

Forest Landscapes and Global Change

New Frontiers
in Management,
Conservation
and Restoration

Abstracts

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respectively, also lost 326.3 (13.4) and 267.8 (8.7) billion m³ water through ET, resulting an average WUE of 1.47 (0.07) and 1.01 (0.06) g.mm⁻². At biome level, desert showed the most variable over the 7-year study period, while forest had the least. More interestingly, the temporal variation of all three metrics for the same biome in IM was significantly higher than that of MG. The cooler, wetter 2003 seemed to be responsible for the elevated GPP and WUE for the desert and grassland biomes, but not for the forest. In comparison, the cooler and drier 2005 increased GPP, but not WUE of the grassland and forest biomes.

Poster Session Monitoring landscape change PMo 12

**MONITORING AND INTEGRATING ESTHETICAL AND ECOLOGICAL VALUES AT THE CENTRAL ASIA
LANDSCAPE CHANGE**

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Desertification is the gradual transformation of usable land into desert; is usually caused by climate change or by destructive use of the land. Dust storms are natural events that occur frequently in arid and semi-arid regions of Central Asia and indicator of rapid desertification. Dust storms can be both a symptom of serious anthropogenic land degradation and a problem in its own. Monitoring the phenomenon in remote regions is difficult task and require disperse and different technical backgrounds of researchers. The present research is carried in three Central Asian countries – Kazakhstan, Uzbekistan and Turkmenistan. A web-based geographic information system for monitoring and landscape change and aeolian soil erosion in Central Asia was developed, implemented and used. The objective of the present paper is to describe how to integrate ecological thinking into landscape planning of the Central Asia Silk Road area. In ecological aesthetics pleasure is derived from knowing on how the part of the landscape relate to the whole. A questionnaire was used as research tool to measure landscape preference. The questions were constructed following the principles described by PATTON (1980): 1) Experience/Behavior; 2) Opinion/Value questions; 3) Feelings (emotional responses to experiences and thoughts); 4) Knowledge; and 5) Sensory Experience.

Poster Session Disturbances PD 5

**HERBACEOUS PLANT DIVERSITY ACROSS FIRE CREATED EDGES IN CONTINENTAL HOLM OAK
WOODLANDS**

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We analyzed herbaceous plants distribution across edges of holm oak (*Quercus rotundifolia*) woodlands created and maintained by fire in order to describe plant community structure across edges and to evaluate the role of fire in the patterning of plant diversity at the patch scale. We recorded abundance in twelve 60-m long sampling lines placed perpendicularly to the woodlands boundary at 1, 5, 10, and 20m outside and 0, 1, 5, 10, 20, and 40m inside the woodlands, using the line intercept method (2 x 10-m line parallel to the boundary). In the same locations, we measured tree and shrub cover, height and density and recorded time since last fire disturbance. Data was analysed graphically and statistically using multivariate ordination analysis techniques,

namely CCA. Results indicated that, on average, herbaceous species richness was higher outside than inside the woodlands and peaked 1m outside the boundary. Time since last fire in adjacent shrublands affected richness patterns across edges. Richness was higher outside than inside in young adjacent shrublands, higher inside than outside in old shrublands and peaked 1m outside in intermediate age shrublands. Interior, exterior and edge (1m outside the boundary) species and locations were well correlated with explanatory variables reflecting the interior-exterior woodland gradient sampled and shrub recovery after fire.

Poster Session Tools of landscape assessment and management PT 11

SPATIAL DYNAMICS OF CHESTNUT BLIGHT DISEASE AT THE PLOT LEVEL USING THE RIPLEY'S K FUNCTION

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We used the Ripley's K function, a second-order analysis method, to describe the spatial dynamics of tree infection caused by chestnut blight (*Cryphonectria parasitica* (Murrill) Barr) in sweet chestnut orchards. Our research question was whether the location of infected trees affected the spatial pattern of spread of the disease in orchards. We also wanted to know whether existing patterns could be associated with management practices. Surveys of infections and mortality caused by chestnut blight were conducted at the tree level in 4 plots in 2003, 2004, 2005, and 2009 in the Curopos parish, Vinhais, Portugal. We applied the Ripley's K function to locations of diseased (infected and dead) trees to look for spatial pattern. We compared locations from successive dates using the bivariate form of the K function to look for spatial association of diseased trees in consecutive years. We found both random and aggregated patterns of infected trees in the beginning of the study period and significant association of infected trees between successive dates, particularly at short distances. The results indicate that fast, short distance spread of chestnut blight occurs within orchards which can possibly be explained by both natural propagation of the disease and management practices.

Poster Session Biodiversity conservation and planning PB 11

UNCOVERING CHIMPANZEE (*Pan troglodytes*) LANDSCAPE PATTERNS OF OCCUPANCY THROUGH A COUPLED GRAPH THEORETICAL AND HABITAT SUITABILITY MODELING APPROACH

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Pan troglodytes verus is considered one of the most endangered primates in the world due to habitat loss or degradation, and it is considered extinct in several regions of West-Africa. This study aims to uncover the patterns of chimpanzee occupancy at landscape level in southern Guinea-Bissau through a coupled graph theoretical and habitat suitability modeling approach. A spatially explicit model was constructed using a maximum entropy framework based on nest location data. Model performance was assessed using 10-fold cross-validation. Random Delaunay graphs were generated within a Monte Carlo simulation framework supported by remote-sensed land use/cover data, and shortest-path distance between patches of the same class measured. Other landscape compositional, structural and functional attributes were also used as independent variables. The developed model revealed an overall good performance. Highest suitability patches appear to be related with stable continuous forested areas where other forest patches can easily be reached