

## Chapter I

### Introduction

One of the conspicuous characters of tropical forests is their species richness. This biodiversity has impressed scientists ever since the earliest exploration. The tropical rain forests of Southeast Asia are recognized as one of the oldest living ecosystems of the planet (Whitmore, 1990).

Thailand, has a tropical monsoon climate and there are many forest types. Especially in the north of the country, most habitats are comprised of evergreen, mixed deciduous, dry dipterocarp forests which segregate along an altitudinal gradient. Doi Suthep–Pui National Park (DSNP) is located on a mountain directly west of Chiang Mai city and near Chiang Mai University, approximately 18° 50' N latitude 99° 0' E longitude with the highest point of 1,685 m. The forests of DSNP are species rich in their floral and faunal composition. Although DSNP (261 km<sup>2</sup>) is about 0.1% the size of United Kingdom (244,044.22 km<sup>2</sup>), the plant biodiversity is higher (Maxwell and Elliott, 2001). Much research has occurred in this area. For example, research of medicinal vascular flora (Putiyanan and Maxwell, 1998), lichens (Saipunkaew, 1994) and endophytic fungi of indigeneous plant species (Lamyong *et al.*, 1998) have been studied.

Beetles (Coleoptera) are the most species rich of insects. They are both beneficial insect and pests. Beetles in the families of Scolytidae and Platypodidae act in both roles. They are forest insects that live by burrowing into newly fallen or stressed trees in order to rear their offspring. These burrows increase the access for wood decaying organisms into the wood which overall increase the rate of decomposition. However, this behavior increases the potential for these beetles to be pests of economically important tree species (Browne, 1961; Bambara, 1998 and Ye *et al.*, 2002).

Although there is no report of their economic importance in Thailand, an understanding of their species diversity, distribution and host plant usage would create

a better understanding of tropical fauna and establish baseline data for studies of future “pest” problems. Also, the results of this research may indicate the health of the forest.

The study areas are located in Doi Suthep-Pui National Park, in two types of forest; mixed evergreen forest (c.1410 m) and deciduous dipterocarp forest (c.350 m). The climate of the mixed evergreen forest is moist. The climate of the deciduous dipterocarp forest is drier, hotter and less rainfall per year (Maxwell and Elliott, 2001) as compared to the mixed evergreen forest.

The purpose of this research is 1) To estimate the diversity and abundance of Scolytidae and Platypodidae in two types of forest in Chiang Mai province. 2) To investigate temporal variation of beetle species abundance. 3) To investigate host breadth of certain beetle species. 4) To investigate collection efficiency of different beetle trapping methods. Given that different conditions occur in the two types of forest, it is expected that their faunas will differ to some degree.