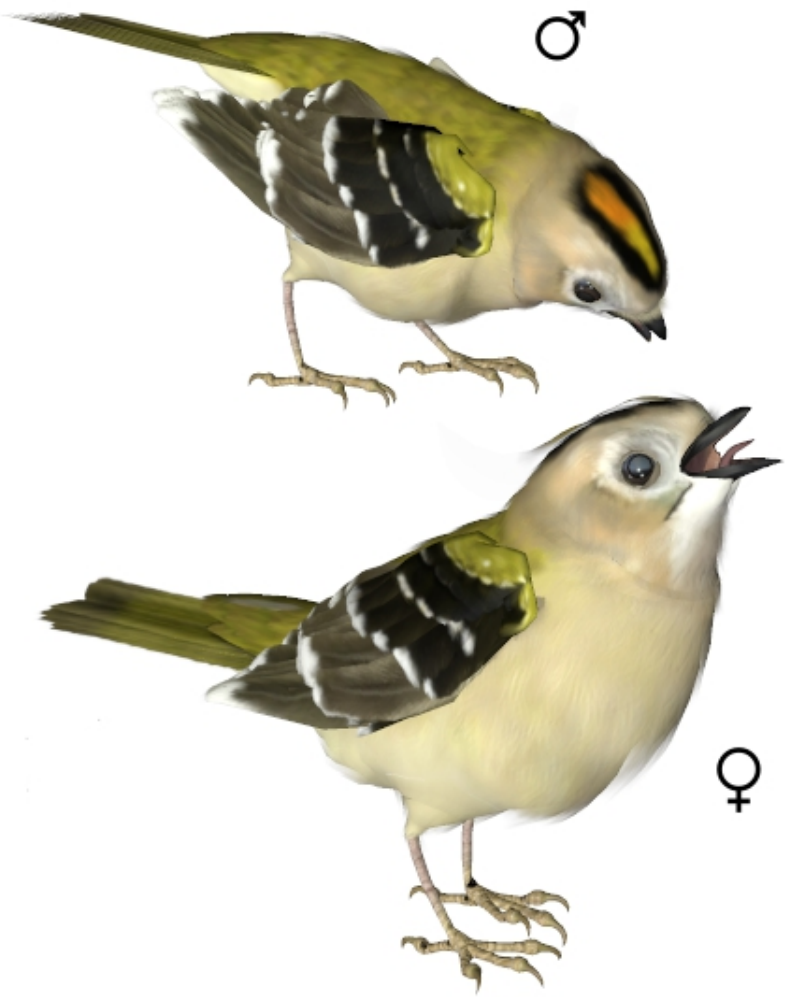
The song is a fast nasal babbling incorporating mimicry of other species. The call is described as "t*eck*" or "*tec, tec, tec*".

Common Name: Goldcrest
Scientific Name: *Regulus regulus*

Size: 3.3-3.7 inches (8.5-9.5 cm); Wingspan: 5.3-6.1inches (13.6-15.5 cm)

Habitat: Eurasia; its range includes much of Eurasia and the islands of Macaronesia. Birds from the north and east of the breeding range migrate further south to winter.

The Goldcrest breeds in coniferous woodland and urban gardens.



Status: Least Concern. **Global population**: 80,000,000-200,000,000 mature individuals. In Europe, trends since 1980 show that populations have undergone a moderate decline. It may be killed by birds of prey or carry parasites, but its large range and population mean that it is not considered to present any significant conservation concerns.

Diet: Insects, fruit and berries. This kinglet is constantly on the move as it searches for insects to eat, and in winter it is often found with flocks of tits. The flight is distinctive; it consists of whirring wing-beats with occasional sudden changes of direction. Shorter flights while feeding are a mix of dashing and fluttering with frequent hovering. It moves restlessly among foliage, regularly creeping on branches and up and down trunks.

Nesting: It has olive-green upper parts, buff-white under parts, two white wing bars, and a plain face with conspicuous black irises. The crown of the head has black sides and a narrow black front, the male has a bright crest of yellow with an orange center, while in the female the crest is entirely yellow. During display the crest is erected, making the distinctive orange stripe of the male much more conspicuous. The small, thin bill is black, and the legs are dark flesh-brown. Apart from the crest color, the sexes are alike, although in fresh plumage, the female may have very slightly paler upper parts and grayer under parts than the adult male. The juvenile

is similar to the adult, but has duller upper parts and lacks the colored crown. Although the young birds are almost indistinguishable from adults in the field, their tail and flight feathers may be retained into the first winter.

It builds a compact, three-layered nest on a tree branch. Ten to twelve eggs are incubated by the female alone, but the chicks are fed by both parents; second broods are common.

Cool Facts: Its colorful golden crest feathers gives rise to its English and scientific names, and possibly to it being called the "king of the birds" in European folklore.

Common Name: Redwing
Scientific Name: *Turdus iliacus*

Size: 7.9-9.4 inches (20-24 cm); Wingspan: 12.9-13.6 inches (33-34.5 cm)

Habitat: Europe, Asia and Africa; it breeds in northern regions of Europe and Asia, from Iceland south to northernmost Scotland, and east through Scandinavia, the Baltic States, northern Poland and Belarus, and through most of Russia. It is migratory, wintering in western, central and southern Europe, northwest Africa, and southwest Asia east to northern Iran. Birds in some parts of the west of the breeding range (particularly southwestern Norway) may be resident, not migrating at all; while those in the far east of the range migrate at least 6,500–7,000 km to reach their wintering grounds.

Its common habitat is conifer and birch forests and the tundra.

Status: Least Concern.
Global population: 48,000,000-63,000,000 individuals. In recent years it has expanded its range slightly, both in Eastern Europe where it now breeds south into northern Ukraine, and in southern Greenland

Diet: Insects and berries. It is omnivorous, eating a wide range of insects and earthworms all year, supplemented by berries in autumn and winter, particularly of rowan (*Sorbus aucuparia)* and hawthorn (*Crataegus monogyna*). Migrating and wintering birds often form loose flocks of ten to 200 or more birds, often feeding together with Fieldfares, Common Blackbirds, and Starlings.

Nesting: The sexes are similar, with plain brown backs and with dark brown spots on the white under parts. The most striking identification features are the red flanks and under wing, and the creamy white stripe above the eye.

It breeds in conifer and birch forests as well as tundra. Redwings nest in shrubs or on the ground, laying four to six eggs in a neat nest. Eggs are incubated for 12–13 days and the chicks fledge at 12–15 days, with the young remaining dependent on their parents for a further 14 days.

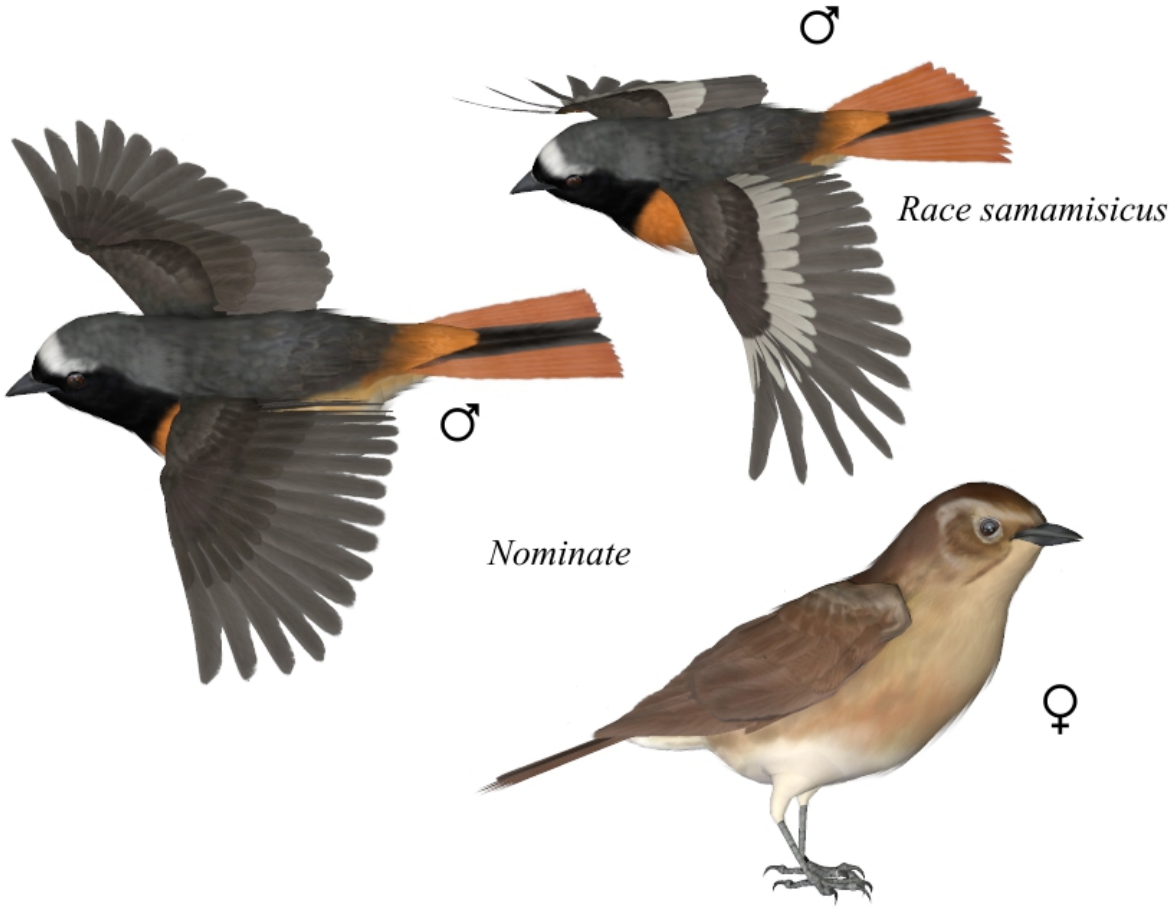
Cool Facts: This species was first described by Linnaeus in his “Systema naturae“ in 1758 under its current scientific name. The English name derives from the bird's red under wing.

