A Tale of Two Crakes from the Great Nicobar Island, India: The Red-legged Crake Rallina fasciata and the undescribed Great Nicobar Crake Rallina sp.

Pia Sethi, Nitu Sethi & Vikram Shill

Sethi, P., Sethi, N., & Shill, V. 2025. A Tale of Two Crakes from the Great Nicobar Island, India: The Red-legged Crake *Rallina fasciata* and the undescribed Great Nicobar Crake *Rallina* sp. *Indian BIRDS* 21 (5): 129–134.

Pia Sethi, Senior Fellow, CEDAR, Centre for Ecology Development and Research; 814, Indira Nagar, Dehradun 248006, Uttarakhand, India.

E-mail: piasethi77@gmail.com [PS] [Corresponding author]

Nitu Sethi, D-175, Sarita Vihar, New Delhi 110076, India. E-mail: lorykeet@yahoo.co.in [NS]

Vikram Shill, c/o Chandra Store, Lamabaline, Port Blair, 744103, Andaman and Nicobar Island, India. Email: naturelandportblair@gmail.com [VS] *Manuscript received on 18 June 2025.*

Introduction

Of the four species of the genus Rallina (Winkler et al. 2020) distributed across Asia and Australasia, three are currently known from India (eBird 2025; Praveen 2025). In addition, a putative, undescribed congener-the Great Nicobar Crake (hereinafter, GNCR)—was documented on Great Nicobar Island in 2012 (Rajeshkumar et al. 2012) and then photographed a second time in 2015 (Bharadwaj 2015; Kuriakose 2015) with VS. No further evidence on the GNCR has been gathered in the intervening decade. Within India, the current distributions of two Rallina species—the Andaman Crake R. canningi and the Redlegged Crake R. fasciata (hereinafter, RLCR)—are restricted to the Andaman and Nicobar Archipelago. The Andaman Crake is endemic to the Andaman Islands (Rasmussen & Anderton 2012), while Dalvi et al. (2021) documented RLCR from the Great Nicobar Island in 2021. Dalvi et al. (2021) also documented the Slaty-legged Crake R. eurizonoides amauroptera (hereinafter, SLCR) from the Great Nicobar Island; a species that was previously known from the Andaman and Nicobar archipelago only via two sightings (Raman et al. 2013; Gokulakrishnan 2020) in the Andaman Islands.

Here, we report sightings of RLCR and GNCR, from Campbell Bay, Great Nicobar Island including the first audio recording of the latter's calls. We analyse the call recordings of both the crakes and document the differences between them. We review the status of all three crake species—RLCR, GNCR, and SLCR—based on published and unpublished records and summarize their key identification features. Based on the review and an analysis of the call recordings, we discuss the taxonomic implications for the specific status of GNCR.

Methods

We made the observations during a birdwatching trip to Great Nicobar Island around Campbell Bay. PS took the photographs and we used mobile phones to record the calls. Comparison of phenotypes was based on our own observations supported by past photographs and descriptions given in prior works (Rajeshkumar et al. 2012; Bharadwaj 2015; Kuriakose 2015; Dalvi et al. 2021). A map was created using QGIS version 3.40.5-Bratislava. We used Ravenpro 1.6.5 (K. Lisa Yang Center for Conservation Bioacoustics at the Cornell Lab of Ornithology 2024) to prepare the spectrograms and summaries of call

characteristics. We analysed a single bout of multi-note repeated phrases of one individual of each taxon, RLCR and GNCR, recorded from the Great Nicobar Island on a single occasion. We classified the call as notes and phrases as shown in Fig. 1. For the GNCR, the number of notes per phrase was calculated from 15 phrases, while the remaining metrics were derived from 14 phrases. In the case of the RLCR, we analysed 12 phrases. The resolution of geographical coordinates of the crakes provided here is at one decimal point considering the sensitiveness of the area.

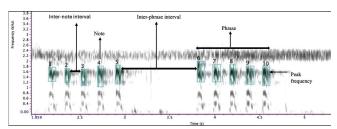


Fig 1. An illustration of phrase and note metrics used for analysing the sonograms of the crakes.

Red-legged Crake

On 17 May 2025, during our first evening in Campbell Bay, we set out to locate the endemic Nicobar Scops-Owl *Otus alius*. At 1855 h, while standing under a tree at the base of a hill, we heard a distinct, protracted "UH-UH-UH" call that continued for over 10 minutes. A small stream and wet area were located near the source of the call.

