

## PANTAI PASIR PADI (PADDY SAND BEACH) OF BANGKA ISLAND; CRABS (*SCOPIMERA* SP) POPULATION, FEEDING BEHAVIOUR AND THEIR BIRD PREDATOR

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### ABSTRACT

An observation about beach crab (*Scopimera* sp) population, their feeding behaviour and predator bird had been done at October 9 th, 2014 in Pantai Pasir Padi, Eastern Bangka Island beach, near Pangkal Pinang town. Ten 1 meter square plots were put at sandy beach and number of *Scopimera* sp be counted by the number of their hole nest home. Their feeding behaviour observed directly by eye-watching and video making. The threatening of bird predator was noted too. The investigation find out that the mean of crabs population is 17 individu/m<sup>2</sup>. They come out from home hole for feeding around by sieving wet sand that be taken by front legs, obsorb organic nutritious material by mouth and kick residual sand to behind legs, move it as a small sand ball to right of left back side. Production of small ball sand were about 15 - 30 balls /per minute. For making the nest hole, bigger sand ball were produced about 7 – 9 ball/minute; ball colour is same with under layer beach sand; quite grey. The crabs run instinctivey fast, when the threat come from their natural enemy, predator bird, *Actitis hypoleucos*. Bird searching behaviour look adapted to the fast run of crab.

**Keywords:** *Scopimera* sp, *Actitis hypoleucos*, small sand ball, predator, behaviour

### INTRODUCTION

Pantai Pasir Padi, is seashore area, located 7 km eastern Pangkal Pinang city, the capital of Bangka Belitung Province, Indonesia, (fig. 1). The name of beach, Pantai Pasir Padi, come from the paddy sand beach, the phenomena where the crabs produce billion on sandy ball from beach sand and look like paddy (fruit of rice) spreaded out along coastal line. In Singapore (Anonymous, 2014) call those crabs as Sand Bubbler Crabs, and noted as *Scopimera globosa* and *Scopimera intermedia*.

Sand bubbler crabs of the genus *Scopimera*, De Haan, 1983, are common and widespread on soft shores in the Indo West Pacific region (Kemp 1919; Miyake 1983 cit. Wong et al. 2011). They play important role as deposit feeders and bioturbators and affect the productivity of sandy shores. At present, there are 14 species in the genus *Scopimera* (Ng et al., 2008 cit. Wong et al., 2011). It was observed that *S. proxima* is restricted to certain type of sandy beaches and in such areas they show a definite zonation in the intertidal region; collection of an allied species *S. pilula* Kemp indicated that both these species do not co-exist in the same area as they show preference to certain type of soil and also differ in habits (Silas and Sankarankutty, 1965).



Fig. 1. Paddy Sand Beach; sand balls are emerged like paddy (rice fruit) floor along the coast.

Ecologically, coastal birds depend on intertidal area to obtain their lives. Coastal birds tend to concentrate in area, where prey are occurred. The most important food of coastal birds are crustacean, fish and mollusc . Among 214 species of coastal birds in over the world, 65 species live in Indonesia. One of them is Trinil Pantai or *Actitis hypoleucos*. (Arbi, 2008). Common sandpipers are migratory birds that overwinter in warmer climates throughout the Old World, specifically Africa, southern Asia, and Australia. (Malpas, et al., 2004 cit.Pines, 2011).

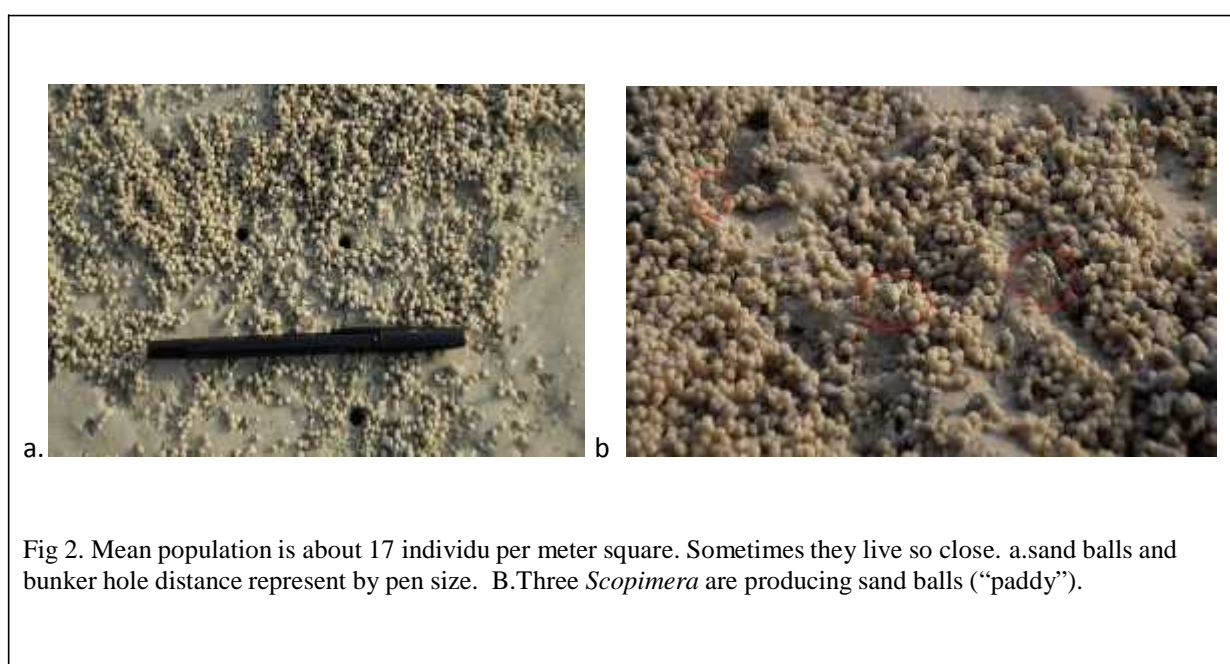
Number of crabs (population) at beach as producer of sand ball, how they produce those balls and how the relationship of bird predator in catching the carbs important to be studied. It have the role not only in biological development science but for conseravtion and tourism feature too.

