

BIRDS AT SEBYAR RIVER, ARANDAY, BINTUNI, WEST PAPUA

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ABSTRACT

The River Sebyar is known as the home for particular aquatic birds and the wintering ground for migrant birds. The mass transportation along the river most likely impacted by the presence of wildlife species including birds. The research investigated the presence of water birds along the river. The study was done at six villages along the River Sebyar at the Aranday District of Bintuni Bay Regency of West Papua. The methods involved direct observation to the study sites by canoe-transect line along the river length with the assistance of binoculars, taxonomic description guide, and daily diary updated. Twenty-three birds were observed during the survey. Ten out of 23 bird species recorded in this survey have been observed that consisted of five species of Ardeidae, four of Anatidae, and one of Laridae. The escalation of human activities along the riverside especially during sago harvesting and a busy boat traffics within the Bintuni Bay tended to decrease spaces for particular bird species that usually occupied the areas for roosting and foraging assemblages.

KEY WORDS: birds, diversity, Sebyar River, Bintuni, West Papua

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INTRODUCTION

The Aranday District of Bintuni Bay Regency consists of 12 villages distributed along the coast and river. The district includes a swamp area with mangrove forest, riverside with trees, and forest dominated land. According to Pattiselanno (2012), this area is of particular bird species habitat such as European widgeon, giant heron, and *Aythya australis*. Wibowo & Suyatno (1998) report that the wetland surrounding the Bintuni Bay is a harbor of 10 bird species identified as migratory waders. Wajo (2010) observes 16 birds species at the similar places across the exploration sites of the LNG Tangguh Babo-Bintuni. Human activities continuously influence wildlife and their habitats (Steidl & Powell, 2006), which are reflected in changes of animal behavior individually and extinction globally (Chapin *et al.*, 2000).

Bintuni Bay in the south of Papua benefits not only biota using the area as their habitat but also local people using the mangrove forests as sources of living (Arobaya & Pattiselanno, 2010). Currently, River Sebyar is used as the major transportation connected Aranday to Babo for all operational activities of the LNG sites. This high activity might affect the condition of the riverside, which further might influence the wildlife species including birds because they rely on the area for food, playing ground, hiding cover, and other purposes. It is also observed that increase of people activities along the river has affected the presence of particular bird species that are usually roaming around the sites.

Therefore, a biological survey was conducted, and fieldwork was done to observe bird activities along River Sebyar, to provide the baseline information about particular bird species inhabit the riverside. Djuwantoko *et al.* (2013) suggest that birds are a good indicator to assess the biodiversity value of particular areas. Thus, this survey intended to understand how the current condition of River Sebyar affected the presence of bird species.

METHODS

The bird species observation related to the escalating activities was conducted along the River Sebyar (Figure 1) between July and August 2005. An intensive two-week survey was carried out during the rainy season in the five villages along River Sebyar, *i.e.*, Sebyar Rejosari, Manunggal Karya, Kecap, Aranday, and Kampung Baru.

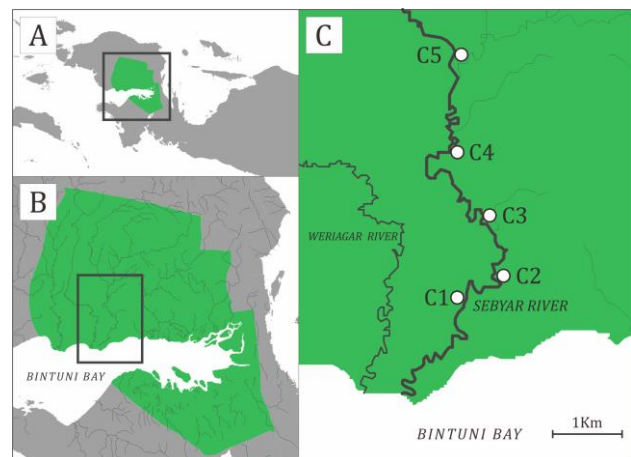


Figure 1. The map of West Papua Province showing Teluk Bintuni Regency marked in green (A), the map of Teluk Bintuni Regency showing River Sebyar area (B), the map of River Sebyar (C) with the location of Rejosari (C1), Manunggal Karya (C2), Kecap (C3), Aranday (C4), and Kampung Baru (C5) villages

Five-kilometer canoe-transect line along the river length with varies width in size (approximately 5–10m) (Pattiselanno, 2005a), was conducted from 0530 to 0930 during daytime and 1600 to 1800 at the afternoon every day to monitor the presence of birds along the River Sebyar. Birds that observed during the survey was recorded and tallied to count the frequency of species observed. Bushnell binocular 10X-50mm was used to observe the birds. Birds identification followed the taxonomic description from Rand & Gilliard (1967) and Beehler *et al.* (1986). Notes from AYS diary during her travels between 2007 and 2008 around the sites were also accounted to update the information from the field works.



