A SOCIAL – ENVIRONMENTAL APPROACH TO FACILITATE SOCIAL PARTICIPATION IN THE MANAGEMENT OF PROTECTED AREAS

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“Every individual human and non-human in the ecosystem bears a personal responsibility for understanding and maintaining their relationships. Knowledge of the ecosystem is moral and legal knowledge, and adepts are not only expected to teach their insights to others, but also to mediate conflicts between humans and other species” (Barsh, 1999:74).

Abstract

Community-based decision making processes and participatory methods are increasingly applied to assist conservation of Protected Areas and to ensure better ecosystem management. However, current styles of participation frequently address community needs and insufficiently analyze social and social-environmental interactions as part of the processes of dialogue between local and global actors involved in the transformation and maintenance of ecosystems. This paper argues that learning about links between social actors and their environment is crucial for building dialogue schemes to establish and manage Protected Areas. The author adopts a political ecology point of view constructing a unit of analysis called place-network, utilizing Social Network Analysis to grasp them. This approach provides a tool of analysis that facilitates the organization of data about social and social environmental interactions to improve participation according to social actors’ meanings and practices in the places where Protected Areas are located. It concludes that it is necessary to include the study of social-environmental interactions for management and social decision making in Protected Areas, in order to build legitimate processes of conservation; they are the clue to acknowledge the ways human beings afford their environments and configure particular landscapes, which in turn is the basis to establish dialogue schemes that search for more sustainable behavior and social change.

Introduction

Social interactions are a vital part of ecosystem dynamics in many environments with consequences on their transformation and maintenance (Ingold, 1992; Croll and Parkin 1992; Gómez-Pompa and Kaus, 1992; Williams, 1996; McNeely, 1998; Escobar, 1999). Protected Area Conservation – PAC -, as a management strategy, must understand how social practices affect the configuration of habitats and identify a unit of analysis beyond the biological aspect of ecosystems incorporating social-environment interactions. This social approach to PAC must include considerations on the politics of ‘nature’ when different constructions of the environment provoke tensions and conflicts between social actors and their relationships with the non-humans (Barry, 1999; Soper, 1996).

Barry (1999) argues that it is impossible to objectively define ‘environment’ and that any working definition would have to consider language and politics. In the same address, Latour (in Boczkowski, 1997) identifies non-humans within the issue of science and politics, giving a sense of agency to non-humans and their influence upon human beings. In the context of the Actor-Network Theory – ANT- (Latour, 1999; Law, 1999) an actor is defined as a relational effect which leads to a patterned network of heterogeneous relations affecting humans and non-humans. Accordingly, the notion of ‘environment’ embeds human beings and is not one apart from humans, who are part of and take part in the development of their habitats. In the same sense Escobar (1999) developed a Post-structuralist perspective of environment-society relationships. This perspective seeks an understanding social and environmental dynamics when social actors interact with their environment. It is considered to be an anti-essentialist perspective in character and its central premise is that each individual human being is subject to particular historical practices in a social and environmental universe (Escobar, 1999).

Following these approaches to understand human and non-human relationships, this paper critically presents an approach for including a social dimension in PAC. It also discusses the
linkages between human and non-human elements relevant to those planning and managing Protected Areas (PAs) using a unit of analysis called place-network, which goes beyond the ‘ecosystem’ unit of analysis to include ‘community-based’ participation in the framework of PAC. Place-network is a relational unit of analysis that facilitate the dialogue between those promoting participatory styles of management and environmental managers, due to its considerations on social-environmental interactions rather than focusing strictly on social needs and interests within PAs.

In order to accomplish the goal presented above, this chapter is structured as follows: the social dimension of PAs is presented in the first section, seeking to build a background of the field in the last ten years. In the second section the place-network concept is introduced as a framework that allows the analysis of different features involved in the configuration of landscapes in a given place. In the third and last section a methodological construction for the analysis of the social and environmental interactions of PAs is sketched in the framework of place-network, using Social Network Analysis (SNA) and the sociology of translation. It includes an application to identify tensions in the network of social actors related to the conservation of the wetlands of Bogotá. Finally some conclusions are presented.

