

## POPULATION SIZE AND TREND OF ASIAN DOWITCHER *LIMNODROMUS SEMIPALMATUS* IN BANYUASIN PENINSULA, SUMATRA, INDONESIA

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### Abstract

Asian Dowitcher *Limnodromus semipalmatus* is a Near Threatened shorebird species that only occur in East Asian Australasian Flyway (EAAF) sites. Banyuasin peninsula has known as important habitat for Asian Dowitcher during migration period. We compile and summarize all records of Asian Dowitcher in Banyuasin peninsula. There are at least 33 records of Asian Dowitcher from 1986 to 2019. The largest number is 11,500 to 13,000 birds during migration period in 1988. Unfortunately, the number had never been reported up to 2,500 birds since 2000s. Based on this data, it is assumed that the number of Asian Dowitchers in Banyuasin peninsula decline up to 80% in the last 20 years. Further monitoring and improving habitats are recommended to follow up Asian Dowitcher conservation actions in Banyuasin peninsula in the future.

**Keywords:** Number, Asian Dowitcher, *Limnodromus semipalmatus*, East Asian Australasian Flyway, Sumatra, Indonesia.

### Introduction

Millions of waders and waterbirds which breed in the north and winter in the tropics or in the temperate zone feed in tidal areas on migration and during winter [1]. A small number of tidal sites in the East Asian Australasian Flyway (EAAF) have been identified as supporting especially high concentrations or a high number of species of shorebirds, either on migration or non-breeding period [2]. Banyuasin peninsula and adjacent coastline in southern Sumatra is one important site in EAAF mainly during southward migration at least 30 species of shorebirds [3-

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5]. The coastal zone of South Sumatra has some of the most extensive mangrove areas in the Indo-Malayan region, reaching up to 35km in width [6].

Asian Dowitcher *Limnodromus semipalmatus* is a shorebird with disjunct breeding range in the steppe regions that extend from west to east Siberia, breed between about 50°N and 62°N, in the valleys of the Ob and Irtysh at about 68°E in Siberia, to about 134°E in Manchuria; and move as non-breeding visitor to east India through Southeast Asia, Sumatra and Java, to Australia, Papua New Guinea and New Zealand [7-9]. The bird is large shorebird (33-36cm) with long black straight bill and swollen tip, dark crown, white supercilium, and long legs [7, 10]. Similar to the latter in all plumages and easily overlooked with Godwits *Limosa* spp, but smaller than these Godwit taxa [11]. This species is restricted in EAAF site, and no subspecies are recognised [2].

Monitoring can be determined as the process of collecting information about a state variable (such as the population size of a target species, habitat condition, forest cover or the distribution of a highlighting species) to assess the state of the system and draw inferences about changes over time [12]. The importance of monitoring for wildlife conservation is globally recognized [13]. The foremost challenge in conserving migratory shorebirds is the fact that their annual cycles spatially link areas and habitats across the breeding, passage and staging, and non-breeding grounds [14, 15]. Shorebird monitoring which linking to conservation biology in relation to estimate population trends especially for species of conservation concern, where further decline might rapidly or heading to extinction is necessary for their survival [16]. In this paper, we summarize and review population of Asian Dowitcher in Banyuasin peninsula to looking at trend of the number based on available information.

## Materials and Methods

We compiled records of Asian Dowitcher in Banyuasin peninsula, both based published and unpublished available data. Published records collected from fieldworks conducted before 2000s, and unpublished records are mainly from various surveys collected during our own fieldworks after 2000s. We screened carefully and summarized all records and present a range numbers of historical and recent records. There are few visitors of birdwatchers and photographers in Banyuasin peninsula, but only information from experiences and appropriate dedicated birdwatchers are received. East coast shoreline of Banyuasin peninsula is about 35 km, and most birdwatchers who carried shorebird survey here divided their observation into some points (mainly based of the occurrence of small rivers), but we add all total number of spatial distribution records.

## Results and discussions

### *Population size and trend*

There are at least 33 records of Asian Dowitcher from 1986 to 2019 in Banyuasin peninsula. This bird was reported all months (Table 1). Following term of four session of migration period [17], the birds were reported in winter (November to February), northward migration (March to April), summer (May to July) and southward migration (August to October).

