

Tanintharyi Conservation Programme (TCP)



AVIFAUNA OF THE NORTHERN MYEIK ARCHIPELAGO, TANINTHRYI REGION

REPORT ON HISTORIC AND NEW SURVEYS ALONG THE COAST OF SOUTHERN MYANMAR

SAW MOSES & CHRISTOPH ZÖCKLER
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- Author details** Saw Moses is an independent ornithologist and bird tour guide. Christoph Zöckler (ArcCona Consulting) is an ornithologist specialising in migratory waterbirds and Asia. Both authors are advisers to FFI in Myanmar.
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II) EXECUTIVE SUMMARY

For the first time, systematic ornithological surveys were conducted in the Northern Myeik Archipelago, from December 2013 to February 2015 and in May 2015. Our results show that the area is home to at least 222 bird species, eight of them are globally threatened and 15 near threatened. The major part of surveyed species were water birds that are highly dependent on intertidal flats and mangroves. This finding underlines the high conservation value of these habitats.

Coastal development and forest conversion, as well as shorebird hunting and plastic rubbish pose a serious threat to the pristine coastal ecosystem of the Northern Myeik Archipelago and urgent protection measures are suggested. More detailed surveys are needed to determine the exact boundaries of the proposed protected areas, but temporary restraining orders should be implemented immediately to conserve the precious coastal habitats for the future.

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1. INTRODUCTION

1.1 Background

Public knowledge about the bird fauna of Tanintharyi Division is based mainly on studies that were conducted during the 20th century.

Blyth (1843, 1849, 1850 & 1852) describes several new species from 'Tenasserim', of which some were clearly from Tanintharyi Region, as it is now known. Gould (1859) lists the species collected by Captain Briggs, Deputy Commissioner of Tavoy, and Hume and Davison (1878), and summarizes the large number of birds collected by the latter author, of which many were also from Tanintharyi Region. Oberholser collected an unknown number of birds from Tanintharyi in the early 20th century, and his work only refers to newly described taxa (Oberholser 1911, 1922, 1923a and b, 1926). Riley (1938) describes a few birds that he collected in Tanintharyi during a brief excursion, but mainly refers to collections made in Thailand. Scott (1989) lists the Myeik Archipelago in his Directory of Asian Wetlands but does not provide specifics and refers mainly to Smythies (1940). Finally, NCNPP, Burma (1982, 1983) mention a few birds noted during brief surveys to a number of islands and mainland areas in Tanintharyi.

The following 20 years has seen relatively little work carried out on this subject, which is especially true for the Northern part of the Myeik Archipelago. Notable exceptions are Tin Hla *et al.* (2003), who reported on a successful trip to rediscover Gurney's Pitta, and Inskipp *et al.* (2003) who provided an annotated bird and mammal species list that includes the Myeik archipelago.

Our study directly addresses the lack of knowledge about the bird fauna of the Myeik Archipelago. The survey focused mainly on habitats that have a particular significance for shorebirds. These habitats include intertidal mudflats and mangroves, sandy beaches and near coastal forest habitats as well as rocky islands. From December 2013 to February 2015, the Northern part of the Archipelago was surveyed for birds during several expeditions. In December 2013, the expedition covered large parts of the northern archipelago north of Lampi Island (a marine National Park) by boat. Whereas Lampi Island and its surroundings have been relatively well studied, little information is available about the northern part of the archipelago around Myeik. In May 2015, several islands and mudflats north of Myeik were surveyed to obtain a more detailed picture of the breeding situation and pre-breeding migration of Arctic and Boreal migrants.

The first results of the December 2013 survey were summarized and included in an overview of coastal habitats for water birds in Myanmar (Zöckler *et al.* 2014). The region has one of the

most pristine and extensive mangroves areas and a diverse mangrove avifauna, which is also highlighted. None of these habitats is protected and it is the hope of the authors that the current study provides sufficient data for to justify and support future protection efforts in the area.

1.2 Survey dates and objectives

Surveys took place by boat from 6th to 21th of December 2013 and from Nov 28th to December 2nd 2014 to the area north of Myeik (see fig. 1, 3 and 4) with brief visits in March and November 2014. A brief survey of the northern mudflat areas from 28th of January to 1st of February 2015 confirmed most of the sightings of the previous month. Areas were reached by boat and if possible by foot to survey larger intertidal mudflat areas with telescopes. Fig. 1 shows the overall survey area and the route. In May 2015, the surveys by boat were restricted and only one island could be visited. Other surveys were thus carried out by motorbike. Theyewar Beach and Poor Island were reached by ordinary ferry from Myeik.

1.3 Methods

Between December 2013 and May 2015 four different expeditions were carried out during the dry season between November and March, and one in early May before the start of the rainy season, to several locations along the Myeik coast, see map (Fig. 1). Amongst others, the survey sites were selected on the basis of existing extensive intertidal mud and sand flats that are essential habitats for large numbers of waders and other waterbirds. Permits from the government were required to access most of these areas and these were duly granted.

Many sites could be accessed on foot or by boat. However, most of the surveys required that larger boats be used to cover longer distances, while small boats were needed to negotiate the shallow intertidal waters at specific sites. This approach was thus logistically complicated, and it was not always possible to access all sites properly. Thus some mud and sand flats in the Myeik Archipelago have not been surveyed fully yet due to long distances and/or difficult access.

Binoculars and telescopes with at least 30-60x magnification were required to identify all water birds to species level.

Some sites were visited multiple times, but at different times of the year, to obtain additional information on the phenology of birds.

In mangroves and other coastal forest types, sounds and sound recordings using Telinga Parabolic microphones were used to obtain additional information on more secretive species.

