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Comparison of butterfly diversity of Khanyan and Chinsurah rice research station as a measure of habitat destruction

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Abstract
Butterfly diversity and abundance was studied in two different places of Hooghly district. One village and one urban area was taken for the study and their differences were noted. Pollard walk was followed for sampling for butterfly observation and counting. Total number of species found in Khanyan and Chinsurah Rice Research Station was 40 and 29 respectively in 3 months post monsoon span in one year. Among the found species 6 were very rare (VR), 14 were rare (R) species, 8 were not rare (NR) species, 11 were common (C) species and 1 was very common (VC) species in Khanyan region. Whereas We found only 2 very rare (VR) species here alongwith 9 common (C), 11 rare (R) and 7 not rare (NR) species in CRRS region. In Khanyan the highest abundant species was *Catopsilia pyranthe* (Mottled emigrant) and least abundant species was *Castalius rosimon* (Common Pierrot) whereas in Chinsurah Rice Research Station *Junonia atlites* (Grey Pansy) was highest abundant and *Papilio polytes* (Common Mormon) was least abundant species. In Khanyan and in Chinsurah both places family Nymphalidae showed highest abundance. Family Papilionidae was least abundant found in both places. The abundance of butterfly species can be correlated with the presence of their larval host plant and nectar plant.

Keywords: butterfly diversity, mean abundance, habitat destruction, Khanyan, Chinsurah

Introduction
Butterflies have always been delighted mankind since ancient time. Among insects they are obviously most beautiful creatures. They are certainly most popular, best known and most studied insect group. There was a time when butterflies were collected like postage stamps for hobby. Maximum information on their taxonomy, migration, variation, mimicry, speciation, evolutionary biology was gathered in that period. Nowadays worldwide increasing trend in urbanization is a major cause of habitat destruction and fragmentation which causes loss of many species and lowering diversity of butterflies. Thus, study on butterflies is more necessary to conserve them. Nowadays several species of butterflies are used by conservation biologists as indicator species to identify habitats. Large areas, once forests or wasteland, full of weeds that caterpillars eat, have now been cleared for agriculture. Due to this habitat loss almost all Indian butterflies are under threat, and some are critically endangered. Thus, conservation biologists use butterflies to identify habitat those are critical in state and need to be restored and protected. Butterflies are also monitored to indicate climate changes and environmental degradations. Besides the habitat loss the extensive use of chemical insecticides has drastically reduced their numbers. In this man engineered era, the clouds of butterflies that used to fly up in wild places can no longer be taken for granted. They are no longer to fly around us, if we clear weeds, forests, wastelands which are meaningless, not useful and eye soothing to us, but actually they provide life to these beautiful creatures of nature.
Butterfly diversity of any area indicates the health of the environment and ecosystem. Areas rich in butterflies and moths are rich in other invertebrates as well. These collectively provide a wide range of ecosystem services including pollination (Tiple et. al. 2006) [7] and natural pest control. They are herbivore (Tiple et. al. 2006) [7] and are very choosy about nectar plant and host plant as these serve food for adult and larvae. Thus, their availability is highly correlated with these plants. Loss of habitat directly affects their abundance (Kunte 2000) [2]. Thus, ecologists can measure human interference by monitoring butterfly population. And conservation of any butterfly needs an immediate restoration of their habitat.
The study was aimed to enlist the butterfly population of two regions, Khanyan and Chinsurah Rice research Station. Two areas show many dissimilarities in respect to vegetation pattern, human interference, urbanization. So, it was a target to compare butterfly population of those two areas and to check the health of the ecosystems of both places. Checklist of both places were prepared to study the variation of abundance of those areas.

Materials and Methods
Study site
The study was conducted in the Khanyan village (22°02'44" N, 88°18'19" E). The roadside areas from station to Itachuna Rajbati was studied. Both side of road was observed during sampling. The vegetation was composed of local weeds, herbs, shrubs and natural trees. But there was no trace of forest area, no dense vegetation was observed. Human disturbance is moderate and urbanization practice is also moderate.
The Chinsurah Rice Research Station (CRRS) was previously known as 'Chinsurah Farm' (22052' N & 88024' E). It is the main RRS in West Bengal and the campus area is approximately one square km (1 sq Km). This walled area is situated between the urban and rural habitations of