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A Faunistic Study of Insects from Daebudo and Youngheungdo Islands in Korea

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Abstract: The study performed collection surveys for 4 times from May to September, 2011 to investigate the insect fauna in Daebudo and Yeongheungdo Islands in the West Sea of Korea. The study confirmed the distribution of 1,153 insects with 9 orders, 96 families and 457 species.

Keywords: insect fauna, indigenous species, island regions, Korea

Introduction

So far, insects are considered as vermin which damages human lives and reckless uses of insecticides causes to demolish the natural ecosystem and decrease the habitats of insects. Even worse, the migration from agricultural areas due to the industrialization causes rapid increase in idle rice paddies and fields, various pollutions, excessive repeated cultivations and demolishing agricultural ecosystem due to excessive uses of agricultural chemicals and chemical fertilizers, decreasing the amount of useful insect resources (Choi *et al.,* 2003). Deteriorating the natural ecosystem damages the natural environment and decreases habitats, causing to decrease or rapidly increase certain species and this may cause disruption in the forest ecosystem. Against this backdrop, the study selected the sites of Daebudo and Yeongheungdo Islands under massive development for the insect fauna investigation and is going to perform comparison and analysis more of the insects.

It is assumed that unknown taxonomic groups of insects more than recorded exist in that there are insufficient numbers of experts, difficulties in collection and there are species still not discovered even though the Checklist of Korean Insects (2010) published in 2010 introduced 14,188 insect species. Therefore, the study was performed to investigate insects in various regions of Korea.

Recently, several studies were performed on mainly the flora in Daebudo and Yeongheungdo Islands (Jang *et al.,* 2012) but not enough on the insect fauna. Recently, the insect fauna in Is. Yeongheungdo was performed by Kim (2007) between 2003 and 2007 through site inspection and 12 orders, 81 families and 310 species, 11 orders in 2003, 11 orders, 94 families and 300 species in 2004, 13 orders, 87 families and 275 species in 2005, 11 orders, 81 families and 281 species in 2006 and 77 families and 280 species in 2007 were discovered.

Considering the fact that the site was not under integrated inspection on the overall insect fauna, the study is considered to be important in securing data for the forest insect distribution in the site. To this end, the study is performed to secure fundamental data to be used as research material by understanding systemic distribution of insect resources in Daebudo and Yeongheungdo Islands which have not been fully researched.

Material and Method

Site

Is. Daebudo, the first inspection site, is an island located in Daebu-dong, Danwon-gu, Ansan-si, Gyeonggi Province and became a land by connecting to Is. Oido, Jeongwang-dong through the Sihwa Seawall. It is about 34km far from the west of Ansan-si and its coordinate is longitude 126°25' -126°39' and latitude 37°12-37°18. The area is 40.34 km^2 and the length of coastline is 61 km. It is the biggest island in the West Sea and the name of Is. Daebudo is from the fact that it looks like a big hill rather than an island when people saw it from Namyang-myeon, Hwaseong-gun, Gyeonggi Province. Also, it has several traditional names including Yeonhwabusuji, Is. Nakjiseom or Jukho. There are 5 manned islands including Seongamdo, Bultando, Pungdo and Yukdo Islands and 12 unmanned isles like Yuindo, Jungyukdo, Miyukdo, Malyukdo and Halmiseom Islands. Mt. Hwanggeumsan (167.7 m), the main mountain

