



**HAL**  
open science

## Multipurpose forest management: goals and means

Nicolas N. Robert, Jens Abildtrup

► **To cite this version:**

Nicolas N. Robert, Jens Abildtrup. Multipurpose forest management: goals and means. 1. Annals of Forest Science Symposium, Mar 2012, Champenoux, France. 12 p. hal-01000312

**HAL Id: hal-01000312**

**<https://hal.science/hal-01000312>**

Submitted on 6 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



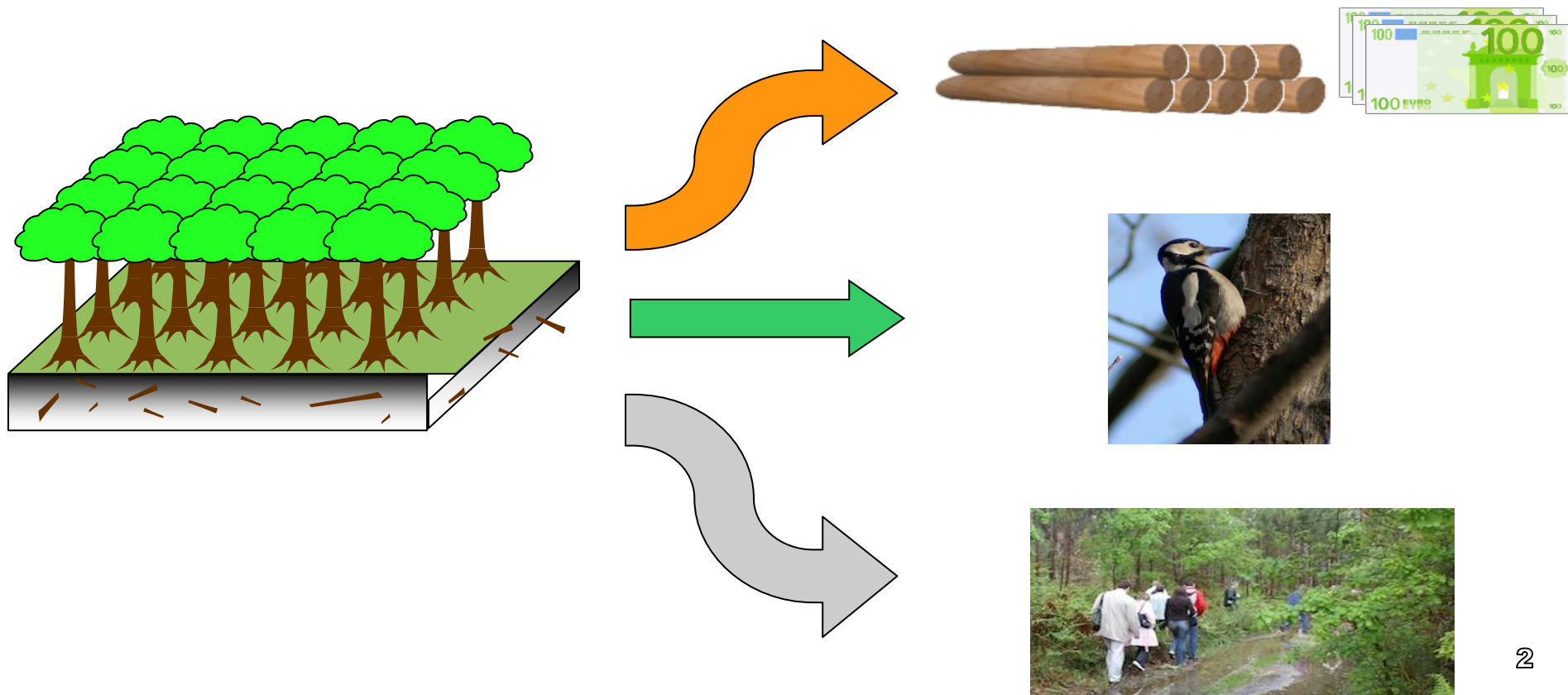
# Multipurpose forest management: goals and means

Jens Abildtrup (LEF) [jabildtrup@nancy-engref.inra.fr](mailto:jabildtrup@nancy-engref.inra.fr)  
and Nicolas Robert (IGN and LEF) [nicolas.robert@ign.fr](mailto:nicolas.robert@ign.fr)



