

= Mascarene martin =

The Mascarene martin or Mascarene swallow ( *Phedina borbonica* ) is a passerine bird in the swallow family that breeds in Madagascar and in the Mascarene Islands . The nominate subspecies occurs on Mauritius and Réunion and has never been found away from the Mascarene Islands , but the smaller Madagascan subspecies , *P. b. madagascariensis* , is migratory and has been recorded wintering in East Africa or wandering to other Indian Ocean islands .

The Mascarene martin is a small swallow that has grey @-@ brown underparts becoming white on the throat and lower abdomen , dark grey @-@ brown upperparts and a slightly forked tail . The underparts are heavily streaked with black . It nests in small colonies anywhere with suitably sheltered sites for constructing a nest , such as ledges , buildings , tunnels , caves or amongst rocks . The nest is a shallow cup of twigs and other plant material , and the normal clutch is two or three brown @-@ spotted white eggs . The incubation and fledging times are unknown . The Mascarene martin has a heavy flight with slow wingbeats interspersed with glides , and frequently perches on wires . It feeds on insects in flight , often hunting low over the ground or vegetation . In eastern Africa , open habitats such as deforested areas are frequently used for hunting . A number of internal and external parasites have been detected in this species .

Tropical cyclones can adversely affect populations on the smaller islands , but the Mascarene martin is a locally common bird with an apparently stable population and is classed as a species of Least Concern by the International Union for Conservation of Nature ( IUCN ) . Its legal protection ranges from none on the French overseas department of Réunion to a status on Mauritius as a " species of wildlife in respect of which more severe penalties are provided " .

= = Taxonomy = =

The Mascarene martin was first formally described in 1789 as *Hirundo borbonica* by German zoologist Johann Friedrich Gmelin in his 13th edition of Linnaeus 's *Systema Naturae* . It is likely that the species had previously been described by French naturalist Philibert Commerson who died in Mauritius in 1773 . His huge collection of specimens and notes was sent back to the Paris Museum in 1774 , but destroyed by sulphur fumigation in about 1810 . French biologist Charles Lucien Bonaparte moved the martin to his newly created genus *Phedina* in 1855 . The genus name is derived from the Greek *phaios* ( ????? ) " brown " and the Italian *rondine* " swallow " , and the species name refers to the Île de Bourbon ( old French name for Réunion ) . There are two subspecies , nominate *P. borbonica borbonica* on Mauritius and Réunion , and *P. b. madagascariensis* in Madagascar .

The *Phedina* swallows are placed within the *Hirundininae* subfamily , which comprises all swallows and martins except the very distinctive river martins . DNA sequence studies suggest that there are three major groupings within the *Hirundininae* , broadly correlating with the type of nest built . These groups are the " core martins " , including burrowing species like the sand martin ; the " nest @-@ adopters " , which are birds like the tree swallow that utilise natural cavities ; and the " mud nest builders " , such as the barn swallow , which build a nest from mud . The *Phedina* species nest in burrows and therefore belong to the " core martins " .

The genus *Phedina* is thought to be an early offshoot from the main swallow lineage , although the striped plumage of its two species suggests a distant relationship with streaked African *Hirundo* species . The other member of the genus is the Brazza 's martin *P. brazzae* , although in the past it has sometimes been suggested that Brazza 's martin should be moved to its own genus , *Phedinopsis* , due to the significant differences in vocalisations and nest type from its relative . The nearest relation of the two *Phedina* martins is the banded martin , *Riparia cincta* , which appears not to be closely related to the other members of its current genus and resembles Brazza 's martin in its nesting habits and calls . The current Association of European Rarities Committees ( AERC ) -recommended practice is to move the banded martin to its own genus as *Neophedina cincta* , rather than to merge it into *Phedina* , since the banded martin 's larger size , different bill and nostril shape and non @-@ colonial nesting are differences from the current *Phedina* species . German

ornithologist Gustav Hartlaub separated the Madagascan population of the Mascarene martin as a full species , *P. madagascariensis* , but more recent authorities have considered it to be only a subspecies , *P. b. madagascariensis* .