VS climbed the hill (7.0°N, 93.9°E; 30 m asl) and was able to record the call and locate the bird—an RLCR—roosting in a thicket of *Calamus*, bamboo, lianas, and vines. The bird had bold black-and-white barring on the belly, wing coverts with similar barring, red legs, and a reddish head and breast. The bill was a bluish-slate grey with a reddish gape, and the bird had a red orbital ring and orange-red iris. We photographed and videotaped the bird [170–171]. The bird had fallen silent by the time all of us saw it.

We returned to the site the following morning and again in the evening, but the bird did not call again. The bird had likely moved from its original roosting site. Over the next five days, we failed to hear any crake calls in Campbell Bay. We searched for SLCR at multiple sites including at some of the locations where Dalvi et al. (2021) had recorded them. We were unsuccessful

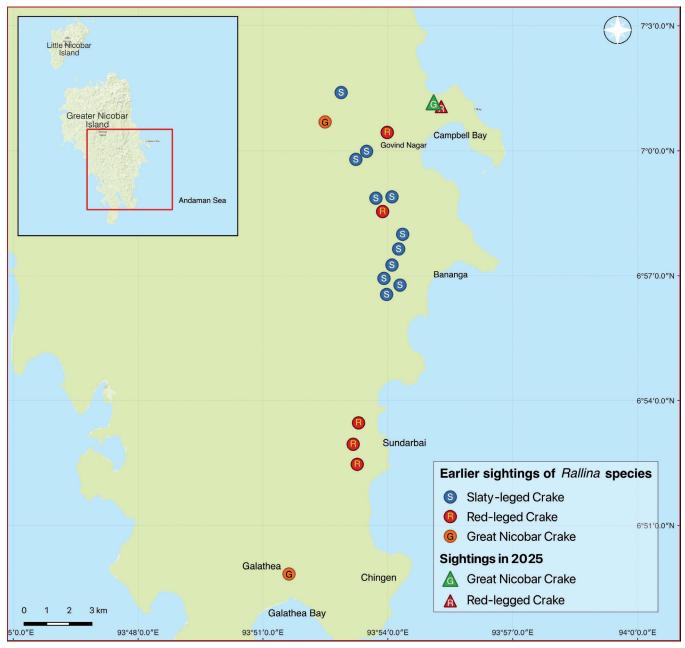


Fig 2: Map showing all known records of the Red-legged-, Slaty-legged-, and Great Nicobar Crakes from the Great Nicobar Island.

although Dalvi et al. (2021) had seen ten individuals between 09 March and 20 May 2021.

There have been no other subsequent sightings of RLCR from either the Nicobar Islands or elsewhere in India. However, a record from the Great Nicobar Island that predates Dalvi et al.'s observations (Janakarajan 2018) was recently uploaded to eBird—a photograph by Saravanan Janakarajan taken on 25 April 2018—which, technically represents the first confirmed Indian record of the species. We have added this record to the map of crake records from the Great Nicobar Island (Fig. 2).

Great Nicobar Crake

On the evening of 21 May 2025, at 1725 h, we were searching for the SLCR in a forested area (7.0°N, 93.9°E; elevation 20 m) of Campbell Bay, a short distance away from the RLCR site, when

we heard a strange crake-like call. We recorded the vocalisation but did not see the bird. Although VS searched the area with a torch, the bird was not located that evening.

The next morning, at 0635 h, at the same site, a crake crossed the road a few metres ahead of us and disappeared into the roadside vegetation on a gently undulating hill. We obtained a few blurry photographs [172–176]. The bird reappeared shortly after on the hillside, allowing for a brief video recording as it crossed the road, before it again vanished into the undergrowth.

The crake was approximately the same size as the Andaman Crake and closely resembled earlier photographs of the GNCR taken by prior workers (Rajeshkumar et al. 2012; Bharadwaj 2015; Kuriakose 2015). It had a pale green, stout bill with a thick base; reddish upperparts with reddish brown wings; a short brown tail; orange-red legs (that look more orange in the video



170. Red-legged Crake showing bold black-and-white barring on the belly and red legs



171. Red-legged Crake displaying a well-marked red gape, white belly with black bands, and pinkish-red legs.

than in the photographs) with dark claws; and red orbital skin around a red iris. The broad black and fine white barring on the wing coverts was visible in the photographs, though the barring on its underparts while visible, is fuzzy. In the video (Sethi 2025), narrow white and broad black banding on the underparts and upper thighs is visible as the bird descends a hill. However, the barring is less distinct than in earlier published photographs—likely due to low image quality. Nevertheless, we observed the barring on the sides of the belly and the upper thighs in the field.

