

## Management of Natura 2000 sites in Italy: An exploratory study on stakeholders' opinions

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**ABSTRACT:** The Natura 2000 network includes the sites of community importance identified by Directive 92/43/EEC and the special protection areas defined by Directive 79/409/EEC. This network can be considered the cornerstone of the European Union (EU) nature conservation policy in order to ensure the long-term protection of endangered species in their natural habitats. The European Union has adopted an integration approach to the Natura 2000 network. The integration approach is based on combining human activities and nature conservation purposes in Natura 2000 sites and in neighbouring areas. Furthermore, the stakeholders' involvement in the site management is considered a fundamental point for the success of the network. The application of integration approach in Italy was different from one region to another, often presenting a framework where institutional actors collaborate with environmental non-governmental organizations and other groups. These stakeholders influence the Natura 2000 implementation with different strategies, increasing the complexity and unpredictability of the policy outcomes. The objective of this study is to analyse stakeholders' opinions concerning the coexistence of different human activities in the Italian Natura 2000 sites. In order to achieve this objective a semi-structured questionnaire was administered by email to 146 stakeholders. 56 stakeholders filled in the questionnaire and the collected data were statistically processed. The stakeholders assessed the importance of five human activities (nature conservation, environmental education, recreational activities, agricultural activities and forestry activities) in Natura 2000 sites through a pairwise comparison and identified the main opportunities and obstacles of the network. The results show that the most relevant activities are nature conservation and environmental education according to stakeholders' opinions. In addition, the respondents highlighted that the main opportunities are the possibility of access to EU funding and the enhancement of local green economy, while the main obstacle is the restriction of agricultural and forestry practices not adequately compensated.

**Keywords:** protected areas; nature conservation; human activities; conflicts; multi-stakeholders; questionnaire survey

In 1992, the European Union (EU) adopted the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Directive 92/43/EEC, also known as “Habitats Directive”) in order to ensure that ecological diversity and varied habitats are identified, protected and maintained. The main aim of the Habitats Directive (HD) is to establish a European network of protected ar-

reas, defined as Natura 2000 network, finalized to guarantee the long-term protection of endangered species in their natural habitats. The Natura 2000 network includes two main types of protected sites: the sites of community importance (SCIs) and the special protection areas (SPAs). Special protection areas are required by the European Council Directive 79/409/EEC (“Birds Directive”) from the EU

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member states in order to protect 193 endangered species and subspecies of birds (MAIORANO et al. 2007).

The effects of policy implementation of the Natura 2000 network are complex, because multiple decisions and actions, including multiple stakeholders, are at stake and the realization of ecological networks creates a multilevel system, where local sites concur in conceiving wider systems. Consequently, an approach adopted by the EU to implement and manage this network of protected area was defined as “integration approach” (JONES et al. 2015). The integration approach is based on combining human activities (e.g. recreational activities, agricultural and forestry practices) and nature conservation purposes in the same area or at least in close proximity to each other (STOLL-KLEEMANN 2001). Probably, this can be considered the most suitable approach because the majority of Natura 2000 sites are located in areas where significant human activities have always existed and may even have contributed to the creation of certain habitats of conservation value. One of the priorities of the integration approach is the protection of natural resources (i.e. habitats and wildlife species) including at the same time inhabitants’ wellbeing and better quality of their lives (PIETRZYK-KASZYŃSKA et al. 2012). For this reason, the local stakeholders’ involvement in a decision-making process concerning the management of Natura 2000 sites is considered a fundamental point for the success of this network. The success of integration approach in the management of protected areas is based on the collaboration among civil society organizations, private and public actors (HUMPHREYS 2006).

In this context, the EU member states are responsible for developing and implementing the Natura 2000 network procedures, but there are no specific recommendations about participation, consultation or incorporation of stakeholders and local communities in the decision-making process (APOSTOLOPOULOU et al. 2012). Each member country has adopted a different level of the stakeholders’ involvement, from simple information to a co-decision, in the consideration of their national characteristics and peculiarities.

