

**THE DADIA–LEFKIMI–SOUFLI FOREST NATIONAL PARK, GREECE:  
BIODIVERSITY, MANAGEMENT AND CONSERVATION**

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# The contribution of social science research to the management of the Dadia Forest Reserve: nature's face in society's mirror

Tasos Hovardas

The creation of the Dadia Forest Reserve (and later the Dadia–Lefkimi–Soufli Forest National Park) has provided an excellent opportunity to investigate social change under the implementation of an alternative rural development strategy based on environmental conservation coupled with ecotourism development. Given the diffusion of the environmental conservation discourse in the local community, the main aim of social research in Dadia has been to track changes in rural belief systems and describe the social mechanism responsible for these changes. This paper is based on the theory of social representations and uses content analysis of newspaper articles and data from in-depth interviews. It builds on social influence theory as a basic inventory to investigate social dynamics in Dadia village and to examine rural belief systems. Despite reservations towards the implementation of environmental conservation measures that may still remain, residents in Dadia have largely endorsed ecotourism. However, the mixed-motive approach and the coexistence of both criticism and justification of the supplementary feeding of vultures, highlight the complexity in the accounts of local residents.

**Keywords:** Ecotourism, protected area residents, rural belief systems, social influence mechanisms, social representations

## Introduction – the Dadia Forest Reserve as a case study

Rural communities have always been a crucial factor in the construction of nature both as 'place' and as mental representation. Dadia is an excellent example of the reciprocal relationship between society and nature: much of the remarkable diversity of the protected area's landscapes is a result of long-term human presence, namely logging, agriculture, and grazing. The very name Dadia is related to the pine tree; 'δαδί' stands for pinewood torch. The forest has always been the main source of life for local inhabitants and has helped maintain Dadia as a vibrant community with a constant population and a significant percentage of young people remaining in their village. Such social features are not at all characteristic of the Evros Prefecture. As in many other European and Mediterranean rural areas residents have a main occupation, but are involved in at least one other additional activity, which supplements their income

(Hovardas 1999). Multiple job holding or 'pluriactivity' is common in mountainous areas of the Greek countryside, where fields are not large enough to sustain locals financially. Besides primary sector activities, new forms of occupation in the services sector (e.g. fire brigade, border police force) help to sustain this system of pluriactivity.

The establishment of the protected area in 1980 stood in sharp contradistinction to a main source of local employment, logging. Indeed, the abolishment of forestry in the cores of the protected area has been the primary source of local reaction. This negative stance gradually shifted to an acceptance of environmental conservation; among other reasons, economic expectations associated with ecotourism development were responsible for this shift (Hovardas and Stamou 2006a). Ecotourism was developed in Dadia to compensate local residents for income lost due to the implementation of environmental conservation measures. The Vulture Feeding Table in Dadia, which was established in 1987 in the protected

area's core zone to provide supplemental food for vultures, serves as the 'hotspot' of the ecotourism activity; it is from the Watching Hide that visitors can watch vulture species feeding on carcasses. Given the potential of wildlife viewing, Dadia recently hosted more than 50,000 visitors in one year.

The Black Vulture is the flagship species of the reserve. The gradual retreat of domestic stockbreeding and the burial of dead animals because of hygienic regulations reduced the vultures' food sources. Moreover, the use of poisoned baits for controlling so-called vermin caused the death of several birds due to secondary poisoning. In 1979, the local population of Black Vultures had decreased dramatically to just 25 birds, but conservation measures applied since 1980 have led to the recovery of the population. At the same time, environmental conservation was introduced into the local community as a specific type of discourse built around the notion of 'endangered species'. This discourse diffused within the rural society through the mediating influence of locals employed at the Ecotourist Centre established 1 km outside the village of Dadia.

According to WWF-Greece (2000), ecotourism is expected not simply to give an alternative developmental boost to the local economy but also to reinforce the stability of local population numbers, coherence of the social web, and maintenance of the local culture. Since the 1990s, WWF-Greece has launched a series of campaigns to raise the environmental awareness of locals. The pride expressed nowadays by almost all local people in Dadia is primarily attributed to the fact that their place of residence features as a raptor biodiversity hotspot as well as being one of the last remaining reserves of the Black Vulture in Europe.

