

ON SOME MISCONCEPTIONS ON CONSERVATION OF INSECTS

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Insects are by far the oldest, most numerous and smallest flying machines. Comprising 9.5 lakh described species, they account for about 73% of the animal species of the world reported so far. On the basis of information available on groups on which taxonomic studies have reasonably advanced, India, covering 2.2 per cent of the global land surface, harbours seven to eight per cent of the world's fauna (Cherian, 1996). If so, it is reasonable to presume that India may be home to approximately 0.67 lakh insect species, of which hardly 10% have so far been named (Purvis & Hector, 2000). Of those already discovered, over 99% are known only by a scientific name, a handful of specimens in museums and a few scraps of anatomical descriptions in scientific journals (Wilson, 1992). The knowledge of taxonomy of immature stages of insects is far behind that of adults. Today, only in a few groups can it contribute meaningfully to the classification of the group.

Need for systematic studies on insect fauna: There is a great dearth of experts on the vast majority of insect groups globally, and all the more so in India. A typical case is the shortage of experts on termites, the owners of 10% of the animal biomass in the tropics.

There are exactly three people qualified to deal with termite classification on a world-wide basis (Wilson, 1992) and none of that caliber in India. It is the same case with most of the speciose groups of insects. The need to know more about our insect faunal wealth is really great.

Conservation of insects vis-a-vis vertebrates: Because of their small size and modest needs, most insects and other invertebrates occupy ecological niches that are more numerous and smaller in all dimensions (space, time and so on) and therefore more sensitive than those of vertebrates. Furthermore, the needs of invertebrates do not always coincide with those of vertebrates. Besides, individuals in populations of insects of most of the species far outnumber those of vertebrates. Often they can

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easily withstand and recover from a devastating blow to their numbers. It has been estimated that the biomass of termites per square metre of soil in a Cameroon rainforest is equivalent to that of people on the streets of Tokyo or London at peak hours of traffic. Same is the case with many of our forest ecosystems (Gaston, 2000).

Some misconceptions on conservation of insects: The strategies for conserving fauna differ from class to class, order to order or even among lower categories. Understanding of this basic concept is essential for drawing up meaningful conservation strategies. Unfortunately, at times, some individuals representing conservation enforcement agencies in their over enthusiasm for conservation place impediments in the collection of insects by genuine researchers and students of entomology for systematic studies. At times, even otherwise knowledgeable persons who are supposed to know these fundamental principles also subscribe to these misconceptions. It is given to understand that recently a few postgraduate entomology teachers of a southern Indian university managed to abolish from their university curriculum collection of insects to study entomology on the pretext that collecting insects will cause their extinction! The notion that insects can be studied by observing them in the field like birds or mammals is ludicrous.

There are hundreds of thousands of nanofauna of insects which can be seen only under the microscope and these have to be collected and studied in the laboratory. As for determining ecotypes, biotypes, sibling species, ecological races, subspecies, varieties and other lower categories, no progress can be made without indepth study of samples from different populations.

The number of genetic populations in the world has been estimated to lie between 1.1 and 6.6 billion (Hughes *et al.*, 1997) and many more await to be brought to light. Besides, species or populations differ in the number of alleles they have at a given loci. For instance, Mauritius Kestrels (*Falco punctatus*) have lost over half the alleles present historically at 12 sampled microsatellite loci (Groombridge *et al.*, 2000). Thus for both basic and advanced studies, collection of specimens is an essential prerequisite.

Insect species in general will not become extinct or endangered by collecting a few representative samples by genuine researchers and students. They become endangered when their habitats are destroyed. Their breeding habits and their resistance to hazards are so great that they survive, even outlast exposure to hazardous insecticides. A recent unpublished report (National Geographic Channel) by two western entomologists mentions collecting several hundreds of species of insects from a forest area by fogging and later after 10-20 days finding the same number of species in greater number in the same habitat.

Over exploitation of a few species of prized butterflies, spiders or their likes, let alone major species of wildlife should be prevented at all costs. But genuine students of entomology and researchers should not be bracketed with poachers. A genuine student of entomology is engaged in revealing our faunal wealth, 87.6% of which, even today remain to be censused.

There is an implicit principle of human behaviour important to conservation: the more we know of an ecosystem, the less the chances of our destroying it. As the Senegalese conservationist Baba Dioum has said, "in the end, we will conserve only what we love, we will love only what we understand, we will understand only what we are taught". Hence let us learn what we have and conserve.

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