

LANDSCAPE ECOLOGY

THE SCIENCE & THE ACTION



5TH WORLD CONGRESS
IALE International Association
for Landscape Ecology

ABSTRACTS
VOLUME II
L - Z

July 29 - August 3, 1999 Snowmass Village, Colorado, USA

Qi, Y. Species-Family Relationship of Plants: Effect of Sampling Scale, Adjacency and Geography. Department of Environmental Science, Policy and Management, University of California, Berkeley, California, USA

Species-family relationships of plants are compared across spatial scales of sampling and at different degrees of adjacency, based on three databases representing the tropics (particularly the neo-tropics), mid-latitude (the State of California), and high latitude (Norway). While good correlation between species richness and family number is found at all cases, the specific equations vary considerably, indicating the effects of geography, sampling scale and adjacency. Models that incorporate these effects are developed for estimating species richness based on family numbers. Model results are compared to independent data sets of North America flora for validation. Recommendations for applications are made with cautions of the effects of multiple factors.

Quinta-Nova, L. * 1. The use of Vegetation Structure Measures to improve habitat classification .1 Escola Superior Agrária de Castelo Branco, Castelo Branco, Portugal.

The methods used to determine habitat classifications are important to planning and management. Therefore, the use of wildlife communities to improve habitat classification are crucial in Landscape Ecology. The importance of vegetation in the habitat use characteristics of breeding bird communities occurring in Évora (Portugal) was studied. Two transects were censused to provide distributional records of all species in order to investigate the relationship between vegetation structure and ornithological abundance. Discriminant analyses were used to classify the habitat on each transect as suitable or unsuitable for avian species using foliage density measures and Foliage Height Diversity Index (FHD). After calculating avian similarities among vegetation types, a cluster analysis was used to group vegetation types into similar habitats based on wildlife species composition. This approach for classifying habitat types allows consistent development of wildlife management strategies.

Radeloff, V. C. * 1, D. J. Mladenoff 1, A. Hagen 2, P. Voss 2, and D. R. Field 1. Natural disturbance patterns, landscape scale management and human demographic trends in the NW-Wisconsin Pine Barrens. 1 Department of Forest Ecology and Management, University of Wisconsin - Madison, and 2 Applied Population Laboratory, University of Wisconsin - Madison.

Natural disturbance patterns can provide a potential guideline for forest management. Our objective was to a) identify historic disturbance patterns, b) propose management recommendations and c) evaluate human demographic trends that may affect landscape-scale management in the 450,000 ha NW-Wisconsin Pine Barrens. We used General Land Office surveyor notes to assess historic disturbance patterns. Our results show strong heterogeneity in disturbance regimes, ranging from very frequent, but low intensity savanna fires, to stand replacing fires with return intervals between 50-300 years. These fires created a landscape mosaic of large openings, savanna, and jack pine forests, providing habitat, for instance, for grassland birds, which are currently declining. Aggregated clear-cuts may be a suitable management option to restore landscape patterns in areas where stand-replacing fires were common. However, the likelihood of such management will depend partly on the demographics of this region. Our analysis of recent census data shows a strong increase in housing density, especially recreational housing, throughout the Pine Barrens. Higher housing density and more fragmented land ownership patterns limit the opportunity to restore landscape patterns using forest management. We suggest that landscape ecology will be most successful in affecting management when it integrates the ecological and social realities of the landscape under consideration.

Reiners, W.A.*, E.V. Axtmann, R.C. Thurston, and K.L. Driese 1. Landscape Classification of Wyoming Basins and Plains. 1. Department of Botany, University of Wyoming, Laramie, Wyoming, USA.

The state of Wyoming is bordered by the Great Plains on the eastern tier but otherwise is composed of a series of mountains and basins. Virtually all of the mountainous terrain and more than half the basins are owned by land-managing agencies of the US Federal Government with responsibilities for sound management of natural resources. Management decisions are enhanced by classification of this terrain into ecologically meaningful units. We have developed a semi-automatic, rule-based method for dividing these large areas into integral land type association units of (500 ha minimum assisted by criteria of the Hammond land classification system. These units are further subdivided into terrain units (ridge,