The Dadia Forest Reserve constitutes an exemplary case for investigating social change under the implementation of an alternative rural development strategy based on environmental conservation, coupled with ecotourism development. Dadia represents a simple social system in which conservation and ecotourism converge on a single village, which exhibited a coherent social web prior to ecotourism development; subsequently the local community has been engaged in ecotourism development through a buffet, a shop with souvenirs, books and local products, and a guest house, all managed by the local municipality. From 1994 to 2004 WWF-Greece gradually handed over the management of the Ecotourism scheme and the visitors' Information Centre to the Dadia Municipal Enterprise and the National Park's Management Agency, respectively (Svoronou and Holden 2005). Dadia is the foremost among several

cases of areas in Greece involving an organized set of ecotourism activities.

## **Overview and methodology**

Given the diffusion of the environmental conservation discourse in the local community, the main aim of social research in Dadia should be to track changes in rural belief systems and to describe the social mechanism responsible for expected changes. In addition, with rural belief systems in transition, how do locals negotiate their participation in decision-making processes concerning environmental management? A core question should also be whether the attitude shift of rural residents is restricted to a narrow set of topics based on expected economic gains due to ecotourism development or if it further involves any quality-of-life issues usually included in environmentalist accounts. To address these questions, this review of social science research in Dadia consists of an investigation of how local newspaper articles frame environmental policy, an introduction to social influence theory as a basic inventory to investigate social dynamics in Dadia, and the examination of rural belief systems.

The core theoretical notion throughout the review, 'representation', is used as outlined in the theory of social representations (Moscovici 1984). A 'social representation' is defined as the elaborating of a social object by a social group for the purpose of communicating and behaving. A social object is any material or symbolic entity, to which people attribute certain characteristics, and therefore are able to talk about. Since social representations are considered to be the result of symbolic coping at the collective level, they are regarded as sets of belief-system elements that serve declarative, instrumental and explanatory functions (Hovardas and Stamou 2006a). Studying social representations involves two types of reconstruction: the structural reconstruction aims at determining compartments that shape respondents' cognitive schemata; the narrative reconstruction aims at establishing interrelations between compartments.

## **Time trends – content analysis of local newspaper articles**

Local media have been characterized as highly visible agents of societal processes that guide public opinion (Nicodemus 2004). Previous research has shown how local media can concentrate on selected aspects of an issue and create 'frames' that produce meaning (Besley

and Shanahan 2004). Given that the content of local newspaper articles reflects environmental policy framing, one can trace the trajectory of frames over different time periods and topics by analysing newspaper content. Hovardas and Korfiatis (2008) followed the press clipping stored in the archives of the local office of WWF-Greece in Dadia and examined 100 articles from the newspaper GNOMI, which were selected randomly out of a total of about 1000 items published from 1985 to 2004. This time range represents three subsequent periods of ecotourism development in Dadia: 1985–1996, construction of basic infrastructure (31 items); 1997–2000, extension of existing infrastructure to cover increasing demand (38 items); 2001–2004, construction or provision of new infrastructure (31 items).

The newspaper 'GNOMI' is located in Alexandroupoli, the regional centre of the Evros Prefecture. With a circulation of about 7000 all over the prefecture it is the most prominent daily newspaper in the region. It has consistently followed the various initiatives launched in the protected area. Selected items were classified into three topics, namely ecotourism development (27 items), environmental management (46 items), and environmental awareness (27 items). Article size (word count) and position (front page, special issue included in the main body of the newspaper, article) were recorded. The following content analysis made use of a pre-determined coding scheme (prescriptions of content analysis are described in detail by Hovardas and Korfiatis 2008).

The first period of ecotourism development was biased towards environmentalist motives, while in the second period social consensus seems to have been established; in the third period, the local community was the most often cited social actor (Table 1).

Time trends reflected the change in environmental policy from an expert-led approach towards a more participatory approach: the initial environmental conservation rhetoric lost weight in favour of a more balanced environmental policy scheme. Gradually, the balance of the environmental policy scheme expressed itself in the joined consideration of environmental and economic motives, which could have enabled the establishment of public consensus. The framing of environmental policy by the local press reflected a diffusion of major messages of the ecotourism development and environmental conservation discourse in newspaper articles.

