

= Nauru reed warbler =

The Nauru reed warbler (Nauruan : itsirir) , *Acrocephalus rehsei* , is a passerine bird endemic to the island of Nauru in the Pacific Ocean . It is one of only two native breeding land @-@ birds on Nauru , the other being the Micronesian pigeon , and it is the only passerine found on the island . It is related to other Micronesian reed warblers , all of which evolved from one of several radiations of the genus across the Pacific . Related warblers on nearby islands include the Carolinian reed warbler , with which the Nauru species was initially confused , and the nightingale reed warbler , which was formerly sometimes considered the same species .

A medium @-@ sized warbler , the Nauru reed warbler has dark brown upperparts , cream underparts and a long , thin beak . It makes a low , cup @-@ shaped nest into which it lays two or three white eggs , and it feeds on insects . However , details about its behavior and ecology are little known . It is found throughout Nauru , which has changed substantially in recent decades due to phosphate mining . The Nauru reed warbler is potentially threatened by introduced predators and habitat loss , and its small range means that it could be vulnerable to chance occurrences , such as tropical cyclones . Reports of a similar warbler from nearby islands suggest that it might previously have been found elsewhere , but was driven to local extinction by introduced cats .

= = Taxonomy and systematics = =

Otto Finsch was the first naturalist to visit the island of Nauru , stopping for six hours on 24 July 1880 while travelling from the Marshall Islands to the Solomon Islands . His 1881 report included a warbler he initially identified as the Carolinian reed warbler . By 1883 he considered it to be a new species , *Calamoherpe rehsei* . The generic name *Calamoherpe* is now recognised as a synonym of *Acrocephalus* , leading to the current binomial name . The generic name *Acrocephalus* derives from the Greek *akros* , meaning " topmost " , and *kephale* , meaning " head " . The *akros* part of the name may have been given through confusion with *acutus* , and taken to mean " sharp @-@ pointed " , referring to the angular head shape typical of this genus . The synonym *Calamoherpe* is from the Greek *kalamos* , meaning " reed " , and *herpes* , meaning " creeping thing " . Finsch named the species after Ernst Rehse , a German ornithologist and collector and one of Finsch 's travelling companions . Since the original descriptions , little has been written about the species , and details about its ecology and behaviour are poorly known .

Though the Nauru reed warbler is generally accepted as a species , some authorities , such as H. E. Wolters in *Die Vogelarte der Erde* (1980) and Howard and Moore in *A Complete Checklist of the Birds of the World* (1991) , have considered it a subspecies of *Acrocephalus luscinius* , the nightingale reed warbler . Recent DNA studies have affirmed its status as a separate species . It is considered monotypic , meaning there are no recognised subspecies . The species is known by the English common names Finsch 's reed @-@ warbler , Nauru warbler , pleasant warbler , the Nauru reed @-@ warbler , and the Nauru reed warbler . In the native Nauruan language , it is known as *itsirir* .

A 2009 phylogenetic study of the family *Acrocephalidae* did not include this species , and as recently as 2010 its relation with other members of the genus was unknown . A 2011 analysis of mitochondrial DNA showed that the Nauru reed warbler forms a clade with the Australian reed warbler , the *bokikokiko* , the southern Marquesan reed warbler and a now @-@ extinct species from Pagan Island in the Marianas . The closest relative of the Nauru reed warbler appears to be the extinct warbler from Pagan . This is currently named as a subspecies of the nightingale reed warbler , *A. luscinius yamashinae* , but that species is polyphyletic , and the Pagan form , which has been proposed as a new species , the Pagan reed warbler , is in a different clade to nightingale reed warblers from other islands .

The pattern of colonisation of the Pacific islands and eventually Australia by the *Acrocephalus* warblers from Asia was complex , with multiple colonisations of even remote archipelagos . Although the Hawaiian islands were colonised about 2 @.@ 3 million years ago , the other islands were reached much more recently , in the mid @-@ Pleistocene (between 0 @.@ 2 ? 1 @.@ 4 million

years ago) or even later . The nearest other warblers geographically to Nauru are the Carolinian reed warbler and the nightingale reed warbler .

= = Description = =

The Nauru reed warbler is a medium @-@ sized and warmly coloured reed warbler , with a relatively light build . The entirety of the upperparts are dark brown , with the rump and uppertail coverts slightly brighter than the tail and mantle . When closed , the wing is the same colour as the mantle , short and rounded . The wing does not reach the start of the tail feathers , which enhances the appearance of a long tail . Close inspection of the wing reveals darker centres to both the greater coverts and tertial feathers . Its face shows little contrast , as the ear coverts , crown , nape , chin and throat are all a similar shade of pale brown . The lores are a dark brown , and there is a pale , creamy supercilium , or " eyebrow " , extending from the beak to the ear coverts , which are a cinnamon @-@ brown , darkening and merging with the nape . The beak is long , thin and straight .

The underparts are much lighter , darkening towards the vent and undertail coverts . The chin is a dull cream , merging with the throat , which then browns towards the base . The centre of the breast is a dull brown @-@ yellow , while the sides are a reddish @-@ brown . The upper mandible of the beak is dark grey with pink edges , while the lower mandible is pink , darkening towards to the tip . The legs and feet are dark grey . The bird measures up to 15 centimetres (5 @.@ 9 in) , with a wingspan of 6 @.@ 7 to 7 @.@ 2 centimetres (2 @.@ 6 to 2 @.@ 8 in) .