The implementation of the Natura 2000 network in the EU member countries has been plagued by difficulties and delays due to the lack of information and communication at national and local levels (STOLL-KLEEMANN 2001). Particularly, in many countries the identification of Natura 2000 sites have encountered a strong national or local oppo-

sition from different groups of stakeholders and, sometimes, the conflicts among users have been increased (ALPHANDERY, FORTIER 2001; HIEDANPÄÄ 2002; MILLIGAN et al. 2009). Local stakeholders’ opposition towards protected areas is the result of restrictions imposed on landowners and local communities and a perceived unequal distribution of costs and benefits between social actors (DOREMUS 2003; PIETRZYK-KASZYŃSKA et al. 2012). Consequently, the social valuation of local stakeholders’ opinions and perceptions about the relevance of human activities in the protected areas is a preliminary aspect to take into account in order to facilitate the social acceptance of nature conservation policy and potential restrictions to the economic activities.

In Italy, the Natura 2000 network has a great importance to conserve an extensive range of habitat types and wildlife species due to the various geographical and climatic context of Italian peninsula. According to official statistics of the European Union in Italy there are 2,314 SCIs with the total area of 48,561 km<sup>2</sup> and 610 SPAs that cover 44,113 km<sup>2</sup>. After the institution of Natura 2000 network the area devoted to nature conservation increased from 11 to 27% and many areas rich in biodiversity have been included in the network (CORONA et al. 2011). In addition, some areas with a large number of species previously unprotected by the Italian national legislation are now included in the network of protected areas (MAIORANO et al. 2006). The Habitats Directive was transposed in the Italian national legislation by Decree No. 357 of 8<sup>th</sup> September 1997 (FERRANTI et al. 2010). This Decree ratified the processes for the realization of the Natura 2000 network and delegated the implementation of HD to 21 regions and autonomous provinces. According to HD, Italy, like the other member countries, has proposed a list of sites of interest to the EU Commission. The Ministry of Environment and Protection of Land and Sea approved a final list of sites in accordance with each region and autonomous province. Through a process developed involving other local governments (i.e. municipalities and mountain communities) regions and autonomous provinces definitively identified the Natura 2000 sites. After the implementation process, the Ministry of Environment and Protection of Land and Sea assigned the management of these sites to the regions and autonomous provinces establishing guidelines in order to harmonize the management of protected areas (Decree No. 224/2002). Subsequently, each region adopted its own strategy for the preparation of

Natura 2000 site management plans, monitoring and verification of the progress and stakeholders' involvement in the decision-making process at a local scale.

In this political framework, in Italy stakeholders have sometimes been called to participate in the implementation process in the phase of drafting management plans of Natura 2000 sites. Some regions and autonomous provinces have used several instruments, differed to people's targets, in order to inform, to consult and to involve stakeholders in the planning of selected Natura 2000 sites. These actions were realized assuming that local knowledge is important for land management and that a dialogue between informed actors is useful to control real or potential conflicts. In many regions, European projects, called LIFE-Nature at first and then LIFE Plus, have also contributed to the monitoring and management of species and habitats to be protected, and to the dissemination of awareness of the objectives and opportunities of Natura 2000 network policy.

Starting from these considerations, the aim of this study is to analyse stakeholders' views and opinions concerning the coexistence of different human activities and the presence of Natura 2000 sites. The investigation is finalised by evaluating the success of the integration approach in the management of protected areas in Italy, which is based on the successful integration of nature conservation and human activities development.

## MATERIAL AND METHODS

**Survey and sample description.** In order to analyse the stakeholders' views and opinions on the management of Natura 2000 sites in Italy the present study employed a mixed model research method (JOHNSON, ONWUEGBUZIE 2004) using data collected through a qualitative-quantitative questionnaire.