Taken as a whole, there was a clear separation of environmentalist motives, which were concentrated in the first period and the environmental management topic, and economic motives, which were mainly found in articles of the second period, and the ecotourism topic. This separation indicates that social consensus was driven by economic expectations of locals due to ecotourism, which was not accompanied by a wider spectrum of pro-environmental beliefs. Indeed, the local press did not make any reference to possible adverse effects of ecotourism development in case the natural or social carrying capacity of the study area was overridden; such reservations are typical in texts concerning prescriptions for ecotourism development in the Dadia Forest Reserve (e.g. WWF-Greece 2000).

## The conversion of the majority

In the previous section we traced the dynamics of environmental policy framing over a period of more than two decades; we also followed how different topics focused on different representational elements and involved dif-

Table 1. Reconstruction of newspaper articles per ecotourism development period and article topic. The Table summarizes data presented by Hovardas and Korfiatis (2008).

Period	Topic
<ul style="list-style-type: none"> <li>The <i>first period</i> had an environmental focus, a win-lose perspective, an emphasis on negative effects of human intervention, scientific knowledge, and intrinsic valuation; society as a whole featured among stakeholders and biota/systems among beneficiaries</li> <li>The <i>second period</i> presented open inter- and intra-group stakeholder composition, high initial consensus, accepted agendas, not expected disagreement and supported implementation of measures; this period revealed a win-win interplay under the hedonist narrative and a predominance of the scientific community among stakeholders</li> <li>In the <i>third period</i>, the local community was the most cited social actor among stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>The <i>ecotourism</i> topic was predominantly connected to economic motives, positive human impacts, a win-win interplay, and the utilitarian discourse; the local community featured among beneficiaries</li> <li>Articles on <i>environmental management</i> had a win-lose perspective and stressed biophobic depictions of nature; the nature conservation narrative dominated this topic, which included all references to intrinsic valuation and concentrated on biota/systems as beneficiaries</li> <li>The primary function of articles on <i>environmental awareness</i> proved to be the introduction of the international scale</li> </ul>

ferent narrations. Although the local press should not be regarded as an unmediated reflection of local perceptions, we should consider the degree to which analogous frames could be unraveled in local belief systems. However, before coming to an appraisal of local views, we should search for a social mechanism able to act as the intervening agent. Ideas, just like forests, do not simply ‘change’. Indeed, the case of Dadia provides once more an illuminating example; it allows us to go into detail about the way institutional change can reinforce social change and vice versa.

According to the theory of social influence (Moscovici 1980) both social majorities and minorities are capable of enhancing social change. The effect of compliance mechanisms induced by a majority is usually readily traceable, while minority influence is of a radically different kind: responses to minority messages are characterized by great cognitive flexibility. Attempts at validation lead majority members to discover new dimensions of the problem and to understand the issue in new ways. Ultimately, these unintended cognitive consequences increase the susceptibility of the majority to the minority position. If the minority persists over time, majority members may begin to question their own views and may be stimulated to ponder the minority position in a process called ‘conversion.’

How does the theory of social influence relate to our case? The environmental management regime in Dadia constituted a minority comprised of WWF-Greece employees and local people working at the Ecotourism Centre, which helped the environmental conservation discourse to diffuse within the local community. This minority has been the receiver of all local criticism to the regime imposed since 1980 upon locals in an expert-led, top-down process. On this larger scale, the local community holds a minority status against the state. It is quite interesting to imagine that it was mostly due to the reaction of local communities all over the globe that the necessity of so called local participation is today so widely recognized.

Taken together, the whole picture portrays the local community in a double system of social influence (Fig. 1): as a majority, it is exposed to the minority influence of WWF-Greece employees and local people working at the Ecotourist Centre; as a minority, the local community itself exerts minority influence on state advocates of the exclusionary environmental conservation paradigm that prevailed during the 1980s. This double system of social influence can explain much of the local community’s gradual acceptance of the environmental management regime as well as the acknowledgement on the part

