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Conceptual gaps in the national strategy for the implementation of the European Natura 2000 conservation policy in Greece

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ABSTRACT

Greece responded to the Habitats Directive aims, maintaining biodiversity through sustainable natural resource use, by establishing a network of protected areas. In implementing the European conservation policy, 27 management agencies were established in 61 Natura sites. To assess the effectiveness of the Greek state's policy response we conducted 91 semi-structured interviews with state and non-state actors in the Greek conservation policy process. Following a grounded theory approach, we revealed national strategy as compromised by absence of conservation policy history, lack of state capacity, uncommunicated biological knowledge and lack of public participation. This strategy gap became apparent when appraising the decision making process in establishing a network of protected areas in terms of its interrelated activities. In particular, incomplete intelligence, ineffective promotion, irrational prescription and discontinued and non-independent appraisal led to a break down in implementation and to policy failure. Lack of clear goals, and divergences between stated and actual goals led to bureaucratic interpretations of conservation objectives and distortion of decision processes in favour of satisfying economic and development interests. Given the importance of Greek biodiversity and governmental failure to confront this policy hiatus, we argue for specific actions at both member state and European level and, in particular, the formulation of a conservation strategy as an official part of an integrated Greek conservation policy, and the establishment of independent institutions staffed by qualified reviewers to evaluate and monitor member states conservation policies.

1. Introduction

The Habitats Directive (92/43/EEC) is the European Union's (EU) major policy response to the Convention on Biological Diversity, resulting in the establishment of the European Natura 2000 network of protected areas (EC, 2000). Natura 2000 includes Special Areas of Conservation (SACs), and Special Protection Areas (SPAs), based on the Habitats Directive and the Birds Directive, respectively. Member states have obligations to protect Natura sites, even in the absence of explicit EU requirements (EC, 2000; Ledoux et al., 2000).

As designation of areas is nearly completed (EC, 2007), attention is turning towards management, particularly, to assessing whether the Natura 2000 network effectively protects species and habitats (see Martínez et al., 2006; EEA, 2007; Sánchez-Fernández et al., 2008). The Habitats Directive aims to preserve biodiversity through the sustainable use of natural resources and potentially revitalizes decision making

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processes for the establishment or improvement of national networks of protected areas (Maiorano et al., 2007). But at the same time European conservation policy is a highly politicized and complicated process whose effective implementation involves a diversity of contexts within different member states (Hiedanpää, 2002).

This complexity has been problematic despite the increase in the total area of Natura 2000 sites (EEA, 2007). The establishment procedure lags behind originally adopted deadlines (EC, 2004; EC, 2007) and the European Commission has already taken many member states (including Greece) to the European Court of Justice (Paavola, 2003/2004). These problems underline the need for strong strategies at member state level to make European conservation policy a national priority, resisting pressure from rapid development trends (Baldwin and Trombulak, 2007). In Greece, almost five years after the establishment of 27 management agencies for 61 Natura sites, and two years after the definition of the 359 Greek Sites of Community Importance (2006/613/EU), increasing evidence indicates a discrepancy between a facade of conservation commitment, and ecologically sustainable outcomes (WWF, 2007; 2007/C 315/04).

This implementation crisis concerns conservation planning as a whole (Knight et al., 2006) and its investigation and confrontation require both political understanding and will (Johns, 2007). Although conservation policy should be based on scientific knowledge and data, it is a political and social process as well (Brechin et al., 2002; Brosius et al., 2005); and can be characterized as a "tournament of value" with stakeholders competing to advance agendas and negotiate conservation goals (Robertson and Hull, 2001).

Systematic conservation policy research remains limited regarding the establishment procedure for Natura 2000 in member states: in Greece it is virtually neglected. Therefore, it remains to be investigated whether institutional changes driven by the Habitats Directive are sufficient for the conservation of Natura 2000 sites, without the implementation of strong strategies by the member states. We attempt to answer two questions: What factors are responsible for the absence of national strategy? And what effect does this absence have on the decision making process for establishing a Greek network of protected areas, the state's primary strategy for managing Natura sites.

We used a qualitative methodology for in depth exploration (Fischer and Young, 2007) of critical, mostly non-quantifiable features of social processes (Hay, 2000). We adhered to the principles of grounded theory (Glaser and Strauss, 1967; Strauss and Corbin, 1998), an influential and widely used tool in qualitative research (Strauss and Corbin, 1997). Grounded theory rests on the analysis of data systematically collected through research, producing a close relationship between data collected, analysis, and the resulting theory (Strauss and Corbin, 1998).

2. Greek governmental structure for conservation

The Ministry for the Environment, Physical Planning and Public Works (MEPPW) and the Ministry of Agriculture have been principally responsible for the conservation and management of Greek natural areas since 1986. This dual authority is reflected in the coexistence of the forest (L.D. 86/1969 and L.D. 996/1971) and environmental legislation (law 1650/86) for the designation of protected areas. However, since the implementation of the Habitats Directive more powers have been given to the MEPPW, which bears primary responsibility for the Natura 2000 network.

Law 1650/86 followed Greece's entry into the European Union and the incorporation of Directive 79/409 into national law requiring for the first time a Specific Environmental Study for the designation of protected areas. This study should lead to a Common Ministerial Decision signed by the competent Ministers, and finally to a Presidential Decree, validated by the Court of State and signed by the President of the Democracy. Common Ministerial Decisions are transitional instruments lacking the status of the Presidential Decree.

In 1998, the belated harmonization of Directive 92/43 linked the establishing of Natura 2000 with law 1650/86. Greece designated 371 Greek Natura sites, including 163 Special Protection Areas and 239 Special Areas of Conservation (31 sites are both SPAs and SACs), which add up to 3390147 ha. Since 1999 management agencies have been responsible for managing protected areas (Greek law 2742/99). These agencies are autonomous legal institutions accountable to the MEPPW and must consist of an advisory board of representatives of central and local administration, local stakeholders, NGOs and scientists, and have scientific, technical and administrative support. Representatives are proposed by the relevant institutions, but the minister influences their selection, and the overemphasis on political criteria has led to quite diverse management agencies. Whereas management agencies are responsible for planning, management, monitoring and research, the regulation of hunting, fishing, logging and law enforcement, especially for the areas designated under forest legislation, remains linked to the Forest District Offices, under the Ministry of Agriculture.

3. Methods

Grounded theory mainly concerns research questions for which no direct information from previous research is available and therefore does not start with specific theoretical hypotheses (Iosifides, 2006). The facts (i) that the appraisal of European Natura 2000 conservation policy awaits full exploration, and that (ii) in Greece this is a neglected research topic, led us to choose this methodological approach. Prior knowledge that strategy development is not an ongoing process in Greece ruled out the use of analyses based on established theory, such as SWOT analysis (see Dyson, 2004).

