

Final Report  
**Far Eastern Curlew Potential Site Survey at Sumatra Island, Indonesia**

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## **Background**

The Far Eastern Curlew is the largest shorebird in the world. It is Endemic to the East Asian-Australasian Flyway with a global population of 32,000 individuals (BirdLife International, 2017). It breeds in eastern Russia and north-eastern China and travels through Mongolia, Japan, the Democratic People's Republic of Korea, the Republic of Korea, China, Vietnam, Thailand, and Malaysia to its non-breeding ground. About 25 percent of the population is thought to spend the non-breeding season in the Philippines, Indonesia, and Papua New Guinea but most (estimated 26.000 individuals) spend the non-breeding season in Australia. (UNEP-CMS, 2017).

Currently, this species is considering as the Endangered (EN) species based on the last assessment by BirdLife International (BirdLife International, 2017) and Critically Endangered (CR) species in Australia (UNEP-CMS 2017). An analysis of monitoring data collected from around Australia and New Zeland (Studds et al. In prep. In BirdLife International 2017) suggests that the species has declined much more rapidly than was previously thought; with an annual rate of decline of 0.058 equating to a loss of 81,7% over three generations. The global trend of this species is decreasing (BirdLife International 2017). The main threat of this species is habitat loss especially stop-over and non-breeding habitat loss caused by reclamation, port development, industrial use, agriculture, and urban expansion in the Yellow Sea where it stages on migration (Bamford *et al.* 2008; Van de Kam *et al.* 2010; Melville *et al.* 2016). Other threats along their migration route include hunting, incidental capture in the fishing net, environmental pollution, invasive cordgrass *Spartina*, and human disturbance (Barter 2002; Melville *et al.* 2016).

As one of the non-breeding grounds for Far Eastern Curlew, data, information, and study about this species in Indonesia were so minimum. With 54,720 km of total coastline (embassyindonesia.org, 2020)., Indonesia indeed has the potency as the non-breeding site for migratory shorebirds including Far Eastern Curlew, but data and study about this species and migratory shorebird in general still very little.

Based on unpublished data of migratory shorebird monitoring at Pantai Cemara (2019) recorded 36 individuals of Far Eastern Curlew using this site as roosting and feeding ground in a flock with Eurasian Curlew; from the survey data of Sembilang National Park (2018) recorded 55 individuals of Far Eastern Curlew; these data shows the potency of northern-east coast of Sumatra Island as the non-breeding site of Far Eastern Curlew therefor we proposed this project to identify the important non-breeding site for Far Eastern Curlew along the northeast coast of Sumatra Island, Indonesia.

## Objective

- Identify and document key sites of Far Eastern Curlew at Sumatra Island, Indonesia
- Identify the threat and potency of each site
- Improve the Far Eastern Curlew identification skill of the local ranger
- Collate and analyze existing information on important site of FEC in Indonesia

## Result and Discussion

1<sup>st</sup> Site (Palembang Site) : Berbak and Sembilang National Park (Inter-tidal Mudflat Area of Sembilang National Park- STPN II)

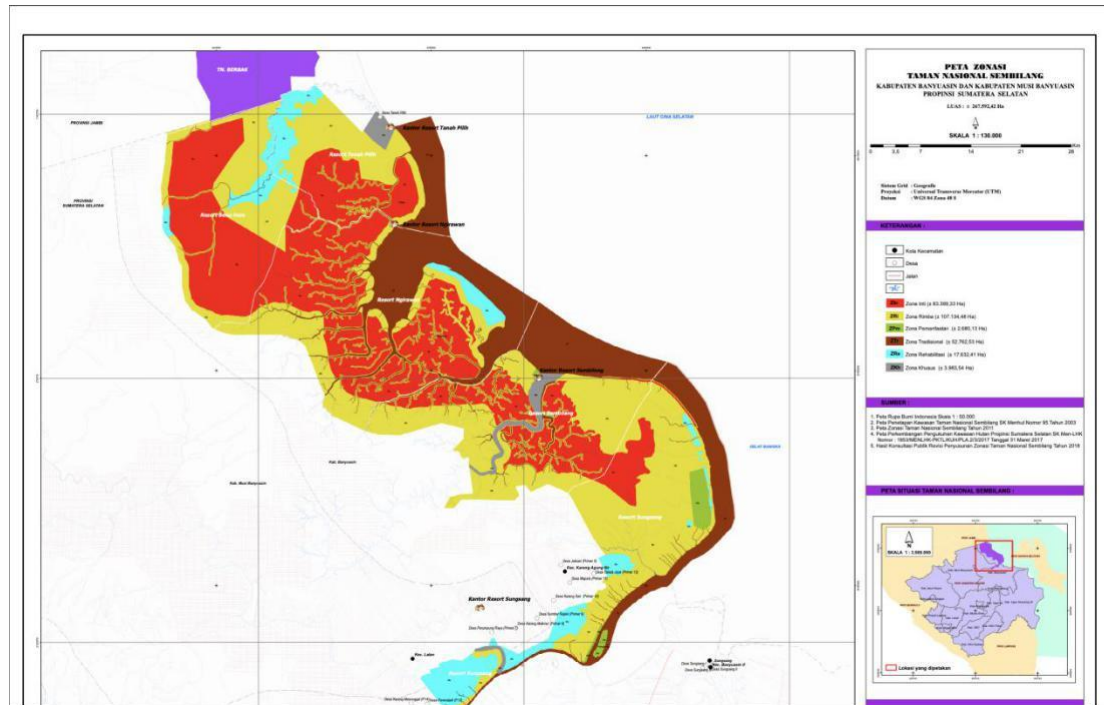


Fig. 01 : Map of Sembilang National Park (Ministry of Environment and Forestry Republic of Indonesia, 2020).