- *T. i. iliacus*. First reported by Linnaeus in 1758. The nominate species breeds in mainland Eurasia.
- *T. i. coburni*. First reported by Richard Bowdler Sharpe in 1901. It breeds in Iceland and the Faroe Islands and winters from western Scotland and Ireland southward to northern Spain. It is darker overall, and marginally larger than the nominate form.

Common Name: Common Redstart
Scientific Name: *Phoenicurus phoenicurus*

Size: 5.1-5.7 inches (13-14.5 cm); Wingspan: 7.9-10.6 inches (20-27 cm)

Habitat: Europe, Asia and Africa; It is a summer visitor throughout most of Europe and western Asia (east to Lake Baikal), and also in northwest Africa in Morocco. It winters in central Africa and Arabia, south of the Sahara Desert but north of the Equator, from Senegal east to Yemen. It is widespread as a breeding bird in Great Britain, particularly in upland broadleaf woodlands and hedgerow trees, but in Ireland it is very local.



Common Redstarts prefer open mature birch and oak woodland where there is a high horizontal visibility and low amounts of shrub and understory. This is especially true where the trees are old enough to have holes suitable for their nests. They prefer to build their nest on the edge of woodland clearings. In Britain this occurs primarily in upland areas, less affected by agricultural intensification. Further east in Europe, they also commonly nest in lowlands, including parks and old gardens in urban areas. While in the north of the breeding range they use mature open conifer woodland.

Status: Least Concern. **Global population**: 20,400,000-48,000,000 million individuals. In Europe, trends since 1980 show that populations have undergone a moderate

increase, however in England, populations have declined by 55% in the past 25 years. The Forestry Commission has been offering grants under a scheme called “England's Woodland Improvement Grant “(EWIG); as well as the Natural England’s Environmental Stewardship Scheme to reverse this trend.

Diet: Insects and berries. Most of its food consists of winged insects. It often feeds like a flycatcher, making aerial sallies after passing insects.

Nesting: In summer the male has a slate-grey head and upper parts, except for the orange-chestnut rump and tail. This color is also found on the flanks, under wing coverts and auxillaries. The forehead is white; the sides of the face and throat are black. The wings and the two central tail feathers are brown, the other tail feathers bright orange-red. The orange on the flanks shades to almost white on the belly. The bill and legs are black. In autumn, pale feather fringes on the body feathering obscures the colors of the male, giving it a washed-out appearance. Males found in Turkey and Caucasus have white Coverts (Ehrenberg's Redstart; *P.p. samamicus*). The female is browner, with a whitish throat and paler under parts; it lacks the black and slate coloration.

The males first arrive in early to mid-April, often a few days in advance of the females. They nest in natural tree holes, so dead trees or those with dead limbs are beneficial to the species; nest boxes are sometimes used. A high cover of moss and lichen is also preferred.

Five or six light blue eggs are laid during May, with a second brood in mid-summer in the south of the breeding range. It departs for Africa between mid-August and early October.

Cool Facts: The closest genetic relative of the Common Redstart may be the Moussier's Redstart, though incomplete sampling of the genus gives some uncertainty to this. Its ancestors were apparently the first redstarts to spread to Europe; they seem to have diverged from the Black Redstart group about 3 million years ago, during the Piacenzian. Genetically, Common and Black Redstarts are still fairly compatible and can produce hybrids that appear to be healthy and fertile, but they are separated by different behavior and ecological requirements so hybrids are very rare in nature.

- *P. p. phoenicurus.* The nominate subspecies is found in Europe (except in the the south-east) and northwetsern Africa eastward to central Siberia, northern and eastern Kazakhstan, northern Mongolia and extreme northwestern China (Tarbagatai). It winters mainly in Africa south of the Sahara.
- *P. p. samamisicus.* It is found in the southern Balkans and Greece eastward to southern Caucasus, Iran, southwestern Turkmenistan, southern Uzbekistan and southwestern Tajikistan. It is likely also in northwestern Afghanistan. In winters in northeastern Africa and the southwestern Arabian Peninsula. It appears like the nominate except it has white wing panel formed by white edges of secondaries and tertials.

Common Name: Bluethroat
Scientific Name: *Luscinia svecica*

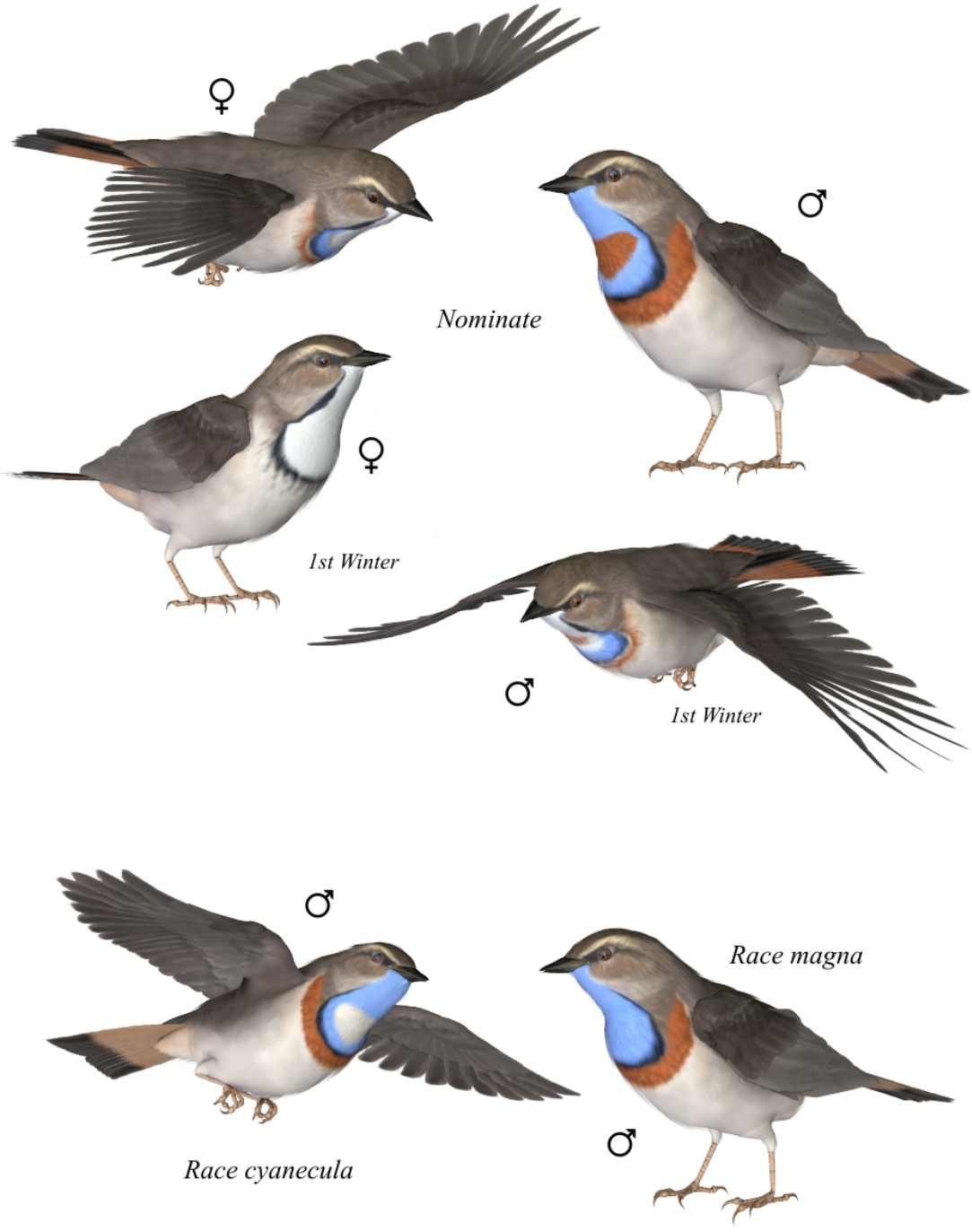
Size: 5.1-5.5 inches (13-14.5 cm); Wingspan: 7.9-10.6 inches (20-27 cm)

Habitat: Europe, Asia, Africa and North America; a migratory species breeding in Europe and Asia with a foothold in western Alaska. It winters in North Africa and the Indian
Subcontinent.

Its preferred habitat is in wet birch woodlands or bushy swamps.

Status: Least Concern. **Global population**: 2,000,000 individuals. The population is suspected to be stable in the absence of evidence for any declines or substantial threats.

Diet: Insects include adult and larval beetles of many families, various hymenopterans, adult and larval flies, mayflies, stoneflies, caddisflies, caterpillars, bugs, earwigs, grasshoppers, bush-crickets and dragonflies; other invertebrates include spiders, sandhoppers,



shrimps, small snails, earthworms and young frogs. Plant matter includes seeds or fruits of dock and knotweed (*Polygonaceae*), strawberries (*Fragaria*), blackberries (*Rubus*), bird cherry (*Prunus padus*), alder buckthorn (*Rhamnus*), elder (*Sambucus*), wheat and legumes.

