

# Children's Perceptions of Brazilian Cerrado Landscapes and Biodiversity

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**ABSTRACT:** In this study, the author evaluated Brazilian students' environmental perceptions of Cerrado (savanna-like vegetation). The author administered tests of knowledge and perception of the Cerrado biome's wildlife to students of different social classes. The students (age range: 11–17 years) generally exhibited low identification with the region, and few differences were observed among the appraised groups. Students who had more contact with the region's natural landscapes showed greater affection for it. The results are discussed in context of the focus on the Cerrado in schools and in textbooks and of the students' perceptions of the region. The author also discusses the role of schools in efforts to conserve the Cerrado.

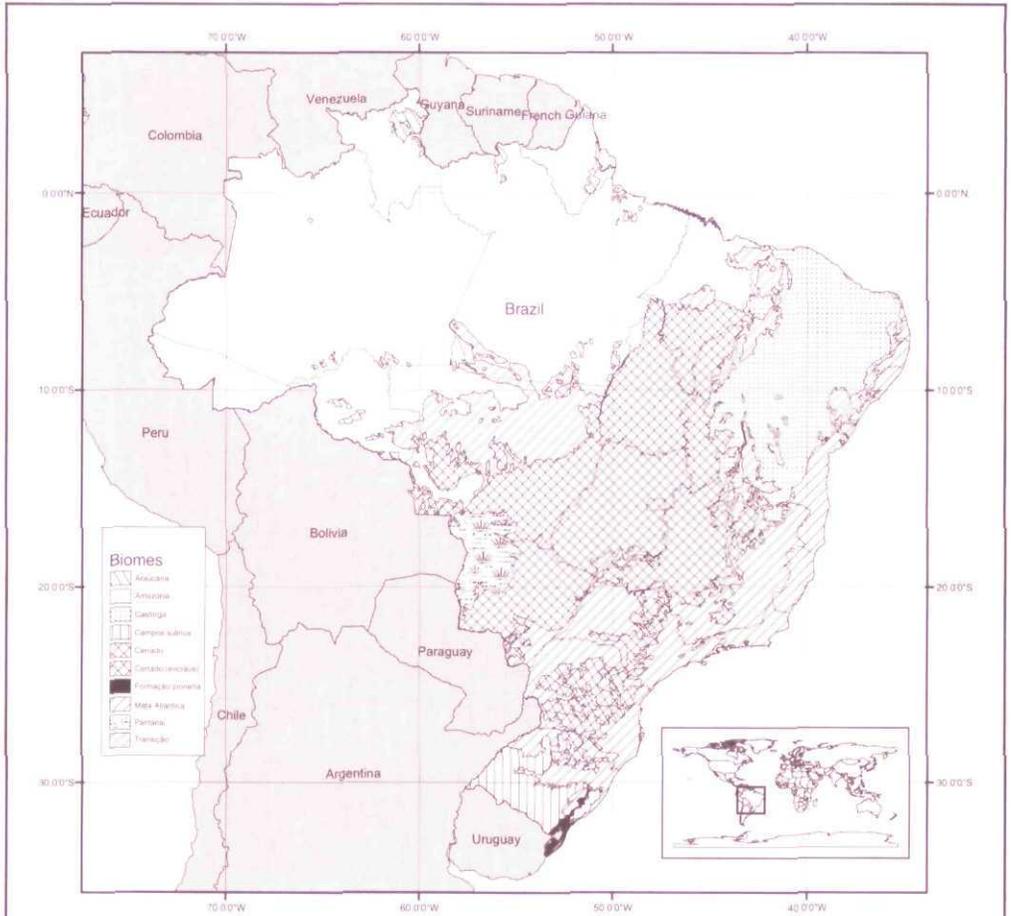
**KEY WORDS:** Cerrado, environmental perception, formal education, savanna

**B**razil is a country with great biological diversity. The Cerrado, which occupies about 2,000,000 square kilometers, is the second largest Brazilian biome after the Amazon Rainforest. The area represents 22% of the national territory (see Figure 1) and is distributed over 12 of the country's states (Brazilian Ministry of the Environment, 1998). The Cerrado biome comprises several vegetation types that include forests (gallery forests), savannas (typical cerrado), and fields (open grasslands; see Oliveira & Marquis, 2002 for more information about Cerrado).

