



*“Gheorghe Asachi” Technical University of Iasi, Romania*



---

## ENVIRONMENTAL COMPATIBILITY OF FOREST ROADS AT THE SUBURBAN FOREST OF THESSALONIKI

**Thomas Psilovikos\*, Vasileios Giannoulas**

*Aristotle University of Thessaloniki, Faculty of Forestry and Natural Environment  
Laboratory of Mechanical Science and Topography, 59 Mouschounti & Demokritou str, 55134 Kalamaria - Foinikas, PO BOX  
214, Thessaloniki, Greece*

---

### Abstract

Thessaloniki's suburban forest is environmentally protected by law and also characterized as a high-fire-risk forest. It has a high road density due to its proximity to a city of 1.3 million. Following the disastrous fire of 1997, a number of rehabilitation works were conducted in the 2005- 2009 period along existing road routes. The existing environmental protection laws are not sufficient to assess the environmental impacts of these works within the forest environment. A method has been developed to evaluate the environmental compatibility of new road schemes either rehabilitation of existing forest roads. The method introduces the concepts of environmental impact as a mean intensity percentage (MI), along with the absorption capability of forests and a mean absorption (MA) percentage. Additionally the concept of environmental compatibility factor (C) is introduced as an improvement on the existing method, as a stricter approach, taking into account the length of a forest road. The evaluation is focused on two existing main forest roads, A1T1 and A2T2, respectively. The results show that the works conducted on both roads were environmentally compatible according to MI, MA and C thresholds. The method is intended to be used as a decision support tool to permit or abort construction or rehabilitation works in forests. It is to be used mainly to evaluate the environmental compatibility of either existing or new forest road projects and to compare two or more forest roads within the same or other forest areas. The outcomes are expressed in a percentage form familiar to all interested parties.

*Key words:* absorption, compatibility factor, environmental impact, intensity

*Received: November, 2012; Revised final: March, 2014; Accepted: March, 2014*

---

---

\* Author to whom all correspondence should be addressed: e-mail: [tvikos@for.auth.gr](mailto:tvikos@for.auth.gr); Phone: +302310992728; Fax: +302310992728