Nesting: It is plain brown above except for the distinctive black tail with red side patches. It has a strong white supercilium. The male has a blue bib edged below with successive black, white and rust colored borders. Some races, such as *svecica* (Red-spotted Bluethroat) have a brownish-red spot in the center of the blue bib. Others, such *as cyanecula* (White-spotted Bluethroat) have a white spot in the center of the blue bib while *magna* has no central spot. Females of all races usually have just a blackish crescent on an otherwise cream throat and breast. Newly fledged juveniles are freckled and spotted dark brown above.

It nests in tussocks or low in dense bushes.

Cool Facts: Despite the distinctive appearance of the males in different regions, recent genetic studies show only limited variation between the forms, and confirm that this is a single species.

- *L. s. svecica.* The nominate subspecies (Red-spotted Bluethroat) is found in Scandinavia, northern, central and eastern Russia, northeastern China and northwestern North America (Alaska, rarely extreme northwestern Canada. It winters in southern Europe, and northern tropical Africa, Arabia and southern and eastern Asia.
- *L. s. volgae*. It is found in northeastern Ukraine and central and eastern European Russia. It winters in northeastern Africa and southwestern Asia. It is deeper blue on chin to breast, with small white-bordered rufous spot.
- *L. s. luristanica*. It is found in Armenia to southwestern Iran. It winters in Iraq and the Sudan. It is large with the throat all blue.
- *L. s. pallidogularis*. It is found on the plains of Kazakhstan and Transcaspia eastward to Tien Shan and Pamirs. It winters in southwestern Asia and northern India. It is paler blue on breast, with broader, paler rufous spot.
- *L. s. tianschanica*. It is found in the Central Asian mountains (Sayan, Altai, Tien Shan, Pamir). It winters in southern Asia. It is similar to *pallidogularis* but darker above.
- *L. s. abbotti*. It is found in central and northeastern Afghanistan and the northwestern Himalayas from northwestern Pakistan eastward to northwestern Himacha. It winters in northern India.
- *L. s. przevalskii.* It is found in central China (central and eastern Qinghai to Nan Shan and eastward to Ala Shan and Ordos Plateau). It winters in eastern China. It is very similar to *pallidogularis*, but usually with larger jugular spot.
- *L. s. kobdensis.* It is found in southeastern Siberia in southern Altai, western Mongolia and northwestern China (Xinjiang) eastward to Tarim Basin. It winters in southern and southeastern Asia.

- *L. s.* azuricollis. The Iberian Bluethroat is found in the north-central and northwestern Iberian Peninsula. It winters in western Africa south of the Sahara.
- *L. s. cyanecula*. The White-spotted Bluethroat is found in the Netherlands and northern and eastern France eastward to Belarus and northwestern Ukraine. It winters in southwestern and southern Europe and Northern Africa. It has a white spot in the center of the blue bib.
- *L. s. namnetum.* It is found in W France; non-breeding SW Portugal and Morocco.
- *L. s. magna.* The Caucasian Bluethroat is found in the Caucasus area, eastern Turkey and Iran. It winters in Sudan and Ethiopia. It has no central spot.

Common Name: Eurasian Siskin
Scientific Name: *Carduelis spinus*

Size: 4.3–4.9 inches (11-12.2 cm); Wingspan: 7.9–9.1 inches (20-23 cm)

Habitat: Europe, Asia and Africa; found across the greater part of Eurasia and the north of Africa. Its breeding area is separated into two zones, each side of the Palearctic ecozone: the east coast of Asia and the central and northern part of Europe.

These birds can be found throughout the year in Central Europe and some mountain ranges in the south of the continent. They are present in the north of Scandinavia and in Russia and they over-winter in the Mediterranean basin and the area around the Black Sea. In China they breed in the Khingan Mountains of Inner Mongolia and in Jiangsu province; they spend summer in Tibet, Taiwan, the valleys of the lower Yangtse River and the south east coast.

It is found in forested areas, both coniferous and mixed woodland where it feeds on seeds of all kinds, especially of alder and conifers.

Status: Vulnerable. **Global population**: 31,900,000-72,000,000 individuals. In Europe, trends since 1980 show that populations have undergone a moderate decline. The Siskin appears in Annex II of the Berne Convention as a protected bird species.

Diet: Seed, fruit, berries and insects. The Siskin is mainly a granivore although it varies its diet depending on the season. It feeds in trees avoiding eating on the ground. This species will form large flocks outside the breeding season, often mixed with redpolls.

In autumn and winter its diet is based on the seeds of deciduous trees such as birch and above all alder. They also visit cultivated areas and pasture where they join with other finches in eating the seeds such as thistles, dandelions, Artemisia, knapweeds and other herbaceous plants such as St. John's wort, meadowsweet and sorrel.

In spring, during the breeding season, they are found in coniferous forests. At this time their feeding is based on the seeds of these trees, especially on trees belonging to the genera Abies, Picea and Larix. They also feed on elms and poplars. When feeding the young they eat more insects, mainly beetles, as the proteins they contain help the chicks to grow. In summer their feeding is more varied, adding other herbaceous plants to their diet of conifer seeds: goosefoots and other *Compositae*.

Nesting: The male has a greyish green back; yellow rump; the sides of the tail are yellow and the end is black; the wings are black with a distinctive yellow wing stripe; its breast is yellowish becoming whiter and striped towards the cloaca; it has a black bib (or chin patch) and on its head it has two yellow auriculas and a black cap. The amount of black on the bib is very variable between males and the size of the bib has been related to dominance within a flock. The plumage of the female is more olive-colored than the male. The cap and the auriculas are greenish with a white bib and a rump that is a slightly striped whitish yellow. The young have a similar coloration to the females, with drab colors and a more subdued plumage.

Pairs are generally formed during the winter period before migration. The males compete aggressively for the females. As part of the courtship the male plumps up the feathers of the pileus and rump, making itself bigger, extending the tail and singing repeatedly. They also make mating flights from tree to tree.

They construct a nest that is generally located at the end of a relatively high branch in a conifer, such that the nest is reasonably hidden and difficult to see. They form small colonies of up to six pairs with the nests located near to each other. The nest is small and bowl-shaped. It is made from small twigs, dried grasses, moss and lichen and lined with down.

The first brood is born in mid-April. The female lays between 2 and 6 eggs. The eggs are white or light grey or light blue, with small brown spots. Incubation takes about 10-12 days and the fledging period is about 15 days. Young remain close to the nest area for up to a month when, with their plumage now complete, they disperse. The Siskin usually has a second brood, from the middle of June up to the middle of July.

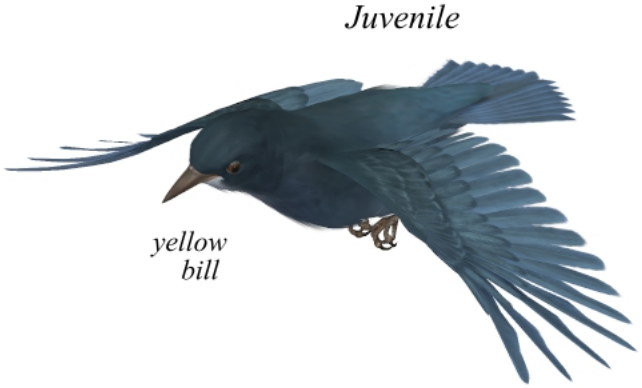
Cool Facts: Their seasonal distribution is marked by the fact that they follow an anomalous migration pattern. Every few years they migrate southwards in larger numbers and the overwintering populations in the Iberian Peninsula are greatly augmented. This event has been the object of diverse theories; one theory suggests that it occurs in the years when Norway Spruce produces abundant fruit in the center and north of Europe, causing populations to increase. An alternative theory is that greater migration occurs when the preferred food of alder or birch seed fails.

They are fairly trusting of humans, it being possible to observe them from a short distance. During the breeding season, however, they are much more timid, solitary and difficult to observe. For this reason there is a German legend which says that Siskins guard a magic stone in their nests that makes them invisible.

Common Name: Pinyon Jay
Scientific Name: *Gymnorhinus cyanocephalus*

Size: 10.2-11.4 inches (26-29 cm); Wingspan: 18.1 inches (46 cm)

Habitat: North America; residents from central Oregon to western South Dakota, south to northern Baja California, northwestern and east-central Arizona, central New Mexico, and western Oklahoma. They winter throughout their breeding range and irregularly from southern Washington to northwestern Montana, and south to Mexico and central Texas. When pinyon seed crops are poor, pinyon jays may wander to central Washington, northwestern Oregon, northern Idaho, northwestern Montana, throughout the Great Basin, Nebraska, Kansas, central-western and southwestern California, southeastern Arizona, central Texas, and northern Chihuahua.



It lives in foothills where pinyon-juniper woodland, sagebrush, scrub oak, and chaparral communities occur.

Status: Vulnerable. **Global population**: Unknown population. This species has undergone a large and statistically significant decrease over the last 40 years in North America (-74.8% decline over 40 years, equating to a -29.1% decline per decade). The major threat to this species is the destruction of its major habitat type, pinyon-juniper woodland. Land managers have followed a policy to eradicate this woodland, with the U.S. Forest Service classifying it as "non-commercial" and placing it in a "no-value" category. During the 1940s-1960s major programs to eradicate the entire habitat were carried out, during which possibly millions of *G. cyanocephalus* died owing to habitat destruction. Currently herbicides, mechanical ploughing and fire are used to turn pinyon-juniper woodland into pasture land for cattle. Fire-suppression policies in south-west U.S.A. have led to huge, uncontrolled wildfires that consumed large areas of

suitable habitat in the late 1990s. A "catastrophic" drought in the early 2000s also caused considerable mortality. The decline of pinyon pine and associated encroachment of juniper associated with global warming are primary factors restricting habitat and limiting reproductive success.

