

Arguments for biodiversity conservation in Natura 2000 sites: An analysis based on LIFE projects

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Abstract

Achieving acceptance among local stakeholders is crucial for biodiversity conservation, as their often diverging interests can hamper the success of conservation projects. While research exists on the different narratives and arguments used in the international policy debates, there is not much evidence on how effective alternative arguments are in communicating the value of biodiversity to local stakeholders. This paper used a multiple case study design for sites of the European Union's Natura 2000 network to investigate which arguments have been successfully used to persuade local stakeholders of restoration projects, funded under the EU's LIFE program. Particular focus is given to the role of ecosystem services as arguments for nature conservation and how these relate to other instrumental and non-instrumental arguments. Instrumental arguments appeared particularly effective for commercial users, where economic interests stood against the conservation activities. But also stakeholders without commercial interest tended to be more receptive to arguments that implied a benefit for themselves or their communities, such as recreation or a cultural value. Regarding ecosystem services this study found that they should be understood as an addition to the category of instrumental arguments. Where pure economic factors were not sufficient to create a business case for conservation, ecosystem services were frequently applied to make the case for conservation stronger. Finding consensus among the different stakeholders is a key factor in achieving any conservation at all. The argument strategy should therefore always consist of a mix of instrumental and non-instrumental arguments, as only focusing on instrumental arguments might repel those individuals who seek a strong ethical motivation.

Keywords

Biodiversity conservation, stakeholder communication, Europe, argumentation strategies, Natura 2000

Introduction

Despite global political efforts under the Convention of Biological Diversity to conserve the world's biodiversity, it is still declining with unrestrained speed. In 2010 it became apparent that the global and European targets to halt biodiversity loss by then had not been achieved (Butchart et al. 2010). In response policy-makers came up with a new set of convention targets to be met by 2020 (Secretariat of the Convention of Biological Diversity 2010, European Commission 2011, Harrop 2011). To support the achievement of these new political targets, the scientific community has investigated various factors responsible for the past failure and has come up with suggestions for improvements (Mace et al. 2010, Rand et al. 2010).

One of these factors are conflicts between the conservation goals and the interest of different stakeholder groups at local scale (Folke et al. 2007). Building acceptance of the conservation actions among local stakeholders is therefore generally seen as pivotal to reduce conflicts and promote the achievement of conservation goals (Young et al. 2010). In particular implementing agencies of governmental conservation efforts have to deal with conflicting values or preferences of local stakeholders. While the conservation activities derive their normative justification from values expressed in regulation, neither the values underlying the law nor the normativity of the law itself, are uniformly recognized by local stakeholders. Implementing agencies can therefore employ alternative arguments that better relate to stakeholders' values and preferences in order to resolve potential conflicts.

Two main categories of arguments for nature conservation can be distinguished: instrumental arguments and non-instrumental arguments. Both lines of argumentation have been commonly used across cultures and periods. For instance, the political awareness shift towards environmental values and the need to protect these by specific regulation in western societies in the second half of the 20th century was on the one side driven by instrumental arguments about human dependence on nature in publications such as 'The Tragedy of the Commons' (Hardin 1968) or 'The Limits to Growth' by the Club of Rome (Meadows et al. 1972). On the other side Aldo Leopold created with his 'Land Ethics' (Leopold 1949) one of the most influential ecological approaches about the inherent value of all life and strongly influenced the emerging environmentalism of that period. Both argument categories appeal to different people and can also sometimes lead to very different conclusions about what action should be taken.

While various scholars have investigated the political discourses at national or international level on biodiversity conservation (Väliverronen and Hellsten 2002, Hutton et al. 2005, Evans 2012), there has so far not been much research on the discourses at local level, in particular between implementing agencies and local stakeholders.

The Natura 2000 network is the European Union's main instrument for biodiversity conservation. It offers an ideal example to study the effectiveness of alternative arguments at local level, because it allows for comparisons between different sites, while all sites receive their normative motivation from the same legislative foundation. The network was established in 1992 under the Habitats Directive in order to protect key habitats and

species in Europe (Evans 2012). Its declared aim is ‘to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory’ (Council of the European Communities 1992). Thus biodiversity conservation is framed as a matter of conserving certain species and habitats. In the same line the criteria for site selection are based on a list of species and habitats.

While this perspective on biodiversity offers a high potential for operational action, it has been criticized by environmental philosophers as an ‘itemizing approach’ that neglects that people value biodiversity for reasons related to a contextual narrative (O’Neill et al. 2008)¹. From this perspective it can therefore be expected that local stakeholders will not always share the normative values expressed in the Habitats Directive.

In fact many Natura 2000 sites have to deal with conflicts with local stakeholders. This paper will take a descriptive approach drawing on persuasion theory (O’Keefe 2002, Dainton and Zelle 2004) to explore which alternative arguments are effective in resolving conflicts with local stakeholders. It will do so in a multi-case study design that analyses experiences from different sites of the Natura 2000 network funded under the LIFE+ Nature fund. The study forms part of the EU funded project BESAFE, which investigates the effectiveness of alternative arguments for biodiversity. The main research question is which argumentation strategy proves most effective in mitigating local conflicts or aversion against the conservation projects.

Methods

Data selection and data analysis

This case study uses the Natura 2000 sites as example for analyzing which arguments are effective in communicating the value of biodiversity to local stakeholders. The multiple-case design was chosen because it generally offers stronger robustness of the results (Yin 2009, Stake 2013). This particular set-up allows to draw conclusions about transferability of arguments to other socio-economic and cultural contexts. At the same time the multiple-case design helps to extract suggestive evidence on mediating factors that might explain variations in effectiveness.