The region was recently included in a list of 25 hotspots worldwide that are considered to be critical conservation areas (Myers, Mittermeyer, Mittermeyer, Fonseca, & Kent, 2000). The Cerrado deforestation has accelerated in recent decades because of population growth and the proliferation of cities and roads in the region. Agricultural expansion, which has not taken certain important environmental and social factors into consideration, has had the most harmful impact on the area (Nepstad et al., 1997; Ratter, Ribeiro, & Bridgewater, 1997). An analysis of satellite images shows that only a third or less of the Cerrado still has the original characteristics of that vegetation type. This situation is aggravated by the fact that less than 2% of the region is protected by law as an official reserve (Conservation International, 1999).

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**FIGURE 1. Geographical distribution of the Cerrado and other Brazilian biomes: Cerrado (savanna-like vegetation); Castinga (xeromorphic vegetation); Amazonia (tropical wet forest); Mata Atlântica (tropical wet and seasonal forest); Pantanal (Pantanal complex); Araucária (pine forest); Campos sulinos (open grasslands); formação pioneira (pioneer formations on coastal zone); Transição (transition areas between biomes). Adapted from Conservation International.**

Researchers have investigated perceptions of the environment and human preferences for landscapes (natural or built) and animals on urban and rural planning (Sullivan, 1994; Ulrich, 1986) and in conservation areas (DeLucio & Múgica, 1994; Newmark, Manyaza, Gamassa, & Sariko, 1994; Zube, 1986) and related their findings to EE programs in several countries (i.e., Costa Rica, India, and other countries; Caro, Pelkey, & Grigione, 1994; Holl, Daily, & Ehrlich, 1995; Saberwal, Gibbs, Chellam, & Johnsingh, 1994).

Study results have shown that ignorance of and apathy toward certain organisms or landscapes are reflected in individuals' behavior. The result is that environmental perception can be a decisive factor in nature conservation. On the one hand, species conservation projects and natural parks can benefit from changes in the environmental perceptions of the surrounding population, as happened

in the conservation projects of gold lion and black lion tamarins in the Brazilian Atlantic Forest (Pádua, 1994). Environmental education programs in schools can also be effective in strengthening children's perceptions of biodiversity (Lindemann-Matthies, 2002). On the other hand, the depreciation or fear of a species results in aggressions or passivity in relation to such aggressions (Conforti & Azevedo, 2003).

The attitudes of Brazilians toward the Cerrado have not been analyzed in much detail in scientific studies. However, such analyses could aid the conservation of the biome, especially if they lead to the subsidy of educational programs that could bring about changes in attitudes, seeking the conservation and also the economic use of biodiversity. Schools, particularly in Brasília, which is located at the center of the Cerrado, are important venues for raising awareness of citizenship in general; in particular, they could help induce positive attitudes in children toward the Cerrado. In the present article, I report on an evaluation of sixth-grade students' environmental perceptions of the Cerrado. The focus on the Cerrado in schools and textbooks is related to the perceptions of students and is discussed with a focus on their role in efforts for conservation. The following questions are addressed: (a) *How do students perceive the Cerrado?* (b) *What factors influence their perception?* (c) *How have schools raised awareness of the Cerrado?*

## METHOD

### Participants

I investigated the attitudes toward Cerrado in 174 sixth-grade students,  $M$  age = 13 years,  $SD$  = 1, range: 11–17; 90 (52%) boys and 84 (48%) girls, in Brasília. I considered three subgroups that represented different social realities:

1. Urban, defined as urban students of middle and high socioeconomic class at private schools.
2. Suburban, defined as students from low-income homes and who attend public schools, reside in suburbs with a basic infrastructure where the vegetation is sparse and there are few public areas for recreation, it is densely populated, and there is a high incidence of violence.
3. Rural, defined as students from border areas between urban and rural environments. These border areas are a typical result of city expansion over the last 10 years. They include middle-class students and especially low-class students who attend public schools. They are called rural because some students live on small farms, and the schools are located near streams and the Cerrado region's fragment areas.

