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Linking community communication to conservation of the maned wolf in central Brazil

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This article describes the environmental education (EE) program developed in the neighboring community of Serra da Canastra National Park based on a research project focused on the maned wolf conservation. The article assesses three tools used to foster the community's participation in discussing local issues: (1) communal production of a book about the region; (2) deployment of a traveling environmental cinema project through local towns and farms; and (3) training courses for the community on how to use communication tools for EE. Despite their differences and intrinsic limitations, the three strategies applied in this study proved effective in promoting community participation. The maned wolf species benefited indirectly from having its image associated to relevant cultural activities for the community. In addition, the connection generated by the project in the community certainly extended to the species at hand. Interest in the species and project actions grew among the community, which became more active in finding solutions for existing conflicts. The book's approval by the community and the opinion of the authors showed that preparing a book with local authorship is a powerful tool for community mobilization. Using cinema language also proved effective to spike the community's interest in discussing issues related to conservation in the rural environment.

Keywords: bioregionalism; community communication; endangered canids; environmental education; maned wolf; participation tools

Introduction

There is a growing consensus among scholars that successful conservation projects must include environmental education (EE) actions. For Jacobson (2009), conservation goals focus on biological problems, but solutions lie with people. According to Smyth (1995), the levels of achievement of the EE goals may be considered from an environmental awareness perspective, beginning with environmental understanding, environmental responsibility, environmental competence, to ultimately reach environmental citizenship. As the terms indicate, the idea is that EE increases the awareness of people regarding environmental issues, generate knowledge of natural systems and environmental problems, recognize human beings as protagonists in environmental issues, requiring adequate training to bring about the necessary

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changes, and lastly, that continuous and active participation are necessary to promote a new ethics in our relationship with nature.

Sauvé (2005) presents an analysis of diverse ways of practicing educative activity with multiplicity of theoretical and practical possibilities that influence EE and consequently the activities developed with the communities. These currents in EE range from naturalist approaches focused on ties between human beings and nature to more humanistic approaches that go beyond nature to involve aspects related to the culture, history and emotions of local populations. The naturalist approach is apparently still the most widely adopted by conservation projects. On the other hand, a critical and participatory approach to education programs has been emphasized by several authors who believe that achieving social change and development models with deep impact on natural systems will only be possible by taking the attitudes, values, and preferences of the communities into account (Mistry and Berardi 2006; Lynam et al. 2007). The central argument is that merely passing on information about species and the threats they face and sensitizing people to environmental problems is insufficient to provoke the desired changes for biodiversity conservation. In fact, conservation seems to be much more feasible with effective community participation. Nevertheless, community participation in conservation does not occur spontaneously. It requires motivation, addressing topics that are relevant to the community, and preparing the community to partake in the necessary discussions in a consistent and harmonious manner. Lynam et al. (2007) assessed several tools used in promoting community participation to determine their pros and cons as well as their potential use in diagnostic studies and decision-making processes.

Effective communication is considered essential for conservation: to influence conservation policies, change behavior, secure resources, and recruit volunteers (Jacobson 2009). Although the authors did not consider media ownership by the community a participation tool, this article emphasizes its importance as a mechanism to facilitate participation and the exercise of citizenship. This type of approach is discussed in the literature under the terms *educommunication*, *community communication*, and also *participatory communication*, and its most expressive examples are community radio stations and newspapers produced by different social, political, and cultural movements (Peruzzo 2002; Ribeiro 2004; Brasil 2005; Chaparro 2005; Soares 2009). The Treaty on EE for Sustainable Societies and Global Responsibility is a document prepared by environmental educators in eight regions of the world, published in 1992, that has become a reference in EE. The document argues that EE must stimulate dialog and cooperation among individuals and institutions, and also that:

communication is an inalienable right and the mass media must be transformed into the one of the main channels of education, not only by disseminating information on an egalitarian basis, but also through the exchange of means, values and experiences.

The main idea of uniting communication and EE for conservation is that the capacity to communicate is essential for changing people's mentalities, and the effects of better communication will be felt in the various sectors of the community, including on environmental issues.