### Site Status :

- Full Protected (Managed as National Park with total area 297,592.42 ha)
- Ramsar Site 1945
- Flyway Site Network (FSN) (EAAF108)

### Potencies :

- This site was regularly visited by more than ten thousands of migratory shorebirds which searching for feeding and roosting ground during their migratory journey (Unpublished data of Sembilang National Park 2020).
- This site is in the protected area, which is Berbak and Sembilang National Park therefore this area is protected from development, change of use of land, hunting activity, etc.
- It is already has a forest ranger who focusing to assess and protecting this site.

*Threats :*

- *Direct threat*
  - Forest fire near the protected area
  - Incidental capture by the fisherman
- Indirect threat*
- *Minimum study and habitat management to maintain the suitable habitat for migratory shorebird site*



*Fig. 2 : Observation point of Far Eastern Curlew Project at Sembilang National Park Area  
(Google Earth, 2020)*

## **Survey Method**

We did our survey from November 4th to 8th, 2020 (5 days). We determine two observation points, but we are focusing the monitoring on observation point A., which is the inter-tidal mudflat near the estuary. We did the monitoring and training to the local people on the last day on observation point B (fig 2). It was reached by boat and continue by foot. For monitoring activity at observation point - B has only been done for 1 day (November 8th, 2020) because it is located near local people's village (Barong village). Observation point B habitat type is dominated with fishpond and is usually used as a roosting site for several species of migratory shorebird.

## Survey Result

Table 01 : Result of Survey Activity at Sembilang National Park between November 4<sup>th</sup>- 8<sup>th</sup>, 2020.

NO	Spesies	English Name	Family	Population Trend	IUCN Status	Result				
						04-Nov-20	05-Nov-20	06-Nov-20	07-Nov-20	08-Nov-20
1	<i>Pluvialis squatarola</i>	Grey Plover	Charadriidae	Decreasing	LC	0	6	0	0	0
2	<i>Charadrius mongolus</i>	Lesser Sandplover	Charadriidae	Unknown	LC	340	440	560	887	125
3	<i>Numenius phaeopus</i>	Whimbrel	Scolopacidae	Decreasing	LC	1	33	0	0	0
4	<i>Numenius arquata</i>	Eurasian Curlew	Scolopacidae	Decreasing	NT	20	144	162	257	54
5	<i>Numenius madagascariensis</i>	Far Eastern Curlew	Scolopacidae	Decreasing	EN	3	56	111	210	76
6	<i>Limosa limosa</i>	Black-tailed Godwit	Scolopacidae	Decreasing	NT	50	5020	5230	15067	0
7	<i>Limosa lapponica</i>	Bar-tailed godwit	Scolopacidae	Decreasing	NT	7	2242	2750	9633	0
8	<i>Tringa totanus</i>	Common Redshank	Scolopacidae	Stable	LC	542	640	675	829	24
9	<i>Tringa nebularia</i>	Common Greenshank	Scolopacidae	Unknown	LC	0	14	0	0	0
10	<i>Xenus cinereus</i>	Terek Sandpiper	Scolopacidae	Decreasing	LC	1	189	0	0	0
11	<i>Arenaria interpres</i>	Rudy Turnstone	Scolopacidae	Decreasing	LC	2	1	0	0	0
12	<i>Limnodromus semipalmatus</i>	Asian Dowitcher	Scolopacidae	Decreasing	NT	518	62	24	176	27
13	<i>Calidris ferruginea</i>	Curlew Sandpiper	Scolopacidae	Decreasing	NT	0	41	4	0	0
<b>Total Bird Count</b>						1484	8888	9516	<b>27059</b>	306

### Existing data of Far Eastern Curlew at Sembilang National Park (2008 - 2020)

Table 02 : Maximum Number of Far Eastern Curlew recorded at Berbak Sembilang National Park (The Area of Sembilang Coast - STPN II, Palembang)

Year	2008	2009	2011	2012	2016	2017	2018	2020
Number of birds	1750	806	904	508	37	0	55	210