Each subgroup was represented by one school, with two classes at every school. First, three areas in the city were chosen to represent all the subgroups. After that, the schools were chosen after previous contact with local teachers.

### Observed Variables

I applied three tests: one was a cognitive test; the other two evaluated the students' affectivity for the Cerrado. Of the latter two tests, one evaluated the students' opinions, and the other evaluated their preferences in regard to natural and exotic elements.

In the first test, I evaluated the students' knowledge of the Cerrado by asking them to assess 12 sentences that included both popular false concepts about the Cerrado and correct information that was considered to be important general knowledge about the biome. The students had to agree or disagree with each sentence. In the second, I analyzed the students' opinions on the Cerrado and assembled the results in categories classified as (a) positive opinions (sympathy, knowledge/useful-

ness, conservation/affection), (b) negative opinions (indifference/ignorance, dissatisfaction and rejection), or (c) neutral opinions (with equal elements of sympathy and dissatisfaction).

I also evaluated affectivity for the Cerrado nonverbally. I showed the participants 20 pairs of photographs; each pair contained a photo of a Cerrado natural element (landscape or animal) and an equivalent nonnatural or exotic element (urban landscapes, plantations, domestic and exotic animals). I took special care to form pairs of images with a maximum amount of similarity in physical appearance and taxa for animals and vegetation density for landscapes (see Appendix). This test was validated previously and shown to be efficient in detecting differences of environmental preferences for the Cerrado.

I ranked the students' environmental background, that is, their previous contact with the Cerrado, as (a) low (contact restricted to domestic plants and animals in farms, (b) medium (contact with wild plants and animals in urban settings such as zoos and parks, and (c) high (contact with wild animals and plants in natural conditions).

### **What Textbooks and Teachers Say About the Cerrado**

I analyzed the contents of 67 textbooks (specifically geography and the sciences for the fifth to eighth grades of fundamental teaching) for themes relating to the Cerrado and for the quality of that information. I also gathered information about teachers' opinions of the Cerrado by mailing 48 questionnaires to teachers in the region, who then completed the questionnaires and sent them back to me, and by interviewing 15 teachers at schools in different parts of the city, including the same schools that the students were from.

## **Results**

### **Affectivity to Cerrado**

The test of preferences showed that less than half of the students (43.2%;  $n = 174$ ;  $p < .01$ ) preferred Cerrado elements, and in 8 of the 20 pairs of images the photographs of the Cerrado elements were preferred. The Cerrado's fauna elements received more votes than did the flora elements (see Table 1). The differences observed among the participants were significant only in preference of flora elements, which was higher for the urban group.

From discussions with the students after the slide show, it was evident that most of them preferred those natural elements that were more economically useful. This pattern was substantiated by comments such as, "I chose the dog because it gives us company and it protects the house" or "I chose the horse because it is useful for transportation, whereas the giant anteater isn't." Other reasons cited were that cows produced milk and meat, and chickens produced eggs. I also detected the utilitarian attitude of students toward animals in their comments after they had viewed images of landscapes (in these instances, orchards and plantations were favored more frequently because they were associated with food sources).

Some students rejected animals outright ("I did not choose the maned wolf because it stinks"), whereas other animal choices seem to be based on childhood memories such as the koala, which some participants said reminded them of a teddy bear. In contrast, the collared anteater did not trigger any childhood memories. Some of the urban participants showed a deeper knowledge of exotic fauna and were able to give accurate information about the extinction risks of the black rhino or about the koala's diet.

Favorable opinions of the Cerrado were the most frequent (52.3%,  $n = 174$ ), followed by negative opinions (33.9%) and neutral opinions (13.8%; see Table 2), with no significant differences among student opinions of the three groups,  $\chi^2(4, N = 174) = 5.1, p > .05$ .