Grounded theory, although flexible, has specific procedures for data collection and analysis. The data collection phase involved studying archival material (Greek and European conservation laws, strategies and articles from the Press) and related articles from the scientific literature. Five preliminary in depth interviews were conducted with Greek conservation policy experts. All the information and recommendations gathered were used to develop the interview guide (Table 1). The sample was then selected according to

Table 1 – The original interview guideline showing the analytical procedure leading from the main topics to specific questions.

Main topics	Subtopics	Questions
The linkage between European conservation policy and member state policy	Content of European conservation policy	Express your opinion about the conservation objectives of Habitats Directive and Birds Directive Do you think that member states participate equally in the formation of European conservation policy? Give specific examples
	Implementation of European conservation policy	Which factors do you consider crucial for the successful implementation of Natura 2000 network? Express your opinion about Natura 2000 establishment and implementation procedure in Greece. Compare with other member states
Greek state strategy for the implementation of European Natura 2000 conservation policy	Conservation policy goals	Define the central goal – or goals – of Greek conservation policy Express your opinion about Greek conservation laws (especially forest legislation and environmental laws 1650/86, 3044 and 2742) and their harmonization with European Directives
	Integration of policies	Do you think that the goals of Greek conservation policy are in accordance with other aspects of environmental policy? How have scientific, social and economic conditions been incorporated in the formulation of Greek conservation policy? Define the concept "sustainable development" and its integration into conservation policy
	Selection of Greek protected areas	Express your opinion about the criteria with which Greek protected areas have been selected (from the first national forests until the selection of Greek Natura 2000 sites)
	Governance of protected areas	Express your opinion about the establishment of management agencies. Give specific examples
Appraisal of the decision process for the establishment of a Greek network of protected areas	Content and process of decision making	Which are the main reasons for the establishment of a Greek network of protected areas? How it is associated with existing protected areas? Which criteria would you use to appraise the decision process for the establishment of a Greek network of protected areas? Identify the main problematic issues arising during the decision process Which institutions and/or social groups participate in the decision process? Define their specific influence as well as the influence of your institution
	Outcomes of decision process (in relation to conflicting interests and common interest)	Does Greek decision process clarify and secure the common interests of Greek society? Express your opinion about the distribution/allocation of resources in the Greek decision process
Policy recommendations	Recommendations for conservation policy in: – European level – Member state level	Do you think that something has to change in Greek and European conservation policy? If yes make specific recommendations

the "theoretical sampling" method based on analytical questions and comparisons, pinpointing places or people to maximize the chances of discovering variations among concepts (Strauss and Corbin, 1998). The criterion to cease researching any category was based on "theoretical saturation" (Glaser and Strauss, 1967). We conducted 91 semi-structured interviews with various state and non-state actors in Greek conservation policy (Table 2) between August 2006 and May 2007. Interviews ranged from 90 to 180 minutes and all but one were recorded and extensive fieldwork notes taken.

The data analysis phase was based on coding of three interrelated types: open, axial and selective (Corbin and Strauss, 1990). Coding, initially based on the interview schedule, was continually modified in the light of interviewees' responses and the developing research process (Iosifides and Politidis, 2005).

During open coding we labelled and categorized phenomena as indicated by the empirical data and allocated conceptual names (codes) representing specific concepts. These codes combined conceptualizations of data and in vivo codes,

Table 2 – The sample of interviewees regarding European conservation policy with particular reference to Natura 2000 and its implementation in Greece.

State and non-state actors of Greek conservation policy	Number of interviews
Central administration	
Ministry for the environment, physical planning and public works (MEPPW)	15
Ministry of agriculture	5
Ministry of development	3
Ministry of economics	1
Ministry of tourism	1
National center for the environment and sustainable development	1
Council of the State	1
Total	27
NGOs	
World Wide Fund for Nature (WWF) Greece	5
The Sea Turtle Protection Society of Greece (ARCHELON)	3
Hellenic Ornithological Society (HOS)	2
Hellenic Society for the Study and Protection of the Mediterranean monk seal (Mom)	2
Mediterranean association to save the sea turtles (Medasset)	1
Hellenic Society for the Protection of Nature (HSPN)	1
Pan – Hellenic Network of Ecological Organizations	1
Hellenic Society for the Protection of the Environment and the Cultural Heritage (HSPECH)	1
Evonymos Ecologic Library	1
Total	17
Management agencies	
Management agency of National Park of Schinias – Marathon	3
Management agency of National Marine Park of Zakynthos	3
Management agency of National Marine Park of Allonisos	2
Management agency of Parnitha	2
Management agency of National Park of North Pindos	2
Management agency of Prespes	2
Management agency of Samaria and White mountains	1
Total	15
Local administration	
Municipalities	4
Prefectures	3
Central Union of Municipalities and Communities of Greece (KEDKE)	1
Total	8
Other key, non-state actors	
Companies providing consulting and assessment services in the field of nature conservation	2
Greek General Confederation of Labor	2
The center of Athens labor unions – department of environment and international relations	1
Hellenic Federation of Enterprises (SEV)	3
Pan – Hellenic Federation of Tourism Enterprises (POET)	1
Technical Chamber of Greece	2
Total	11
Scientific community	
Aristotle University of Thessaloniki	4
National & Kapodistrian University of Athens	3
National Center for Social Research	3
The Mediterranean Initiative of the Ramsar Convention on Wetlands (MedWet)	1
Greek Biotope/Wetland Center (EKBY)	2
Total	13
Total	91

i.e. codes which are actual data per se (Strauss and Corbin, 1998). Additionally the total percentages of interviewees, and of each group identifying individual points, were calculated (see Appendices 1a and b). This provided the opportunity not only to use the most frequently repeated concepts in our empirical data but also to have a quantitative measure of discrepancies and overlaps between institutions.

During axial coding we reconstituted those concepts by making connections between categories and their sub-categories which constituted the dimensions of more general categories (Iosifides, 2006). For example, the linkages between the marginalization of conservation biologists in the policy process, the absence of policy oriented ecological research, the absence of interdisciplinary research and the inadequate

Appendix 1a – Quantitative results concerning the conceptual codes for the factors responsible for the absence of a national conservation strategy.

