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Forests as a mirror of rural conditions; local views on the role of forests across Europe

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Abstract

In a rapidly changing rural Europe, forests are promoted as contributing towards rural development in the sense of improved well-being of local communities. A trans-European research project was designed to establish whether varied rural conditions and the perspectives of local communities influence the perceived contribution of forests towards rural development. In eight European countries inhabitants and landowners were interviewed about their perceptions of quality of life in rural areas and the extent to which forests impact upon it. The contribution of forests to quality of life is perceived as either harmful, beneficial or having nothing to offer. Further, preferred future development options were assessed for the area. It turns out that the main differences between areas are related to perceptions of localities as being more or less ‘marginal’ and perceptions of the role of forests as being more or less ‘harmful for rurality’. Results show that it is the perceived harmful aspect of forests that differentiate areas the most. Most people do not regard forestry as a major future development option, principally due to negative association with, for example, employment opportunities, industrial activities and strength of bond and friendship between neighbours. The differences between areas are related to socio-economic and cultural conditions as well as local forest history. © 2004 Elsevier B.V. All rights reserved.

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1. Introduction

Within Europe in the last decades a lot of rural areas have undergone dynamic change (e.g. Hoggart et al., 1995). In many places the importance of agricultural production is declining, while environmental and landscape functions are increasingly valued. Due to different dynamics, which are generated

both locally and externally and arise from changing demands on rural production and consumption relations, rural areas are becoming increasingly differentiated (Marsden, 1998). Some areas experience a decline in liveability and become increasingly marginalised, other areas are influenced by city dwellers’ values and become increasingly urbanised. As a result of such ongoing changes in rural areas, the role of forestry is also changing. In the past, most attention was focused on the primary production function of forests in order to contribute to the rural economy. At present, however, greater emphasis is given to its role

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in maintaining ecological and social values (Elands and Wiersum, 2001).

The dynamics in rural areas as well as the changing role of forestry are acknowledged in European rural development policy. Within European policy the term rural development signifies the strengthening of rural well-being by means of improving or restructuring the production processes and stimulating employment, as well as responding to growing demands for quality living and leisure environments by improving landscape and nature quality (ECRD, 1996). Forests are valued, in these policy views, for their potential to contribute to the local economy through (non-)wood production and manufacturing and provision of attractive recreation and tourism facilities, to create an attractive environment for living and working, to maintain biodiversity and protect natural resources, and to preserve and enhance characteristic rural landscapes and related cultural heritage.

Considerable regional variation in both rural and forestry conditions exist in Europe, and hence, in the possible roles that forestry can play in rural development. Research into the regional variation in forest resources and socio-economic structures in remote rural regions in Europe, and its repercussions on the potential for forests to contribute to rural development—the FORWARD project—acknowledged this (Hyttinen et al., 2000; Niskanen and Lin, 2001). It is often considered that in such remote areas as well as in more integrated rural areas forest resources offer evident possibilities for economic development and that rural conditions are basically characterised by forest owners living on and from the forest land. Several studies showed that this is not necessarily true, however, and that landowners increasingly live from other resources than the forest (Hyttinen et al., 2000; Kvarda, 2002; Schraml et al., 2002). Accordingly, European policy should recognise regional variation in rural and forestry conditions.

Many rural dwellers are increasingly engaged in secondary and tertiary sector activities rather than in traditional primary production processes; this change affects their opinions on rural development and the role of forests in it. The value people attribute to forests is not confined to use functions alone (Terrason, 1998; Wiersum, 1998). Even if people do not use forests for economic reasons, or as an attractive surrounding for leisure activities, forests may have

great symbolic value as a constituent of rural identity or as a representation of nature. Attention should not only be given to how people depend on forest resources in an economic sense, but also to how they relate to the social institutions which shape the distribution of the benefits of forest functions, as well as to the role of forests in contributing to a sense of rural space (Kusel, 2001). Moreover, as different social groups have different ideas about the future of rural areas, rural development as a concept is interpreted differently (Halfacree, 1993; Elands and Wiersum, 2001). Consequently, the role of forests in rural development should not be considered only in terms of how policy makers think and speak about forestry and rural development. Specific attention should also be given to how local residents interpret the meaning of rural quality, how they conceive the desired future for their area, and how they perceive forestry as a part of their social and physical environment (Jones, 1995; Elands and Wiersum, 2001).

The aim of this paper is to illustrate how local communities under quite different rural conditions perceive local quality of life and the role of forests in it as well as how they value the role of forestry for the future of their area. The answers to the questions will be given in general (Section 3) as well as with respect to regional differences (Section 4). In the final section, the results will be discussed and conclusions will be drawn.