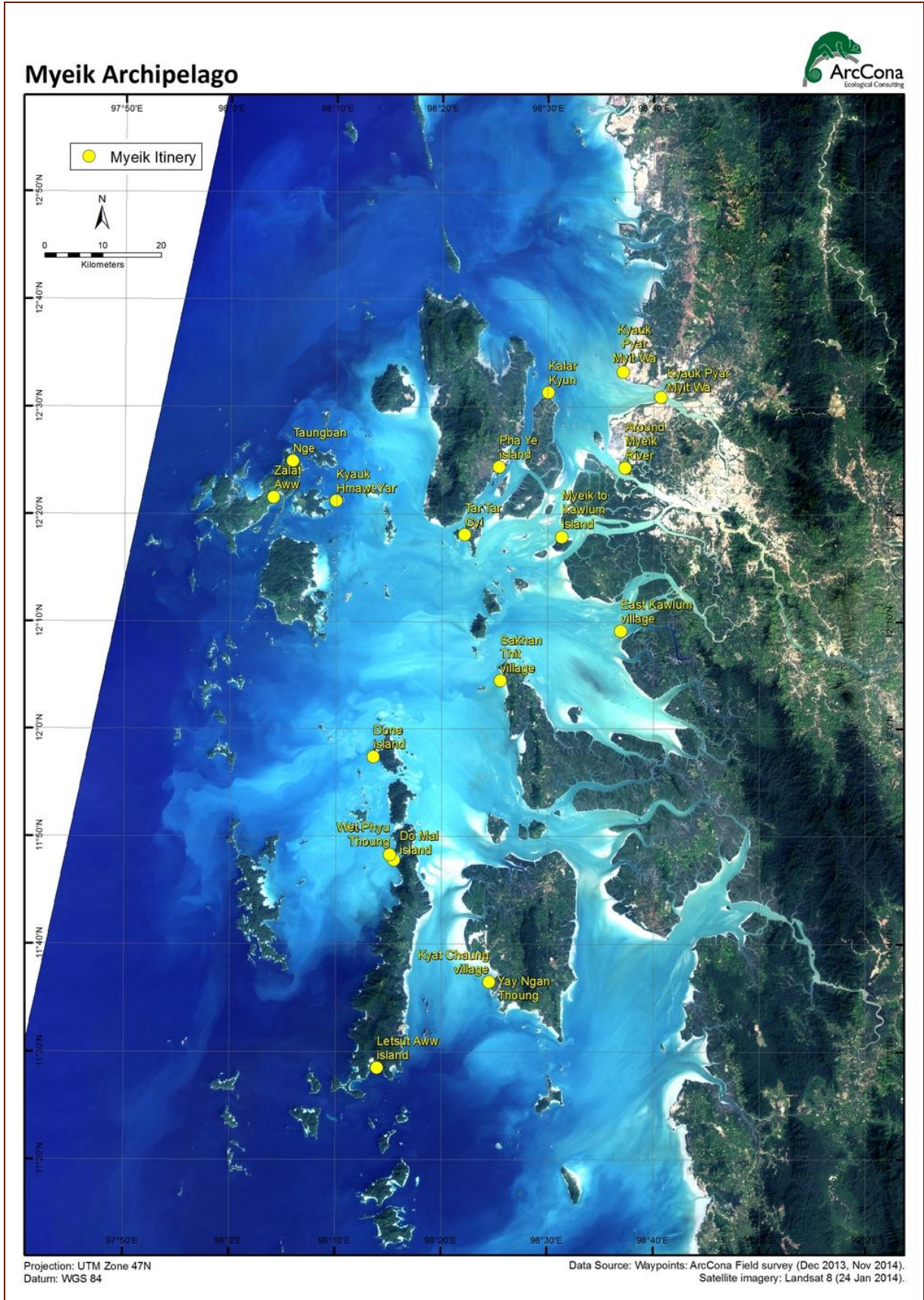


Fig. 1: Survey Area in the Northern Myeik Archipelago

2. BIRD RECORD RESULTS

2.1 Highlights

A total of 222 species were recorded during the survey period (see Annex 1), several of which were observed in the area for the first time. Two species are new records for Myanmar: Firstly, a Golden-bellied Gerygone *Gerygone sulphurea* (Least Concern) was observed in the mangroves north of Myeik. It is relatively common on the Thai side of the peninsula but has never been confirmed for the Myanmar side before. Secondly, another first record was made on 5 May 2015 at Thetyewar Beach for the Grey-tailed Tattler *Heteroscelus brevipes* (Near Threatened), in breeding plumage (Fig. 2).



Fig. 2: Grey-Tailed Tattler (NT), a first record for Myanmar in Thetyewar Beach 5 May 2015. Credit: C. Zöckler

2.2 Globally threatened Species

A total of nine globally threatened (CR, EN, VU) and 15 Near-Threatened (NT) species were recorded, highlighting the significance of the area for birds. Of the eight globally threatened waterbirds, one is Endangered (Nordmann's Greenshank) and one is Critically Endangered (Spoon-billed Sandpiper; see Table 1, Fig. 3 and Annex 1). The distribution of the observations of all eight globally threatened species are shown in Fig. 2 for forest birds and in Fig. 3 for water birds. In addition, 15 near threatened species were recorded (Annex 1). Of these 15 NT red-listed species, three species are strongly associated with intertidal mudflats (Black-headed Ibis, Black-tailed Godwit and Eurasian Curlew) and five species depend on or favor mangrove habitats (Black-headed Ibis, Red-breasted Parakeet, Brown-winged Kingfisher, Mangrove Pitta and Fiery Minivet). The latter four species were recorded in large numbers and were wide-spread across the survey area.

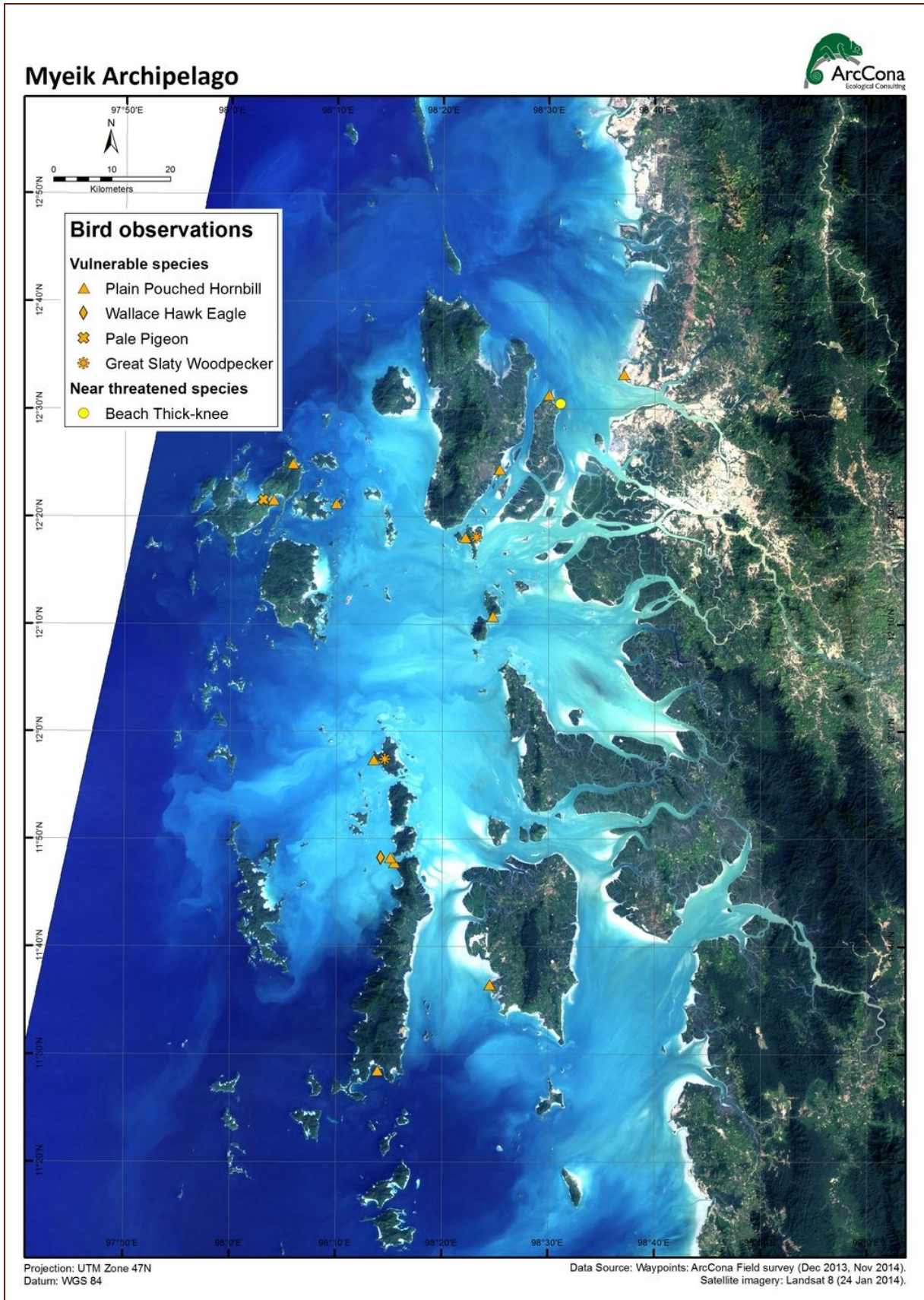


Fig. 3: Globally threatened Species in mangrove and other forest types in the survey locations in the Myeik Archipelago.