Our study used both document analysis and in-depth interviews to create a methodological triangulation. For the document analysis 365 Natura 2000 projects were selected from the LIFE online database. This database provides information on all projects funded under the LIFE fund, the main EU funding instrument for the environment. Only LIFE projects, classified under the strand ‘Nature’ were considered since these projects target restoration activities in Natura 2000 sites. Next we analyzed all the projects submitted and approved in the years 1992 to 1996, 2000, 2004, 2008,

1 However, the Habitats Directive also makes a reference to ‘natural habitats’ which indicates a value for the historical concept of ‘naturalness’ (Lanzerath and Friele 2014). Nevertheless it can be argued that the site selection criteria of the habitats directive are clearly dominated by the ‘itemizing approach’. Therefore our argumentation focuses on this aspect.

2010, and 2011. Follow-up projects (projects which received funding more than once and encoded separately in the database) were not considered as separate projects in our analysis but analyzed together with the first project to avoid double or triple counting of arguments. In sum, our sample represents almost 25% of all the Nature projects funded under the LIFE program between 1992 and 2013.

The selected cases were analyzed with respect to the arguments which were used to present the project in the LIFE database, on the project website and in other public communication materials. As a result of this analysis the relative frequency of all appearing arguments was determined.

The frequency analysis yielded first insights into which arguments project managers expected to be effective. In addition, the results were used to guide the subsequent in-depth interviews with LIFE project managers. In total 55 project managers were invited to participate in the study. Out of these 14 responded and attended the interviews. The in-depth interviews aimed at exploring the perceptions of project managers about the effectiveness of alternative arguments. The interview protocol (Suppl. material 1) started with open questions for identifying the most relevant stakeholders and arguments. Open-ended questions are commonly used in qualitative research to encourage the interviewee to give his definition and structure of the situation as recommended (Dexter 2006). These questions were followed by targeted questions about specific stakeholder groups or arguments in order to deeper discuss certain aspects or to verify that the omission of certain arguments meant that they were perceived as irrelevant. The interviews were recorded and transcribed. Subsequently transcripts were coded based on stakeholder groups and argument types.

Codes of argument types were predefined and based on categories which were identified by Howard et al. (2013) through a literature review on potential arguments at an earlier stage of the BESAFE project. For the purpose of this case study the list of Howard et al. (2013) was simplified to a number of 20 different categories (Table 1).

In contrast codes for stakeholder groups were created by first using open coding and in a second step building meaningful categories. Stakeholder categories were based on their expected interest in the ecosystem. Many common frameworks for stakeholder analysis use interest as criterion. For instance Mitchell's stakeholder matrix categorizes stakeholders by interest and the power to influence outcomes (Mitchell et al. 1997). Similarly, Mendelow (1981) proposes a power-interest grid. Interest was chosen in this study as main criterion because it gives a first insight in the expected attitude towards certain arguments. While both frameworks measure interest as cardinal variable based on its intensity, we built qualitative categories. These distinguish between stakeholders whose interest in the ecosystem is primarily commercial, non-commercial or political.

After coding, the interviews were analyzed according to the structural framework which is presented in more detail hereafter. The results on different argument types were organized in tables for greater manageability. These tables present effectiveness of arguments by stakeholder group. The effectiveness of arguments is understood in this paper as a combination of observed and potential effectiveness. The full concept is described in a later paragraph. The table content should be understood as qualitative

Table 1. Classification of arguments (Argument types) and types of premise statements. Frequency of use of the argumentation in LIFE projects. The short names between brackets are used in Tables 2-5.

Argument types	Type of premise statement (short name)	Frequency	Relative frequency (%)
Economic	Productivity, resources, industrial use of nature, market products (Productivity)	20	4.1
	Contribution to regional economic growth (Growth)	24	5.0
	Livelihoods, employment (Employment)	11	2.3
Instrumental	Direct payment/subsidy (monetary and non-monetary forms) (Subsidy)	0	0
	Provisioning services, emphasis on quality, naturalness, impacts on human well-being (Provisioning ecosystem services)	15	3.1
	Regulating services, carbon, nutrients, water-functions leading to indirect benefits (Regulating ecosystem services)	10	2.1
	Recreation, aesthetic value/experience (Recreation and cultural ecosystem services)	38	7.9
	Human health, reduction in disease risk (Health)	2	0.4
	Precaution, risk reduction, resilience of services (Resilience)	9	1.9
	Intellectual stimulus (Intellect)	24	5.0
	Legal obligation (Legal)	18	3.7
	Reputation, looking good, winning customers/staff/voters (Reputation)	1	0.2
	Options for future use, bio-prospecting (Options)	1	0.2
Non-instrumental	Rights/values of nature itself, intrinsic value (Intrinsic)	151	31.3
	Ethical, moral and religious obligations to nature (Ethical)	8	1.7
	Achieving balance of nature, healthy systems, natural functions (Functions)	25	5.2
Human happiness	Social/cultural/heritage/collective well-being and welfare (Social well-being)	41	8.5
	Psychological/spiritual/individual well-being and biophilia (Individual well-being)	0	0
Goal not expressed	Sustainable development, obligation or values for future generation (Sustainability)	34	7.0
	Species conservation matters (Reason not specified)	51	10.6

information that describes the observed cases of this study. Tables should not be read as ‘average’ or ‘universal’ indicators of effectiveness, but solely summarize observations of our study. The transferability of these observations to other contexts is part of our analysis and is discussed accordingly in the respective paragraphs.

Limitations

Ideally an investigation of the effectiveness of arguments triangulates information on the perceptions of the communicator (in our case the project manager) with those of the recipient (in our case the stakeholders). However, data on stakeholder perceptions was difficult to obtain, because in many cases representative members of the stakeholder groups were difficult to identify. For the scope of this study we chose therefore to concentrate on the project managers as primary data source. This limitation bears the risk of a systematic bias if project managers willingly or unwillingly favored specific arguments or neglected others. Based on the interviews we assessed the risk of a willingly produced bias as low. The concern of an unwillingly produced bias, however, is more difficult to dispel. The persuasion through a specific argument is a cognitive process that takes place in the mind of the individual stakeholder. It is therefore only indirectly observable by project managers. Yet what project managers can observe is if the change in attitude translates into a change in behavior. For instance, a stakeholder that previously opposed the project might finally demonstrate acceptance but this was not recorded. Nevertheless the possibility of unwillingly produced bias remains and has to be considered when discussing the results.