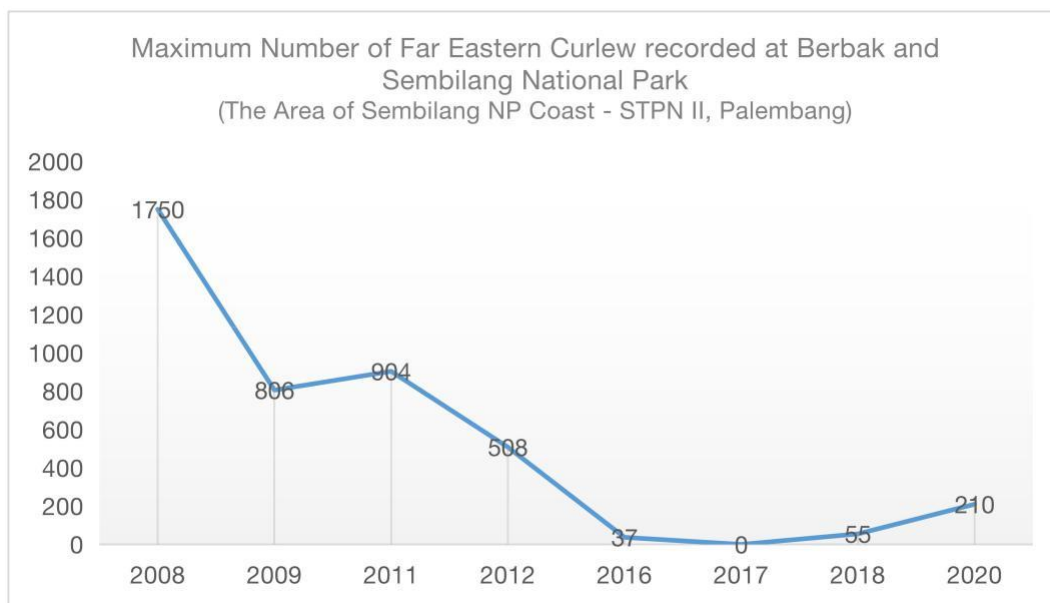


Fig 03 : The line-chart of maximum number of Far Eastern Curlew recorded at Sembilang National Park year by year (source : unpublished data of Sembilang National Park (2008-2012, 2016-2018, and the result of current survey by EKSAI Foundation 2020).

Table 03 : Number of Species and Birds Recorded at Berbak Sembilang National Park (The Area of Sembilang Coast - STPN II, Palembang)

Year	2008	2009	2011	2012	2016	2017	2018	2020
Number of species	14	14	13	15	14	14	22	13
Maximum Count of Total birds recorded	16701	2303	18940	10985	7025	5207	5838	27059

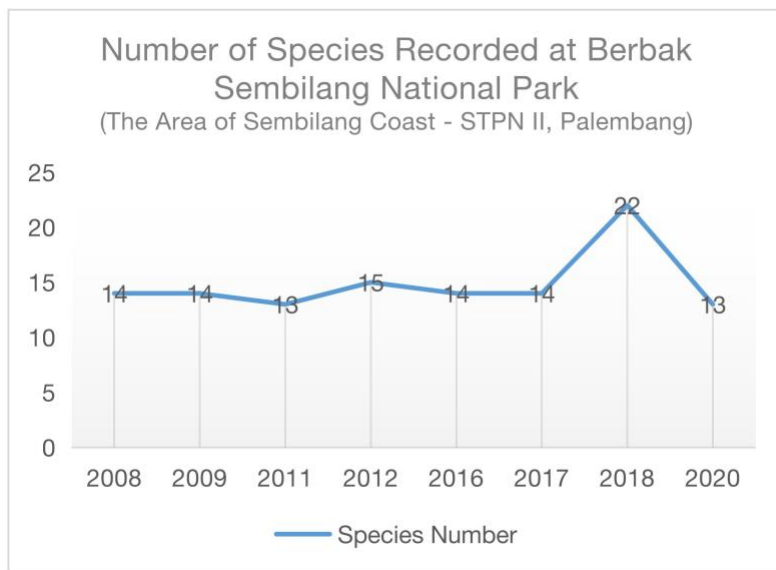


Fig 04 : The line-chart of Number of Species Recorded at Berbak Sembilang National Park ; the area of Sembilang Coast (2008-2012, 2016-2018, and the result of current survey by EKSAI Foundation 2020).

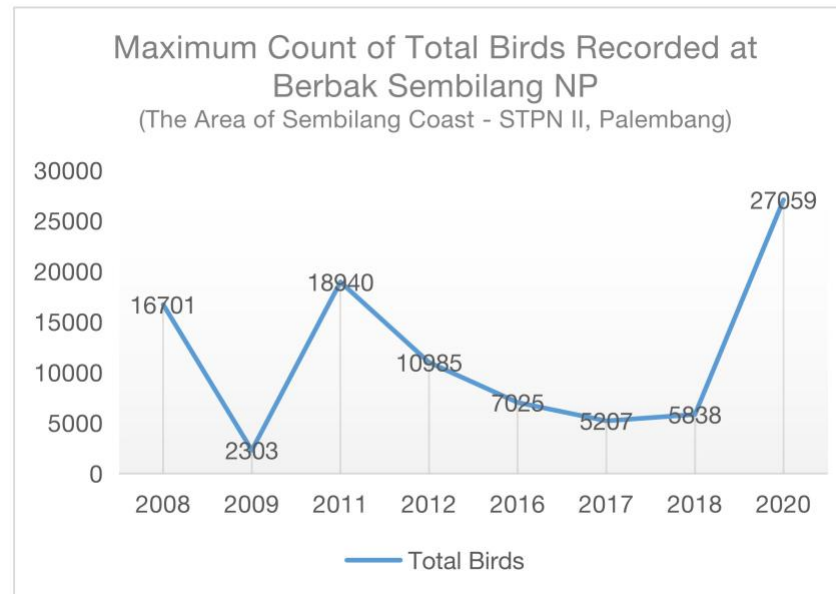


Fig 05 : The line-chart of Maximum Count of Total Birds Recorded at Berbak Sembilang National Park; the area of Sembilang Coast (2008-2012, 2016-2018, and the result of current survey by EKSAI Foundation 2020).



The Sembilang National Park is known as one of the most important sites for migratory waterbirds and migratory shorebirds, it is indicated by the establishment of this area as Ramsar Site in 2011 and Flyway Site Network (FSN) with Site Code EAAF108 in 2011.

In 2008 the number of Far Eastern Curlew species recorded at Sembilang National Park was 1750 individuals (table 02) and it was constantly decreasing every year (fig. 03) with the most drop in 2016 and 2017. This condition possibly caused by the loss and change of the Yellow Sea, one of the most important sites for this species (Bamford *et al.* 2008, Ma *et al.*, 2014, Murray *et al.*, 2014, Melville *et al.*, 2016), reclamation of intertidal flats for tidal power plants and barrages, port development, industrial use, agricultural and urban expansion in the Yellow Sea considered as the main threat for Far Eastern Curlew (UNEP-CMS, 2017).

