

= Barn swallow =

The barn swallow (*Hirundo rustica*) is the most widespread species of swallow in the world . It is a distinctive passerine bird with blue upperparts , a long , deeply forked tail and curved , pointed wings . It is found in Europe , Asia , Africa and the Americas . In Anglophone Europe it is just called the swallow ; in Northern Europe it is the only common species called a " swallow " rather than a " martin " .

There are six subspecies of barn swallow , which breed across the Northern Hemisphere . Four are strongly migratory , and their wintering grounds cover much of the Southern Hemisphere as far south as central Argentina , the Cape Province of South Africa , and northern Australia . Its huge range means that the barn swallow is not endangered , although there may be local population declines due to specific threats .

The barn swallow is a bird of open country that normally uses man-made structures to breed and consequently has spread with human expansion . It builds a cup nest from mud pellets in barns or similar structures and feeds on insects caught in flight . This species lives in close association with humans , and its insect-eating habits mean that it is tolerated by man ; this acceptance was reinforced in the past by superstitions regarding the bird and its nest . There are frequent cultural references to the barn swallow in literary and religious works due to both its living in close proximity to humans and its annual migration . The barn swallow is the national bird of Austria and Estonia .

= = Description = =

The adult male barn swallow of the nominate subspecies *H. r. rustica* is 17 ? 19 cm (6 @. 7 ? 7 @. 5 in) long including 2 ? 7 cm (0 @. 79 ? 2 @. 76 in) of elongated outer tail feathers . It has a wingspan of 32 ? 34 @. 5 cm (12 @. 6 ? 13 @. 6 in) and weighs 16 ? 22 g (0 @. 56 ? 0 @. 78 oz) . It has steel blue upperparts and a rufous forehead , chin and throat , which are separated from the off-white underparts by a broad dark blue breast band . The outer tail feathers are elongated , giving the distinctive deeply forked " swallow tail " . There is a line of white spots across the outer end of the upper tail . The female is similar in appearance to the male , but the tail streamers are shorter , the blue of the upperparts and breast band is less glossy , and the underparts paler . The juvenile is browner and has a paler rufous face and whiter underparts . It also lacks the long tail streamers of the adult .

The song of the barn swallow is a cheerful warble , often ending with *su-seer* with the second note higher than the first but falling in pitch . Calls include *witt* or *witt-witt* and a loud *splee-plink* when excited (or trying to chase intruders away from the nest) . The alarm calls include a sharp *sifflit* for predators like cats and a *flitt-flitt* for birds of prey like the hobby . This species is fairly quiet on the wintering grounds .

The distinctive combination of a red face and blue breast band render the adult barn swallow easy to distinguish from the African *Hirundo* species and from the welcome swallow (*Hirundo neoxena*) with which its range overlaps in Australasia . In Africa the short tail streamers of the juvenile barn swallow invite confusion with juvenile red-chested swallow (*Hirundo lucida*) , but the latter has a narrower breast band and more white in the tail .

= = Taxonomy = =

The barn swallow was described by Linnaeus in his *Systema Naturae* in 1758 as *Hirundo rustica* , characterised as *H. rectricibus* , *exceptis duabus intermediis* , *macula alba notatis* . *Hirundo* is the Latin word for " swallow " ; *rusticus* means " of the country " . This species is the only one of that genus to have a range extending into the Americas , with the majority of *Hirundo* species being native to Africa . This genus of blue-backed swallows is sometimes called the " barn swallows " .

The Oxford English Dictionary dates the English common name " barn swallow " to 1851 , though

an earlier instance of the collocation in an English @-@ language context is in Gilbert White 's popular book *The Natural History of Selborne* , originally published in 1789 :

The swallow , though called the chimney @-@ swallow , by no means builds altogether in chimnies [sic] , but often within barns and out @-@ houses against the rafters ... In Sweden she builds in barns , and is called *ladusvala* , the barn @-@ swallow .

This suggests that the English name may be a calque on the Swedish term .

There are few taxonomic problems within the genus , but the red @-@ chested swallow ? a resident of West Africa , the Congo basin and Ethiopia ? was formerly treated as a subspecies of barn swallow . The red @-@ chested swallow is slightly smaller than its migratory relative , has a narrower blue breast @-@ band , and the adult has shorter tail streamers . In flight , it looks paler underneath than barn swallow .

