# THE STATUS OF KEY BIRD SPECIES

## **IN BOENG PREK LPOV PROTECTED LANDSCPE, 2003-2021**

BUNNATH Zoe Sidana, LY Samphors
June 2023



## **Suggested Citation:**

Bunnath, Z, S. and Ly, S. (2023) The status of Key Bird Species in Boeng Prek Lpov Protected Landscape, 2003-2021. NatureLife Cambodia.

#### Photo credit:

- Chheoun Socheat, Ranger Patrol Leader, Department of Environment of Takeo Province
- Ly Samphors, Lower Mekong Wetland Project Coordinator, NatureLife Cambodia
- Meas Panha, FMT-Support, NatureLife Cambodia

#### Data credit:

- Seng Kimhout, Former Protected Area Manager, Forestry Administration 2003-2016
- BirdLife International Cambodia Programm
- NatureLife Cambodia Organization



## Acknowledgement

The Report of Bird Species in Boeng Prek Lpov Protected Landscape coming up with data collection support and facilitation from Ministry of Environment, Department of Environment of Takeo Province from 2016 up. And the support from the Forestry Administration for the data from 2003 to 2016. The field team was built up and Name LCG (Local Conservation Group) which is participated from Forestry Administration, District Polie, Border Military, Commune Chief and Local people. After transform the management from the Ministry of Agriculture Forestry and Fishery to under management of the Ministry of Environment the LCG was dissolve its team. The new field team was built to support Ranger team in doing biodiversity monitoring which is recruited from local villagers and call FMT (Field Monitoring). We would like to thanks to Mr. Cheoun Socheat who is the ranger in BPL that provided lot of bird photos to support our report.

The Technical and financial support from the BirdLife International Programme , NatureLife Cambodia and the partners.

#### **Government Sector**





#### **NGOs**









## Acronym

BLC: BirdLife International Cambodia Programme

BLI: BirdLife International

BPL: Boeng Prek Lpov

BPLPL: Boeng Prek Lpov Protected Landscape

CBGA: Cambodia Bird Guide Association

CR: Critically Endanger

EN: Endanger

FA: Forestry Administration

FMT: Field Monitoring Team

IBA: Importance Bird and Biodiversity Area

LC: Least Concern

LCG: Local Conservation Group

MAFF: Ministry of Agriculture Forestry and Fishery

MoE: Ministry of Environment

NLC: NatureLife Cambodia

NT: Near Threaten

VU: Vulnerable

WCS: Wildlife Conservation Society

WWT: Wildfowl and Wetland Trust

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## **Exclusive Summary**

- Biodiversity monitoring is very importance for measuring the progress of the management of the protected area and conservation intervention.
- Bird species is very importance to tell the current statute of the protected area.
- Boeng Prek Lpouv is the one remaining grassland in the Lower Mekong Delta.
- Boeng Prek Lpouv is one of the three importance wetland that support Sarus Crane during their non-breeding season in Cambodia.
- The report show that the bird check list is 132 species recorded from 2003 t 2021 in the protected landscape. There are only 102 bird species recorded with it population from 2017 to 2021. This is because of the limited of capacity in bird ID that some species can be recognized and recorded by field team.
- The Yellow-breasted Bunting less recorded in the protected area in the previous time but it is widely study in 2020-2021 with population recorded amazingly (Over 2000 birds) and probably the biggest roosting location in Southeast Asia.
- The Sarus Crane population recorded in BPL over 300 individual and drop down to under 100 birds in 2021 but its country population also drop down.
- The Greater Adjutant presented in BPL every year from 2017 to 2021 with stable population.
- The Bird nest found in the protected area with surprisingly of over 200 nest of Asian Open Billed and other bird species nests.
- The illegal activities such as land clearance, egg collection, illegal fishing, fire and loss of flooded forest cause threat to biodiversity of BPL, especially bird species.
- The improvement of the management of the protected area can reduce the threats to the loss of biodiversity species, especially bird species in BPL, including:
  - + Site management: Improve the law Enforcement Team Capacity, Increase the number of Rangers and Field Team, work toward official law statue of Zoning of BPL.
  - + Local Engagement: Create the local livelihood program to support local livelihood to reduce the depend on the natural resource of BPL. The awareness activities should carry out inside and outside the protected area for educate them to reduce the impact of human activities on BPL wetland.
  - + The restoration by human invention is needed to help in the restoration of BPL wetland. Water management should enlarge the area of the managed with clearly monitoring. The Eleocharis (grassland) should be restore by manage the water and or possibly replanting the grassland. The flooded forest needs to replant to enlarge it number for supporting bird nest in BPL. The invasive species need to control effectively to stress it growth and spread in the protected landscape.

#### 1. Introduction

## 1.1 Scope

The data of bird species and its population was collected since 2003 by Forestry Administration (FA), BirdLife International (BLI), BirdLife International Cambodia Programme (BLC), NatureLife Cambodia (NLC), and Wildfowl and Wetlands Trust (WWT). This activity has been carried out of the year and management team (From MAFF to MoE). We repeat the methodology in bird count and census without any publication report. This report will describe and present the population of bird species, especially, Sarus Crane from 2003 to 2021 in BPL. This report is developed for internal use only.

#### 1.2 Objective

The objective of this report is to present the key species of birds in Boeng Prek Lpov protected landscape and to show the population trend of each species through the sighting data obtained from the monitoring efforts over the past 10 years in this site.

#### 1.3 Background

Boeng Prek Lpov (BPL) is a seasonal floodplain (wetland) located in the southern part of Cambodia (International Cambodia-Vietnam border) which situates in Borei Chulsar and Koh Andet district, Takeo province. This conservation area covers about 8,305 ha and was established as an important bird area (IBA) by the Cambodian Government in 2007 and it was divided into two different zones; 1) core zone covers 919 ha and 2) buffer zone covers 7,385 ha which is under-managed by the Forest Administration (FA) of the Ministry of Agriculture Forestry and Fisheries (MAFF), but it has been transferred to be managed by the Ministry of Environment (MoE) since May 2016 (Figure 1). The name of BPL has been changed to Boeung Prek Lapouv Protected Landscape (BPLPL) without having been classified into different managed zones yet. This wetland supports 132 bird species including globally endangered species Sarus Crane Grus Antigone sharpii, Painted Stork Mycteria leucocephala, Bengal Florican Houbaropsis bengalensis, 42 fish species including 4 vulnerable and 1 critically endangered species, called the Mekong Giant Barb Catlocarpio siamensis, 30 aquatic plant species (Yav, 2017; WWT, 2022). The last two Bengal Floricans recorded from this site were seen on the 18th of September 2016, sighting one bird with a chick. This wetland also plays an important role to maintain the ecology, provide ecosystem services and natural resources to support social-economic at both a local and national level (van Zalinge et al., 2013).

The surroundings of the conservation area are dominated by rice fields for cultivation, however, during the dry season, the site is frequently subjected to land-grabbing and is converted into the agricultural land year by year. Further threats include the spreading of an invasive plant species: *Mimosa pigra*, over-exploitation of natural resources, pesticide use, illegal bird hunting and trapping, rapid water dry up in the early dry season. Due to such threats, the core zone needs to be prioritized for conservation work.

There are currently two teams based in BPL for conducting the patrol and monitoring. Ranger team are participation from the Department of Environment of Takeo Province and District Police and Military Police, they played the very importance role in conducting the law enforcement patrol in BPL. The other team is Field Monitoring Team (FMTs) form by BirdLife International Cambodia Programme (NatureLife Cambodia) with participation from local communities. They play a role in conducting, bird count, bird census, habitat monitoring and hydrology management in BPL.