Based on the threat assessment result that we have done, the only biggest direct threat for this species and all migratory shorebirds at Sembilang National Park is a forest fire. As a protected area, hunting and poaching is not an issue for migratory shorebirds at Sembilang National Park, the incidental capture by fisherman also not threatening the population of migratory shorebird because frequently the forest ranger is doing regular control and socialization. In 2016, 2017, and 2018 which the most drop record of the presence of Far Eastern Curlew, the big fire forest was burning the South Sumatra Forest including several areas of Sembilang National Park, and this fire produced thick smoke that irritating and threatening health. Based on fig 05, the total count of migratory shorebird recorded at Sembilang National Park also most decreased in 2016, 2017, and 2018, in line with the decrease of Far Eastern Curlew Species. In 2020, without forest fire, we record 27,059 individuals of a migratory shorebird (table 03), and 210 individuals of Far Eastern Curlew species (table 02) at Sembilang National Park.



*Fig. 06 : A picture of Far Eastern Curlew foraging among Asian Dowitcher  
(personal documentation, 2020)*

With all the data explained above, Sembilang National Park is still one of the most important sites for Far Eastern Curlew and other migratory shorebird species. The soft muddy beach substrate of Sembilang National Park is the most favorite feeding ground of large waders such as Curlew and Godwit including Far Eastern Curlew. Far Eastern Curlew has a preference for soft substrates containing little or no hard material (e.g. rock, shell grit, coral, debris) that provide better access to their prey (Finn *et al.*, 2008), and that description represents the substrate type of Sembilang National Park inter-tidal area (observation point A).



*Fig 07. Flocks of thousands of migratory shorebird at Sembilang National Park (personal documentation, 2020)*

The maximum count of total migratory shorebird recorded during our survey is 27,059 from the total of 13 species with Black-tailed Godwit as the most abundant species. The most abundant species are dominated by mid to large shorebirds (Godwit, Curlew, Asian Dowitcher). This result most likely caused by the soft muddy substrate of Sembilang inter-tidal mudflat are more suitable for larger shorebird with long beak (Finn *et al.*, 2008). The soft muddy substrate with no or minimum hard material will allowing the birds with long beaks have better access to their prey.

Besides doing the migratory shorebird monitoring, we also train the local ranger (Mr. Deni Mulyana - Representative of Forest Ranger at Sembilang National Park), and local people of Barong Village (Observation Point B) to upgrade his identification skills especially skill to identify and to distinguish Far Eastern Curlew from other species including Eurasian Curlew which have similar morphology.

Barong village; the observation point B. It is dominated by fishponds with the mangrove ecosystem. The unproductive fishpond is usually used by migratory shorebirds as mostly roosting areas when high tide. This area has the potency to be managing as a potential roosting area, by involving the local people, so on this occasion, we involving two representatives of local people: Mr. Taher and Mr. Yoko, to do the monitoring together while educate and train them to identify the key species of migratory



shorebird including Far Eastern Curlew. After the survey, we show the local ranger and local people to take a sample of the substrate (benthic sampling) with corer.



*Fig 08 : Training local ranger and socialization to local people (a) monitoring and identification training with local ranger, (b) photo with local ranger and local people after training, (c) Benthic sampling training, (d) socialization and educate local people.*

After the survey, we had a meeting with the Head of Berbak-Sembilang National Park, Mr. Pratono Puroso, to discuss the result of the migratory shorebirds survey (Fig 09). Besides discussing the threats and the potencies of Sembilang inter-tidal mudflat for migratory shorebirds, we also discuss the importance of habitat assessment and planning to do a further assessment to determine the roosting and the feeding ground of migratory shorebirds, and provide a map of the habitat to improve the management habitat.



*Fig 09 : Meeting and discussion with Mr. Pratono Puroso the Head of Berbak and Sembilang National Park.*

**2nd Site (Jambi Site) : Ecosystem Essential Area, Pantai Cemara, Desa Sungai Cemara, Tanjung Jabung Timur Region, Jambi**