1. Social dimension of Protected Areas

The establishment and management of PAs has been undertaken using different strategies, from legally controlling social behavior to utilizing consensus and joint management practices (West and Brechin, 1991; Amend and Amend; 1995, Ghimire and Pimbert,1997). The present debate on how social practices are associated with PAC recognizes that social actors’ participation and legitimacy are key issues which have to be addressed in order to successfully accomplish PAC and protect the biodiversity as well as traditional and cultural values. In addition, benefits, equity, and livelihoods derived from conservation are central themes which must be adequately dealt with to achieve effective PA management. Social participation is an important element of any strategy seeking to reach the goals of biological diversity conservation and the consolidation of PAs where partnerships and alliances are the main ordering processes that validate strategies to legitimize the areas (West and Brechin, 1991; Geisler, 1993; Pimbert and Pretty, 1997; McNeely, 1998; Stolton and Dudley, 1999; UAESPNN, 1999).

The main critique of social approaches to the establishment and management of PAs has been that legalistic and top-down styles are highly problematic in terms of the emergence of conflicts between social groups with different interests on the place (West and Brechin, 1991; Amend and Amend, 1994; Ghimire and Pimbert, 1997, and McNeely, 1998). The previous authors oppose normative and control styles of establishment and management of PAs, and have developed a set of alternatives to tackle the issue of how to effectively involve people in PAC considering participation, joint management and co-management. They hold that the isolation of areas to preserve species or particular environmental resources is surrounded by a style of development which provokes environmental degradation not ensuring effective PAC. In addition, they oppose to strategies which prohibit or restrict human activities in PAs, especially, when these territories result from a long history of human interaction. They also argue that poverty and other structural economic conditions, combined locally with restrictions in land use, create bottlenecks for people whose livelihoods depend on these territories. Finally, Indigenous Peoples whose land rights, culture and knowledge depend on these pieces of land or sea are deeply affected when PAs are founded and managed in an insensitive way.

Many experiences involving participatory processes in PAC have been based on people at the local level, as stakeholders familiar with the place to be conserved. Some examples are the Communal Area Management Program for Indigenous Resources (CAMPFIRE) in Zimbabwe, the Joint Forest Management (JFM) in India, Ecotourism in Africa, Extractive Reserves examples from Brazilian Amazonia and Indonesia, and the issue of Biodiversity prospecting and commercial leases (West and Brechin, 1991; Amend and Amend, 1995, Ghimire and Pimbert, 1997). The main lessons drawn from these experiences is that it is important to strengthen people’s capacity to manage their own territories as a way to reinforce the process of conservation by drawing upon on their sense of belongingness, which is determinant in the configuration of human territories (Thift, 1996).
On the other hand, Oates (1999) strongly recommends being careful with proposals which encourage and involve people in co-management of PAs as they have provoked negative effects on conservation. Oates draws on over 30 years of experience in conservation field research and presents a series of cases where the assumption that local people will live in co-operation with conservation seem flawed. The author claims that people in times of economic and political stress move to areas, where conservation efforts are underway or needed, and once they arrive; their activities are unlikely to be the same as those of indigenous people and most probably do damage to wildlife. Oates makes it clear that there are many situations where he feels that empowering locals have not led to better conservation; indeed he suggests that things may be better under the control of central government.

