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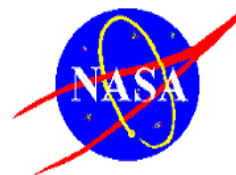
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52 [O-2]: SIMULATION OF LANDSCAPE RESTORATION ON FRAGMENTIZED FOREST ECOSYSTEMS INDUCED BY OVER-CUTTING IN CHANGBAI MOUNTAIN

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The satellite image analysis showed forest resource in Changbai Mountain has changed from intact primary forest to scattered patches, which was mainly induced by compound-leaf-like and small area clear-cut operation before 1980s. Average area of clear-cut is about 15 hm², with the operation continue, cut-over area was gradually connected and incorporated to a large cut-over area, the area reservation was smaller and smaller. And since 1980s, the forest has not been rationally restored and efficiently protected. Consequently, forest landscape tends to habitat fragmentation, landscape diversity and biological diversity decreased severely. This study was conducted in Baihe Forestry Bureau, which is the most severe area of forest landscape fragment. By collected and analyzed the present documents, using GIS and RS, established the multimedia database, including relief map, vegetation map, biological diversity information map and land-use map, and forest compartment information. And based on the multimedia database, through growth simulation, this study realized forest restoration in individual tree scale, stand scale, ecosystem scale and landscape scale: from spatial database extract DEM, RS and vector graph, simulated various habitats on which tree grew, such as topography, site condition (tree density, canopy density, site quality, slope degree, slope aspect and slope location), light. Postulate that study area was not cut and disturbed since the simulation start time point, using these parameters, this study constructed the diameter-growth-model set, including 3 sub-model: the survival and dead probability model of present tree, $B(t) = f(Dt, Gt, Nt, St)$, and grow-to-next diameter class-model: $I(t) = f(Nt, Gt)$, where, D,G,N,S is DBH, Basal area, Number of tree, and site condition, respectively. And then this study simulated stand natural growing process under various conditions in compartments scale. Finally, use spatial analysis methods, this paper discuss landscape restoration process and dynamics in the future 100 years.

Keywords: Landscape Restoration, simulation, diameter model, over-cutting area, Changbai Mountain

55 [P-2]: DISTRIBUTION AND SPATIAL CONFIGURATION OF HOLM OAK WOODLANDS IN THE MONTESINHO/NOGUEIRA SITE, PORTUGAL

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Holm oak (*Quercus rotundifolia*) is wide spread within the West Mediterranean region. In Portugal, it is distributed across the interior of the country but woodlands of this species are currently rare. Historical factors explain most of the regression of holm oak to areas not suitable for agriculture where woodlands of this species persist in spite of very frequent wild fires. With the purpose of identifying physical factors related to the maintenance of holm oak woodlands in fire-prone landscapes, we studied the distribution and spatial configuration of holm oak remnant patches in the Montesinho/Nogueira Natura 2000 Site (PTCON0002), Northeast of Portugal.

We mapped holm oak woodlands from aerial photography and existing vegetation cartography and quantified their size, shape and isolation. These woodlands were also described in terms of geology, soils, slope, aspect, distance to streams, and position in the slope. To test for particular patterns we compared woodland distributions for the variables above with distributions of available conditions using a Chi-square test statistic.

In the Montesinho/Nogueira Site, holm oak remnant woodlands are distributed over 3033ha, representing 2.8% of the study area. They are usually small in size and simple in shape, and occur close to each other. They are very frequently located towards the bottom of very steep slopes, facing West-Northwest and East-Southeast, and relatively close to ephemeral streams. However, woodlands intercept these streams in just 45% of the cases. The patterns described above do not change when woodlands are considered according to their development stage.

Our results confirm the observation that *Quercus rotundifolia* woodlands are still infrequent and located in areas unsuitable for other activities. Within the areas of current distribution, the woodlands are very fragmented. Besides slope and position in the slope, there are no other factors that seem to affect the distribution of holm oak woodlands. Given that these woodlands occur in areas where wild fires are very frequent, we concluded that other factors need to be considered to explain the observed distribution. This subject is part of a larger ongoing research project on the mechanisms of resistance of holm oak woodlands to wild fires.

Keywords: Holm oak, Quercus rotundifolia, woodland remnants, wild fires, Nogueira/Montesinho

56 [O-3]: OVERCOMING UNDESIRED INFLUENCES OF DEFICIENT QUALITY IN SPATIAL DATA ON THE ANALYSIS OF FOREST LANDSCAPE PATTERNS A STUDY BASED LANDSCAPE METRICS

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