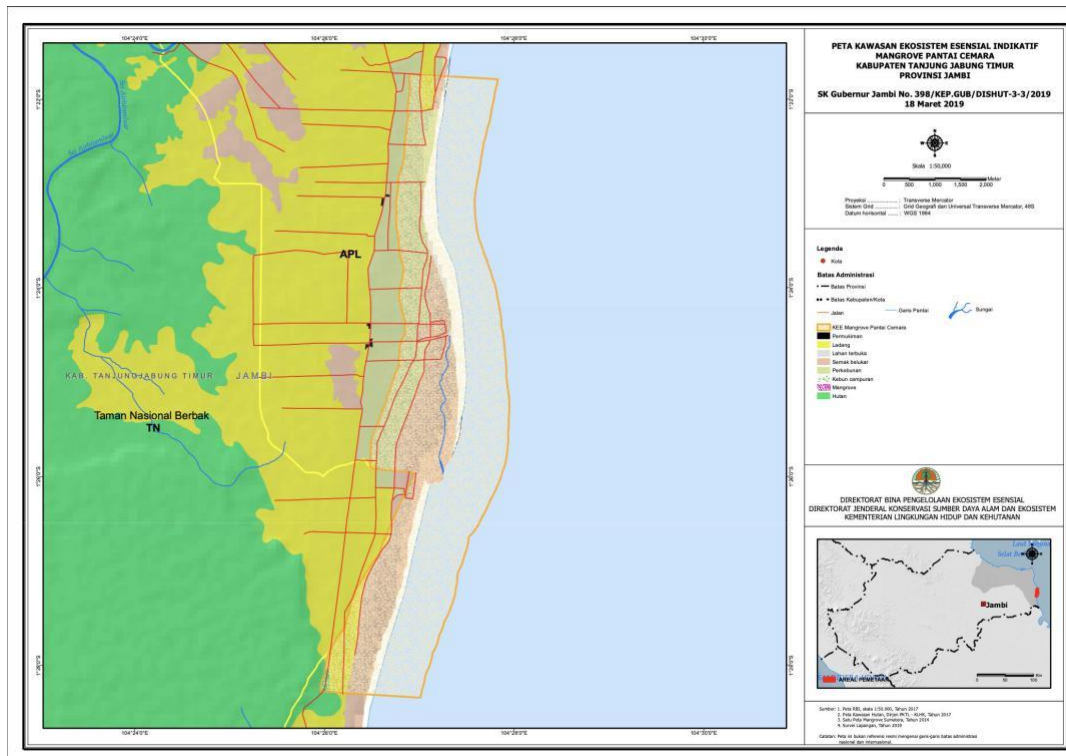


Fig 10. Map of Pantai Cemara - Essential Ecosystem Area, Jambi (Ministry of Environment and Forestry Republic of Indonesia, 2019)

**Site Status :**

I Protected as Ecosystem Essential Area (Managed by Forestry Department of Jambi Province)

I currently in the process to be proposed as Flyway Site Network

**Potencies :**

- This site was visited by more than ten thousands of migratory shorebirds which searching for feeding and roosting ground during their migratory journey (Unpublished data of Migratory Shorebird Survey at Pantai Cemara, Jambi 2019).
- Local people on this site are eager to learn and involving themself to be a part of migratory shorebirds conservation. They see these birds as the potency of their village.
- Local government fully support the development and conservation activities for this site

**Threats :**

**Direct threat**

- Forest fire (but the effect are not as big as Sembilang NP)
- Natural Predator (Eagle observed prey on *Charadrius mongolus* during the monitoring)
- Plastic waste
- Massive growth of *Ipomea sp.* and *Avicennia sp.*





Fig 11. Observation point at Pantai Cemara - Essential Ecosystem Area (Google Earth 2020)

### Survey Method

We did our survey from November 17th to 21st, 2020 (5 days). We determine one observation point which will be able to access the wide beach with mixed sandy beach substrate type. We did the monitoring and training to the local people and local ranger during the monitoring activity. We reach the observation point by boat and continue on foot.

### **Note about the habitat condition**

There is a massive growth of grass, *Ipomea sp.* and *Avicennia sp.* from 2019 (Fig.12 ).



Fig 12. Massive growth of grass, *Ipomea sp.*, and *Avicennia sp.*

## Survey Result

Table 04 : Result of Survey Activity at Pantai Cemara, Jambi between November 17<sup>th</sup>, 2020 - November 21<sup>st</sup>, 2020.

NO	Spesies	English Name	Local Name	Population Trend	IUCN Status	17	18	19	20	21
1	<i>Egretta eulopotes</i>	Chinese Egret	Kuntul Cina	Decreasing	VU	1	1	1	1	1
2	<i>Charadrius dealbatus</i>	White-Faced Plover		Unknown	DD (Data Deficient)	2	0	1	1	1
3	<i>Charadrius leschenaultii</i>	Greater Sandplover	Cerek Pasir Besar	Decreasing	LC	412	4	89	368	438
4	<i>Pluvialis squatarola</i>	Grey Plover	Cerek Besar	Decreasing	LC	48	28	17	7	34
5	<i>Charadrius mongolus</i>	Lesser Sandplover	Cerek Pasir Mongolia	Unknown	LC	239	337	354	535	476
6	<i>Pluvialis fulva</i>	Pacific Golden Plover	Cerek Krenyut	Decreasing	LC	8	13	2	7	4
7	<i>Charadrius alexandrinus</i>	Kentish Plover	Cerek Tillil	Decreasing	LC	0	0	0	0	0
8	<i>Charadrius peronii</i>	Malay Plover	Cerek Melayu	Decreasing	NT	1	0	1	1	0
9	<i>Charadrius javanicus</i>	Javan Plover	Cerek Jawa	Decreasing	NT	2	2	1	2	0
10	<i>Hydropogone caspia</i>	Caspian Tern	Dara Laut Caspia	Increasing	LC	32	20	23	41	44
11	<i>Sterna hirundo</i>	Common Tern	Dara Laut Biasa	Decreasing	LC	0	0	0	0	0
12	<i>Gelochelidon nilotica</i>	Common Gull-billed Tern	Dara Laut Tiram	Decreasing	LC	0	0	0	0	0
13	<i>Thalasseus bergii</i>	Greater Crested Tern	Dara Laut Jambul	Stable	LC	19	20	14	0	10
14	<i>Stenula albifrons</i>	Little Tern	Dara Laut Kecil	Decreasing	LC	35	30	27	38	27
15	<i>Calidris tenuirostris</i>	Great Knot	Kedidi Besar	Decreasing	EN	20	38	301	366	138
16	<i>Numenius madagascariensis</i>	Far Eastern Curlew	Gajahan Timur	Decreasing	EN	35	8	18	11	24
17	<i>Tringa guttifer</i>	Spotted Greenshank	Trinil Nordmann	Decreasing	EN	21	11	6	0	5
18	<i>Tringa stagnatilis</i>	Marsh Sandpiper	Trinil Rawa	Decreasing	LC	26	20	22	16	17
19	<i>Xenus cinereus</i>	Terek Sandpiper	Trinil Bedaran	Decreasing	LC	87	74	125	36	26