= = = Subspecies = = =

Six subspecies of barn swallow are generally recognized . In eastern Asia , a number of additional or alternative forms have been proposed , including *saturata* by Robert Ridgway in 1883 , *kamtschatica* by Benedykt Dybowski in 1883 , *ambigua* by Erwin Stresemann and *mandschurica* by Wilhelm Meise in 1934 . Given the uncertainties over the validity of these forms , this article follows the treatment of Turner and Rose .

H. r. rustica , the nominate European subspecies , breeds in Europe and Asia , as far north as the Arctic Circle , south to North Africa , the Middle East and Sikkim , and east to the Yenisei River . It migrates on a broad front to winter in Africa , Arabia , and the Indian subcontinent . The barn swallows wintering in southern Africa are from across Eurasia to at least 91 ° E , and have been recorded as covering up to 11 @,@ 660 km (7 @,@ 250 mi) on their annual migration .

H. r. transitiva was described by Ernst Hartert in 1910 . It breeds in the Middle East from southern Turkey to Israel and is partially resident , though some birds winter in East Africa . It has orange red underparts and a broken breast band .

H. r. savignii , the resident Egyptian subspecies , was described by James Stephens in 1817 and named for French zoologist Marie Jules César Savigny . It resembles *transitiva* , which also has orange @-@ red underparts , but *savignii* has a complete broad breast band and deeper red hue to the underparts .

H. r. gutturalis , described by Giovanni Antonio Scopoli in 1786 , has whitish underparts and a broken breast band . Breast chestnut and lower underparts more pink @-@ buff . The populations that breed in the central and eastern Himalayas have been included in this subspecies , although the primary breeding range is Japan and Korea . The east Asian breeders winter across tropical Asia from India and Sri Lanka east to Indonesia and New Guinea . Increasing numbers are wintering in Australia . It hybridises with *H. r. tytleri* in the Amur River area . It is thought that the two eastern Asia forms were once geographically separate , but the nest sites provided by expanding human habitation allowed the ranges to overlap . *H. r. gutturalis* is a vagrant to Alaska and Washington , but is easily distinguished from the North American breeding subspecies , *H. r. erythrogaster* , by the latter 's reddish underparts .

H. r. tytleri , first described by Thomas Jerdon in 1864 , and named for British soldier , naturalist and photographer Robert Christopher Tytler , has deep orange @-@ red underparts and an incomplete breast band . The tail is also longer . It breeds in central Siberia south to northern Mongolia and winters from eastern Bengal east to Thailand and Malaysia .

H. r. erythrogaster , the North American subspecies described by Pieter Boddaert in 1783 , differs from the European subspecies in having redder underparts and a narrower , often incomplete , blue breast band . It breeds throughout North America , from Alaska to southern Mexico , and migrates to the Lesser Antilles , Costa Rica , Panama and South America to winter . A few may winter in the southernmost parts of the breeding range . This subspecies funnels through Central America on a narrow front and is therefore abundant on passage in the lowlands of both coasts .

The short wings , red belly and incomplete breast band of *H. r. tytleri* are also found in *H. r. erythrogaster* , and DNA analyses show that barn swallows from North America colonised the Baikal

region of Siberia , a dispersal direction opposite to that for most changes in distribution between North America and Eurasia .

= = Behaviour = =

= = = Habitat and range = = =

The preferred habitat of the barn swallow is open country with low vegetation , such as pasture , meadows and farmland , preferably with nearby water . This swallow avoids heavily wooded or precipitous areas and densely built up locations . The presence of accessible open structures such as barns , stables , or culverts to provide nesting sites , and exposed locations such as wires , roof ridges or bare branches for perching , are also important in the bird 's selection of its breeding range .

It breeds in the Northern Hemisphere from sea level to typically 2 000 m (6 500 ft) , but to 3 000 m (9 800 ft) in the Caucasus and North America , and it is absent only from deserts and the cold northernmost parts of the continents . Over much of its range , it avoids towns , and in Europe is replaced in urban areas by the house martin . However , in Honshu , Japan , the barn swallow is a more urban bird , with the red rumped swallow (*Cecropis daurica*) replacing it as the rural species .