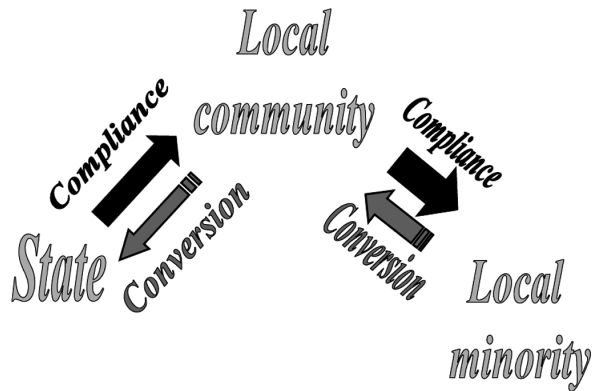


Fig. 1. Social influence mechanisms.

of state officials and managing authorities of the need to establish a participatory decision-making system. This complexity is increased by another dimension: the local minority is transmitting a message largely compatible with the one of the large-scale majority; that is, the local minority enables the diffusion of the environmentalist discourse in Dadia, which was launched as a state initiative. This renders the local minority a mediator between the state and Dadia.

There are many characteristics of this complex social system in Dadia, which allowed for a substantial increase in the minority influence. First, local minority members were recruited on the basis of their occupation, which allowed minority influence to persist over time. Moreover, local community members working at the Ecotourism Centre can be seen as an in-group minority, while WWF-Greece employees comprise an out-group minority. Staying for many years in Dadia and even choosing Dadia as their place of residence, WWF-Greece employees gradually managed to move from out-group to in-group minority status, which decreased tension and increased the effect of minority influence. Further, volunteers and scientists supported the local minority in gaining salience and increased the perceived heterogeneity in views among minority members, which also contributed to reducing tension. Finally, the scientific status of the message transmitted by the minority enabled the distinction of minority members from their beliefs. This distinction also added to the effect of minority influence.

In a series of interviews conducted with local residents in Dadia (see below), dissimilarities eventually became apparent despite locals’ first attempts to underemphasize differences between the majority and the local in-group minority occupied at the Ecotourism Centre: those who work at the Ecotourism Centre were said to know

more about the nature of the protected area and about environmental conservation. They became much more familiarized with eco-tourists, which led to a wholly different way of conduct. However, being employed at the Ecotourism Centre was not necessarily accompanied by a total shift in attitude and behaviour patterns; old habits, such as hunting, could remain alongside with working in a local ecotourism enterprise.

Social group membership presupposes the recognition of the self as part of the group as well as the existence of a core motive that signifies the coherence of the group. Local people in Dadia see themselves as guardians of the forest, which is expressed during forest fire incidents: locals can themselves guarantee the protection of the forest from fires, where they can outperform both foresters and the fire brigades. Everybody in Dadia is ready to help to put out a fire whenever this is requested, since everybody's life depends on the forest. On the other hand, by highlighting some 'stubborn' people among locals (portrayed as old residents who still hold negative attitudes towards the current environmental management regime) employees at the Ecotourism Centre actually claim the shift in local attitudes towards environmental conservation measures part of their identity.

## Local views on environmental conservation and ecotourism development

In this section we will follow local views on a number of interrelated fields, namely response to the environmental management regime, representations on vulture diet supplement, representations on 'nature', 'wildlife' and 'landscape' as key features of the rural space, environmental values, the aesthetics of the ecotourism experience, and residents' intention to contribute to ecotourism development. Data collection involved in-depth interviews with rural residents of Dadia. In total,

30 in-depth interviews were conducted from May 2001 to May 2002. Interviewees were selected after suggestions made by locals employed by WWF-Greece and by other residents. Residents of different main occupations were selected, namely loggers, farmers, stockbreeders, and employees working at the Ecotourism Centre.

When the first few interviews were completed, a quite interesting outcome was that different ways of conduct or differences in principal dimensions of social identity between majority and minority members were not accompanied by an analogous difference in views on environmental conservation and ecotourism development; belief-system elements were surprisingly homogenized within the local community. One major reason could be held responsible for this homogeneity: pluriactivity seems to function as a buffer that sharply reduces heterogeneity in local attitudes. The latter point had significant methodological implications: the method we applied recognized regularities in residents' accounts at a macro-sociological level; that is, data analysis aimed at reproducing general interpretative practices. Interviewees' replies were clustered according to corresponding interview questions and topics revealed by the interaction between the interviewer and interviewees. A detailed account of data selection and analysis can be found in Hovardas and Stamou (2006a).