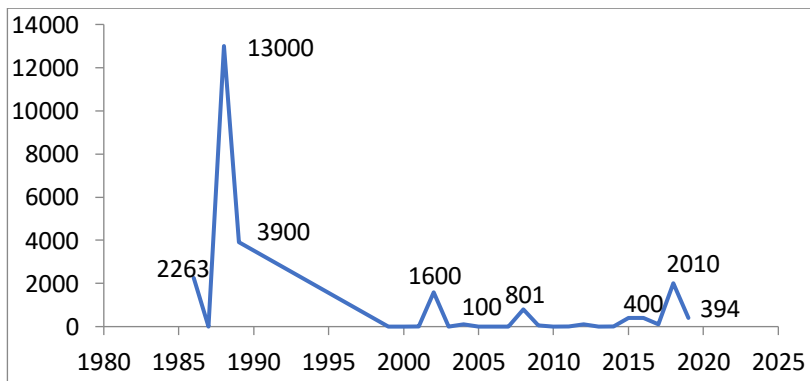
This species was first time reported in Banyuasin peninsula since 1986, with 2,263 birds. The largest number of Asian Dowitcher is c. 11,500 to 13,000 birds in October and December 1988, during southward migration and wintering period. Monthly observation in 1989 show the number of c. 1,206 to 3,900 birds during March to April, and the number fall around 53 to 245 birds during May to July, and the number rising back to 2,000 birds in August. From 2001 to 2019, the lowest numbers of Asian Dowitchers are recorded c. 10 birds, and the largest number are c. 1,600 to 2,150 birds. Since 2001, the number of birds do not reach up to 2,500 birds.

These data suggest that the number of Asian Dowitchers are rapidly decline from 13,000 birds in 1988 to 2,150 in 2019 (up to 80% within 20 years, see Fig. 1).

**Table 1.** Numbers of Asian Dowitchers reported on the Banyuasin Peninsular, South Sumatra, during 1986-2019

Date	Number	Sources/Observers
23-29 March 1986	2,263	[18]
March-April 1986 (undated)	1,763	[19]
September 1988 (undated)	550	[20]
October 1988 (undated)	11,500	[20]
November 1988 (undated)	13,000	[20]
December 1988 (undated)	1,200	[20]
January 1989 (undated)	1,300	[20]
February 1989 (undated)	100	[20]
March 1989 (undated)	3,900	[20]
April 1989 (undated)	1,206	[20]
May 1989 (undated)	245	[20]
June 1989 (undated)	53	[20]
July 1989 (undated)	80	[20]
August 1989 (undated)	2,000	[20]
19-23 March 2001	c. 10	[21]
3 August 2001	c. 10	[22]
9 October 2002	c. 1,600	[23]
24 February 2004	c.100	[24], MI <i>pers.obs</i>
30 June 2004	c.10	[25], MI <i>pers.obs</i>
November 2008 (undated)	801	MI <i>pers.obs</i>
December 2008 (undated)	100	MI <i>pers.obs</i>
May 2009 (undated)	50	[26]
December 2011 (undated)	c. 10	[26]
22 March 2012	c.100	[27]
November 2014 (undated)	15	[26]
20 January 2016	400	[26], YRN <i>pers.obs</i>
25 January 2017	120	YRN <i>pers.obs</i>
8 September 2017	c.100	MI, DM, HM <i>pers.obs</i>
24 February 2018	50	MI, DM, HM <i>pers.obs</i>
24 March 2018	c.20	MI <i>pers.obs</i>
12 May 2018	c. 10	MI, DM, HM <i>pers.obs</i>
24 November 2018	2,100	MI, DM, HM <i>pers.obs</i>
20-22 December 2019	394	MI, DM <i>pers.obs</i>

Observers: MI = Muhammad Iqbal, DM = Deni Mulyana, HM = Henni Martini, YRN = Yus Rusila Noor