Figure 2. The location of birding sites at Aranday village (A), mangrove of Manunggal Karya closed to areas occupied by local people (B), bird nest found at Kampung Baru composed by mangrove twigs (C)

The outer layer of River Sebyar was dominated by *Avicennia alba*, *Sonneratia alba*, and *Rhizophora apiculata* while *Bruguiera* spp. and *Metroxylon sago* dominated the inside part. The land surface along the riverside was plain, utilized as the settlement, and farther from the riverside was forest area. Common vegetation grew around the forest community was Papuan nutmeg (*Myristica argentea*), Meranti (*Shorea* sp.), Ketapang (*Terminalia cattapa*) and Jambu Hutan (*Eugenia* sp.). Those species were commonly used for fencing, housing, and firewood for cooking by the local people. Some commercial species grown in the forest and utilized for housing, furniture and industry included Kayu Besi (*Intsia palembanica*), Matoa (*Pometia pinnata*),

Nyatoh (*Palaquium* sp.), Kayu Susu (*Alstonia scholaris*), Bintanggor (*Callophylum* sp.), and Resak (*Vatica papuana*).

RESULTS AND DISCUSSION

Twenty-three bird species were recorded during the survey (Table 1), in which ten of them were included in three families, Ardeidae (5 species), Anatidae (4 species), and Laridae (1 species).

Five species of Ardeidae including *Ardea sumatrana*, *Ardeola striata*, *Egretta garzetta*, *Egretta ibis*, and *Egretta intermedia* were commonly seen around the open area. These species preferred playing in a flock with less vegetation cover. Similarly, Pattiselanno (2005a); Mayor & Pattiselanno (2008) observed particular *Egretta* spp. at Mamberamo River Basin and the mangrove forests of Raja Ampat Island. The Anatidae (*Anas penelope*, *Aythya australis*, *Dendrocygna arcuata*, and *Tadorna radjah*) were often seen in a flock, sometimes more than ten individuals, and commonly observed above the water surface looking for food.

According to Wibowo & Suyatno (1998), 10 out of 17 bird species found on tidal flats in Bintuni Bay were migratory waders, because this area was the stopover site for particular migratory birds. Some migratory waterbirds (Anatidae, Ardeidae, and Laridae) spent time either on the drifted log or above the canopy along the river. It was common because during the rainy season, a more drifted log was usually found and certain water birds harbored above the log along the flooded River Sebyar. The lower number of species observed in this study compared to our survey along the Mamberamo River Basin (Pattiselanno, 2005a) might be because of the weather condition that not permitted to examine particular species under the canopy, and less time available for observation.

Four species of Psittacidae (*Cacatua galerita*, *Lorius lorry*, *Probosciger aterrimus*, and *Psittichas fulgidus*) were mostly in a pair or flock, perched on a branch or flew along or across the river. As seed eater, these species occupied habitat along the riverside that mostly crops plantations. This result was still lower compared to study conducted by Pattiselanno (2005a) who reported eight species at the Mamberamo River Basin, and seven species at Taman Wisata Gunung Meja (Pattiselanno *et al.*, 2011).

River Sebyar presently is busy and active place compared to Mamberamo and Gunung Meja. Therefore, this situation may have affected the presence of particular shy birds—species that engage in a low risk /low reward behavior (Aplin *et al.*, 2013) along the riverside during our survey. Fundamentally, all human activities can affect wildlife populations either positively or negatively (Steidl & Powell, 2006). The activities that cause severe effects are the changes that cause physical environment alteration, and animal behavior. Activities that alter the physical environment change the amount or the suitability of habitat for a species.

Table 1. Bird species recorded around and along the Sebyar River

Family	Scientific Name	Days of observation						Status					Migrant	Resident		
		1	2	3	4	5	6	IUCN (2017)	CITES (2017)	UU No. 5/1990	PP No. 7/1999	PP No. 8/1999				
Anatidae	<i>Anas penelope</i>	•	•	•	•	•										•
Ardeidae	<i>Ardea sumatrana</i>	•	•	•	•			LC								•
Ardeidae	<i>Butorides striata</i>	•	•	•	•	•		LC								•
Anatidae	<i>Aythya australis</i>	•	•	•	•			LC								•
Psittacidae	<i>Cacatua galerita</i>	•	•	•	•	•	•	LC	App. I	P	P	P				•
Cervidae	<i>Casuarius benneti</i>	•						LC		P	P	P				•
Psittacidae	<i>Charmosyna rubronotata</i>	•	•	•	•	•		LC	App. II							•
Apodiidae	<i>Collocalia esculanta</i>	•	•	•	•	•	•	LC								•
Anatidae	<i>Dendrocygna arcuata</i>	•	•	•	•			LC								•
Ardeidae	<i>Egretta garzetta</i>	•	•	•	•	•	•	LC		P	P	P				•
Ardeidae	<i>Bubulcus ibis</i>	•	•	•	•	•	•	LC		P	P	P				•
Ardeidae	<i>Ardea intermedia</i>	•	•	•	•	•		LC								•
Columbidae	<i>Goura cristata</i>	•						VU	App. II			P				•
Acipiteridae	<i>Haliaeetus leucogaster</i>	•	•	•				LC		P	P	P				•
Acipiteridae	<i>Haliastur indus</i>	•	•	•	•	•		LC		P	P	P				•
Hirundinidae	<i>Hirundo rustica</i>	•	•	•	•	•	•	LC								•
Psittacidae	<i>Lorius lory</i>	•	•	•	•	•	•	LC								•
Megapodiidae	<i>Megapodius freycinet</i>	•	•					LC		P	P	P				•
Paradisaeidae	<i>Paradisaea minor</i>	•	•	•				LC	App. II	P	P	P				•
Psittacidae	<i>Probosciger aterrimus</i>	•	•	•	•	•	•	LC	App. I	P	P	P				•
Psittacidae	<i>Psittichas fulgidus</i>	•	•	•				VU	App. II	P	P					•
Laridae	<i>Sternula albifrons</i>	•	•	•	•			LC								•
Anatidae	<i>Tadorna radjah</i>	•	•	•	•			LC								•