## Response to the environmental management regime

The interplay between environmental and economic motives were coded as win-lose, win-win or mixed-motive (Hoffman et al. 1999); the latter differs from win-win and win-lose in that it facilitates mutual gain solutions for both environmental and economic concerns while at the same time it acknowledges the distributive aspects. Respondents' critical response to the environmental management regime adhered to such a mixed-motive perspective (Table 2). Environmental conservation gains

Table 2. Residents' mixed-motive approach to the environmental conservation versus economic development controversy.

	Economic development	Environmental conservation
Mutual gain	Creating forest clearings would provide significant additional income for local loggers	<ul style="list-style-type: none"> <li>• Forest clearings in core areas would severely decrease the probability of a forest fire</li> <li>• Forest clearings would enable raptors to find their prey much easier</li> </ul>
Distributive aspects	<ul style="list-style-type: none"> <li>• Trees to be cut should be selected on biodiversity conservation criteria</li> <li>• Extensive reforestation programs should be banned</li> </ul>	Investment in ecotourism should be enhanced as a supplementary source of revenue for locals

and distributive aspects of economic development were more prominent in interview accounts than other elements in locals’ mixed-motive perspective. This might imply the conversion of locals as a majority exposed to the influence of the local minority. Looking at the local community as a minority, the mixed-motive perspective in total comprises a move from the win-lose approach of the past (strong local reaction against environmental conservation) to a more flexible minority position in order for locals to be able to negotiate.

### Representations on vulture diet supplementation

In order to investigate representations on vulture diet supplementation, respondents were asked whether vultures could still be held as ‘wildlife’, as long as food supplements were provided to them. Critical approaches coexisted with efforts to justify vultures’ food supplements with regard to all three topics that arose, namely vultures as wildlife, reference of place, and spectacle (Table 3). Once again, criticism and justification of vulture food supplementation were not distributed unequally between majority and minority members; instead, they existed as polarization within individual interview accounts. It is extremely important to underline that locals perceived the population of vultures as either coming or leaving; there was no account of increasing or decreasing population density, i.e. no comprehension of basic demographics of population ecology. This finding raises significant implications concerning the confrontation with local understanding deficit on viable population sizes, which actually has been the focus of all conservation initiatives in Dadia.

### Representations on ‘nature’, ‘wildlife’, and ‘landscape’

The terms ‘nature’, ‘wildlife’, and ‘landscape’ are considered among the ones that directly imply the ‘rural’ (Hal-

facree 1995, Buller 2004). Residents’ accounts on these three social objects would apparently provide a comprehensive spectrum of their rural belief-system elements. The findings show that residents’ accounts contain elements of both rural and urban belief systems (Table 4). The former comprise for instance religiosity (‘nature’ as divine), the classification of species into harmful and harmless (e.g. snakes versus vultures) and the non-dualistic description of the relationship between nature and society in presenting the anthropogenic system of ‘landscape’. The elements of urban belief systems primarily involved nature’s perceived ‘independence’ (nature as ‘Arcadia’), which fosters a dualistic approach to the interrelation between nature and society.

This apparent contradiction (i.e. a non-dualistic approach next to a dualistic one) should be viewed as a prerequisite for establishing a perceptual continuum from ‘independent’ nature through the countryside to the urban setting. ‘Arcadia’ renders nature an exhibit to be visually consumed, since it is only visually that one can appreciate ‘independent’ nature. That is why residents strive to absolve “kartalia” (locally meaning “all large birds of prey and vultures”) – which now comprise the main tourist attraction of the reserve – of every possible negative attribute by defending the legitimacy of their feeding habits. This version comprises two main representational elements. First, when “kartalia” feed on living prey, they consume nuisance species. Second, vultures are not capable of feeding on big, living animals, as some locals claim.

Elements of an urban origin as well as scientific knowledge recovered within rural residents’ representation of ‘wildlife’ should probably be attributed to the diffusion of environmental conservation discourse in the local community. However, interviewees made no reference to environmental conservation or related quality-of-life issues as expected from relatively wide definitions of the term ‘environmentalism’ (e.g. controlling for poisoned baits as a threat to vulture populations). Environmental

Table 3. Residents’ representations on the vulture food supplementation.

