

# Mapping the Intensity of Recreation Impact in the National Park Losiny Ostrov, Moscow

Mark Shapochkin, Ver Kiseleva, Oxana Syriamkina and Vladimir Nikitin

National Park Losiny Ostrov, Moscow, Russia  
e-mail: vvkisel@mail.ru (Vera Kiseleva)

A relatively small national park bordering with the city receives tens of thousands visitors daily. In some areas, the recreation press threatens the stability of natural ecosystems. Recreation monitoring is the instrument of finding the balance between nature conservation and visitors' demands.

In 2000–2001, the recreation effect on forests was studied at permanent observation sites and a model territory with the area of 150 ha in order to determine the most informative monitoring parameters.

In 2003, recreation intensity and impact were mapped for the most visited southern part of the national park at the area of more than 600 ha. The regular 100-meter grid of observation points was used. At each point, the status of trees and undergrowth was evaluated according to semi-quantitative scales; the intensity of recreation was expressed as the stage of recreational digression calculated from the percent of trampled surface. Fire- and picnic places also were mapped.

The grid was linked to GIS projects, and the maps reflecting the recreational pressure and status of forest ecosystems were compiled.

Spatial distribution of recreation impact proved to be mosaic and contrast. The status of the major part of studied territory corresponds to a pre-critical stage of recreational digression, with weakened forest stands and medium-vitality undergrowth. On this background, the islets of both healthy and seriously disturbed forest stands can be observed. The presence of practically intact sites within intensively visited areas points to a high self-regeneration potential of forest communities. The areas of declining forest are related to stationary recreation (plots around fireplaces). These areas become top-priority objects for the development of appropriate facilities for stationary rest.