

EFORWOOD: incorporating social and cultural values into sustainability impact assessments of the forestry-wood chain

Increasing demands are being placed on the forestry and wood processing sectors to demonstrate the sustainability of its activities, and the impacts of its policies. With this in mind, the EU-funded project 'EFORWOOD' developed a computer-based Tool for Sustainability Impact Assessment (ToSIA). The tool can be used at different spatial scales to quantify the sustainability of the forestry-wood chain both now and in the future under different scenarios using a suite of economic, social and environmental indicators. This summary focuses on EFORWOOD Work Package 2.3, led by SERG, which ensured that social and cultural values (SCVs) associated with European forests were incorporated as far as possible into the ToSIA model.



"The tool will be unique in addressing all sustainability dimensions (economic, social and environmental) for the entire forestry-wood chain in a balanced way."
Professor Kaj Rosen, EFORWOOD Project Coordinator

Background

EFORWOOD ran from 2005 to 2009, and involved 38 organisations in 21 countries. The project was co-ordinated by Skogforsk in Sweden. A special effort was made to incorporate SCVs into the project, in particular by developing an indicator that assesses the impacts of changes in forest management on the recreational value of forests.

Objectives

- Improve understanding of the full range of SCVs associated with forests in Europe, and approaches to assessing these values through criteria and indicators.
- Enhance knowledge of public preferences for recreational use of different structural attributes and forest types at pan-European level.
- Quantify the recreational values of different forest types in Europe, and incorporate these values into the ToSIA model to assess impacts of European policies.

Methods

- Two literature reviews were carried out to explore: (i) SCVs associated with forests in Europe and related indicators, and (ii) public preferences for different forest types in Europe as sites for recreational use.
- A Delphi survey was carried out with 46 experts in forest preference research in four European regions (UK, Nordic Region, Central Europe and Iberia) to: (i) assess the relationship and relative importance of 12 key structural attributes of forests, and (ii) obtain recreational scores for 60 forest stand types in each region, for inclusion in ToSIA.

Findings

A generic framework of SCVs and indicators was developed, based on 9 themes and 72 indicators (Edwards 2006). The review of forest preferences assembled around 200 published references, organised under 12 structural attributes (Edwards et al. 2010). Indicative assessments of the relationship and relative importance of attributes to the recreational value of European forests are shown in the table below.

Importance weighting and relationship to recreational value of 12 attributes of European forests, averaged across four regions

Structural attribute	Weighting (12=high; 1=low)	Relationship
Size of trees	12	Positive
Size of clear-cuts	11	Negative
Residue	10	Negative
Visual penetration	9	Bell-shaped
Variation between stands	8	Positive
Extent of tree cover	7	Bell-shaped
'Naturalness' of forest edges	5	Positive
Variation in tree spacing	5	Positive
Variation in tree size	5	Positive
Number of tree species	3	Positive
Amount of natural deadwood	2	Bell-shaped
Density of ground vegetation	1	Bell-shaped

There were some marked regional differences, which were tentatively explained in terms of historical interactions between cultural and bio-physical factors in each region (Edwards et al. in press).

Conjoint analysis of scores for the 60 forest stand types in each region suggested that 'stand age' contributed most to recreational value, followed by 'management intensity', while 'tree species type' had a relatively small effect (Edwards et al. in review).

The scores were inputted into ToSIA to assess impacts of the Natura 2000 policy. Results suggest that full implementation of the policy would cause a slight overall increase in recreational value across Europe (Schelhaas et al. in review).

Recommendations

Further research should develop spatially-explicit models of the impact of forest management on recreational value, which show effects on numbers of visits and tourism revenues.

Reports and Publications

Edwards, D.M. (2006). Social and Cultural Values associated with European forests in relation to key indicators of sustainability. EFORWOOD Deliverable D2.3.1, Forest Research, UK. 71 pp.

Edwards, D., Jay, M., Jensen, F.S., Lucas, B., Marzano, M., Montagne, C., Peace, A. and Weiss, G. (2010). Public preferences for silvicultural attributes of European forests. EFORWOOD Deliverable D2.3.3, Forest Research, UK. 89pp.

Edwards, D., Jensen, F.S. and Marzano, M., Pizzirani, S. and Schelhaas, M.-J. (2011). A theoretical framework to assess the impacts of forest management on the recreational value of European forests. *Ecological Indicators* 11: 81-89.

Edwards, D., Jay, M. and Jensen, F.S., Lucas, B., Marzano, M., Montagne, C., Peace, A. and Weiss, G. (in press). Public preferences for structural attributes of forests: towards a pan-European perspective. *Forest Policy and Economics*.

Edwards, D., Jay, M. and Jensen, F.S., Lucas, B., Marzano, M., Montagne, C., Peace, A. and Weiss, G. (in review). Public preferences across Europe for different forest stand types as sites for recreation. *Ecology and Society*.

Schelhaas, M.-J. Didion, M., Arets, E., Edwards, D., Hengeveld, G., Lindner, M., Mason, B., Moiseyev, A. and Nabuurs, G.-J. (in review). Impact of different levels of nature conservation designation on sustainability of European forests. *Ecology and Society*.

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