

= Red @-@ billed chough =

The red @-@ billed chough , Cornish chough or simply chough ( / ʔtʔʔf / CHUFF ) ( *Pyrrhonorax pyrrhonorax* ) , is a bird in the crow family , one of only two species in the genus *Pyrrhonorax* . Its eight subspecies breed on mountains and coastal cliffs from the western coasts of Ireland and Britain east through southern Europe and North Africa to Central Asia , India and China .

This bird has glossy black plumage , a long curved red bill , red legs , and a loud , ringing call . It has a buoyant acrobatic flight with widely spread primaries . The red @-@ billed chough pairs for life and displays fidelity to its breeding site , which is usually a cave or crevice in a cliff face . It builds a wool @-@ lined stick nest and lays three eggs . It feeds , often in flocks , on short grazed grassland , taking mainly invertebrate prey .

Although it is subject to predation and parasitism , the main threat to this species is changes in agricultural practices , which have led to population decline , some local extirpation , and range fragmentation in Europe ; however , it is not threatened globally . The red @-@ billed chough , which derived its common name from the jackdaw , was formerly associated with fire @-@ raising , and has links with Saint Thomas Becket and Cornwall . The red @-@ billed chough has been depicted on postage stamps of a few countries , including the Isle of Man , with four different stamps , and The Gambia , where the bird does not occur .

= = Taxonomy = =

The red @-@ billed chough was first described by Linnaeus in his *Systema Naturae* in 1758 as *Upupa pyrrhonorax* . It was moved to its current genus , *Pyrrhonorax* , by Marmaduke Tunstall in his 1771 *Ornithologia Britannica* . The genus name is derived from Greek ????? ( *pyrrhos* ) , " flame @-@ coloured " , and ????? ( *korax* ) , " raven " . The only other member of the genus is the Alpine chough , *Pyrrhonorax graculus* . The closest relatives of the choughs are the typical crows , *Corvus* , especially the jackdaws in the subgenus *Coloeus* .

" Chough " was originally an alternative onomatopoeic name for the jackdaw , *Corvus monedula* , based on its call . The similar red @-@ billed species , formerly particularly common in Cornwall , became known initially as " Cornish chough " and then just " chough " , the name transferring from one species to the other . The Australian white @-@ winged chough , *Corcorax melanorhamphos* , despite its similar shape and habits , is only distantly related to the true choughs , and is an example of convergent evolution .

= = = Subspecies = = =

There are eight extant subspecies , although differences between them are slight .

*P. p. pyrrhonorax* , the nominate subspecies and smallest form , is endemic to the British Isles , where it is restricted to Ireland , the Isle of Man , and the far west of Wales and Scotland , although it recolonised Cornwall in 2001 after an absence of 50 years .

*P. p. erythrophthalmus* , described by Louis Jean Pierre Vieillot in 1817 as *Coracia erythrorhamphos* , occurs in the red @-@ billed chough 's continental European range , excluding Greece . It is larger and slightly greener than the nominate race .

*P. p. barbarus* , described by Charles Vaurie under its current name in 1954 , is resident in North Africa and on La Palma in the Canary Islands . Compared to *P. p. erythrophthalmus* , it is larger , has a longer tail and wings , and its plumage has a greener gloss . It is the longest @-@ billed form , both absolutely and relatively .

*P. p. baileyi* described by Austin Loomer Rand and Charles Vaurie under its current name in 1955 , is a dull @-@ plumaged subspecies endemic to Ethiopia , where it occurs in two separate areas . The two populations could possibly represent different subspecies .

*P. p. docilis* , described by Johann Friedrich Gmelin as *Corvus docilis* in 1774 , breeds from Greece to Afghanistan . It is larger than the African subspecies , but it has a smaller bill and its plumage is very green @-@ tinted , with little gloss .

*P. p. himalayanus* , described by John Gould in 1862 as *Fregilus himalayanus* , is found from the Himalayas to western China , but intergrades with *P. p. docilis* in the west of its range . It is the largest subspecies , long @-@ tailed , and with blue or purple @-@ blue glossed feathers .

*P. p. centralis* , described by Erwin Stresemann in 1928 under its current name , breeds in Central Asia . It is smaller and less strongly blue than *P. p. himalayanus* , but its distinctness from the next subspecies has been questioned .