	Critical approach to vulture food supplements	Justification of vulture food supplements
Vultures as wildlife	The notion of ‘wilderness’ cannot stand in the case of human intervention by providing food supplements	The provision of food supplements is necessary because of the significant decrease in livestock
Vultures as reference of place	The Vulture Feeding Table renders vultures the main attraction of Dadia as an ecotourist destination	Vultures can feed elsewhere but will always be nesting in the forest of Dadia
Vultures as spectacle	Wildlife viewing is the most important prerequisite for visitor satisfaction	The concentration of visitors at the Bird Observation Post decreases fire risk



Table 4. Reconstruction of residents' representations on 'nature', 'wildlife', and 'landscape'. The Table summarizes data presented by Hovardas and Stamou (2006a).

	'Nature'	'Wildlife' (vultures)	'Landscape'
Structural reconstruction	<ul style="list-style-type: none"> <li>Nature is a 'divine' and function-oriented source of life, which is depicted as scenery</li> <li>Human absence guarantees the authenticity of nature</li> </ul>	<ul style="list-style-type: none"> <li>Vultures undertake the self-clearing of nature</li> <li>Two different versions of vulture feeding sources; none coincides with the scientific version</li> </ul>	<ul style="list-style-type: none"> <li>Least frequented nature is appreciated as idyllic</li> <li>The rural landscape as an interface between the natural and the human-conditioned environment</li> </ul>
Narrative reconstruction	<ul style="list-style-type: none"> <li>The system of reference is purely natural</li> <li>Nature as 'Arcadia'; metaphor of 'nature in balance' under a biophilic depiction.</li> </ul>	<ul style="list-style-type: none"> <li>Metaphors of 'competition' and 'chain'</li> <li>Scientific knowledge apparently adds to the complexity of the narrative schema</li> </ul>	<ul style="list-style-type: none"> <li>The anthropogenic system corresponds to 'lifeworld'</li> <li>The natural system coincides with the narrative reconstruction of the representation of 'nature'</li> </ul>

messages reinforced by ecotourism development seem to be recalled primarily in terms of their compatibility with the perceived economic benefit of local people. Residents seem to adopt visitors' motives; contacts between members of the local community and eco-tourists could act as a feedback for enhancing the 'Arcadian' version of nature and local people's perceived economic prospects.

### Environmental values

In order to examine rural environmental values, residents were asked whether a tree was more valuable in a forest or in a city. The context of valuing and the corresponding normative content of locals' accounts were identified (Table 5). Two conclusions can be drawn from the analysis of local environmental values. First, the rural setting involved different types of nature's intrinsic value (i.e. 'function', 'health', 'autonomy'), while the urban setting included various types of instrumental value ('scarcity', 'care', 'exchange'). This distinction was based on references to human agency, which was by definition absent in intrinsic valuation and present in instrumental

valuation. Second, no type of instrumental value was attributed to the rural setting; this finding probably reflects the influence of changing land use patterns in the reserve on local belief systems.

### Local perceptions of the aesthetics of the ecotourism experience

Local perceptions of the aesthetics of the ecotourism experience were approached by the questions 'Which is the best season to come to Dadia?' and 'Do you believe that the Black Vulture is a beautiful or an ugly bird?' (Table 6). The structural reconstruction of local accounts revealed different positions as interviews went on. The narrative reconstruction classified residents' accounts in three fields: valuation, sense of place and time frame. Valuation can refer predominantly to either the object or the subject of observation (More et al. 1997). Sense of place can involve permanent (dependence) or temporal (attachment) bonds with place (Jorgensen and Stedman 2001). The time frame can be natural, focusing on linear trends; cultural, characterized by joint references to parallel trajectories of nature and culture; or individu-

Table 5. Contexts of valuing trees in rural and urban settings.