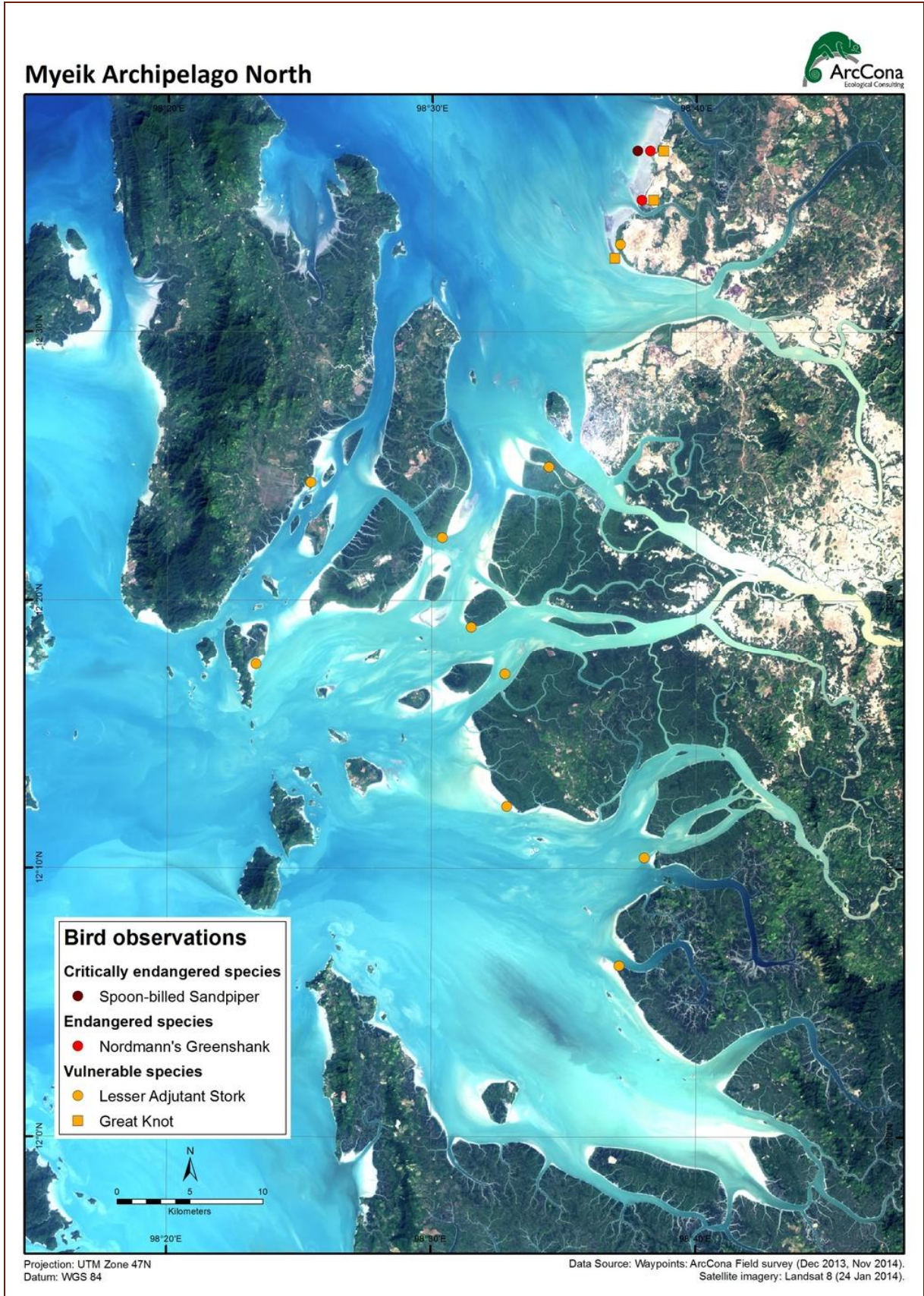


Fig. 4: Globally threatened water birds on intertidal mudflat habitats in survey locations in the Northern Myeik Archipelago.

Spoon-billed Sandpiper *Calidris pygmaea*

On November 30th 2014, a single Spoon-billed Sandpiper was observed in the mudflats in the north of the survey area (Fig. 4). The bird was among a flock of 800 small waders. A second recording was made on 29 January 2015 in the same area, presumably of the same individual. Considering that there were a total of three different flocks of small waders, with two of the flocks involving more than 1,000 waders, it is quite likely that there could be one or two more Spoon-billed sandpipers in the area. This record represents a significant range extension for Myanmar; formerly, the nearest record was from 600 km to the north, in the Gulf of Mottama. Although this appears to be the first recent record for Tanintharyi, the species was also noted in Smythies (1954), who recorded it for the Northern Myeik Archipelago, albeit without providing any further details. However, the site is only 100 km from the nearest regular known wintering site, Pak Thale in Thailand.

Nordmann's Greenshank *Tringa guttifer*

Figure 4 shows two sites close to each other in the northern mudflats where large flocks of small waders assemble in winter. Here, among groups of 800 and 1200 waders four and two Nordmann's Greenshank were observed, respectively. Since both groups were observed on different days (29 and 30 November 2014) and both sites are less than 3 km away from each other, there is the possibility that the same birds were recorded. A repeated survey in January 2015 confirmed the same number, when three birds were recorded at both sites. This suggests that there is likely an exchange between the two sites. A minimum of four individuals of this endangered species was recorded but it is likely that up to ten birds might regularly winter in this region. There were three birds in winter plumage still lingering on 5 May at Thetyewar Beach, hinting that they might be juvenile birds staying in the mudflats over their first summer. After the Ayeyarwady delta, the Myeik Archipelago seems to be equally as important as a wintering site for the species in Myanmar as is the Gulf of Mottama (Zöckler et al. 2014). Regular wintering sites on the Thai coast though are geographically much closer, and exchanges between the Thai sites that hold up to 70 birds (P. Round, *pers. comm.*) are likely.

Great Knot *Calidris tenuirostris*

Listed globally as Vulnerable (VU), this species has undergone serious declines due to habitat loss in their prime stopover locations and moulting sites in the Yellow Sea (e.g. Moores *et al.* 2008). With flocks of 120 and 95 birds observed, the Myeik Archipelago is a very important wintering site and after the Ayeyarwady Delta, the second most important for this species in Myanmar (Zöckler et al. 2014). Fig 5. shows two individuals feeding



Fig. 5: Two Great Knots feeding in mudflats in the survey site. Credit: C. Zöckler

Lesser Adjutant *Leptoptilos javanicus*

Nineteen different individuals of this globally vulnerable (VU) stork species were observed at ten different sites in the survey area (Fig. 3). It is quite likely that several more birds went unnoticed. The presence of this species in such big numbers is a reflection of the high quality of the mangrove forest, a rather unique finding for Myanmar (cf, eg. Zöckler *et al.* 2014) and possibly for its entire breeding range. Although there is no proof at present, it appears quite likely that the birds may be breeding in the area in large numbers. Summer and rainy season observations are required to confirm the breeding of this species.

Wallace's Hawk-Eagle *Nisaetus nanus*

One Wallace's Hawk-Eagle was seen at Wet Phyu Thoung on 11 December 2013 (Fig. 2).

Pale-capped Pigeon *Columba punicea*

Two Pale-capped Pigeons were observed at Zalut Aww on 13 December 2013 (Fig. 3) and eight more at Poor Island on 4 May 2015. .

Plain-pouched Hornbill *Aceros subruficollis*

A total of 199 Plain-pouched Hornbill were found during the survey in December 2013. *A. subruficollis* is distributed widely across the survey area (Fig. 3), and was mainly observed in small numbers of 1-3 birds. Exceptional observations include 50 birds at Wet Phyu Thoung on 11 December, 30 at Done Island on 12 December, 20 at Taungban Nge Island on 14 December, 12 at Kyauk Hmawt Yar island on 15 December, 20 at Tar Gyi Island on 16 December, and 13 at Kalar Kyun island on 18 December. Interestingly, *A. subruficollis* is almost entirely distributed on forest stretches on the islands but hardly found on the mainland, implicating a higher sensitivity to disturbance by human activities. This finding underlines the huge importance of the forest habitats around the Myeik Archipelago for this species and the urgency for conservation action.