2. Research methodology

2.1. The Multifor.RD project

The data which are presented in this paper were collected within the framework of the EC-funded ‘Multifunctional forestry as a means to rural development’ project. The principal research objective of the Multifor.RD project is to make a comparative European study about the nature and dynamics of landowners’ and public’s attitudes towards forests and forestry, and to develop criteria for distinguishing region-specific strategies for multifunctional forestry to serve rural development. A group of universities and research institutes in eleven European countries participated in this project: nine as research partners, two as consulting partners. The research consisted of four phases: (i) description and classification of case

study areas; (ii) qualitative interviews with members of different stakeholder groups; (iii) quantitative survey among community inhabitants and landowners; and (iv) synthesis and development of policy recommendations (Wiersum and Elands, 2002). In this paper some main comparative results from the quantitative survey in eight of the participating countries, i.e. Austria (AU), Denmark (DK), Germany (DE), Greece (GR), Hungary (HU), Ireland (EI), the Netherlands (NL) and Spain (ES) are presented.

2.2. Selection of case study areas

In order to achieve the principal research objective two case study areas were selected in each country, one traditionally forested (TR), and another undergoing afforestation (AF). As Greece did not have any area with substantial afforestation, two traditional forest areas were selected, one with mostly privately owned forests and one with predominantly public owned forest

(GR-TR(pr) and GR-TR(pu)). Although the selection of areas was not based on a predefined set of rurality characteristics and is thus to a certain extent arbitrary, a broad variety of rural conditions in Europe is covered. Apart from north Scandinavia, the participating countries are spread north and south (from Denmark to Greece) and east and west (from Hungary to Ireland).

The rural conditions of the selected 16 case study areas are very different. In order to classify these areas in a comparative way, a set of objective descriptors representing major rural conditions and trends (demographic, land use and socio-economic) was developed. By means of a cluster analysis on these parameters, a ‘rural area typology’ was derived. This typology classified the areas into five socio-economic categories of rurality: (i) rural areas with urban characteristics; (ii) diversified rural areas; (iii) growth areas depending on agriculture; (iv) decline areas depending on agriculture; and (v) remote areas (Table 1; De Deugd and Elands, 2001).

Table 1

Area typology described according to its main characteristics, the distribution of case study areas among the rural area typology and the number of respondents in the quantitative survey in each case study area (De Deugd and Elands, 2001)

Type of rural area	Characteristics	Case study areas	Number of respondents (<i>N</i>)
Rural area with urban characteristics	High population density (at least 100 to over 300 persons/km ²)	Ede (NL)	407
	Equal importance of agriculture and forest as land use Significant tertiary sector, small agricultural sector	Haderslev (DK)	615
		Staufen (DE)	641
		<i>Torroella de Montgrí (ES)</i>	330
Diversified rural area	Medium population density (50–75 persons/km ² , only Stadskanaal higher) Agriculture main form of land use Equally developed secondary and tertiary sector, small agricultural sector	<i>Hvorslev (DK)</i>	596
		<i>Kerekegyháza (HU)</i>	404
		Konitsa (GR)	375
		<i>Stadskanaal (NL)</i>	436
		Wicklow (EI)	522
Growth area dependent on agriculture	Medium, varied population density (33–116 persons/km ²) Agriculture most important, forest medium land use Dominance of primary sector, but growing importance of tertiary sector	<i>Pfullendorf (DE)</i>	266
		<i>Weinviertel (AU)</i>	570
Decline area dependent on agriculture	Low-medium population density (20–45 persons/km ²) Both forest and agricultural land-use All sectors equally important, but tertiary sector is stagnating	Kolindros (GR)	484
		<i>Leitrim (EI)</i>	549
		Szentgál (HU)	390
		Waldviertel (AU)	640
Remote area	Very low population (less than 10 persons/km ²) Dominance of forest land-use Dominance of primary sector, growing importance of tertiary sector	Navès (ES)	119

Afforestation areas are printed in italics, traditional forest areas are printed in plain text.

2.3. The quantitative survey

On the basis of a literature search and the results of a qualitative survey which was carried out in six countries (Elands et al., 2001), a common standardized questionnaire was developed by the researchers and translated into relevant languages for use in the case study areas. The questionnaire aimed at measuring, among others, three concepts that were central to the key Multifor.RD research question. As the earlier described rural area typology (see Section 2.2) does not necessarily reflect the identity of the area as perceived by its inhabitants and landowners, the first concept concerned people's views on rural living conditions in general (i.e. the perception of Quality of Life). A number of statements with respect to living conditions, feelings of community cohesion, landscape identity, economic welfare and environment and nature quality had to be assessed by means of a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = totally agree). Secondly, the perceived impact of forests upon local quality of life (perception of Forest Impact) had also to be assessed by means of a list of statements and using a five-point Likert scale. The third central concept was the Preferred Future Development of the Area. Out of 11 possible future development options respondents could tick at most three, with an increase in the amount of forests being one possibility.