Note: LC = Least Concern; VU = Vulnerable; App. I = Appendix I; App. II = Appendix II; P = Protected

Both of Accipitridae (*Haliastur indus* and *H. leucogaster*) were distinguished from their feather. They occupied similar vegetation type and used big tall trees mostly dry ones for their hovering. They were commonly spent their time at the top of the dry branch looking for food (arthropods, small vertebrate including fish). Both species have also recorded at the Mamberamo and Raja Ampat (Pattiselanno, 2005a; Mayor & Pattiselanno, 2008).

The species from each of the following family was observed around the study site, Apodiidae (*Collocalia esculanta*), Hirundinidae (*Hirundorustica*), Megapodiidae (*Megapodius freycinet*), and Paradisaeidae (*Paradisaea minor*). *Collocalia esculanta* was mostly found in small colony along the small stream, looking for food. *H. rustica* was away from the forest site and commonly closer to the riverside. According to Beehler (1986), this species was the migrant species from north and south of Papua. *M. freycinet* was seen around its nesting site closer to the river. It has been described that its nesting site was spotted around the coastal, river and swampy vicinity (Beehler, 1986; Pattiselanno, 2005b).

It was speculated that although increases of human activities in and along the riverside might not alter its physical environment, they could affect the wildlife adversely. Steidl & Anthony (2000) emphasized that as human activities intensively increase around wildlife habitat, sensitive wildlife species maybe increasingly affected. The magnitude of human activity effects on wildlife is influenced by various circumstances such as disturbance type, duration, frequency, magnitude, location, and timing. Although effects of these activities are typical of short duration, they can affect wildlife populations adversely both in the short- and long-term (Steidl &

Anthony, 2000; Swarthout & Steidl, 2003; Mann *et al.*, 2002; Johnson *et al.*, 2005).

We assumed that changing of lowland forests landscape perhaps influenced the presence of birds along River Sebyar. Sites along the river were not favorable for particular shy bird species (especially for covering, resting, and playing). In certain points, we also observed that local people occupied the flat areas for *bivouac* (small hut) construction to tap sago from the fallen sago trees to produce sago flour for their family members. Long *et al.*, (2007) concluded that an increase in the area of agricultural land could be associated with decreasing populations in *Anseriformes*.

During the period of sago flour production, all household members occupied the hut, fished along the river and hunted at lowland forests to provide a source of animal protein for family consumption. Reported data indicated that wetland degradation could be mainly attributable to neglect and unsustainable human activities (e.g., bushfire setting, hunting, farming, fuel-wood harvesting, and estate development) over the years (Ntiamoa-Baidu & Gordon, 1991; Ryan & Ntiamoa-Baidu, 2000). In North America for example, human harvesting of intertidal organism negatively affects the presence of shorebirds (Burger & Gochfeld, 1991). Similarly, Cornelius *et al.*, (2001) emphasized, human activities including recreational activities along the coast should consider particular sites of birds for roosting and foraging assemblages.

The boat traffic crossing the river from and to Babo has increased significantly. Therefore, the situation along the river was hectic and crowded. As more activities were taken place, limited space was available to particular birds that preferred marshland

site as their habitat. This may be some bearing on their presence around the study site. We further observed that those solitary species tended to find small creeks lead to the major river as places for resting and playing a bit far from River Sebyar. The river condition such as tide is one of the indicators controlling the presence of this species searching for food. As cited by Burger *et al.* (2004), the tide is the primary influence of the distribution and behavior of shorebird because the tide controls the availability of food, which ultimately determines the distribution of different species. It was observed that the tide condition along River Aranday fluctuated as the river was used for the transportation means by both locals and industries.

CONCLUSION

This survey observed the presence of 23 bird species, including ten waterbird species belonged to Ardeidae (5 species), Anatidae (4 species) and Laridae (1 species). The increase of human activities along the riverside, especially during sago harvesting and a busy boat traffics within the Bintuni Bay, tended to decrease spaces for particular bird species that usually occupied the areas for roosting and foraging assemblages

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