#### 2. Methods

The data used in this report is obtained from the daily patrol and monitoring activities carried out by the rangers and birdlife field monitoring team (2016 to 2021) and previous data from 2003 to 2016 is collected by Local Conservation Group which including, FA, Local Authority, Competent force and local communities.

### **Weekly Bird Count**

Bird Count which has to be conducted weekly. The bird count is responded by (FMT) who has been selected from the local community surrounding the particular conservation area. FMT has to identify and count key bird species presenting at these sites including Sarus Crane, Painted Stork, Bengal Florican, Black-headed Ibis, Black-faced Spoonbill, Black-necked Stork, Glossy Ibis, Greater Adjutant, Lesser Adjutant, Asian Openbill, and Milky Stork. To monitor the birds, FMT has to record all information about birds at the site during monitoring but not limited to sighted birds, the number of birds, the UTM if notable, location, habitats, the behaviour of birds, human disturbance activities.

#### **Bird census events**

There are two main bird census events: Annual Asian Waterbird and Sarus Crane Census event-conducted every year which are approximately conducted in January; the Asian Waterbird and Sarus Crane census are conducted across the region.

Sarus Crane census: This event was facilitated by the Wildlife Conservation Society (WCS) for the regional Crane census. Crane census is normally conducted during the non-breeding season of Sarus Crane and at the end of the month (December, November, January, February March) within two days; the first day is counted in the evening (3:20 pm-6:00 pm) and in the early morning of the second day (5:30 am-8:00 am).

Asian Waterbirds: conducted every year, approximately in January and February. This event is normally conducted on one day by using the transect method for both mornings (7:00-10:00 am) and afternoon (2:00-5:00 pm).

#### **Habitat Monitoring**

Understanding habitat which is necessary for the key species, what kind of waterbird species forage in the areas and how the habitat looks like including water condition, vegetation structure, and human activities. The habitats of each site need to be rigorously understood. Therefore, FMT should observe the state of habitat during biodiversity monitoring surveys and record habitat conditions including grass, plant, soil condition, human activities, habitat users, location (UTM), and water condition. While doing field monitoring both rangers and FMTs team need also to observe all-natural resource extraction activities within the particular site including the type of natural resources (fish, fodder, the UTM, location of the offence, the number of offenders, yield of resources, and the purposes of natural resources use by using data form provided.



#### 3. Results

## 3.1 Species Diversities

Throughout the recorded data, there are 132 bird species (annex 1) have been recorded presented in BPL from 2003 to 2021 which are 2 Critically Endanger, 2 Endangers, 2 Vulnerable, 7 Near threatened, and 119 least concern Species. The results from weekly bird monitoring of the field monitoring team at Boeung Prek Lapouv are recorded and then displayed by the maximum record of 101 species of bird including both migratory and resident birds that are present in Boeung Prek Lapouv from 2017 to 2020/2021 (For details, please see Annex 2).

## 3.2 Species Population

According to the 132 species checklist of bird in BPL that is too a lot to describe species profile in the report. We decided to choose only the very important species which is the donor attraction from the 14 key species of birds (see Table 1 for details) to describe the bird Profile and Population Trend. The three species included Yellow-breasted Bunting *Emberiza aureola*, Greater Adjutant *Leptoptilos dubius*, *and* Sarus Crane *Antigone antigone*. Beside Importance species, we presented the population trend of other bird species also.

Table 1 The list of Key Bird Species in BPL

No	English Name	Scientific Name	BPL Trend	IUCN Status
1	Asian Golden Weaver	Ploceus hypoxanthus	Stable	NT
2	Asian Openbill	Anastomus oscitans	Increase	LC
3	Bengal Florican	Houbaropsis bengalensis	Decline	CR
4	Black-faced Spoonbill	Platalea minor	Decline	EN
5	Black-headed Ibis	Threskiornis melanocephalus	Decline	NT
6	Black-tailed Godwit	Limosa limosa	Increase	NT
7	Glossy Ibis	Plegadis falcinellus	Stable	LC
8	Greater Adjutant	Leptoptilos dubius	Decline	EN
9	Lesser Adjutant	Leptoptilos javanicus	Decline	VU
10	Oriental Darter	Anhinga melanogaster	Decline	NT
11	Painted Stork	Mycteria leucocephala	Increase	NT
12	Sarus Crane	Antigone antigone	Decline	VU
13	Spot-billed Pelican	Pelecanus philippensis	Decline	NT
14	Yellow-breasted Bunting	Emberiza aureola	Increase	CR

## 3.2.1 Yellow-breasted Bunting

Khmer Name: ប៊ាបព្រៃវែង

Scientific Name: Emberiza aureola

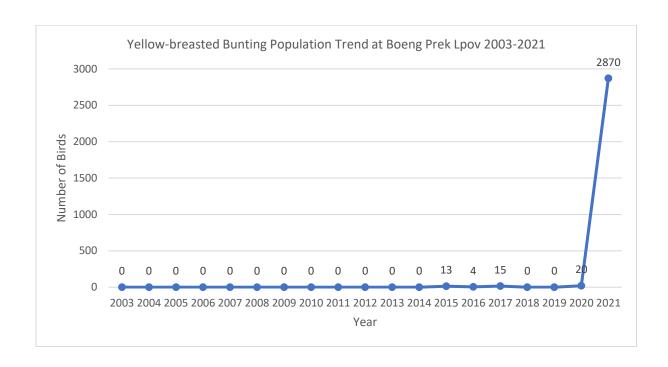
## **Description and Overview**

Yellow-breasted Bunting is the large bunting of agricultural fields, meadows, and wetlands; formerly gathered in immense congregations in winter but now rare due to trapping. Breeding male stunning, with a black face, deep chestnut-brown crown, nape, wings, and back, white wingbars, and bright yellow underparts with chestnut breast band. Nonbreeding male is a faded version of this plumage. Female streaky brown above, yellowish with streaks below, with facial pattern reminiscent of Yellow-browed Bunting, but much larger, with a strong yellow wash to the undersides. (eBird, 2021)

The Yellow-breasted Bunting Emberiza aureola is a globally threatened migratory passerine that winters widely across southern China, continental Southeast Asia west to north-eastern India, Nepal, and Bangladesh (Davaasuren et al., 2019; BirdLife International, 2021; Heim et al., 2021). The species used to be one of the most abundant Palaearctic birds with a vast breeding distribution from Fennoscandia to eastern Russia and Japan (BirdLife International, 2022). Its global population has suffered a major decline due to a combination of unsustainable levels of hunting for human consumption, and potential habitat loss and degradation (McClure & Chaiyaphun, 1971; Heim et al., 2021). Since the 1990s, its global population has declined by almost 90% while the breeding range has contracted eastward (Kamp et al., 2015), with declines reported from Russia, Japan, and Korea (Tamada et al., 2014, 2017; Choi et al., 2020; Park et al., 2020; Heim et al., 2021) and the species was uplisted to Critically Endangered in 2017 (BirdLife International, 2022). In Cambodia, the Yellowbreasted Bunting occurs as a winter visitor and has been recorded from December to April (Chan & Li, 2017; CBGA, 2019; Sam Veasna Conservation Tour, 2021). Several sites are known to be important as wintering sites for Yellow-breasted Bunting, especially in the Tonle Sap floodplains and in the Eastern Plains and are possibly among the most important in Southeast Asia.