**TABLE 1. Knowledge and Preferences of Students About Cerrado**

Public	Correct answers in 12 questions <sup>a</sup>		Votes for Cerrado in 20 paired photos <sup>b</sup>		Number of students	Votes for Cerrado in 20 paired photos		N	
	M	SD	M	SD		Fauna <sup>c</sup> (%)	Vegetation <sup>d</sup> (%)		Total (%)
Urban	8.0	2.2	3-12	2.4	54	47.2	44.6	45.9	1,080
Suburban	7.9	2.1	3-12	2.6	53	50.8	34.7	42.7	1,020
Rural	7.3	2.3	2-12	2.5	65	47.5	34.7	41.0	1,240
Total	7.7	2.2	2-12	2.5	172	48.4	37.9	43.2 <sup>e</sup>	3,340

Note: Although 174 students participated in the study, 2 students made mistakes on the knowledge portion and were not included in this analysis.

<sup>a</sup>NS;  $F = 1.75$ ;  $p = .17$ .

<sup>b</sup>NS;  $F = 2.26$ ;  $p = .10$ .

<sup>c</sup>NS;  $\chi^2 = 1.75$ ;  $p > .05$ .

<sup>d</sup>NS;  $\chi^2 = 15.31$ ;  $p < .01$ .

<sup>e</sup>NS;  $\chi^2 = 61.8$ ;  $p < .01$ .

**TABLE 2. Students' Opinions About Cerrado**

Category	Example	Frequency	
		<i>n</i>	%
Negatives		59	33.9
Indifference or ignorance	"I don't know anything about that."	28	16.1
Rejection	"I think Cerrado is ugly, because it's dry and trees are deformed."	26	14.9
Dissatisfaction	"I think there are not many animals at Cerrado as in other forests."	5	2.9
Neutral		24	13.8
Doubt	"I think it is beautiful in spite of the strange trees and the dryness."	20	11.5
Pessimism	"It is ugly because people left garbage away and burn it."	4	2.3
Positives		91	52.3
Sympathy	"It's nice!"	38	21.8
Knowledge or usefulness	"It is one of the largest vegetation types of Brazil in area."	30	17.2
Conservation or affection	"We must preserve it." "Cerrado is very beautiful and has amazing things!"	23	13.2
Total		174	

### Environmental Background

The environmental background of the participants varied significantly among the three groups. Most of the students fell in the medium category, except in the urban students' case, in which 83.3% ( $n = 54$ ) had had contact with native environment elements such as waterfalls and reserves. The occurrence of high environmental background was 20.4% ( $n = 53$ ) for the suburban participants and 15.4% ( $n = 65$ ) for the rural participants,  $\chi^2(2, N = 158) = 75.94, p < .01$ .

Of the 12 questions about the Cerrado, there was a total of 64.3% correct answers across the student sample ( $n = 2,064$ ). The three groups produced similar results and answered most of the questions correctly (see Table 1). However, they showed little knowledge of some aspects. For example, they did not realize that the Cerrado is as extensive as it is, that it is an important source of water, and that there is a high diversity of animal species (see Table 3).

The higher the students' environmental background, the more favorable were their opinions of the Cerrado in the test of preferences and the smaller was the number of negative opinions about it (see Table 4). Thus, there was a significant correlation between knowledge of and preferences for the biome,  $n = 158, r = .21, p = .007$ .

### What Teachers and Textbooks Say About the Cerrado

The teachers said that they referred to the Cerrado during lessons more frequently than it is referred to in textbooks. They said that they give more attention to the descriptive aspects of the region's physical environment and its vegetation than to biodiversity, environmental impacts, the relationship between environment and humans, and the use of natural resources (see Table 5). The occurrence of fires, especially in the dry season, has a strong environmental impact on the region, and

**TABLE 3. Number of Correct Answers in the Test of Knowledge About Cerrado (N = 172)**

Analyzed aspects	Right answers	
	<i>n</i>	%
Recognition of some threats to Cerrado biodiversity	148	86.0
Recognition of some native plant species in the city	144	83.7
Cerrado is a typical local vegetation	139	80.8
Recognition of some Cerrado typical animals	138	80.2
Gallery forests are important to protect water quality	121	70.3
Cerrado is a threatened environment	120	69.8
Recognition of the most common Cerrado vegetation types	114	66.3
Cerrado presents high plant diversity	104	60.5
Biodiversity of Cerrado is a source of food and medicines	103	59.9
Cerrado is the second largest biome of Brazil	87	50.6
Cerrado presents high animal diversity	67	39.0
Cerrado is an important source of water	43	23.3
Total	1,328	64.3

Note. Although 174 students participated in the study, 2 students made mistakes on the knowledge portion and were not included in this analysis.