Our report of GNCR from a new location in Campbell Bay, exactly a decade after it was last observed in the Galathea region, and 14 years after its sighting at the Govind Nagar tsunami shelter area of the island, adds to the knowledge of its continued presence on the island (Fig. 2).

Preliminary analysis of the calls of the Great Nicobar Crake and the Red-legged Crake

The sonograms and calls of GNCR (Fig. 3) and RLCR (Fig. 4) look and sound similar. There are, however, some auditory differences (Fig. 5), with the call of GNCR sounding



172. The Great Nicobar Crake showing stout pale bill and orange-red legs



173. The Great Nicobar Crake with thick orange-red legs and tarsi with dark claws, short brown tail, and indistinct black and white bars on thighs, underparts and wing coverts.



174. The Great Nicobar Crake with a pale green, stout bill with broad base, reddish plumage with darker reddish brown back, thick red eye ring with red iris. Wing coverts with broad black and narrow white barring.



175. The Great Nicobar Crake with a short, stout pale green bill, relatively long neck, rounded head, thick legs and toes.

All photos: Pia Seth



176. The Great Nicobar Crake scarpering for cover with head jutting forward and tail lowered.

more halting and stuttering than that of RLCR. GNCR gave shorter bouts of vocalizations consisting of four to seven notes per phrase (5.13 ± 0.74 ; N=15) with five being the most frequent; delivered at a rate of 5.6-6.4 notes/sec (6.07 ± 0.23 ; N=14). The individual notes are more widely spaced ($0.13\pm0.02s$; N=70) than those of RLCR ($0.03\pm0.01s$; N=101). The phrases of RLCR consisted of 8–9 notes and the intervals between phrases was longer ($2.61\pm0.3s$; N=12) compared to that of GNCR ($1.09\pm0.21s$; N=14).

The harmonics of GNCR notes ranged from 0.1–1.8 kHz (N=77), although most of the sound appears to be in the range 1.2–1.7 kHz (N=70), with a peak frequency of the notes at 1.5 kHz (N=77). In case of RLCR, the harmonics of the notes ranged from 0.3–1.8 kHz (N=101), with most of the sound in the bottom two harmonics between 0.3–1.4 kHz (N=101), with a peak frequency of the notes at 1.1 kHz (N=101).

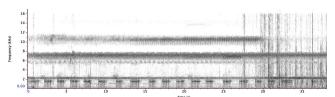


Fig. 3. Vocalizations of the Great Nicobar Crake recorded on the morning of 22 May 2025.

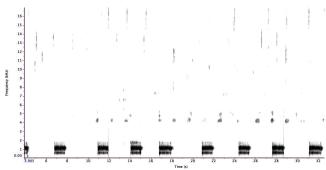


Fig. 4. Vocalizations of the Red-legged Crake from Great Nicobar Island recorded on 17 May 2025

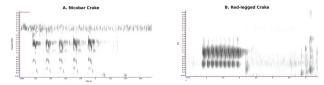


Fig. 5. Enlarged sonogram of one phrase each of the Great Nicobar Crake and the Red-legged Crake.

Table 1. Summary of Call Characteristics for the Great Nicobar Crake and Red-legged
Crake. All metrics are expressed as mean \pm standard deviation (number of samples)

Metric	Great Nicobar Crake	Red-legged Crake
Number of notes per phrase	5.13 ±0.74 (N=15)	8.42±0.51 (N=12)
Number of notes per second	6.07±0.23 (N=14)	7.77±0.20 (N=12)
Phrase duration (s)	0.83±0.11 (N=14)	1.08±0.08 (N=12)
Inter-phrase interval (s)	1.09±0.21 (N=14)	2.61±0.30 (N=12)
Note duration (s)	0.06±0.01 (N=70)	0.11±0.01 (N=101)
Inter-note interval (s)	0.13±0.02 (N=70)	0.03±0.01 (N=101)
Peak frequency (kHz)	1.52±0.05 (N=70)	1.10±0.04 (N=101)

The Great Nicobar Crake: New species or hybrid?