20	<i>Tringa totanus</i>	Common Redshank, Redshank	Trinil Kaki Merah	Unknown	LC	30	38	29	4	17
21	<i>Numenius phaeopus</i>	Whimbrel	Gajahan Penggala	Decreasing	LC	17	21	18	24	20
22	<i>Actitis hypoleucos</i>	Common Sandpiper	Trinil Pantai	Decreasing	LC	1	1	1	1	1
23	<i>Arenaria interpres</i>	Rudy Turnstone	Trinil Pembalik Batu	Decreasing	LC	2	2	2	0	0
24	<i>Tringa nebularia</i>	Common Greenshank	Trinil Kaki Hijau	Stable	LC	21	24	24	18	16
25	<i>Calidris alba</i>	Sanderling	Kedidi Putih	Unknown	LC	1	1	2	1	1
26	<i>Limnodromus semipalmatus</i>	Asian Dowitcher	Trinil Lumpur Asia	Decreasing	NT	125	234	70	78	68
27	<i>Limosa limosa</i>	Black-tailed Godwit	Biru Laut Ekor Hitam	Decreasing	NT	5	525	220	328	469
28	<i>Limosa lapponica</i>	Bar-tailed Godwit	Biru Laut Ekor Blorok	Decreasing	NT	520	485	562	569	368
29	<i>Calidris canutus</i>	Red Knot	Kedidi Merah	Decreasing	NT	0	0	0	0	0
30	<i>Numenius arquata</i>	Eurasian Curlew	Gajahan Besar	Decreasing	NT	44	25	14	26	77
31	<i>Calidris ruficolis</i>	Red Necked Stint	Kedidi Leher Merah	Decreasing	NT	270	248	130	137	278
32	<i>Calidris ferruginea</i>	Curlew Sandpiper	Kedidi Gol-Gol	Decreasing	NT	183	174	159	201	230
33	<i>Glareola maldivarum</i>	Oriental Pratincole	Terik Asia		LC	0	0	0	0	1
						2207	2384	2233	2817	2791

Table 05 : Maximum Count of Far Eastern Curlew at Pantai Cemara, Jambi

	Maximum Count of FEC recorded
2019	38
2020	35

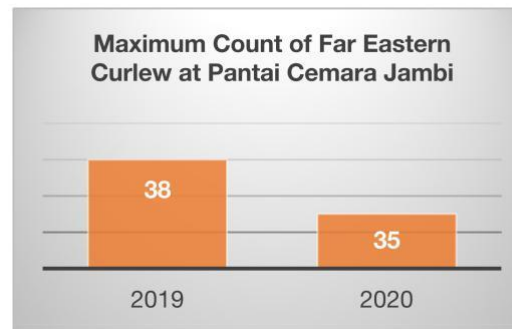


Fig 13 . Bar-chart of Maximum count of Far Eastern Curlew at Pantai Cemara Jambi (unpublished data, EKSAI Foundation)



Table 06 : Maximum Count of Migratory Waterbird recorded at Pantai Cemara, Jambi

	Maximum Count of Migratory Waterbirds recorded
2019	17,032
2020	2,817

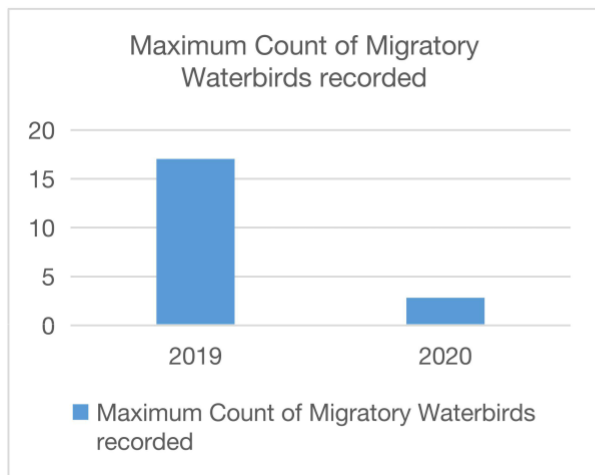


Fig 14. Bar-chart of Maximum count of migratory waterbird recorded (unpublished data, EKSAI Foundation)

Table 07 : Maximum Count of Godwit recorded at Pantai Cemara, Jambi

	Maximum Count of Black-tailed Godwit	Maximum Count of Bar-tailed Godwit
2019	3,700	2,700
2020	525	520

Pantai Cemara located at Desa Sungai Cemara, Tanjung Jabung Region, Jambi Province. It is designated as the Essential Ecosystem Area in 2018 by the Governor of Jambi Province. This site is known as one of the most important sites for migratory shorebirds along Sumatra Island. With mixed sandy beach texture of substrate, this site is used by more than ten thousands migratory shorebirds from 32 species (unpublished data, EKSAI Foundation).

In 2019 we also recorded three endangered species of migratory shorebird roosting and feeding on this site. We recorded 21 individuals of Spotted Greenshank (more than 1% of its population, 38 individuals of Far Eastern Curlew, and 1950 individuals of Great Knot. This result showed the potency of this site as one of the most important sites for migratory shorebirds in Indonesia.