*P. p. brachypus* , described by Robert Swinhoe in 1871 as *Fregilus graculus* var. *brachypus* , breeds in central and northern China , Mongolia and southern Siberia . It is similar to *P. p. centralis* but with a weaker bill .

There is one known prehistoric form of the red @-@ billed chough . *P. p. primigenius* , a subspecies that lived in Europe during the last ice age , which was described in 1875 by Alphonse Milne @-@ Edwards from finds in southwest France .

Detailed analysis of call similarity suggests that the Asiatic and Ethiopian races diverged from the western subspecies early in evolutionary history , and that Italian red @-@ billed choughs are more closely allied to the North African subspecies than to those of the rest of Europe .

#### = = Description = =

The adult of the " nominate " subspecies of the red @-@ billed chough , *P. p. pyrrhocorax* , is 39 ? 40 centimetres ( 15 ? 16 inches ) in length , has a 73 ? 90 centimetres ( 29 ? 35 inches ) wingspan , and weighs an average 310 grammes ( 10 @. @ 9 oz ) . Its plumage is velvet @-@ black , green @-@ glossed on the body , and it has a long curved red bill and red legs . The sexes are similar ( although adults can be sexed in the hand using a formula involving tarsus length and bill width ) but the juvenile has an orange bill and pink legs until its first autumn , and less glossy plumage .

The red @-@ billed chough is unlikely to be confused with any other species of bird . Although the jackdaw and Alpine chough share its range , the jackdaw is smaller and has unglossed grey plumage , and the Alpine chough has a short yellow bill . Even in flight , the two choughs can be distinguished by Alpine 's less rectangular wings , and longer , less square @-@ ended tail .

The red @-@ billed chough 's loud , ringing chee @-@ ow call is clearer and louder than the similar vocalisation of the jackdaw , and always very different from that of its yellow @-@ billed congener , which has rippling preep and whistled sweeeooo calls . Small subspecies of the red @-@ billed chough have higher frequency calls than larger races , as predicted by the inverse relationship between body size and frequency .

#### = = Distribution and habitat = =

The red @-@ billed chough breeds in Ireland , western Great Britain , the Isle of Man , southern Europe and the Mediterranean basin , the Alps , and in mountainous country across Central Asia , India and China , with two separate populations in the Ethiopian Highlands . It is a non @-@ migratory resident throughout its range .

Its main habitat is high mountains ; it is found between 2 @, @ 000 and 2 @, @ 500 metres ( 6 @, @ 600 and 8 @, @ 200 ft ) in North Africa , and mainly between 2 @, @ 400 and 3 @, @ 000 metres ( 7 @, @ 900 and 9 @, @ 800 ft ) in the Himalayas . In that mountain range it reaches 6 @, @ 000 metres ( 20 @, @ 000 feet ) in the summer , and has been recorded at 7 @, @ 950 metres ( 26 @, @ 080 feet ) altitude on Mount Everest . In Ireland , Great Britain and Brittany it also breeds on coastal sea cliffs , feeding on adjacent short grazed grassland or machair . It was formerly more widespread on coasts but has suffered from the loss of its specialised habitat . It tends to breed at a lower elevation than the Alpine chough , that species having a diet better adapted to high altitudes .

#### = = Behaviour and ecology = =

#### = = = Breeding = = =

The red @-@ billed chough breeds from three years of age , and normally raises only one brood a year , although the age at first breeding is greater in large populations . A pair exhibits strong mate and site fidelity once a bond is established . The bulky nest is composed of roots and stems of heather , furze or other plants , and is lined with wool or hair ; in central Asia , the hair may be taken from live Himalayan tahr . The nest is constructed in a cave or similar fissure in a crag or cliff face . In soft sandstone , the birds themselves excavate holes nearly a metre deep . Old buildings may be used , and in Tibet working monasteries provide sites , as occasionally do modern buildings in Mongolian towns , including Ulaanbaatar . The red @-@ billed chough will utilise other artificial sites , such as quarries and mineshafts for nesting where they are available .

The chough lays three to five eggs 3 @. @ 9 by 2 @. @ 8 centimetres ( 1 @. @ 5 by 1 @. @ 1 inches ) in size and weighing 15 @. @ 7 grammes ( 0 @. @ 55 oz ) , of which 6 % is shell . They are spotted , not always densely , in various shades of brown and grey on a creamy or slightly tinted ground .