In the first step of the research (September – October 2015), a preliminary list of stakeholders involved in Natura 2000 network implementation was created by the authors with the support of experts and through an online investigation. At the end of this step, 146 stakeholders were identified and classified in four main groups of interest [public administrations, environmental non-governmental organizations (NGOs), private consultancy companies, and universities and research institutes]. Subsequently, the preliminary list of stakeholders was continually integrated through a

snowball sampling method. The snowball sampling method is used in situations where the population is unknown and scarce. In this sampling method the sample is identified through references made among participants who know about others who possess some characteristics that are of research interest (BIERNACKI, WALDORF 1981). In this study the characteristics considered are the stake in the management of Natura 2000 sites.

In the second step, from November 2015 to April 2016, a semi-structured questionnaire (Annex 1) was administered by email to all stakeholders identified during the first step. Respondents contacted by email were asked to return their questionnaires via email or, in case they preferred, to combine it with a phone interview. A brief presentation of the aim of the survey accompanied the questionnaire, together with the request to indicate other potential respondents to be contacted.

**Structure of the questionnaire.** The choice of a questionnaire as an investigative tool to collect stakeholders' views and opinions is due to the fact that questionnaires make it possible to collect a significant amount of quantitative and qualitative information in a short period of time (HINKIN 1998). The questionnaire was developed in order to evaluate the stakeholders' opinions concerning the Natura 2000 network implementation in Italy and related to the public participation during the implementation process.

The questionnaire consisted of 28 questions (Annex 1), a mix of single and multiple-choice questions, yes or no questions together with open-ended, pairwise comparison questions and Likert scale questions. Different forms of questions were used to elicit different types of information from respondents and in consideration of the issue investigated. The final version of the questionnaire was drawn up after a test phase during which amendments were suggested by some Italian experts in the Natura 2000 network with different background and from various institutions.

The questionnaire was divided into three thematic sections: "Respondents' personal details", "Natura 2000 network perceptions" and "Public participation in the implementation of Natura 2000 network". The subdivision into thematic sections is generally suggested as support in avoiding respondents from getting bored during the questionnaire completion (NIELSEN et al. 2007).

The section "Natura 2000 network perceptions" contained six questions and the present study focuses on two of them, concerning the relationships between human activities and nature conservation.

The section “Public participation in the implementation of Natura 2000 network” focused on respondents’ experience in the participatory process of the Natura 2000 network implementation. In this section the following aspects were investigated: (i) level of inclusiveness, (ii) transparency of the process, (iii) participatory techniques and communication tools used, (iv) approach used to take the final decision, (v) conflicts among stakeholders, (vi) level of trust in other stakeholders. The present study focuses on the question concerning the conflicts generated by the Natura 2000 implementation. According to their experience at a regional level, the respondents were asked if they evidenced conflicts among stakeholders. Subsequently, with an open-ended question, they were asked to describe the types of conflict and which stakeholders were involved in them.

**Variables used in the analysis.** In the present study, the authors investigated stakeholders’ opinions about how to reconcile human activities and the Natura 2000 network of sites, based on the integration approach finalized by combining human activities and nature conservation purposes. Stakeholders’ views concerning the Natura 2000 network implementation were studied through three variables of perception and related questions in the questionnaire: (i) Natura 2000 opportunities and obstacles to human activities, (ii) importance of human activities in Natura 2000 sites, (iii) conflicts among stakeholders due to the Natura 2000 implementation.

In this research we analyse stakeholders’ views concerning the Natura 2000 network and stakeholders are individuals who, in a diverse way and at different levels, have been affected in their daily life by the network implementation. Life dimensions such as quality of job, satisfaction with the living area, capacity to trust other people affected by the presence of Natura 2000 sites. In this respect, the authors decided to incorporate the three above-mentioned indicators of perception, related to the presence of protected sites.

Stakeholders’ answers were analysed both globally and distinguishing between the four above-mentioned groups of interest (public administrations, environmental NGOs, private consultancy companies, universities and research institutes) in order to highlight the needs and objectives of each group.