This questionnaire was employed in eight of the countries, which participated in the research. In total 7044 people were surveyed in the period between February and April 2001. Two thirds of these respondents are community inhabitants (66%, $N=4622$) and one third are landowners (34%, $N=2422$). The latter group consists of foresters (landowners with only forest land, 3%), farmers (landowners with only farm land, 13%) and forest-farmers (landowners with both forest and farm land, 18%).

2.4. Data handling and analysis

Data handling involved both weighting and grouping the data. Two weighting factors have been developed. As the sample sizes of community inhabitants and landowners did not precisely reflect the real

distribution of both target groups, the first weighting factor corrected for this over- and under-sampling. Further, the completion of a pre-determined number of questionnaires was not equally successful in the diverse case study areas (sample sizes ranged from 119 to 640 respondents). This can strongly influence results. Therefore, to correct for dissimilar sample sizes, a second weighting factor was constructed. It turned out that the weighting of the target groups did not change the results substantially. The weighting for the different sample sizes, however, did indeed influence results -from marginal to substantial depending on the specific question- and was, therefore applied where necessary. Next, several grouping variables have been used in the analysis: country (eight classes), rural area typology (five classes) and traditional vs. afforestation area (two classes). Apart from this, a so-called 'Eurozone' has been applied (three classes). The Eurozone refers to a geographical grouping of the countries into three European zones: Atlantic (DK, EI, NL), Central European (AU, DE, HU) and Mediterranean (ES, GR). The Eurozone also implies a varying forest history: the Central European countries have the longest forest tradition, followed by the Mediterranean countries and thereafter by the Atlantic countries.

For statistical analysis, we used several multivariate techniques. First of all, we applied a *factor analysis*, which permits the reduction of a large number of interrelated variables to a smaller number of latent dimensions of factors (Hair et al., 1998). This technique was applied to determine the underlying dimensions of the Quality of Life and Forest Impact items. Secondly, in order to transform the relative value of each factor into a meaningful value that can be interpreted easily, a *weighted sum score* was calculated. The raw scores, which respondents assigned to the statements belonging to a specific factor were first summed and subsequently divided by the number of summed-up variables. When given a five-point scale, the final weighted sum score on each factor varies between 1 (strongly disagree) and 5 (strongly agree). Thirdly, to find out to what extent the Quality of Life and Forest Impact factors unite or differentiate the individual case study areas a *discriminant analysis* was applied. This procedure searches for those combinations of independent variables, which differentiate

the dependent variable best; it maximises the between-group variance relative to the within-group variance (Hair et al., 1998). The Quality of Life and Forest Impact factor scores were used as the dependent variables (not the weighted sum scores) and case study area was used as independent variables. As there are 16 case study areas involved in the analysis, 15 discriminant functions were calculated in the analysis, of which eight turned out to be statistically significant (Wilks Lambda smaller than 1.0) (Hair et al., 1998). However, the results in Table 5 give the characteristics of only the first four functions, as these could be most easily interpreted and besides accounted for 87% of the variance between case study areas. A similarly fine-tuned multivariate analysis on the Preferred Future Development of the Area items was not possible, because of the type of question (stochastic dependent variables with yes/no scale ticking).

3. The role of forests in local quality of life

3.1. The quality of life in rural areas in Europe

The way inhabitants of the different European areas perceive advantages and disadvantages of rural life were measured with the Quality of Life items. A factor analysis, applied to determine the underlying dimensions of the Quality of Life items, produced five factors, explaining 52% of the total variance (Table 2).

These five Quality of Life dimensions characterise the living conditions in rural areas as follows:

- ‘*Over-development*’ expresses a concern about the strong growth in built-up and industrial areas, increase in crime and in the number of visiting tourists. Also, the perception of conflicts between different uses of land is part of this dimension.

Table 2
Factor analysis components in Quality of Life items (only scores higher than 0.20 are included)

Quality of Life items	Over-development	Nature and landscape quality	Rurality	Services	Weak economy and top down development
<i>In this locality there is...</i>					
Too much industrial development	0.72				-0.21
Conflict between different uses of land	0.69				
Too much crime	0.61				-0.22
Too many visiting tourists	0.59			0.26	
Too many houses built-recent past	0.53			0.34	
A lot of forests		0.79			
Rich variety of nature and wildlife		0.74	0.22		
Beautiful landscape scenery		0.70			
Characteristically different		0.54		0.32	
Closely knit community			0.69		
Very sparse population			0.63	-0.40	0.21
Strong sense of history and tradition			0.58	0.32	
Peace and quiet with low traffic	-0.35		0.50		
Unpolluted air, water and soil	-0.21	0.29	0.44	0.24	
Very good overall services				0.72	
Very attractive setting for houses		0.20		0.59	
Plenty opportunities for recreation and sports			0.23	0.57	-0.21
Very few employment opportunities					0.75
Prevalence of low incomes			0.24		0.71
No involvement of locals area developed	0.26				0.63
% of variance (total 52%)	16.9	13.3	9.6	6.6	5.4