## STUDY AREA AND METHODOLOGY

Ten 1 meter square plots were put at sandy beach and number of *Scopimera* sp be counted by the number of their hole nest bunker. Mean number of crab bunker hole were gained by divided total number of holes by ten of 1 m<sup>2</sup> plot. Their feeding behaviour observed directly by eye-watching and video making. Production of sand ball were counted by video duration and total number of sand ball that were resulted. The threatening of bird predator was noted too, how the bird search and catch the crabs.

## RESULT AND DISCUSSION

Meanly, population of *Scopimera* crab is 17 individu/m<sup>2</sup> . So we could convert these nominal size to 170.000 crabs/hectare. Compared to Rezaie-Atagholipor et al., (2013) that studied the population of *Scylla serrata* crab in the gulf of Oman, found 1 crab per hectare, the number of individual crab in Pantai Pasir Padi is higher and rich, but *Scylla* and *Scopimera* are different species. Figure 2.a shows the population that are represented by number of bunker hole. Figure 2.b shows three individu of *Scopimera* crab are producing sand balls in order to adsorb feed material from wet sand.



While *Scopimera* are feeding, some predator birds come and need to feed too. *Actitis* bird search for fish, mollusc and crabs, include *Scopimera* of course. *Actitis* fly along the coast area and looking for feed. See thousands of *Scopimera* spread out on beach sand, they would landing and begin to catch. But *Scopimera* crab are sensitive to any moving that could danger to their life. They suddenly run away into the bunker hole that had been built before adsorb useful material from wet sand and produce the balls. Figure 3 shows dramatic relationship between predator bird, *Actitis hypoleucos* and *Scopimera* sp crab.

Wolf (1969) cit. Wood (2012) reported that *Actitis hypoleucos* prefer muddy area with some cover as patch feeding. They eat insect and their larvae, spiders, molluscs, crustaceans

and annelid worms; even small fish and frog, and tadpoles too (van Gils & Wiersma, 1996 cit. Wood 2012). In Juba, South Sudan, sandpiper (Trinil Pantai) commonly found searching

feed on the clump of water hyacinth. Figure 3.b shows the two kinds of balls that are produced by *Scopimera*. The bigger balls with grey colour and quite white ball, smaller and more common present. The grey balls are produced from mud in order to make the bunker hole. Grey mud is deeper layer of beach sand.

Pauchau and Passelic-Gerin (1988) explained the filter-feeding of *Scopimera gordonae* crab. The chelae spoon some surface sand into the mouth. While the spooned sand is kept floating by a water flow from the gill chambers, sideways motions of the mouth-parts succeed in sorting out organic matter and retain edible and some fine silt particles. The coarse sand is then rejected as waste pellets.



**a.** *Acititis* birds searching for food.



**b.** *Scopimera* crab feeding and producing sand-ball.



**c.** *Acititis* landing & wait, after *Scopimera* run into the bunker hole



**d.** *Scopimera* come out when the dangerous moving absence. *Acititis* catching.

**Fig 3.** The struggle of *Acititis-Scopimera* life.



Common sandpipers usually eat small invertebrates, crustaceans, aquatic and terrestrial insects, worms, and spiders, as well as scavenge on scraps from boats or from near shore. On occasion, they will eat small amphibians, tadpoles, fish and seeds. They locate live prey by running along the coastline and then run, swim, or dive to capture it. They break their prey into smaller pieces in order to feed. Typically, they feed individually or in pairs and avoid foraging in areas where other flocks feed to avoid competition and predation. [Tan, 2001 cit. Pines 2011]. It is surprising that a reptile would form parts of the sandpiper's diet and it is likely to have been taken opportunistically when foraging along the coast, given the low occurrence of geckos in this habitat (Stanton, 2013).

## CONCLUSION

Scopimera crabs population is 17 individu/m<sup>2</sup>. They come out from home hole for feeding around by sieving wet sand that be taken by front legs, absorb organic nutritious material by mouth and kick residual sand to behind legs, move it as a small sand ball to right of left back side. Production of small ball sand were about 15 - 30 balls /per minute. For making the nest hole, bigger sand ball were produced about 7 – 9 ball/minute; ball colour is same with under layer beach sand; quite grey. The crabs run instinctively fast, when the threat come from their natural enemy, predator bird, *Actitis hypoleucos*. Bird searching behaviour look adapted to the fast run of crab.

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