Rajeshkumar et al. (2012) compared the morphology of GNCR with that of RLCR, SLCR, the Andaman Crake, and the Band-bellied Crake *Zapornia paykullii*. They concluded that its novel suite of traits—such as the pale green bill, the broad black banded underparts and the orange-red legs—and its distinct differences from the above species warranted recognition as a distinct *Rallina* species, pending a full species description. However, Dalvi et al.'s (2021) discovery of other *Rallina* species, i.e., RLCR and SLCR on the Great Nicobar Island—species unknown from the island when Rajeshkumar et al. made their observations—led them to speculate that GNCR may be a hybrid, especially because of their observation that SLCR responded to RLCR playback, although they sound very different.

While the general vocal resemblance of RLCR and GNCR might lend some support to the hypothesis that all GNCR individuals reported were hybrids, we reason that at this stage several factors bolster Rajeshkumar et al.'s (2012) hypothesis that this is a species novel to science and not a hybrid.

<u>Diagnosability of traits:</u> GNCR differ significantly in morphological traits from the two other crake species found on the island, namely RLCR and SLCR (see Table 2). The former appears larger with a stout pale green bill rather than a bluish-slate grey one with thick orange-red legs as compared with RLCR's thin, pinkish-red ones, and thicker toes. The underparts have broad black bands with thin white barring, contrasting with the bold black and white bands on the belly of RLCR. The thigh feathers are also dark rather than white. GNCR lacks spots on the upper-wing coverts and has narrower and indistinct barring on the marginal wing coverts as compared to RLCR.

Similarly, GNCR differs from SLCR by its stout, shorter, pale green bill rather than a blue-grey or dusky grey one with a greenish tinge to the base of the lower mandible; its heavier, thick orange-red rather than slaty-coloured legs with shorter toes; its larger, redder eye with red orbital skin versus the pale eye ring in SLCR; its rounder head; its shorter, stockier body; its erect posture; and its paler, more rufescent back that lacks contrast with the head and neck. The underparts differ in having narrow white barring, dark thigh feathering with narrow bands, and fine black and white barring on the secondaries bordering the edge of the wing.

<u>Consistency of traits:</u> There have been three independently verifiable sightings of this species from various localities of the island over more than a decade. All these individuals consistently display the same morphological features—including a novel suite

Table 2. Morpholog	gical comparison of distinctive traits of the Gre	at Nicobar Crake (GNCR) relative to the Red-legged	- (RLCR) and the Slaty-legged Crakes (SLCR).
Species	Red-legged Crake [170–171]	Great Nicobar Crake [172–176]	Slaty-legged Crake [177]
Size, stance, and structure	Appears smaller and slimmer than the GNCR	Round head and distinct neck, deeper and shorter body than SLCR and more erect body	Less round head than GNCR with less distinct neck
Bill	Bluish, slate-grey with red gape	Stout, pale green with broad base	Blue-grey to dusky grey with greenish base to lower mandible, longer and less blunt than GNCR
Iris and orbital eye ring	Red with red orbital skin	Red with red orbital skin	Red with pale grey-pink orbital skin
Plumage	Brown, contrasting with chestnut orange head and neck	Reddish brown, lacking contrast with head and neck	Dark brown, strongly contrasting with rufous head and neck
Upperparts	Spots on upper wing coverts, wings distinctly and broadly barred giving the ap- pearance of a prison uniform, underwings white with black barring	Spots absent on upper wing coverts and barring restricted to wing coverts. Barring indistinct with very thin white bars and broad black ones.	White bars on wings confined to inner webs of remiges (and are not usually visible) and a few coverts—generally lacking black and white barring on wing coverts. Underparts boldly black and white striped with narrower and more numerous white bars than RLCR
Underparts	Bold white and black barring on belly,	Broad black and indistinct fine white barring	Bold black and white barring on underparts
Legs	Pinkish-red, slim with white feathering	Orange-red, thick. dark, very narrowly barred thigh feathering	Slate-grey legs
Toes	Long toes	Proportionately shorter and thicker toes	Long toes

of traits—suggesting a stable phenotype. Since our submission, there have been two more GNCR photographic reports on eBird, showing all these traits consistently.

Lack of intermediate traits and emergence of novel ones: Hybrids, expectedly, display intermediate traits with a mosaic of parental characters, some of them being dominant (McCarthy 2006; Gholamhosseini et al. 2023). In contrast, GNCR individuals present a novel suite of traits that are not seen in either RLCR or SLCR including their stout, pale green bills; orange-red, thick legs; underparts with broad black and indistinct fine white bands; and rufescent upperparts. These traits again suggest that GNCR is unlikely to be a RLCR x SLCR hybrid. There are, however, documented instances of novel phenotypes emerging in wild hybrids (e.g., in buntings, see Gholamhosseini et al. 2023), so this alone does not provide unequivocal evidence to refute the hybrid theory, but rather serves as supporting evidence.