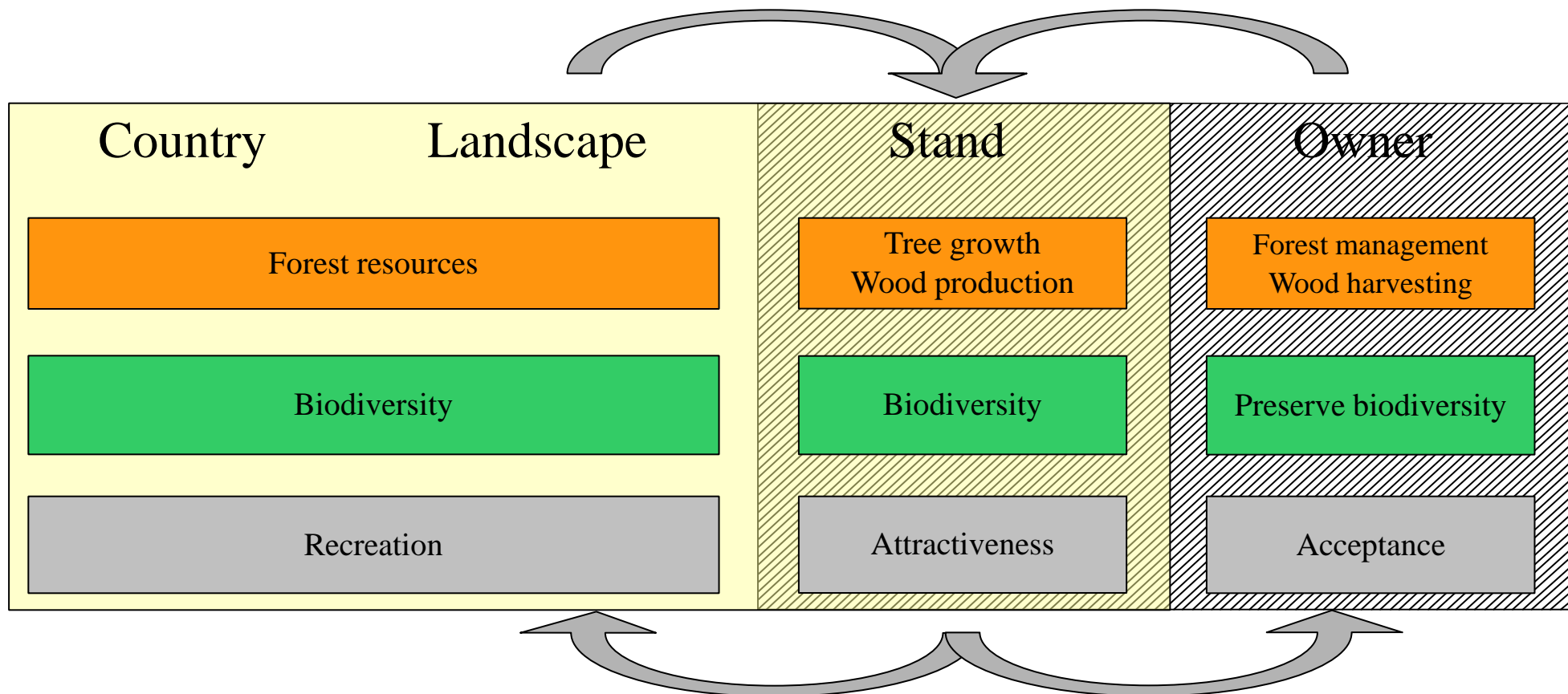
# Multipurpose forest management

- Definition: Joint production of goods and services in one forest stand or at the forest or landscape level