#### **Population Size**

There is no global population size available, but the small population from the wintering country such as Nepal, Thailand, Laos PDR and others are available. The species is estimated to have declined by 84.3-94.7% between 1980 and 2013. A recent study found that BPL is an important wintering site and perhaps a key stopover for the Yellow-breasted Bunting and could potentially hold the largest known congregations of the species in Indochina as the study revealed the study results with a record of 2870 individuals of Yellow-breasted Bunting in its roosting sites located in BPL on 21<sup>st</sup> March 2021 (Ly et al., 2020). The graph below showing the sighting data from the last 17 years indicate a dramatic increase of Yellow-breasted Bunting Population at Boeung Prek Lapouv. The maximum record of Yellow-breasted bunting from 2003 to 2020 was 20 individuals in 2020 and jumped to its peak of 2870 individuals in March 2021.



Graphic 1 The population recorded of Yellow-breasted Bunting in BPL from 2003 to 2021

Table 1. Population range by years

Year	Number of individuals
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	0
2010	0
2011	0
2012	0
2013	0
2014	13
2015	4
2016	15
2017	0
2018	0
2019	20
2020	2870
2021	

#### Distribution

The Yellow-breasted Bunting *Emberiza aureola* is a globally threatened migratory passerine that winters widely across southern China, continental Southeast Asia west to north-eastern India, Nepal, and Bangladesh (Davaasuren et al., 2019; BirdLife International, 2021; Heim et al., 2021). The species used to be one of the most abundant Palaearctic birds with a vast breeding distribution from Fennoscandia to eastern Russia and Japan (BirdLife International, 2021).



Figure 1 The photos of Yellow-breasted Bunting in BPL.

## 3.2.2 Greater Adjutant

Khmer Name: ត្រដក់់ជំ

Scientific Name: Leptoptilos dubius

#### **Description and Overview**

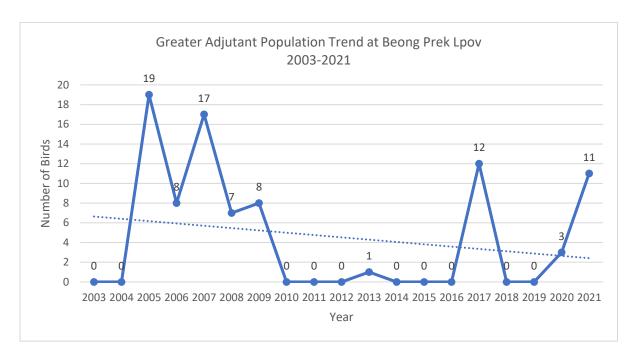
**Greater Adjutant** *Leptoptilos dubius* is an endangered bird that used to be widely distributed across South and continental Southeast Asia but later suffered a major decline in the first half of the 20<sup>th</sup> century (BirdLife International, 2022). It was found that various factors such as direct exploitation and habitat destruction, particularly lowland deforestation and the felling of nest-trees, and drainage, conversion, pollution and over-exploitation of wetlands contribute directly to the rapid decline of Greater Adjutant population. Its breeding ground is known to be in the wetland areas of India and Cambodia (BirdLife International, 2022).

From July to September, BPL is home to this Endangered bird which is a rare visitor in the Southwest and Southeast of Cambodia (CBGA, 2019).

#### **Population Size**

The total population is estimated to number 800-1,200 mature individuals, roughly equivalent to 1,200-1,800 individuals in total. This is based on estimates of 650-800 birds in Assam, India, plus 150-200 birds in Cambodia, as well as at least 156 birds in Bihar state, India, which may have dispersed from the Assam population (BirdLife International, 2022). Its highest record in BPL is 19 individuals in 2005 (BirdLife International Cambodia Programme, unpublished data,

2020). The sighting data from the past 10 year shows that Greater Adjutant population at Beoung Prek Lapouv seem to show a slight change as the highest number of birds recorded in 2004 was 19 dropped to 11 in 2021.



Graphic 2 The population recorded of Greater Adjutant in BPL from 2003 to 2021

Table 2. Population range by years

Year	Number of individuals
2003	0
2004	0
2005	19
2006	8
2007	17
2008	7
2009	8
2010	0
2011	0
2012	0
2013	1
2014	0
2015	0
2016	0
2017	12
2018	0
2019	0
2020	3
2021	11

#### Distribution

**Greater Adjutant** used to be widely distributed across South and continental South East Asia but later suffered a major decline in the first half of the 20<sup>th</sup> century (BirdLife International, 2022). It is known to breed in Assam and Bihar **India**, and at the Tonle Sap lake, **Cambodia**. Available data suggest that Cambodian populations declined heavily in the decades up to and including the 1990s. By 2001, several breeding sites recorded in the 1990s had been abandoned. Since 2001, protection measures were put in place at two known breeding sites (Prek Toal on the Tonle Sap and Kulen Promtep in Preah Vihear) which led to a stabilisation of national population declines and possible minor recoveries. However, the colony at Kulen Promtep is now extinct owing to forest clearance within the area) (BirdLife International, 2022).





Figure 2 The Greater Adjutant feeding in BPL.

#### 3.2.3 Sarus Crane

Khmer Name: ក្រៀល

Scientific Name: Antigone Antigone sharpii

## **Description and Overview**

Sarus Crane Antigone Antigone sharpii is the tallest flying bird in the world reaching from 150cm-156cm in height (CBGA, 2019). One of its subspecies, (sharpii), occurs in Cambodia. This species is an uncommon breeder in the North and Northeast of Cambodia and local visitor in the Coastal Southwest and Northwest of Cambodia, Tonle Sap and Mekong-Bassac floodplains (CBGA, 2019). In Cambodia, Sarus Crane has been facing rapid population decline due to pollution, disturbances, and depletion of food source (Triet et al, 2019).

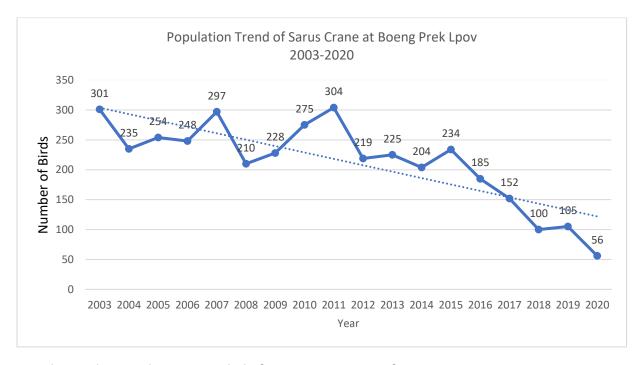
BPL is one of the key feeding sites for cranes in the non-breeding season, which in Cambodian dry season. BPL is specially used from December to February each year with a maximum count of 304 cranes counted in January 2011. Cranes depart BPL when the site becomes very dry

around late February or March but will sometimes return in low numbers at the onset of the rainy season (BirdLife International Cambodia Programme, 2014).

## **Population Size**

The average annual maximum count for between 2008 and 2012 is 247 cranes. The average maximum for the entire Mekong delta (based on annual regional count) within the same period is 443 cranes and the average maximum count of the regional population is 803 cranes (BirdLife International Cambodia Programme, 2014). Thus, BPL periodically can hold, on average, 56% of the Mekong delta population and 31% of the total regional population (Cambodia and Vietnam) counted annually (Cambodia and Vietnam) during the non-breeding season. The annual count of Sarus Crane is known as Crane Census which is conducted jointly with the Ministry of Environment and BirdLife Cambodia from December to May annually with the purpose of monitoring the remaining Sarus Crane population. Unfortunately, the results from crane census in the last few years is concerning as 2021 national crane census result has shown that only 164 cranes were recorded in both Cambodia and Vietnam. Only 56 of 164 cranes were recorded in BPL (Triet et al., 2021). This result has shown that 80% (equal to 686 cranes) of Sarus Crane population dropped down compared to the 2013 census recorded with the average of 10% decline rate every year (Triet et al., 2021).