In this article we describe the EE program developed with the neighboring community of Serra da Canastra National Park based on a research project focused on

conserving the maned wolf. The article assesses three tools used to foster the community's participation in discussing local issues: (1) communal production of a book about the region; (2) deployment of a traveling environmental cinema project through local towns and farms; and (3) training courses for the community on how to use communication tools for EE.

The study area and maned wolf project

The Serra da Canastra National Park is located in the Southeast of Brazil, in the state of Minas Gerais. The park, which harbors the source of the São Francisco River, one of the country's main rivers and the fifth largest in South America, is an important remnant of Cerrado vegetation and considered an area of extensive prevalence of maned wolves (*Chrysocyon brachyurus*). The maned wolf is the largest canid of South America and is classified as threatened in Brazil under the 'Vulnerable' category. The Cerrado is a global biodiversity hotspot and more than 50% of its 2 million km² have already been changed into pastures and monocrops (Klink and Machado 2005). The park's neighboring areas contain small farms (<100 ha) whose primary economic activity is raising cattle for milk and cheese. Agriculture is mostly limited to subsistence family farming and coffee and maize plantations. The region is home to a total rural population of 5500 inhabitants and still shows traces of the typical *Caipira* culture and folklore of the Brazilian countryside. *Caipira* is the name given to a type of Brazilian that originated in the interior of the Brazilian Southeast and Midwest, who were of mixed Portuguese and Indian blood, and also influenced by African culture. Their main characteristics are strong religiousness and family agriculture (for more information on the origins and general characteristics of *Caipiras*, see Ribeiro and Rabassa (2000), and on the habits of *Caipiras* of the community of *Serra da Canastra*, see Bizerril et al. 2008; Gambarini et al. 2011).

In 2004 a research project on Behavioral Biology and Conservation of the Maned Wolf was launched in Serra da Canastra with the participation of universities, NGOs, and international and national governmental research entities. The project envisaged several objectives linked to maned wolf conservation in the region, including studies on ecology, behavior, genetics, reproduction, and epidemiology. EE activities began after a period of assessing local socio-environmental relations. The assessment revealed the existence of a number of relevant socio-environmental problems that had a negative impact on the conservation of the maned wolf, particularly: (1) conflict between rural poultry producers and wild predators, especially maned wolves; (2) use of fire to manage pastures and the frequent uncontrolled savanna fires in the park that killed the fauna; and (3) a large population of domestic cats and dogs interacting with wild animals and human beings, increasing the risk for zoonotic transmission. It also pointed to behavioral and cultural aspects of the community that were considered extremely significant, such as: (4) the community's dissatisfaction with the creation of the national park in 1972 that even today arouses anger due to the conflicts involving the removal of the families. The community's dissatisfaction with the park is also due to limitations imposed on the use of the land, and intense surveillance, an example being the use of fire to manage pastures; (5) low self-esteem, especially among youths, who do not understand the region's importance and potential in the cultural and environmental context, both at the local and at the national levels; and (6) the fact that the community was not in the habit of convening meetings or debates on issues of local interest.

A decision was made to begin with the last three in the belief that they would be more significant to the community and that not discussing them first would make it impossible to discuss the other aspects and take the measures needed to promote long-term change. In fact, in the following sections we shall discuss the actions that had a positive impact on aspects 1–3, that favored the conservation of the maned wolf, both locally and regionally.

Methods

The education program began in 2007 based on three actions to bring awareness to community members, and motivate them to address local environmental issues, as well as to increase their self-esteem and appreciation for local cultural and environmental wealth. The actions also focused on preparing the stage for the community to develop the ability to promote discussions and develop concrete educational materials through group activities.