	Rural setting (forest)	Urban setting (city)
Context of valuing		
Abundance	High – valuing is connected to organic wholes in nature; trees obtain value by belonging to forests (function)	Low – valuing is inversely related to rarity; trees are valuable as a scarce natural resource (scarcity)
Developmental potential	High – valuing is based on the potential of an unfolding developmental pattern inherent in nature (health)	Low – valuing is attributed to the need of being taken into care; nature cannot stand on its own (care)
Human intervention	Rejected – valuing is expressed by referring to nature's autonomy, which is lost by human presence (autonomy)	Required – valuing is acquired by enrolling nature in the supply versus demand system of the economy (exchange)

Table 6. Local perceptions of the aesthetics of the ecotourism experience.

Structural reconstruction	Narrative reconstruction		
	Valuation	Sense of place	Time frame
<b>Seasonal delineation</b>			
1. Each season has its own beauty	Object	Permanent (Continuity)	Natural (Linear)
2. Spring is the most beautiful season	Subject	Temporal (Discontinuity)	Cultural (Parallel)
3. Summer should be avoided because of the mosquitoes	Subject	Temporal (Discontinuity)	Individual (Incubated)
<b>Focal species</b>			
1. The Black Vulture is an ugly bird	Object	Permanent (Continuity)	Natural (Linear)
2. The Black Vulture as an object of admiration	Subject	Temporal (Discontinuity)	Cultural (Parallel)
3. An objectively ugly bird can be characterized as beautiful	Subject	Temporal (Discontinuity)	Individual (Incubated)

al, ‘incubated’ time, highlighting personal experiences (Harré et al. 1999).

For both seasonal delineation and the focal species of Dadia, the narrative reconstruction of residents’ accounts demonstrated a shift from rural (residence) to urban (visitation) aesthetics; this shift concerned all modes of narrative reconstruction. Valuation changed from object-oriented accounts to subject-oriented ones; sense of place progressed from permanent (continuity) to temporal (discontinuity) bonds with place; finally, linear (e.g. natural) time turned initially into a parallel (e.g. cultural) frame, and then into incubated (e.g. individual) time.

### Residents’ intention to contribute to ecotourism development

In line with the endogenous development paradigm, ecotourism development is supposed to support local income substantially and to truly act as compensation for restricted primary sector activities only if locals are encouraged to invest in local ecotourism enterprises (WWF-Greece 2000, Minca and Linda 2000). Residents were asked to comment on an apparent contradiction: on the one hand, increasing visitor numbers render ecotourism development an alternative strategy for rural development; on the other, residents prove much more reluctant than expected to invest in private ecotourism enterprises. Indeed, this contradiction was validated by a number of related accounts. For instance, local infrastructure was presented as inadequate to serve

increasing numbers of visitors. Additionally, locals perceived ecotourism as a considerably easier job than primary sector activities such as logging. At the same time, logging was presented as a decreasing percentage of the local income, and subsequently, as a significant determinant of the local identity – young people were not expected to choose logging as their preferred profession. On the other hand, ecotourism gradually gained in both support and importance for the local community. However, all accounts presented working in ecotourism-related jobs as paid labour and not as investment by the local people themselves in ecotourism enterprises. When asked directly why locals were not willing to invest in ecotourism, they stressed the risk related to such investment: first, the initial capital needed was deemed to be extremely high; second, investment in ecotourism required special skills (e.g. speaking foreign languages) that locals lack. None the less, locals believed that gains from such an investment would have been guaranteed by increasing visitor numbers.

An explanation for local residents not cooperating in a conditional investment in ecotourism could be provided by game theory (Table 7). Each individual calculates the perceived gain against the perceived cost; in each case, the individual chooses not to cooperate, since this choice entails no cost and the possible gain is achieved only provided other local community members cooperate (Georgopoulos 2002). The transition from the primary sector towards ecotourism development might have enhanced such an individualized approach. However, residents’ reservations against engaging in ecotourism as

Table 7. Residents' intention to contribute to ecotourism development according to game theory.