From the sighting data of over 10 years, a steep decline in the population of Sarus Crane at Boeung Prek Lapouv is observed. Year by year, the number of this species drop at a speedy rate approximately 30 percent particularly from the maximum of 304 birds in 2011 to the minimum of 56 birds in 2020.



Graphic 3 The population recorded of Sarus Crane in BPL from 2003 to 2021

Table 3. Population range by years

Year	Number of individuals
2003	301
2004	235
2005	254
2006	248
2007	297
2008	210
2009	228
2010	275
2011	304
2012	219
2013	225
2014	204
2015	234
2016	185
2017	152
2018	100
2019	105
2020	56

#### Distribution

Subspecies *sharpii* occurs in South-East Asia where its range has declined dramatically, now being confined to **Cambodia**, extreme southern **Laos**, south **Vietnam**, and **Myanmar** (Wetlands International 2006). In Cambodia, this species is an uncommon breeder in the North and Northeast of Cambodia and local visitor in the Coastal Southwest and Northwest of Cambodia, Tonle Sap and Mekong-Bassac floodplains (CBGA, 2019).



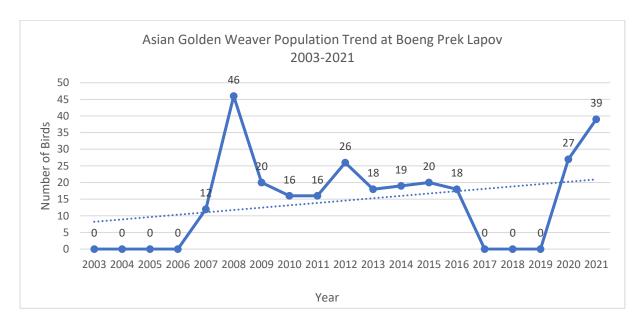


Figure 3 The photos of Sarus Crane feeding in BPL.

## 3.2.4 The population Trend of Key Bird Species

#### **Asian Golden Weaver**

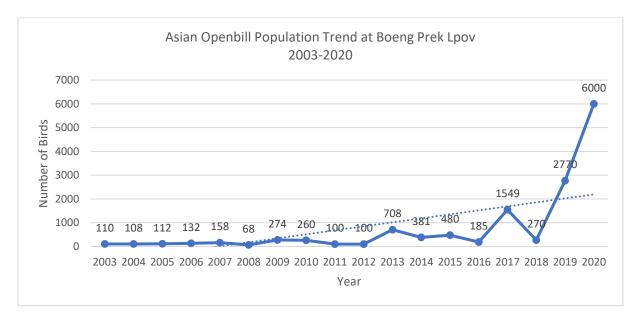
The graph showed a slight change in the population of Asian Golden Weaver at Boeung Prek Lapouv protected landscape. This species peak record was 46 birds in 2008 and then slightly dropped to 39 birds in its latest record in 2021.



Graphic 4 The population trend of Asian Golden Weaver

## **Asian Openbill**

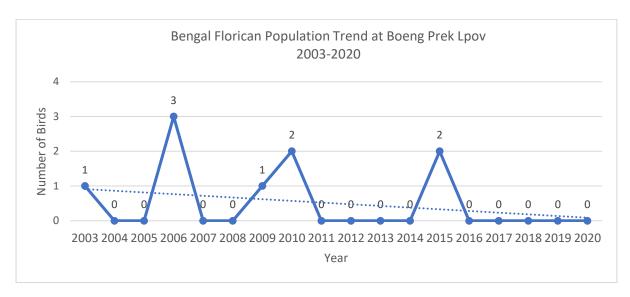
The graph showcased a significant increase in the population of Asian openbill within 18 years period (2003-2020). The number of Asian openbill stood at 110 birds in the year 2003, then remained level off until 2017 where it started to show an upward trend with a number of 1549 birds before reaching its peak population of 6,000 birds.



Graphic 5 The population trend of Asian Openbill

## **Bengal Florican**

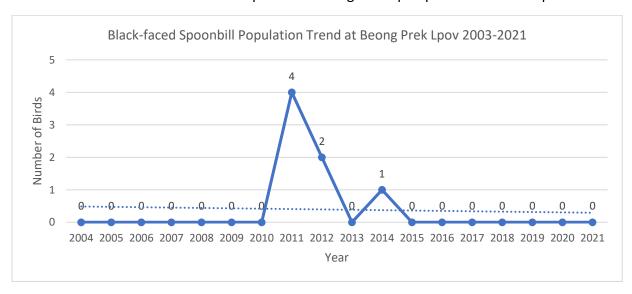
This graph illustrates the fluctuated number of Bengal Florican recorded at Boeng Prek Lpov Protected Landscape from 2013 to 2020. The record of this species was 1 bird in 2003 and then go up to 3 birds the year 2006. From there the highest number of this species last recorded was remained at 2 birds in 2010 and 2015. Since 2016 until 2020, this bird have never been recorded at the site.



Graphic 6 The population trend of Bengal Florican

## **Black-faced Spoonbill**

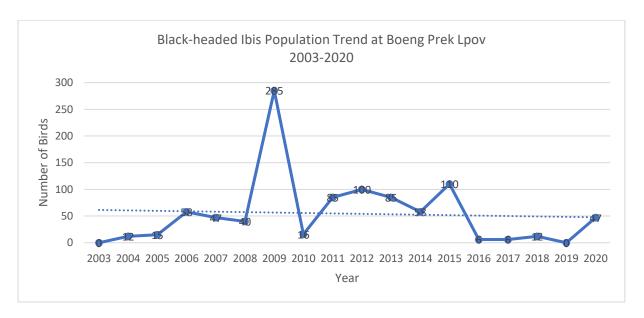
The graph shows the presence of Black-faced Spoonbill in Boeng Prek Lpov throughout the period of 19 years. Based on the graph, Black-faced Spoonbill showed up at the protected area with the highest number of 4 birds in the year 2011. In the following year of 2012, its number dropped to 2 birds while it was not recorded in 2013 until it appeared again in 2014 with 1 bird as the last record of this species at Boeng Prek Lpov protected landscape.



Graphic 7 The population trend of Black-faced Spoonbill

#### **Black-headed Ibis**

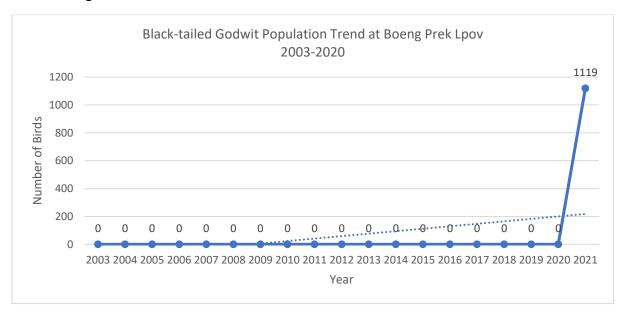
As shown in the graph above, the recorded number of Black-headed Ibis varies from year to year. The highest number was 285 birds in 2009, followed by the second highest number with 110 birds in 2015. Unfortunately, its latest recorded population were only at 47 birds.