- ‘*Nature and landscape quality*’, focuses on the variety of nature and wildlife and the beauty of the landscape that creates a locally distinct character. The item ‘a lot of forests’ appears only in this dimension. Evidently, people associate forests mainly as an element of the natural environment and less as an economic activity or service provider. This rather restricted functionality of forests in the minds of respondents will turn out to be a recurring pattern in the results that follow.
- ‘*Rurality*’, joins statements about a closely knit community, a strong sense of history and tradition, a very sparse population, peace and quiet with low traffic, and unpolluted air, water and soil.
- ‘*Services*’, deals with aspects such as very good overall services, plenty of opportunities for recreation and sports and an attractive setting for houses.
- ‘*Weak economy and top down development*’, combines few employment opportunities, a prevalence of low incomes, and the perception that there is no involvement of locals in how the area is developed.

On the basis of the weighted sum score it turned out that, in general, the characterisation of ‘over-development’ is rejected by most respondents (mean=2.6 on the five-point disagreement-agreement scale), while they endorse the ‘attractiveness of nature and landscape’ (mean=3.9), judge the areas as ‘rural’ (mean=3.5), with enough ‘services’ (mean=3.4), but perceive the economy as weak with too much top down development (mean=3.3).

With increasing urbanisation (as expressed in the rural area typology of Table 1), respondents are more inclined to express concerns about over-development, less likely to experience a sense of rurality and least likely to perceive their economy as weak and top-down directed (Pearson $r=0.42$, -0.29 , -0.33 ; $P_{2\text{-tailed}}<0.001$, respectively). The reverse is true for increasing remoteness. As for country differences, it turned out that on the dimensions ‘rurality’ and ‘nature and landscape quality’ both Hungary and the Netherlands scored lowest, but still had a positive score, whereas the Central European countries Austria and Germany and the Mediterranean countries scored relatively high. As the availability of forests is part of the dimension ‘nature and landscape quality’, and remembering that this dimension is generally well-valued, it

can be concluded people are positive on the forest issue. However, this is much more the case in traditional forest areas than in afforestation areas (mean TR=4.1 and mean AF=3.6; $\eta^2=0.11$, $P<0.001$).

3.2. The impact of forests on quality of life

A second research theme was the perception of local people regarding the contribution of forests to quality of life. Therefore, a factor analysis on the Forest Impact items was performed, similar to the procedure with the Quality of Life items. This factor analysis produced three factors, explaining 62% of the total variance (Table 3).

The three factors representing the underlying Forest Impact dimensions are characterised as follows:

- ‘*Forests are beneficial*’, forests are perceived as providing good incomes and employment for local people, creating a landscape which is characteristically different from other places, of importance for their historical or cultural value, for protection of air, water and soil, and for the improvement of local area attractiveness.
- ‘*Forests are harmful*’, it is perceived that forests are here against the wishes of local people, create a sense of isolation between neighbours, deteriorate the beauty of the landscape, and are a threat for other land use activities such as farming.
- ‘*Forests have nothing to offer*’, forests are perceived as being very poor in terms of the variety of plants and animals, and provide very few opportunities for recreation and sports.

Apparently, respondents can clearly differentiate between the positive, negative or neutral contributions of forests to local quality of life. To assess the extent to which local people are in fact in favour of or against forests in their locality, in terms of the original disagreement-agreement scale, we have again calculated the weighted sum score. Generally, the ‘forests are beneficial’ dimension was judged positively (mean=3.6) with only one in ten respondents disagreeing with it (score <2.7). There is general disagreement that ‘forests are harmful’ (mean=2.0) with only 5% of all the respondents agreeing with it (score >3.3). While people generally tend to disagree that ‘forests have nothing to offer’ (mean=2.6), some 20% of all the respondents do agree.

Table 3
Factor analysis components in forest impact items (only scores higher than 0.20 are included)

Forest Impact items	Forests are harmful	Forests are beneficial	Forests have nothing to offer
<i>Forests in this locality...</i>			
Are here against the wishes of local people	0.82		
Create a sense of isolation between neighbours	0.80		
Deteriorate the beauty of the landscape	0.76		0.28
Are a threat for other land use activities such as farming	0.74		
Provide good employment for local people		0.78	
Provide good incomes for local people	0.28	0.73	
Are of important historical or cultural value		0.69	
Have created a landscape characteristic different	−0.29	0.67	
Significantly improve the attractiveness of living here	−0.40	0.61	
Protect our air, water and soil	−0.45	0.56	
Provide very few opportunities for recreation and sports			0.85
Are very poor in terms of the variety of plants and animals	0.38		0.70
% of variance (total 62%)	33.6	18.9	9.4

Regarding the area specificity of these perceived forest contributions to quality of life, in the first instance it is striking to observe that the negative aspects of forests are mostly felt in the Atlantic countries and in the afforestation areas, whereas the beneficial aspects of forests are expressed especially in the Central European (to a lesser extent HU) and Mediterranean countries and in the traditional forest areas. It appears that the shorter the forest history of an area the less benefits are perceived by locals. The longer the forestry tradition, the more that

forestry is perceived as positive (Elands and O'Leary, 2002).