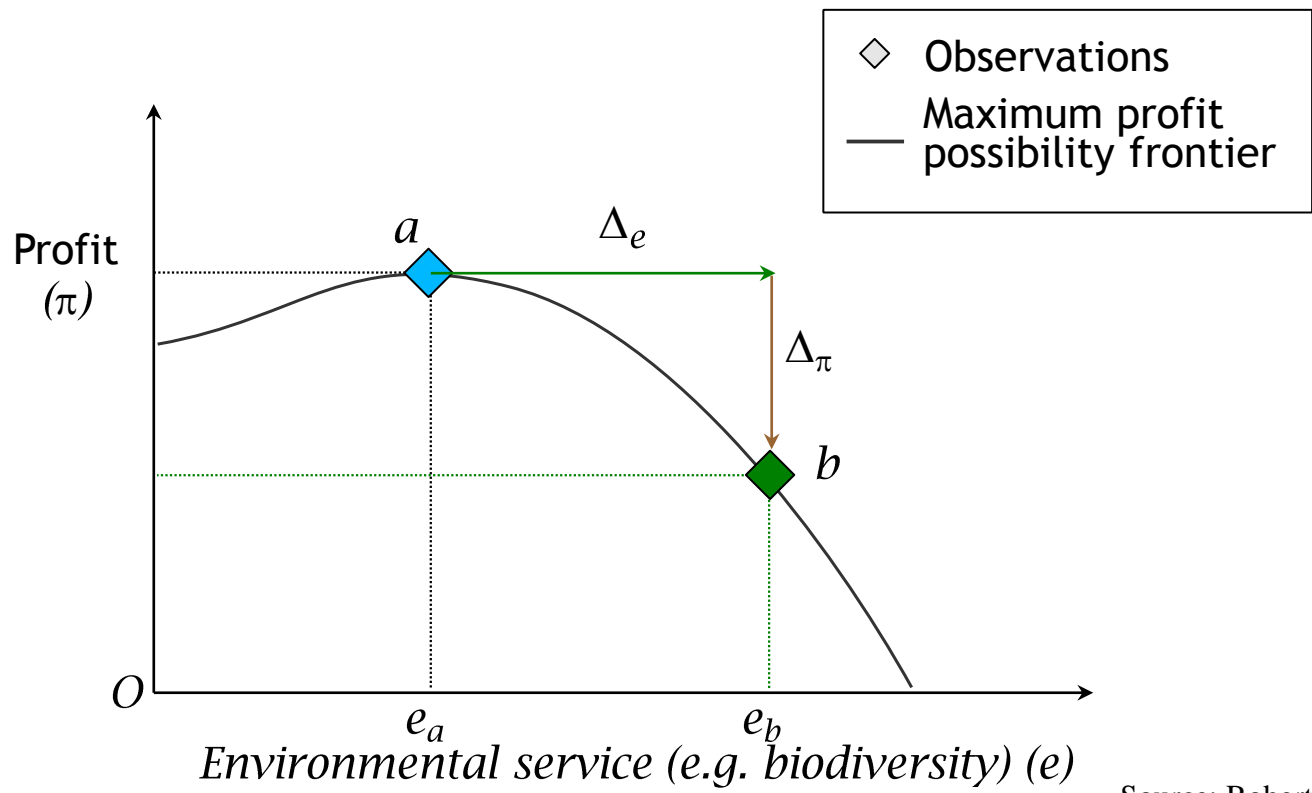
# A multi-scale and multi-actor question



The important question: « Where to put things » Polasky et al. 2008 Bio.Cons.



