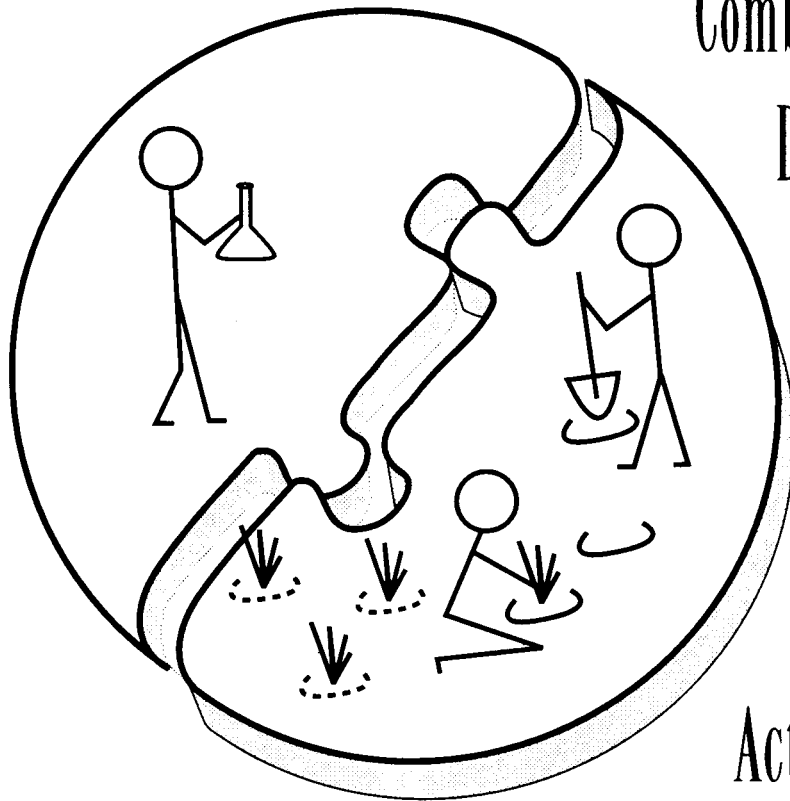


International Symposium and Workshop



"Combating
Desertification:
Connecting
Science
with
Community
Action"

Abstracts

12-16 May 1997
Tucson, Arizona, USA

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Combating Desertification:
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Effect of Grazing on Biodiversity of a Semiarid Grazing Land at Alwarkurichi, Foothills of Western Ghats, Tamilnadu

By P. Nagarajan, S. Umadevi, J. Rajesh, and K. Manoharan, SPK Centre for Environmental Sciences,
Manonmaniam Sundaranar University, Alwarkurichi, India

Grazing lands of this region are dominated by the *Heteropogon* and *Aristida* community. Overgrazing decreased the productivity of grazing land, which led to desertification. Biodiversity is very much affected in heavily grazed and ungrazed areas and was higher in moderately grazed areas, where moderate grazing was found to enhance biodiversity and also reduce the density of dominants. Heavy grazing has lowered microbial populations and reduced the region's soil fertility.

Annual Plant Vegetation Boundaries on Disturbance Gradients in Chihuahuan Desert Rangelands

By Maliha S. Nash and W.G. Whitford, US-EPA, Office of Research and Development, National
Exposure Research Laboratory, Las Vegas, Nevada, USA

Species composition, abundance, and temporal and spatial distribution of desert annual plants are affected by the temporal distribution of rainfall, seasonal temperature, and soil texture and nutrient levels. Spatial variation of annual plants in an area can be characterized by sampling along a suspected disturbance gradient at equi-spaced locations. The gradient can then be partitioned into homogenous zones by recognizing where the rate of change in composition and abundance of annuals is greatest with respect to distance. This determination allows the location of boundaries separating zones where disturbance has affected one or more of the variables that determine the germination and establishment success of species of annual plants. We designed a study to test the hypothesis that the plant communities of gradients exposed to chronic disturbance would differ spatially and in composition from those on desertification transition gradients. A total of 14 transects were established at the USDA-ARS Jornada Experimental Range and the Chihuahuan Desert Rangeland Research Center, 40 km N and NE of Las Cruces, New Mexico. Ten grazing gradients were sampled at four well locations. A transect exposed to year-round grazing was compared with a transect through an area excluded from grazing for 15 years, and two transects were in a transition area between grassland and mesquite coppice dune. The number of annual plants of each species within 0.5 m² quadrats were recorded at equi-spaced intervals of 30 m along each transect. Data were collected on winter-spring annuals during March and April 1995 and on summer annuals during September and October 1995. Multivariate and geostatistical analyses were used to locate boundaries between homogeneous biotic zones. Results revealed that the number of biotic zones were correlated with the extent of disturbance caused by grazing and desertification.

Population, Land Degradation, and Desertification Interrelationships in Turkey

By Münir A. Öztürk, Centre for Environmental Studies, Ege University, Science. Faculty,
Bornova-Izmir, Turkey

Deserts generally bring to our mind a panorama of natural looking vastness and dunes formed as a result of long-term ecological disturbances but embodying in themselves typical ecosystems and peculiar ecological balances. Scientifically, areas with low precipitation are now designated as deserts or semideserts, and aridity is used as a synonym for desert. Desertification maps show deserts as the places with no or sparse plant cover. In Turkey we see deserts only in the latter sense, and these can be regarded as artificial deserts, which have come in to being as a result of thousands of years of destruction. Several factors, such as population, fires, grazing of domestic animals, and wood cutting have played roles in this connection. All these activities have set in motion a chain of feedback processes leading to soil erosion and desertification. Transformation of phrygana, maquis, and degraded forests into agricultural lands and urban development on fertile soils adds to these processes through land degradation. Every year Turkey loses nearly 100,000 ha of