From table 04 we can see the number of Far Eastern Curlew and Great Knot are decreasing this year (2020). Generally, the numbers of migratory shorebirds at Pantai Cemara are decreasing this year. The species that most decreases are Godwits. From table 07, we can see how big the difference of Godwit numbers in 2019 and 2020. As noted before, the massive growth of grass and *Ipomea sp.*, possibly caused this condition. As explained in Finn (2007) large shorebirds such as Far Eastern Curlew needs open inter-tidal mudflats without vegetation to access their prey (Finn, 2007). Nevertheless, the numbers of Far Eastern Curlew are not too affected and still stable, and we suggest it possibly because this site provides the Far Eastern Curlew's favorite prey, small crabs. During our survey, we spotted 1 individual of Far Eastern Curlew with Victoria-flag (Fig 13).



photo by. Cipto Dwi Handono (2020)

Fig. 13. Far Eastern Curlew with Victoria-flag (personal documentation, 2020)

During the survey, we also do training for the local ranger and local monitoring team (the local youth of Sungai Cemara Village) to improve their shorebirds identification skill, especially Far Eastern Curlew as one of the key species at Pantai Cemara. (Fig 14).



Fig 14. Identification training for local ranger and local monitoring team (personal documentation, 2020)

After our activity in 2019, the local government was starting the development of Sungai Cemara Village and scheduling the training and capacity building for the locals. The local people of Sungai Cemara Village getting enthusiastic about learning and conserving the migratory shorebirds because they feel that the government getting serious to develop their people and the village. We feel their enthusiasm in the meeting with local people and village officials, they are more open and excited to learn and contribute in the conservation activities for migratory shorebirds, including prevention for any kind of threats for the migratory shorebirds especially from an outsider (sometimes people from outside this village sneak in for hunting the birds).



Fig 15. (a) Meeting, discussion and socialization to local people of Sungai Cemara Village, (b) Photo of monitoring team (personal documentation, 2020)

**3<sup>rd</sup> Site (North Sumatra Site) : Bagan Serdang, Deli Serdang Region and Pantai Titik Kembar, Batubara Regency**

Site Status :

- Not-protected
- Used by fisherman for fishing (by net-catching)

Potency :

- With the muddy beach texture of open mudflat, this site suitable for migratory shorebirds. This site also became one potential site to be proposed as a new Flyway Site Network in Indonesia.

Threat :

Direct threat

- Hunting for Sale and Consumption (Fig 17)
- Plastic Waste (Fig 18)

Indirect threat

- Not managed, not protected

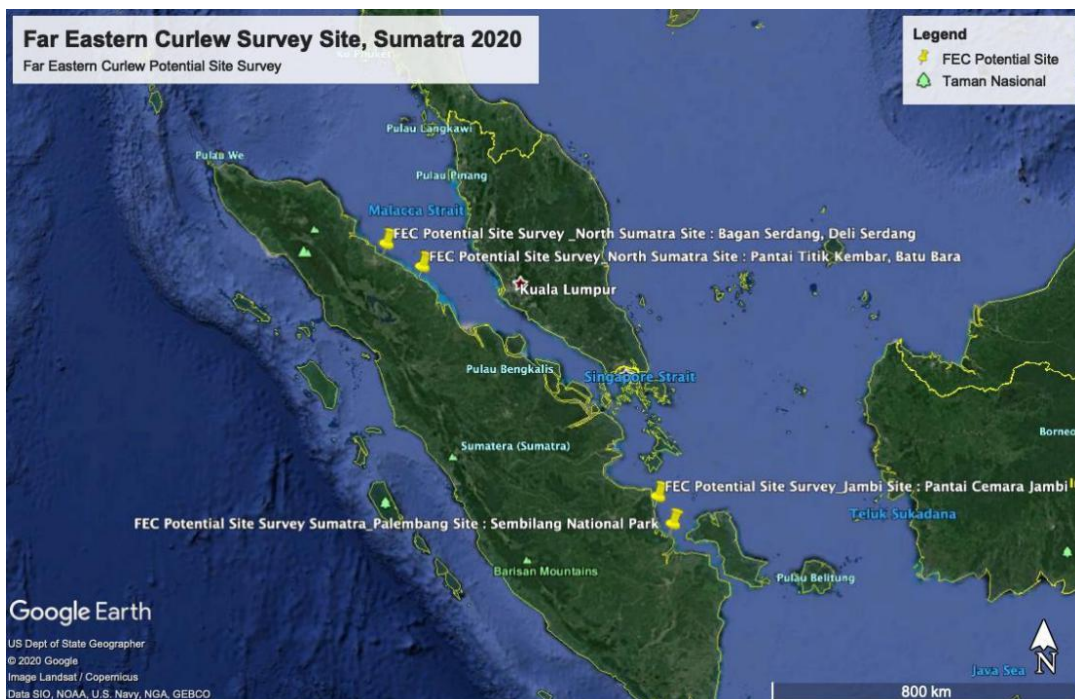


Fig 16. Far Eastern Curlew Survey Site, showing the location of survey site at North Sumatra (Google Earth 2020)





*Fig 17. Fishermen catch the Mongolian Plover by fishing net (personal document, 2020)*



*Fig 18. Plastic waste on the monitoring site (personal documentation, 2020)*

### Survey Method

We did our survey from November 30th to December 3rd, 2020 (4 days), we were planning to do 5 days survey but there was raining pretty heavy on December 4th, so we were not able to run a survey on that day. We determined two observation site in North Sumatra Province which are: Bagan Serdang, Deli Serdang Region; and Pantai Titik Kembar, Batubara Region. We run the survey at Bagan Serdang from November 30th to December 2nd, 2020; and the survey at Pantai Titik Kembar was on November 3rd. We reach the observation point by boat and surveyed the area on the boat (Fig 19).