A second limitation of the research design is the self-selection of interviewees into the study, as participants might systematically differ from project managers who did not respond to the invitation. In fact, it is likely that study participants have a higher than average level of awareness and interest in the topic of the study (the effective persuasion of stakeholder groups). Most likely participants have been more deeply engaged with the question as to how to communicate the value of their projects to relevant stakeholders. This should imply, however, that the study participants command over a more accurate perception about the effectiveness of arguments than their colleagues. Given these considerations self-selection seems no threat, but rather a quality feature of the study results.

Structural framework

Our research question about the effectiveness of arguments is at its core effect-oriented. Therefore, this study draws on literature from persuasion theory (O’Keefe 2002, Dainton and Zelly 2004). Persuasion is understood as the process of changing behavior by means of argumentation. This paper does not use the classical differentiation between persuasion and conviction which distinguishes these by ‘rational’ and ‘emo-

tional' means of influence. Following O'Keefe (2002) it rather understands conviction as process to change attitudes as means in itself to achieve persuasion. The paper uses a relatively simple effect-oriented communication model to guide the analysis. It is built on the classic understanding of communication as a linear process (Lasswell 1948). Although simple in its form, Lasswell's model is one of the most influential communication models (Shoemaker et al. 2004) and well suited for content analysis based on a quantitative approach. Hence we consider it as a useful method for our study which is based on the frequency of arguments and which has a clear focus on the effects of communication. As Lasswell's model does not account for context factors, we introduced some degree of non-linearity in our model and recognized that messages cannot be understood freely from their context, as first highlighted by Jakobson (1960). We therefore incorporated certain mediating factors in the model. Howard et al. (2013) identified already at an earlier stage of the BESAFE project the socio-economic context, the ecological context, the stage in the policy cycle and the way of presenting the argument as relevant context factors. After accounting for these factors our model took the form as illustrated in Figure 1.

Type of arguments. As explained earlier the categorization of argument was also built on the work of Howard et al. (2013). Following their recommendations we used a framework that understands arguments as consisting in a premise statement and a conclusion. The premise statement itself typically consists of a claim and a reason. In our study the conclusion of each argument consists of the normative claim that a certain conservation action should be taken. Following Howard et al. (2013) our structural framework categorizes premise statements by the explicit or implicit reason expressed in the claim. It distinguishes between instrumental arguments, non-instrumental arguments and those where the goal is not expressed. Instrumental arguments are further divided in those referring to an 'economic benefit' and those referring to a 'social benefit'. Similarly, non-instrumental arguments are divided in those referring to 'human welfare' and to an 'inherent value'. In a next step we sorted all expected 20 arguments into these categories, which resulted in the argument categorization illustrated in Table 1.

Message communicator and message recipient. This study neglected for the most part to analyze the impact of communicator characteristics on message effectiveness for two reasons. Firstly, message communicators did not differ vastly as they were in each case the LIFE project manager. Typically these project managers were working for public authorities. Some project managers were employed by non-governmental organizations which receive government subsidies.

Secondly, the study focused on the argumentation and its effect on persuasion. The communicator identity played therefore a subordinated role and was consciously kept comparable among cases. Yet the possibility of an effect of the communicator identity was considered during the analysis of the observations.

In contrast, the identity of the message recipient varied strongly between and within single cases. It was expected to find strong variation in argument effectiveness between different stakeholder groups, as they share different norms, values and interests. After the open coding procedure stakeholders from single cases were categorized in four

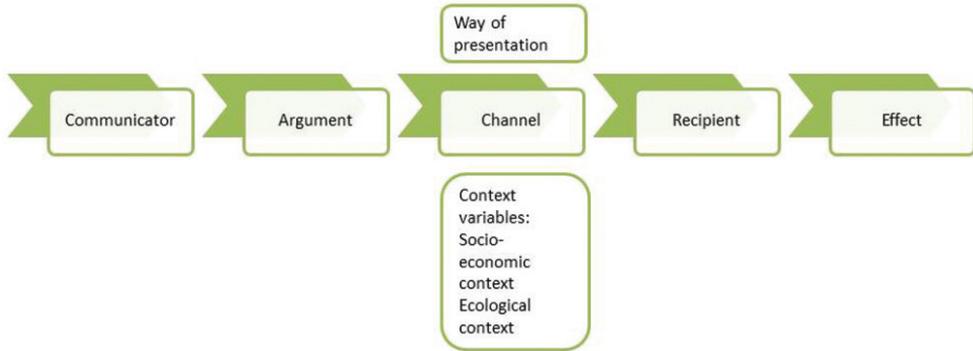


Figure 1. Structural framework used for the assessment of arguments to protect and restore biodiversity in LIFE projects across Europe.

groups to create a higher degree of abstraction of the results: commercial users of the ecosystem, non-commercial users, public agencies and civil society organizations.

Socio-economic and ecological context and way of presenting the argument.

It did not appear useful to analyze the socio-economic and ecological context using a predefined classification, because the number of single cases was relatively small. The context varied largely among the single cases, which would have resulted in individual categories for each single case. Instead, context variables were analyzed on a case by case basis to create suggestive evidence on their impacts. Similarly, the way of presenting the argument was not analyzed by a pre-defined framework, but on a case by case basis.

Stage of the policy cycle/time dimension. Primmer et al. (2014a) observed that arguments for biodiversity can affect the policy cycle at three stages. Arguments can appear before the policy framing and goal setting and influence its outcome. They can be used to operationalize goals into sub-goals, standards and working principles and thereby determine the implementation of the policy. In addition, arguments can be used in implementing the practice and in measuring its effects (ibid.). All argumentation of our multi-case study happened at the stage of implementation of the practice. Therefore, the policy stage was not a determining factor in our analysis.

Argument effectiveness. For measuring the effectiveness of an argument we used a framework developed by Primmer et al. (2014a). They distinguish between observed and potential effectiveness. While observed effectiveness can be studied by analyzing actual policy processes whose effects can be observed, potential effectiveness refers to how alternative arguments are valued by stakeholders or how effective they appear in experiments.