**TABLE 4. Preferences and Opinions of Students About Cerrado According to Their Environmental Background**

Environmental background category	<i>n</i>	Votes for Cerrado in 20 paired photos <sup>a</sup>		Negative opinion (%) <sup>b</sup>
		<i>M</i>	<i>SD</i>	
Low	27	7.6	2.0	40.7
Medium	65	8.4	2.5	38.5
High	66	9.3	2.5	22.7

<sup>a</sup>*ns*;  $F = 4.62$ ;  $p = .01$ .

<sup>b</sup>*ns*;  $\chi^2 = 2.9$ ;  $p > .05$ .

teachers said that although this was not addressed in the books, they would frequently discuss it with the students during class.

My interviews with the teachers also confirmed that the Cerrado is dealt with almost exclusively in two disciplines—the sciences and geography. There are some difficulties teaching the topic, especially because of teachers' lack of knowledge and/or their lack of interest in the subject. In addition, there is not much information about the region in textbooks. One teacher said: "The Cerrado is treated as a general subject, related to geography and sciences. Most of the teachers learned it in the universities and were not sensitized to the environmental question. The less the teacher knows about the Cerrado, the less he will teach, or he will teach it badly, restricting himself to the book and moving to the next subject. If this is the formation of geography teachers, imagine on other areas."

**TABLE 5. Occurrence of Cerrado Subjects in Didactic Books of Geography and Science (N = 67) and in Teachers' Classes (N = 48)**

Subject	Books (%)	Schools (%)
Abiotic aspects <sup>a</sup>	40.3	89.6
Superficial description of vegetation and fauna	31.3	77.1
Fire impacts	7.5	91.7
Other impacts and human relationships <sup>b</sup>	25.4	64.6
Conservation and sustainable use of biodiversity	9.0	52.1

<sup>a</sup>Weather, relief, hydrography.

<sup>b</sup>Deforestation, pollution, human occupation, and local culture.

## DISCUSSION

### Attitudes Toward the Cerrado

The participants showed a low identification with the Cerrado. In the cognitive evaluation, I noticed a lack of knowledge of basic aspects such as the exact location of the Cerrado. In addition, there is a lot of distorted information about the region; for example, that there is a shortage of water and that the diversity of the animals is limited. It is now more widely known that the Cerrado shelters important rivers that compose the main hydrographic basins of the country and that it is home to one of the most exuberant and diversified fauna species of the world's savanna regions (Conservation International, 1999).

The preference test showed clear preferences for landscapes transformed by humans and for both domestic and exotic animals. This finding contrasts with the results observed among U.S. and European adults, who preferred nature in relation to urban landscapes (Sullivan, 1994; Ulrich, 1986). Even so, in studies that were conducted with children in the United States, researchers found a humanistic attitude in relation to animals, that is, the treatment of animals as individuals with strong affection and a preference for pets (Bowd, 1982; Eagles & Muffitts, 1990). African and Asian animals were also a favorite for visitors to the London zoo (Carvell, Inglis, Mace, & Purvis, 1998) and were listed by American children in studies about their relationship with animals (Bowd, 1984).

My interviews with the students confirmed the utilitarian attitude that most of them had toward animals and plants. I observed that the students' previous experiences with fauna were marked by the presence of domestic and exotic animals (e.g., teddy bears, or in cartoons or African nature documentaries). These experiences seemed to strongly influence their preferences. The participants often preferred pets, as well as animals that were used by humans as a food resource or as load animals. Other researchers (e.g., Kellert, 1991) have suggested that cultural factors can influence utilitarian attitudes toward nature. Kellert reported that the Japanese present a relationship with nature that is related more to its control and domain and less to the ethical and ecological concerns in comparison with citizens from the United States.

Bizerril and Andrade (1999) and Mendes and Schall (1995) have already discussed Brazilians' lack of knowledge about native fauna, especially within urban population. In the present study, the participants did not recognize some animals of Brazil, such as the tamandua, the red-legged seriema, and the tapir. Other animals, such as the maned wolf and the giant anteater, were recognized by some students, but they were not preferred in relation to the dog and the horse. In fact, animals

such as the red-legged seriema and the tamandua are not explored by media, and they are almost completely ignored in textbooks.