The egg size is independent of the clutch size and the nest site , but may vary between different females . The female incubates for 17 ? 18 days before the altricial downy chicks are hatched , and is fed at the nest by the male . The female broods the newly hatched chicks for around ten days , and then both parents share feeding and nest sanitation duties . The chicks fledge 31 ? 41 days after hatching .

Juveniles have a 43 % chance of surviving their first year , and the annual survival rate of adults is about 80 % . Choughs generally have a lifespan of about seven years , although an age of 17 years has been recorded . The temperature and rainfall in the months preceding breeding correlates with the number of young fledging each year and their survival rate . Chicks fledging under good conditions are more likely to survive to breeding age , and have longer breeding lives than those fledging under poor conditions .

= = = Feeding = = =

The red @-@ billed chough 's food consists largely of insects , spiders and other invertebrates taken from the ground , with ants probably being the most significant item . The Central Asian subspecies *P. p. centralis* will perch on the backs of wild or domesticated mammals to feed on parasites . Although invertebrates make up most of the chough 's diet , it will eat vegetable matter including fallen grain , and in the Himalayas has been reported as damaging barley crops by breaking off the ripening heads to extract the corn . In the Himalayas , they form large flocks in winter .

The preferred feeding habitat is short grass produced by grazing , for example by sheep and rabbits , the numbers of which are linked to the chough 's breeding success . Suitable feeding areas can also arise where plant growth is hindered by exposure to coastal salt spray or poor soils . It will use its long curved bill to pick ants , dung beetles and emerging flies off the surface , or to dig for grubs and other invertebrates . The typical excavation depth of 2 ? 3 cm ( 1 ? 1 in ) reflects the thin soils which it feeds on , and the depths at which many invertebrates occur , but it may dig to 10 ? 20 cm ( 4 ? 8 in ) in appropriate conditions .

Where the two chough species occur together , there is only limited competition for food . An Italian study showed that the vegetable part of the winter diet for the red @-@ billed chough was almost exclusively *Gagea* bulbs , whilst the Alpine chough took berries and hips . In June , red @-@ billed choughs fed on *Lepidoptera* larvae whereas Alpine choughs ate crane fly pupae . Later in the summer , the Alpine chough mainly consumed grasshoppers , whilst the red @-@ billed chough added crane fly pupae , fly larvae and beetles to its diet . Both choughs will hide food in cracks and fissures , concealing the cache with a few pebbles .

= = = Natural threats = = =

The red @-@ billed chough 's predators include the peregrine falcon , golden eagle and Eurasian

eagle @-@ owl , while the common raven will take nestlings . In northern Spain , red @-@ billed choughs preferentially nest near lesser kestrel colonies . This small insectivorous falcon is better at detecting a predator and more vigorous in defence than its corvid neighbours . The breeding success of the red @-@ billed chough in the vicinity of the kestrels was found to be much higher than that of birds elsewhere , with a lower percentage of nest failures ( 16 % near the falcon , 65 % elsewhere ) .

This species is occasionally parasitised by the great spotted cuckoo , a brood parasite for which the Eurasian magpie is the primary host . Red @-@ billed choughs can acquire blood parasites such as Plasmodium , but a study in Spain showed that the prevalence was less than one percent , and unlikely to affect the life history and conservation of this species . These low levels of parasitism contrast with a much higher prevalence in some other passerine groups ; for example a study of thrushes in Russia showed that all the fieldfares , redwings and song thrushes sampled carried haematozoans , particularly Haemoproteus and Trypanosoma .

Red @-@ billed choughs can also carry mites , but a study of the feather mite Gabucinia delibata , acquired by young birds a few months after fledging when they join communal roosts , suggested that this parasite actually improved the body condition of its host . It is possible that the feather mites enhance feather cleaning and deter pathogens , and may complement other feather care measures such as sunbathing , and anting ? rubbing the plumage with ants ( the formic acid from the insects deters parasites ) .

= = Status = =

The red @-@ billed chough has an extensive range , estimated at 10 million square kilometres ( 3 @. @ 8 million sq mi ) , and a large population , including an estimated 86 @, @ 000 to 210 @, @ 000 individuals in Europe . Over its range as a whole , the species is not believed to approach the thresholds for the global population decline criterion of the IUCN Red List ( i.e. , declining more than 30 % in ten years or three generations ) , and is therefore evaluated as least concern .