Fig. 6: Female Plain-Pouched Hornbill in flight on Ye Bie Island. Credit: C. Zöckler

Great Slaty Woodpecker *Mulleripicus pulverlintus*

Four Great Slaty Woodpecker were seen at Done Island on 12 December 2014 and four were seen at Tar Gyi Island on 16 December 2014.

2.3 Waders (shorebirds)

Waders or shorebirds are particularly important for coastal habitats and high abundances are an indicator for a healthy ecosystem. Therefore they receive special attention in this report. Among the 210 recorded species, 28 species are shorebirds or waders, totalling up to around 5,000 individuals (Table 1). Six of the observed species are globally threatened. The other 17 species are East Asian migrants that winter regularly in the Myeik archipelago in large numbers. Table 1 summarizes the numbers for particular areas.

2.4 Breeding birds (residents)

A large proportion of the listed bird species are breeding birds. However, among the water birds they are scarce as the large majority are wintering migrants from Russia, China and the High Arctic.

It is very likely that the extensive mangrove areas provide nesting grounds for the globally threatened **Lesser Adjutant Stork**. Observations from a range of sites suggests a wide distribution although no evidence for breeding was found during this survey (Fig. 3).

Table 1: Distribution and abundance of shorebirds in the Northern Myeik Archipelago.

Species	Scientific name	Red List	Aukl- and Bay	Kalar Kyun	WP 663	Pyar Myint Wa	Thet-yewar Beach	Migration Status
Beach Thick-Knee	<i>Esacus neglectus</i>	NT		2				R
Pacific Golden Plover	<i>Pluvialis fulva</i>			4			35	A
Grey Plover	<i>Pluvialis squatarola</i>			30	50	23	30	HA
Grey-headed Lapwing	<i>Vanellus cinereus</i>							T
Red-wattled Lapwing	<i>Vanellus indicus</i>						8	R
Kentish Plover	<i>Charadrius alexandrinus</i>				200	10	100	T
Lesser Sand-Plover	<i>Charadrius mongolus</i>		10	100	150	150	120	T A
Greater Sand-Plover	<i>Charadrius leschenaultii</i>			900	1200	850	650	T
Black-tailed Godwits	<i>Limosa</i>	NT			3			B
Bar-tailed Godwit	<i>Limosa lapponica</i>				25	27	25	A
Whimbrel	<i>Numenius phaeopus</i>		200	24	30	100	50	A
Eurasian Curlew	<i>Numenius arquata</i>	NT	9		2	30	24	T
Terek Sandpiper	<i>Xenus cinereus</i>		90		2	23	16	A T
Common Sandpiper	<i>Actitis hypoleucos</i>		50	1	2			T
Common Greenshank	<i>Tringa nebularia</i>		3		10	4	10	B
Nordmann's Greenshank	<i>Tringa guttifer</i>	EN			2		4	B
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>	NT					1	A
Common Redshank	<i>Tringa totanus</i>		320		10	120	40	T
Great Knot	<i>Calidris tenuirostris</i>	VU			120	95	34	T A
Red Knot	<i>Calidris canutus</i>						5	HA
Sanderling	<i>Calidris alba</i>					1	1	HA
Spoon-billed Sandpiper	<i>Calidris pygmeus</i>	CR					1	A
Little Stint	<i>Calidris minuta</i>		1		25	42	22	A
Red-necked Stint	<i>Calidris ruficollis</i>							A
Curlew Sandpiper	<i>Calidris ferruginea</i>				10	10	8	A
Broad-billed Sandpiper	<i>Limicola falcinellus</i>						3	A B
Ruff	<i>Philomachus pugnax</i>							A
Ruddy Turnstone	<i>Arenaria interpres</i>			50	2			HA
Total			683	1111	1843	1485	1186	

Notes: For site names see Fig. 1; Migratory Status: R=resident, A=Arctic, HA=High Arctic, T=Temperate, B=Boreal.



Fig. 7: Beach Thick-knee surrounded by Greater Sandplovers at Sin Ye Thar Island Nov 2014. Credit: C. Zöckler

The near-threatened **Beach Thick-Knee *Esacus neglectus*** (Fig. 7) is a typical resident of the archipelago, preferring undisturbed sandy and rocky beaches (Fig. 2). Tanintharyi is at the most northern limit of its distribution, and it has been declining due to population pressure (BirdLife 2015). Inskipp *et al.* (2003) observed in total four birds on two different islands. We could not check these sites and it is not clear if they are still occupied. The Beach Thick-Knee is likely breeding in March and April and a search for breeding birds in May 2015 confirmed two birds alarming at our arrival at the island. Unfortunately, no further evidence of breeding could be obtained in the short time available, but we think it likely that the birds were at least attempting to breed. Smythies (1953) did not mention any proof of breeding, but birds would seem likely to be breeding in the area on the basis of their non-migratory and pairing behaviour. Breeding and – even more importantly, breeding success – needs to be confirmed. Repeat surveys should therefore focus on breeding evidence and young birds.

3. RESULTS: HABITATS

3.1 Mangroves

The mangroves found in this region are of extraordinary diversity and maturity that cannot be found anywhere else in the country, illustrating the potential of mature mangrove forests for biodiversity and other vital ecosystem services which has been lost from many other, formerly similar, areas. The extensive mangroves are home to several near-threatened species.

Red-breasted Parakeet *Psittacula alexandri* and Fiery Minivet *Pericrocotus igneus* have been noted almost everywhere in both dense and sparse mangrove across the survey area. More than 120 Brown-winged Kingfisher *Pelargopsis amauroptera* were observed in total. This species is highly dependent on mangrove habitats. The kingfisher is mostly distributed around the Auckland Bay, but also in mangroves further south.

Overall, the abundance of more than 120 non-waterbird species is extraordinary, and a strong indicator of a mature and largely undisturbed mangrove system. In addition, the recording of over 17 territories of Mangrove Pittas *Pitta megarhyncha* is unprecedented in Myanmar, and confirms the high conservation value of the mangrove system.



Fig. 8: Mature mangrove provides numerous ecosystems services and habitat for birds

C. Zöckler

Furthermore, unusually large numbers of more than 30 Golden-bellied Gerygone *Gerygone sulphurea* – which have not before been recorded anywhere else in Myanmar – highlight the significance of the Myeik mangroves.

The large number of Collared Kingfisher *Todiramphus chloris* – over 80 in total – is an additional indicator of mature mangroves.

The extraordinary importance of these mangroves is also supported by the number of rare and threatened mammals in the survey area (see separate report by Saw Moses, FFI).

3.2 Sundaic forests

Intertwined between the mangroves, often on rocky outcasts, are large stretches of tropical rainforest of the Sundaic Ecoregion (Fig. 9). They belong to the Myanmar coastal rain forest type (Wikramanayake et al. 2002). The extraordinary high number of almost 200 Plain-pouched Hornbills is a reflection of the high biodiversity value of these forest habitats.



Fig. 9: Sundaic lowland forests represent the major natural habitat type outside of mangrove in the survey location.

4. DISCUSSION

4.1 Threats to Birds

The biggest threat to the area is economic development. The Northern Archipelago is close to the regional city and transport and commercial hub of Myeik. The city is currently undergoing an economic boom, and is expanding and encroaching more and more into the surrounding mangrove forest areas. This is leading to habitat loss and degradation – particularly as agriculture and industry expand, and so too an increase in demand for firewood.