These approaches have made great contributions to the application of social analysis to the social problems in PAC, and have helped prepare most of the innovative management strategies, however, they lack of a satisfactory definition of the ‘social’ in relation with nature (Palacio, 2001). Residents (West and Brechin, 1991) and local heterogeneous communities (Ghimire and Pimbert, 1997), interest groups and stakeholders (Blaikie and Jeanrenaud, 1997) and McNeely (1998) are defined as social constructs based only on social characteristics. For instance residents, according to West and Brechin (1991), are defined by the social attributes of people who are settled in PAs. Local heterogeneous communities and local people according to Ghimire and Pimbert, (1997) are defined by their age, gender, ethnic and class attributes. The Stakeholders according to Blaikie and Jeanrenaud (1997) and McNeely (1998) are defined by their economic interests, means and the scale of influence of their power and action in PAs. Whatever the category to nominate the social actors they are not defined by their relational links and ties to their environments and other social actors, which are the political ecology subject of study in PAs. Without acknowledging relational features of social actors and their environments, it is also difficult to define strategies that are sensitive to the influences of each actor's practices and meanings upon the environment in territories where PAs are, or will be, located. Therefore, Social participation in PAC processes should be organized under an informed analysis of each social actor's interactions with the place and the contextual (normative, economic, cultural causes).

Strategies to improve conservation through PAs that include participatory styles still need to take more seriously the understanding of social and environmental relationships regarding the political ecology involved.

Political ecology is a field of knowledge that has recently become relevant to studies of relationships between social actors and their environments involving the study of meanings and conflicts, social organization and the construction of nature accordingly. Works such as Rocheleau, Thomas-Slayter and Wangari (1996) have given to the field a focused view of the specificity and heterogeneity of these relationships. They drew an approach to political ecology from a feminist point of view, making a careful analysis of the gender division of rights, responsibilities, and environmental risk in everyday life. Escobar (1999) on the other hand, shows how environment is constructed historically in reference to different social/nature relations structured over time. The environment is described by an observer who constructs upon it actions and concepts within different regimes of relations of nature/society (Escobar, 1999). Meaning, knowledge and labor are the most important components of the study of the social relations with nature. Nature in Escobar's (1999) terms, following Latour's theoretical developments, is at the same time real, collective and discursive, and needs to be naturalized, sociologized, and deconstructed accordingly. Nature has been defined within the modern ideology of naturalism as an essential principle, a foundational category, as pristine nature outside of history and human context. However, nature is also defined as a construct of our meaning-given and discursive processes. For Escobar (1999) what we perceive as natural is also cultural and social. In order to interpret different types of nature/society relations, Escobar offers a framework of Nature Regimes using an anti-essentialist model of analysis. He establishes the existence of three kinds of nature regimes: the regimes of Organic Nature, Capitalist Nature and Techno-nature.

Seeking to follow these novel aspects in the process of management of PAs, I argue that the intention to use systems of organizations to protect nature should take into account the complexity of social-environmental interactions. Thus, it is important to go further in the
development of approaches that offer better understanding of them, in order to find out new paths to establish better relationships amongst human beings and the non-humans and between them and their environments.

2. Place-network: a unit of analysis to understand social–environmental interactions

PAs can be defined as places where processes of configuration of social-environmental interactions, social structures, and legitimacy occur (Palacio, 2001, 2002). Thus, central theoretical categories are place and networks, because they are explicative of the complexity of the social dimension of PAs. At the beginning of this century place was conceived as an ‘element-complex’ “…an intricate constellation of the various features found at a given location” (Hartshorne in Barnes and Gregory, 1997:293). At present there are two main tendencies over the conceptualization of place, the one of Harvey (1997), who argued place is a set of fixed characteristics from which people take comfort, and Massey (in Barnes and Gregory, 1997: 295) who says that place does not denote fixed characteristics “…nor even fixed spatial boundaries. Giving the multiplicity and changing nature of the relations impinging on place, it is necessarily a site of conflict and contradiction”. This latter position does not deny the uniqueness of place, but it prompts careful attention to the analysis of “…the consequences of the multiple intersection of generalized flows, power structures, discourses and subjectivities” (Barnes and Gregory, 1997: 295).