Measures for observed effectiveness are: persistence, accumulation, level-crossing, diffusion, and replacement. The persistence of an argument can be understood as its enduring over time (Primmer et al. 2014a). The accumulation signifies that an argument is growing in importance over time. Diffusion of an argument means that it

reaches new audiences within the same level, whereas level-crossing implies that new levels or actors take up the argument in their discussion. Finally, replacing or overriding of one argument through another implies a low observed effectiveness.

Potential effectiveness can either be analyzed in a purely logical exercise or in assessing the attitudes of stakeholders to certain arguments. In this study we focused on the latter. In particular, we asked project managers about their expectations with respect to the effectiveness of specific arguments for particular stakeholders. The difference to observed effectiveness lies in the fact that project managers do not necessarily have the evidence from directly testing the arguments, but instead base their statements on their general knowledge of the stakeholders. Therefore data on potential effectiveness should be treated with care. Potential effectiveness was mainly used to backup findings formed on observed effectiveness and made up a relatively small part of the analysis.

Results

General description of the arguments used in the LIFE database

A first assessment screened 365 LIFE projects for the argumentation on biodiversity they contain. The spatial distribution of the sample is presented in Figure 2 while the frequency in the use of the different arguments is available in the Table 1.

Studies were selected from all countries of the EU but there is some perceived bias towards Northern Italy and South Belgium, since several LIFE projects in these regions covered more than one Natura 2000 site which results in a clustered presentation in these areas.

Our study found a rich variety of arguments used to make a case for nature protection in Natura 2000 sites. The inherent argument that nature has a right or value of its own reappeared in almost a third of the of the Life projects included in the first screening phase. People also often underline the importance of conservation without going into detail (10.6% of the projects screened). Natura 2000 sites are also related to the cultural heritage of a region which is seen as important to protect.

Natura 2000 sites provide multiple ecosystem services which is reflected in the argumentation found in the project information sheets (13% of the projects used ecosystem services as argumentation). The role of the network in providing cultural ecosystem services, notably recreation and aesthetic values, is used to argue for the conservation of a site. Regulating and provisioning services appear as arguments as well but they are mostly not framed as ecosystem services. An argument which is regularly used is the water regulation capacity of Natura 2000 sites to store water and maintain hydrological functions.

Several projects also stress the importance of Natura 2000 sites for their contribution to the regional economy (5%), and in particular, to help achieve a more sustainable development (7%)

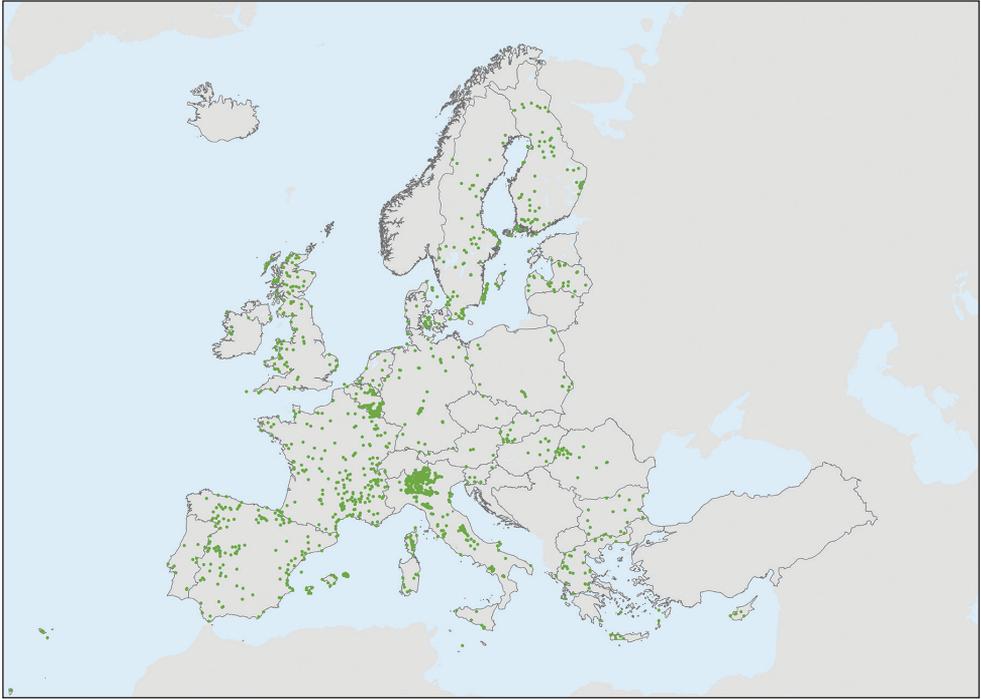


Figure 2. Sample of LIFE projects selected for the assessment. LIFE projects were mapped by linking the project number to the Natura 2000 sites where the project was implemented. Several projects cover more than one site, in particular in Northern Italy and Southern Belgium, which results in some clustering.

In-depth assessment

The in-depth assessments are based on interviews with project managers. Here we present a summary of the results per argument type (see Table 1). Tables 2–5 summarize the effectiveness of the argumentation per stakeholder group as well as the effectiveness assessment.

Instrumental arguments – economic. The most frequently used argument in this category was the general claim of a contribution to economic growth (Table 2) which was mentioned in nine out of the 14 interviews. This argument was several times paired with a reference to business opportunities through eco-tourism. In addition, project managers often argued with a direct payment or subsidy, particularly where it was intended to persuade commercial users. Increased productivity also found some mentioning, but project managers referred rarely directly to employment or livelihoods.

In general economic arguments showed high effectiveness among commercial users and public authorities. However, in several cases the economic arguments were actually not applicable to the context because commercial interests and conservation aims required opposing management options. For instance one project manager in Bulgaria stated that

‘the government wanted to build a ski area, a ski resort. And this is of course for the bear population very dangerous.’

Table 2. Effectiveness of economic arguments per stakeholder group.