The first action proposed was the communal production of a book about the Serra da Canastra region. Through a period of 5 months in 2007 a group of 30 community members age 9–94 representing different occupations, including teachers, students, farmers, businessmen, and civil servants met and produced a book on the region's culture, history, environment, and economy. The work methodology involved thematic group meetings and the production of newsletters by each group, since the participants lived relatively far from each other – at times in different towns. After a first plenary meeting the authors were divided into five groups according to their specific interests – geographical and hydrological characterization, biodiversity and its uses, local culture, regional history, and economy. All the groups were encouraged to discuss a vision for the region's future based on their selected themes. Each group began with a planning stage that preceded the research and text production stages. All the authors were given a chance to make suggestions on all the chapters. New plenary meetings were held when the chapters were further developed and after all the authors had read the first draft of the book to discuss the more controversial aspects in detail. Four thousand copies of the book were printed and distributed in the region.

The second action consisted in deploying a traveling environmental cinema through the region's farms and towns. The project was called Cine Lobo [Wolf Cinema] and consisted of screenings followed by discussions of the natural wealth of Serra da Canastra, conservation of the maned wolf, recognition of local culture, and also aspects related to tourism and health. Four 15 min locally produced films were shown in schools, farms, and town squares, together with commercial movies on topics of interest to the community (such as movies that starred Mazaropi, a Brazilian actor who interpreted typical *Caipira* characters in several films produced between the 1950s and the 1980s) and followed by debates.

The project team began by preparing three videos: (1) an institutional dissemination movie of the maned wolf conservation project and the main daily actions carried out by the researchers; (2) a movie highlighting the beauty and importance of the local ecosystem; and (3) a movie that shows how local property owners may reduce the predation of chickens by wolves by building chicken coops; this movie also highlighted the importance of preserving the maned wolf by showing statements of local residents (The videos are available at <http://www.vimeo.com/comcomunitaria>). A maned wolf mascot was adopted as the 'Cine Lobo' project logo.

This image was also displayed in the sessions' opening vignette. The opening sequence of each section was used to give a brief explanation of the project and overall conservation actions for the maned wolf, allowing some time for the community to ask questions and address doubts on the maned wolf, on the project's actions, and on the videos shown.

The third stage was training the community to use communication tools for environmental actions. A course was offered to 30 community members with workshops on general communication methods and techniques and specific workshops to prepare video, radio, and printed products.

Interviews with local residents and observations were subsequently applied to assess the degree to which each action had been successful in improving the six relevant community aspects defined in the diagnostic assessment.

Results

The community book

The book entitled 'Um lugar chamado Canastra' [A place called Canastra] was launched in April 2008 with 2000 copies (also available at <http://www.procarnivoros.org.br/en/publicacoes.asp>). Interviews with the authors showed their self-esteem to have improved considerably thanks to the publication, which led them to be recognized by the community, an example being the invitations made by schools for them to give talks on the subject to students. The authors appreciated having conceived something collectively for the good of the region and were looking forward to new achievements that might come as a result of the book.

After its official launch in 2008 the book was distributed and broadly disseminated in the region. Special workshops were offered in the local schools to arouse the teachers' interest in the book and analyze possible uses for it in formal education. The book was also distributed through local stores and agencies connected to tourism.

The community welcomed the book enthusiastically. It was adopted by the local schools and remained in high demand by the local residents. One of them stated: 'It's the first time I see so much interest in reading a book in this town.' The schools used the book extensively in several school activities in its first year. Interviews with 41 teachers and 85 students showed the book to have been used not just in geography and science projects, but also in history, Portuguese, and other subjects. The book inspired other literary productions on the region by students and teachers. One teacher commented on her students' enthusiasm: 'Of all the work we did so far this is what they liked the most. If I let them they'd work with the book every day.' Others confirmed the book's various positive impacts on the school: 'They seemed more interested in researching, going online, going to the library, talking to their grandparents. There was even a discussion as to who had brought the most pictures and information on the region.' 'Today children as young as I already know that the source of the São Francisco River is really close by, for example. When I was a student I would never have known.'