Based upon Massey’s definition, it is important to underline the importance of two important theoretical aspects. First of all, the social relations of power, where social actors are engaged in heterogeneous networks of interactions structured in patterns of relations in (a) specific time-space boundaries. And second, the cultural perception of environment that these actors carry out in their discourses and within their actions.

The Actor is an individual or collective subject (the subject), acting. The Actor is a concept, which denotes human action and gives signals of how ‘I’ am or ‘we’ are defined in praxis. Thus, what defines an actor is not only a matter of discourse, but also a matter of action, self-interpretation of this action, and the discourse, which describes this action by other actors. Finally, as far as human action involves other social actors, and non-human beings and things, to develop or carry out an action, this action is also an interaction. The interaction denotes then the network of actor’s action, as it denotes action with. Action with in the social domain regards communication, coordination, agreement or disagreement and confrontation, as well as the utilization of resources, knowledge and technology. Therefore, it is important to note that interaction involves, then, reflexivity and dialogical models. These interactions configure patterns of relations where establishing structures of power and types of social participation in a given time-space limits. Meanings about the environment are involved in actors’ practices. Meanings about the environment are defined and identified regarding two main streams of the social theory of Praxis. First, meanings, in the non-representational theories of practice, are understood as an intrinsic part of human praxis; meanings are defined as significance not as signifiers, meanings are the intrinsic value of action, not the constructs that nominate the material world (Ingold, I992; Thrift, 1996). Thus, Praxis is understood as the dynamics of the ‘pre-textual reality’, which denotes the human engagement with things in the world in the process of action and interaction (Ingold, 1992; Thrift, 1996). Second, the representational theories emphasize on the strong influence of discourse as text in shaping ‘reality’, (Turner, 1988; Giddens, 1984, Escobar, 1999). Discourse is defined as an overflow of representational meanings, which is modeling practice, reconfiguring the pre-textual reality (Ingold, 1992). Discourses as texts, as innovations and reinterpretations, make it possible for social actors to set up new ways to afford the material world, giving new meanings to it, new functions, and new feelings within the limits of the objective conditions which surround it (Ingold, 1992). Discourse, as text, is able to change the social configuration of interactions; social actors are copying behavior from others’ discourses and practices, sometimes without regarding their own context.

Place-network as a concept gives information about the types of social-environmental interactions that configure PAs, and the types of social-environmental interactions of different social actors overlapping with them. Place-network is not only a continuum of relations but also an overlapping
of social interactions, which in some cases are contradictory and conflictive and, in other cases, are allied and agreed. Social actors, the environment, power relations and participation styles involved within PAC at given time-space boundaries, are the elements which constitute these place-networks in PAs.

Place-network as a unit of analysis then offers the possibility to inform interactive actors within a dialogical model for PAC, including a wide range of them related to PAs, in order to negotiate and legitimize conservation issues that respond to local and global needs of conservation and development. The identification of types of place-networks allows observing whether or not PAC is an inclusive or exclusive process; whether each PA responds to the needs of a large or small group of people; and, whether local and outsiders’ interests and non-human presence are represented in it. Observing place-network, make it also possible to grasp information about which kind of alliances and conflicts are involved, and which types of social-environmental interactions are overlapped within PAs.

Identifying the actors related to PAs and their interactions with other actors and the non-humans and their environments involve the following statements:

- Each set of social actors has different frames about the social and environmental worlds.
- The existence of different frames engenders different sets of actors.
- Social actors derive, their experiences, perceptions and understandings from their social and environmental worlds.
- Finally, the existence of multi-sets of actors with a variety of frames establishes multi-dimensional place-networks. This last point assigns the composition of the conflicts and alliances that could be knitted in the network regarding different interests, capacities, experiences, and knowledge and power relations.

3. Grasping place-networks in PAs

The context of place-networks is built regarding three main types of boundaries. The first boundary is of a social spatial kind. As ‘being is never out of place’ (Thrift, 1996: 47), the main social spatial boundaries of any place are given by the practices of social actors. For this, the main categories of actors included to define the spatial boundaries of the place are three according to Escobar’s biodiversity networks (1999):

- the scientific community,
- the users and controllers of biodiversity
- the conservationists.