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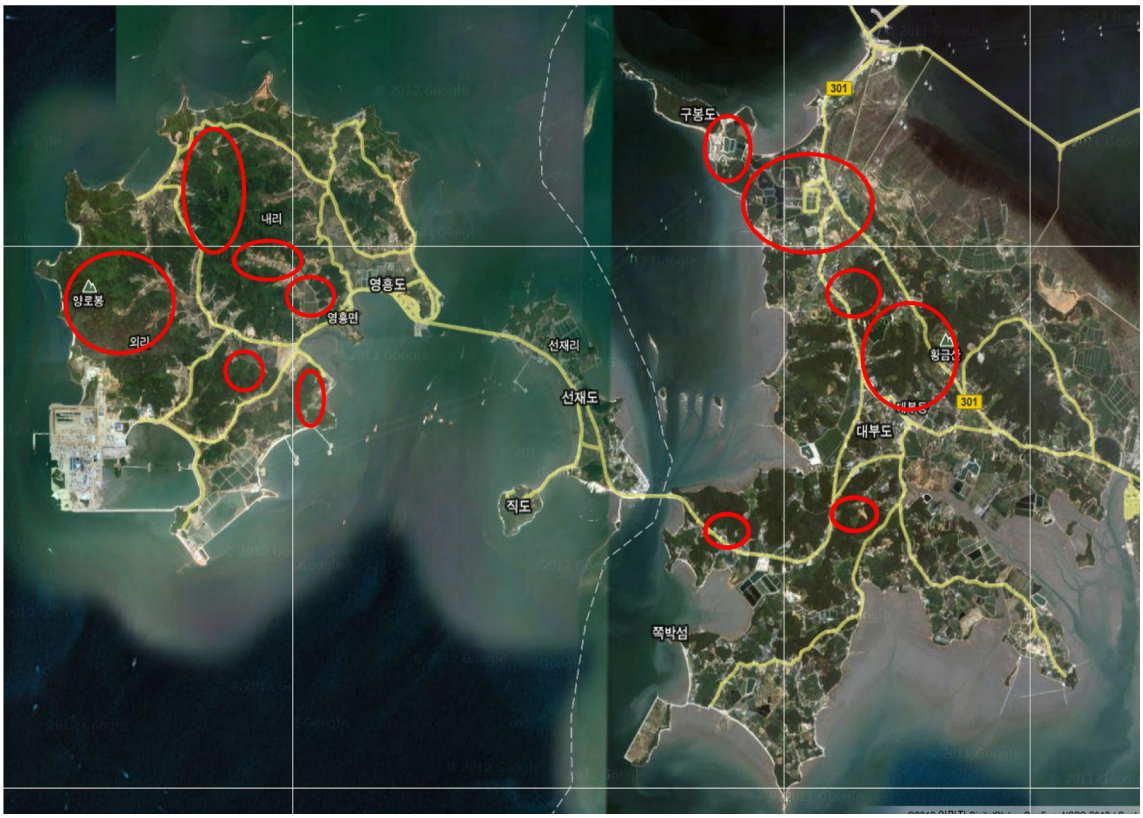

Fig. 1. Location of survey sites from Daebudo and Yeongheungdo Islands

of Is. Daebudo, is in the northern part and there are 4 streams including Bangjukcheon, Bunjicheon, Yeongjeoncheon, and Bbeokkukcheon from the mountain and most areas consist of hills lower than 100 m. The climate shows large difference between summer and winter and the weather is cold and snows much due to the influence of northwest monsoon. The average temperatures of January and August are –4°C and 24°C, respectively and annual precipitation reaches 1,210 mm (Korea Meteorological Administration, 2010-2011).

Is. Yeongheungdo, the second site of the study, is located in Yeongheung-myeon, Ongjin-gun, Incheon and is 23.7 km apart from the Incheon Port. It has neighboring 4 manned and 19 unmanned island including Seonjaedo and Daebudo Islands on the east, Is. Muido on the north, Is. Jawoldo on the west. Is. Yeongjongdo is located longitude 126°28' and latitude 37°15', its area and length of coastline are 23.46 km^2 and 42.2 km, respectively. The landscape is relatively low except the Guksabong (Mt.) Peak (128 m), the highest peak in the middle of the island, has widely developed tideland and sporadic sand beaches. The average temperatures of January and August are –3°C and 25.5°C, respectively and annual precipitation reaches 1,273 mm (Korea Meteorological Administration, 2010-2011).

The two islands are located on the east and the west side from Seonjaedo and Daebudo and Yeongheungdo Islands are connected to Is. Seonjaedo with the Seonjaedaegyo Bridge and Yeongheungdaegyo Bridge, respectively. In particular, Is. Daebudo is connected to Siheung-si through the Sihwa Seawall, close to Incheon and is almost inland by connecting Hwaseong-gun through seawalls constructed between Seongamdo, Buldo and Tando Islands in the southeast direction (Fig. 1)

Flora

The flora of Daebudo, Yeongheungdo Islands and their nearby regions reported a total of 6,361 entities of 107 families, 378 genus, 612 species, 5 subspecies, 80 varieties, 10 breeds and 708 taxonomic groups. Korean special plants, *Hepatica insularis* Nakai, was discovered at the peak of the Guksabong (Mt.) Peak, 6 rare and endangered species designated by the Korea Forest Service including *Prunus yedoensis* Matsum., *Bupleurum falcatum* L. and *Senecio nemorensis* L. were discovered in Is. Daebudo and 6 entities including *Trachomitum lancifolium* (Russanov) Pobed., *Koelreuteria paniculata* Laxmann, *Scorzonera albicaulis* Bunge and *Phacelurus latifolius* (Steud.) Ohwi were discovered in Is. Yeongheungdo. Floristic plants designated by the Ministry of Environment discovered in Is. Daebudo were *Penthorum chinense* Pursh and *Prunus yedoensis* Matsum. of level V, *Festuca rubra* L. of level IV, 5 species including *Indigofera pseudotinctoria* Matsum. and *Lespedeza juncea* (L.f.) Pers. of level III. The floristic plants in Is. Yeongjongdo included *Albizia kalkora* (Roxb.)

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