The interviews with the students made it clear that they had read the book and learned several things about the region. On several occasions it was clear that the students identified with the characters of the book, which were narrated in the first person of the plural, although some of the statements and poems were individually signed by each author. Recent pictures of all authors were included, as well as pictures of the period, from private collections. One student said: 'I like it because

it has a picture of my great grandfather.’ Its positive impact on their environmental awareness was also evident: ‘I liked the maned wolf and the Brazilian merganser duck. My parents thought it was really beautiful because it talks about the animals that are endangered in our region.’ One teacher called attention to the book’s importance to the community and consequently to nature conservation in the area:

We often receive projects to work on that aren’t interesting to us or to the students because they come from outside. This is where they live, it’s where they’ll grow up, raise a family. You can’t love something if you don’t know it. They’re getting to know the region so they can love it and preserve it.

In addition to the effect on the students, the process of using and gaining ownership of the book produced important reflections among the teachers about their own region. In the words of a teacher:

I discovered a tremendous amount of things I didn’t know about the region through the study. Such a wealthy area and we didn’t realize it. Outsiders seem to feel a lot more for our region than we do. It’s not that we don’t feel anything; it’s just that sometimes we’re not aware of our surroundings. Today I see the region as blessed. I can feel a change in me. A new vision of Serra da Canastra.

In the next two years the schools used the book less intensely and tended to leave it in the library as reference material. Even so some teachers continued to use it in their disciplines, especially in rural schools. The printed copies ran out and in 2010 there were still many local residents interested in reading the book. As a result another 2000 copies were provided.

The traveling cinema

From September 2007 to 2009, 31 movie sessions were offered to approximately 2200 local residents of Serra da Canastra. The sessions took place in a variety of locations like schools ($n=8$), farms ($n=10$), churches ($n=8$), public squares ($n=2$), restaurants ($n=2$), and community centers ($n=1$), with an average of 70 people per session. In 2010 a DVD featuring all the videos produced by the project was launched and distributed to be used by the community.

Using traveling cinema as an educational tool with the rural communities presented a number of very positive results. The main strength was found to be its ability to bring people together, considering that in rural areas, particularly in Brazil, people rarely modify their routines to participate in social activities in which they are not strongly interested, as in the case of religious festivals. Some of the people interviewed reported remaining as long as six months without spending time with their neighbors, while others said they met in church, during Sunday mass. Attendance at the sessions was quite representative, with community gatherings at nearby farms, and requests for new sessions continue. The Cine Lobo helped to create a strong connection between the project team and the community. It also emphasized the importance of the movies as a source of entertainment and education and gave people a chance to be with their neighbors. Even those who did not participate in the sessions stated having heard of the movies through local radio announcements or through friends and family who went to the screenings. Another positive outcome of the traveling cinema was the visibility it gave the research project,

highlighting the importance of protecting the maned wolf. People's attention were caught by the short documentaries produced, which showed images of the local landscape, fauna, and flora, and had the participation of members of the local community, underscoring the region's unique language and environmental perception.

The community communication course

The 'Community Communication for EE' course offered to the community produced interesting projects that include printed communication (newsletter and newspaper), radio (radio soaps and educational spots), and audio-visual materials. The latter included a news story on the possibility of expanding rural tourism in the region, a documentary on the Congado (an important cultural manifestation of African influence, which was incorporated by the Caipira culture, which is facing extinction in the region due to the lack of interest of youngsters), and a short comedy video, inspired by the Mazzaropi movies, on relations between the local community and visitors that harm the environment. Showcasing the course products in public square mobilized the community to take other communication courses and produce local newspapers and new videos portraying the local history and culture. The experience of the course is described in detail in Paulino et al. (2008) and the videos produced in the course are available at <http://www.vimeo.com/comcomunitaria>.

Strategy evaluation

Despite the differences in the work methodologies used with participants, the three strategies applied in this study to promote community participation proved effective in creating community cohesion and, thus, worked to develop a sense of community empowerment and 'communitarian-ness' (Table 1). The experience also made it possible to pinpoint the adjustments to be made and care to be taken to obtain the greatest success possible in applying the strategies (Table 2).

Discussion

Even though the education program described herein is linked to a research project to conserve an endangered species, the maned wolf, we did not limit our work to making the community aware of environmental problems related to the species. Efforts were also made to overcome the dichotomy between the social and natural science's approaches to addressing conservation of endangered species, as described by Fox et al. (2006). We chose a critical and participatory approach to achieve social change and development.