Graphic 8 The population trend of Black-headed Ibis

#### **Black-tailed Godwit**

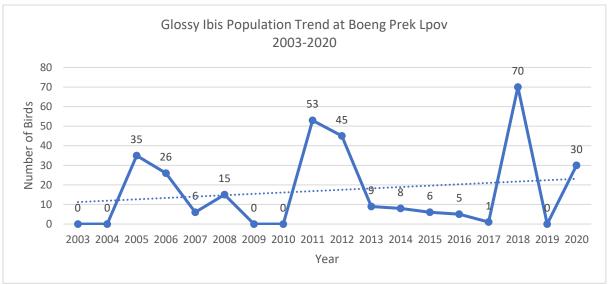
Black-tailed Godwit has never been sighted at Boeng Prek Lpov since 2003 unitil recently where a huge flock with 1119 birds was recorded in 2021.



Graphic 9 The population trend of Black-tailed Godwit

## **Glossy Ibis**

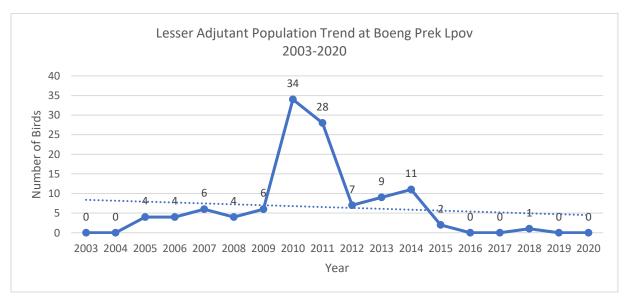
According to the graph, 2018 was when Glossy Ibis was last seen in abundant number of 70 birds.



Graphic 10 The population trend of Glossy Ibis

## **Lesser Adjutant**

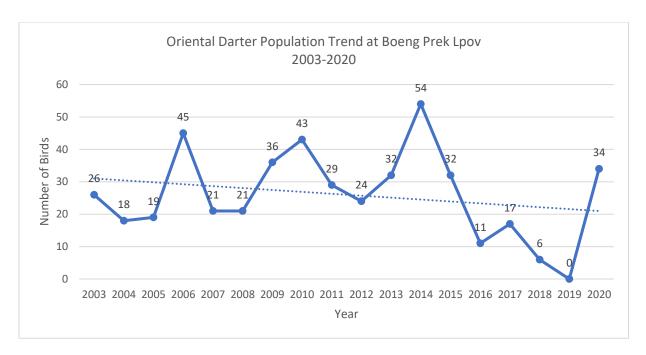
Lesser Adjutant is not commonly recorded as it almost shows no record for the last 6 years. 2010 was when it was recorded in the highest number of 34 birds.



Graphic 11 The population trend of Lesser Adjutant

#### **Oriental Darter**

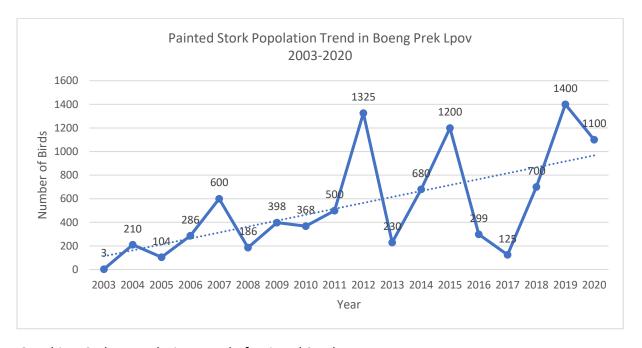
The latest record of Oriental Darter was 34 birds in 2020 while the highest record was 54 birds in 2014.



Graphic 12 The population trend of Oriental Darter

#### **Painted Stork**

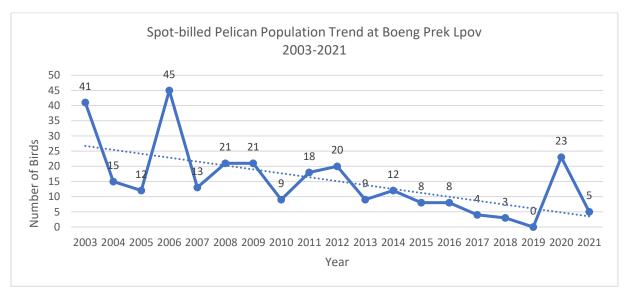
The graph shows that the 1400 birds were the highest record of painted stork at Boeung Prek Lapouv in 2019 since its first record in 2003 with only 3 birds. However, the number slightly drop to 1100 birds in 2020.



Graphic 13 The population trend of Painted Stork

## **Spot-billed Pelican**

Based on the graph, Spot-billed Pelican Population have shown a downward trend in its record between 2003 and 2021. Its latest record of 5 birds in 2021 indicates a sign of sharp decline compared to its peak record of 45 birds in 2006.



Graphic 14 The population trend of Spot-billed Pelican

## 3.2.5 The study of bird nest

The bird nest found firstly in 2020 on the area of the southwest of former core area and private farm inside BPL. We found 2186 nests of Asian openbill on 270 tree of flooded forest and increased to 2931 nests in 2021 but the flooded forest has damaged and died. The others water bird species nest also found as table below.

Table 2 The number of bird nest recorded from 2020- 2021 in BPL.

No	Bird Species	2020	2021
1	Asian Open-billed	2186	2931
2	Little Cormorant	30	285
3	Black Crown Night Heron	60	180
4	Oriental Darter	10	32
5	Grey Heron	19	30
6	Purple Heron	2	22
7	Little Egret	10	0
8	Intermediate Egret	15	0



Figure 4 The nest of Asian openbill in BPL.

#### 4. Conclusion

The Boeng Prek Lpov Protected Landscape is still very valuable for its biodiversity. It is a big remaining seasonal grassland located in Lower Mekong Delta of Cambodia. This wetland is home to several species, including Critically Endanger Species, endangered species, Vulnerable, near threatened, and leas concern species. The biggest known populations of Critically Endangered, Yellow-Breasted Bunting have been recorded in BPL and probably in Southeast Asia. It also supports the part of the Crane Population in wintering site in Lower Mekong Delta. From November to January most of the Sarus Crane population in Lower Mekong Delta feeding in BPL before moving to Anlung Pring in February.

The bird species in BPL was recorded 132 species inside protected area but the population recorded is for only 101 species. The other bird in the recorded list has not recorded its population properly or been seen by photographers. The population trend of bird species was monitored from 2003 to 2021 and was performed up and down. The population trend of most key bird species slightly increased from 2003 to 2016 and started to drop down towards. Only two species was recorded increased surprisingly, the yellow-breasted Bunting use BPL as wintering site and the Asian Openbill was use BPL as nesting site.

Due to population decrease, it is probably in relation to illegal activities in BPL. The total area of grassland was degrading, and the paddy fields increased year to year. Local people clear the wetland to cultivate dry season rice. The need for water increased that led to overuse of water from canals and made wetlands dry quickly. This is leading to cause wetland biodiversity loss. The BPL is not zoning yet. Thus, zoning is the top priority for finalization in BPL. The Law enforcement needs to improve and conduct properly inside the protected landscape. The awareness and local engagement also need to be implemented widely in BPL.