Without any official protection the areas around Myeik (and other cities along the Tanintharyi coast) are prone to further pressure from unplanned development. At the moment, further development is likely, greatly threatening the integrity of important coastal habitats and the ecosystem services they provide, such as storm defence and the protection of the city Myeik itself .



Fig. 10 & 11: Economic development in Myeik (l) and the impact of plastic litter on its beaches (r)

Little is known about the hunting pressure on birds in the region, but a few interviews revealed a similar picture to the one that is well known along the entire coast of Myanmar: Whenever there are water birds, flocking to 1000 individuals or larger, bird hunters are setting up their traps. This was observed for villagers of Kanbijn in the northern part of the survey area.

A last threat comes from non-degradable waste. Plastic in particular is visible everywhere and accumulating rapidly in all habitat types. Together with natural debris it is floating in coastal waters and washed along the shore of smaller islands (Fig. 11). Its origin is not always clear and it seems to be a new and recent phenomenon. Waste management and environmental clean-up measures are urgently needed.

4.2 Importance for migratory and residential birds

The intertidal mudflats create an ecological unity with the adjacent mangroves. Both habitats are connected by the intertidal exchange of water and nutrients with several species of birds using both habitats at different times in the tidal cycle, or at different stages in their life cycles.

The intertidal mudflats of the survey area are highly productive ecosystems that provide food for many different bird species. The central area in the Auckland Bay has been recognized as important for Lesser Adjutant Storks, and to a lesser-degree, waders. Small waders especially seem not to be attracted by mudflats sheltered by the mangroves. However, Whimbrel (over 1,000), Redshank (over 3000), and Terek Sandpipers (low hundreds) regularly frequent the Bay and adjacent southern mudflat areas in the winter.

The most northern part of the survey area, located in the outflow area of the Tanintharyi River, consists of sandy mudflat areas suitable for a number of small waders, including the rare Spoon-billed Sandpiper and Great Knot, among others. A total of over 5,000 waders highlight the area as important and ranks the area in the top three most important sites for these birds along the Myanmar coast; only the Gulf of Mottama and the Ayeyarwady Delta achieve higher numbers.

However, even combined with neighbouring areas, Auckland Bay – where another 4,000 Whimbrel and Redshank have been observed – does not trigger the threshold to qualify as a Ramsar globally important wetland (criteria number five: regular presence of 20,000 waterbirds). But with four globally threatened species regularly visiting the intertidal mudflats (and another four near-threatened water birds regularly visiting or breeding in the area), the Northern Myeik Archipelago does fulfil Ramsar criterion two, the presence of globally Threatened species. Thus together with other non-bird related criteria the area deserves to be designated as Ramsar site.

Together with the extensive mature mangrove forest, the intertidal mudflats are highly important areas for biodiversity conservation that require urgent protection.

It is noticeable that certain bird species are missing. For example the absence of Great-billed Heron can be explained due to human disturbances on the beaches.

The mangrove areas are exceptionally rich and diverse and deserve conservation. Ideally, together with local communities, regional authorities and other stakeholder, the mangroves should be protected and managed by communities in alliance with local NGOs. Potential partners and donors can be found through the IUCN Mangroves for the Future initiative (www.mangrovesforthefuture.org), which Myanmar recently joined. Other international mechanisms should be sought.

4.3 Conservation Recommendations

The surveyed area shows a highly significant bird biodiversity, holding territory for eight Globally Threatened and 16 Near-Threatened species. Almost all of them are water birds, depending highly on the undisturbed, unpolluted intertidal mudflats and pristine and mature mangroves. These habitats are highly threatened by expanding coastal development and agricultural encroachment, as well as by increasing levels of pollution. Urgent protection is needed.

When designing any future protected area, either Ramsar site or any other reserve, it is important to include the most northern part of the survey area, north of the northern branch of the Tanintharyi River and the islands west of Myeik (Fig. 3 and 12). Fig. 12 shows the proposed core coastal wetland areas that need urgent protection as they are most important for migratory waders and breeding birds that are globally threatened or near-threatened.

By conducting these protection measures, the most important sites for Spoon-billed Sandpiper and Nordmann's Greenshank, amongst others, would be covered. The mangroves of this area are unique in their undisturbed and mature state and should be protected in their entirety.

Adjacent tropical forest is equally important and all pristine forest areas must be protected before further cutting and conversion to palm oil and rubber plantations. In many cases, the border between the mangrove and the Sundaic Tropical forest is not clear. In order to determine exact boundaries for future protected areas, more detailed surveys are necessary. However, to safeguard these most precious forest areas and coastal habitats, a temporary restraining order or injunction should be put in place that covers most of the area, to prevent the imminent destruction of any further pristine forest and other precious coastal habitats.

Another necessity is to address hunting in the most northern villages. Close collaboration with the communities is essential, and the experiences gained in the Gulf of Mottama Ramsar Site and other places along the coast of Myanmar may indicate opportunities for positive engagement with forest-dependent local communities who have an interest in the sustainable management of these coastal habitats.

Lastly, bird surveys during the breeding season are highly recommended and would help determine the boundaries for future protected areas.