Conceptual codes	Central administration (*n* = 27) (%)	NGOs (*n* = 17) (%)	Management agencies (*n* = 15) (%)	Local administration (*n* = 8) (%)	Scientific community (*n* = 13) (%)	Other key actors (*n* = 11) (%)	Total (*n* = 91) (%)
Insufficient coordination within the MEPPW	93	100	93	88	100	91	95
Insufficient collaboration between different ministries	93	100	87	88	92	91	92
Contradictory goals between environmental policies	89	94	80	63	92	82	86
Priority for development projects	89	100	73	50	92	36	79
Existence of two bodies of legislation (forest and environmental)	82	94	73	38	85	55	76
Insufficient number of skilled personnel	89	88	80	50	92	55	80
Diffused responsibilities of personnel	93	94	93	88	85	82	90
Insufficient specialization of personnel	89	88	80	38	92	64	80
Political criteria guide the selection of senior ministry staff	89	88	80	75	92	82	86
Ineffective use of:							
Community support frameworks	89	88	87	75	85	82	86
Life programs	85	88	80	63	85	64	80
National resources	89	94	87	88	92	73	88
Absence of cadastre	85	88	73	63	85	55	78
Absence of explicit planning policy	78	94	80	63	92	64	80
Extensive arbitrary building	74	88	73	63	85	27	71
Absence of effective means of enforcement	89	100	93	75	100	36	86
Obstruction by various vested interests in law enforcement	78	88	73	63	85	36	74
Numerous and complex conservation laws versus limited implementation	85	77	80	63	77	27	73
Insufficient communication of scientific knowledge	70	88	80	50	92	36	73
Knowledge/data gaps concerning local communities' needs/perceptions etc.	89	88	93	63	100	55	85
Unequal participation of social actors	78	77	73	63	77	27	69
Marginalization of local communities	93	71	87	88	85	73	84
Absence of an environmentalist movement based on policy recommendations	67	65	73	38	77	27	62
Absence of an environmentalist movement based on scientific facts	93	35	67	50	92	46	68
Absence of a clear voice supporting conservation	85	65	80	63	92	27	73
Dominance of technocratic ideologies	70	71	60	38	77	18	60
Professionalization of NGOs	89	47	67	63	85	27	67
Importance of financial independence of NGOs from the state	89	77	80	63	85	64	79
Underestimation of local community needs by NGOs	89	59	80	88	77	82	79
Criticism of the emphasis on technological solutions for environmental problems	78	71	67	50	77	27	66
Small number of environmental scientists in state positions	78	88	73	38	92	27	71
Governmental/research support to technical universities	85	77	47	38	92	73	73
The structure/direction of Greek economy is inimical to ecological research	70	77	60	63	85	46	68
Division between natural and social sciences	70	77	53	50	92	36	66
Intellectual parochialism among academics	37	47	33	–	62	–	34
Dominance of positivism in academic discourses	59	65	47	25	69	27	53
Political expediency overrides scientific facts	70	88	80	38	85	36	70
Lack of concern about policy by the majority of biologists	93	59	80	63	85	46	75
Lack of targeted ecological research	70	88	73	25	85	–	64
Bias in the selection of protected areas	85	94	67	50	92	36	76
Gaps in the identification of Greek biodiversity	78	88	73	38	85	18	69
Poor track record in successful management	89	88	80	50	85	36	77
Absence of meaningful implementation of national laws	89	94	87	75	92	55	85
Bureaucratic interpretations of European policy goals	93	94	87	75	92	64	87

Appendix 1b – Quantitative results concerning the conceptual codes for the appraisal of the decision process for the establishment of a Greek protected areas network.

Conceptual codes	Central administration (*n* = 27) (%)	NGOs (*n* = 17) (%)	Management agencies (*n* = 15) (%)	Local administration (*n* = 8) (%)	Scientific community (*n* = 13) (%)	Other key actors (*n* = 11) (%)	Total (*n* = 91) (%)
Lack of significant management results	82	88	60	50	92	18	70
Insufficient data concerning populations of endangered species	85	100	60	25	100	9	71
Insufficient data concerning human factors	93	88	87	63	85	27	79
Absence of explicit standards for Specific Environmental Studies	82	88	73	50	85	18	60
Absence of a reliable and integrated database of Specific Environmental Studies	82	94	60	38	92.3	27	71
Absence of credible and recent fieldwork	85	88	60	25	85	–	66
Absence of a national database providing access to scientific data	89	100	87	63	100	27	83
Questionable transparency of public administration	85	88	80	50	92	64	80
Exclusion of independent researchers from planning function	78	88	60	38	92	–	66
Exclusion of NGOs from planning function	70	94	53	38	85	27	66
Politicized leadership of conservation institutions	85	88	60	50	92	46	75
Limited integration of Natura 2000 implementation with:							
Ecotourism	85	94	80	63	85	64	81
Employment opportunities for local communities	93	88	87	88	85	82	88
Environmental education	85	94	80	75	85	64	82
Vague and controversial interpretation of biodiversity	70	77	53	38	92	27	64
Vague and controversial interpretation of sustainable development	93	88	87	88	100	82	90
Lack of a clear conservation message during the promotion activity	85	88	73	63	85	27	75
Disregard and undervaluing of the Master Plan	93	77	53	25	69	18	65
Low priority given to conservation issues by the media	93	88	53	38	77	18	69
Lack of public awareness and support	96	82	87	88	85	36	82
Content of rules related to vested interests	70	88	73	63	77	27	69
Unreasonable delays in signing into law of Common Ministerial Decisions and Presidential Decrees	85	94	87	75	92	36	81

Unreasonable delays in the authorization of official operational regulations	89	94	87	75	92	36	82
Formal rules in conflict with informal local practices	93	88	93	100	77	36	82
Undue weight given to economic and development interests in the production of prescriptions	89	88	73	63	85	18	75
Unequal participation of social groups in the production of prescriptions	78	77	73	38	77	18	66
Marginalization of independent scientists in the production of prescriptions	82	77	53	25	92	9	64
Delays in the necessary legislative texts	85	100	87	75	100	36	84
Absence of five-year management plans	93	100	93	63	100	18	84
Delays in the staffing of management agencies	85	100	87	75	100	46	85
Political appointment of management agency presidents	85	88	73	75	85	64	80
Enforcement of rules related to vested interests	82	88	87	63	85	36	77
Absence of permanent, scientific, technical and administrative personnel for the management agencies	93	100	87	88	92	46	87
Inadequate resources for management agencies	82	94	87	75	85	27	78
Absence of support of the “Commission Nature 2000”	93	94	80	75	92	36	82
Practical abandonment of formal rules	93	94	87	75	92	36	84
Governmental lack of intent to control	74	100	87	75	92	36	79
Environmental degradation of protected areas	78	94	80	50	85	27	74
Abandonment of protected areas	82	94	87	63	92	27	78
Hiatus in trust of local communities towards government initiatives	85	77	93	75	85	46	79
Conflicts with local communities	89	77	93	63	85	46	79
Absence of systematic scientific policy research	78	82	60	25	92	9	65
Absence of systematic scientific monitoring	93	88	93	50	100	27	81
Fail to take all relevant factors into consideration during appraisal	74	77	80	63	92	46	74
Lack of feedback about the effectiveness of past activities	93	100	93	88	100	73	92
Subjective and biased appraisal	74	82	73.3	38	85	27	68
Minimal participation of individual researchers in formal evaluations	74	88	73.3	25	85	18	67

Appendix 2a – Summary of open and axial coding for the identification of the factors responsible for the absence of a national conservation strategy.