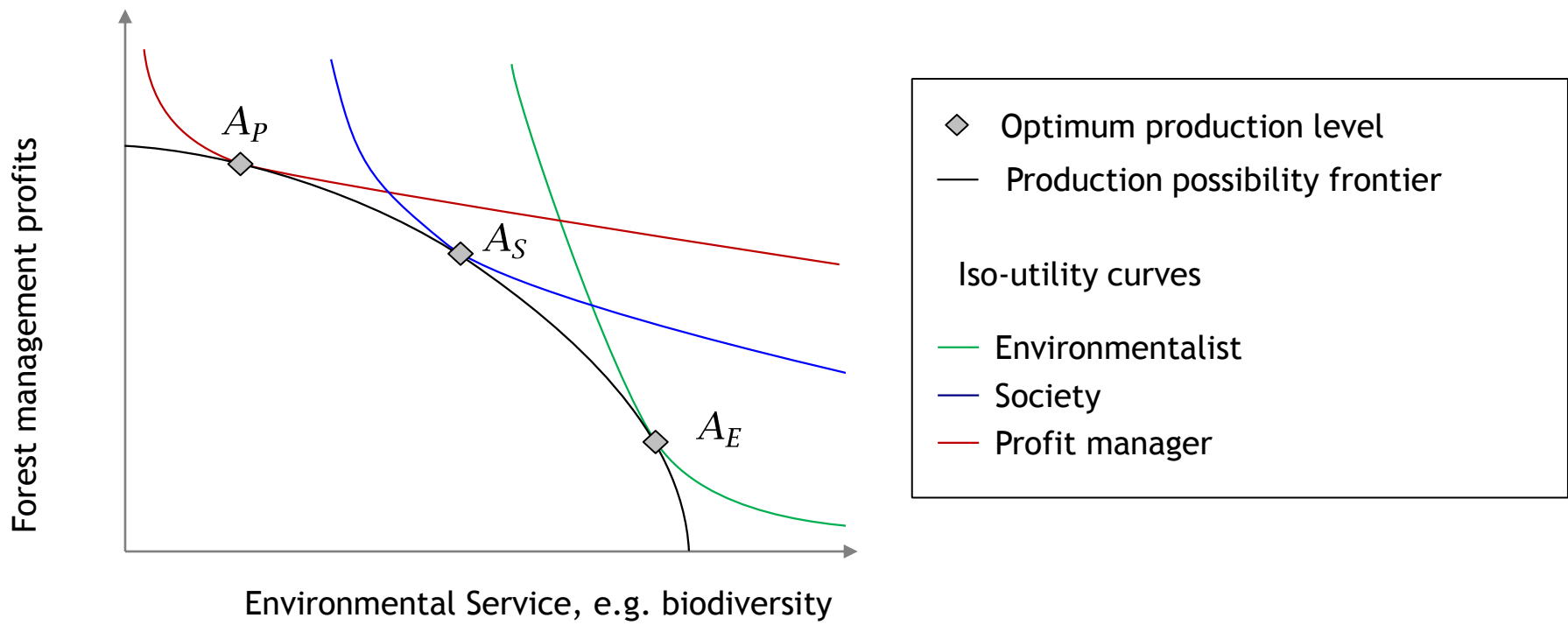
# Multipurpose forest management Production function: substitution



Source: Robert (2012)



# Forest management for private and public goods: a social objective





# Multipurpose forest management

## Economic valuation

- **Example: The economic value of forest recreation in Lorraine**
- **Goal:**
  - Assess the impact of forest management on recreation value
    - What are the preferences for different **forest characteristics**?
    - Where to put the effort on recreation?
- **Method:**
  - Travel cost method (reveal preferences from individuals' choice of forest visits)
  - Observed and hypothetic choices (combining observed behaviour with a choice experiment)
  - Random utility model (recreation site selection model) Bockstael et al (1987 Marine Resource Res.)