Diet: Seed, fruit, berries and insects. The seed of the Pinyon pine is the staple food but they supplement their diet with fruits and berries. Insects of many types are also eaten and sometimes caught with its feet.

Nesting: Sexes are alike. Adults are a bluish-grey color with deeper head coloring and whitish throat with black bill, legs and feet. Juvenile are uniformly dull gray in color with lighter beaks.

Pinyon jays appear to form perennial, monogamous pair bonds that last an average of 2.5 years. The nest is always part of a colony but there is never more than one nest in a tree. Sometimes the colony can cover quite extensive areas with a single nest in each tree (usually juniper, live oak or pine).

There are usually 3–4 eggs laid, quite early in the season. Incubation is usually 16 days. The male bird normally brings food near to the nest, and the female flies to him to receive it and take back to the nest to feed the chicks that fledge around 3 weeks later. Young are normally fed only by their parents, but once they reach near-fledging size they can sometimes receive a meal from any passing member of the colony, which can continue for some time after leaving the nest.

Cool Facts: Pinyon Jay social organization is complex, with permanent flocks that may include more than 500 individuals. Many birds spend their entire lives in their natal flocks. Individuals that do disperse, usually females before they are one year of age, generally travel only short distances. Several birds always seem to act as sentries for the flock, watching out for predators while their companions are feeding.

Pinyon jays have a symbiotic relationship with the pinyon. Pinyon trees provide pinyon jays with food, nesting and roosting sites, and breeding stimuli. Pinyon jays influence seed dispersal, establishment, and genetic structure of pinyon populations.

Although omnivorous, the Pinyon Jay is committed to the harvest, transport, caching, and later retrieval of pine seeds. It is aided by a relatively long, strong bill; an expandable esophagus; and long, strong wings. Individuals have excellent spatial memories that allow them to find most of their hidden seeds months after caching, even through snow. Mated pairs of Pinyon Jays appear to coordinate their caching so that their cache locations are known to each other, especially the male. Although this behavior is difficult to observe in the wild, data from aviary observations and experiments confirm this arrangement.

The Pinyon Jay's bill is featherless at its base (hence the name *Gymnorhinus* = bare nostrils). Nearly all other members of the family *Corvidae* have feathers covering their

nostrils. The Pinyon Jay can probe deep into pitch-laden cones without fouling the feathers that would cover the nostrils of other jays.

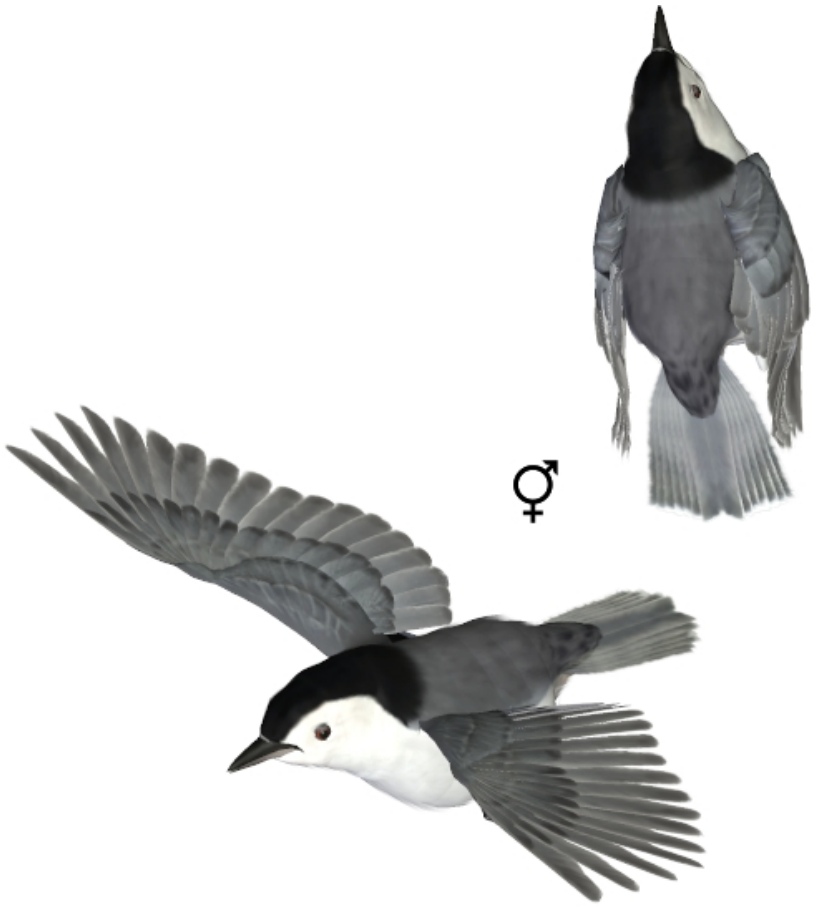
Common Name: White-breasted Nuthatch
Scientific Name: *Sitta carolinensis*

Size: 5.1-5.5 inches (13-14 cm); Wingspan: 7.9-10.6 inches (20-27 cm)

Habitat: North America; throughout the continental United States, Mexico and southern Canada.

They prefer mature woods, and more likely in deciduous than coniferous forests. They are found at woodland edges and in open areas with large trees, such as parks, wooded suburbs, and yards.

Status: Not Threatened. **Global population**: Unknown population. White-breasted Nuthatches are common and widespread, and their populations seem to be stable and possibly increasing. Like all birds that nest in holes in trees, White-breasted Nuthatches depend on having dead or partially dead trees left standing in their habitat. Too much pruning or felling of dead wood can reduce the nesting opportunities for this species.



Diet: Mainly insects, including weevil larvae wood-boring beetle larvae, other beetles, tree hoppers, scale insects, ants, gall fly larvae, caterpillars (including gypsy moths and tent caterpillars), stinkbugs, and click beetles, as well as spiders. They also eat seeds and nuts, including acorns, hawthorn, sunflower seeds, and sometimes crops such as corn. At birdfeeders they eat sunflower seeds, peanuts, suet, and peanut butter.

Nuthatches make lots of quick trips to and from feeding sources –storing the seeds and suet for later use in the winter, by wedging them into furrows in the bark of nearby trees.

Nesting: The White-breasted Nuthatch is normally territorial throughout the year, with pairs staying together.

They typically build their nests in natural tree cavities or abandoned woodpecker holes. They sometimes enlarge these holes but rarely excavate them entirely on their own (as Red-breasted Nuthatches often do). Nuthatches are smaller than woodpeckers, and White-breasted Nuthatches don't seem bothered by nest holes considerably larger than they are. Despite their association with deciduous woods, they nest in both coniferous and deciduous trees. White-breasted Nuthatches sometimes use nest boxes.

They have usually one brood a year and lay 5-9 eggs. The eggs are creamy white to pinkish-white in color with speckles of reddish brown, gray, or purple. The nesting period last approximately 26 days with the incubation period being 13-14 days.

Cool Facts: It is the largest Nuthatch. White breasted Nuthatches prefer deciduous forests, while the Red-breasted Nuthatches prefer coniferous forests.

Nuthatches forage up, down, and sideways over tree trunks and around large branches. They often (though not always) start high in trees and move down them head first, pausing to crane their necks up and back, toward the horizontal, for a look around. Nuthatches are the only birds in the world that can move in a downward motion on a tree or limb.

They probe into bark crevices or chip away at wood to find food. When they find large nuts and seeds, they jam them into the bark and hammer them open. White-breasted Nuthatches often store seeds and insects one at a time, and somewhat haphazardly, under loose bark on their territory. They typically hide the food by covering it with a piece of bark, lichen, moss, or snow. White-breasted Nuthatches live in pairs year round and chase other nuthatches from their territory. Agitated birds fan their tails, flick their wings, or raise the feathers of the back. A bird backing down from a confrontation typically raises its bill and tail, and droops its wings.

In winter, White-breasted Nuthatches join foraging flocks led by chickadees or titmice, perhaps partly because it makes food easier to find and partly because more birds can keep an eye out for predators. One study found that when titmice were removed from a flock, nuthatches were more wary and less willing to visit exposed bird feeders.

Nuthatches have a lifespan 8-10 years.

Common Name: Varied Thrush
Scientific Name: *Ixoreus naevius*

Size: 7.5-10.2 inches (19-24 cm); Wingspan: 13.4-15 inches (34-38 cm)

Habitat: North America; found in the Pacific Northwest. In its breeding range, which covers Alaska and tapers as it extends south to northern California. It is a short-distance, partial migrant. Some coastal breeders stay in one place year-round, but inland breeders migrate south in winter. Northern breeding populations may “leapfrog” past southern breeding populations, wintering farther south (as far as Baja California). In many winters, a few Varied Thrushes move erratically and appear in the Midwest and Northeast, far out of their normal range.

Its preferred habitat is the dark and wet mature forests in the Pacific Northwest; forests dominated by coastal redwood, Sitka spruce, red alder forests, western hemlock, western red cedar, western larch, or Douglas-fir. In winter it may be found in a broader range of habitats, including parks, gardens, lakeshores, and riparian areas where fruit and berries are abundant.