#### = = Description = =

Adult Mascarene martins of the nominate subspecies are 15 cm ( 5 @. @ 9 in ) long with wings averaging 117 mm ( 4 @. @ 6 in ) and weigh 23 @. @ 9 g ( 0 @. @ 84 oz ) . This small hirundine has dark brown @-@ grey upperparts with faint streaking . It has grey @-@ brown underparts becoming white on the throat and lower abdomen , all being heavily streaked with black . The slightly forked tail averages 54 @. @ 6 mm ( 2 @. @ 15 in ) long and has white edges to the brown undertail coverts . The wings are blackish @-@ brown and the bill and legs are black . The eyes are dark brown and the black bill averages 11 @. @ 3 mm ( 0 @. @ 44 in ) long . The sexes are similar , but juvenile birds have more diffuse breast streaking , and white tips to the feathers covering the closed wing . The Madagascan subspecies is overall paler and larger @-@ billed than the nominate form . It has denser streaking on the breast , but only very fine lines on the lower abdomen and on the white undertail . It is distinctly smaller than the nominate subspecies , 12 ? 14 cm ( 4 @. @ 7 ? 5 @. @ 5 in ) in length with an average weight of 20 @. @ 6 g ( 0 @. @ 73 oz ) . This martin moults in December and January on Mauritius , and Madagascan breeders wintering on the African mainland moult in June and July .

The Mascarene martin is a relatively quiet bird , but it has a warbled siri @-@ liri siri @-@ liri song given in flight or when perched ; some calls given by perched birds end in a glissando . Other vocalisations may be used during mating or displays of aggression . There is a chip contact call , and the young birds produce a fast twittering sound when begging for food . Birds wintering in mainland Africa are usually silent .

No other streaked swallow species occur within the island breeding range of the Mascarene martin , and in Africa the lesser striped swallow is larger , has a deeply forked tail and a very different plumage , with dark blue upperparts , a red rump and a chestnut head . The brown @-@ throated sand martin has similar structure and plumage colour to the Mascarene martin , but has plain , unstreaked underparts . The small Mascarene swiftlet has longer , narrower wings than the martin , and a much lighter flight . The Brazza 's martin is smaller , has a plainer back and finer dashing on the throat and chest , but there is no range overlap .

#### = = Distribution and habitat = =

The Mascarene martin 's breeding range is restricted to Madagascar and the Mascarene Islands . The nominate subspecies breeds on Mauritius and Réunion and *P. b. madagascariensis* occurs in Madagascar . It may also nest on Pemba Island where it has been seen in the breeding season . Breeding habitat can be anywhere with suitable sites for constructing a nest , such as ledges , buildings , tunnels , caves or amongst rocks . The martin is found on the east side of Réunion between 200 ? 500 m ( 660 ? 1 @, @ 640 ft ) , and on the south and west coasts of Mauritius . It also occurs on inland cliffs on Mauritius .

The subspecies *P. b. borbonica* is resident on Mauritius and Réunion , although there are local seasonal movements on these island , but the Madagascan subspecies is migratory . The Imerina Plateau is deserted from April to September , the martins moving to lower ground or to the African mainland . It is normally uncommon and local in coastal Mozambique , Zambia , Malawi and Pemba Island , and very rare in Kenya and mainland Tanzania , although large numbers sometimes winter in Mozambique or Malawi . It has also been recorded from Comoros and other Indian Ocean locations including at least four islands in the Seychelles . As of 2012 , a total of eight birds had been sighted in the Seychelles , occurring in both the spring and autumn migration periods . Some of these records may be due to vagrant birds carried by cyclones . There are unsubstantiated claims of occurrences in the Transvaal .

## == Behaviour ==

The Mascarene martin has a heavy flight with slow wingbeats interspersed with glides , and may repeatedly return to a favourite perch . This martin is often seen perched on wires , and sometimes rests on sandy beaches . The martin roosts in small flocks in bushes , on buildings or on cliffs . Sometimes it is joined at the roost by other birds , such as blue @-@ cheeked bee @-@ eaters in the Seychelles .