The ignorance about animals can be reflected in aggressive or "dominionistic attitudes toward animals" (Eagles & Muffitt, 1990, p. 42; Kellert, 1991). In the present study, ignorance about fauna seemed to be strongly related to students' low affectivity for or indifference to native animals. This is an important finding because we know that the development of attitudes in children is critical for their development into adults (Eagles & Muffitt). If that is so, then children's indifference to the fauna of the Cerrado could be played out directly in the destruction of fauna by hunting, trapping, and killing on the roads and indirectly by ignoring or being passive about these facts.

The preference test in the present study showed that the students had a higher pattern of rejection of the Cerrado's flora when it was compared with the data on fauna. This may be because students have more contact with exotic animals in zoos (medium experience) than they do with flora in natural conditions (high experience). In addition, most plant species that are used in the city arborization are exotic to the Cerrado region. It is interesting to note that the element of vegetation type flora more preferred by students was the gallery forest, which resembles other Brazilian tropical forests such as the Amazon Rainforest and the Atlantic Forest, which are more valued by the media as exuberant and threatened environments. In addition, textbooks associate themes such as biodiversity, conservation, and sustainable development with the Amazon and Atlantic forests, whereas the treatment of the other biomes is restricted to summaries of the regions' physical and biological characteristics. Some teachers noted this difference in the way the different regions are treated. One teacher noted, "The students were more concerned about the Amazon, the coast and the Atlantic Forest, which are explored in the media. I believe that they know more about these areas than they do about the Cerrado;" another noted, "I think that the subject is treated as if it were a distant environment, when it is the place where they were born and live."

Kellert (1991) observed that Japanese and Americans also tended to be indifferent to natural environment when it did not present a strong emotional call. The lack of information and the absence of an opportunity among the students in the present study to observe the Cerrado in situ may possibly explain the preference for a green lawn rather than the Vereda, one of the most beautiful and important landscapes of the Cerrado vegetation mosaic. Some students said of the lawn, "It has more life because it is greener."

This kind of preference can also be explained by people's aesthetic and emotional qualities. Sullivan (1994) observed that people interpret the environment according to their needs and prefer situations that are compatible with human needs. Thus, environments such as parks, which combine trees and lawns and have easy access and mobility, are preferred to environments of dense natural vegetation (Ulrich, 1986).

Many students seemed confused or showed a lack of information when they were asked about the Cerrado. Some confused the Cerrado with the xeromorphic vegetation of semi-arid and desert regions and described it as a dry landscape where animals died because of the drought. Often, they did not connect the fauna with the local flora. The occurrence of negative impressions of the region was considered high (30–42%), and when one analyzes the favorable opinions of the Cerrado, only a small number of students (19.5%) noticed the Cerrado as a place of important natural resources, or demonstrated worry about its conservation, or saw it as a pleasant and beautiful environment. These findings indicate that concern and knowledge of the Cerrado seems to be less than that for the Amazon and Atlantic forests. Mendes and Schall (1995) analyzed Brazilian children's perception (7–14 years) in relation to forest concept and found that, despite a high occurrence of misleading answers, most of the children favored the forests.

### **Aspects That Influence Affectivity Toward the Cerrado**

Eagles and Muffitt (1990) found that children who have read about wildlife show affection for and interest in nature rather than utilitarian attitudes toward it compared with children who do not read about wildlife. Knowledge of the Cerrado is important, and it should influence affectivity for the region. In some cases in the present study, it was possible to verify that students' negative opinions were owing to mistaken impressions of the Cerrado. As mentioned before, some students confused the Cerrado vegetation with xeromorphic vegetation and city weeds. This kind of interpretation directly influenced the students' opinions because they associated the Cerrado with poor, dry vegetation or with dumps and dirt. Santos (1994) observed that distorted, inconsistent, and imaginative answers from children about nature are often related to lack of information on the subject. The influence of environmental background in the preferences test suggested that frequent contact with wildlife induces a higher preference for natural landscapes (Tips & Savasdisara, 1986a). Gutiérrez, Benayas, and Pozo (1999) cited several other authors who reinforced the idea that youths' experiences with the natural environment have a strong influence in their adult life. Besides, a landscape tends to be more valued when it has personal meaning for someone. This was observed by DeLúcio and Múgica (1994), who found differences in preferences for natural landscapes among assiduous and casual visitors to Spanish national parks.