Status: Not Threatened. **Global population**: Unknown population. Varied Thrushes are fairly common, but their populations may be declining in Idaho, Washington, the Cascade Mountains, and the wet forests of the Oregon and California coasts. Because they live in mature and old-growth forests containing very large trees, logging and forest fragmentation can cause habitat loss that reduces their numbers. They don’t tend to live

in forest patches smaller than about 40 acres. Around human habitation, Varied Thrushes have proven very vulnerable to window strikes as well as predation by domestic and feral cats and collisions with cars. Varied Thrushes may benefit from reserves that have been established to protect the Northern Spotted Owl.

Diet: Insects, nuts and berries. During breeding season, Varied Thrushes eat insects and other arthropods from the leaf litter; in winter they eat mostly berries and nuts. They forage by seizing dead leaves in their bill and hopping backward to clear a spot of ground before examining it for prey. In fall and winter, they switch to fruits and acorns, forming loose flocks around their food. Some of their typical fruits are snowberry, apple, honeysuckle, madrone, mistletoe, manzanita, toyon, ash, salal, cascara, dogwood, blueberry, huckleberry, salmonberry, and thimbleberry.

Varied Thrushes are often aggressive toward each other and other bird species. At feeders, males sometimes defend small feeding territories, where they dominate sparrows, blackbirds, cowbirds, towhees and juncos. They usually defer to California Quails, Northern Flickers, Western Scrub-Jays, and American Robins. The only time Varied Thrushes flock with other species is when they occasionally forage for berries or earthworms on lawns with American Robins.

Nesting: Males are dark blue-gray on the back and rich burnt-orange below with a sooty-black breast band and orange line over the eye. The wings are blackish with two orange bars and orange edging to the flight feathers. Females have the same patterns, but are paler gray-brown than males. Immatures are generally brown, though its stomach feathers are white, and initially harbors two orange stripes at the covert feathers.

They are thought to establish monogamous breeding pairs, but how long the birds stay together is not known. Females probably choose where to build the nest—usually in the understory of a mature forest, often in a spot surrounded by old nests (or even directly on top of one). They are usually around 10 feet off the ground and poorly concealed, close to the trunk of a small conifer.

The female gathers nest material and weaves an outer layer of fir, hemlock, spruce, or alder twigs. She adds a middle layer with rotten wood, moss, mud, or decomposing grass, which hardens into a dense cup about 4 inches across and 2 inches deep. Finally, she lines the cup with fine grasses, soft dead leaves, and fine moss, and drapes pieces of green moss over the rim and outside of the nest.

The eggs are light blue, sometimes with dark-brown speckles in colors and the incubation time lasts 12 days. The nesting period is 13-15 days.

Cool Facts: Varied Thrushes forage on the ground, periodically moving to higher perches in the understory to sing or move between foraging sites. Males reach the breeding grounds before females and start singing to establish territories. They have several threat displays, beginning by cocking the tail, turning it toward an intruder, and

lowering the wings. If the adversary remains, the displaying bird will face off, lowering its head, raising and fanning the tail, and spreading its wings out to its side. Occasionally, males peck at or lock bills with each other. While squabbling over territory or chasing away nest intruders, they may dive and swoop through dense vegetation, sometimes hitting branches along the way. Males may also defend small sites around bird feeders in the winter, though females seem to use alternative feeding sites to avoid competition.

There is an extremely rare variant of this species in which all the orange in the plumage is replaced by white. A very rare British vagrant in 1982 was of this type, leading to speculation that whatever mutation causes the color variation also affects the navigational abilities of this thrush. There have been only five recorded sightings since 1921.

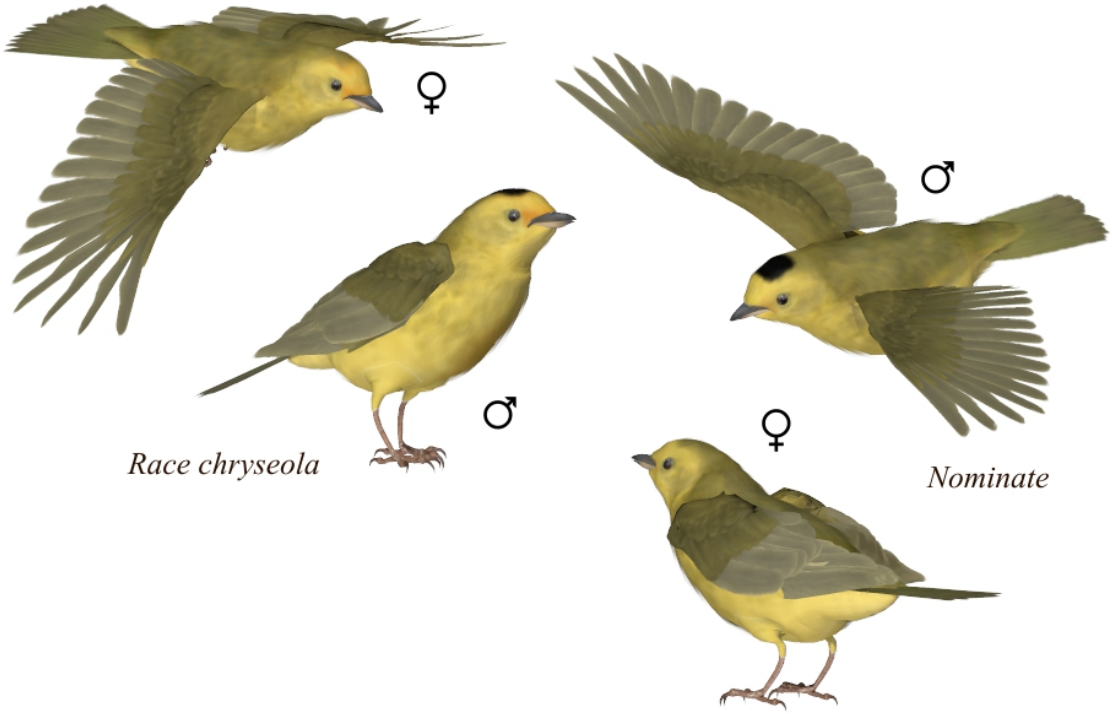
The oldest Varied Thrush on record was 4 years, 9 months old.

Common Name: Wilson's Warbler
Scientific Name: *Cardellina pusilla*

Size: 3.9–4.7 inches (10-12 cm); Wingspan: 5.5-6.7 inches (14-17 cm)

Habitat: North America; the Wilson's warbler is a migratory species. It is the only migrant warbler regularly found in tropical high plains. They breed in shrub thickets of riparian habitats, edges of beaver ponds, lakes, bogs, and overgrown clear-cuts of montane and boreal zone. At all seasons, it prefers secondary growth, riparian habitats, lakes, montane and boreal forests with overgrown clear cuts. They winter in tropical evergreen and deciduous forest, cloud forest, pine-oak forest, and forest edge habitat; also found in mangrove undergrowth, secondary growth, thorn-scrub, dry washes, riparian gallery forest, mixed forests, brushy fields, and plantations.

At all seasons, it prefers secondary growth, riparian habitats, lakes, montane and boreal forests with overgrown clear cuts. It is the only migrant warbler regularly found in tropical high plains.



Status: Not Threatened. **Global population**: Unknown population. There is no special status on federal lists for this warbler. But degradation and loss of primary breeding habitat and western riparian woodlands, are likely to be a leading cause of declines.

Diet: Insects and occasional berries. It picks insects from foliage and twigs, hovers to pick prey from leaves, and often flycatches.

Nesting: It has a plain green-brown back and yellow under parts. The male has a small black cap. The Pacific coast populations have the brightest yellow, even orangish, foreheads and faces. Western-central and Alaskan birds are slightly larger than the eastern and Pacific coast populations.

Wilson's Warblers are ground nesters. The female creates a bowl of vegetation, lined with grass or hair. It is usually placed on the ground, at the base of a shrub or under bunches of grass. Sometimes, it may be placed low in shrubs.

The eggs are colored creamy white with fine reddish spots on them and usually 2 to 7 eggs are laid. Incubation time is 8 to 13 days.

Cool Facts: The Wilson's warbler was first described in 1811 by the ornithologist Alexander Wilson, who placed it in the genus *Muscicapa*. The species was moved to genus *Wilsonia* by the naturalist and ornithologist Charles Lucien Bonaparte in 1838. Zoologist Thomas Nuttall moved it to genus *Sylvania* in 1840, and by 1845, many authors included it in genus *Myiodioctes*.

In 1899, the American Ornithological Union returned the species to genus *Wilsonia*. The species name "*pusilla*" means "small." Recently, this species has been moved yet again from genus *Wilsonia* to genus *Cardellina.* Will it return back to *Wilsonia* yet again?

- *C. p. pileolata.* First reported by Pallas in 1826. It breeds from coastal Alaska east to Yukon Territory and south through the Rocky Mountains to northeastern California (the Warner Mountains) east through Nevada to Utah and south to northern New Mexico. It winters primarily from southwestern and central Mexico south to western Panama. It is similar to the nominate but the dorsum is brighter green and the ventrum is brighter yellow. The extent of black on the crown varies considerably, encompassing the full range of variation for species; averages larger (wing chord 55–60 mm).
- *C. p. pusilla*. First reported by Wilson in 1811. It breeds in eastern and central Canada, north to north-central Alberta and south-central Mackenzie. It winters predominantly on the Atlantic slope of Middle America, from central Tamaulipas south to northern Costa Rica, with some found north to the southeastern United States in mild winters. The yellow areas of plumage—including flanks, auriculars, and lores—typically washed with olive green, so that yellow eyering is conspicuous. The black crown patch limited in extent; body size small (wing chord < 58 mm).
- *C. p. chryseola*. First reported by Ridgway in 1902. It breeds primarily in the Pacific coastal lowlands from southwestern British Columbia south to southern California and the Sierra Nevada; winters primarily in western Mexico, north to Baja California Sur and southern Sonora, south to western Panama. It is similar to *pileolata*, but brighter still, with the dorsum bright olive-green, the ventrum bright yellow, the auriculars clearer yellow (less olive)—making the eyering inconspicuous—and the lores, forehead, and supercilia washed with orange; the black crown patch is more extensive; averages slightly smaller.