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## Annexes

Annex 1. Maximum number of bird species recorded at Beoung Prek Lapouv Protected Landscape 2017-2021

No	Species Name	Scientific Name	Status	2017	2018	2019	2020	2021	Peak Month
1	Asian Dowitcher	Limnodromus semipalmatus	NT	1	0	0	0	0	Mar(2017)
2	Asian Golden Weaver	Ploceus hypoxanthus	NT	0	0	0	27	39	Feb (2020) Jan(2021)
3	Asian openbill	Anastomus oscitans	LC	1549	270	2770	6000	4160	Feb(2017), Jan(2018), June(2019), Oct(2020), Jan(2021)
4	Asian Palm swift	Cypsiurus balasiensis	LC	10	0	0	8	215	Feb (2017), Mar (2020), Jan(2021
5	Asian Pied Starling	Gracupica contra	LC	2	2	6	20	35	Mar, Nov, Dec (2017) Jul (2018) Jan (2019) Oct (2020) Jan(2021)
6	Barn Swallow	Hirundo rustica	LC	178	212	140	270	600	Jul (2017) Jul (2018) Mar (2019) Mar (2020) Jan(2021)
7	Baya Weaver	Ploceus philippinus	LC	10	15	30	0	35	Jul (2017) Jun (2018) Mar (2019) Jan(2021)
8	Black Bittern	Ixobrychus flavicollis	LC	5	2	0	0	0	Oct(2017) May(2018)
9	Black Drongo	Dicrurus macrocerus	LC	31	7	21	9	14	Feb(2017) Nov(2018) Feb(2019) Sep(2020) Jan(2021)
10	Black-browed Reed Warbler	Acrocephalus bistrigiceps	LC	5	0	0	0	0	Sep(2017)
11	Black-capped Kingfisher	Halcyon pileata	LC	1	0	1	2	0	May, Jun (2017) April (2019) Jun (2020)
12	Black-collared Starling	Gracupica nigricollis	LC	24	40	10	10	37	Jun (2017) Dec (2018) Mar (2019) Jan, Mar (2020) Jan(2021)
13	Black-crowned Night Heron	Nycticorax nycticorax	LC	6	20	100	60	23	Jul (2017) Jul (2018) Jun (2019) Feb (2020) Jan(2021)
14	Black-head Ibis	Threskiornis melanacephalus	NT	6	12	0	47	26	Dec (2017) Jan (2018)

									August (2020)
15	Black-headed Munia	Lonchura malacca	LC	50	25	27	30	23	Aug(2021) Oct (2017) Apr (2018) Apr (2019) Jan (2020) Jan(2021)
16	Black-shouldered Kite	Elanus axillaris	LC	37	6	4	23	24	Jun (2017) Apr, May (2018) Jun (2019) July (2020) Jun(2021)
17	Black-tailed Godwit	Limosa limosa	NT	0	0	0	0	1119	January (2021)
18	Black-winged stilt	Himantopus himantopus	LC	105	105	2	70	45	July (2017) July (2018) Jan (2019) Aug (2020) Aug (2021)
19	Blue-tailed Bee- eater	Merops philippinus	LC	16	6	6	2	18	Mar (2017) Oct (2018) Feb, May (2019) Aug (2020) Jan(2021)
20	Bronze-winged Jacana	Metopidius indicus	LC	2	2	0	0	0	Mar (2017) Apr, May (2018)
21	Brown Shrike	Lanius cristatus	LC	0	0	0	3	11	May (2020) Jan (2021)
22	Cattle Egret	Bubulcus ibis	LC	1176	243	40	130	10	Jul (2017) Jul (2018) Feb (2019) Aug (2020) Aug (2021) Apr, Aug (2021)
23	Cinnamon Bittern	lxobrychus cinnamomeus	LC	21	18	4	3	10	March (2017) Apr (2018) Jan, Jun (2019), Jun (2020) Feb (2021)
24	Collared Kingfisher	Todiramphus chloris	LC	2	0	0	1	0	Jun (2017) Jun (2020)
25	Comb Duck	Sarkidiornis sylvicola	LC	0	0	18	9	34	March (2019) March (2021)
26	Common Barn-olw	Tyto alba	LC	1	0	0	0	0	Nov (2017)
27	Common Hoopoe	<i><b>Upupa epops</b></i>	LC	0	0	0	0	1	Jun (2021)
28	Common Kingfisher	Alcedo atthis	LC	11	3	1	4	15	Jan (2021) Jan (2020) Apr (2019) Oct (2018) Feb (2017)
29	Common Mya	Acridotheres tristis	LC	23	15	7	10	26	Jan (2017) Apr (2018) May (2019)

									Aug (2020) Jan (2021)
30	Common Sandpiper	Actitis hypoleucos	LC	23	0	8	4	14	Dec (2017) Apr (2019) Sep (2020) Jan (2021)
31	Common Stonechat	Saxicola torquatus	LC	0	0	3	1	11	Jan (2019) Mar (2020) Jan (2021)
32	Common Tailor bird	Orthotomus sutorius	LC	9	0	0	0	1	Jul (2017) Apr (2021)
33	Cotton Pygmy-goose	Nettapus coromandelianus	LC	80	5	0	20	10	Jul (2017) Sep, Oct (2018) Feb (2020) Jul (2021)
34	Darter	Anhinga melanogaster	NT	17	6	0	34	12	Nov (2017) Nov (2018) Nov ( 2020) Jan (2021)
35	Eastern Mash- harrier	Circus spilonotus	LC	0	0	0	2	3	Feb (2020) Jan (2021)
36	Eastern Spotted Dove	Spilopelia chinensis	LC	20	15	10	10	22	Jan, Apr (2017) Nov (2018) Jan (2019) Feb (2020) Jan (2021)
37	Eurasian Tree Sparrow	Passer montanus	LC	50	20	40	45	2020	Jun, Jul (2017) Jul (2018) Jun (2019) Apr (2020) Jan (2021)
38	Garganey	Spatula querquedula	LC	150	25	0	2000	1500	Dec (2017) Oct (2018) Dec (2020) Jan (2021)
39	Glossy Ibis	Plegadis falcinellus	LC	1	70	0	30	78	Jul (2017) Jun (2018) Aug (2021) Aug (2020)
40	Great Cormorant	Phalacrocorax carbo	LC	10	1	0	0	0	Aug (2017) Mar (2018) Aug (2021)
41	Great-billed Heron	Ardea sumatrana	LC	1	0	0	0	0	Apr (2017)
42	Greater Adjutant	Leptoptilos dubius	EN	12	0	0	3	11	Unknown (2017) Jun (2020) Aug (2021)
43	Greater Coucal	Centropus sinensis	LC	8	10	3	6	21	Apr (2017) Apr (2018) Feb, Apr, May, Jun (2019) Mar (2020) Jan (2021)
44	Greater Egret	Ardea alba	LC	64	125	78	230	50	Jan (2017) Feb (2018) Feb (2019) Sep (2020) Feb (2021)

45	Green Bee-eater	Merops orientalis	LC	32	2	5	11	15	Feb (2017) Mar, Apr, Jun, Spe (2018) Jun (2019) Feb (2020) Jan (2021)
46	Grey Heron	Ardea cinerea	LC	92	268	93	29	17	Feb (2017) Dec (2018) Jan (2019) Sep (2020) Feb (2021)
47	Grey-headed Lapwing	Vanellus cinereus	LC	0	0	0	0	7	Jan (2021)
48	House Sparrow	Passer domesticus	LC	0	0	0	0	20	Apr (2021)
49	Indian Cormorant	Phalacrocorax fuscicollis	LC	20	48	50	45	0	Dec (2017) Jul (2018) Feb (2019) Sep (2020)
50	Indian Roller	Coracias benghalensis	LC	0	0	0	1	0	Oct (2020)
51	Indochinese Bushlark	Mirafra erythrocephala	LC	4	2	6	0	0	Feb, Mar (2017) Jun (2018) Mar (2019)
52	Intermediate Egret	Ardea intermedia	LC	367	770	283	1390	200	Jan (2017) Jan (2018) Jan (2019) Sep (2020) Feb (2021)
53	Javan-pond Heron	Ardeola speciosa	LC	350	265	119	186	58	Jan (2017) Feb (2018) Mar (2019) Sep (2020) Feb (2021)
54	Large-billed Crow	Corvus macrorhynchos	LC	0	0	1	0	8	May (2019) Jan (2021)
55	Lesser Adjutant	Leptoptilos javanicus	LC	0	1	0	0	0	Jan (2018)
56	Lesser coucal	Centropus bengalensis	LC	0	0	0	2	0	Feb (2020)
57	Lesser Whistling- duck	Dendrocygna javanica	LC	4	60	10	44	35	May (2017) Sep (2018) Apr (2019) Feb (2020) Jan (2021)
58	Little Cormorant	Microcarbo niger	LC	400	117	120	112	26	Dec (2017) Jan (2018) Feb (2019) Sep (2020) Feb (2021)
59	Little Egret	Egretta garzetta	LC	531	498	290	1720	300	Jul (2017) Dec (2018) Feb (2019) Sep (2020) Feb (2021)
60	Little Grebe	Tachybaptus ruficollis	LC	4	11	0	5	4	Aug (2017) Jul (2018) Sep (2020) Aug (2021)
61	Little Ringed Plover	Charadrius dubius	LC	0	0	0	0	40	Jan (2021)
62	Long-toed Stint	Calidris subminuta	LC	0	0	0	0	30	Jan (2021)

