CHAPTER 3

MATERIALS AND METHODS

3.1 Materials

1. Field equipments:
    - 1.1 Hand shovel
    - 1.2 Plastic bags
    - 1.3 Beating tray
    - 1.4 Hand lens
    - 1.5 Vials filled with 70% ethanol
    - 1.6 GPS
2. Laboratory equipments:
    - 2.1 Berlese funnels
    - 2.2 Phase contrast microscope mounted with drawing tube.
    - 2.3 Stereo microscopes
    - 2.4 Fiber optic light
    - 2.5 Petri dish
    - 2.6 Painting brush # 0
    - 2.7 0.3 mm sieve
    - 2.8 Saturated NaCl solution
    - 2.9 70% ethanol
    - 2.10 Slide warming plate,
    - 2.11 Oven
    - 2.12 Slides and cover glasses
    - 2.13 Hoyer's solution
    - 2.14 Glyptal and ringing table

3.2 Methods

The Cunaxid mites were collected from various localities in central Thailand (Fig. 3) as defined by Smitinand (1969) on the basis of plant distribution, during October 2002-September 2003. The primary collecting sites include *Citrus* orchards, groves, and the natural forests.

For each collecting sites, plant mites were collected by direct searching on leaves or sampling 30-50 leaves and placed them in the plastic bags with labels. In dry condition, beating technique was also used to collect mites from vegetations.

To collect mites living in soil-litter, at least 5 soil-litter samples (20X20 cm^2 in area, and 5 cm. depth) were collected into plastic bags with labels. The plastic bags were left their mouth open to avoid water condensation inside the bags.

All samples were brought back to the laboratory. The leave samples were examined under stereomicroscope. The mites were transferred to the small vial filled with 70% ethanol by using a moist brush. Berlese funnels (Krantz, 1978) were used to extract mites from soil-litter into 70% ethanol for 7 days. Floating technique with saturated NaCl solution was used to separate microarthropods from soil and debris particles falling into the preserved samples. Separated microarthropods were examined under stereomicroscope to separate cunaxid mites from other animals.

Additional specimens were available from Chulalongkorn University Museum of Natural History and mite collections of the Entomology and Zoology Division, Department of Agriculture, Bang Khen.

Specimen Preparation and Examination.

The cunaxid mites were directly transferred from alcohol to be mounted in Hoyer's medium on a slide. Hoyer's medium was prepared as the following formula:

Distilled water	80 ml.
Gum Arabic	60 g
Chloral Hydrate	400 g.
Glycerine	20 g.

The newly prepared slides were kept in an oven which set a temperature at 48 °C for a week and then ringed the cover glass with the glyptal. The mite specimens were examined with a phase contrast microscope.

Drawings were made from slide-mounted material with the aid of drawing tube mounted with the microscope. Measurements in micrometers (μm) were made

using stage-calibrated ocular micrometer and are presented as ranges, minimum to maximum, and mean in parentheses. The symbol "μm" is omitted. Structure measurements are idiosomal length and width, hypognathum length and width, palpal length, cheliceral length, length of legs (Figs. 1 and 2).

Classification and Identification are based on Smiley (1992) in careful comparison with the original descriptions. General terminology follows Smiley (1992) except the idiosomal chaetotaxy following that of Kethley (1990). Taxonomic characters are described and keys to subfamilies, genera, and species are presented with some discussion on morphology, biology, ecology of the cunaxid mites in central Thailand.

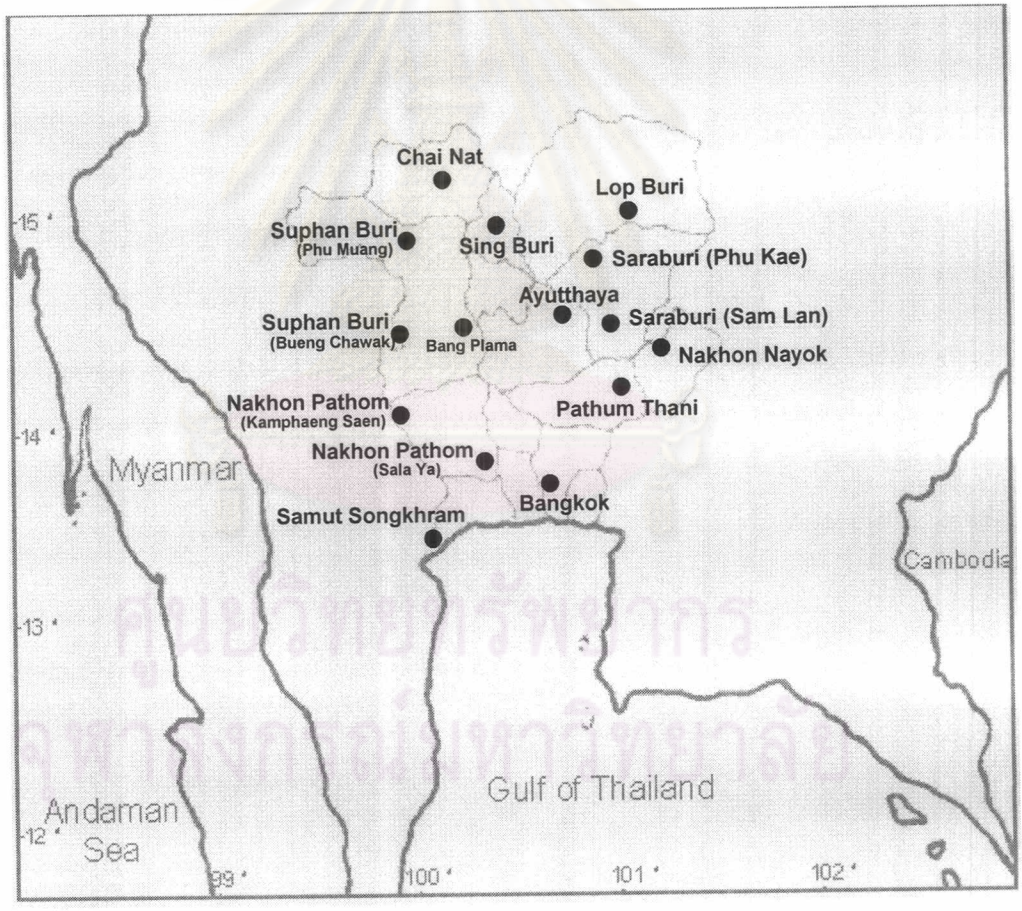

Figure 3. Collecting sites of Cunaxidae in central Thailand.