This program may be associated with humanistic and bioregionalist EE programs as described by Sauv e (2005). This is because our actions focused on a rural area of inland Brazil where efforts were made to strengthen the local inhabitants' feelings of belonging and their sense of responsibility for the region.

Beyond advancing issues related to the maned wolf, the project built upon the premise that once a community has learned to get organized, think, and act by itself it is able to significantly improve local quality of life in all areas, including the environment. Organization and the exercise of citizenship are the surest ways to achieve long-lasting change. In fact, the actions proposed build upon various aspects of the critical pedagogy linked by educator Freire (1980, 1987, 2002) to the

Table 1. Analysis of expected and observed impacts of the strategies to foster community participation applied in this study.

Expected impacts	Strategies to foster participation		
	Community book	Traveling cinema	Communication course
Increase local self-esteem	Yes, both of the authors and of the local readers	Yes, based on the locally produced videos	Yes, due to the quality of the products presented
Foster reflection on local topics	Yes, in the various themes explored in the book	The audience participated in discussions related to the locally produced videos	Yes, by those involved in the course and by those who watched the presentations
Foster dialog with the rural community	Yes, especially in rural schools	Yes, this is an efficient way of bringing people together and provoking debates	Access to the course products was restricted to the towns, but the new newspapers were produced by the community
Stimulate local initiatives	Yes, the schools produced some new materials about the region	Yes, the audience participated in discussions during the sessions and began producing local videos	Yes, two years after the course some ex-students organized a new course with a community
Contribute to organizing the community	Just to provoke a reflection on the region.	In the long term it may become a regular meeting space for the community	The newspapers produced can strengthen dialog and give voice to the community

Table 2. Aspects that require attention when applying the community participation strategies used in this study.

Strategies to foster participation	
Community book	Communication course
<p>Aspects to pay attention to</p> <ul style="list-style-type: none"> • Ensure participation of those who best represent the local memory. • Carefully support each stage of the text production process. 	<p>Traveling cinema</p> <ul style="list-style-type: none"> • The families should be invited in advance and in person. • Preference should be given to short and uncomplicated movies. • Promote debates between each presentation. <ul style="list-style-type: none"> • Make sure that those who wish to become more involved after the course receive guidance. • Be wary of conflicts of interest between private and communal media.

role of education and the educator, especially in the context of Latin America, among them: education as a liberating process and the need to reflect upon reality with a view to transforming it, recognition of humans as subjects who change the world around them, and the conviction that changing the world is possible.

The book's acceptance by the community and the authors' presence at schools showed that preparing a book with local authorship is a powerful tool for community mobilization. Using cinema language also proved effective to spike the community's interest in discussing issues related to conservation in the rural environment. The project actions called the local and national media's attention and were featured in a number of newspaper, magazine, and especially television reports expanding the visibility of the species, both locally and nationally. The community's participation therein also markedly increased local self-esteem.

The diagnostic assessment did not reveal direct threats to the maned wolf such as being hit by a car, killed or mutilated due to popular beliefs (in other places of Brazil the eyes and paws of maned wolves are seen as talismans) that might justify educational actions to correct such behavior. Nonetheless, although few people recognized it openly (Hurtado 2007), animals were occasionally killed for preying on chickens. The maned wolf species benefited from having its image associated to cultural activities that were relevant to the community. What's more, the connection generated by the project was certainly extended to the species. The community grew increasingly interested in the species and project actions (increasing the contacts with the project to report sightings of wolves and cases of predation of chickens), as well as in finding solutions to existing conflicts, as is the case of the chicken coops built to prevent wild animal attacks. Instead of providing off-the-shelf solutions, our actions opened communication channels with the community.

We attempted to have the community reflect and gain knowledge about itself and of the local natural aspects. This process involved an increase in affectivity and knowledge. One example, given in the texts produced in the book in the chapter on biodiversity, was that instead of referring to the species in technical terms, the authors referred to them with affection, as in the following examples: 'The maned wolf is an animal of rare beauty. We need to learn how to live with them.'; 'The lilies of the field are beautiful!'; 'It's so nice to sit under the rosemary and appreciate the freshness of its shade'; 'At Canastra, there are many species of frogs. They make a beautiful orchestra when they start croaking.'