Stakeholder group	Productivity	Growth	Employment	Subsidy
Non-commercial interest	General public	Medium to low effectiveness	Effective	-
	Schools Visitors/Recreationists	Low effectiveness	Not effective	-
Commercial users interest	Landowners/ Farmers/ Fisheries	If applicable, very high effectiveness; often not applicable, as productivity and conservation interests diverge	If applicable, effective; often not applicable, as economic and conservation interests diverge	Effectiveness strongly varies; also cases of counterproductive subsidies observed
	Stock breeders	If applicable, very high effectiveness; often not applicable, as productivity and conservation interests diverge	If applicable, effectiveness; often not applicable, as economic and conservation interests diverge	Effective
	Forestry	Not applicable, as productivity and conservation interests diverge	Often not applicable, as economic and conservation interests diverge	-
Political interest	Environmental NGOs	-	-	-
	Animal rights associations	-	-	-
	Municipalities and other public agencies	High effectiveness	High effectiveness; often not applicable, as economic and conservation interests diverge	Effective
Effectiveness assessment				
Persistence	Persistent	Persistent	-	Persistent for commercial users
Accumulation	If applicable, accumulating	If applicable, accumulating	-	No accumulation
Level-crossing	If applicable, used by both local government, civil society and sometimes commercial users	If applicable, used by regional and local government and sometimes civil society	-	No level-crossing
Diffusion	Some diffusion to general public	Some diffusion to municipality	-	No diffusion
Replacing	If applicable, no replacing; if not applicable replacing by legal	If applicable, no replacing; often in combination with recreation/tourism	-	-

The same was true for arguments about increased productivity. In almost all cases it was impossible to make this argument, as the demanded conservation measures were expected to deter optimal productivity. Consequently, in many cases conservation projects had to deal with strong opposition from commercial users.

Economic theory would typically suggest dealing with these conflicting interests by creating a business case for conservation. For instance this could be done through subsidizing the desired behavior. The examined cases in this study did not contain any incidence where the project management paid direct subsidies to the commercial users. Yet in several cases the project management employed commercial users in some of their activities, provided non-monetary assistance or highlighted the possibility to apply for other public subsidies. On the downside several cases reported financial incentives to be counterproductive. For instance, one interview partner stated that financial incentives were in his eyes not capable of introducing permanent behavioral change:

And then we talk about the pragmatic motivation, this is very easy to convince maybe (...), because you will receive a payment. This is easy to convince, economic motivation. But this is very short term, because we have a very rapid change of values, we have economic inflation, but we have also a values' inflation.

In another case public subsidies were found to be directly undermining conservation purposes. In a land conservation project the manager explained that they had failed to include fallow area in the project because land owners were receiving subsidies for these areas which were still classified as agricultural land.

For public authorities the case was more favorable. Economic aspects seemed to persuade municipalities in several cases. For example one project manager described the synergies between bird conservation and economic interest of the region like this:

And we say, ok, guys, if you want nature tourism, you need angling and birding there. So if you want birds there, you have to have appropriate farming there which is favorable for the birds. So you want birds, you need to have extensive farming, extensive farming means late mowing, late mowing means that the farmers have a problem with the biomass, we don't know where to put the biomass because the hay is not anymore useable for animal feeding. And they say, ok, the biomass maybe can be used for biofuel, you can make pellets out of this biomass and you can heat houses. But then we say, ok, this means if the municipality would change their heating system into a heating from the biomass we would create a pre-condition that there could be a lot of birds and this would be a pre-condition for nature tourism. So we try to put this logic scheme, we try to come with economic figures.

Economic arguments were rarely used for non-commercial users of the ecosystem, because project managers expected them not to be effective with that group. Two of the examined cases suggest that local social cohesion may be a factor that makes the general public more receptive to economic arguments.

Finally, economic arguments were in none of the examined cases used for civil society organizations. However, environmental organization used this type of argument repeatedly in addition to their normative claims to persuade other stakeholder groups.

Instrumental arguments – social. In general the examined cases suggest that social arguments are for all stakeholder groups relatively convincing (Table 3). The legal argument was among all the most frequently used of this group as it was directly referred to by 12 interviewees. Despite being very effective for most stakeholders, it showed large variance in its effect on commercial users of the ecosystem. In some cases commercial users expressed strong reluctance against legal obligations. Project managers indicated different explanations for this effect, for instance the distance between regulator (EU institutions) and the regulated local context or a weak legal enforcement. The latter can be illustrated by a case where the project manager found a large contrast between the effect of the Habitats Directive versus the Water Framework Directive—an EU Directive which governs the quality of water bodies. The project manager stated:

There is a legal obligation because pearl mussels are protected under the Wildlife and Countryside Act and there is the Habitats directive and the legislation in Scotland and the UK. But then there is the other legislation which comes through the Water Framework Directive. (...). But some of their actions could be potentially illegal under pearl mussel legislation, but to them that wasn't important because it was the Water Framework Directive which carries potentially a lot more weight and more enforcement, so they were more concerned about if we use that legislation to talk to them and to tell them how can we help them lead their Water Framework Directive obligations (...)

Another factor that seems to determine the effect of the legal argument is the normative attitude to the conservation purpose and to public regulation in general. One example illustrated this very clearly. We interviewed two managers of large carnivore projects, out of which one reported the legal argument to be very effective while the other stated the opposite. These deviating effects came along with very different attitudes to the large carnivores in question and legal obligations in general.

Arguments about provisioning or regulating services were used in six different cases. In many cases project managers seemed to find it difficult to identify which ecosystem services their project generated. Yet, individual cases hinted that ecosystem services can be very effective arguments, if applicable. One project manager, for instance, claimed that the carbon storage potential of his project was very effective in convincing various stakeholder groups. Other interviewees mentioned flood prevention as a very effective argument. For non-commercial users recreation and intellectual stimulus seemed to be particularly strong arguments. However, the same arguments appeared weak in persuading public authorities or commercial users.

