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Caption: *Cyrtodactylus myintkyawthurai*, endemic to Myanmar. Medium: Water colours on watercolor sheet. © Aakanksha Komanduri



First record of Parasitic Jaeger *Stercorarius parasiticus* (Aves: Charadriiformes: Stercorariidae) from inland freshwater Inle Lake, Myanmar

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The Parasitic Jaeger, also known as Arctic Skua *Stercorarius parasiticus*, breeds in the arctic tundra in northern Eurasia and North America and is a common breeding bird in the arctic. The species overwinters in the southern hemisphere, mainly in the southern tropical to temperate seas and oceans around Australia, southern Africa, and southern South America (BirdLife International 2018). They move to the southern Hemisphere during October to November and return in February to March (Harrisson & Smythies 1960; GBIF 2021). The main migration routes of this marine species are predominately coastal and offshore, but it has been observed migrating over land. The species is uncommon offshores of Thailand, Peninsular Malaysia, and a vagrant to Singapore (Robson 2011; Poole et al. 2014; GBIF 2021), but is relatively rare inland southeastern Asia compared to coastal and offshore. Another rare encounter of the species inland of southeastern Asia was an adult female specimen from Borneo on 5 November 1960, likely an individual blown off course by the typhoons (Harrisson &

Smythies 1960). Based on these records from elsewhere in Southeast Asia, the Parasitic Jaeger was postulated to occur in Myanmar (Holmes et al. 2014), but so far, the species was not recorded from terrestrial Myanmar. Since Inle Lake is a birding hotspot in Myanmar it is regularly visited by a large number of potential observers of the species. Our team surveyed the Inle Lake regularly from 2018 to late 2020 for all water birds.

Observations and identification: In November 2018, we recorded a single individual of a distinct looking bird with blackish-brown plumage at Inle Lake. On 24 October 2019, we observed the same species again, chasing Brown-headed Gulls, *Larus brunnicephalus* and Black-headed Gulls, *L. ridibundus* for several minutes in the afternoon in Inle Lake, Shan State, Myanmar. The bird was distinctive in plumage from the gulls and the behaviour was strikingly. We observed the individual chasing and in flight; it was gliding for a considerable time after the gulls disappeared. Afterwards the jaeger stayed still while floating on the water (Image 1). Based

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Image 1. Parasitic Jaeger *Stercorarius parasiticus* observed perched in Inle Lake, Shan State, Myanmar on 24 October 2019. © Myint Kyaw.



Image 2. Parasitic Jaeger *Stercorarius parasiticus* observed in flight over Inle Lake, Shan State, Myanmar on 24 October 2019. © Soe Naing Aye.

on its plumage characters, we identified it as a pale morph of Parasitic Jaeger *Stercorarius parasiticus*. The plumage of the observed individual was mostly blackish-brown and the body shape appeared lighter built than other *Stercorarius* and resembled in size more to the observed gulls. *S. parasiticus* distinguishes from other similar species, Pomarine Jaeger *Stercorarius pomarinus* and Long-tailed Jaeger *Stercorarius longicaudus* by showing pointed central tail feathers while the Pomarine Jaeger has spoon-shaped tail projection – the tail projection confirms species status for our individual (Image 1, 2) and from observations in the field by us. The breast band is less contrasting when compared with Pomarine Jaeger. The cap is black, the throat, nape and belly are white, while the underwing has pale tips – the tail projections and wing pattern indicate parasitic jaeger (Image 2; cf. Olsen & Larsson 1997). The bird has a small area of white in the primary bases on underwing and it forms white flashes during flight. The front is black and the bill is of dark colour. We compared the photo with plates in Olsen & Larsson (1997) visually and asked three colleagues for independent identification (listed in acknowledgments). While we have a photograph (Image 1, 2) of the 2019 bird, we have no photographic proof of the earlier record from 2018.