Common Name: Yellow Warbler
Scientific Name: *Dendroica petechia*

Size: 5 inches (13 cm); Wingspan: 6.3-7.9 inches (16-20 cm)

Habitat: North America and northern South America; most Yellow Warblers are long distant migrants. Yellow Warblers breed across central and northern North America and spend winters in Central America and northern South America. They migrate earlier than most other warblers in both spring and fall. Like many other migrating songbirds, Yellow Warblers from eastern North America fly across the Gulf of Mexico in a single nonstop journey; some Yellow Warblers in fall take an overland route around the Gulf. There are some year round resident populations in Mexico, Central America, and the Caribbean.

Yellow Warblers spend the breeding season in thickets and other disturbed or regrowing habitats, particularly along streams and wetlands. They are often found among willows but also live in dwarf birch stands in the tundra, among aspen trees in the Rockies, and along the edges of fields in the East, where you may find them among alder or dogwood as well as orchards, blueberry bogs, and overgrown power-line cuts. In the West they may occur up to about 9,000 feet elevation. On their wintering grounds Yellow Warblers live in mangrove forests, dry scrub, marshes, and forests, typically in lowlands but occasionally up to 8,500 feet elevation.

Status: Not Threatened. **Global population**: Unknown population. Yellow Warblers are one of the most numerous warblers in North America and their populations seem stable. In the western U.S. the grazing of rangelands can degrade Yellow Warbler nesting habitat, particularly stands of willow trees along creeks. The Brown-headed Cowbird lays its eggs in the nests of many species including Yellow Warblers, and this can reduce their breeding success.

Like many migratory songbirds that move at night, Yellow Warblers can be attracted to and killed at tall, lighted structures such as TV towers and tall buildings.

Diet: Insects; midges, caterpillars, beetles, leafhoppers, wasps and others. They are often found near the tops of tall shrubs and small trees. They forage restlessly, with quick hops along small branches and twigs to glean caterpillars and other insects.

Nesting: The male's face, throat, and under parts are bright yellow. They are streaked with chestnut below the throat. The upper parts are yellow-green to olive and the wings and tail feathers are edged in yellow. The female of species is similar to the male with the exception of the chest streaking, which is very faint. There tends to be more yellow-green to olive coloring on the upper parts as well. Immatures are similar to adult female, but paler and duller, usually without chestnut chest streaks. Yellow tail spots are reduced and often there is a faint white eye ring.

Resident forms of the Yellow Warbler can be found in Mexico, Central America, and the Caribbean. Males in these populations can have chestnut caps or even chestnut covering the entire head.

They prefer forest edges, grassland with scattered trees, bushes, shrubs, and thickets for nesting, especially willow habitat. The female builds the nest over a period of about 4 days. First she builds a cup of grasses, bark strips, and plants such as nettles. She places plant fibers, spider webs, and plant down around the outside. The inner cup is lined with deer hair, feathers, and fibers from cottonwood, dandelion, willow, and cattail seeds. The nests of the Yellow Warbler are frequently parasitized by the Brown-headed Cowbird. The warbler often builds a new nest directly on top of the parasitized one, sometimes resulting in nests with up to six tiers.

The eggs are colored gray, green or blue with olive and brown marks on them and usually 3 to 6 eggs are laid. Incubation time is 11 to 12 days.

Cool Facts: Although many warblers are yellow, the Yellow Warbler is the most extensively yellow of any species and is the only warbler with yellow tail spots.

Recent DNA-based studies indicate that the Chestnut-sided Warbler is the closest relative of the Yellow Warbler. Both sing similarly phrased songs, and Yellow Warblers regularly sing songs nearly identical to those of the Chestnut-sided Warbler.

A group of yellow warblers are collectively known as a "stream", "sweetness", and "trepidation" of warblers.

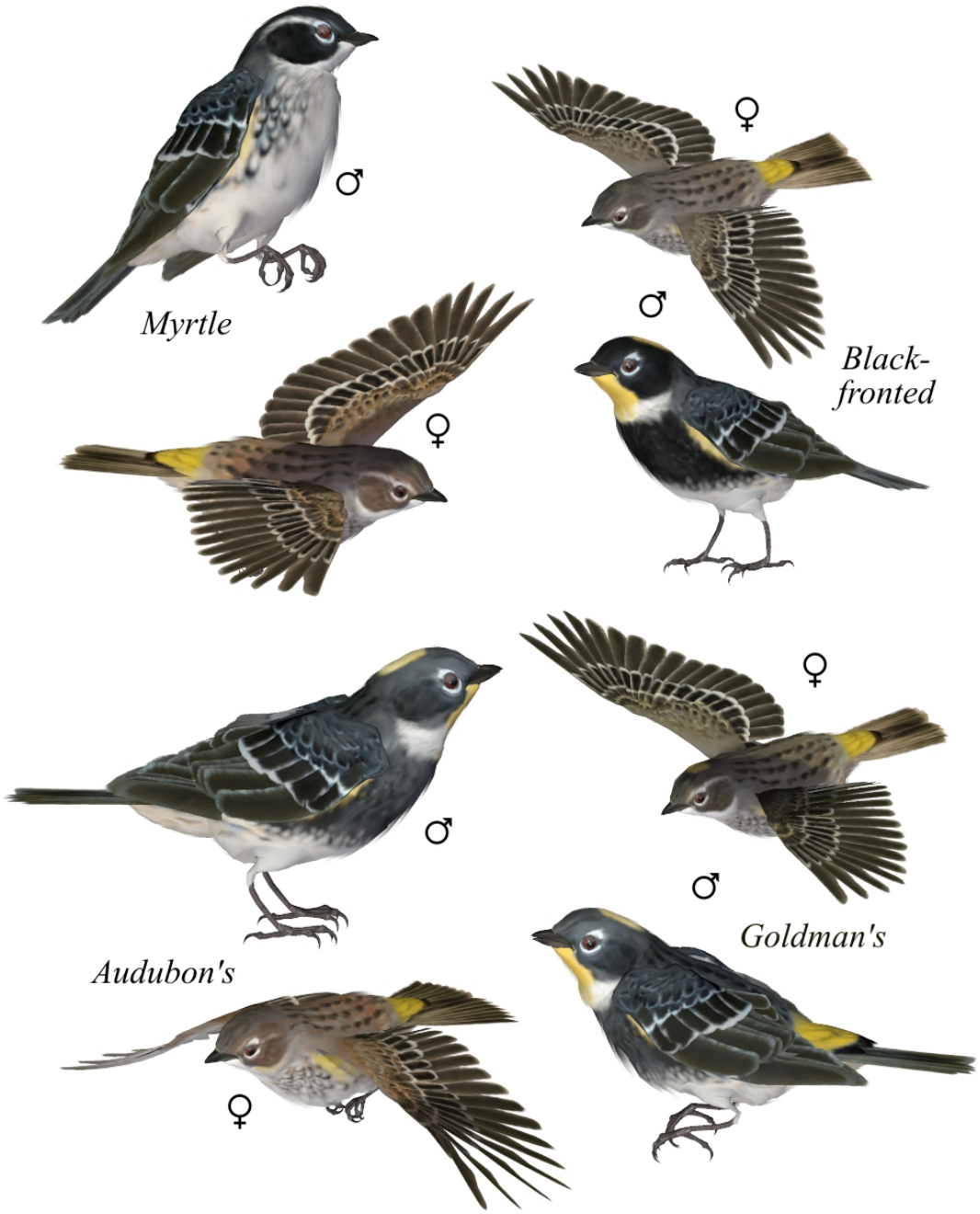
Life can be dangerous for a small bird. Yellow Warblers have occasionally been found caught in the strands of an orb weaver spider's web. The oldest-known Yellow Warbler was banded in New York in 2001 and then caught again (and re-released) in 2011, also in New York. It was at least 11 years old at the time.

Common Name: Yellow-rumped Warbler
Scientific Name: *Setophaga coronata*

Size: 4.7–5.5 inches (12-14 cm); Wingspan: 7.5-9.1 inches (19-23 cm)

Habitat: North America; breeds from eastern North America west to the Pacific, and southward from there into Western Mexico. The Myrtle race has a northerly and easterly distribution, with the Audubon's race further west.

In summer, they frequent open coniferous forests and edges, and to a lesser extent deciduous forests (such as in patches of aspen, birch, or willow). In fall and winter, they move to open areas with fruiting shrubs or scattered trees, such as parks, streamside woodlands, open pine and pine-oak forest, dunes (where bayberries are common), and residential areas On their tropical wintering grounds they live in mangroves, thorn scrub, pine-oak-fir forests, and shade coffee plantations.



Status: Not Threatened. **Global population**: Unknown population. Yellow-rumped Warblers are common and widespread. Their populations are stable or increasing in most areas. Migrating Yellow-rumped Warblers, like many migrants, are frequently killed in collisions with radio towers, buildings, and other obstructions.