In addition, ecosystem services were most effective, where the benefits were easily understood. Many project managers highlighted that the concept of ecosystem services was too complex or scientific for stakeholder communication. Instead pro-

Table 3. Effectiveness of social arguments per stakeholder group.

Stakeholder groups		Provisioning ecosystem services	Regulating ecosystem services	Recreation and cultural ecosystem services	Health	Resilience	Intellect	Legal	Reputation	Options
Non-commercial interest	General Public	If applicable, effective	-	Effective	Effective	If applicable, effective	Effective	Effective	-	-
	Schools/Visitors/Recreationists	-	Not effective	Effective	-	-	Effective	Not effective	-	-
	Landowners/Farmers/Fisheries	-	Effectiveness varies depending on beneficiary of the services	Not effective	-	If applicable effective	-	Effectiveness varies strongly by context; determinants are regulatory level, strength of enforcement and acceptance of normative base of the regulation	Effective, if social environment in favor of conservation	-
Commercial interest	Stock breeders	-	Effective	-	-	-	-	Effectiveness depending on country context; similar projects were very differently perceived in different countries; possible determinant is attitude towards law in general	-	-
	Forestry	-	Effective	Not effective	-	If applicable, effective	-	Effective	-	-
Political interest	Environmental NGOs	-	-	-	-	-	-	-	Effective, if general public is not opposing intervention	-
	Animal rights associations	-	-	-	-	-	-	Not effective	-	-
	Municipalities and other public agencies	If applicable, effective	Effective	Effective when paired with ecotourism	-	Effective	-	Effective	Varies strongly; depending on public opinion about the interventions	-

Stakeholder groups	Provisioning ecosystem services	Regulating ecosystem services	Recreation and cultural ecosystem services	Health	Resilience	Intellect	Legal	Reputation	Options
Effectiveness assessment									
Persistence	Not persistent	Persistent	Persistent	-	Persistent	Persistent use in context of schools; in other context not used	Persistent	Not persistent	-
Accumulation	Not accumulating, often too abstract for many stakeholder groups	No accumulation observed	Accumulating if tourism industry is growing	-	No accumulation	No accumulation	Accumulation if EU law reinforced through national law	No accumulation	-
Level-crossing	No level-crossing observed	Level-crossing	-	-	Depending on the concrete threat	No level-crossing	If level-crossing depends on country context; may also lead to reactance	Level-crossing both of agreement with argument or reactance to the argument	-
Diffusion	No diffusion observed	No diffusion observed	-	-	Often combined with Ecosystem Services etc. (e.g. flood prevention)	No diffusion	If diffusing depends on country context; may also lead to reactance	-	-
Replacing	Replacing through direct economic benefits or moral obligations	-	Often accompanied by biophilia or local economic growth	-	Depending on the concrete threat	No replacing	Replacing or combining with consensus seeking management solutions	-	-

ject managers referred to the service itself. Where the service could be easily understood, as in the case of recreation or flood control, they ultimately appeared to be strong arguments.

Reputational benefits seemed to be another strong argument, as it was quite frequently used. Particularly, it seemed to be a strong argument to persuade municipalities. However, in some cases it appeared counterproductive, because its effect depended—unsurprisingly—on the public opinion about the conservation measures in question. For instance, protection against invasive species seemed to be a very controversial intervention. One project manager stated:

[the municipality] perceive[s] this problem, because for example they had the red squirrel some years ago and now they have only the grey one. But they don't want to be exposed, because it also involves a political exposure.

Bioprospecting and benefits to human health were used very rarely in the examined cases.

Non-instrumental arguments—inherent value. The most frequently used argument of this category was the intrinsic value of nature (Table 4) which was referred to by 11 interview partners. However, the effectiveness of this argument varied strongly. Five out of the ten cases which used the argument for commercial users found it effective, the other five cases found it not effective. The most positive results of this argument were observed for non-commercial users, as in five out seven cases it was found effective for this group. Project managers used the argument in four cases for education or awareness raising at school. They reported univocally that school children were very receptive to the intrinsic argument. Due to the low effectiveness among commercial users, this argument was however often replaced by or complemented with instrumental arguments.

The argument about a moral obligation was only used in three interviews, but it followed a similar pattern. Finally, the argument about maintaining the balance of nature was not effective for commercial users, but very effective for non-commercial users such as recreationists or the general public

Non-instrumental arguments—human happiness. Arguments that refer to inherent human benefits were particularly effective for non-commercial users (Table 4). This argument type was rarely used for commercial users and, if used, it was generally not effective.

Remarkable were the findings on a psychological benefit/biophilia. Biophilia was an argument often applied to persuade non-commercial users. Particularly recreationists appeared to be receptive to this argument. In addition, project managers seemed to try to trigger biophilia in other groups such as school children or the general public through activities in and with nature. In one case for instance, the project manager explained that the local population was alienated from their immediate natural environment and organized tours had been used to re-establish their emotional relationship to nature.

Table 4. Effectiveness of non-instrumental arguments per stakeholder group.

Stakeholder groups	Intrinsic	Ethical	Functions	Social well-being	Individual well-being	Sustainability
Non-commercial interest	General Public	Effective	Effectiveness varies	Effective	Effectiveness varies, can even be counterproductive in case of invasive species	Effective, but rarely used
	Visitors/ Recreationists	-	Effective	Effective	-	-
	Schools	Effective	Effective	-	High effectiveness, particularly if strengthened by education programs that involved visits to nature, engagement with specific species etc.	-
Commercial interest	Stock breeders	Usually not used, only for some effective	Effectiveness varies; depending on explicit link between balance of nature and livestock breeding	-	-	-
	Forestry	-	-	-	-	-
	Landowners/ Farmers	Usually not used, only for some effective	Effectiveness varies	-	-	Effective
Political interest	Environmental NGOs	-	Effective	-	-	-
	Animal rights associations	Counterproductive in context of invasive species	Not effective in context of invasive species	-	Counterproductive in case of invasive species	-
	Municipalities and other public agencies	Not effective	Effective	Effective	-	-

