



## CHAPTER I

### INTRODUCTION

The Kingdom of Thailand which is a land full of archaeological sites and objects has sustained the glory since the old times. The ancestors persevered to create a lot of culture for the later generations. The cultural properties are evidences of the continuous evolution of the Thai history and are reflection of the luxuriant vegetation of Thailand, including the Thai unity. At once, His Majesty King Bhumibol Adulyadej gave the royal speech regarding Thai heritage conservation. A literal translation is as follows:

*" One old brick has value.  
It should be conserved.  
If we do not have Sukhothai  
Ayudhya and Bangkok,  
Thailand is not to mention. "*

And

*" Antiques and art objects are the important things  
that indicate our Thai glorious past  
and are useful for studying History,  
Art, Archaeology, and Culture.  
Thus, everyone should collaborate to preserve  
and maintain them, don't let them deteriorate. "*

Art and culture are not considered only to be the national identity of each country, but they are globalisationally accepted as the world heritage at present. For this reason, it is the duty of everyone to collaborate in the preservation of the art and cultural heritage for the next generations.

For suitable conservation of cultural properties, we should study the cause of deterioration. The deteriorating factors are varies depend upon nature of material. Generally organic matters deteriorate more easier than inorganic materials. Deterioration caused by living organisms is defined as "biodeterioration" and is the major problem in tropical countries.

Ancient art objects were made from innumerable organic materials, wood is one of the commonest materials available in Thailand, its used being either for structural or artistic purposes. According to the temperament of the people who used, art works executed in wood reach such high artistic value as those treated with stone and bronze. However, wooden objects can be deteriorated by microorganisms, especially fungi which are major deterriogen.

Fungal spores which are always present in the environment can settle on the objects and start growing whenever they get proper humidity and temperature. In Thailand, the monsoon climate provides high relative humidity above 65% and temperature between 25–30°C. These conditions are appropriate for the cultivation of microbes. Variation in atmospheric fungi reflects broad seasonal and geographic influences. Meteorological factors, especially variation in relative humidity, profoundly affect the growth of fungi. Temperature is also an important factor of influences.

## HYPOTHESIS

In the exhibition hall, the type, quantity and distribution of wood-deterioration fungi are varied on seasons and related with climatic factors (temperature and relative humidity).

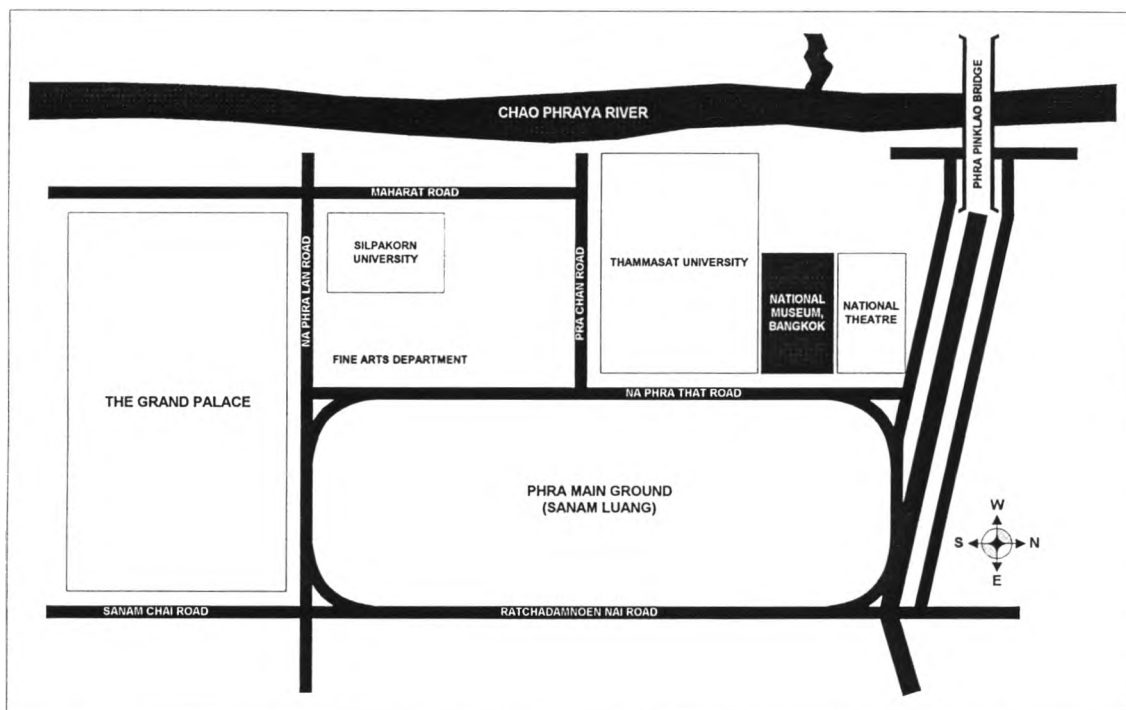


Figure 1.1: Map of the National Museum, Bangkok.

## SCOPE OF THE STUDY

This study was conducted in the Western Hall (*Mukdej Dan Tawantok*) of the *Vimarn* Residence Group (*Moo Phra Vimarn*), located in the Palace to the Front (*Wang Na*). This palace has now been turned over to the Bangkok National Museum. The museum is situated at Na Phra That road, Phra Nakorn district, Bangkok

Metropolis, Thailand. The location map of the Museum is shown in Figure 1.1. In the hall, there are masterpieces of ancient woodcarving. This research was carried out for twelve consecutive months from February 1997 to January 1998. The samplings of atmospheric fungi and surface fungi were done biweekly, between 9.00 hours to 12.00 hours. Furthermore, the atmospheric temperature and relative humidity were determined by Data Loggers, respectively in everyday of the year.

## **OBJECTIVES**

1. To investigate types, quantity and distribution of fungi in the exhibition hall.
2. To study the relationship between the wood-deterioration fungi and climatic factors (temperature and relative humidity) from season to season.

## **ANTICIPATED BENEFITS**

1. To provide the database for suitable prevention of cultural objects from biodeterioration.
2. To be a guidance for quantitative study on indoor biopollutants in Thailand.
3. To be a guidance for non-chemical control of deteriorating fungi.