The species exhibits no sexual dimorphism , and characteristics of the young are unknown . As the only passerine on the island , there is no chance that this species may be confused with any other . The Nauru reed warbler is slightly smaller than the Carolinian reed warbler , which is also lighter in colour , with a more contrasting eyebrow . The nightingale reed warbler is substantially larger , and the Oriental reed warbler has a duller colouration , with whiter underparts .

= = Distribution and habitat = =

The Nauru reed warbler is endemic to the island of Nauru , in the Pacific Ocean . It is one of only two indigenous land birds which breed on the island , the other being the Micronesian pigeon . The warbler can be found throughout the island , thriving in the scrubland in areas previously used for phosphate mining , as well as the remaining patches of forest on the island 's central plateau . It is most common in the remains of forest found on the island 's steep slopes . It is also readily observed in gardens and ruderal areas on the island 's coast ; in 1881 , Finsch described the species as abundant , calling it " as common as the House @-@ Sparrow in England . " Biologist Donald Buden again found it widespread on the island in 2008 .

The species is sedentary , meaning that the birds do not naturally leave Nauru . Banaba is the nearest island , and despite being similar to Nauru , it lacks any warblers . However , it is possible that populations of the Nauru reed warbler existed on other islands until comparatively recently . On the Marshall Islands , traditional stories refer to a small bird , known variously as annañ , anang and annāng . This bird was considered the property of chieftains . Though no physical descriptions exist of the species , it has been described as butterfly @-@ sized , pleasant @-@ smelling and as living among rocks on the shores of north @-@ western islands . Ethnographers Krämer and Nevermann reported that the bird became extinct or extirpated around 1880 . Based on descriptions of birds seen on Jaluit , Paul Schnee hypothesised that the annañ may have been a Nauru reed warbler . The extinction of the annañ may have been due to hunting by cats , which were introduced to the Marshall Islands by the Russian Otto von Kotzebue in 1817 to hunt rats . They then multiplied before being spread by locals as pets , after which they started to become feral .

= = Behaviour and ecology = =

Nauru reed warbler nests are cup @-@ shaped and woven from grasses and twigs . They sometimes include *Cassytha filiformis* vine or *Casuarina equisetifolia* needles . The nests are bound

to upright stems in a way typical of warblers . Buden reported that the warblers nest in trees and shrubs at a height of 2 to 8 metres (6 @. @ 6 to 26 @. @ 2 ft) . The species may also nest on the ground ; the young in ground nests may be more vulnerable to predation by rats . Eggs have variously been reported in December and July , and ornithologist A. Pearson suggested that the species may nest all year round . The clutch size has been reported as two or three eggs . Incubation and fledgling periods are unknown . Pearson reported lower nesting than Buden , recording nests in bushes and undergrowth between 45 and 300 centimetres (18 and 118 in) from the ground , especially in forked branches of hibiscus and lime . Buden reported that the birds were more vocal in December than in March and April . The song has been described as similar to that of a song thrush , common blackbird , or willie wagtail , and it is delivered both day and night .

Finsch described the warbler as insectivorous , feeding primarily on dragonflies . Six species of dragonfly have been observed on the island ; *Ischnura aurora* , *Anax guttatus* , *Diplacodes bipunctata* , *Pantala flavescens* , *Tholymis tillarga* and *Tamea transmarina* . Buden did not observe the species feeding on dragonflies , but did see three different feeding habits . Most frequently , the birds were seen moving through trees and shrubs , catching prey on the foliage . Other birds were seen perched close to the floor , darting to the ground , and returning to the perch with prey . In open areas , the birds were observed moving across the ground , " occasionally grasping a presumed prey item " . In coastal areas , they have been observed feeding in coconut trees . Potential predators for the birdlife of Nauru in general include feral cats and dogs , as well as the Polynesian rat and the Tanezumi rat . Feral cats and wild rats in particular are potential threats to the Nauru reed warbler .

= = Status = =

The IUCN lists the species as " Vulnerable " , because " its very small range leaves it susceptible to chance events , such as cyclones and the introduction of alien predators . " BirdLife International previously estimated that there were between 10 @, @ 000 and 20 @, @ 000 Nauru reed warblers , based on 1993 data , but Buden 's 2006 estimate was 5 @, @ 000 birds of all ages led to a revised figure of 3 @, @ 000 mature individuals . In 2001 , it was observed that the removal of the phosphate deposits on the island meant that the vegetation was decreasing , presenting a potential threat to the species . In 2008 , however , Buden claimed that " habitat degradation and loss of native forest via mining operations has apparently had no major adverse effects on the population . " Nauru reed warblers were observed to be common on the island , and flourishing in the scrubland left by mining .

Unlike other birds on the island , the species is not hunted , and is protected under Schedule 1 of Nauru 's Wild Birds Preservation Ordinance 1937 . For conservation purposes , the IUCN recommends regular surveys of the population and the establishment of a monitoring programme through training local people . It also proposed raising conservation awareness by increasing the profile of the bird .