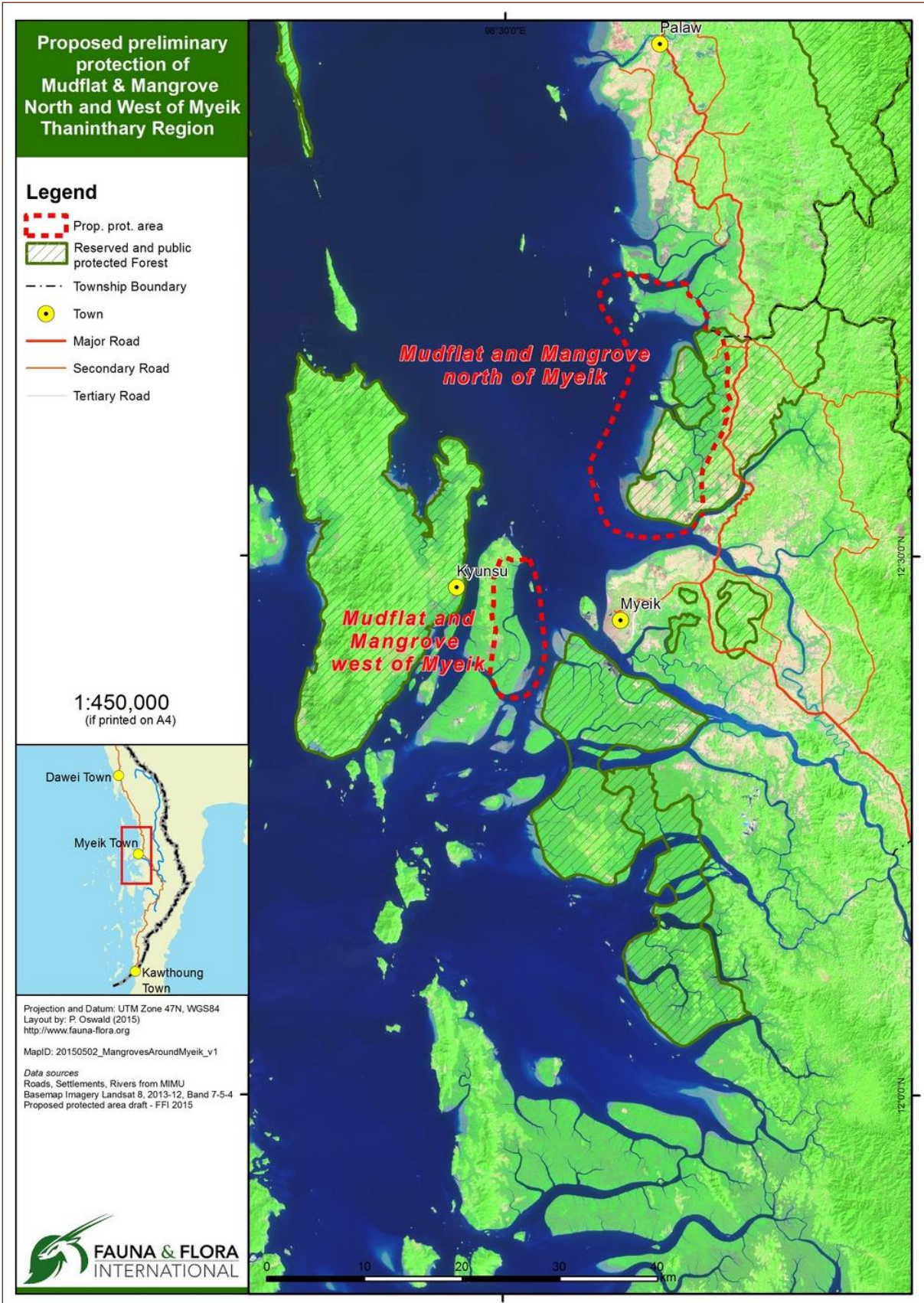


Fig. 12: Proposed protected areas for the northern part of the Myeik mudflats and mangrove areas.

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ANNEXE 1: TABULATED BIRD LIST

	Common New Name	Scientific name	IUCN	Individuals
	PHASIANIDAE: PHASIANINAE: Pheasants & junglefowl			
1	Red Junglefowl	<i>Gallus gallus</i>		1
	ANTIDAE: DENDROCYGNINAE: Whistling-ducks			
2	Lesser Whistling-Duck	<i>Dendrocygna javanica</i>		2330+
	CICONIIDAE: Storks			
3	Lesser Adjutant	<i>Leptoptilos javanicus</i>	VU	18
	THRESKIORNITHIDAE: THRESKIOGNITHINAE: Ibises			
4	Black-headed Ibis	<i>Threskiornis melanocephalus</i>	NT	10
	ARDEIDAE: ARIDEINAE: Herons & egrets			
5	Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>		32
6	Little Heron	<i>Butorides striata</i>		38
7	Indian Pond-Heron	<i>Ardeola grayii</i>		140
8	Chinese Pond-Heron	<i>Ardeola bacchus</i>		20
9	Eastern Cattle Egret	<i>Bubulcus coromandus</i>		30
10	Grey Heron	<i>Ardea cinerea</i>		30
11	Great Egret	<i>Ardea alba</i>		171
12	Intermediate Egret	<i>Mesophoyx intermedia</i>		2
13	Little Egret	<i>Egretta garzetta</i>		277
14	Pacific Reef-Egret	<i>Egretta sacra</i>		36
15	Yellow Bittern	<i>Ixobrychus sinesis</i>		
	PHALACROCORACIDAE: Cormorants			
16	Little Cormorant	<i>Phalacrocorax niger</i>		150
17	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>		4
	FALCONIDAE: PANDIONINAE: Osprey			

18	Osprey	<i>Pandion haliaetus</i>		4
	FALCONIDAE: ACCIPITRINAE: Hawks, eagles & allies			
19	Common Kestrel	<i>Falco tinniculus</i>		
20	Peregrine Falcon	<i>Falco peregrinus</i>		
21	Black Baza	<i>Aviceda leuphotes</i>		18
22	Oriental Honey-Buzzard	<i>Pernis ptilorhynchus</i>		11
23	Black-shouldered Kite	<i>Elanus caeruleus</i>		
24	Black Kite	<i>Milvus migrans</i>		5
25	Brahminy Kite	<i>Haliastur indus</i>		645+
26	White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>		64
27	Lesser Fish-Eagle	<i>Ichthophaga humilis</i>	NT	1
28	Grey-headed Fish-Eagle	<i>Ichthophaga ichthyaetus</i>	NT	2
29	Crested Serpent-Eagle	<i>Spilornis cheela</i>		11
30	Grey-faced Buzzard	<i>Butastur indicus</i>		2
31	Shikra	<i>Accipiter badius</i>		8
32	Japanese Sparrowhawk	<i>Accipiter virgatus</i>		1
33	Besra	<i>Accipiter virgatus</i>		15
34	Changeable Hawk-Eagle	<i>Nisaetus limnaeetus</i>		1
35	Wallace's Hawk-Eagle	<i>Nisaetus nanus</i>	VU	1
	RALLIDAE: Rails, crakes, gallinules & coots			
36	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>		2
37	Watercock	<i>Gallixrex cinerea</i>		2
	BURHINIDAE: Thick-knees			
38	Beach Thick-Knee	<i>Esacus neglectus</i>	NT	2
	PLUVIALIDAE: <i>Pluvialis</i> plovers			
39	Red-wattled Lapwing	<i>Vanellus indicus</i>		
40	Pacific Golden Plover	<i>Pluvialis fulva</i>		8
41	Grey Plover	<i>Pluvialis squatarola</i>		31
	CHARADRIIDAE: <i>Charadrius</i> plovers & allies			
42	Black-winged Stilt	<i>Himantopus himantopus</i>		1

43	Kentish Plover	<i>Charadrius alexandrinus</i>		276
44	Lesser Sand-Plover	<i>Charadrius mongolus</i>		326
45	Greater Sand-Plover	<i>Charadrius leschenaultii</i>		1846
	SCOLOPACIDAE: TRINGINAE: Godwits, dowitchers, curlews, sandpipers			
46	Black-tailed Godwits	<i>Limosa limosa</i>	NT	3
47	Bar-tailed Godwit	<i>Limosa lapponica</i>		150
48	Whimbrel	<i>Numenius phaeopus</i>		1194
49	Eurasian Curlew	<i>Numenius arquata</i>	NT	221
50	Terek Sandpiper	<i>Xenus cinereus</i>		235
51	Common Sandpiper	<i>Actitis hypoleucos</i>		159
52	Common Greenshank	<i>Tringa nebularia</i>		6
53	Nordmann's Greenshank	<i>Tringa guttifer</i>	EN	6
54	Grey-tailed Tattler	<i>Tringa brevipes</i>	NT	1
55	Marsh Sandpiper	<i>Tringa stagnatilis</i>		5
56	Common Redshank	<i>Tringa totanus</i>		3415
	SCOLOPACIDAE: CALIDRIDNAE: Calidris sandpiper & allies			
57	Great Knot	<i>Calidris tenuirostris</i>	VU	2
58	Red Knot	<i>Calidris canutus</i>		3
59	Sanderling	<i>Calidris alba</i>		2
60	Little Stint	<i>Calidris minuta</i>		96
61	Red-necked Stint	<i>Calidris ruficollis</i>		
62	Temminck's Stint	<i>Calidris temminckii</i>		5
63	Lon-toed Stint	<i>Calidris subminuta</i>		20
64	Spoon-billed Sandpiper	<i>Calidris pygmaea</i>	CR	1
65	Dunlin	<i>Calidris alpina</i>		6
66	Curlew Sandpiper	<i>Calidris ferruginea</i>		56
67	Broad-billed Sandpiper	<i>Limicola falcinellus</i>		6
	SCOLOPACIDAE: ARENARINAE: Turnstones & allies			
68	Ruddy Turnstone	<i>Arenaria interpres</i>		4