63	Olive-backed Sunbird	Cinnyris jugularis	LC	1	0	0	2	24	Jul (2017) Jan Feb Jul (2020) Jan (2021)
64	Oriental Magpie Robin	Copsychus saularis	LC	0	0	1	0	3	Jun (2019) May (2021)
65	Oriental Pratincole	Glareola maldivarum	LC	98	65	103	90	136	Jun (2017) March (2018) May (2019) Jun (2020) Apr (2021)
66	Pady-field Pipit	Anthus rufulus	LC	0	0	0	5	15	Jun (2020) Apr (2021)
67	Painted stork	Mycteria leucocephala	NT	125	700	1400	1100	165	Feb (2017) Dec (2018) Jan (2019) Sep (2020) Jan (2021)
68	Pheasant-tailed Jacana	Hydrophasianus chirurgus	LC	25	22	0	40	0	Nov (2017) Nov (2018) Sep (2020)
69	Pied Bushchat	Saxicola caprata	LC	21	3	3	5	14	Nov (2017) Jul (2018) Mar (2019) May (2020) Jan (2021)
70	Pied Fantail Rhipidura	Rhipidura javanica	LC	1	4	2	2	4	Aug (2017) Oct (2018) Jun (2019) Feb (2020) Apr, May (2021)
71	Pied Kingfisher	Ceryle rudis	LC	2	1	0	0	2	Mar (2017) Feb, Jun (2018) Apr (2021)
72	Plain -backed sparrow	Passer flaveolus	LC	50	0	70	85	0	Jan (2017) Jan (2019) Feb (2020)
73	Plain Prinia	Prinia inornata	LC	10	0	3	4	26	Feb (2017) Feb (2019) Jan (2020) Jan (2021)
74	Plaintive Cukcoo	Cacomantis merulinus	LC	0	0	0	2	16	Feb (2020) Jan (2021)
75	Purple Heron	Ardea purpurea	LC	36	30	23	16	24	Jul (2017) Jun (2018) Mar (2019) Dec (2020) Feb (2021)
76	Purple Swamphen	Porphyrio porphyrio	LC	6	2	0	0	0	Aug (2017) Dec (2018)
77	Red Avadavat	Amandava amandava	LC	0	0	0	0	6	Apr (2021)
78	Red-collared Dove	Streptopelia tranquebarica	LC	20	15	58	37	29	Jun (2017) Apr, Jun (2018) Jun (2019) Jun (2020) Jan (2021)
79	Red-wattled Lapwing	Vanellus indicus	LC	4	2	3	5	10	Jul (2017) Apr, Jun,

									July (2018) Apr (2019) Nov (2020) Jul (2021)
80	Rock Pigeon	Columba livia	LC	0	0	0	0	8	Jan (2021)
81	Ruddy-breasted Crake	Zapornia fusca	LC	3	1	2	0	1	Feb (2017) Jun, Nov (2018) Feb (2019) Mar (2021)
82	Rufous-winged Buzzard	Butastur liventer	LC	0	0	2	0	0	Jan, Mar (2019)
83	Sarus Crane	Antigone antigone	VU	49	70	63	56	19	Jan (2017) Dec (2018) Jan (2019) Dec (2020) Jan (2021)
84	Spot-billed duck	Anas poecilorhyncha	LC	62	262	60	700	47	May (2017) Jul (2018) Jan (2019) Jun (2020) Feb (2021)
85	Spot-billed pelican	Pelecanus philippensis	NT	4	3	0	23	5	Oct (2017) Aug (2018) Jul (2020) Jul (2021)
86	Sreaked Weaver	Ploceus manyar	LC	0	0	0	20	70	Feb (2020) Aug (2021)
87	Striated Grassbird	Megalurus palustris	LC	0	0	0	0	13	Jan (2021)
88	Striated heron	Butorides striata	LC	63	90	15	25	1	May (2017) Jun (2018) Jun (2019) Nov (2020) Mar (2021)
89	Watercock	Gallicrex cinerea	LC	9	15	2	3	7	Apr (2017) Oct (2018) Feb, Jun (2019) May Aug Dec (2020) Jan (2021)
90	Western Koel	Eudynamys scolopaceus	LC	0	0	0	1	0	Aug (2020)
91	Whiskered Tern	Chlidonias hybrida	LC	200	550	0	570	0	Nov (2017) Dec (2018) Sep (2020)
92	White Wagtail	Motacilla alba	LC	5	0	0	0	9	Mar (2017) Jan (2021)
93	White-breasted Waterhen	Amaurornis phoenicurus	LC	2	2	0	2	0	Mar (2017) Apr, Jul (2018) Oct (2020)
94	White-rumped Pygmy-falcon	Polihierax insignis	LC	2	0	0	0	0	Feb (2017)
95	White-throated Kingfisher	Halcyon smyrnensis	LC	2	2	1	4	1	Jul (2017) Jul (2018) Jun (2019) Jun (2021) Feb (2020)
96	White-vented myna	Acridotheres javanicus	LC	60	23	3	13	31	Aug (2017) Jul (2018) Jun (2019)

									Jul (2020) Jan (2021)
97	Yellow Bittern	Ixobrychus sinensis	LC	70	30	7	70	20	Apr (2017) Feb (2018) Jan (2019) Aug (2020) Feb (2021)
98	Yellow-bellied Prinia	Prinia flaviventris	LC	4	0	0	0	27	Mar (2017) Jul (2021)
99	Yellow-breasted Bunting	Emberiza aureola	EN	15	0	0	20	2,780	Apr (2017) Dec (2020) March (2021)
100	Yellow-vented Bulbul	Pycnonotus goiavier	LC	22	12	18	17	25	Mar (2017) Apr (2018) May (2019) Mar (2020) Apr (2021)
101	Zebra Dove	Geopelia striata	LC	0	0	2	2	10	Apr, May (2019) Jan (2021) May (2020)

Annex 2. The bird species check list at Beoung Prek Lapouv Protected Landscape

No	English name	Sientific name	Status
1	Asian Dowitcher	Limnodromus semipalmatus	NT
2	Asian Goldend Weaver	Ploceus hypoxanthus	NT
3	Asian Koel	Eudynamys scolopacea	LC
4	Asian openbill	Anastomus oscitans	LC
5	Asian Palm swift	Cypsiurus balasiensis	LC
6	Asian Pied Starling	Gracupica contra	LC
7	Barn Swallow	Hirundo rustica	LC
8	Barred Buttonquail	Turnix suscitator	LC
9	Baya Weaver	Ploceus philippinus	LC
10	Bengal Florican	Houbaropsis bengalensis	CR
11	Black Bittern	Ixobrychus flavicollis	LC
12	Black Drongo	Dicrurus macrocerus	LC
13	Black-browed Reed Warbler	Acrocephalus bistrigiceps	LC
14	Black-capped Kingfisher	Halcyon pileata	LC
15	Black-collared Starling	Gracupica nigricollis	LC
16	Black-crowned Night Heron	Nycticorax nycticorax	LC