In winter , the barn swallow is cosmopolitan in its choice of habitat , avoiding only dense forests and deserts . It is most common in open , low vegetation habitats , such as savanna and ranch land , and in Venezuela , South Africa and Trinidad and Tobago it is described as being particularly attracted to burnt or harvested sugarcane fields and the waste from the cane . In the absence of suitable roost sites , they may sometimes roost on wires where they are more exposed to predators . Individual birds tend to return to the same wintering locality each year and congregate from a large area to roost in reed beds . These roosts can be extremely large , one in Nigeria had an estimated 1 5 million birds . These roosts are thought to be a protection from predators , and the arrival of roosting birds is synchronised in order to overwhelm predators like African hobbies . The barn swallow has been recorded as breeding in the more temperate parts of its winter range , such as the mountains of Thailand and in central Argentina .

Migration of barn swallows between Britain and South Africa was first established on 23 December 1912 when a bird that had been ringed by James Masfield at a nest in Staffordshire , was found in Natal . As would be expected for a long distance migrant , this bird has occurred as a vagrant to such distant areas as Hawaii , Bermuda , Greenland , Tristan da Cunha and the Falkland Islands .

= = = Feeding = = =

The barn swallow is similar in its habits to other aerial insectivores , including other swallow species and the unrelated swifts . It is not a particularly fast flier , with a speed estimated at about 11 m / s , up to 20 m / s and a wing beat rate of approximately 5 , up to 7 ? 9 times each second , but it has the manoeuvrability necessary to feed on flying insects while airborne . It is often seen flying relatively low in open or semi open areas .

The barn swallow typically feeds 7 ? 8 m (23 ? 26 ft) above shallow water or the ground , often following animals , humans or farm machinery to catch disturbed insects , but it will occasionally pick prey items from the water surface , walls and plants . In the breeding areas , large flies make up around 70 % of the diet , with aphids also a significant component . However , in Europe , the barn swallow consumes fewer aphids than the house or sand martins . On the wintering grounds , Hymenoptera , especially flying ants , are important food items . When egg laying , barn swallows hunt in pairs , but will form often large flocks otherwise .

Isotope studies have shown that wintering populations may utilise different feeding habitats , with British breeders feeding mostly over grassland , whereas Swiss birds utilised woodland more .

Another study showed that a single population breeding in Denmark actually wintered in two separate and different areas .

The barn swallow drinks by skimming low over lakes or rivers and scooping up water with its open mouth . This bird bathes in a similar fashion , dipping into the water for an instant while in flight .

Swallows gather in communal roosts after breeding , sometimes thousands strong . Reed beds are regularly favoured , with the birds swirling en masse before swooping low over the reeds . Reed beds are an important source of food prior to and whilst on migration ; although the barn swallow is a diurnal migrant that can feed on the wing whilst it travels low over ground or water , the reed beds enable fat deposits to be established or replenished .

= = = Breeding = = =

The male barn swallow returns to the breeding grounds before the females and selects a nest site , which is then advertised to females with a circling flight and song . The breeding success of the male is related to the length of the tail streamers , with longer streamers being more attractive to the female . Males with longer tail feathers are generally longer @-@ lived and more disease resistant , females thus gaining an indirect fitness benefit from this form of selection , since longer tail feathers indicate a genetically stronger individual which will produce offspring with enhanced vitality . Males in northern Europe have longer tails than those further south ; whereas in Spain the male 's tail streamers are only 5 % longer than the female 's , in Finland the difference is 20 % . In Denmark , the average male tail length increased by 9 % between 1984 and 2004 , but it is possible that climatic changes may lead in the future to shorter tails if summers become hot and dry .

Males with long streamers also have larger white tail spots , and since feather @-@ eating bird lice prefer white feathers , large white tail spots without parasite damage again demonstrate breeding quality ; there is a positive association between spot size and the number of offspring produced each season .

Both sexes defend the nest , but the male is particularly aggressive and territorial . Once established , pairs stay together to breed for life , but extra @-@ pair copulation is common , making this species genetically polygamous , despite being socially monogamous . Males guard females actively to avoid being cuckolded . Males may use deceptive alarm calls to disrupt extrapair copulation attempts toward their mates .