## == Breeding ==

The Mascarene martin nests in the wet season , August to November in Madagascar , and September to early January on Mauritius and Réunion . It breeds in groups typically comprising a few pairs , although a colony of about 20 pairs has been recorded on Mauritius . The nest is a shallow cup of twigs and coarse plant material such as grass and Casuarina with a softer lining of feathers and finer vegetation . It may be constructed anywhere suitably flat and inaccessible to predators , including locations 3 ? 5 m ( 9 @. @ 8 ? 16 @. @ 4 ft ) over water , on slate ledges , or in underground passageways ; one particularly unusual nesting site was on a small boat moored 20 m ( 66 ft ) off the coast . The normal clutch is two eggs on Madagascar and Mauritius , but two or three on Réunion . The eggs are white with brown spots and average 21 @. @ 6 mm × 15 mm ( 0 @. @ 85 in × 0 @. @ 59 in ) with a weight of 2 @. @ 5 g ( 0 @. @ 088 oz ) and are incubated by the female alone . The incubation and fledging times are unknown , although as with all hirundines the chicks are altricial , hatching naked and blind . The male helps to feed the young , and the chicks are fed by the parents after fledging , and one pair on Mauritius was observed to feed its two chicks at roughly five @-@ minute intervals .

## == Feeding ==

The martins feed in flight , often low over the ground or vegetation . They hunt singly , in small groups or with other swallows and swifts , and are most active just before dusk . The flying insects that make up their diet include scarab , click and other beetles , bugs and flying ants . The feeding habitat in Madagascar includes woodlands , agricultural land , wetlands , semi desert and open ground at altitudes up to 2 @, @ 200 m ( 7 @, @ 200 ft ) . In Mauritius and Réunion this martin feeds from sea level up to 1 @, @ 500 m ( 4 @, @ 900 ft ) over reservoirs and coasts , along cliffs and over Casuarina or other trees and scrubs , and in eastern Africa , areas deforested by logging or conversion to agriculture are used for hunting .

## == Predators and parasites ==

Mascarene martins will mob the Mauritius kestrel , suggesting that it is perceived as a potential predator . Martins on Mauritius may be infected by an endemic trypanosome , *Trypanosoma phedinae* , although the pathogenicity is unknown . Protozoan blood parasites of the genus *Haemoproteus* have also been found in the martin on Mauritius , although no blood parasites were found in a Madagascan specimen . A new species of louse fly , *Ornithomya cecropis* , was first found on a martin in Madagascar , and another bird from that island carried the feather mite *Mesalges hirsutus* , more commonly found in parrots .

## == Status ==

The breeding range of the Mascarene martin is restricted to three islands . Madagascar has an area of 592 @, @ 800 square kilometres ( 228 @, @ 900 sq mi ) , but the next largest island , Réunion , is just 2 @, @ 512 square kilometres ( 970 sq mi ) . Although this bird has a limited range , it is abundant on Mauritius and Réunion , and locally common in Madagascar . The population size is unknown , but exceeds the vulnerability threshold of 10 @, @ 000 mature individuals and is believed

to be stable . This martin is therefore classed as a species of Least Concern by the International Union for Conservation of Nature .

Tropical cyclones present a natural threat , particularly on the small islands inhabited by the nominate subspecies . The populations on Mauritius and Réunion were badly affected by a cyclone in February 1861 , and a British ornithologist , Edward Newton , claimed not to have seen a single specimen on Mauritius between the six @-@ day storm and June of the following year . It took many years for this population to fully recover , but by about 1900 it was reported to be common but local , and in 1973 ? 74 there were 200 ? 400 pairs on Réunion and 70 ? 75 pairs in Mauritius . More recent cyclones , like one in 1980 , seem to have had less damaging effects than the 1861 storm . A number of species in the region are vulnerable partly because they are restricted to one island , or are badly affected by habitat degradation or introduced predators , and several species have been lost from the Mascarene islands since human colonisation in the seventeenth century . The martin and the Mascarene Swiftlet occur on all the main islands , and are less vulnerable to the effects of human activities , especially since they can utilise houses for nest sites .

In Mauritius , the Mascarene martin is legally protected as a " species of wildlife in respect of which more severe penalties are provided " . It is illegal to kill any bird of the species or to take or destroy their nests under section 16 of the Wildlife and National Parks Act 1993 @.@ although Madagascar and the African mainland countries have no special measures beyond general bird protection legislation . Réunion is an overseas department of France , but the Birds Directive does not apply outside Europe , so there is no European @-@ level bird protection legislation effective on the island , despite the possibility that European Union agricultural and other funding may be adversely affecting birds and vulnerable habitats .