	GLAREOLIDAE: GLAREOLINAE: Pratincoles			
69	Oriental Pratincole	<i>Glareola maldivarum</i>		20
	STERNIDAE: Noddies & terns			
70	Little Tern	<i>Sternula albifrons</i>		198
71	White-winged Tern	<i>Chlidonias leucopterus</i>		34
72	Whiskered Tern	<i>Chlidonias hybrida</i>		335
73	Common Tern	<i>Sterna hirundo</i>		60
74	Lesser Crested Tern	<i>Thalasseus bengalensis</i>		200
75	Great Crested Tern	<i>Thalasseus bergii</i>		282
	LARIDAE: Gulls & allies			
76	Brown-headed Gull	<i>Chroicocephalus brunnicephalus</i>		2721
	COLUMBIDAE: COLUMBINAE: Typical pigeons & doves			
77	Rock Pigeon	<i>Columba livia</i>		137
78	Red Collared-Dove	<i>Streptopelia tranquebarica</i>		34
79	Spotted Dove	<i>Streptopelia chinensis</i>		48
80	Emerald Dove	<i>Chalcophaps indica</i>		4
	COLUMBIDAE: TRERONINAE: Green-pigeons, imperial-pigeons & allies			
81	Pink-necked Green-Pigeon	<i>Treon vernans</i>		831
82	Thick-billed Green-Pigeon	<i>Treon curvirostra</i>		5
83	Orange-breasted Green-Pigeon	<i>Treon bincincta</i>		4
84	Large Green Pigeon	<i>Treon capellei</i>		1
85	Green Imperial-Pigeon	<i>Ducula aenea</i>		164
86	Pale-capped Pigeon	<i>Columba punicea</i>	VU	12
	PSITTACIDAE: LORICULINAE: Hanging-parrots			
87	Vernal Hanging-Parrot	<i>Loriculus vernalis</i>		108
	PSITTACIDAE: PSITTACINAE: Parrots & parakeets			
88	Red-breasted Parakeet	<i>Psittacula alexandri</i>		133

	CUCULIDAE: CUCULINAE: Old World cucukoos			
89	Hawk-Cuckoo	<i>Hierococcyx sp</i>	NT	1
90	Banded Bay Cuckoo	<i>Cacomantis sonneratii</i>		3
91	Plaintive Cuckoo	<i>Cacomantis merulinus</i>		2
92	Asian Koel	<i>Eudynamys scolopacaceus</i>		35
	CUCULIDAE: PHAENICOPHAEINAE: Malkohas & allies			
93	Green-billed Malkoha	<i>Rhopodytes tristis</i>		12
	CUCULIDAE: CENTROPODINAE: Coucals			
94	Greater Coucal	<i>Centropus sinensis</i>		24
	TYTONIDAE: TYTONINAE: Barn -and grass-owls			
95	Common Barn-Owl	<i>Tyto alba</i>		3
	STRIGIDAE: Typical owls			
96	Collared Scops-Owl	<i>Otus lettia</i>		5
97	Oriental Scops-Owl	<i>Otus sunia</i>		22
98	Asian Barred Owlet	<i>Glaucidium cuculoides</i>		1
99	Brown Boobook	<i>Ninox scutulata</i>		10
	CAPRIMULGIDAE: EUROSTOPODINAE: Eared-nightjars			
100	Great Eared-Nightjar	<i>Eurostopodus macrotis</i>		13
	CAPRIMULGIDAE: CAPRIMULGINAE: Typical nightjars			
101	Large-tailed Nightjar	<i>Caprimulgus macrurus</i>		6
	APODIAE: APODINAE: Typical swifts			
102	Edible-Nest Swiftlet	<i>Aerodramus fuciphaga</i>		1945
103	Germain's Swiftlet	<i>Aerodramus germani</i>		243
104	Brown-backed Needletail	<i>Hirundapus giganteus</i>		50
105	Asian Palm-Swift	<i>Cypsiurus balas</i>		
106	House Swift	<i>Apus affinis</i>		52
	APODIDAE: HEMIPROCNINAE: Treeswifts			

107	Grey-rumped Treeswift	<i>Hemiprocne longipennis</i>		5
	TROGONIDAE: Trogons			
108	Orange-breasted Trogon	<i>Harpactes orekios</i>		2
109	Red-headed Trogon	<i>Harpactes erythrocephalus</i>		1
	CORACIIDAE: Rollers			
110	Indian Roller	<i>Coracias benghalensis</i>		14
111	Dollarbird	<i>Eurystomus orientalis</i>		9
	ALCEDINIDAE: HELCYONINAE: Larger kingfishers			
112	Brown-winged Kingfisher	<i>Pelargopsis amauroptera</i>	NT	117
113	White-throated Kingfisher	<i>Halcyon smyrnensis</i>		12
114	Black-capped Kingfisher	<i>Halcyon pileata</i>		111
115	Collared Kingfisher	<i>Todiramphus chloris</i>		82
	ALCEDINIDAE: ALCEDININAE: Smaller kingfisher			
116	Common Kingfisher	<i>Alcedo atthis</i>		27
	MEROPIIDAE: Bee-eaters			
117	Little Green Bee-eater	<i>Merops orientalis</i>		12
118	Blue-tailed Bee-eater	<i>Mecops philippinus</i>		74
119	Chestnut-headed Bee-eater	<i>Mecops leschenaulti</i>		381
	BUCEROTIDAE: Hornbills			
120	Oriental Pied Hornbill	<i>Anthracoceros albirostris</i>		91
121	Great Hornbill	<i>Buceros bicornis</i>	NT	2
122	Plain-pouched Hornbill	<i>Aceros subruficollis</i>	VU	197
123	Wreathed Hornbill	<i>Aceros undulatus</i>		5
	RAMPHASTIDAE: MEGALAIMINAE: Asian barbets			
124	Lineated Barbet	<i>Megalaima lineata</i>		6
125	Coppersmith Barbet	<i>Megalaima haemaccephala</i>		4
	PICIDAE: PICINAE: Typical woodpeckers			
126	Grey-capped Pygmy Woodpecker	<i>Dendrocopos canicapillus</i>		15

127	Common Flameback	<i>Dinopium javanese</i>		8
128	Greater Flameback	<i>Chrysocolaptes lucidus</i>		43
129	Greater Yellownappe	<i>Chrysophlegma flavinucha</i>		
130	Great Slaty Woodpecker	<i>Mulleripicus pulverlintus</i>	VU	8
	EURYLAIMIDAE: CALYPTOMENINAE: Asian green broadbills			
131	Green Broadbill	<i>Calyptomena viridis</i>	NT	2
	PITTIDAE: Pittas			
132	Mangrove Pitta	<i>Pitta megarhyncha</i>	NT	17
	ACANTHIZIDAE: Gerygones & allies			
133	Golden-bellied Gerygone	<i>Gerygone sulphurea</i>		20-30
	CAMPEPHAGIDAE: Cuckooshrikes, trillers, minivets & allies			
134	Large Cuckooshrike	<i>Coracina macei</i>		20
135	Ashy Minivet	<i>Pericrocotus divaricatus</i>		142
136	Small Minivet	<i>Pericrocotus cinnamomeus</i>		10
137	Fiery Minivet	<i>Pericrocotus igneus</i>	NT	171
	ORIOOLIDAE: Orioles & allies			
138	Black-naped Oriole	<i>Oriolus chinensis</i>		297
139	Black-hooded Oriole	<i>Oriolus xanthornus</i>		7
	AEGITHINIDAE: Ioras			
140	Common Iora	<i>Aegithina tiphia</i>		2
141	Green Iora	<i>Aegithina viridissima</i>	NT	1
	RHIPIDURIDAE: Fantails			
142	White-throated Fantail	<i>Rhipidura albicollis</i>		1
	DICRURIDAE: Drongos			
143	Ashy Drongo	<i>Dicrurus leucophaeus</i>		27
144	Black Drongo	<i>Dicrurus macrocercus</i>		14
145	Crow-billed Drongo	<i>Dicrurus annectans</i>		4
146	Bronzed Drongo	<i>Dicrurus aeneus</i>		3