Stakeholder groups	Intrinsic	Ethical	Functions	Social well-being	Individual well-being	Sustainability
Effectiveness assessment						
Persistence	Persistent	Persistent, but mainly not explicitly referred to	Persistent in some context	Not persistent	Persistent if communication activities are repeatedly reinforced	Not persistent
Accumulation	Accumulation only observed in context of invasive species, where it has adverse effect	Not accumulation	No accumulation observed	-	No accumulation	-
Level-crossing	level-crossing from animal rights associations to general public	No level-crossing	No level-crossing observed	No level-crossing observed	-	-
Diffusion	Potential diffusion from school children to parents	Potential diffusion from school children to parents	No diffusion observed	-	School children as mediator to adults, but no clear evidence for that	-
Replacing	Typically replaced by legal and economic arguments	Typically replaced by legal and economic arguments	Often replaced by recreation or regulating services	-	Accompanied by intrinsic or moral arguments	-

Table 5. Effectiveness of argument with goal not expressed per stakeholder group.

Stakeholder groups		Species conservation matters
Non-commercial interest	General Public	Effectiveness varies
	Visitors/Recreationists	-
	Schools	Effective
Commercial interest	Stock breeders	Effectiveness unclear
	Forestry	-
	Landowners/ Farmers	Effectiveness unclear
Political interest	Environmental NGOs	Effective
	Animal rights associations	-
	Municipalities and other public agencies	Effectiveness unclear
Effectiveness assessment		
Persistence		Very persistent
Accumulation		Accumulating
Level-crossing		No level-crossing observed
Diffusion		Different directions
Replacing		No replacing observed

Goal not expressed. The claim that conservation matters without giving underlying reasons was found in seven of the observed cases. At the same time however, it was reported to have a very mixed effectiveness (Table 5).

Discussion

Argument types: Ecosystem services, instrumental and non-instrumental arguments

Non-instrumental arguments are among the oldest and most widespread arguments for a value of nature. They contributed largely to a policy shift in the 1970s and 1980s which brought environmental problems to the forefront of public awareness (Næss 1973, Callicott 1989) and they have influenced European environmental governance and policy since. In our study we found that non-instrumental arguments were quite frequently used – both in the general and the in-depth assessments – but they were not always described as effective. It seemed that non-instrumental arguments for conservation were a widely accepted paradigm. Nevertheless, it appeared that these arguments possessed limited effectiveness in ultimately persuading stakeholders of the value of the project. School children were the exception for this rule. The fact that intrinsic arguments were frequently used despite their ambiguous effectiveness can possibly be explained by project managers expecting it to possess a normative power of any kind. In addition non-instrumental arguments were seen as a longer lasting motivation while for instance economic arguments were understood as short term incentives by the project managers.

Economic arguments were often vague and did avoid to consider concrete benefits such as job creation. In many cases it was obvious that the vagueness of the argument was caused by the impossibility to claim concrete economic benefits for the project. In most cases commercial users did not directly benefit through the project, thus economic arguments were not applicable in these cases. Indirect benefits may occur e.g. through productivity gains due to maintaining ecological functionality. As described earlier productivity gains were hardly used by project managers as arguments. We can therefore not make any conclusive statement about these benefits. At the same time, the findings show parallels to the findings of the corporate social responsibility (CSR) literature, where most authors agree that companies can only be expected to produce environmental (and social) co-benefits when doing so does not diminish the economic profitability (Blowfield and Murray 2004, Delmas and Toffel 2004). While the CSR literature focuses on large corporations of mainly the secondary sector, our findings suggest that a similar logic applies to the agricultural sector and other primary industries. However, the cases discussed in our study differ in an important characteristic from cases of the CSR literature. While CSR refers to large cooperations, our cases describe local stakeholders whose identity as economic agents and as private persons is much stronger entangled. For that reason factors such as norms and values or social cohesion which go beyond profit play a certain role in their decision-making. Our findings suggest however, that in many cases value-oriented argumentation was not sufficient to persuade commercial users.

In those cases where commercial users were directly benefitting economically, economic arguments were perceived as effective. However, project managers in this study also referred to the risk of motivation crowding out by suggesting the possibility of deterring intrinsic motivations by subsidizing stakeholders for conservation actions. One project manager described economic arguments as a short-lived solution, because the motivation for action would disappear as soon as the economic incentive was gone. At the same time, however, non-instrumental motivations would get lost if focus was given to economic arguments. These findings are in line with literature on motivation crowding out (Stern 2006). As a solution project managers suggested to argue for conservation at different levels, maintaining both non-instrumental and instrumental lines of argumentation.

Instrumental arguments that refer to social benefits can be understood as an addition to economic arguments, because they appeal to the self-interest of individuals or groups. While in many cases creating a business case for conservation through purely economic arguments was not possible, social arguments were added to the argumentation in many cases with success. Arguments about ecosystem services are one type of non-economic arguments that refer to instrumental values. As our results have shown they succeeded in some, but not all, cases to create a business case for conservation by drawing the attention to non-monetary benefits such as flood prevention. Our findings confirm a trend identified by other scholars (Plant and Ryan 2013) towards increasing use of arguments that highlight benefits from ecosystems that go beyond purely economic terms. The finding that specific ecosystem services such as flood prevention or recreation appeared particularly effective suggests that ecosystem services are most

effective, where they coincided with the self-interest of the stakeholder. Henceforth, ecosystem service arguments can be understood as an extension of economic arguments in the sense that they can help to create a business case for conservation.

At the same time, however, the findings suggest that the concept of ecosystem services may be very theoretical and often not appropriate to communicate to local stakeholders. A large number of project developers used arguments that can be framed under the ecosystem services concept, without being aware that these benefits could fit under this concept. Other project developers refused the terminology of ecosystem services because they saw it as too scientific or too technical to communicate to local stakeholder groups. This finding has to be treated carefully, because it is possible that project managers underestimated the ability of stakeholders to relate to the ecosystem services terminology. While we can therefore not be completely certain about the effectiveness of references to the term 'ecosystem services', our findings provide clear evidence that specific ecosystem services are often used by project managers to communicate with local stakeholders and that these arguments are effective in many cases.