As its name implies , the barn swallow typically nests inside accessible buildings such as barns and stables , or under bridges and wharves . The neat cup @-@ shaped nest is placed on a beam or against a suitable vertical projection . It is constructed by both sexes , although more often by the female , with mud pellets collected in their beaks and lined with grasses , feathers , algae or other soft materials . Barn swallows may nest colonially where sufficient high @-@ quality nest sites are available , and within a colony , each pair defends a territory around the nest which , for the European subspecies , is 4 to 8 m² (43 to 86 sq ft) in size . Colony size tends to be larger in North America .

In North America at least , barn swallows frequently engage in a mutualist relationship with ospreys . Barn swallows will build their nest below an osprey nest , receiving protection from other birds of prey that are repelled by the exclusively fish @-@ eating ospreys . The ospreys are alerted to the presence of these predators by the alarm calls of the swallows .

Before man @-@ made sites became common , the barn swallow nested on cliff faces or in caves , but this is now rare . The female lays two to seven , but typically four or five , reddish @-@ spotted white eggs . The eggs are 20 mm x 14 mm (0 @. @ 79 in x 0 @. @ 55 in) in size , and weigh 1 @. @ 9 g (0 @. @ 067 oz) , of which 5 % is shell . In Europe , the female does almost all the incubation , but in North America the male may incubate up to 25 % of the time . The incubation period is normally 14 ? 19 days , with another 18 ? 23 days before the altricial chicks fledge . The fledged young stay with , and are fed by , the parents for about a week after leaving the nest . Occasionally , first @-@ year birds from the first brood will assist in feeding the second brood .

The barn swallow will mob intruders such as cats or accipiters that venture too close to their nest , often flying very close to the threat . Adult barn swallows have few predators , but some are taken

by accipiters , falcons , and owls . Brood parasitism by cowbirds in North America or cuckoos in Eurasia is rare .

There are normally two broods , with the original nest being reused for the second brood and being repaired and reused in subsequent years . Hatching success is 90 % and the fledging survival rate is 70 ? 90 % . Average mortality is 70 ? 80 % in the first year and 40 ? 70 % for the adult . Although the record age is more than 11 years , most survive less than four years . Barn swallow nestlings have prominent red gapes , a feature shown to induce feeding by parent birds . An experiment in manipulating brood size and immune system showed the vividness of the gape was positively correlated with T @-@ cell ? mediated immunocompetence , and that larger brood size and injection with an antigen led to a less vivid gape .

The barn swallow has been recorded as hybridising with the cliff swallow (*Petrochelidon pyrrhonota*) and the cave swallow (*P. fulva*) in North America , and the house martin (*Delichon urbicum*) in Eurasia , the cross with the latter being one of the most common passerine hybrids .

= = Parasites and predators = =

Barn swallows (and other small passerines) often have characteristic feather holes on their wing and tail feathers . These holes were suggested as being caused by avian lice such as *Machaerilaemus malleus* and *Myrsidea rustica* , although other studies suggest that they are mainly caused by species of *Brueelia* . Several other species of lice have been described from barn swallow hosts , including *Brueelia domestica* and *Philopterus microsomaticus* . In Texas , the swallow bug (*Oeciacus vicarius*) , which is common on species such as the cliff swallow , is also known to infest barn swallows .

Predatory bats such as the greater false vampire bat are known to prey on barn swallows . Swallows at their communal roosts attract predators and several falcon species make use of these opportunities . Falcon species confirmed as predators include the peregrine falcon and the African hobby .

= = Status = =

The barn swallow has an enormous range , with an estimated global extent of 51 @,@ 700 @,@ 000 km² (20 @,@ 000 @,@ 000 sq mi) and a population of 190 million individuals . The species is evaluated as least concern on the 2007 IUCN Red List , and has no special status under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) , which regulates international trade in specimens of wild animals and plants .

This is a species that has greatly benefited historically from forest clearance , which has created the open habitats it prefers , and from human habitation , which have given it an abundance of safe man @-@ made nest sites . There have been local declines due to the use of DDT in Israel in the 1950s , competition for nest sites with house sparrows in the US in the 19th century , and an ongoing gradual decline in numbers in parts of Europe and Asia due to agricultural intensification , reducing the availability of insect food . However , there has been an increase in the population in North America during the 20th century with the greater availability of nesting sites and subsequent range expansion , including the colonisation of northern Alberta .