# Multipurpose forest management

## Economic valuation

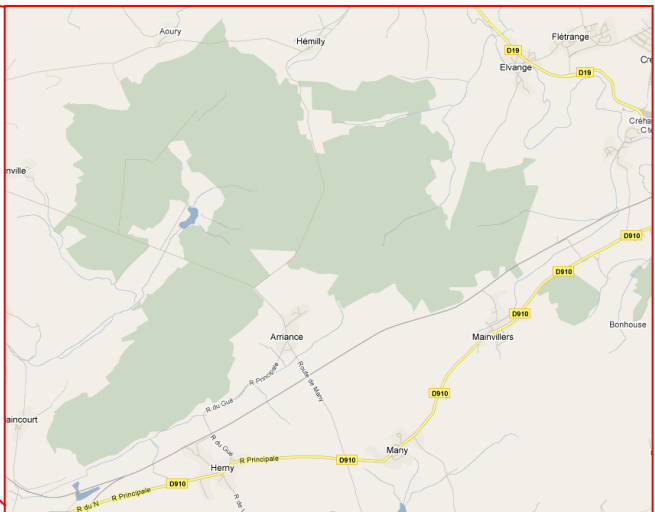
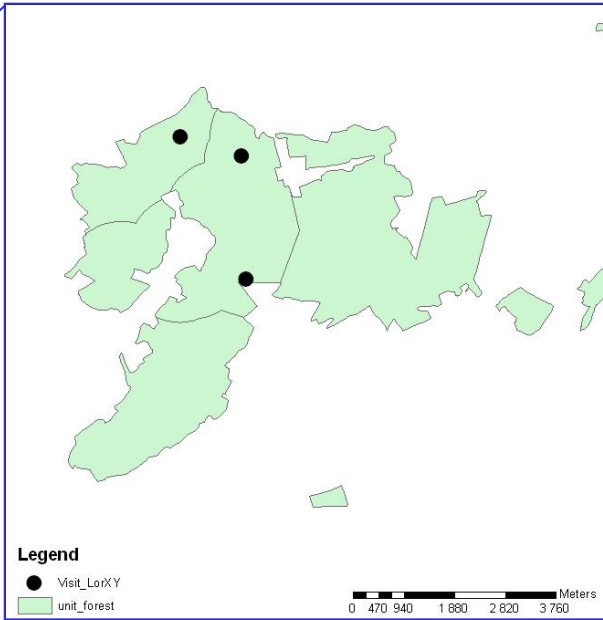
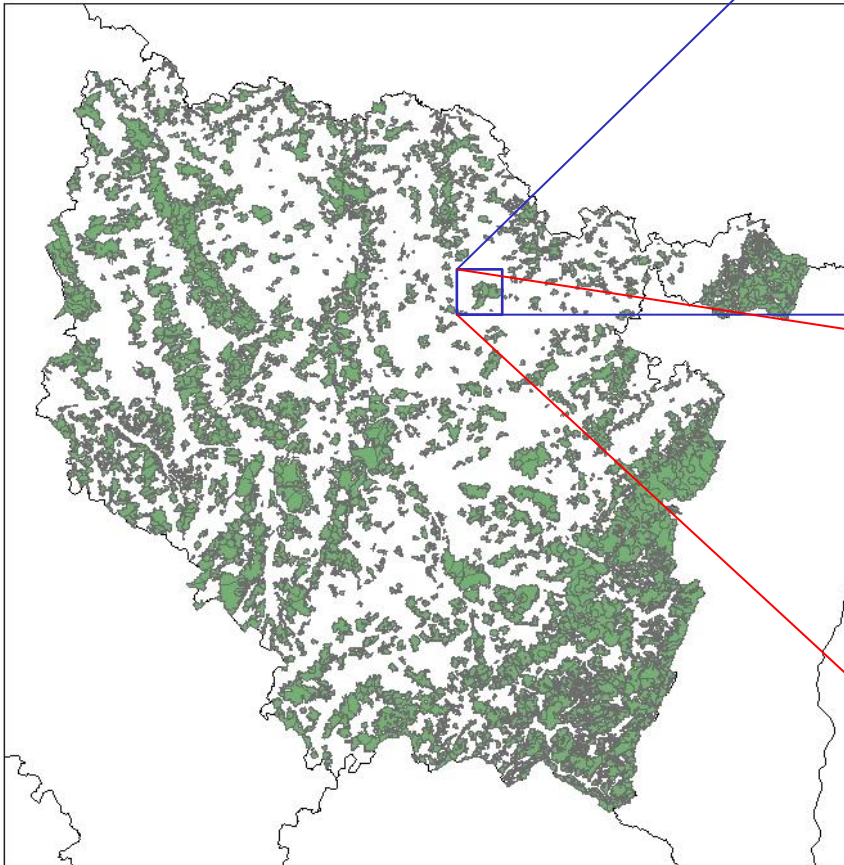
- **Example: The economic value of forest recreation in Lorraine**
- Data collection
  - Focus groups
  - Internet survey: 1100 completed questionnaires
    - Information about their use of forest
    - Choice experiment
    - Socio-demographic information
  - Forest characteristics from GIS maps (forest inventory data, topographic maps etc.)
    - Forest structure (tree species, age structure, diversity measures)
    - Ecological and landscape indicators (likelihood of finding blueberries or *Convallaria majalis* , altitude)
    - Recreation facilities (parking, picnic places, trekking roads etc.)
    - Complementary sites (lakes, rivers, historical monuments, etc.)
    - Institutional conditions (nature parks, natura2000, forest ownership)





# Data collection

How to define forest units relevant for forest recreation?