Diet: Insects and occasional berries. They eat mainly insects in the summer, including caterpillars and other larvae, leaf beetles, bark beetles, weevils, ants, scale insects, aphids, grasshoppers, caddisflies, craneflies, and gnats, as well as spiders. They also eat spruce budworm, a serious forest pest, during outbreaks. On migration and in winter they eat great numbers of fruits, particularly bayberry and wax myrtle, which their digestive systems are uniquely suited among warblers to digest. This is one reason why Yellow-rumped Warblers winter so much farther north than other warbler species. Other commonly eaten fruits include juniper berries, poison ivy, poison oak, greenbrier, grapes, Virginia creeper, and dogwood. They will eat wild seeds such as from beach grasses and goldenrod, and they may come to feeders, where they'll take sunflower seeds, raisins, peanut butter, and suet. On their wintering grounds in Mexico, they've been seen sipping the sweet honeydew liquid excreted by aphids.

Yellow-rumped Warblers typically forage in the outer tree canopies at middle heights. Male Yellow-rumped Warblers tend to forage higher in trees than females do. They are very active, flycatching insects in midair and sometimes on long flights. They cling to the bark surface to look for hidden insects more than many warblers do, but they also frequently sit on exposed branches and catch passing insects like a flycatcher does. In winter they eat berries from shrubs, and they often travel in large flocks. If another bird gets too close, Yellow-rumped Warblers indicate the infraction by holding the body horizontally, fanning the tail, and raising it to form a right angle with its body.

Nesting: Yellow-rumped Warblers are fairly large, full-bodied warblers with a large head, sturdy bill, and long, narrow tail. In summer, both sexes are a dark gray with flashes of white in the wings and yellow (or white) on the face, sides, and rump. Males are dramatically shaded whereas females are duller and may show some brown. Winter birds are paler brown, with bright yellow rump and usually some yellow on the sides. Between the two races, Audubon and Myrtle, Audubon males have yellow throats whereas as Myrtle males have white throats. Myrtle males and females also have a defining white “eyebrow” marking.

When males court females, they fluff their feathers, raise their wings and the feathers of the crown, and hop from perch to perch, chipping. They may also make display flights in which they glide back and forth or fly slowly with exaggerated wingbeats.

Females build the nest, sometimes using material the male carries to her. The nest is a cup of twigs, pine needles, grasses, and rootlets. She may also use moose, horse, and deer hair, moss, and lichens. She lines this cup with fine hair and feathers, sometimes woven into the nest in such a way that they curl up and over the eggs. The nest takes approximately 10 days to build and is 3-4 inches across and 2 inches tall. The eggs are

colored white with speckles of brown, reddish-brown, gray, or purplish gray on them. 1 to 7 eggs are laid and the incubation time is 12 to 13 days.

Cool Facts: There are two forms of Yellow-rumped Warbler found in the United States, Audubon's and Myrtle. They were once considered different species, but in 1973 the American Ornithologists' Union elected to merge them into what we now call the Yellow-rumped Warbler. The Myrtle form (*coronata*) was apparently separated from the others by glaciation during the Pleistocene, and the Audubon's form (*auduboni*) may have originated more recently through hybridization between the Myrtle Warbler and the Black-fronted or Mexican form (*S. c. nigrifrons)*. There is an additional form, Goldman's (*S. c. goldmani)* found in Guatemala. It resembles Audubon's but has a white lower border to the yellow throat and otherwise darker plumage; males replace the slate blue of Audubon's with black.

The Yellow-rumped Warbler is the only warbler able to digest the waxes found in bayberries and wax myrtles. Its ability to use these fruits allows it to winter farther north than other warblers, sometimes as far north as Newfoundland. On the west coast, the Yellow-rumped Warbler is particularly fond of the fruit on laurel sumac.

When Yellow-rumped Warblers find themselves foraging with other warbler species, they typically let Palm, Magnolia and Black-throated Green warblers do as they wish, but they assert themselves over Pine and Blackburnian warblers.

The oldest known Yellow-rumped Warbler of the "Myrtle" race was 8 years 9 months old. The oldest known individual of the "Audubon's" race was 10 years old.

- *S. c. coronata*. First reported by Linnaeus in 1766. The nominate subspecies, the Myrtle Warbler, breeds from south-central Alaska through northern British Columbia to Newfoundland and south in the Appalachians to West Virginia. It winters across the southeastern United States and northern Mexico, and south to Panama and the West Indies, with individuals sparingly occurring west of the Rocky Mountains to the Pacific coast at that season.It has a white throat and throat patch pointed at dorso-posterior edge; postocular stripe white or pale; white spots on two or three outer rectrices; in adult male, black on breast a solid patch or a heavy mottling; in non-breeding, dorsum brown. Body size increases and black on the breast decreases from east to northwest across the subspecies' range.
- *S. c. auduboni.* First reported by Townsend in 1837. Audubon's Warbler breeds from central British Columbia and western Alberta south through mountains of the western United States to extreme northwest Mexico (northern Baja California) and southern United States (west Texas); winters across western North America south through Mexico to northern Central America (locally south to Honduras), with vagrants to the Atlantic coast. It is broadly similar to S. c. coronata, but throat yellow and rounded at dorso-posterior edge, postocular stripe absent, white spots on four or five outer rectrices, and, in non-breeding, dorsum duller (grayer, less brown); cheeks and forehead gray and yellow crown patch lacking a border.

- *S. c. nigrifrons.* First reported by Brewster in 1889. The Black-fronted Warbler is a resident in mountains from northwestern Chihuahua south to west-central Durango; perhaps occurs north to southeastern Arizona, although definite records are lacking. It is similar to *auduboni*, but, on the adult male, dorsum darker, cheeks and forehead black, ventrum more extensively black, and yellow crown patch bordered with white.
- *S. c. goldmani.* First reported by Nelson in 1897. Goldman's Warbler is a resident in central Guatemala and eastern Chiapas. It is similar to *nigrifrons*, but head, back, and breast of the adult male almost wholly black (not gray) and yellow throat bordered by white and dorso-posterior border of throat patch pointed (not rounded).

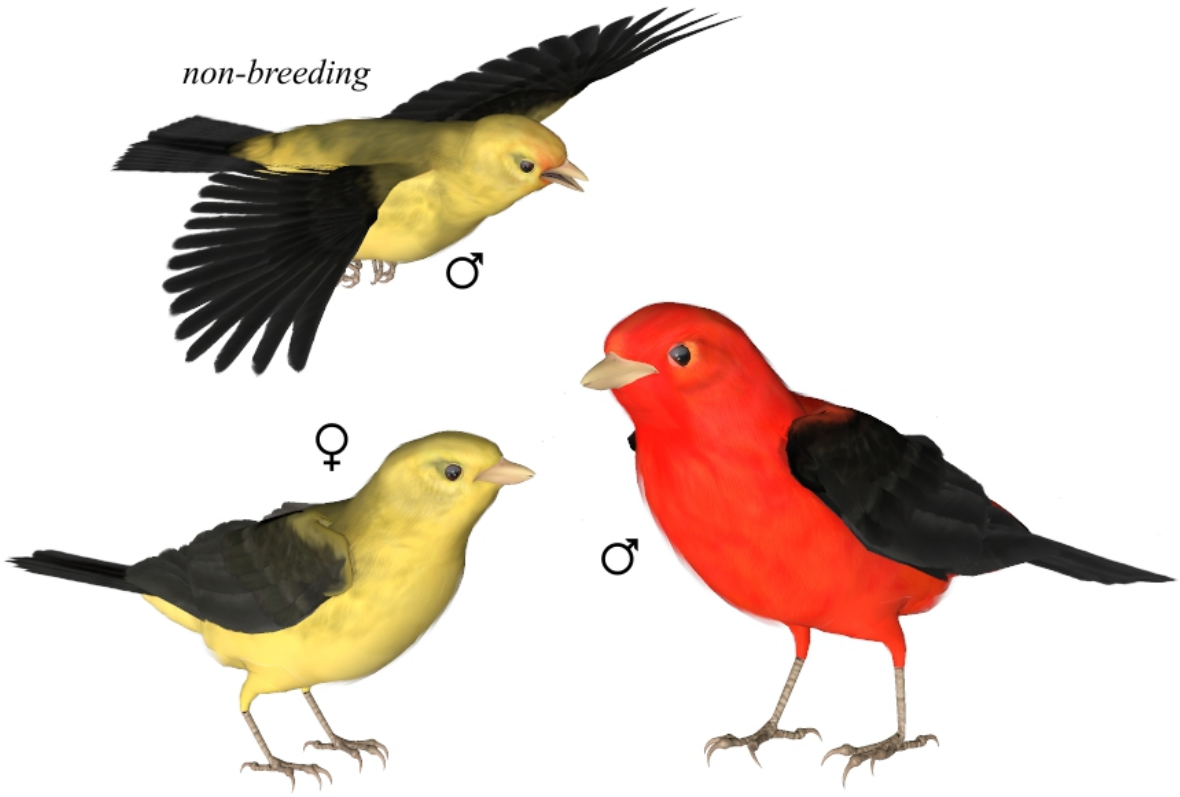
Common Name: Scarlet Tanager
Scientific Name: *Piranga olivacea*

Size: 6.3-6.7 inches (16-17 cm); Wingspan: 9.8-11.4 inches (25-29 cm)

Habitat: North America and northern South America; found East of the Mississippi River in the United States and Southern Canada and down through the Caribbean into Columbia, Equator, Peru and Bolivia.

Scarlet Tanagers breed in mature deciduous forests and mixed deciduous-coniferous forests in eastern North America. They nest in oak, pine-oak, oak-hickory, beech, hemlock-hardwood, and occasionally pure eastern hemlock forests. In Canada they sometimes extend into boreal forests in stands of aspen, balsam poplar, and birch. Breeding Scarlet Tanagers prefer large forest tracts with large trees. During spring and fall they use similar forest habitats as well as open spaces such as parks and gardens. When they arrive in the southern United States coast in early spring they feed in shrubby vegetation, grassy fields, and on the ground. Scarlet Tanagers winter in mature forests and forest edges in northern and western South America, mostly on hills and mountains. They range south as far as the Bolivian lowlands.