Users are making a living from their practices, and scientific community, conservationist and state institutions are calling for their legitimized and hegemonic power upon the others’ to ensure the accomplishment of particular interests. So, in this respect, practices are organized and organize the place according to each actor’s functions, meanings and power.

Time boundaries are the second type of boundary of place-networks and are defined by the flow of events that give reference to the types of existence of the place (Thrift, 1996). That is the practices as routines in specific periods of time: the practices repeated on the basis of daily life, or weekly, or seasonally or when they are a contingency. The third boundary is related to the whole range of place’s environmental meanings according to the actors’ meanings and practices together with each place’s objective properties (Ingold, 1992).

3.1. The methodological instruments involved in the analysis of the place-networks

The construction of methodologies of analysis in the framework of place-networks can be done using different theoretical approaches. An alternative which involves three main theoretical elements is presented: the description and analysis of the context with Actor Network Theory – ANT – (Callon, 1986; Law, 1999, Latour, 1999), the measurement of some structural properties of the place-network using SNA (Freeman, 1979; Wasserman and Faust, 1994; Diani 1995, 2003) and its critical view applying the Anti-essentialist Political Ecology (Escobar, 1999). The questions that guide the composition of contexts of PAs and its place-networks in this scheme are:

- Which are the circulating meanings and practices that give form to the place-networks in each PA?
- Which are the types of social-environmental interactions that overlap within PAs?
Which are the types of social networks that configure each PA?
Which are the conflicts and alliances involved in place-networks?
How to integrate this information in the process of decision making without banishing the other (the social and natural components) in order to facilitate ordering processes in PAs?

The first question refers to the identification of all meanings and practices existing in the place where a PA is located. The second question relates to the integration of the different social-environmental interactions and the social structures related to PAs, appraising the value given to different practices and meanings related to the environmental elements which constitute the place where a PA is located. The third question looks at which types of actors’ worlds (Callon, 1996b; Latour, 1999), as a continuum between human and non-human entities, are articulated to each place and represent the social-environmental interactions in a network form. The fourth question addresses issues related to the political ecology (Escobar, 1999) of PAs, that is the differences of meanings and practices and the conflict emerged from it amongst actors. The last question explores the integration of the debate about what styles and what types (Pimbert and Pretty, 1997; Drijver, 1992) of social participation for PAC are likely to be inclusive of other social actors different from the state park body and their current allies.

3.2. The place-networks of conservation: the wetlands of Bogotá

Bogotá’s wetlands are the ‘battlefield’ of citizens’ organizations and local authorities in the context of urban expansion during the last five years (1998-2003). The central issue of the debate is whether recreational parks or PAs are the best condition of use in order to preserve these important relics of wetlands. The interactions between these actors and the wetlands configure a place-network which is explored in two forms. On the one hand, the importance and influence of actors in the social network within the period of 2000 -2002 is studied applying SNA, mainly centrality and group cohesion indices. On the other hand, using the sociology of translation, a discourse analysis from ANT, the tensions between social actors concerning their meanings on wetlands in Bogotá are presented and discussed with the insight of Escobar’s political ecology approach. This study shows three main elements of the place-networks of conserving wetlands in Bogotá:

- The emergence of social interactions in the place which have the potential for conserving the relics of these ecosystems,
- The SNA of these interactions gives evidence of the structure of relations between actors in the social network,
- The discourses and practices of central social actors mark a tension in the social network due to different translations of the urban area into different styles of environmental management of the wetlands

Bogotá is the capital city of Colombia, a South American country. This city has about 6'000.000 inhabitants and is located in a savannah in the Andean mountains at 2,600 m.o.s.l. The city area has doubled in the last fifteen years, mainly towards the west area of the savannah. Until 1950 the extension of wetlands in the savannah the Bogotá was 50,000 ha. Now remaining fragments of these ecosystems have 700 ha. (Andrade, 1998)