**Fig. 1.** Annually trend of number of Asian Dowitchers in Banyuasin peninsula from 1986 to 2019

In North Sumatra, it was reported a total of Asian Dowitchers (6,970 birds at Sejara beach, and 987 birds at Tiram bay) on 28 March 2002; but it was only 160 birds reported at Asahan river on 25 September 2005 [28]. In addition, a survey during seven months (October 2014–April 2015) observation in Percut, North Sumatra, recorded total 321 birds. Based on this observation, number of Asian Dowitchers in North Sumatra look like a decline from 1987 to 6,970 birds in 2002, to 160 birds in 2005 and 321 birds in October 2014–April 2015. Another observation is from Asian Dowitcher east coast along Deli Serdang during 1995 to 2005 that the largest number reported 2,370 birds in 2002 [29]. Asian Dowitcher trend show similar declining pattern in Banyuasin peninsula, with the largest number recorded *c.* 6,970 birds in 2002, but the number in one single survey had never been recorded to 2,500 birds after 2002. However, due to the similar characters with the Godwits and usually mix of these taxa in flocks (Fig. 2 and 3), it is estimated that the number of Asian Dowitcher in Banyuasin peninsula could be still a maximum number of 5,000 birds.



**Fig 2.** Mix flocks of Asian Dowitcher and Godwits on 13 November 2018 in Banyuasin peninsula, South Sumatra province, Indonesia



**Fig. 3.** Two Asian Dowitchers on 22 December 2019 in Banyuasin Peninsula, South Sumatra province, Indonesia

The global population of Asian Dowitcher is estimated around c. 23.000 birds, where 20.000 birds are presumed to be in Indonesia, 600 birds in Thailand, 500 birds in Australia, 500 birds in China, 500 birds in Malaysia, 500 birds in Papua New Guinea, 300 birds in Phillipine, 150 to 800 birds in India, and 230 birds in other countries [2, 30]. The population estimate based upon large numbers reported in Indonesia, including a single count of 13.000 birds made during southward migration from Banyuasin peninsula [19, 30], or up to 56% from global population during wintering period.

### Conservation

Asian Dowitcher has been classified as Near Threatened by IUCN because, although it is quite widespread, it has a moderately small population overall and this is thought to be in decline, owing primarily to destruction of its wintering grounds [9]. In Indonesia, this species has been one protected species by Government of Indonesia [31]. As one globally important habitat of Asian Dowitcher, Banyuasin peninsula has advantage of its conservation status as part of Berbak Sembilang National Park (based Decree of the Ministry of Forestry Number 95/Kpts-II/2003). The site has been declared as various important sites that have great significance ecologically resources, including as one important wetland site in Indonesia, Important Bird Area (IBA), Ramsar site, EAFF site and Biodiversity heritage site [32-34].

The threats of Asian Dowitcher may also be: hunting, pollution, wetland loss and degradation along its migration route [9]. Hunting of shorebird is one potential to be a major threat of shorebird populations in EAAF areas interplaying with habitat loss [35], but as a protected area, hunting of shorebirds in Banyuasin peninsula are very rarely. However, hunting of shorebirds in another east coast of Sumatra island are still reported, particularly in North Sumatra [36], [Chairunas Adha Putra *pers. comm.*]. In Banyuasin peninsula, there are 930 ha of mangroves converted as agriculture ponds for shrimp and fish [37, 38]. Chemical activities in relation of keeping or maintain agriculture ponds could be give impact to Asian Dowitcher population.

There are not globally previously data on population trends of Asian Dowitcher; however, the species is probably in decline owing to pollution and development on the wintering grounds [9]. The alarm of declining population of Asian Dowitcher in Banyuasin peninsula should be address with a conservation action. In local scale, continue monitoring of number of Asian Dowitcher is important to look at trend of population, particularly endorse monitoring conducted by local authorities and local people. Improving habitat through replanting of mangroves were to be converted as agriculture ponds should be implemented to improve better habitat for Asian Dowitcher in the future.

### Conclusions

Asian Dowitcher has been recorded up to 11,500 to 13,000 birds during migration period in 1988, but since 2000s the number had never been reported up to 2,500 birds. This data suggests that this shorebird has decline up to 80% during the last 20 years.

A conservation action should be implemented in the near future to improve habitat of Asian Dowitcher in Banyuasin peninsula as one of important wintering grounds in Indonesia.

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