Response to playback: Regarding the response to call playback (Dalvi et al. 2021), it is not uncommon for members of the Rallidae family to respond to the calls of heterospecifics (see, Jedlikowski et al. 2021a, b), although the intensity and type of the response and calling rate might vary. Moreover, multiple rail species also



177. Slaty-legged Crake

give very similar calls and trill series, such as various forms of the Clapper Rail and King Rail (Stiffler et al. 2018). Hence, such responses to playback alone should not be taken as evidence that the observed GNCR individuals were of hybrid origin.

Apparent rarity: Compared with other endemic birds of the Nicobar Islands, there have been only three reports of GNCR in more than a decade. All these reports come from the eastern border of the Great Nicobar Island, which has more settlements and is more accessible to birders and researchers. The remoteness of the island, limited visitation, strictly enforced access restrictions including to some of its protected areas such as the Great Nicobar Biosphere Reserve, and the dense tropical rain and littoral forest all likely contribute to the paucity of sightings. These factors may have obscured its true distribution, which might be more widespread on the island. Rallids are shy, secretive inhabitants of isolated habitats (Winkler et al. 2020), that are difficult to locate except when they vocalize.

Discussion

Our third sighting of RLCR from a new locality in Campbell Bay strengthens the likelihood of a small, resident population of this species on Great Nicobar Island, especially because Dalvi et al. (2021) observed individuals defending territories in May 2021. The species is known to be resident on the nearby island of Sumatra, Indonesia (Dalvi et al. 2021)—c. 150 km from the Great Nicobar Island.

GNCR has only been photographed twice before, in 2012 and 2015, and there are no prior audio or video recordings. Nothing is known about its biology, distribution, or population status. Nevertheless, sightings over more than a decade from different locations on the island, all displaying a consistent and distinctive set of morphological features, including several novel ones, strongly suggests that this might be a species new to science. We currently have only one call recording of GNCR and its vocal repertoire remains unknown. However, though its call is similar to that of RLCR, it does demonstrate some different characteristics. Multiple sightings of this potentially new and intriguing taxon about which so little is known, warrants immediate phylogenomic work especially because the discovery of new taxa of charismatic

vertebrates, like birds, is rare (Rheindt et al. 2020). More call recordings, and if possible morphometric measurements, would also be useful. A species new to science from the biodiversity-rich Great Nicobar Island will be a notable addition to India's avifauna.

The conservation of GNCR's habitat—the biogeographically and biologically unique Great Nicobar Island—is also of paramount importance. As part of a global biodiversity hotspot and Endemic Bird Area, the island supports staggeringly high, and irreplaceable levels of floral and faunal endemism and diversity (UNESCO 2025). Unfortunately, rail species on oceanic islands are highly vulnerable to extinction (Steadman & Martin 2003) from non-native predators, competitors, habitat destruction, and fragmentation. More than 26 species have gone extinct in the last 400 years (Steadman & Martin 2003), some possibly even before being described. We hope that GNCR, unlike some other rail species, does not end up as just another extinction statistic, even before it is described.

Acknowledgements

We thank all those who provided inputs, support, and encouragement for this paper, especially Praveen J. for suggesting that we write up our sightings. We are particularly grateful to Pratap Singh and Norbert Cordeiro for their many helpful suggestions, and to the two anonymous reviewers whose insightful comments greatly enhanced this work. Special thanks go to Rahul Gaur for generating the map of crake sightings in Great Nicobar, and to Shashank Dalvi for sharing location coordinates of the Slatylegged Crake and for his valuable insights. We are indebted to Esha Munshi for her photographs of SLCR, and to Harish Thangaraj for his helpfulness. We also thank Nikhil Devasar for his advice on audio software. Finally, we are grateful to the K. Lisa Yang Center for Conservation Bioacoustics at the Cornell Lab of Ornithology for granting us a license to use RavenPro 1.6.5.