3.3. Local perspectives on the future of rural areas and the role of forests in it

Opinions on rural development in essence concern perspectives on possible futures for rural areas. The ways in which a rural locality could develop is highly dependent on the commitment of the people who have an interest in it. Consequently, the study included a set

Table 4
Most preferred future rural development options in order of decreasing importance (at most three options could be ticked, % that ticked option; weighted for different sample sizes; $N=6949$)

In this locality in the future there could be an increase in...	N	%
1. Employment opportunities	3380	49
2. Organic farming	2875	41
3. The availability of services	2318	33
4. Numbers of visiting tourists	2007	29
5. Scenic beauty of landscape	1770	26
6. The amount of nature and wildlife areas	1698	24
7. Strength of bond/friendship between neighbours	1665	24
8. Industrial activities	1624	23
9. Intensive factory farming	1590	23
10. The amount of forests	1354	20
11. Built-up areas	828	12

of questions on what kind of future the respondents would prefer for their locality. They could tick a maximum of three future alternatives from a list of 11 options. The results (Table 4) indicate that the most preferred future development concern an increase in employment opportunities and organic farming. Besides, an increase in services and visiting tourists is considered to be important as well. An increase in the amount of forests scored only in tenth place, however, and is requested by a minority of one-fifth of the total sample.

In order to determine whether the wish for specific rural development options may be related to a desire for more forests, correlations were calculated at both the European and individual case study area level. The results indicate that forests are primarily positively associated with ecological (increase in amount of nature and wildlife, improved landscape) and environmental (e.g. increase in organic farming) options and negatively with economic options (such as increase in employment, industry, intensive factory farming and tourism). Furthermore, people do not connect forests to strong community feelings. Only 6% of the respondents expressed a wish for a future in which forests and economy are jointly, not necessarily integratively, developed.

Keeping the low priority for more forests in mind, there are yet a number of significant differences

between the research areas ($P < 0.001$, $N = 6949$). People in afforestation areas are more likely to prefer an increase in the forest area compared to those in traditional forest areas (23% vs. 17%; Cramer's $V = 0.07$). The respondents in Hungary and the Netherlands would prefer more forests than the respondents in other countries (39% vs. 30%; Cramer's $V = 0.23$). Regarding the rural area typology, it appears that respondents from diversified rural areas have a greater desire for more forests than respondents from the other rural areas (28% vs. 16%; Cramer's $V = 0.16$). Respondents from urbanised rural areas would most prefer nature and wildlife areas (37% vs. 20%, Cramer's $V = 0.17$) and greater scenic beauty (33% vs. 23%, Cramer's $V = 0.08$) as future development trends.

4. Regional differences

As discussed above, several regional differences in the opinions of people regarding rural conditions and futures and the role of forests in it were found. Such differences did not only relate to differences in rurality conditions, but also to differences in country or regional conditions. In order to obtain a more in-depth understanding of the regional differentiation, a more elaborated statistical analysis was made. The central

Table 5

Discriminant functions for case study areas ($K=16$) predicted by Quality of Life and Forest Impact factorial dimensions (standardised canonical discriminant function coefficients)

Contributing Quality of Life and Forest Impact factors	Discriminant function			
	Marginality	Forests are harmful for rurality	Forests have nothing to offer in degraded yet well serviced areas	Beneficial role of forests moderately supports developed and well serviced areas
Over-development	-0.810	-0.163	0.029	0.378
Nature and landscape quality	0.074	-0.157	-0.670	0.248
Rurality	0.341	0.403	-0.010	0.149
Services	-0.011	-0.198	0.624	0.385
Weak economy-top down development	0.796	0.036	-0.016	0.326
Forests are harmful	-0.029	0.775	0.075	0.260
Forests are beneficial	0.121	-0.344	-0.060	0.434
Forests have nothing to offer	0.103	-0.295	0.438	-0.119
% of variance (total 87%)	33.4	24.1	18.2	11.0

question in this analysis was whether particular combinations of Quality of Life and Forest Impact factors are able to predict differences between the 16 case study areas. The discriminant analysis that was set-up to research this question revealed eight significant discriminant functions, of which four are used (Table 5) for reasons given in Section 2.4. This analysis of regional differences will be discussed in two parts: the resultant discriminant functions and the graphical presentation of the 16 areas with respect to the distinguished discriminant functions.