Conceptual codes	Subcategories	Categories
Insufficient coordination within the MEPPW Insufficient collaboration between different ministries Contradictory goals between environmental policies Priority for development projects Existence of two bodies of legislation (forest and environmental)	Absence of coherence and coordination of authorities and policies	Lack of state capacity concerning conservation policy
Insufficient number of skilled personnel Diffused responsibilities of personnel Insufficient specialization of personnel Political criteria guide the selection of senior ministry staff	Lack of professionalized bureaucracy	
Ineffective use of: – Life programs – National resources – Community support frameworks	Inadequate or insufficient resources	
Absence of cadastre Absence of explicit planning policy Extensive arbitrary building Absence of effective means of enforcement Obstruction by various vested interests in law enforcement Numerous and complex conservation laws versus limited implementation	Problems in law and policy enforcement	
Insufficient communication of scientific knowledge Knowledge/data gaps concerning local community needs/ perceptions etc. Unequal participation of social actors Marginalization of local communities	Absence of sociological research and open democratic procedures	Absence of public participation
Absence of an environmentalist movement based on policy recommendations Absence of an environmentalist movement based on scientific facts Absence of a clear voice supporting conservation Dominance of technocratic ideologies	Absence of a strong environmentalist movement	
Professionalization of NGOs Importance of financial independence of NGOs from the state Underestimation of local community needs by NGOs	Weak relationships between NGOs & citizens	
Criticism of the emphasis on technological solutions for environmental problems Small number of environmental scientists in state positions	Marginalization of conservation biologists in the policy process	Isolation of conservation biology
Governmental/research support to technical universities The structure/direction of Greek economy is inimical to ecological research	Absence of policy oriented ecological research	
Division between natural and social sciences Intellectual parochialism among academics Dominance of positivism in academic discourses	Absence of interdisciplinary research	
Political expediency overrides scientific facts Lack of concern about policy by the majority of biologists Lack of targeted ecological research	Inadequate management of scientific uncertainty	
Bias in the selection of protected areas Gaps in the identification of Greek biodiversity Poor track record in successful management	Lack of interdisciplinary and reliable ecological research	Absence of Greek conservation policy history
Absence of meaningful implementation of national laws Bureaucratic interpretations of European policy goals	Avoid fines from E.E. guides national conservation strategy	

management of scientific uncertainty led to the formation of the category "isolation of conservation biology" (for an overall presentation of open and axial coding see Appendices 2a and b).

Open and axial coding requires constant comparison of empirical data in order to group similar incidents together (Glaser and Strauss, 1967). The comparative method includes two main aspects: the general categorization of empirical data and the identification of the linkages between different concepts to progressively formulate categories and their specific dimensions.

4. Results and discussion

During selective coding, the final stage of data analysis, we integrated all the categories developed around a "core" cate-

Appendix 2b – Summary of open and axial coding for the appraisal of the decision process for the establishment of a Greek network of protected areas.

Conceptual codes	Subcategories	Categories
Lack of significant management results Insufficient data concerning populations of endangered species Insufficient data concerning human factors	Non-comprehensive (Incomplete)	Incomplete planning
Absence of explicit standards for Specific Environmental Studies Absence of a reliable and integrated database of Specific Environmental Studies Absence of credible and recent fieldwork	Unreliable	
Absence of a national database providing access to scientific data Questionable transparency of public administration	Unavailable	
Exclusion of independent researchers from planning function Exclusion of NGOs from planning function Politicized leadership of conservation institutions	Non-dependable	
Limited integration of Natura 2000 implementation with: – Ecotourism – Employment opportunities for local communities – Environmental education	Non-integrative (non synthetic)	Ineffective promotion
Vague and controversial interpretation of biodiversity Vague and controversial interpretation of sustainable development Lack of a clear conservation message during the promotion activity	Non-comprehensive (non holistic)	
Disregard and undervaluing of the Master Plan Low priority given to conservation issues by the media Lack of public awareness and support	Ineffective	
Content of rules related to vested interests Unreasonable delays in signing into law of Common Ministerial Decisions and Presidential Decrees	Irrational	Irrational prescription
Unreasonable delays in the authorization of official operational regulations Formal rules in conflict with informal local practices	Ineffective	
Undue weight given to economic and development interests in the production of prescriptions Unequal participation of social groups in the production of prescriptions Marginalization of independent scientists in the production of prescriptions	Non-inclusive	
Delays in the necessary legislative texts Absence of five-year management plans Delays in the staffing of management agencies	Non-timely	Implementation breaks down
Political appointment of management agency presidents Enforcement of rules related to vested interests	Biased	
Absence of permanent, scientific, technical and administrative personnel for the management agencies Inadequate resources for management agencies Absence of support for the “Commission Nature 2000” Practical abandonment of formal rules	Irrational (in abrogation of rules)	
Governmental lack of intent to control Environmental degradation of protected areas Abandonment of protected areas Hiatus in trust of local communities towards government initiatives Conflicts with local communities	Ineffective	
Absence of systematic scientific policy research Absence of systematic scientific monitoring Failure to take all relevant factors into consideration during appraisal	Non-contextual	Discontinued appraisal
Lack of feedback about the effectiveness of past activities Subjective and biased appraisal Minimal participation by independent researchers in formal evaluations	Discontinued Non-independent	

Conceptual codes, the conceptual names or labels given in our empirical data after comparison and the grouping together of similar incidents during open coding. The concepts pertaining to the same phenomenon are put together to form sub-categories and categories during axial coding; Categories: a higher and more abstract level than the concepts they stand for. The same analytic process of making comparisons to reveal similarities and differences used to produce lower level concepts is utilized to construct them; Subcategories: the dimensions of more general categories.