This study includes 12 wetlands of Bogotá y and its surroundings, 14 social organizations members of the network Red de Humedales de la Sabana de Bogotá (RHSB), and two types of ties between social actors related by their conservation activities to the wetlands: direct ties and indirect ties (Palacio, Hurtado, Garavito, 2003). For direct ties explicit interactions among actors of the RHSB were studied, while for indirect ties the interaction among them and their institutional and social milieu were considered. These interactions were observed in join actions of the members of the RHSB in each wetland and management actions related with each wetland involving actors of the institutional and social milieu and actors of the RHSB. The relational patterns generated by direct and indirect ties were studied for the network of actors of the RHSB, in the second case mediated by their institutional and social milieu, and for the network of actors of the institutional and social milieu, mediated by the members of the RHSB.

For this study the social network is defined in the framework of place-network taking into account
all actors involved in environmental management of the wetlands in Bogotá and the direct and indirect ties amongst them. The interest is to underline social (communitarian) participation in wetlands' environmental management, showing the emergence of a social network of organizations relationally involved with an institutional and social milieu that shows a pattern of structured relationships with wetlands: a social-environmental pattern.

SNA application includes classic centrality measures (degree, closeness and betweenness) and cohesive groups (complete mutuality by cliques) (Freeman, 1979; Wasserman and Faust, 1994: Freeman, 2002 and Diani, 2003) which gives evidence about prominent actors and centrality correlations between members of the RHSB and the institutional and social milieu related to the environmental management of the wetlands. As a result of the SNA applications the most prominent actors of the institutional and social milieu were identified and involved in a qualitative analysis, in order to identify tensions within the network, using the narratives of actors in the four movements of the sociology of translation in the framework of ANT: problematization, interesment, enrolling and mobilization (Callon, 1986; Law, 1999). Finally, the different meanings and practices involved in the issue of environmental management of these wetlands are considered from the point of view of the political ecology approach.

3.2.1. Structure emergences in the social network of environmental management of the wetlands in Bogotá.

In this section the emergence of prominences in the social networks of the RHSB and the institutional and social milieu is explored. The structures of the social network of the RHSB generated by direct and indirect ties show strong correlations. At the global level cohesion in the first case was 0.732 and in the second 0.750, average distance 1.555 and 1.501, reachability 100% in both cases, transitivity 14.70% and 22.06%, and centralization 38% and 39%. At the local level the most central organizations in both cases are actors 1 and 2, working at Conejera and Cordoba respectively, taking three classic measures: Freeman degree, closeness and Freeman betweeness degree, as well as by considering cohesive subgroups (cliques). Figure No. 1.

Figure No. 1. Obtained by multidimensional scaling of geodesic distances between actors of RHSB identified with each wetland. Distance is defined as the inverse of the strength of the indirect tie.
The indirect ties between actors of the milieu, generated by their common direct interactions with actors of the RHSB, structure the network accordingly to the strength and position of actors in the milieu and the focus of their activities. As a result of centrality measurements (degree, closeness and betweenness) and cohesive subgroups (cliques) it was found that RHSB (taken as one actor in this case), the Ministry of Environment (Min. Ambiente), the water supply office of Bogotá (EAAB), local authorities of environmental management (DAMA), neighboring schools (Colegios Vecinos), the regional environmental authority (CAR), the local committees (JACs) and local counties (Alcaldías locales) are the most prominent actors of the social network generated by indirect ties. Figures No. 2 and 3.

3.2.2. Actors Narratives and the political ecology involved in the place-networks of wetlands’ management of Bogotá.
Actors’ meanings about the wetlands are found in both their discourses and their actions. In order to identify these meanings in the place-networks of wetlands’ management of Bogotá a set of the most prominent actors of the place-network were chosen to study the actor’s translations of the wetlands, regarding both, their discourses and their actions upon these places. As a result of this analysis three different models of conservation were found: the conservationist – ecosystem oriented model, park oriented model and the hybrid model. Table 1.

