

# Chapter I

## Introduction

Recently, several studies demonstrate that many species of amphibians throughout the world have declined markedly in numbers (e. g., Blaustein and Wake, 1990; Crump, 2002; Lehtinen, 2002) due to habitat destruction, water pollution, ultraviolet light, acid rain, and toxic substances in the environment (Duellman and Trueb, 1994; Friedl and Klump, 1997; Langhelle, Lindell, and Nystrom, 1999; Bille, 2000). Some species have become extinct from the area (e. g., Magnusson et al., 1999). This phenomenon has raised the urgent need in population study and habitat utilization examination (Monello and Wright, 1999).

The knowledge on population ecology including size, structure, and movement of a population is important to describe population fluctuation and their natural cause (e. g., Friedl and Klump, 1997; Pechmann and Wilbur, 1994). Moreover, the knowledge can be applied in conservation management, because the variation in population characteristics can be directly related to physical and biological factors that prevail in time. According to habitat utilization, habitat components are believed to play an important role in amphibian distribution, abundance, or reproduction (Monello and Wright, 1999). Thus, the information on the use of habitat is also invaluable for conservation scheming (Seebacher and Alford, 1999).

*Bufo asper* is one of the protected amphibians of Thailand. However, the information on population ecology and habitat utilization of this species is less known. The population ecology of *B. asper* living in Tarn Lord Noi Cave, Chaloeam Rattana Kosin National Park, Kanchanaburi Province was attractive for examination due to the survival of this population has been directly affected by tourist activity. Thus, the information of this population should be urgently examined.

Here, the analysis of population size and population structure of *Bufo asper* living in Tarn Lord Noi Cave is presented. It is hypothesized that climatic factors, reproduction, and strategies for survival are determinants for changing in number of individuals, sex ratio, and size composition found among months. In addition, habitat utilization,

including movement and area utilization are examined to demonstrate survival strategies and the important of the cave for this population. Moreover, breeding seasons of them were figured out for two consecutive years.

The results from this study will provide basic information on population ecology, variation in habitat utilization of individuals and breeding season of them that can be applied for conservation and ecotourism management and can be compared with findings on other amphibian species.

### **Scope of the Study**

1. The study on the population of *Bufo asper* was conducted in Tarn Lord Noi Cave, Chaloe Rattana Kosin National Park, Kanchanaburi Province and lasted for one year from July 2001 to June 2002.
2. The presented data on area utilization were selected from the individual of which the location was recorded at least 25 times during July 2001 to June 2002. The observed area outside the cave was approximately 50 m for both entrances.

### **Objectives**

1. To figure out population size, population structure, and related climatic factors of *Bufo asper* inhabiting Tarn Lord Noi Cave.
2. To examine habitat utilization, including movement and area utilization.
3. To examine the breeding season.

### **Anticipated Benefits**

This study will provide basic knowledge on population ecology, habitat utilization, and breeding season of *Bufo asper* in Tarn Lord Noi Cave that can be used for status assessment, conservation scheming, ecotourism management, and for the study of other amphibians in the future.