The answers collected with the open-ended questions were used as the qualitative part of data, while other questionnaire responses represented the quantitative part. For open-ended questions, meaningful and interesting statements were se-

lected from questionnaires and were examined to find logical interpretations and substratum to the quantitative results. Concerning other types of questions, mean values or answer distribution were determined by group of interest and globally. The data collected by the questionnaire were processed statistically using the XLStat software (Version 2012).

The first variable (Natura 2000 opportunities and obstacles to human activities) analysed the perception of the Natura 2000 network among people, if they feel it as an opportunity or as an obstacle to human activities, with economic outcomes, direct or indirect ones, in and around the boundaries of the protected sites. Indirectly from this indicator it is possible to understand stakeholders’ opinion concerning the influence of the presence of Natura 2000 sites on their own activities, or on the activities of the community to which they belong.

The second variable (importance of human activities in Natura 2000 sites) focused on the stakeholders’ preferences concerning human activities in the Natura 2000 sites using the Analytic Hierarchy Process method. Analytic Hierarchy Process is a method that uses pairwise comparisons of the alternatives for solving multi-criteria decision-making between a finite number of alternatives (ALONSO, LAMATA 2006). This method was developed by SAATY (1987) in order to solve complex decision problems and make accurate decisions and judgments for a complex system. The main advantage of this method is to provide a way of breaking down a complex general problem into a hierarchy of sub-problems more simple to solve.

The respondents evaluated the importance of five human activities comparing these activities in pairs (Tables 1 and 2). A pairwise comparison for all five activities was applied, followed by a calculation of the priority value of each activity using the eigenvalue method. At the end of the procedure, the priority score of each activity was used as an indicator of stakeholder’s individual perception of activity importance.

The eigenvalue method is based on a procedure of averaging the direct and indirect estimations of the comparisons.

The pairwise comparison matrix  $A = (a_{ij})$  (Eq. 1) represents the intensity of the stakeholder’s preference between individual pairs of alternatives ( $A_i$  vs.  $A_j$  for all  $i, j = 1, 2, \dots, n$ ). Each stakeholder compared pairs of alternatives for all the possible pairs and a comparison matrix  $A$  was obtained. In the pairwise comparison matrix the relative weight is expressed by  $a_{ij}$  located on the right side of the di-

Table 1. Pairwise comparison of human activities in Natura 2000 sites

	5	3	1	1/3	1/5	
Activity 1	much more important	somewhat more important	equal importance	somewhat more important	much more important	Activity 2

agonal and its reciprocal as  $1/a_{ij}$  is located on the opposite side of the diagonal:

$$A = (a_{ij}) = \begin{pmatrix} w_1/w_1 & w_1/w_2 & \dots & w_1/w_n \\ w_2/w_1 & w_2/w_2 & \dots & w_2/w_n \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ w_n/w_1 & w_n/w_2 & \dots & w_n/w_n \end{pmatrix} \quad (1)$$

In addition, in the matrix the row indicates the relative weight of each image with respect to the other images. When  $I = j$ , then  $a_{ij} = 1$ . Next, the transpose of the weight vector  $w$  is multiplied by matrix  $A$  to obtain the vector represented by  $\lambda_{\max}w$  that follows the principle (Eq. 2):

$$(A - \lambda_{\max}I)w = 0 \quad (2)$$

where:

$\lambda_{\max}$  – the largest eigenvalue of matrix  $A$ ,

$I$  – identity matrix of size  $n$ .

The value of  $\lambda_{\max}$  is always positive, equal or higher than  $n$  (number of rows or columns in the matrix). The consistency of the respondents' information depends on how much the value of  $\lambda_{\max}$  deviates from the value of  $n$ . The possible inconsistency is due to the fact that stakeholders do not always make "perfect" judgements. In cases where  $\lambda_{\max}$  equals  $n$ , the responses are perfectly consistent. The matrix  $A$  is thus tested for consistency expressed as consistency index ( $CI$ ) using Eqs 3 and 4:

$$CI = (\lambda_{\max} - n)/(n - 1) \quad (3)$$

$$CR = CI/RI \quad (4)$$

where:

$CR$  – consistency ratio,

$RI$  – expected consistency index obtained from randomly generated comparisons of the same order  $n$ .