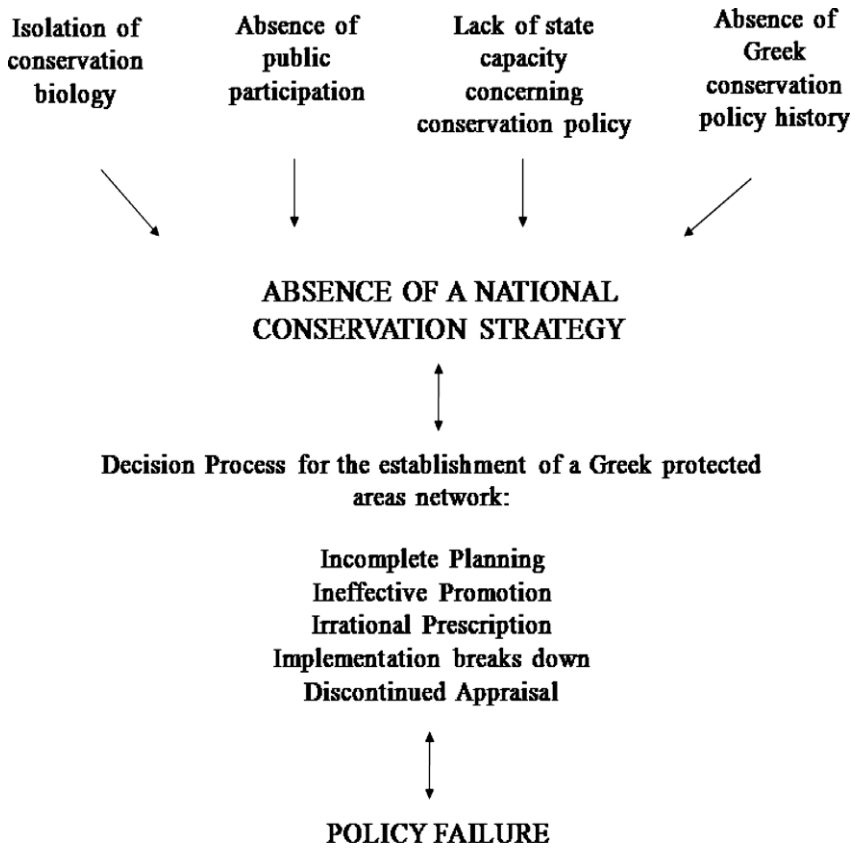

Fig. 1 – A conceptual model which specifies the conditions under which the absence of national conservation strategy occurs that are linked through the action/interaction strategies of the decision process with definite consequences for the establishment of a Greek protected areas network.

gory (Corbin and Strauss, 1990) representing the central phenomenon of our research: the absence of a national conservation strategy (see Fig. 1).

The specific categories of the "decision process" were based on a policy sciences framework (Clark, 2002). Therefore, we reviewed the decision process in terms of its interrelated functions (Clark et al., 2000a,b; Clark, 2002) and appraised it using standards offered by Lasswell (1971) along with standards from Greek laws and the Master Plan (1999) of the MEPPW by focusing on planning (intelligence), promotion (open debate), prescription (setting guidelines or rules), implementation (invocation and application) and appraisal (review).

4.1. *The absence of a national conservation strategy*

Our data analysis revealed four factors crucial to the absence of a national conservation strategy: (i) absence of a Greek conservation policy history, (ii) lack of state capacity concerning conservation policy, (iii) isolation of conservation biology, and (iv) absence of public participation (see Fig. 1).

The absence of conservation history was an issue commonly raised by interviewees from different institutions indicating that national policy is widely perceived as a top-down bureaucratic response of compromises. Our data analysis revealed Greek conservation policy to be dominated by the avoidance of EU fines whereas the bureaucratic interpretation of European policy goals was criticized by 87% of interviewees. Simultaneously, lack of reliable ecological research results in bias in designating protected areas, something criticized by over 90% of the scientists and NGOs and, significantly, by 85% of central administration interviewees. Indeed, despite the significant increase in protected areas during the 1990s, designation remains mainly political, contrary to evidence that scientific criteria should have priority in conservation planning (Götmark and Nilsson, 1992).

This absence of conservation history was interrelated with the lack of state capacity concerning conservation policy. This was another issue with significantly overlapping opinions between interviewees, especially regarding the absence of coordination between authorities and policies. Insufficient collaboration between ministries was criticized by 92% of our interviewees, and 95% specifically referred to the division within the MEPPW into units of environmental protection and public works, mostly functioning separately with contradictory goals. This is exemplified by the inability of the environmental section to enforce conservation measures and land use rules in the absence of cadastre or explicit planning policy when faced with extensive arbitrary building and governmental priority for public works, championed by the public works unit. Leaders at central and local level tended to blame either former governments or bureaucratic conflicts and explain the

diffusion of responsibilities as just an historical hangover, while the majority of NGOs, the scientific community and the employees of ministries mainly blamed governmental unwillingness to formulate environmentally concerned economic policies (see also Song and M' Gonigle, 2001). Simultaneously, they claimed ambiguity to be an institutional practice limiting responsibility and leaving no one truly in charge (as discussed by Yaffee, 1997) thus obstructing conservation enforcement. Ministry employees highlighted these problems as exacerbated by departmental heads changing in step with political leadership, producing a fractured and politicized policy process. This was often reflected in the disparity between the proposals of employees and the decisions of leadership leading to significant discrepancies within state administration.

This raises concerns about the lack of a professionalized bureaucracy; something interrelated with the more general problem of the isolation of conservation biology. The inferior status of conservation policy and the emphasis on development projects has resulted in engineers dominating administrative and research priorities in contrast with the lack of environmental scientists in state positions, something noted by 71% of our interviewees. Every governmental initiative aimed at incorporating environmental scientists in decision making appears superficial. The "network of environmental researchers", created in 2004, and financially supported by MEPPW, aimed at promoting cooperation between researchers and providing an integrated database. However, this network is still inactive, as both interviewees from the MEPPW and scientists confirmed.

Inadequacies in managing scientific uncertainty, demonstrated by interviewees' use of scientific assumptions in supporting ideological positions, shows that the influence of societal objectives has to be added to the more usual tests of validity (Whittaker et al., 2005). Undervaluing human dimensions, obvious by the scant attention paid by natural scientists to social research techniques (Balmford and Cowling, 2006), isolates conservation biologists from key policies and actors (Jacobson and McDuff, 1998). Conservation biologists' lack of attention to social issues advocates, by default, the status quo (Clark, 2001) contrary to dominant positivist approaches (Bitsakis, 2003) considering science and policy distinct discourses (Robertson and Hull, 2001). Lack of engagement or lack of concern about policy by the majority of biologists, something noted by the 93% of central administration interviewees, enables conservation goals to be manipulated by private sector corporations, and political leaders at all levels.

