

FAN, X. and W. SUZHEN. Jiangxi Teachers' University, Nanchang, The People's Republic of China. **A preliminary exploration on the restoration and development of the evergreen broadleaf forest in the Jingganshan region of Jiangxi province.**

This paper deals with the distribution and ecological characteristics of the regenerated seedlings of the evergreen broadleaf forest, as well as with the analysis of the seedling population and floristic features. We explore the possibility of restoration and development of the evergreen broadleaf forest, which is mainly composed of tropic-subtropical floristic components, in the Jingganshan region.

FARRIS, M. A. McGill University, Montreal, Quebec H3A 1B1, Canada. **Patterns of natural selection along weak moisture gradients: demographic, physiological and genetic evidence.**

The relationships between soil moisture availability, physiological processes and Darwinian fitness were studied in the annual *Cleome serrulata*. While soil moisture gradients were weak over short distances (<30 m), predawn plant water potentials varied as much as 0.9 MPa along the gradients. An analysis of directional selection pressures in the wet and dry halves of the population revealed that selection favored plants with faster branch growth in the wet half and plants with faster height growth in the dry half. These results can be explained using a model which considers the size dependence of reproduction and the relationship between branch size and reproductive output. An ecological genetic study of tissue water relations suggested that these fast-growing plants in the dry half of the population had more elastic cell walls as seedlings. These results demonstrate the mechanisms by which a complex selection regime is maintained over a relatively weak gradient.

FEARNSIDE, P. M. National Institute for Research in the Amazonas (INPA), Manaus, Amazonas, Brazil. **Deforestation and international economic development projects in Brazilian Amazonia.**

International economic development projects (IEDPS) speed deforestation in Brazil's Amazon region. Highways financed by IEDPS form a key link in a positive feedback relationship between deforestation and population migration. Roads facilitate entry of settlers whose land claims (established by deforestation) justify building more roads. Deforestation is explosive in Rondonia, site of the World Bank-financed Polonoroeste Project. Increased deforestation is likely in areas where Inter-American Development Bank-financed highway improvement is underway, and (if funded) in the Grande Carajas agricultural program area. Deforested areas are usually converted to low-diversity cattle pasture to secure land claims at minimal cost. Pasture also facilitates obtaining land titles. Profits from land sales are enhanced by road improvements and by titling. Government and IEDP efforts to encourage nonpasture uses are unlikely to be effective in the absence of reforms limiting the profitability of land speculation.

FELLEY, J. D. and S. M. FELLEY. McNeese State University, Lake Charles, LA 70609, USA. **Associations among fish species of the Calcasieu drainage of southwestern Louisiana.**

Fish species associations in a Louisiana drainage were tested using a method suggested by Schluter (1984, Ecology 65: 998). Associations among species may be due to their direct interactions, or their preferences for similar or different habitats. After correcting for habitat preferences, we found no significant association overall in either the wet season (winter and spring) or in the dry season (summer and fall). Species preferences for particular habitats were more important in the dry season (accounting for an average of 40% of a species' variance in density) than in the wet season (10%). We compared pairwise patterns of association among the nine most common species with their values for dietary overlap. Species that had higher overlap tended to be more positively associated in the wet season. No significant relationship existed in the dry season.

FERRARI, I., P. MADONI, P. MENOZZI, and A. MORONI. University of Parma, 43100 Parma, Italy. **Zooplankton community structure and seasonal change in a ricefield: a three-year study.**

Every 2 weeks, during the cultivation cycle (May–September), helioplankton samples were collected from 5 sampling points in a ricefield located in the Po plain (northern Italy) during a three-year period (1982–84). About 60 Rotifera, 20 Cladocera and 12 Copepoda species were identified and their densities estimated for each sample; 65 ciliated Protozoa species were also identified and their densities estimated from 1 of the sampling points. The analysis of density data by means of multivariate statistical techniques showed the existence, within each cultivation cycle, of 3 identifiable phases in the zooplankton community seasonal succession, one dominated by species brought into the ricefield by irrigation water, a second characterized by efficient Cladocera filter-feeder species and a third dominated by species associated with an extensive macrophyte cover. One population growth curve turned out to be characteristic of each successional phase. Differences among years and their possible determinants are discussed.

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