Discussion: The record is important for two reasons: This is the first record of the species from an inland freshwater lake in southeastern Asia, which is approximately 380 km off the coast. In addition, the species is recorded the first time in freshwater habitat in Myanmar, unusual for the species. Similarly, Pfister (2004) also reported that *S. parasiticus* was seen chasing a Brown-headed Gull *L. brunnicephalus* over the Tsomoriri Lake, India. While this species is marine and coastal, it may be observed during migration inland (BirdLife International 2018). Our Parasitic Jaeger record is the first observation of the species in Myanmar, but also highlights the potential role of Inle Lake as a large natural inland stopover site in Myanmar (Naing et al. 2020; BirdLife International 2021). Inle Lake was also designated as Ramsar Site in 2018 and important bird area (IBA) in 2004.

The Parasitic Jaeger is the first and second record for Myanmar and we assume that it is a stray individual for Myanmar. We have observed it during the migration period to the southern hemisphere, where the Parasitic Jaeger is wintering in tropical regions. In theory, Inle Lake could be a stopover for migration as has been

identified for many wader and gull species, e.g., Brown-headed Gulls have a significant wintering population in Inle Lake. However, while for waders and gulls, stopover and wintering have been observed at Inle Lake and other Myanmar freshwater sites, pelagic species such as the jaeger, have been more observed along the southern shores of Myanmar (Li et al. 2020). Therefore, the observed jaeger might be a bird on migration, but with the two records of the jaeger at Inle Lake in two different years it remains arguable whether or not the jaeger is a stray bird or uses Inle Lake as a stopover on migration, but it is most likely a vagrant species to Myanmar.

Similar looking species, such as the Pomarine Jaeger, *Stercorarius pomarinus*, have been recorded at Mawlamyine (Smythies 1953) and in the Gulf of Martaban in December 1941 (Wood 1949). Although Robson (2011) stated that Pomarine Jaeger are found in Myanmar it has been observed as vagrant in Tanintharyi. However, all Jaeger species are rare and uncommon records for Myanmar.

References

- BirdLife International (2018).** *Stercorarius parasiticus*. The IUCN Red List of Threatened Species 2018: e. T22694245A132535550. Downloaded on 19 January 2022. <https://doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22694245A132535550.en>
- BirdLife International (2021).** Important Bird Areas factsheet: Inle Lake. <http://www.birdlife.org> on 31.viii.2021
- GBIF (2021).** *Stercorarius parasiticus* (Linnaeus, 1758) in GBIF Secretariat (2021). GBIF Backbone Taxonomy. <https://doi.org/10.15468/39omei>
- Harrison, T. & B.E. Smythies (1960).** Artic Skua *Stercorarius parasiticus* in Borneo. *IBIS* 103a(2): 293–294.
- Holmes, K.E., T. Tun, K.T. Latt, M. Subedee, S.V. Khadke & A.E. Hostetler (2014).** Marine Conservation in Myanmar - The current knowledge of marine systems and recommendations for research and conservation. WCS and MSAM, Yangon, 198 pp.
- Li, D., G. Davison, S. Lisovski, P.F. Battley, Z. Ma, S. Yang, C.B. How, D. Watkins, P. Round, A. Yee, V. Srinivasan, C. Teo, R. Teo, A. Loo, C.C. Leong & K. Er (2020).** Shorebirds wintering in Southeast Asia demonstrate trans-Himalayan flights. *Scientific Reports* 10: 21232. <https://doi.org/10.1038/s41598-020-77897-z>
- Naing, T.Z., C. Zöckler, K.Z. Tun, L. Win, M. Kyaw, N. Lin & N. Lwin (2020).** New and interesting avifaunal records for Myanmar, 2005–2019. *BirdingAsia* 33: 118–127.
- Olsen, K. & H. Larsson (1997).** *A guide to the skuas and jaegers of the world*. Pica Press, The Banks, Mountfield, Sussex.
- Pfister, O. (2004).** Birding Hotspot: Ladakh-a high-altitude melting pot. <http://orientalbirdclub.org/ladakh>
- Poole, C.M., W.H. Davison & S. Rajathurai (2014).** Marine surveys to study the movement of seabirds through the Singapore Strait 2010–2014. *Forktail* 30: 5–9.
- Robson, C. (2011).** *A field guide to the birds of South-East Asia*. New Holland Publishers, London.
- Smythies, B.E. (1953).** *The Birds of Burma*. Oliver and Boyd, Edinburgh.
- Wood, J.D. (1949).** Probable pomatorhine skua off Burma. *Ibis* 91: 690



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