The manipulation of conservation policy is aggravated by the weak relationships of NGOs with Greek society. The failure of NGOs to understand local community needs and make alliances was criticized by 79% of our interviewees, and even by 59% of the interviewees from NGOs. This lack of firm social grounding vitiates their legitimacy as representatives of local communities and of general public feeling, undermining their often significant criticisms of state conservation policy. Significantly, 85% of the scientists and 89% of central administration interviewees saw this as partly a consequence of NGOs becoming more professionalized and bureaucratic, adopting structures from the commercial and state sectors (see also Schlosberg and Dryzek, 2002). A prime example was private sector sponsorship of NGOs and the extent it influences their role in public participation processes. Simultaneously, leaders of state administration saw NGOs as less critical of governmental decisions when they are financially supported by the state. The lack of a strong environmentalist movement has exacerbated this problem leading to apathy and inertia in citizen mobilization and allowing particular economic interests to monopolize government decisions, disorient public opinion and obstruct law enforcement, something affirmed by 74% of all interviewees and significantly by 85% of the scientists and 88% of the NGOs representatives.

Even though the absence of open democratic procedures and meaningful public participation was evident from our analysis we rarely identify in our empirical data specific principles and actions mentioned by our interviewees which would ensure social justice. That 69% of our interviewees admitted the unequal participation of social actors shows that, despite government's verbal commitment to participation, the maintenance of existing political structures and of unequal power relations still reinforce hierarchical relationships (Peterson et al., 2005). The consequences were even more obvious at local level where, as management agencies (87%), affirmed community involvement barely exists even though it would enhance conservation success and equalize power dynamics (Drew and Henne, 2006). These problems are crucial given that the Habitats Directive exemplifies multi-level and large-scale governance influencing member states policies, and thus requiring transparent procedures for participation (O'Riordan, 2004) especially given the number of actors protesting the lack of public consultation (Ledoux et al., 2000; Alphandéry and Fortier, 2001; Stoll-Kleemann, 2001; Hiedanpää, 2002).

4.2. *Appraisal of the decision process for the establishment of a Greek protected areas network*

This appraisal highlights the impact of conceptual gaps in Greek strategy in establishing a protected areas network and is grounded in the opinions of the large majority of our interviewees.

4.2.1. *Planning*

In the context of decision making processes, planning can be defined as the collection and preparation of information to aid effective decision making and, ideally, the share of such information with all stakeholders (Clark et al., 2000b). Our data analysis reveals that such current development of planning on Greek conservation community was incomplete and unreliable. The first step was the Master Plan by the MEPPW which selected priority areas based on the requirements of European Directives and national laws and proposed the establishment of 40 management agencies for 79 Natura sites (MEPPW, 1999). The compilation of data on the biodiversity of the priority areas, essential to systematic conservation planning (Margules and Pressey, 2000), revealed scant data and management results. Even interviewees participating in the designation of the Natura network, in particular 85% of interviewees from central administration and the scientific community, noticed the absence of credible recent fieldwork often led to uncritical interpretations of Habitats Directive

standards and to errors revealed by new studies (see Dimitrakopoulos et al., 2004). It is worth mentioning that nobody (0%) from the other key, non-state actors referred to this gap. The major problems remarked by NGOs, scientists and civil servants, proved to be limited research concerning ecological functions, the absence of explicit standards for Specific Environmental Studies since 2001 and, especially, of reliable information about land use. Notably, 93% of central administration interviewees admitted that human factors crucial to effective prescription and implementation (see Knight and Cowling, 2007) were never seriously considered. Rather, local knowledge has been neglected, in spite of its evident importance for building a more complete information base (Berkes et al., 2000).

The most significant overlap between interviewees concerned lapses in communication and process dependability. In particular, our data analysis revealed that while independent researchers or NGOs have often been excluded from intelligence activity, the ministers and powerful economic actors had strongly influenced the selection and zoning of protected areas, something that also happened in other member states (see Maiorano et al., 2007). This is a general problem in Greece; 80% of our interviewees indicated the need for greater transparency in administration and 83% specified a reliable integrated national database to improve availability of information.

4.2.2. *Promotion*

Both literature and interviews revealed that open and focused debates regarding Natura 2000 have yet to occur in Greece. Beyond some meetings and publications, organized mainly by NGOs and the MEPPW, promotion of conservation policy has never been a government priority. Even the Master Plan remained unmentioned by most interviewees. Greek media refer to protected areas only in major environmental crises (e.g. 2007 fires in Parnitha National Forest). The absence of a national strategy and reliable intelligence has hindered any comprehensive and effective promotion plan. As a result local communities perceive Natura 2000 just as a constraint on their activities. While the majority of our interviewees used a common vocabulary about the conservation of biodiversity, its interpretation differed among interests and value systems. "Sustainable development", imprecisely defined in the Habitats Directive (Pinton, 2001), was criticized, even by scientists, using different criteria (see also Frazier, 1997). In Greece, maintaining biodiversity has become a laudable aim above criticism, and sustainability, a suitably vague means to achieve it, as proved by 90% of our interviewees and criticized by 100% of the scientists, camouflaging the absence of conservation strategy. Our data analysis produced an interesting finding: the major advocates of the term were actors with explicit economic interests.

4.2.3. *Prescription – implementation*

The prescription function has proved to be neither rational nor inclusive, and ultimately ineffective. From 2000 to 2003, 27 management agencies were established. Significantly, 25 of them were established in 2003, the EU time limit for the return of allocations from the second Community Support Framework for Greek protected areas. The agencies were established without a specific prioritization study and covered 61 of 359 Greek Natura sites, thus giving 15 management agencies responsibility for multiple, geographically close, Natura sites (see Appendix 3).

Four paradoxes highlight the absence of a national strategy and compromise further progress.

Firstly, the Master Plan stipulated the establishment of management agencies should be accompanied by a rational designation of protected areas based on law 1650/86 (MEPPW, 1999). As of September 2007 only two Presidential Decrees and ten Common Ministerial Decisions existed for 24 of the 61 priority sites, while the majority had been delayed "sine die" (see Appendix 3). Of the remaining sites, 27 (or parts of them) remain designated based on forest legislation, while ten sites have no protection under national legislation. Therefore, the majority of management agencies rely on out of date legislation or no legislation at all. That 81% of our interviewees characterized the delays in signing Common Ministerial Decisions and Presidential Decrees as "unreasonable" indicates the general confusion. Even when the Common Ministerial Decisions are enacted, doubts remain concerning content and enforcement. Recently, the Presidential Decree for Dadia National Park permitted the expansion of settlement in the protected area. Elsewhere, conflict with informal local practice led to concessions or the practical abandonment of formal rules. Lack of governmental will was identified as the pervasive problem by 79% of interviewees, whereas means of implementation or sanctions scarcely exist (see Clark et al., 2000b).