However , the European range has declined and fragmented due to the loss of traditional pastoral farming , persecution and perhaps disturbance at breeding and nesting sites , although the numbers in France , Great Britain and Ireland may now have stabilised . The European breeding population is between 12 @, @ 265 ? 17 @, @ 370 pairs , but only in Spain is the species still widespread . Since in the rest of the continent breeding areas are fragmented and isolated , the red @-@ billed chough has been categorised as " vulnerable " in Europe .

In Spain , the red @-@ billed chough has recently expanded its range by utilising old buildings , with 1 @, @ 175 breeding pairs in a 9 @, @ 716 square kilometres ( 3 @, @ 751 square miles ) mi ) study area . These new breeding areas usually surround the original montane core areas . However , the populations with nest sites on buildings are threatened by human disturbance , persecution and the loss of old buildings . Fossils of both chough species were found in the mountains of the Canary Islands . The local extinction of the Alpine chough and the reduced range of red @-@ billed chough in the islands may have been due to climate change or human activity .

A small group of wild red @-@ billed chough arrived naturally in Cornwall in 2001 , and nested in the following year . This was the first English breeding record since 1947 , and a slowly expanding population has bred every subsequent year .

In Jersey , the Durrell Wildlife Conservation Trust , in partnership with the States of Jersey and the National Trust for Jersey began a project in 2010 , aimed at restoring selected areas of Jersey 's coastline with the intention of returning those birds that had become locally extinct . The red @-@ billed chough was chosen as a flagship species for this project , having been absent from Jersey since around 1900 . Durrell initially received two pairs of choughs from Paradise Park in Cornwall and began a captive breeding programme . In 2012 , the red @-@ billed choughs were living free in the central valley area of Durrell Wildlife Park , and the Trust expects colonisation of the coastal areas of Jersey in the following years .

= = In culture = =

In Greek mythology , the red @-@ billed chough , also known as ' sea @-@ crow ' , was considered sacred to the Titan Cronus and dwelt on Calypso 's ' Blessed Island ' , where " The birds of broadest wing their mansions form / The chough , the sea @-@ mew , the loquacious crow . "

The red @-@ billed chough has a long association with Cornwall , and appears on the Cornish coat of arms . According to Cornish legend King Arthur did not die after his last battle but rather his soul migrated into the body of a red @-@ billed chough , the red colour of its bill and legs being derived from the blood of the last battle and hence killing this bird was unlucky . Legend also holds that after the last Cornish chough departs from Cornwall , then the return of the chough , as happened in 2001 , will mark the return of King Arthur .

Up to the eighteenth century , the red @-@ billed chough was associated with fire @-@ raising , and was described by William Camden as *incendaria avis* , " oftentime it secretly conveith fire sticks , setting their houses afire " . Daniel Defoe was also familiar with this story :

It is counted little better than a kite , for it is of ravenous quality , and is very mischievous ; it will steal and carry away any thing it finds about the house , that is not too heavy , tho ' not fit for its food ; as knives , forks , spoons and linnen cloths , or whatever it can fly away with , sometimes they say it has stolen bits of firebrands , or lighted candles , and lodged them in the stacks of corn , and the thatch of barns and houses , and set them on fire ; but this I only had by oral tradition .

Not all mentions of " chough " refer to this species . Because of the origins of its name , when Shakespeare writes of " the crows and choughs that wing the midway air " [ King Lear , act 4 , scene 6 ] or Henry VIII 's Vermin Act of 1532 is " ordeyned to dystroye Choughes , Crowes and Rookes " , they are clearly referring to the jackdaw .

Since at least the 14th century , Thomas Becket , Archbishop of Canterbury has been attributed a coat of arms consisting of three Cornish choughs on a silver field . The symbolism behind this is not known for certain ; according to one legend , a chough strayed into the cathedral during Becket 's murder , while another school of thought states that the choughs are a canting reference to Becket 's name , as they were once known as " beckits " . The latter theory does not stand up to scrutiny , as the use of the term " beckit " to mean a chough is not found before the 19th century . Regardless of its origin , the chough is still used in heraldry as a symbol of Becket , and appears in the arms of several persons and institutions associated with him , most prominently the city of Canterbury .

This species has been depicted on the stamps of Bhutan , The Gambia , the Isle of Man , Turkmenistan and Yugoslavia .