Status: Not Threatened. **Global population**: 2,200,000 mature adults. Overall, Scarlet Tanager populations appear stable, although their numbers have fluctuated regionally in the last several decades. The species increased in parts of the Midwest, Great Lakes,



and South but declined in areas of the Northeast and New England. Partners in Flight estimates there are about 2.2 million Scarlet Tanagers, with 93 percent of the breeding population in the United States. Scarlet Tanagers are interior forest species, so changes in land-use—fragmentation by development as well as regrowth as cleared land reverts to forest—may be responsible for some of these conflicting trends. In fragmented landscapes, nests are in greater danger of being parasitized by Brown-headed Cowbirds and from predators that operate along habitat edges. To safeguard the Scarlet Tanager population, researchers recommend preserving and restoring mature forest habitat for breeding, migrating, and wintering birds.

Diet: Mostly insects along with some fruit and tender buds. Their invertebrate diet includes ants, sawflies, moths, butterflies, beetles, flies, cicadas, leafhoppers, spittlebugs, treehoppers, plant lice, scale insects, termites, grasshoppers, locusts, dragonflies, dobsonflies, snails, earthworms, and spiders.

While foraging for insects they walk along branches high in the canopy or vertically on tree trunks to probe the bark, but rarely along the ground. Tanagers perch or hover with fast wingbeats to grab insects from leaves, bark, and flowers, and they catch flying insects like bees, wasps, and hornets from the air. They swallow small larvae whole, but they kill larger prey by pressing it into a branch.

In the winter, they forage in mixed-species flocks with woodcreepers, flycatchers, barbets, and tropical tanagers.

Nesting: Males, in summer, have blood red heads and body with black wings and tail. During the migration to the south, they trade their scarlet plumage for yellowish-green heads and body, resembling the females, but with black wings and tails. The females have yellowish-green heads and body with dark grayish-green wings and tail.

The female chooses the nest site, usually selecting a shaded spot within a cluster of leaves at a juncture of small branches. Nests are often fairly high (50 feet or more from the ground) on a nearly horizontal branch well away from the trunk. The site usually has an unobstructed view of the ground and open flyways from nearby trees. Scarlet Tanagers tend to nest in mature deciduous trees such as maple, beech, and oak, but they also nest in eastern hemlock.

The female gathers nesting material from the forest floor and builds a flimsy nest in 3–4 days, spending relatively little time on it each day. She drops material onto the nest, hops in, and molds it into shape by pressing her body against the sides and bottom, then getting out and weaving in loose ends. The nest is a loosely woven saucer of twigs, grasses, plant stalks, bark strips, rootlets, and pine needles. It has a shallow and asymmetrical interior space, lined with grass, fine rootlets, fine plant fibers, vine tendrils, and pine needles. 3-5 eggs are laid and look greenish blue to light blue speckled with chestnut, purplish red, and lilac in appearance.

Scarlet Tanagers are parasited by Brown-headed Cowbirds, particularly where the forest habitat has been fragmented. When a pair of tanagers notices a female cowbird approaching, they aggressively drive her away. If they don't notice, the cowbird gets rid of a tanager egg and replaces it with one of their own. The tanagers apparently can't tell the difference, either before or after the egg hatches, and they raise the imposter along with the rest of their brood.

Cool Facts: The female Scarlet Tanager sings a song similar to the males', but softer, shorter, and less harsh. She sings in answer to the male's song and while she is gathering nesting material.

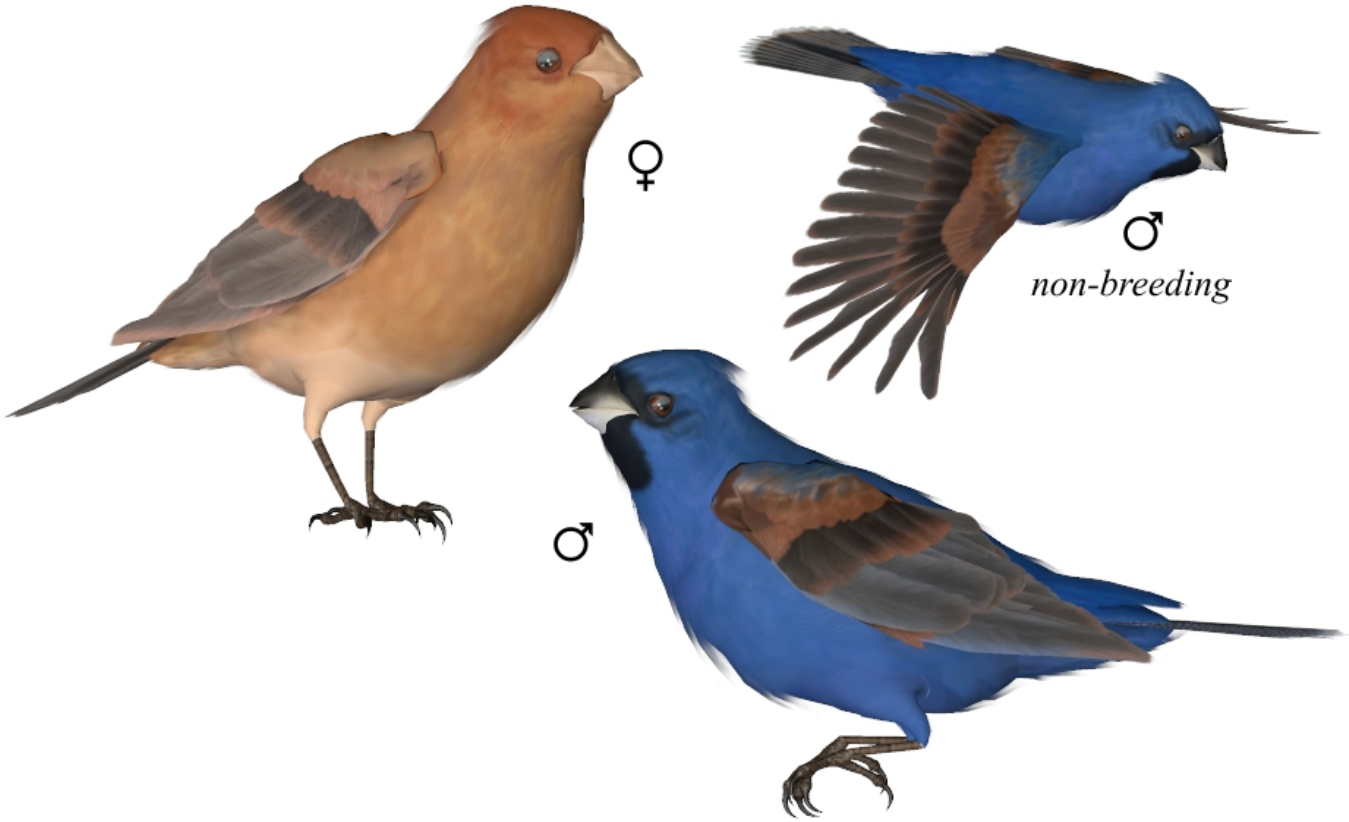
The oldest Scarlet Tanager on record was nearly 12 years old.

Common Name: Blue Grosbeak
Scientific Name: *Passerina caerulea*

Size: 5.9-6.3 inches (15-16 cm); Wingspan: 11 inches (28 cm)

Habitat: North America; a migratory bird, with nesting grounds across most of the southern half of the United States and much of northern Mexico, migrating south to Central America and in very small numbers to northern South America; the southernmost record comes from eastern Ecuador.

Its preferred habitat is forest edges, fields, power-line cuts, riparian areas, hedgerows, and other areas with medium-sized trees and low shrub density.



Status: Not Threatened. **Global population**: Unknown population. Populations are stable or increasing. Range has expanded northward since early 20th century. Brown-headed Cowbird commonly lays its own eggs in Blue Grosbeak nests; specific effects on populations not documented.

Diet: Insects, other invertebrates, and seeds. They gather in rice fields during migration. Its large bill can handle large seeds, including corn, and insects such as mantids and grasshoppers. It forages on the ground and in shrubs and trees.

Nesting: Males are black in front of eyes extending down to bill. Flight feathers are dark brown to black, with blue edging. Male breeding plumage (alternative): Blue all over, with brown wingbars. Male non-breeding plumage: Body blue with brownish feather edges. Females are brown all over, with some blue feathers on back. Flight feathers are dark brown to black, with brown edging. Immatures; first-year females resemble adult females, with even less blue on the upper-parts. First-year males, through the first full summer of life, shows plumage intermediate between that of adult females and adult males, with variable amounts of blue mixed with brown.

Females build a nest in a low shrub or small tree. The nest is a compact cup made of twigs, bark, rootlets, and other fibers and strips of plant material.

The eggs are pale blue and unmarked and usually 3 to 5 eggs are laid.

Cool Facts: The Blue Grosbeak formerly was placed in its own genus, *Guiraca*. It was formerly known as *Guiraca caerulea*. Similarities with buntings in genetics, behavior, molts, and plumages led to its inclusion in the bunting genus *Passerina*. Genetic evidence indicates that the Lazuli Bunting is its closest relative.

In the southern part of its breeding range, the Blue Grosbeak commonly raises two broods per year.

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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
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Try, try, try... again
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