A specific threat to wintering birds from the European populations is the transformation by the South African government of a light aircraft runway near Durban into an international airport for the 2010 FIFA World Cup . The roughly 250 m (270 yd) square Mount Moreland reed bed is a night roost for more than three million barn swallows , which represent 1 % of the global population and 8 % of the European breeding population . The reed bed lies on the flight path of aircraft using the proposed La Mercy airport , and there were fears that it would be cleared because the birds could threaten aircraft safety . However , following detailed evaluation , advanced radar technology will be installed to enable planes using the airport to be warned of bird movements and , if necessary , take appropriate measures to avoid the flocks .

Climate change may affect the barn swallow ; drought causes weight loss and slow feather

regrowth , and the expansion of the Sahara will make it a more formidable obstacle for migrating European birds . Hot dry summers will reduce the availability of insect food for chicks . Conversely , warmer springs may lengthen the breeding season and result in more chicks , and the opportunity to use nest sites outside buildings in the north of the range might also lead to more offspring .

= = Relationship with humans = =

The barn swallow is an attractive bird that feeds on flying insects and has therefore been tolerated by humans when it shares their buildings for nesting . As one of the earlier migrants , this conspicuous species is also seen as an early sign of summer 's approach .

In the Old World , the barn swallow appears to have used man @-@ made structures and bridges since time immemorial . An early reference is in Virgil 's Georgics (29 BC) , " Ante garrula quam tignis nidum suspendat hirundo " (Before the twittering swallow hangs its nest from the rafters) .

Many cattle farmers believed that swallows spread Salmonella infections , however a study in Sweden showed no evidence of the birds being reservoirs of the bacteria .

= = = In literature = = =

Many literary references are based on the barn swallow 's northward migration as a symbol of spring or summer . The proverb about the necessity for more than one piece of evidence goes back at least to Aristotle 's Nicomachean Ethics : " For as one swallow or one day does not make a spring , so one day or a short time does not make a fortunate or happy man . "

The barn swallow symbolizes the coming of spring and thus love in the Pervigilium Veneris , a late Latin poem . In " The Waste Land " , T. S. Eliot quoted the line " Quando fiam uti chelidon [ut tacere desinam] ? " (" When will I be like the swallow , so that I can stop being silent ? ") This refers to a version of the myth of Philomela in which she turns into a nightingale and her sister Procne into a swallow ; in less familiar versions , the two species are reversed . On the other hand , an image of the assembly of swallows for their southward migration concludes John Keats 's ode " To Autumn " .

The swallow is also notably cited in several of William Shakespeare 's plays for the swiftness of its flight ; for example : " True hope is swift , and flies with swallow 's wings " from Act 5 of Richard III , and " I have horse will follow where the game Makes way , and run like swallows o 'er the plain . " from the second act of Titus Andronicus . Shakespeare also references the annual migration of the species poetically in The Winter 's Tale , Act 4 : " Daffodils , That come before the swallow dares , and take The winds of March with beauty " .

= = = In culture = = =

Gilbert White studied the barn swallow in detail in his pioneering work The Natural History of Selborne , but even this careful observer was uncertain whether it migrated or hibernated in winter . Elsewhere , its long journeys have been well observed , and a swallow tattoo is popular amongst nautical men as a symbol of a safe return ; the tradition was that a mariner had a tattoo of this fellow wanderer after sailing 5 @,@ 000 nmi (9 @,@ 300 km ; 5 @,@ 800 mi) . A second swallow would be added after 10 @,@ 000 nmi (19 @,@ 000 km ; 12 @,@ 000 mi) at sea . In the past , the tolerance for this beneficial insectivore was reinforced by superstitions regarding damage to the barn swallow 's nest . Such an act might lead to cows giving bloody milk , or no milk at all , or to hens ceasing to lay . This may be a factor in the longevity of swallows ' nests . Survival , with suitable annual refurbishment , for 10 ? 15 years is regular , and one nest was reported to have been occupied for 48 years .

It is depicted as the Martlet , Merlette or Merlot in heraldry , where it represents younger sons who have no lands . It is also represented as lacking feet as this was a common belief at the time . As a result of a campaign by ornithologists , the barn swallow has been the national bird of Estonia since 23 June 1960 .