The first discriminant function, explaining by and large the most important difference between areas (accounting for 33% of variance between areas), is constituted by rejection of the idea of ‘over-development’ and by an acceptance of the idea of a ‘weak economy and top down development’. As marginalisation, the opposite of over-development, is often associated with a change of land use from a more profitable to a less profitable one (Bethe and Bolsius, 1995), this function was named ‘*marginality*’. Forest Impact dimensions are not included in this function, a result which confirms the findings presented before that forests are regarded by the public in general as being of minor importance to rural development. In the second discriminant function, however, a Forest Impact dimension did make a difference. Remarkably it is the negative perspective of forests being harmful which is statistically related to the Quality of Life dimension ‘rurality’. This discriminant function (24% explained variance) has consequently been termed ‘*forests are harmful for rurality*’. In the third discriminant function areas are characterised on two Quality of Life factors, i.e. a low nature and landscape quality and a good level of services. These aspects are named ‘*degraded yet well serviced*’ in the sense that the locality is perceived as being a non-attractive environment but is, nevertheless, well serviced. Forests do play a role in this function as the Forest Impact factor ‘forests have nothing to offer’ is linked to it. This implies that areas are differentiated by the opinion as to whether the existing or new forests offer a lot opportunities for recreation, sports and biodiversity or not. This function (18% explained variance) is called ‘*forests have nothing to offer in degraded yet well serviced areas*’. A beneficial evaluation of forests at last comes only in the fourth discriminant function. In this function (11% explained variance) the positive

role of forests is moderately linked to the issues of good services and over-development. Consequently, this function is named ‘*beneficial role of forests moderately supports developed and well serviced areas*’.

In Figs. 1 and 2, the positions occupied by individual areas on the four distinguished discriminant functions are depicted. Fig. 1 represents the functions ‘marginality’ and ‘forests are harmful for rurality’, whereas Fig. 2 portrays the functions ‘forests have nothing to offer in degraded yet well serviced areas’ and ‘beneficial role of forests moderately supports developed and well serviced areas’. It should be remembered, of course, that the positions of areas only present relative discriminant function scores and not absolute scores, as is the case of weighted sum score which refers to the original disagreement-agreement scale.

When referring to Fig. 1, it is important to bear in mind that in general the Quality of Life dimension ‘over-development’ is rejected and both ‘weak economy and top down development’ and ‘rurality’ are accepted as characteristics of an area. Furthermore, the Forest Impact dimension ‘forests are harmful’ is rejected. Therefore, looking closely at the figure, two observations can be made. Firstly, it is clear that on the marginality axis, the inhabitants of the two areas in both Austria and Greece score in an accepting direction, while inhabitants of the Dutch TR area and the Spanish AF area (both areas with urban characteristics) conversely score in a rejecting direction. Upon closer scrutiny, it appears that ‘decline areas dependent on agriculture’ generally score high on marginality, while the ‘rural areas with urban characteristics’ score lowest. The other three rurality classes score at an intermediate level. Secondly, it can be observed that on the ‘forests are harmful for rurality’ axis a new differentiation between areas emerges. In this grouping a differentiation in Eurozone is apparent. Looking at the vertical axis alone, the Irish AF area distinctly accepts the fact that forests can be harmful for rurality, while the German TR area strongly refuses this function. The effect of the historical dimension of the Euro-zoning becomes even more apparent if one superimposes imaginary diagonals over Fig. 1, running from lower left to upper right. Then it is evident that the Atlantic countries group together on the upper left part of Fig. 1, demonstrating the strongest per-

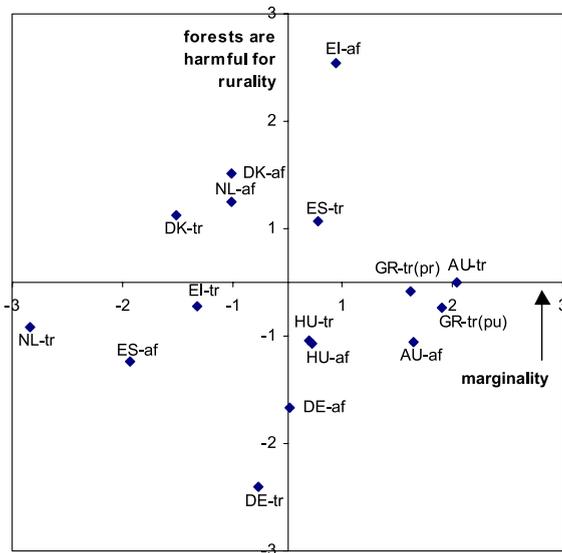


Fig. 1. Means for case study areas (group centroids, $K=16$) on first and second discriminant function ('marginality' and 'forests are harmful for rurality').

