

## **CHAPTER 3**

### **MATERIALS AND METHODS**






#### **3.1 Collecting methodology**

Soil samples were collected along an altitudinal gradient in Doi Inthanon National Park, Chiang Mai province which is the highest montane region in Thailand, at 2465 meters, located at 18°31' N - 18°34' N and 98°28' E - 98°38' E, possessing 482 kilometer<sup>2</sup>, and includes amphoe Chom Thong, San Pa Tong, and Mae Chaem districts. This region possesses a high biodiversity of plants and animals including insects (Thienhirun, 2002). Five different forest types (Table 1) were chosen at 500 meters intervals: dry deciduous dipterocarp forest; mixed deciduous forest; lower evergreen forest; upper evergreen forest; and cloud forest, respectively. At each site, 10 soil samples were collected using a 15 × 15 centimeters quadrat with a depth of 5 centimeters in each forest type. The soil samples were then transferred to Berlese funnels for 72 hours for soil arthropod extraction. Proturans were separated from the other specimens and were preserved in 70 % ethanol.

#### **3.2 Identification and constructing the pictorial key**

Specimens were mounted to slides for identification under a microscope. Then, these specimens were observe under 1000 x. Only the adult stage was identified to genus and species by using published keys in combination with necessary newly constructed keys. The concept of genera groups primarily follows the classification of Tuxen (1964, 1985). Morphological identifications were base on descriptions by Imadaté (1989), Nakamura (2003), Szeptycki (1988, 2001), and Bu and Yin (2007). Some specimens were sent to specialists for further confirmation. Procedures for slide mounting are detailed in Appendix. Appropriate specimens for each species were selected for photographing and for line drawings in order to construct the most salient morphological features for keys to genera and species.

**Table 1** Description of collection sites in Doi Inthanon National Park, Chiang Mai province.

Site	Image of site	Latitude/Longitude	Plant communities	Altitude (m)
1. Vachiratharn waterfall		18° 31' N, 98° 29' E	Bamboo stands	700
2. Ban Pha Mon		18° 33' N, 98° 28' E	Mixed deciduous forest with pines	1000
3. Checkpoint to Mae Chaem		18° 34' N, 98° 28' E	Evergreen hill forest (1650 m)	1650
4. Kiew Mae Pan		18° 33' N, 98° 28' E	Evergreen hill forest	2100
5. Evergreen summit forest		18° 34' N, 98° 28' E	Evergreen hill forest	2450