Bringing these findings together, project managers favored usually a mix of different arguments. While the non-instrumental arguments were widely used and appeared to be generally accepted by stakeholders, they were in the majority of cases combined with instrumental arguments. Instrumental arguments were used to create a business case for conservation and to appeal to the self-interest of stakeholders. In our study no project manager saw a risk of crowding out intrinsic motivations by economic arguments, as long as the intrinsic arguments continued to be used. This argumentation strategy was described as having the advantage to speak to individuals of the same stakeholder group who had different values and preferences as well as to address different dimensions in the considerations of the same individual.

The popularity of arguments that do not express a clear goal possibly relates to the advantage of being vague. By leaving out the premise of the claim, it remains open to interpretation. It is possible therefore, that the argument speaks to a wider audience. At the same time, however, the vagueness could also weaken its persuasive power, which seemed to be case in several of our observed cases.

Mediating factors

As expected the socio-economic context of a project has an impact on the effectiveness of arguments. Several cases gave suggestive evidence of the importance of the relationship to nature or the species in question in explaining the effect that an argument had on stakeholder groups. For cases where the project developer reported that a stakeholder group commanded over solid knowledge or has an emotional connotation to the respective natural environment, it seemed that intrinsic arguments were more effective than otherwise. However, where there was no strong previous relationship with nature, several project managers reported to have succeeded in fostering it through activities that made stakeholders engage with and in nature, e.g. through guided tours.

While in general economic arguments seemed to be hardly effective for non-commercial users, our cases contained some exceptions. For instance a Greek project manager reported that arguments about the economic dependence of local stock breeders on the ecosystem, was an effective argument for the general public. Social cohesion seemed to be the underlying mediating factor, which made unaffected stakeholders more receptive to benefits borne by others. While the evidence of this mechanism in our study is only narrative, it is in line with other studies that found that economic arguments are not only effective for directly affected individuals, but may be used as a general welfare argument (cf. Primmer et al. 2014b).

In our structural framework we outlined that the way of presenting the argument is further expected to be a determining factor. We identified three general modes of how the message was communicated that went beyond wording of the message. One of these factors was already mentioned - the communication of nature's value through experiences in and with nature. This experience-oriented way of presenting was reported to be effective, particularly for non-commercial users.

It links closely to the second method of communication that we identified as mediating factor. This second method is participatory practices. Participation appeared in the examined cases in various forms. For instance, several projects involved stakeholders directly in their project activities, e.g. in monitoring of an animal population or management practices. In other cases the project management held participatory meetings with local stakeholder to provide information, identify concerns and try to resolve them. These findings have to be seen in lights of the literature dedicated to participatory approaches (Arnstein 1969, Rowe and Lynn 2000, Newig and Fritsch 2009, Rauschmayer et al. 2009). Participation proved to be effective to reduce conflicts by creating a two-way communication. Some participatory approaches actually sought to create consensus, thus going beyond pure persuasion of the stakeholder. It can therefore not be understood as promoting the stakeholder acceptance of a predefined conservation outcome. However, in many cases it appeared that a consensus seeking approach was a key factor to achieve any conservation at all. Hence, consensus seeking practices should also be understood as one of the mediating factors for stakeholder persuasion.

Finally, the identity of the message communicator plays an important role for persuasion. In our study, we found that sometimes third parties were employed to communicate the message who had potentially a better relationship to the stakeholders. For example, one forest project used the foresters to communicate with hunters, as these had a mutually trustful relationship.

In other cases project managers attempted to improve their own relationship with stakeholders through various techniques. For instance, information provision and general transparency were reported as a way to create trust. As already mentioned, consensus seeking approaches pursued the same aim. These findings are in line with general theories on how trust can facilitate cooperation and under which conditions it can be built (Mishra 1996, Cook et al. 2007) and how lasting relationship of trust can be established (Primmer 2011).

Conclusions

The results of this study showed a certain pattern in the effectiveness of instrumental and non-instrumental arguments used in conservation. The non-instrumental argument about the moral base of biodiversity conservation was usually an accepted paradigm with which stakeholders did not generally disagree. However, the acceptance of this norm was in most cases not sufficient to motivate action against economic interests. Instrumental arguments were decisive among commercial users of the ecosystem. Whereas their economic interests seemed to diverge from conservation interests, additional instrumental arguments, including ecosystem services, could be used to create a business case for conservation. Instrumental arguments are hence not replacing but adding to non-instrumental arguments to guarantee political feasibility.

Stakeholders without commercial interest tended to be more receptive to arguments that implied a benefit to themselves or their communities, such as recreation or cultural value. While non-instrumental arguments found acceptance, it was typically the mix of instrumental with non-instrumental arguments that appeared effective for this group.

Overall the study showed a mixed picture, where different individuals of the same stakeholder group could be persuaded by very different arguments.

Project managers thus recommended in general a mixed communication strategy that deploys both instrumental and non-instrumental arguments. While it would be possible that a mixed communication strategy blurs the intended message, project managers in this study were convinced that a mix of instrumental and non-instrumental arguments made the communication more effective. First, they suggested that a mix of arguments helped to reach different individuals in the same stakeholder group who might differ in their values and preferences. Second, instrumental and non-instrumental arguments were seen as complementary in simultaneously relating to different dimensions of an individual's values or preferences.

The findings of this study add to the recent field of environmental communication by showing that conflicts with local stakeholders can be reduced by effective communication. To create effective stakeholder communication this study suggests that managers of conservation projects should avoid focusing on single arguments, regardless whether or not they are instrumental or non-instrumental. In order to be effective environmental stakeholder communication has to account for the multiple values and preferences within stakeholder groups and within individuals by employing a mixed communication strategy.

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Supplementary material I

Interview protocol

Authors: Angelika Müller, Joachim Maes

Data type: Text

Explanation note: List of questions used by the interviewer during the telephone interview with project managers.

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