		Local community members	
		Will cooperate	Will not cooperate
Individual	Will cooperate	Cost/Gain	Cost/No gain
	Will not cooperate	No cost/Gain	No cost/No gain

a private enterprise could be complemented by another perspective, which gives much more weight to local history and economy. After the establishment of the Dadia Forest Reserve, ecotourism development seems to have enhanced local pluriactivity patterns but only in terms of paid labour (e.g. working at the Ecotourism Centre) and not in terms of private investment in ecotourism, since the former is compatible with pluriactivity while the latter is not. Apart from this, residents were very reluctant to engage in ecotourism for social reasons and the perceived reduction in the quality-of-life associated with private investment in ecotourism. Residents preferred to work for themselves and not for some visitors, while they liked to regulate their working hours on the basis of their personal needs and not in terms of visitor demands. This was the only negative attribute of ecotourism in relation to logging: there have never been any bosses in the latter case. Quite interestingly, quality-of-life issues connected to ecotourism development were confined to the social or personal realm; there was no reservation expressed concerning environmentalist considerations, e.g. the social and natural carrying capacity of Dadia as an ecotourist destination.

## Conclusions

Despite reservations concerning the implementation of environmental conservation measures that may still remain, residents in Dadia largely endorsed ecotourism. Analogous results have been reported from research in other Greek protected areas (Kleftogianni 2003, Korfiatis et al. 2009). However, the mixed-motive approach and the coexistence of criticism and justification of vulture food supplementation highlight the complexity of local residents' accounts. Further, environmental and economic motives never crossed, even though ecotourism development as a sustainable development choice is supposed to integrate those two types of motives: the diffusion of new ideas in Dadia through direct or indirect involvement in ecotourism and participation in environmental education programmes and re-

lated events did not suffice to enhance environmentalist claims among locals. Quality-of-life issues pertain to the social or personal realm and are only discussed in terms of engagement in ecotourism under changing production patterns.

Locals seem to adhere to motivations and aesthetics resembling those of the visitors themselves. Indeed, for Dadia's visitors, the tourism dimension of 'ecotourism' was found to override the environmentalist one (Stamou and Paraskevopoulos 2003, 2004); moreover, the tourism dimension was only loosely interrelated with categories referring to environmentalism (Hovardas and Stamou 2006b). This loose interrelation could be explained by intrinsic characteristics of the representation of the stimulus terms examined, that is, the incompatibility between biophobic depictions of 'environment' on the one hand and biophilic depictions of 'nature' on the other. All the same, the adoption of tourist motives and aesthetics by locals can have significant implications for the perception of rural space, as indicated by the abolishment of any connotation referring to instrumental valuation.

Recent research in Dadia and other Greek protected areas has revealed another type of complexity, namely the one inherent in decision-making processes (Togridou et al. 2006) and environmental policy beliefs of stakeholders engaged in protected-area management (Hovardas and Poirazidis 2007). This complexity should inform a future social science research agenda building on two different dimensions of construction processes: first, the construction of nature as place, and second, the construction of nature as mental representation (Hovardas 2005). For instance, the potential of decentralization to strengthen the position of local communities should not remain unquestioned. On the one hand, multi-stakeholder collaborative arrangements in management bodies may lock local residents into an inferior position: government agencies, private firms, global non-governmental organizations, and other interest groups can set the agenda and limit local people to a mere consultative role. On the other hand, locals' compliance with pre-specified arrangements in environmental policy raises

the issue of supporting policy initiatives in a coincidental way based on economic motives alone, which cannot actually guarantee any consent to long term planning in environmental management.

All stakeholder groups might support changes in the production patterns within protected areas that lead towards the restructuring of the primary sector and the subsequent shift to non-consumptive land uses. However, the motto ‘leave nature untouched’, as well as the version of a ‘pristine nature’ could perpetuate the dualism between the tourism and the environmentalist aspect of ecotourism for local residents in protected areas, for visitors, as well as for environmental managers themselves (Reser and Bentrupperbäumer 2005). To face this dualism, messages promoted through environmental conservation and ecotourism development should focus on interactions between society and nature; for instance, on conservation aims, on monitoring, and on the coexistence and interdependence of local communities and the natural environment (Hovardas and Stamou 2006b). Therefore, justification of conservation and ecotourism should not be confined to mere descriptions of biodiversity within protected areas; instead, it has to address the fact that human interventions are integral to any kind of conservation initiative. The content of the permanent exhibition in the Ecotourism Centre in Dadia highlights man’s history as a decisive element in shaping the nature of the protected area. On the other hand, the natural realm consistently motivated and will surely continue to motivate human societies towards new ways of producing their subsistence, institutions and ideas. This will always be the remarkable interplay of two histories embodied the one into the other.

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