147	Lesser Racket-tailed Drongo	<i>Dicrurus remifer</i>		11
148	Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>		17
149	Hair-crested Drongo	<i>Dicrurus hottentottus</i>		4
	MONARCHIDAE: Monarchs, paradise-flycatchers & allies			
150	Black-nape Monarch	<i>Hypothymis azurea</i>		7
151	Asian Paradise-Flycatcher	<i>Terpsiphone paradisi</i>		1
	CORVIDAE: Crows, nutcrackers, magpies, jays, treepies & allies			
152	House Crow	<i>Corvus splendens</i>		174
153	Jungle Crow	<i>Corvus japonensis</i>		430
154	Racket-tailed Treepie	<i>Crypsirina temia</i>		4
155	Brown Shrike	<i>Lanius cristatus</i>		9
	NECTARINIIDAE: Sunbirds & spiderhunters			
156	Brown-throated Sunbird	<i>Anthreptes malacensis</i>		27
157	Red-throated Sunbird	<i>Anthreptes rhodolaema</i>	NT	3
158	Van Hasselt's Sunbird	<i>leptocoma brasiliana</i>		21
159	Purple Sunbird	<i>Cinnyris asiaticus</i>		1
160	Olive-backed Sunbird	<i>Cinnyris jugularis</i>		72
161	Crimson Sunbird	<i>Aethopyga siparaja</i>		6
162	Ruby-cheeked Sunbird	<i>Chalcoparia singalensis</i>		2
163	Little Spiderhunter	<i>Arachnothera longirostra</i>		4
	DICAEIDAE: Flowerpeckers			
164	Yellow-bellied Flowerpecker	<i>Dicaeum everetti</i>		6
165	Crimson-breasted Flowerpecker	<i>Dicaeum percussus</i>		3
166	Orang-bellied Flowerpecker	<i>Dicaeum trigonostigma</i>		8
167	Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchus</i>		2
168	Scarlet-backed Flowerpecker	<i>Dicaeum cruentatum</i>		16
	CHLOROPSEIDAE: Leafbirds			
169	Blue-winged Leafbird	<i>Chloropsis cochinchinensis</i>		2
	IRENIDAE: Fairy-bluebirds			

170	Asian Fairy-Bluebird	<i>Irena puella</i>		33
	ESTRILDIDAE: LONCHURINAE: Java Sparrow, munias,			
171	White-rumped Munia	<i>Lonchura striata</i>		51
172	Scaly-breasted Munia	<i>Lonchura punctulata</i>		28
	PLOCEIDAE: Weavers and allies			
173	Baya Weaver	<i>Ploceus philippinus</i>	40	
174	House Sparrow	<i>Passer domesticus</i>		103
175	Eurasian Tree-Sparrow	<i>Passer montanus</i>		104
	MOTACILLIDAE: Wagtails & pipits			
176	Paddyfied Pipit	<i>Anthus rufulus</i>		10
177	Forest Wagtail	<i>Dendronanthus indicus</i>		1
178	Grey Wagtail	<i>Motacilla cinerea</i>		3
	STURNIDAE: STURNINAE: Mynas, starlings & allies			
179	Jungle Myna	<i>Acridotheres fuscus</i>		65
180	Common Myna	<i>Acridotheres tristis</i>		68
181	Chestnut-tailed Starling	<i>Sturnus malabaricus</i>		18
182	Asian Glossy Starling	<i>Aplonis panayensis</i>		22
183	Golden-crested Myna	<i>Ampeliceps coronatus</i>		4
184	Common Hill-Myna	<i>Gracula religiosa</i>		63
	Rock-thrushes, chats, forketails, whistling-thrushes & allies			
185	Blue Rock-Thrush	<i>Monticola solitarius</i>		4
186	Siberian Rubythroat	<i>Luscinia calliope</i>		3
187	Eastern Stonechat	<i>Saxicola maurus</i>		4
188	Pied Bushchat	<i>Saxicola caprata</i>		4
	MUSCICAPIDAE: MUSCICAPINAE: Old World flycatchers & allies			
189	Blue-throated Flycatcher	<i>Cyornis rubeculoides</i>		2
190	Taiga Flycatcher	<i>Ficedula albicilla</i>		35
191	Dark-Side Flycatcher	<i>Muscicapa sibirica</i>		1

192	Asian Brown Flycatcher	<i>Muscicapa dauurica</i>	23
193	Oriental Magpie-Robin	<i>Copsychus saularis</i>	30
194	White-rumped Shama	<i>Copsychus malabaricus</i>	18
	PYCNONOTIDAE: Bulbuls		
195	Stripe-throated Bulbul	<i>Pycnonotus finlaysoni</i>	97
196	Yellow-vented Bulbul	<i>Pycnonotus goiavier</i>	4
197	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	15
198	Red-vented Bulbul	<i>Pycnonotus cafer</i>	6
199	Olive Bulbul	<i>Iole virescens</i>	53
200	Grey-eyed Bulbul	<i>Iole propinqua</i>	13
201	Puff-throated Bulbul	<i>Alophoixus pallidus</i>	9
	HIRUNDINIDAE: HIRUNDININAE: Martins, swallows & allies		
202	Barn Swallow	<i>Hirundo rustica</i>	265
203	House Swallow	<i>Hirundo tahitica</i>	35
204	Red-rumped Swallow	<i>Cecropis daurica</i>	11
	PHYLLOSCOPIDAE: Seicercus & Phylloscopus warblers		
205	Arctic Warbler	<i>Phylloscopus borealis</i>	3
206	Greenish Warbler	<i>Phylloscopus trochiloides</i>	24
207	Yellow-browed Warbler	<i>Phylloscopus inornatus</i>	39
208	Radde's Warbler	<i>Phylloscopus schwarzi</i>	2
209	Dusky Warbler	<i>Phylloscopus fuscatus</i>	4
	TIMALIIDAE: Babblers		
210	Oriental White-Eye	<i>Zosterops palpebrosus</i>	482+
211	Brown-cheeked Fulvetta	<i>Alcippe poioicephala</i>	16
212	Pin-Striped Tit-Babbler	<i>Macronus gularis</i>	123
213	Puff-throated Babbler	<i>Pellorneum ruficeps</i>	19
214	Abbott's Babbler	<i>Malacocincla abbotti</i>	62
	ACROCEPHALIDAE: Acrocephalus warblers & allies		
215	Oriental Reed warbler	<i>Acrocephalus orientalis</i>	1

216	Thick-billed Warbler	<i>Acrocephalus aedon</i>		1
	CISTICOLIDAE: Cisticolas, tailorbirds, prinias & allies			
217	Zitting Cisticola	<i>Cisticola juncidis</i>		1
218	Rufous-tailed Tailorbird	<i>Orthotomus sericeus</i>		4
219	Ashy Tailorbird	<i>Orthotomus ruficeps</i>		3
220	Dark-necked Tailorbird	<i>Orthotomus atrogularis</i>		27
221	Common Tailorbird	<i>Orthotomus sutorius</i>		4
222	Plain Prinia	<i>Prinia inornata</i>		1

IF YOU HAVE ANY QUESTIONS OR WOULD LIKE MORE INFORMATION, PLEASE CONTACT:

FAUNA & FLORA INTERNATIONAL, MYANMAR PROGRAMME

Office: No 35, 3rd Floor, Shan Gone Condo (Corner of Shan Gone Street and Myaynigone Zay Street), San Chaung Township, Yangon.

Tel: +95 (0)973 194 749

www.fauna-flora.org