17	Black-head Ibis	Threskiornis melanacephalus	NT
18	Black-headed Munia	Lonchura malacca	LC
19	Black-naped Oriole	Oriolus Chinensis diffusus	LC
20	Black-shouldered Kite	Elanus axillaris	LC
21	Black-tailed Gotwit		
22	Black-winged stilt	Himantopus himantopus	LC
23	Blue-tailed Bee-eater	Merops philippinus	LC
24	Bluethroat	Luscinia svecica	LC
25	Bronze-winged Jacana	Metopidius indicus	LC
26	Brown Shrike	Kuttanadu, Alappuzha	LC
27	Caspian Tern	Sterna caspia	LC
28	Cattle Egret	Bubulcus ibis	LC
29	Chinees Pond Heron	Ardeola bacchus	LC
30	Cinnamon Bittern	Ixobrychus cinnamomeus	LC
31	Collared Kingfisher	Todiramphus chloris	LC
32	Comb Duck	Sarkidiornis sylvicola	LC
33	Common Barn-olw	Tyto alba	LC
34	Common Snipe	Gallinago gallinago	LC
35	Common Greenshank	Tringa nebularia	LC
36	Common Kingfisher	Alcedo atthis	LC
37	Common Moorhen	Gallinula chloropus	LC
38	Common Myna	Acridotheres tristis	LC
39	Common Redshank	Tringa totannus	LC
40	Common Ringed Ploving	Charadrius Hiaticula global	LC
41	Common Sandpiper	Actitis hypoleucos	LC
42	Common Stonechat	Saxicola torquatus	LC
43	Common Tailor bird	Orthotomus sutorius	LC
44	Cotton Pygmy-goose	Nettapus coromandelianus	LC
45	Critine Wagetail	Motacilla citrola	LC

46	Dusky Warbler	Phylloscupus fuscatus global	LC
47	Eastern Mash-harrier	Circus spilonotus	LC
48	Eastern Spotted Dove	Spilopelia chinensis	LC
49	Eurasian Tree Sparrow	Passer montanus	LC
50	Garganey	Spatula querquedula	LC
51	Glossy Ibis	Plegadis falcinellus	LC
52	Golden-bellied Gerygone	Gerygone sulphurea	LC
53	Great Cormorant	Phalacrocorax carbo	LC
54	Great-billed Heron	Ardea sumatrana	LC
55	Greater Adjutant	Leptoptilos dubius	EN
56	Greater Coucal	Centropus sinensis	LC
57	Greater Egret	Ardea alba	LC
58	Greater Painted Snipe	Rostratula benghalensis	LC
59	Green Bee-eater	Merops orientalis	LC
60	Grey -breasted prinia	Prinia hodgsonii	LC
61	Grey Heron	Ardea cinerea	LC
62	Grey-headed Lapwing	Vanellus cinereus	LC
63	House Sparrow	Passer domesticus	LC
64	Indian Cormorant	Phalacrocorax fuscicollis	LC
65	Indochinese Bushlark	Mirafra erythrocephala	LC
66	Intermediate Egret	Ardea intermedia	LC
67	Japanese Sparrowhawk	Accipiter gularis	LC
68	Javan-pond Heron	Ardeola speciosa	LC
69	Large-billed Crow	Corvus macrorhynchos	LC
70	Lesser Adjutant	Leptoptilos javanicus	VU
71	Lesser Coucal	Centropus sinensis	LC
72	Lesser Whistling-duck	Dendrocygna javanica	LC
73	Little Cormorant	Microcarbo niger	LC
74	Little Egret	Egretta garzetta	LC

75	Little Grebe	Tachybaptus ruficollis	LC
76	Little Ringed Plover	Charadrius dubius	LC
77	Long-toed Stint	Calidris subminuta	LC
78	Marsh Sandpiper	Tringa stagnatilis	LC
79	Olive-backed Sunbird	Cinnyris jugularis	LC
80	Orien White-eye	Zosterops palpebrosus	LC
81	Oriental Reed Warbler	Acrocephalus orientalis	LC
82	Oriental Darter	Anhinga melanogaster	NT
83	Oriental Magpie Robin	Copsychus saularis	LC
84	Oriental Pratincole	Glareola maldivarum	LC
85	Oriental Reed Warbler	Acrocephalus orientalis	LC
86	Oriental Skylark	Alauda gulgula	LC
87	Osprey	Pandion haliaetus	LC
88	Pacific Golden-plover	Pluvialis fulva	LC
89	Pady-field Pipit	Anthus rufulus	LC
90	Painted stork	Mycteria leucocephala	NT
91	Pheasant-tailed Jacana	Hydrophasianus chirurgus	LC
92	Pied Bushchat	Saxicola caprata	LC
93	Pied Fantail	Rhipidura javanica	LC
94	Pied Harrier	Circus melanoleucos	LC
95	Pied Kingfisher	Ceryle rudis	LC
96	Plain -backed sparrow	Passer flaveolus	LC
97	Plain Prinia	Prinia inornata	LC
98	Plaintive Cukcoo	Cacomantis merulinus	LC
99	Purple Heron	Ardea purpurea	LC
100	Purple Swamphen	Porphyrio porphyrio	LC
101	Red Avadavat		
102	Red-collared Dove	Streptopelia tranquebarica	LC
103	Red-wattled Lapwing	Vanellus indicus	LC

104	Ruddy-breasted Crake	Zapornia fusca	LC
105	Rufous-winged Buzzard	Butastur liventer	LC
106	Rusty-rumped Warbler	Locustella certhiola	LC
107	Sarus Crane	Antigone antigone	VU
108	Spot-billed duck	Anas poecilorhyncha	LC
109	Spot-billed pelican	Pelecanus philippensis	NT
110	Sreaked Weaver	Ploceus manyar	LC
111	Stork-billed kingfisher	Halcyon capensis	LC
112	Streak-eared Bulbul	Pycnonotus blanfordi	LC
113	Striated Grassbird	Megalurus palustris	LC
114	Striated heron	Butorides striata	LC
115	Watercock	Gallicrex cinerea	LC
116	Whiskered Tern	Chlidonias hybrida	LC
117	White Wagtail	Motacilla alba	LC
118	White-breasted Waterhen	Amaurornis phoenicurus	LC
119	White-rumped Pygmy-falcon	Polihierax insignis	LC
120	White-tailed Leaf-warbler	Phylloscopus intensior	LC
121	White-throated Kingfisher	Halcyon smyrnensis	LC
122	White-vented myna	Acridotheres javanicus	LC
123	White-winged Tern	Chlidonias hybridus	LC
124	Wood Sandpiper	Tringa glareola	LC
125	Yellow Bittern	Ixobrychus sinensis	LC
126	Yellow Wagtail	Motacilla flava	LC
127	Yellow-bellied Prinia	Prinia flaviventris	LC
128	Yellow-breasted Bunting	Emberiza aureola	EN
129	Yellow-vented Bulbul	Pycnonotus goiavier	LC
130	Zebra Dove	Geopelia striata	LC
131	Zitting Cisticola	Cisticola juncidis	LC
132	Black-faced Spoonbill	Platalea minor	EN