The consistency ratio is used to measure how consistent the judgments have been relative to large samples of purely random judgments. SAATY (1987) computed and presented a list of  $RI$  estimates for positive reciprocal matrices of orders 2 to 14. Subsequently, several authors computed different  $RI$  depending on the simulation method and the number of generated matrices involved in

the process (NOBLE, SANCHEZ 1990; TUMMALA, WAN 1994; ALONSO, LAMATA 2006). In the present study, the  $RI$  obtained by NOBLE and SANCHEZ (1990) with 5,000 simulation runs has been used.

The value of  $CR$  should be lower than or equal to 0.1 (10%) in order to have the consistency of matrix  $A$ .

Finally, the third variable (conflicts among stakeholders due to the Natura 2000 implementation) was investigated asking the respondents, according to their experience at regional and local levels, if they were aware of conflicts among stakeholders. In addition, the respondents described the types of conflicts and which stakeholders were involved in them through an open-ended question. This indicator can be used as an expression of the individual social satisfaction, relating to the community welfare and social relationships. The environmental conflicts can deteriorate the local social capital by creating an atmosphere of mutual mistrust and non-cooperation.

## RESULTS AND DISCUSSION

The response rate to the questionnaire was 38% with 56 filled questionnaires. This result was satisfactory since it is slightly higher than that found in other studies: KWAK and RADLER (2002), and KAPLOWITZ et al. (2004) reported the average response rate for an email survey between 25 and 30%. It is important to highlight that for questionnaires sent by email, the absolute number of responses is reported to be more significant than the rate (DEUTZ et al. 2013). Concerning the four groups of interest, the sample of stakeholders is distributed in the following way: 7 stakeholders are representatives of universities and research centres, 29 are representatives of public administrations, 8 are representatives of environmental NGOs and 12 are representatives of private consultancy companies. With regard to the geographical distribution of respondents the results show that 43% of respondents are from Central Italy (Tuscany, Emilia-Romagna, Abruzzo, Lazio, Molise, Marche and Umbria regions), 43% of respondents are from Northeast Italy (Trentino-South Tyrol, Friuli-Venezia Giulia, Veneto regions), 9% of respondents are from Northwest Italy (Lombardy, Piedmont, Liguria, Aosta Valley

Table 2. Description of human activities achievable in Natura 2000 sites

No.	Activity	Description
1	nature conservation	Nature conservation activities are aimed at saving the structures that have evolved in Natura 2000 sites over time. The nature conservation activity includes all those practices aimed to preserve and improve the natural environment.
2	recreational activities	Natura 2000 sites are the backdrop for non-consumptive recreational activities such as hiking, bird watching, wildlife viewing and relaxing. Conversely, in Nature 2000 sites the following recreational activities are excluded: gaming, fishing, picking non-wood products.
3	agricultural activities	Agricultural practices achievable in Natura 2000 sites in accordance with the restrictions established by current legislation. The main restrictions concern mowing in the meadows and pastures in the spring-summer time, number of grazing cattle, and tillage of the soil.
4	forest activities	Silvicultural treatments aimed to improve the productive function (timber and bioenergy production) of forests in accordance with the restrictions contained in the current legislation.
5	environmental education	Environmental education is a learning process that increases people's knowledge and awareness of the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action – Tbilisi Declaration (UNESCO-UNEP 1978).

regions), and 5% of respondents are from South Italy (Calabria, Campania, Apulia, Basilicata, Sardinia and Sicily regions).

