

## CHAPTER 2

### LITERATURE REVIEW

In the past, the taxonomic study of plants is mainly focused on flowering plants. While ferns and fern allies have received a little attention of botanists. The followings are examples of previous botanical works.

During 1900-1916 Johanes Schmidt, a Danish botanist collected plant specimen from Koh Chang, eastern Thailand. He collected specimens of ferns and fern allies which included 67 species within 35 genera (Schmidt, 1901). In 1911, C.C. Hosseus and B. Reichenhall, German botanists, collected plant specimens from northern and northeastern Thailand. Their collected specimens included 34 species and 19 genera of ferns and fern allies (Hosseus and Reichenhall, 1911). In 1922, Eryl Smith an English physician visited peninsular Thailand, she collected 1,948 specimens, and many of them were ferns. These specimens were deposited at Kew Herbarium (K), British Museum (BM), Singapore Herbarium (SING) and The Forest Herbarium (BKF) (Smith, cited in ก่องกานดา ชยามฤต, 2539).

During 1957-1960, there was a jointed project by Thailand and Denmark entitled "Studies in the Flora of Thailand". R.E. Holttum of Kew studied the previous pteridophyte collections, he enumerated 157 species of ferns, many of them reported for the first time, and new species were found. It was the first time that fern collections from various parts of Thailand were studied together (Bruun, 1961). R.E. Holttum was an author of "*The Ferns of Malaya*" which comprised 108 genera, and 468 species of ferns (Holttum, 1954). There were many species discovered in Southern Thailand and were served as a basis for taxonomic study of ferns in Thailand.

In 1968, T. Smitinand, the curator of the BKF studied the vegetation of Khao Yai. He reported 20 genera and 25 species of ferns and fern allies from this area (Smitinand, 1968). Then, in 1969, J. O. Sawyer and C. Chermisrivatana collected plants from Doi Suthep and Doi Pui in Chiang Mai. They enumerated 21 genera and 33 species of ferns (Sawyer and Chermisrivatana, 1969).

During 1979-1989 M. Tagawa and K. Iwatsuki, Japanese botanists from Kyoto University studied the existing herbarium specimens of pteridophytes from Thailand and a collection from their own field trips. They enumerated 34 families, 121 genera and 630 species. Their contributions to Thai pteridophytes were published in *Flora of Thailand*, Vol. III, part 1-4 (Tagawa and Iwatsuki, 1979, 1985, 1988, 1989).

In 1980, T. Boonkerd reported the survey and collection of ferns and fern allies at Sakaerat Environmental Research Station, Nakhon Ratchasima Province during 1974-1979. He listed 19 families, 32 genera, 66 species and 2 varieties, of these 3 species were new records for Thailand. Next, he made a collection of 49 species of pteridophytes, which offered for sale in the markets, additional collection from their natural habitat from all regions of Thailand also made. The diagnostic characters, utilization, distribution and ecology of each species were noted (Boonkerd; 1980).

In 1986, Sutheera Arkarakraisri studied spore morphology, rhizome, leaf and hair of 16 species, 2 subspecies and a variety of fern in the family Dennstaedtiaceae from specimens collected in Thailand (สุธีรา อรรคไกรสีห์, 2529). Then, K. Sridith collected non flowering plants on rock platform at Phu Hin Rongkla National Park during July 1987 to February 1988, he found 27 species which included 12 species of Bryophytes, 14 species of pteridophytes and 1 species of pine (กิติเชษฐ ศรีดิษฐ์, 2530).

During 1992-1993, T. Boonkerd et al. surveyed plant community at Phrachomklao Science Park at Wa Kor, Prachuap Khiri Khan Province. A total of 184 species, 162 genera and 81 families of vascular plants were enumerated, but only 2 species of ferns were reported (ทวีศักดิ์ บุญเกิด และคณะ, 2536).

C. Phengkai et al. made a preliminary survey of plants diversity at Doi Inthanon National Park, Chiang Mai Province. A total of 161 families, 589 genera and 1,274 species were enumerated. Of these, 121 species in 71 genera from 25 families were pteridophytes (จำลอง เฟื่องคล้าย และคณะ, 2539). Next, a taxonomic study of ferns and fern allies at Khunkorn Forest Park, Chiang Rai Province was conducted from October 1997 until October 1999. This is the first report for the area, which includes 154 species and 11 infraspecific taxa in 24 families and 64 genera. *Selaginella ciliaris* (Retz.) Spring (Selaginellaceae) and *Dicranopteris linearis* (Burm.f.) Underw. var. *montana* Holttum (Gleicheniaceae) are newly recorded for Thailand. Of these, 16 species in 3 genera from 3 families were fern allies (Boonkerd and Ratchata, 2002).

A taxonomic study of ferns and fern allies at Huaiyang Waterfall National Park, Prachuap Khiri Khan Province was also carried out. The enumeration of 128 species, 63 genera and 26 families was made. Of these, 11 species in 4 genera from 3 families were fern allies (Yuyen and Boonkerd, 2002). Boonkerd and Pollawatn (2000) compiled data from various sources as well as from their own field trips to produce a checklist of ferns and fern allies in Thailand. A total of 671 species, 4 subspecies, and 28 varieties belonging to 139 genera and 35 families were enumerated. This checklist included 27 new records for Thailand.

From the aforementioned information, it can be seen that botanical surveys of pteridophytes at Phu Hin Rong Kla National Park have been scarce despite its rich in plant diversity. More site-specific plant collections are needed to determine the distribution of the pteridophyte flora.