References

- Bharadwaj, A. K., 2015. Recent sightings of Great Nicobar Crake *Rallina* sp. nov. and Nicobar Megapode *Megapodius nicobariensis* at Great Nicobar Island. *Ela Journal of Forestry and Wildlife* 4 (2): 16–17.
- Dalvi, S., Dixit, S., Dharwadkar, O., & Thackeray, T., 2021. The Red-legged Crake Rallina fasciata—a new species for the Indian Subcontinent, and the Slaty-legged Crake Rallina eurizonoides—a new species for the Nicobar Islands. Indian Birds 17 (6): 161–164
- eBird, 2025. Webpage URL: https://ebird.org/region/IN/illustrated-checklist. [Accessed on 20 September 2025].
- Gholamhosseini, A., Aliabadian, M., Töpfer, T., & Sætre, G.-P., 2023. Morphology and morphometry of two hybridizing buntings at their hybrid zone in northern Iran reveal intermediate and transgressive morphotypes. *Avian Research* 14: 100150. DOI: https://doi.org/10.1016/j.avrs.2023.100150.

- Gokulakrishnan, G., 2020. Webpage URL: https://ebird.org/checklist/S85374702. [Accessed on 20 September 2025].
- Janakarajan, S., 2018. Webpage URL: https://ebird.org/checklist/S168099439. [Accessed on 20 September 2025].
- Jedlikowski, J., Polak, M., Brambilla, M., & Rek, P., 2021a. Vocal and non-vocal behavior interact differently in territorial strategies of two sympatric Rallidae species. *Journal of Ornithology* 162 (1): 243–254. DOI: https://doi.org/10.1007/s10336-020-01808-2.
- Jedlikowski, J., Polak, M., Koperski, P., & Ręk, P., 2021b. Response to heterospecific calls in non-passerine species: can two Rallidae species recognise each other based on their vocalisations? *Ethology* 127 (9): 710–719. DOI: https://doi.org/10.1111/ eth.13208.
- K. Lisa Yang Center for Conservation Bioacoustics at the Cornell Lab of Ornithology, 2024. Webpage URL: The Cornell Lab of Ornithology. Available from https://www.ravensoundsoftware.com/.
- Kuriakose, J., 2015. Avifauna of Great Nicobar Island—a photo album. *BirdingASIA* 24: 72–73.
- McCarthy, E. M., 2006. *Handbook of Avian Hybrids of the World*. OXFORD UNIVERSITY PRESS, New York. Pp. 583.
- Praveen, J., 2025. *Birds of India The New Synopsis*. Nature Conservation Foundation, Mysuru, India. Pp. i–xlvii, 1–468.
- Rajeshkumar, S., Ragunathan, C., & Rasmussen, P. C., 2012. An apparently new species of *Rallina* crake from Great Nicobar Island, India. *BirdingASIA* 17: 44–46.
- Raman, T. R. S., Mudappa, D., Khan, T., Mistry, U., Saxena, A., Varma, K., Ekka, N., Lenin, J., & Whitaker, R., 2013. An expedition to Narcondam: observations of marine and terrestrial fauna including the island-endemic hornbill. *Current Science* 105 (3): 346–360.
- Rasmussen, P. C., & Anderton, J. C., 2012. Birds of South Asia: the Ripley guide: attributes and status, 2nd ed. Smithsonian Institution and Lynx Edicions., Washington, D.C. and Barcelona. Vol. 2 of 2 vols. Pp. 1–683.
- Rheindt, F. E., Prawiradilaga, D. M., Ashari, H., Suparno, null, Gwee, C. Y., Lee, G. W. X., Wu, M. Y., & Ng, N. S. R., 2020. A lost world in Wallacea: Description of a montane archipelagic avifauna. *Science (New York, N.Y.)* 367 (6474): 167–170. DOI: https://doi.org/10.1126/science.aax2146.
- Sethi, P., 2025. Webpage URL: https://macaulaylibrary.org/asset/640173128. [Accessed on 20 September 2025].
- Steadman, D. W., & Martin, P. S., 2003. The late Quaternary extinction and future resurrection of birds on Pacific islands. *Earth-Science Reviews* 61 (1): 133–147. DOI: https://doi.org/10.1016/S0012-8252(02)00116-2.
- Stiffler, L. L., Schroeder, K. M., Anderson, J. T., McRae, S. B., & Katzner, T. E., 2018. Quantitative acoustic differentiation of cryptic species illustrated with King and Clapper rails. *Ecology and Evolution* 8 (24): 12821–12831. DOI: https://doi.org/10.1002/ece3.4711.
- UNESCO, 2025. Webpage URL: https://www.unesco.org/en/mab/great-nicobar. [Accessed on 20 September 2025].
- Winkler, D. W., Billerman, S. M., & Lovette, I. J., 2020. Rails, Gallinules, and Coots (Rallidae), version 1.0. *Birds of the World*. DOI: https://doi.org/10.2173/bow.rallid1.01.