# Multipurpose forest management

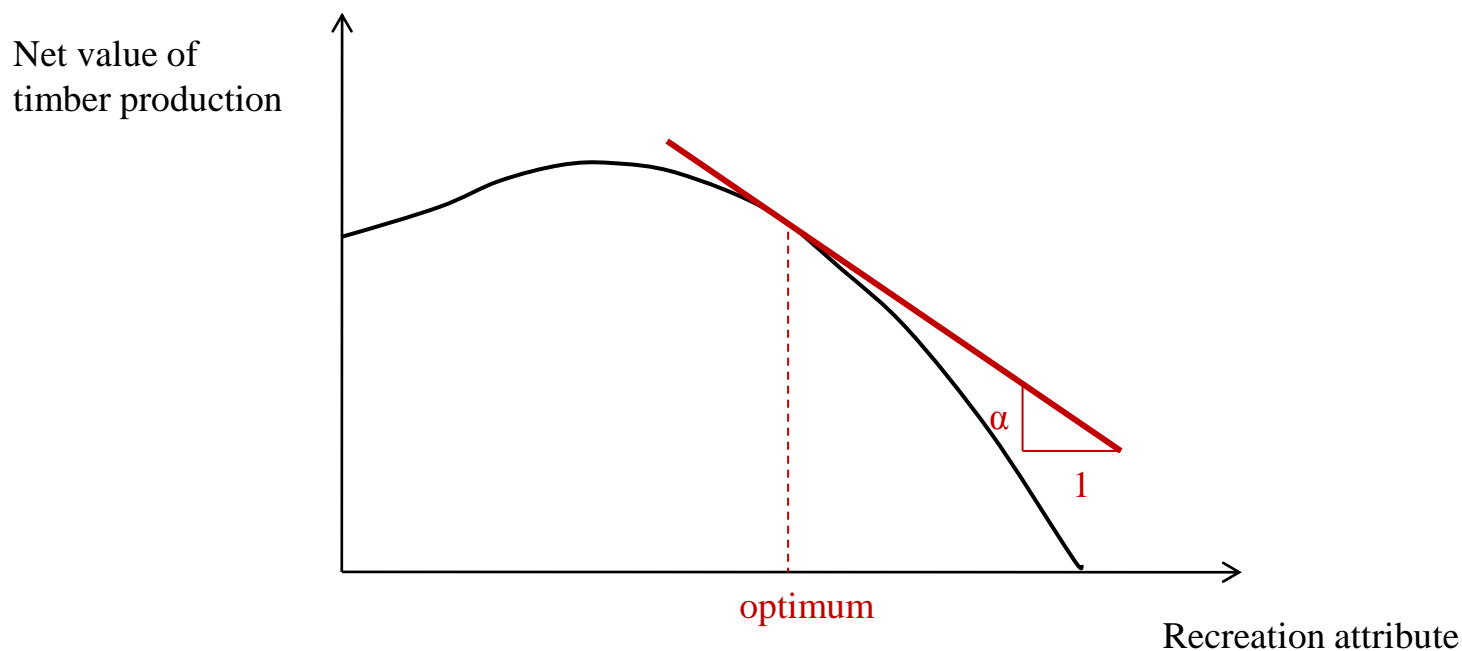
## Economic valuation: preliminary results

Attributes	Levels	Stated choice	Revealed choice
		WTP (unit km)	WTP (unit km)
Dominant tree species	Broadleaf	17,9 ***	18,1 *
	Mixed	22,6 ***	15,9
Trekking paths	One trekking path	11,0 ***	11,9 **
	More trekking paths	19,6 ***	15,4 ***
Facilities	Parking or picnic place	5,7 ***	16,3 ***
	Parking and picnic place	3,7 **	32,5 ***
Water bodies	Lake or river	14,6 ***	13,8 ***
Likelihood of blueberries (%)			0,8 *
Private forest			-40,6 ***
Private and public owned forest			-13,1 ***
Size of forest			0,015 ***
Altitude , standard deviation			0,5 ***
ASC SQ		0,502 ***	
Adj, McFadden R <sup>2</sup>		0,229	0,42
N		1061	526



# Multipurpose forest management

How to decide the mix of joint-produced services?



NB: the production possibility frontier is hypothetical?



# Discussion: Forest science and Economics

- **Joint production in applied research?**
  - Economists can inform forest owners and policy makers with:
    - Trade offs, costs, and benefits assessment of alternative management and policy options
  - This requires:
    - Quantitative ecological information (e.g. production functions, probability distributions)
- ⇒ Increase the value-added of research in forest science
- But also:
    - Economist can contribute to identify policy relevant ecological/biological research questions and design of experiment
    - ⇔ Truly integrated research “production”



# Thanks

**Contact :** [lef@nancy-engref.inra.fr](mailto:lef@nancy-engref.inra.fr)

**Site :** <http://www.nancy.inra.fr/lef>

**Adresse postale :**

Laboratoire d'Economie Forestière

UMR ENGREF/INRA

14, rue Girardet, CS 4216

F-54042 NANCY Cedex, FRANCE

**Telephone:** +33 3 83 39 68 65

**Fax:** +33 3 83 30 22 54