ception that forests can be harmful. The countries with a longer forestry tradition group either at the other lower right part (Central European countries with Hungary as an exception on this pattern) or somewhat more to the middle (Mediterranean countries). Looking at the connection between the objective rural area typology and the subjective area perceptions, as established in the discriminant functions, it appears that increasing marginalisation is strongly correlated with increasing remoteness of rural areas (Pearson $r=0.55$; $P_{2\text{-tailed}} < 0.001$). Having in mind the connection between forest history, as established in the Eurozones, and the discriminant function 'forests are harmful for rurality', it can be further concluded that increasing agreement that forests can be harmful increases with shorter forest history (Pearson $r=-0.45$; $P_{2\text{-tailed}} < 0.001$).

In Fig. 2, the positions that individual areas have on the third and fourth discriminant functions appear to be connected with the distinction between traditional and afforestation classification (Pearson $r=0.25$ and -0.29 ; $P_{2\text{-tailed}} < 0.001$). While keeping in mind again that in general people reject the opinion that 'forests have nothing to offer' and are satisfied about 'nature and landscape quality', 'serv-

ices' and 'beneficial role of forests', Fig. 2 shows that afforestation areas are more represented on the accepting side of the function 'forests have nothing to offer in degraded yet well serviced areas'. Especially people from the Hungarian and Dutch afforestation areas agree more often with this discriminant function. One exception on this pattern is the Greek private owned traditional forest area Kolindros where, despite the fact that locals are of the opinion their area has a high nature and landscape quality, forests hardly contribute to biodiversity and opportunities for recreation and sports. The Spanish and Austrian traditional forest areas, on the contrary, refute the idea that the local forests have nothing to offer and that their area has a low nature and landscape quality. Next, traditional forest areas are also mostly found on the more accepting side of the function 'beneficial role of forests moderately supports a developed and serviced areas'. It should be noted that the 'forest are beneficial' factor refers to the fact that forests improve the local economy, the attractiveness of the area for living, and the nature and landscape quality. It seems as if people in afforestation areas hardly expect that forests can

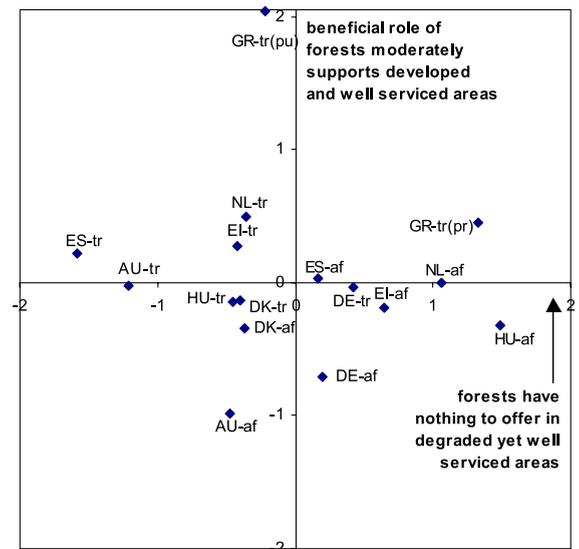


Fig. 2. Means for case study areas (group centroids, $K=16$) on third and fourth discriminant function ('forests have nothing to offer in degraded yet well serviced areas' and 'beneficial role of forests moderately supports developed and well serviced areas').

function as a catalyst for further development or improve services in their area.

Having already established the future development preferences of the respondents, it is interesting to consider to what extent the main types of area qualifications influence the perceptions as to how an area could develop in the future. It can be concluded that the more agreement there is on ‘marginality’ and ‘forests can be harmful for rurality’, the more people prefer economic development (increase in employment, industrial activities, intensive factory, farming, tourism) and the less they wish for ecological development (increase in nature and wildlife areas, the amount of forests, scenic beauty of landscape). However, areas differ in their preferred type of economic development. Whereas marginalised areas are in favour of a restructuring of the rural economy into more environmentally friendly or soft forms of land use (tourism, organic farming), areas that state that ‘forests can be harmful for rurality’ are more in favour of a traditional approach of agricultural modernisation (intensive factory farming, industrial activities). Regarding the third discriminant function ‘forests have nothing to offer in degraded yet well serviced areas’, it is remarkable to observe that people taking this view still express a preference for an increase in the amount of forests in the future. It is not that people do not like forests at all, however. It is just that they oppose the way the present forests have been established with little interest in community benefits, landscape identity and environmental quality (Elands et al., 2001). If the discriminant function ‘beneficial role of forests moderately sustains developed and serviced areas’ is adhered to, people do not have particular ideas about the future development of their localities, except that they do not wish for an increase in the availability of services. Thus the discriminant functions are useful not only in explaining current perceptions of rural areas but also in interpreting preferred future development trends.