The project sought to highlight the Canastra region in general terms, avoiding focusing specifically on the national park. Nonetheless, impressions regarding the park were included in the community book, both on the resentment regarding its creation, as well as on the recognition of its importance towards the conservation of water and biological resources, as reflected in the following two segments extracted from the book:

Segment 1: The creation of the National park of Canastra was in a period of many changes, not only for properties, but also in traditional customs that were interrupted, for which property owners received no preparation. We must point out that all this took place during the military regime, when the property owners had no voice, no rights, and were not fairly indemnified.

Segment 2: In spite of all that happened, today we understand that if there were no park, we would be drinking water with lots of pesticides, and today we can drink clean water. The park also generates revenue for the region through tourism.

We believe that the juxtaposition of these two points of view generated an interesting discussion regarding the existence of the park, which was more than simply highlighting the ecological advantages of protected areas.

The actions described in this article branched out into other educational actions geared to promoting public health, preventing zoonotic diseases, and developing local community communication through blogs and newspapers in addition to video. The community participated effectively in their implementation and coordination, which led to more participative school projects and economically feasible production of local newspapers.

There is often a feeling in both rural and urban environments that researchers and projects come to a region, take what they want and withdraw without making a significant contribution to the community. In rural areas conservation projects are capable of producing great impacts on the community due to their much greater ability to leverage funds than average local initiatives and to their status of 'external agents,' who are better prepared to mediate conflicts, and to propose projects and challenges to the community.

The use of communication tools to promote community engagement seems to have been well received by the community and may eventually become a public policy applied by the various public entities geared to provide rural technical assistance, environment, health, education, and culture, among others services. As stated by Peruzzo (2002), participating in communication is in fact a mechanism that facilitates the expansion of citizenship, since 'participating in producing and transmitting messages, planning mechanisms and managing a community communication vehicle helps people to become subjects, feel capable of doing what they're used to receiving readymade, and become communication protagonists instead of just receivers.' These principles are reinforced by Ribeiro (2004) when he states that 'a society becomes reflexive when it becomes a theme and a problem for itself.'

Considering the discourses on EE one can say that an efficient educational intervention is one that continues after the outside group that implemented the actions leaves the community, even if it follows a different direction than initially proposed. As such, we believe that it is up to the project to mobilize the community, proposing areas of discussion and various participatory methodologies. However, the community will only be completely mobilized when local members are engaged and begin leading the process; when they take the forefront of discussions and joint decision-making, making local residents active participants and the true protagonists of the project.

Even the project researchers received a self-esteem boost through the community actions as they felt the community's responsiveness firsthand. There is no doubt that the activities developed changed the original course of the project and even the researchers' very idea of conservation.

The issues addressed through this education program, geared to improving self-esteem, valuing the local culture and environment, and preparing the community to discuss problems and find solutions as a group, are not exclusive to Serra da Canastra. As such, we believe that the strategies applied to promote community participation can be reviewed and adapted to other socio-cultural realities.

Communication was addressed from various perspectives and is considered an essential tool for conservation. The uses of communication, as proposed in the literature, aim to enhance the capacity of conservation professionals to convey their message to a diverse audience: schools, the media, rural communities,

decision-makers, and society at large. We believe that this communication model is very useful to conservation, but its educational potential may be limited if communication takes place in only one direction. The use of communication to give a voice to the communities and to stimulate discussion and the exchange of knowledge and opinions has a promising impact on conservation, with education being as a process through which individuals become subjects that have an active role in the transformation of societies.

