

Individual Behavior of Cattle Egret (*Bubulcus ibis*) in Asam Kumbang Crocodile Farm, Medan City, North Sumatra

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Abstract: Research on the behavior of individual cattle egret (*Bubulcus ibis*) in the Asam Kumbang Crocodile Farm Area, Medan Selayang District, Medan City, North Sumatra, was completed from December 2018 to February 2019. Data were collected using the Scan Sampling method. This study aims to determine individual behavior. The results found 5 types of individual sub-behavior for 3,780 minutes (63 hours) which included preening behavior (386 times), self-comfort behavior (193 times), stretching behavior (101 times), sunbathing behavior (47 times), and resting behavior (4 times). In the morning, the dominant behavior is preening behavior with the aim to cleanse themselves from small-sized organisms such as lice attached on the surface of feathers. During the daytime, dominant behavior of cattle egret is stretching with the aim to cool (neutralize) body heat and flex the beak muscles. In the afternoon, the dominant behavior performed is the self-comfort behavior of the body with the aim of removing dust, dirt and mud on the surface of the fur.

1 INTRODUCTION

Cattle egret (*Bubulcus ibis*) is a species of waterbird from the Ardeidae family with distribution in Sumatra, Kalimantan, Java and Bali (Mackinnon, 2010). According to Siegfried (1971), *B. ibis* is a species commonly inhabits the agricultural areas such as rice fields. Regulation of the Minister of the Environment Number 20 of 2018 concerning the determination of protected species of plants and animals stated that cattle egrets are no longer protected since its greater increase in population at various regions. This species adapt very quickly to the environment and can live in any wetland areas.

Bubulcus ibis occupy the wetlands area as a place to forage and living habitat. Utilization of wetlands is related to the function of wetland areas as a support for life activities which provide abundant food for cattle egrets (Davies and Lundberg, 1996). Wetlands have a variety of ecological functions that are very important including the function of hydrological regulators, producers of biological natural resources and habitat of cattle egrets. The existence of wetlands as a habitat for buffalo herons has been formulated in the

Ramsar International convention as an international interest (Sibuea, 1997).

Moreover, *Bubulcus ibis* has an important role for a wetland area and grass area as a pest control, both insects and other small animals. This relates to the species of prey consumed, namely insects found in the area (Alikodra, 2002). In an *ex-situ* site namely Asam Kumbang crocodile farm, some individuals of *B. ibis* are seen to do a variety of activities and breeding since the area provides a perch, foraging and nesting sites on diverse species of tree vegetation. However, there is a predator pressure in the habitat, which is the estuarine crocodile found in the breeding area of the farm.

The predatory pressure causes *B. ibis* to develop anti-predator behavior, which is a form of alertness to disturbances caused by predators (Agrawal, 2001). One of the predatory behaviors carried out by birds is Mobbing. Mobbing is widely understood as an anti predator strategy that occurs in birds, this behavior can provide the ability of birds to guard the nest, offspring, and lessons to their children about the potential danger from predators (Arnold, 2000)

Asam Kumbang crocodile farm is a wetland area including an artificial lake that has dozens of estuarine crocodiles, in which the area has become

habitats for *B. ibis* to find food and place nest. In searching for food, the egrets prey on insects and small animals in this area including amphibians, annelids and insects. In addition, Asam Kumbang crocodile farm is a breeding site to many waterbirds, including cattle egret, with the total area of 2 ha. This study then aims to determine the behavior of individual *Bubulcus ibis* as preliminary information of its natural activity in an artificial site.

2 MATERIALS AND METHODS

This study was conducted in December 2018-February 2019 in the Asam Kumbang crocodile farm, Medan Selayang District, Medan City, North Sumatra. Observations were performed with the aid of binoculars starting at 07.00 AM to 17.00 PM using the Scan Sampling method with the object of one individual. Observations are made on selected individuals until no different behaviors are found, but if the individual left the research site, the area of observation then the observation is continued to the closest individual to him. Observed behaviors are based on Kushlan (1979), i.e. preening, self-comfort, stretching, sunbathing, and resting behaviour.

3 RESULTS AND DISCUSSION

Based on this study, the cattle egret *B. ibis* displayed different frequencies in the 5 individual subbehaviors, namely preening behavior (386 times, 52.66%), self-comfort behavior (193 times, 26.33%), stretching behavior (101 times, 13.77%), sunbathing behavior (47 times, 6.41%), and resting behavior (4 times, 0.54%). (Table 1). In the morning, the dominant behavior is preening behavior with the aim to cleanse themselves from small-sized organisms such as lice attached on the surface of feathers.

During the daytime, dominant behavior of cattle egret is stretching with the aim to cool (neutralize) body heat and flex the beak muscles. In the afternoon, the dominant behavior performed is the self-comfort behavior of the body with the aim of removing dust, dirt and mud on the surface of the fur.