#### Obstacles and opportunities of the Natura 2000 network for human activities

In the opinion of most respondents (82%) the Natura 2000 network is an opportunity for human activities, while 18% of the interviewees do not think that this network of protected areas is an opportunity (Annex 1 – Question 2.3). Observing the data for the groups of stakeholders the Natura 2000 network is seen as an opportunity by 86% of public administrations and private consultancy companies, and 75% of environmental NGOs and academia.

From the analysis of the answers, we identified five major opportunities linked to the Natura 2000 network reported in Table 3. The network has appeared as a chance to reconcile natural protection and economic development, since it has supported the maintenance and the development of human activities in marginal areas with incentives and compensations, favouring sustainable agriculture of traditional and niche products. In this sense, one respondent pointed out that: “[...] for many human activities linked to nature conservation the Natura 2000 network can be an opportunity for the creation of jobs for resident population and the enhancement of local traditions” (Interviewee 9). Even if, in the constitution of the Natura 2000 network, the first purpose was the habitat and species biodiversity safeguard, human activities are deeply interconnected and tied with natural habitats. Another respondent asserted that: “Natura 2000 philosophy does not exclude the

human being from land management and conservation, but it recognises to him a fundamental role. A lot of habitats, in fact, are semi-natural, so they have been created by the human being and need of him to exist [...]” (Interviewee 33).

In many stakeholder opinions nature conservation has given a major value to sites for touristic attractiveness and has promoted the creation of green jobs. Nevertheless, these positive effects come out only where there has been public participation in land management.

At the same time, according to 37.5% of the stakeholders, the presence of Natura 2000 sites is an obstacle to human activities, even if 62.5% of them do not consider it as a real impediment (Annex 1 – Question 2.4). The idea that the network is an obstacle to economic activities is not always considered with a negative opinion, but rather as a fact which exists versus impactful activities and reflects conservative management.

Observing the data considering the four groups of stakeholders, the Natura 2000 network is seen as an obstacle by 43% of universities and research centres, 41% of public administrations, 36% of private consultancy companies and 25% of environmental NGOs.

However, many stakeholders have underlined that there has been distance and scarce collaboration between European institutions, public authorities, scientific actors and landowners, in the choice of habitats and species to be protected and in planning of management strategies (Table 3). In this way, the restrictions connected with nature protection appeared as an imposition. Besides, it has been considered that there was limited knowledge of administrative procedures and of the way to access to incentives, both by authorities and by own-

Table 3. Main opportunities and obstacles of the Natura 2000 network to human activities according to the stakeholders' opinions

Opportunity		Obstacle	
No.	description	No.	description
17	enhancement of the green economy with special regard to eco-tourism	12	restriction of activities not adequately compensated
12	increased access to EU, national and regional funds	5	bureaucracy to access funding and for authorization process
8	environmental innovation linked to the enhancement of ecosystem services provided by Natura 2000 sites	4	conservative mentality of the staff of Natura 2000 site management offices
5	creation of green jobs	2	inadequate information and poor awareness of stakeholders
4	preservation and enhancement of traditional human activities		

ers. This aspect, together with at the same time the excessive bureaucracy to access to incentives and authorization procedures, has hindered human activities. The restrictions introduced by the network seemed generic and too strong, and the compensation difficult to be obtained. In this sense, a respondent asserted that: “[...] in many cases the protection of nature conservation values established by the Habitats Directive is not always implemented on the basis of common interest. The conservation measures imposed on landowners by the Natura 2000 network are often a constraint to the normal management practices. These constraints are not adequately compensated from the economic point of view. If the civil society recognizes the importance of these nature conservation values, it should pay the “right price” for the constraints imposed on landowners” (Interviewee 6).

#### **Importance of human activities in Natura 2000 sites**

The question concerning the importance of human activities in Natura 2000 sites was compiled by 53 of the 56 stakeholders (Annex 1– Question 2.6).

