The objective of this study is centered on the environmental factors that influenced forest fire in Huai Kha Khaeng Wildlife Sanctuary. This lead to the identification of the forest fire risk areas at various levels, to map fire risk areas and lastly to find fire preventive ways and means in the studied. Environmental factors which influenced forest fire have been identified physical, biological and also including climatic factor. These factors are classified into elevation, slope, aspect, fuel moisture, soil moisture, temperature and relative humidity. Database was initiated within grid cell size of 1 square kilometer by using Geographic Information System (GIS). The SPSS program was employed for data analysis by Stepwise Multiple Regression Analysis. Percentage of forest fire in the study area was based on Landsat5 Thematic Mapper imagery that showed the burning area in 1994.

The study shows that those seven environmental factors relatively affected on forest fire in the study area. The factors positively influencing forest fire are included temperature, slope and aspect whereas the factors negatively influencing forest fire are elevation, relative humidity, fuel moisture and soil moisture. Temperature is the most influencing factor of causing a forest fire with a significant 0.01. Finally, forest fire risk areas can be mapped and classified into 3 levels. The highest risk were located in southern and northwestern areas. The moderate risk was located mostly in the central area and the lowest risk was located in the eastern area. The map of forest fire risk classification would be useful for planning the forest fire prevention in the study area.