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References

- Bizerril, M.X.A., Soares, C.C., Santos, J.P. (orgs.). 2008. *Um lugar chamado Canastra* [A place called Canastra]. 1st ed., Instituto Pró-carnívoros, Atibaia, São Paulo. <http://www.procarne.org.br/en/publicacoes.asp>
- Brasil. Órgão Gestor da Política Nacional de Educação Ambiental. 2005. Programa de Educomunicação Socioambiental [Edu-communication program]. Série Documentos Técnicos. Brasília.
- Chaparro, M. 2005. La Asociación Mundial de Radios Comunitarias (AMARC): otro modelo radiofónico posible [The communitarian radio world association: Another radio model is possible]. *Revista Telos – Cuadernos de Comunicación e Innovación* 65, <http://www.revistas-culturales.com/revistas/28/telos-cuadernos-de-comunicacion-e-innovacion/num/65/>
- Fox, H.E., C. Christian, J.C. Nordby, O.R.W. Pergams, G.D. Peterson, and C.R. Pyke. 2006. Perceived barriers to integrating social science and conservation. *Conservation Biology* 20: 1817–20.
- Freire, P. 1980. Educação e Mudança [Education and change]. 12th ed., Editora Paz e Terra, Rio de Janeiro.
- Freire, P. 1987. Pedagogia do oprimido [Pedagogy of the oppressed]. 17th ed., Editora Paz e Terra, Rio de Janeiro.
- Freire, P. 2002. Pedagogia da autonomia [Pedagogy of autonomy]. 25th ed., Editora Paz e Terra, Rio de Janeiro.
- Gambarini, A., Paula, R.C. and Mota, L.D., 2011. Serra da Canastra: Endless diversity. AG Gamba. São Paulo.
- Hurtado, L.C. 2007. Avaliação da predação de criações domésticas por lobo-guará (*Chrysocyon brachyurus*) no entorno do Parque Nacional da Serra da Canastra, MG [Evaluation of domestic animals predation by the maned Wolf (*Chrysocyon brachyurus*) in the surroundings of Serra da Canastra National Park, MG]. Dissertação de Mestrado, Universidade Federal de Minas Gerais, Belo Horizonte.

- Jacobson, S.K. 2009. *Communication skills for conservation professionals*. Washington, DC: Island Press.
- Klink, C.A., and R. Machado. 2005. Conservation of the Brazilian Cerrado. *Conservation Biology* 19: 707–13.
- Lynam, T., W. De Jong, D. Sheil, T. Kusumanto, and K. Evans. 2007. A review of tools for incorporating community knowledge, preferences, and values into decision making in natural resources management. *Ecology and Society* 12: <http://www.ecologyandsociety.org/vol12/iss1/art5/>
- Mistry, J., and A. Berardi, eds. 2006. *Savannas and dry forests: Linking people with nature*. London: Ashgate.
- Paulino, F.O., M.X.A. Bizerril, J.F.G. Coelho, J.S. Mendes, and L.L. Pedrosa. 2008. Fala Canastra! Ações de comunicação comunitária para a educação ambiental na Serra da Canastra [Fala Canastra! Community communication actions for environmental education in the Serra da Canastra]. *Participação. Revista do Decanato de Extensão da Universidade de Brasília* 8: 58–66.
- Peruzzo, C.M.K. 2002. Comunicação Comunitária e Educação para a Cidadania [Community communication and education for citizenship]. PCLA, 4: <http://www2.metodista.br/unesco/PCLA/revista13>
- Ribeiro, L. 2004. Comunicação e comunidade: teoria e método [Communication and community: Theory and method]. *Revista Comunicação e Espaço Público*, 7: http://www.unb.br/fac/posgraduacao/revista2004/09_lavina.pdf
- Ribeiro, D., and G. Rabassa. 2000. *The Brazilian people: The formation and meaning of Brazil*. Gainesville, FL: University Press of Florida.
- Sauvé, L. 2005. Currents in environmental education: Mapping a complex and evolving pedagogical field. *Canadian Journal of Environmental Education* 10: 11–37.
- Smyth, J.C. 1995. Environmental education: A view of a changing scene. *Environmental Education Research* 1, no. 1: 3–20.
- Soares, I.O. 2009. Caminos de la educomunicación: utopías, confrontaciones y reconocimientos. *Nómadas* 30: 194–207.