*Fig 19. Survey and identify the birds from boat (personal documentation, 2020)*



## Survey Result

Table 08 : Result of Survey Activity at North Sumatra Site between November 30<sup>th</sup>, 2020 - December 3<sup>rd</sup>,

NO	Spesies	English Name	Local Name	Result			
				30-Nov-20	01-Dec-20	02-Dec-20	03-Dec-20
1	<i>Mycteria cinerea</i>	Milky Stork	Bangau Bluwok	6	19	12	0
2	<i>Pluvialis squatarola</i>	Grey Plover	Cerek Besar	18	32	20	0
3	<i>Pluvialis fulva</i>	Pacific Golden Plover	Cerek Keryut	246	205	421	0
4	<i>Charadrius mongolus</i>	Lesser Sand Plover	Cerekpasir Mongolia	542	561	520	0
5	<i>Charadrius leschenaultii</i>	Greater Sand Plover	Cerekpasir Besar	374	244	627	0
7	<i>Numenius arquata</i>	Eurasian Curlew	Gajahan Erasia	18	1	42	1
<b>8</b>	<b><i>Numenius madagascariensis</i></b>	<b>Far Eastern Curlew</b>	<b>Gajahan Timur</b>	<b>6</b>	<b>26</b>	<b>24</b>	<b>3</b>
9	<i>Limosa limosa</i>	Black-tailed Godwit	Birulaut Ekor-hitam	132	245	312	5
10	<i>Limosa lapponica</i>	Bar-tailed Godwit	Birulaut Ekor-blorok	41	105	47	0
11	<i>Tringa totanus</i>	Common Redshank	Trinil Kaki-merah	3	115	209	0
13	<i>Tringa nebularia</i>	Common Greenshank	Trinil Kaki-hijau	0	0	0	0
14	<i>Tringa guttifer</i>	Spotted Greenshank	Trinil Nordmann	2	5	51	0
15	<i>Xenus cinereus</i>	Terek Sandpiper	Trinil Bedaran	0	0	0	22
16	<i>Actitis hypoleucos</i>	Common Sandpiper	Trinil Pantai	1	2	2	0
18	<i>Limnodromus semipalmatus</i>	Asian Dowitcher	Trinillumpur Asia	34	42	47	75
20	<i>Calidris ruficollis</i>	Rufous-necked Stint	Kedidi Leher-merah	35	27	21	56
21	<i>Calidris ferruginea</i>	Curlew Sandpiper	Kedidi Golgol	63	121	142	0
23	<i>Vanellus cinereus</i>	Grey-headed Lapwing	Trulek Kelabu	0	45	125	220
24	Unidentified Birds			0	0	0	2750
<b>TOTAL Birds</b>				<b>1521</b>	<b>1795</b>	<b>2622</b>	<b>3132</b>

Several records showed that Bagan Serdang and Pantai Titik Kembar are the very potential non-breeding site for migratory shorebirds in North Sumatra. Currently, Bagan Serdang and Percut Sei are in the process to proposed to be the Flyway Site Network in Indonesia. Pantai Kresek, part of Pantai Titik Kembar also reported as one of the most important sites for one of the most endangered shorebirds, Spotted Greenshank (Zocker, *et al.*, 2018). We also identify the unique potency of these sites by the presence of hundreds of Grey-headed Lapwings which during this monitoring activity only recorded in Pantai Titik Kembar, Batubara Regency. This potency should be explored more because, in this activity, several potential areas in this site were not able to reach due to the weather.

Based on data presented in table 08, the maximum count of Far Eastern Curlew recorded at Bagan Serdang are 26 individuals, recorded on December 1st, 2020; and from the survey at Pantai Titik Kembar, we recorded 3 individuals of Far Eastern Curlew. Nevertheless, there are 2750 unidentified birds at Pantai Titik Kembar, because our boat was not able to reach that area due to the weather.

From all three sites in this survey project, these sites in the North Sumatra is the only site without government protection. Without management and protection in these areas, people are hunting the migratory shorebirds, for any kind of reason (Fig 17). On November 4th, we have a meeting with birdwatchers from North Sumatra and discuss the opportunity to propose this site to be a protected site that manages by the government. Based on their experiences, the government of Medan and North Sumatra are not easy to get along conserving those habitats. Based on the discussion results, we need to do a focus project to do advocation and education for these sites.

*On November 2nd, after we did the survey, we train the local birdwatcher to use the corer (benthic-sampling tools) that we will give them. By giving them these tools, we wish they will be eager to do more analysis about the potency of those two sites.*



*Fig 20. Train the local birdwatcher to do benthic sampling. (personal documentation, 2020)*

## **Conclusion**

Based on the monitoring result explain above, we can conclude that all of these three sites are potential non-breeding sites for Far Eastern Curlew. The most abundance Far Eastern Curlew recorded at Berbak and Sembilang National Park (Sembilang mudflat - STPN II Area). This site has a characteristic of the favorite type of non-breeding site for large shorebirds such as Curlew and Godwit. At Pantai Cemara Jambi, besides the drastic decrease of shorebirds number recorded, the number of Far Eastern Curlew compare to 2019 is still stable, this result suggests the specific potency at Pantai Cemara that attract this species. As the only unprotected site, the presence of Far Eastern Curlew in these sites indicates the importance of these sites as the important non-breeding site for this species along Sumatra Island.

We still need to do a lot of work to conserve those three potential sites. Sembilang National Park, for example, even it's already protected and has a clear structure for managing the habitat, but the lack of understanding about migratory shorebird conservation left urgent things such as habitat assessment and habitat management. The improvement of knowledge and skills is a must for the local ranger, so they will be able to increase the protection and conservation of the birds and the habitat.

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