Secondly, the advisory boards of most management agencies were replaced one or two years after establishment, causing delays in authorizing official operational regulations (see Appendix 3), restricting hiring permanent personnel and funding from the third Community Support Framework. Three years after establishment, the 27 agencies had expended only four million Euros of the 50 available. In the 7th monitoring committee of the Operational Programme of Environment, the MEPPW leadership used this non-take-up as an excuse to transfer resources to other activities. This was mentioned, especially by NGOs, as one of the many examples where the government abnegated responsibility and shifted the blame to the management agencies. Finally, although law 2742/99 stipulates conservation expertise as a qualification for the agency president, the appointment was often political, as 80% of our interviewees admitted. Eight out of ten newly appointed presidents in 2005 were economists, engineers or even prefects, while political leadership interviewees tended to discount the importance of including scientists in management agencies.

Thirdly, delays, lack of management experience, skilled staff and inadequate resources have restricted any meaningful fieldwork (MEPPW, 2001). Such scientific knowledge is essential to effective management (Robinson, 2006) and its absence precipitates inappropriate decisions. So far, management agencies either use the unofficial Specific Environmental Studies and/or construct annual management plans; only one official five-year management plan exists for the National Park of Schinias-Marathon. Management agency interviewees confirmed Forest District Offices, with a remit restricted to forest management plans, cannot fill this gap, and their parallel relationship with management agencies often causes

Appendix 3 – The national legislation (based on environmental laws 1650/86, 3044 and 2742) of the 27 management agencies until 6/2008.

Management agencies[a]	Common Ministerial Decisions (CMD) or Presidential Decrees (PD) for protected areas designation (law 1650/86)	Ministerial Decisions for the official operational regulations[b]	Ministerial Decisions for the composition of management agencies[c]
1. National Marine Park of Zakynthos [3 Natura sites]	PD: 12/99 Modification of PD: 11/03	2/04, 2/04, 1/05, 4/05	(7/00, 7/03), 10/05
2. Area of ecodevelopment of Lake Pamvotida [1 Natura site]	CMD: 6/03	12/03, 12/04, 12/03, 3/04	12/05
3. National Marine Park of Alonnisos [1 Natura site]	CMD: 6/03	12/04, 12/04, 12/04, 10/05	(7/03, 2/04), 6/06
4. National Park of Lakes Koroneia – Volvi [3 Natura sites]	CMD: 3/04	12/04, 12/04, 12/04, 4/06	(7/03, 8/05), 5/06
5. National Park of North Pindos [7 Natura sites]	CMD: 6/05	9/04, 9/05, 9/04, 6/05	(7/03, 2/04), 12/05
6. National Park of Lagoon of Messolonghi [4 Natura sites]	CMD: 5/06	12/04, 10/05, 12/04, 5/05	(7/03), 5/06
7. National Park of Dadia – Leukimi – Soufli [1 Natura site]	CMD: 10/06	1/ 05, 1/ 05, 1/ 05, 1/ 06	(7/03), 11/06
8. National Park of Kerkini wetland [1 Natura site]	CMD: 9/06	12/04, 12/04, 12/04, 5/05	(7/03, 2/04), 6/06
9. National Park of Delta of Evros [2 Natura sites]	CMD: 3/07	12/04, 12/04, 12/04, 6/05	(7/03), 11/06
10. National Park of Schinias-Marathon [1 Natura site]	PD: 7 /00	11/03, 11/03, 1/02, 11/03	(1/ 03)
11. Karla – Maurovouni- Kefalovrysso – Velestino [1 Natura site]	CMD: for signature from competent ministries for 3 years ('04–'07) Since 9/07 for signature in MEPPW's minister	12/04, 12/04, 12/04, 7/06	(10/03), 2/05
12. Parnonas mountain & Moustos wetland [3 Natura sites]	CMD: for signature from MEPPW for 2 years ('05–'07) Since 9/07 for signatures from competent ministries	12/04, 12/04, 12/04, 6/06	(7/03, 2/04), 11/05
13. Kotychi-Strofylia wetlands [3 Natura sites]	CMD: under elaboration for 2 years	12/04, 12/04, 12/04, 12/05	(7/03, 1/04), 6/06
14. Eastern Macedonia and Thrace (Delta of Nestos-Vistonida – Ismarida) [2 Natura sites]	CMD: under elaboration for 2 years	10/04, 5/05, 10/04, 5/05	(7/03, 2/04), 12/05
15. Amvrakikos wetlands [2 Natura sites]	CMD: for signature from competent ministries for 2 years	7/05, 7/05, 7/05, 7/05	(10/03), 12/05
16. Prespes [2 Natura sites]	CMD: configuration of final draft for 2 years	5/05, 6/05, 5/05, 7/05	(7/03, 1/04), 5/06
17. Olympus-Karpathos – Saria [1 Natura site]	CMD: configuration of final draft for 2 years	12/04, 12/04, 3/06, 5/05	(7/03), 6/06
18. Chelmos – Vouraikos [4 Natura sites]	CMD: configuration of final draft for 4 years	11/05, 11/05, 11/05, 11/05	(10/03), 11/06
19. Ainos [1 Natura site]	CMD: under consultation in prefecture for 4 years ('03–'07) Under elaboration for 1 year	1/05, 7/05, 7/05, 7/05	(7/03), 6/06
20. Kalamas – Acherontas rivers [5 Natura sites]	CMD: under elaboration for 2 years	5/05, 5/05, 5/05, 7/05	(7/03), 12/05
21. Oiti [2 Natura sites]	CMD: under elaboration for 4 years	1/05, 12/04, 12/04, 8/07	(7/03, 1/04), 10/06
22. Parnassos [1 Natura site]	CMD: under elaboration for 5 years	12/05, 12/05, 12/05, 12/05	(7/03), 7/07
23. Rodopi mountain chain area [5 Natura sites]	CMD: under elaboration for 2 years	1/05, 5/05, 5/05, 5/05	(7/03, 1/04), 12/05
24. Olympus [1 Natura site]	CMD: under elaboration for 3 years	12/04, 5/05, 12/04, 5/05	(7/03, 8/05), 6/06
25. Samaria and White mountains [1 Natura site]	– (No Specific Environmental Study)	05/07, 6/07, 6/07, -	(1/04, 8/05), 5/06
26. Parnitha [1 Natura site]	– (No Specific Environmental Study)	12/04, 12/04, 12/04, 7/05	(7/03, 1/04), 11/05
27. Delta of Axios-Loudias – Aliakmonas [2 Natura sites]	CMD: for signature from competent ministries for 2 years	5/05, 5/05, 5/05, 3/06	(7/03), 11/06

a The 27 management agencies cover 61 of 359 Greek Natura sites.

b The dates of publication in the Greek Government Gazette represent, in order of their appearance in each row, the following official operation regulations: functions of advisory boards, responsibilities for plans – studies – resources, financial management and job descriptions of personnel.

c The dates of publication in the Greek Government Gazette in parentheses represent expired Ministerial Decisions and the dates outside parentheses decisions remaining valid.

confusion and diffusion of responsibilities and discretionary powers (see also Xu and Melick, 2007).