The first model is one of the most powerful results of the organized citizens represented in the Conejera and Cordoba wetlands with a tradition of 12 years of work.

<table>
<thead>
<tr>
<th>Translations</th>
<th>Problematizing</th>
<th>Interestment and Enrolling</th>
<th>Mobilization</th>
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<tr>
<td>RHSB organized citizens.</td>
<td>Wetlands are ecosystems to be preserved under a strict category of conservation giving opportunity to enjoy these features to the local communities in the long term.</td>
<td>Local environmental authorities, community based organizations, local schools, international founding NGO, Control estate authorities from legislative branch.</td>
<td>A restored ecosystem with local support of the communities.</td>
</tr>
<tr>
<td>EAAB (water supply office of the city)</td>
<td>Wetlands are defined as natural drainage of the city and potential parks.</td>
<td>World bank, local authorities, engineering companies, experts and consultants as a producers and local communities as users.</td>
<td>A lake with asphalted paths around it and children green and play zones.</td>
</tr>
<tr>
<td>DAMA (Environmental local authority)</td>
<td>Strategic ecosystems that should be preserve to maintain environmental services and social welfare</td>
<td>Estate budget, engineering enterprises, experts and consultants, technical and scientific studies, and community members: schools and organized groups.</td>
<td>Discrete asphalted paths far a way the lake border. Maintenance of lake vegetation and reforestation of a garden of native species and some park facilities such seats and places with ecological information.</td>
</tr>
<tr>
<td>Ministry of Environment</td>
<td>Ratify the RAMSAR Convention for the conservation of wetlands and to ensure that the law is upheld.</td>
<td>Articulating national, international and local levels to ensure the law of wetlands is upheld and supports the citizen organization to achieve the conservation of these ecosystems.</td>
<td>Committee of local authorities, scientific community and organized citizens.</td>
</tr>
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</table>

Table 1. The main elements of discourses and practices of each actor

This model combines a discourse that defines the wetlands as ecosystems that should be preserved as habitat of its natural related species and their ecological functions with local communities’ involvement in environmental education and conservation activities, including non active recreational actions such as bird watching or walking. Therefore the actions taken by
RHSC involve: legal action to improve norms address to the conservation of these places as Protected Areas or Sanctuaries enrolling the local, regional and national environmental authorities to achieve this goal (DAMA, CAR and Min. of Environment) when these sectors have not repaired in this places as important environmental features that support the city; agreements with private housing companies who caused the main impact in this ecosystem adapting them to the conditions to urbanize them; involving the local citizens, schools, and community-based organizations in ecological restoration activities: reforestation with native species, cleaning the water flows from wastes and separating the wetland from the urban area by natural fences.

The second model, the park oriented one, is led by the water supply office of Bogotá (EAAB), with the support of the World Bank in the Juan Amarillo Wetland during the last 4 years. This model’s characteristics include: the sanitation of water separating those which are wasted from rain water; the cleaning up of borders of the lake from vegetation to build a great infrastructural project with asphalt paths for walking and cycling around the lake, and installing mechanic games for children. This lake is visited by 3,000 people each weekend and is used by local communities as a recreational park. The citizens are involved as users of the place and as participants of some programs of environmental education in the local schools. The producers are related to private enterprises which build the infrastructure and develop the sanitation and reforestation activities.