5. Conclusions

The data presented in this paper make it clear that rural Europe is highly diversified. Concepts of rural and forests are not easy to define, as people give it

meaning within their own frame of reference. The quality of life and forest impact dimensions revealed in this study indicate in which terms people define quality of life in their rural area and the role of forests in it. Next, it was considered how combined opinions on the quality of life and impact of forests differentiate the research areas.

With respect to quality of life dimensions, it was found that inhabitants predominantly define their localities in terms of marginality—the degree of over- and underdevelopment and strong and weak economy) and degraded yet well serviced—the availability of services combined with nature and landscape quality). These two sets of perspectives reflect the perceived strengths and weaknesses of an area, are related to different opinions on the role of forests for fostering rural development, and reflect two different dimensions of rural condition. The marginality perspective was related to a socio-economic and land-use characterisation of different types of rurality (rural area typology), whereas the degraded yet well serviced perspective is preliminary related to the distinction in traditional and afforestation areas.

Many rural inhabitants are very positive about their local forests. However, apart from the beneficial role of forests, people also see disadvantages that are related to landscape identity, respect for local wishes, threat for other land uses, few recreation opportunities and low biodiversity. In general, people from afforestation areas, especially those that are in decline, as well as Atlantic countries are more negative about forests than people from traditional forest areas, Central European and Mediterranean countries and urbanised and remote areas. It seems that the longer the forest history of an area, the more benefits that are perceived by local people.

If forestry has a role to play in rural development, it cannot be developed independently of the self-definition of rural areas. The study indicates that forests are mostly perceived by people from rural areas within the perspective of nature and landscape quality and less as an economic activity or carrier of services. Future forest policy at a European level, therefore, should continue to focus attention on the non-material benefits of forests for rural areas. Up to now afforestation programmes are mostly aimed at reducing

agricultural production and enhancing the economic viability of and quality of life in rural areas. It is ironic, therefore, that forestry is regarded in some rural locations as a threat to rurality and of little economic importance. These areas are predominantly found in the Atlantic countries, and more specifically in afforestation areas. Forests in these countries and areas are not as deeply rooted in local history and culture as in the Mediterranean and Central European countries and traditional forest areas. Policy makers should take a very close look at those areas where forests are perceived as a threat and identify means to reassure local anxiety and tension. Such perceptions are not necessarily related to the forest per se, but rather to the prevailing conditions of forest ownership and access (Le Floch and Deuffic, 2002) or the manner in which they have up to recently been developed mostly by ‘outsiders’ with little meaningful consultation (O’Leary and McCormack, 2000). In rural locations where forests are perceived as harmful or of little use, forestry policies and strategies should pay particular attention to the needs and expectations of local communities and let local people participate in decision-making regarding the use and management of forests.

Many policies considering the role of forests in rural development mainly focus on the potential for reforestation of abandoned agricultural lands. With regards to this option, the study showed that local communities do not prioritise this option (O’Leary and Elands, 2002). Employment creation and increase in innovative land use activities, such as organic farming and tourism, are considered to be much more important than an increase in forest area. Forests are predominantly mentioned within an ecological development discourse (nature, wildlife and landscape), which operates mainly within rural areas with urban characteristics and areas that define themselves as prosperous (‘not-marginal’) and to a smaller extent in diversified rural areas and growth rural areas. This implies that future forest policy should not only focus on remote areas where forests still are conceived as having an important productive role (Hyttinen et al., 2000). The policies should also concentrate on an integrated development of forests within nature and landscape. In particular, those people in areas near urban centres and those that are functioning as regional

centres have a quest for these type of forests, in turn increasingly rendering ‘forestry’ an urban forestry issue rather than a rural forestry one. This finding gives credence and support for programmes and measures where forests are developed explicitly in response to the needs of an increasingly an urban society (Konijnendijk, 1999).

These results justify the conclusion that the differences between the selected areas are based primarily upon general Quality of Life aspects as perceived by respondents, rather than by Forest Impact aspects. Secondly, where forests do come into the picture, it is their negative valuation that makes the difference, even though forests are generally positively valued. Most people do not regard forestry as a major future development option, principally due to negative association with, for example, employment opportunities, industrial activities and strength of bond and friendship between neighbours. The differences between areas are related to the prevailing rurality conditions as well as local forest history. These regional differences are not well-expressed by characterisation on the basis of statistical data about the status of the traditional forestry sector (Niskanen and Lin, 2001). As indicated by our findings, forests are foremost valued in relation to their perceived contribution to the rural identity rather than in relation to their rural production and income generation capacity. Moreover, forest-derived incomes are increasingly obtained outside the traditional forestry sector, e.g. in the tourist and recreation sector or in the real estate sector. This indicates the need for further attention to classifying regional forestry conditions on the basis of the multifunctional roles of forests rather than on the traditional timber production role.

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