The results of pairwise comparison (Table 4) show that for the respondents the most important activity in Natura 2000 sites is nature conservation (priority score of 0.3029), followed by environmental education (0.2081) and agricultural activities (0.1921). Recreational activities (0.1088) are considered to be of marginal importance in this type of protected areas. Probably, results would have been different if the largest protected areas such as national or regional parks, or natural reserves had been considered. In addition, it is important to highlight that for all comparisons, the consistency ratio resulted less than 0.1.

When observing the results by the groups of stakeholders, interesting differences are highlighted. For all groups the most important activity in Natura 2000 sites is nature conservation (priority score for public administrations 0.2695, environmental NGOs 0.3015, universities and research institutes 0.3577, private consultancy companies 0.3509). Two groups of stakeholders (public administrations and environmental NGOs) consider environmental education the second most important activity (priority score 0.2143 and 0.2782, respectively), while for the representatives of the other two groups (universities and research institutes and private consultancy companies) the second most important activity is the agricultural activity (priority score 0.2233 and 0.1966, respectively). Besides, it is relevant to highlight that representatives of public administrations assign a higher value to forest management activities than the other three groups.

In many cases different individual perception of the importance of human activities in Natura 2000 sites indicates respondents' priority of values concerning the diverse activities developed in the area where they live. When the groups of stakeholders have different opinions related to the priority of human activities, conflicts can emerge among users. In the Natura 2000 network in Italy the results show that the order of the priorities of human activities by groups of stakeholders is very similar, which is a good indicator of the possible resolution of any conflicts.

#### **Conflicts among stakeholders due to Natura 2000 implementation**

Results show that 82% of the respondents evidenced the presence of conflicts among stakeholders during the implementation of HD

Table 4. Priority scores for human activities in Natura 2000 sites by groups of stakeholders

	Public administrations ( <i>n</i> = 27)	Environmental NGOs ( <i>n</i> = 8)	Academia and research institutes ( <i>n</i> = 6)	Private organizations ( <i>n</i> = 12)	Total ( <i>n</i> = 53)
Nature conservation	0.2695	0.3015	0.3577	0.3509	0.3029
Recreational activities	0.1137	0.1019	0.0839	0.1134	0.1088
Agricultural activities	0.1914	0.1595	0.2233	0.1966	0.1921
Forest activities	0.2112	0.1589	0.1767	0.1611	0.1880
Environmental education	0.2143	0.2782	0.1583	0.1781	0.2081
<i>CI</i>	0.0153	0.0369	0.0106	0.0045	0.0107
<i>CR</i>	0.0103	0.0248	0.0071	0.0030	0.0072

*CI* – consistency index, *CR* – consistency ratio, *n* – number of stakeholders, NGOs – non-governmental organizations

(Annex 1 – Question 3.18). Observing the data for each group of stakeholders, the presence of conflicts is expressed by 84% of public administrations, 100% of universities and research centres, 80% of private consultancy companies and 62.5% of environmental NGOs. It is interesting to observe that in the opinion of all stakeholders belonging to the academic world Natura 2000 is the origin of conflicts; conversely, environmental NGO representatives seem to be more optimistic concerning the presence of conflicts.

Three main types of conflicts emerged from stakeholders' responses: (i) conflicts due to the restrictive measures to human activities in Natura 2000 sites, (ii) conflicts due to the bureaucracy in the management of Natura 2000 sites, (iii) conflicts due to the absence of complete information and communication about HD implementation and Natura 2000 site definition and management.

The stakeholders involved in conflicts represent local actors (landowners, tourism operators, municipalities, hunting associations, environmental NGOs) interested in specific Natura 2000 sites, and regional actors (public administrations) responsible for the HD implementation at a regional level.

Conflicts regarding the application of conservative procedures despite economic activities emerged among the local actors and the regional institutions. These conflicts were evidenced by respondents: "To preserve the conservation state of grasslands in Natura 2000 sites, the farmers have to reduce fertilizer amounts that can be spread on lands. For some companies, this implies the reductions of head of cattle for staying within the sewage limits [...]" (Interviewee 44).