The third model, the hybrid one, seeks to present a middle way alternative, combines park infrastructure with some of the ecological elements preserved in the first one. DAMA, the Bogotá’s environmental authority leads this model enrolling technicians to build up the place and schools and local community participation to convert these spaces into an environmental place for the education and enjoyment of Bogotá’s citizens. This model was posed to the community in 1998 and presented first results three years later. In this period of time the local groups organized under the first model was opposed to the new model, so a division of local community occurred. As a consequence of these three different proposals there is a political divergence between local authorities and the RHSB, which can be called using Escobar’s terms as the controllers and conservationists. The divergence consists in the way these fragments should be managed regarding economic, social, and ecological criteria. The controllers, in this case, are interested in establishing a political legitimacy by showing the great benefits of rescuing these ecosystems which are in peril because they are a place for contamination and expansion of the urban area. They are now understood as a natural drainage of the waters of the city and as important recreational places for the citizens.

The second actor, the conservationists, are trying to prevent neighboring citizens of urban wetlands from these investments that are extremely expensive for the city and do not have the real advantage of conserving them as they are naturally. Furthermore, they argue that establishing processes of participation that create a sense of attachment and belonging, engender sustainability of the ecosystem in the long term. In order to achieve that, they argue that the activities should involve local communities to participate in the design and building of the landscapes as they did in the wetlands of Conejera and Cordoba. Finally this actor also underlines that the local authorities forget that Colombian ratified RAMSAR convention in 1997 with a law (387/97) and that this law should be the guidance of the debates about territorial planning and management of the city. Their main point is that the recreational infrastructure such as asphalted paths to cycling and walking and lighting disturb enormously the ecosystem and this is not the way to restore it, which, additionally, excludes the non-humans and their habitats.

**Conclusions**
Place-network is a concept that involves several elements integrated into the social-environmental interactions: space, time, society and environment are articulated to the construction of a place. These concepts however must be seen from the context in which they are formed. They also are used here as a descriptive methodological perspective, which makes possible to visualise social-environmental interaction in PAs in order to support alternatives of participatory environmental management.

The incorporation of place-networks of meanings and practices in PAC implies defining them not only as they are translated by the official discourse, but also as places that are configured by social-environmental interactions involving meanings and practices of different social actors. Meanings which in some cases provide evidence of contradiction and conflict with respect to the
PAs whilst, in other cases, indicate an affinity of objectives.
The main contribution of SNA in PAC is the possibility of identifying emerging patterns in the
structure of social networks generated by ties between actors. These emergences can be
observed directly in the presentation of relational data in the form of matrices and graphs, or
grasped looking for global and local properties of the network as centralization, centrality and
cohesion of subgroups. This approach of SNA can support other analysis based on different
theoretical frameworks, as well as participatory processes of management since it allows
synthesizing information of social-environmental interactions needed for dialogical processes.
The contributions of the narratives of actors by Actor-Network Theory is the metaphor of ‘network’
understood as a representation of the actor’s world: an egocentric world, which integrates
symbols and material from the outside world to satisfy the actor’s necessities from the viewpoint
of the actor’s social and cultural construction. Meanings involved in this actor’s social and cultural
construction engender agreements, alliances or conflicts of management in PAs, which can be
discussed among actors in dialogical schemes rather than unifying behaviour by normative or
coercive means.
Participation in PAC is a task which demands careful observation of the social contexts of the
place-networks, their affinities and conflicts, taking account the environmental elements that are
afforded by the social actors in a given geographical place. Likewise, participation implies careful
observation of the relationships among the different actors themselves with respect to specific
topics such as the in situ conservation of biodiversity which, in addition, it involves dominant, and
newly strengthened discourses in the era of ecological capitalism (Escobar, 1999). PAC now is
attempting to integrate other translations of places seeking legitimacy, validity, and visibility in the
construction of places, such as those of grass-roots organisations, conservationist NGOs, ethnic
minorities, and those prevented from participating due to discrimination based on age and
gender.
Participation in the conservation of PAs is thus a critical and dialectical process of acquisition of
knowledge, action, and formation of identity of the actors and of the places selected for
conservation. Participation incorporates action and transformation of the Political Ecology of the
PAs, where the relationships between the actors and their natural surroundings are observed,
analysed, and transformed, on the basis of debate and the agreements among the actors
articulated to the place-networks of the PAs.

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