2B: Forest lichens: their ecology and distribution

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ECOLOGICAL STUDY OF LICHENS IN THAILAND

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The ecological study of lichens in Thailand started in 1990. It involved using lichens to monitor air quality in Bangkok. Long term ecological projects were subsequently developed by using Khao Yai National Park as a permanent study site. It involved five main areas of concern. The first project involved the continuous use of lichens to monitor air quality in Bangkok and its environs. It consisted of species composition in low, medium and high polluted areas as well as accumulation of toxic pollutants and physiological damages of lichens transplanted to those areas. The second project involved the long term effects of different tropical ecosystems on the longevity and growth of lichens. It was found that lichens in humid tropic have shorter thallus longevity in comparison to those in temperate region. Their growth rates averaged 6.3 and 2.8 mm/year for foliose and crustose lichens, respectively. The third project involved the spatial distribution of lichens in tropical ecosystems and the vertical stratification of lichen communities. The effects of microclimate on the survival and growth of species transplanted to different ecosystems were studied. It was found that lichens originally inhabited in warm forests survive better when transplanted to cooler climates. However, in contrast, lichens initially populated in cool forests are barely able to adapt to warmer climates. The fourth project involved seasonal variations in carbon dioxide assimilation by lichens and the production of lichen substances under the conditions of varying ecosystems. Seasonal variations along these parameters were found. The fifth project involved in situ transplantation of lichens to artificial substrates to enhance the production of lichens for purposes of conservation and sustainable utilization.

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