B410

The Evolution of Seed Size among Some Legume Species

Hyesoon Kang* and Kamaljit S. Bawa
*Department of Biology, Sungshin Women's University;
Department of Biology, University of Massachusetts, Boston

The relationship among the sizes of reproductive characters such as inflorescence length, petal length, stamen length, pod length, ovule (seed) number per flower, and seed size was examined to assess a potential for correlated change in seed size among related species and to provide an evolutionary explanation for this correlation. Morphological data on species were extracted from the monographs treating six large genera of the Leguminosae. The sizes of reproductive characters were frequently positively correlated with each other as well as with plant height. A multivariate correlation analysis showed that the pattern of correlative clusters of reproductive characters among congeneric species was quite consistent across the six genera. Flower and stamen sizes accounted for substantial amount of variance in the same component (thereby reflecting maleness component), while seed size and number per pod contributed highly to the other component (femaleness component). The intrinsic correlations between flower and seed sizes were substantially positive at the species level, suggesting the effect of selection acting on covariation of these characters. It is suggested that the positive relationship between male and female characters may accrue through the interaction between and within sexes. This study underscores the importance of both types of studies on individual characters and on character correlations for a better understanding of the evolution of seed size as well as other reproductive characters.

B411

Landscape Ecological Studies on Fire-Disturbed Area (I)

Chang-Seok Lee, Jin-Young Kim*, Sun-Kee Hong and Eun-Ho Lee
Department of Biology, Seoul Women's University

Landscape ecology is the interdisciplinary study of natural and human-influenced processes that operate within heterogeneous geographical areas of the dimension of several to many square kilometers. Landscape structure, therefore, focuses on the spatial patterns of landscape element and ecological objects. The actual map reveals both natural ecosystem and socio-economical background. Thus, map is indispensable tool for landscape ecology. Human activities are the cause of disturbance, and these make the change of landscape structure. For example, most of the forest fires come from human action, and these are major factors of disturbance in ecosystem. The study area, Kosung-Gun burned in April 1996 (approx. 3,700ha). A research on the forest fire in this area has examined by the fire patterns, the ratio of hardwood forest to pine forest and patch size in burned area. Environmental condition and floristic composition were also investigated. According to the intensity of fire-disturbance, fire-patterns were classified into crown fire, surface fire I and II.