Particularly, landowners seem to be the most involved actors in these situations, due to the restrictions imposed in Natura 2000 sites and the unclear situation about compensatory solutions to them.

Local and regional actors are also involved in conflicts regarding the lack of information and communication about restrictions and site management, as resulted from respondent's answers: "Most conflicts arise due to the lack of information. Above all stakeholders directly affected by restrictions were not correctly informed. It is the case of agricultural and forest enterprises or landowners, or hunters associations. These actors now perceive Natura 2000 only as a restriction and an obstacle to their activities" (Interviewee 14).

Especially landowners, but also municipalities and other economic actors, were not clearly informed about the consequences of pursuing human activities inside or on the boundaries of Natura 2000 sites. Furthermore local and regional actors were involved in conflicts in situations where the bureaucracy in the site management appeared as an additional obstacle to the human activities in terms of the loss of time and disorganization in the public administration.

Conflicts emerged also among tourist operators and hunters; the latter considered Natura 2000 an obstacle and created opposition toward the Natura 2000 site managers often represented by environmental NGOs which prefer a more conservationist approach.

Concerning the third type of conflicts, the international literature confirms the relevance of information campaign and awareness in order to increase the social acceptance of the Natura 2000 network. In particular, in many countries the implementation of the Natura 2000 network has evidenced how an informative campaign addressed the public at large and the stakeholders' involvement in the implementation process are two fundamental "ingredients" for the public acceptance of nature conservation policy (APOSTOLOPOULOU et al. 2012). These aspects are also recognized by the El Teide Declaration (European Commission 2002) in the following



way: "... the success of Natura 2000 will require the support of European citizens, especially of local people and landowners, and their participation in the decisions on the implementation of the conservation and management of the areas involved."

## CONCLUSIONS

As recognised by international literature, the implementation of the network, the planning and management of the sites and the ways in which ecological conservation is related to human activities is determinant for the success of Natura 2000 (HENLE et al. 2008; BEUNEN, DE VRIES 2011; TSIAFOULI et al. 2013).

The present study evidences that, like other European countries (STOLL-KLEEMANN 2001; MILLIGAN et al. 2009; FERRANTI et al. 2010), Italy experienced difficulties and problems during the entire process of the Natura 2000 network implementation: from the designation of sites to the planning and management phase.

According to findings and in accordance with FERRANTI et al. (2010), the majority of problems are related to the institutional transitions required by the application of Natura 2000 policy. These include the interpretation of legislation, the necessity of collaboration between European institutions and Italian public authorities, the involvement of new stakeholders in the decision process and the concrete management of the sites.

The scarce knowledge of administrative procedures and of the way to access to incentives, together with the excessive bureaucracy and the lack of training for local authorities emerged as the main problems.

Findings of the study are in accordance with other results evidencing that at the European level emerged problems that directly affected stakeholders who were in a suspicious attitude during the Natura 2000 implementation phase because they were not consulted during the designation phase (WURZEL 2008). The identification and definition of the territories under Natura 2000 were conducted by the public administration in collaboration with scientific experts leaving little room for the participation of local stakeholders, consequently from that phase conflicts have emerged between landowners, public administration and environmental NGOs (RAUSCHMAYER et al. 2009). Furthermore, the insufficient creation of awareness amongst the European stakeholders (EBEN 2006) and consequently the fear of the landowners from financial losses due to the presence of the Natura

2000 sites (FERRANTI et al. 2010) compromised the aim of integration of the HD between human activities and nature conservation, and enhanced the incomprehension in the implementation phase.

The results of the present study can be an important starting point for future researches aimed at highlighting the social perception of the Natura 2000 network by different groups of interest. The analysis of stakeholders' opinions and views is preliminary information in order to define a standardized strategy of public participation in Natura 2000 sites aimed to increase the social consensus and reduce conflicts. The definition of a standardized procedure of public participation in Natura 2000 sites should be one of the future milestones of the EU environmental policy.

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