Fourthly, the need to coordinate and supervise this project led the government to establish "Commission Nature 2000". However, as 82% of interviewees affirmed, there was no state support for this commission, defunct since 2004.

Poor prescription and belated and biased implementation have undermined public confidence. Confusion about conservation objectives was mentioned by the majority of interviewees and further reflected in contradictory information given by interviewees from the same institution even, for example, on the legislation of specific protected areas or their management status. At present, the majority of priority areas have either been abandoned or substantially degraded; the Master Plan lacks the stamp of authority and the majority of its proposals remain in abeyance. The 298 sites without management agencies are in a worse state, either designated by forest legislation or hunting law, or, 145 sites, receiving protection only under the Habitats Directive (see Papageorgiou and Vogiatzakis, 2006). Simultaneously, there is no specific management, apart from those under the Forest District Offices, whose role is reduced to executive control and logging.

Government neglect towards protected areas engenders greater neglect by local communities, and distrust due to inconsistency and absence of an official, transparent and independent process for resolving disputes fosters the emergence of conflicts and militates against ecosystem management needs (Knight and Meffe, 1997). This hiatus in trust was noted even by 93% of the management agencies with the major responsibility for policy implementation at local level.

4.2.4. *Appraisal*

The absence of ongoing contextual appraisal remains a major problem in Greek conservation policy: 92% of our interviewees, the largest percentage of all, criticized the lack of feedback about the effectiveness of past activities. Systematic scientific policy research remains non-existent although some NGOs make informal appraisals of conservation policy (WWF, 2004) with very limited results, mainly due to inability to mobilize public support. Meanwhile legally required monitoring is not carried out, as affirmed by 81% of all interviewees, for lack of resources, data, or proper process for setting and evaluating objectives, something essential to effective adaptive management (McAlpine et al., 2007).

New laws are promulgated without reference to past experience, and no improvement in decision making results (Stem et al., 2005). Internal and formal evaluations are frequently about fulfilling bureaucratic obligations rather than improving effectiveness; if recommendations are made, there is no systematic monitoring and evaluation of implementation, as reported by interviewees from central administration. Much the same applies to European Commission assessment studies, witness the exclusion of individual researchers from the consultation process for the six year assessment of Natura 2000 in Greece.

Refusal to acknowledge Greek conservation history and context precludes reliable comparisons, leaving scope for subjective appraisal. Conservation efforts are compromised through inadequate monitoring of outcomes (Hunter, 2002) making improvement and progress difficult and often allowing the maintenance of established but unevaluated practices (Pullin et al., 2004).

5. Conclusions

The conceptual gaps in Greek conservation strategy stem from a conjunction of scientific, economic, social and political circumstances, but have become themselves an additional agent militating against effective management of Natura sites. These gaps have caused bureaucratization and major delays in the decision process, constraining innovative approaches. Simultaneously, the unawareness or avoidance of bottom-up processes in policy formation has led to a vicious circle: Greece blindly follows Directives without participating in shaping them, leading to non-implementation and penalties. The top-down, command-and-control approach also dominates nationally with government policy reling on highly centralized minister dominated bureaucracies for implementation (Saigal, 2000).

Highly politicized policy processes have led to unclear strategies susceptible to self-serving interpretations by powerful actors. Short term expediency fosters inconsistency, undermining public confidence in the integrity of policy and allowing decisions to be compromised by economic and development interests. Effective conservation requires clear biodiversity conservation goals, based not only on the principles of systematic conservation planning (Margules and Pressey, 2000) but also on resisting development pressure (Roux et al., 2008) whereas lack of scientific data requires an adaptive management framework explicitly recognizing scientific uncertainty (McAlpine et al., 2007). Decision processes must produce prescriptions with specific rules mobilizing resources and containing effective sanctions to advertise governmental resolution towards implementation (Clark et al., 2000b).

The successful implementation of the above principles on the ground would require specific actions at different levels. Management agencies would have to be supported with skilled staff and resources involving public participation, combined with scientific input (Peterson et al., 2005). Simultaneously, departmental heads would have to be appointed on the basis of competence, not political criteria, and foster continuity of policy. The undervaluing of scientific research has exposed the need for skilled officials with access to the latest conservation knowledge coupled with a national information system linked to verification through fieldwork.

However, data are necessary but not sufficient to save habitats (Cowling et al., 2004). Long term solutions need science more relevant to policy and management (Holling, 1995). Scientific research into conservation policy could foster open debate about national priorities and help to develop scientifically sound conservation policy (Meffe, 1998). Finally, the role of local communities would have to be related to questions of equity and empowerment (Berkes, 2004) and government conservation initiatives centered around core principles of justice (Brechin et al., 2002). This means that public participation should extend beyond including representatives of NGOs or economic actors, on state committees. Such actions would be crucial to strategy formulation as an

official part of an integrated conservation policy. A crucial first step would be the immediate legal protection (based on law 1650/86) of all priority areas and development of comprehensive management plans.

With the enlargement of the EU in the course of Natura 2000 implementation, these problems become crucial for countries like Greece, lacking track records in successful conservation (Duffey, 1982). Conflicting interests and competing policies obstruct the implementation of European conservation policy which depends on member states' conservation policy content and process. If a member state uncritically interprets Directives just to avoid penalties, the prospects for progress are bleak. The European Commission might reconsider the efficiency of fines as guarantors of successful implementation and establish and support institutions, independent of government and political parties, staffed by qualified "independent reviewers" (Meffe et al., 1998). These could critically evaluate and monitor the progress of each member state, providing opportunities for the wider biogeography community to participate in the independent evolution of the scientific guidelines for conservation (Whittaker et al., 2005).

Avoiding repetition of past failures means treating empirical experience as both a standard of truth and source of knowledge (Bitsakis, 2003). Achieving the successful implementation of Natura 2000, and the 2010 target of halting biodiversity loss (EEA, 2007), constitutes a major challenge to our society. Clearer goals must be established with the proper means to achieve success on the ground in the face of opposition by vested interests.

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