I also found in the present study that participants' previous contact or familiarity with the Cerrado was linked to their attitudes. There was a significant relationship between environmental background and the number of favorable votes for the Cerrado in the test of preferences, in which the group that had had contact with the Cerrado presented a higher average of favorable votes. An analysis of opinions on the Cerrado verified that students with low and medium environmental background tended to present more unfavorable opinions about the region than did the students with high environmental background, which presented 60% of favorable opinions. In conclusion, rural life and visits to urban parks are not enough to raise awareness of the Cerrado in students to the same level as that of students who are familiar with and have had direct contact with the region. The importance of youths' exposure to the Cerrado by means of pleasant and positive experiences that result in affectivity for and commitment to the conservation of this environment is clear.

Tips and Savasdisara (1986b) investigated the influence of participants' socioeconomic background on their preferences for landscapes. The results demonstrated the absence of significant differences in such preferences among participants of different social classes. In the present study, social class is related to students' attitudes, particularly about the vegetation. This could be explained by greater access by some groups to less polluted and cleaner, more attractive environments. In fact, more than 80% of the urban participants said they were familiar with a Cerrado reserve, whereas such experience for all the interviewees was only 37.5%. Consequently, the urban participants presented fewer indifferent and confused opinions on the Cerrado.

The urban socioeconomic background, however, cannot be directly related to positive attitudes to nature, as has been found in other studies on the environmental perception of people from developed countries such as the United States and Japan (Kellert, 1991). In the population of Costa Rica, Holl et al. (1995) observed that the consequences of population growth and environment degradation are felt more keenly by people of lower economic levels. Socioeconomic background seemed to influence students' attitudes toward the Cerrado because an increase in income allows for more and easier access to natural conservation areas. Therefore, increasing those opportunities for low-income students should reduce the observed differences.

The students' perception of the Cerrado was also influenced by the media and by schools through textbooks and teachers. A teacher I interviewed said, "If the teachers do not like or do not have any

opinion about the Cerrado, and if the students do not see anything of interest on the environment in the books that they study, then certainly they will reject or ignore the subject.”

## Recommendations

In recent years, the Cerrado has attracted the attention of researchers because of its critical situation. Researchers and delegates at scientific meetings have written and spoken about the lack of knowledge of the region and have suggested priority areas for conservation. However, little has been done to mobilize people to participate and to propose uses of biodiversity compatible with the Cerrado conservation as an alternative to the actual situation.

The involvement of existing and, specifically, new generations with the Cerrado will be the deciding factor in local biological and cultural survival. The results of the present study revealed the need to increase the identity of young people with native landscapes and biodiversity. This should be the primary focus of environmental education programs for local schools in the Cerrado biome. After the improvement of affectivity for the environment, students should be motivated and prepared to discuss changes in local development models, and they should be involved in actions that will not only help sustain development, but also change people's ethical conduct in relation to the Cerrado.

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**APPENDIX**  
**Collection of Paired Photos Presented to Students in the Preference Test**

Exotic subjects	Cerrado subjects
Lion	Jaguar
Koala	Tamandua
Peacock	Macaw
Dog	Maned wolf
Rhinoceros	Tapir
Cow	Pampas deer
Chicken	Rhea
Horse	Giant anteater
Goose	Red-legged seriema
Pig	Capybara
Soybean plantation	Open grassland (campo limpo)
Vegetable garden	Typical cerrado
Fruit trees	Open cerrado (campo cerrado)
Pinus Forest	Gallery Forest
Swimming pool	River
Grass and pinus	Typical cerrado tree ( <i>Vochysia</i> sp.)
Weeds	Typical cerrado
Grass and few trees	Marsh grassland with palms (vereda)
Rose	Typical cerrado flower ( <i>Caliandra</i> sp.)
Pasture	Cerrado landscape

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