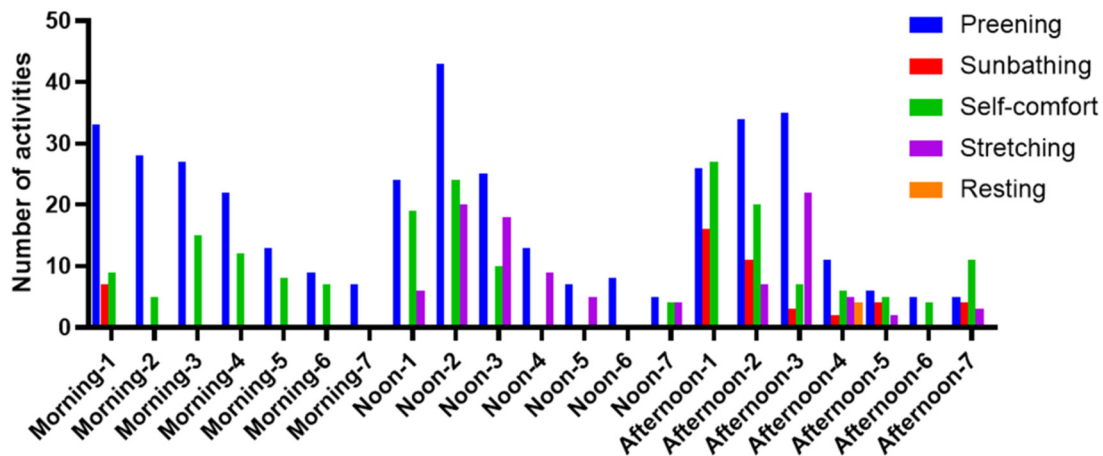
This situation is in accordance with the statement of Pettingill (1969) and Jumilawaty and Dalimunthe (2018), which stated that preening behavior such as examining fur is a very important treatment performed with a beak, moved or bitten to the ends and this movement is species-specific. Bird's feet can scratch the head, usually to clean the part of the head that cannot be touched by the beak. Self-comfort behavior is also related to the care of fur, skin and other parts that are very important to do *B. ibis* especially those used for flying.

Sibley (2001) states that during the day, the birds carry out activities including self-comfort behavior such as examining feathers aimed at treating the physical condition of individual birds. According to Pasquier (1997), *B. ibis* will spend most of its time performing preening and self-comforts behaviors primarily with regard to the cleanliness and regularity of the hair, such as reuniting the separate feathers and arranging the feathers back into place. Foraging-active birds will cause their body feathers to dry which in turn needed to be lubricated through preening behaviors (Jumilawaty and Dalimunthe, 2018).

Meanwhile, the resting behavior was the least common behavior performed by cattle egret due to its active-breeding state. The total observation for 7 days was compiled in Figure 1. During observation, *B. ibis* were seen to look for more branches of trees used to make a half-finished nest and invite couples to mate so that after the nest is finished, *B. ibis* will rest on its nest. *Bubulcus ibis* will find a suitable place to build a nest that will be used during the breeding season and do a display to invite their partners (wing-waving) (Hoyo et al., 1992).

Table 1: Summary of individual behavior by *Bubulcus ibis* at Asam Kumbang crocodile farm

No	Behavior	Number of activities	Frequency (%)
1	Preening	386	52.66
2	Sunbathing	47	6.41
3	Self-comfort	193	26.33
4	Stretching	101	13.77
5	Resting	4	0.54

Figure 1: Number of individual *Bubulcus ibis* activities during 7 days of observation

Sunbathing behavior is carried out by *B. ibis* by developing head feathers to respond to sunlight. The stretching behavior is carried out by *B. ibis* by gaping and moving or vibrating the mandible to flex the beak muscles and cool (neutralize) body temperature. Resting behavior is carried out *B. ibis* with the aim to support body weight and enjoy sun exposure. In the afternoon of *B. ibis* performs more self-care behavior, bodily comfort, sunbathing, stretching and resting which are sub-individual behaviors. Stretching behavior is carried out by *B. ibis* with the aim to cool (neutralize) his body temperature, carried out by gaping, moving or vibrating the mandible, this is because the weather conditions especially the temperature in the area is very hot and hot. This is in accordance with the statement Sukarsono (2009), some environmental factors that predominantly affect animal life are temperature.

4 CONCLUSIONS

The individual behavior of cattle egret or *Bubulcus ibis* in the Asam Kumbang crocodile farm consists of 5 activities, namely: preening, sunbathing, self-comfort, stretching, and resting behavior. In the morning period the frequent behavior is preening, which aims to clean and remove any small-sized parasites such as lice on the surface of the body feather. In the afternoon, the frequent behavior are self-comfort, sunbathing, stretching and resting. Factor affecting the individual behavior of *B. ibis* is temperature condition of environment.

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