



## Appendix 1

### Questionnaire on invasive alien plants in national parks

#### Introduction

I'm a student enrolled in a Master's course in Environmental and Tourism Economics at the University of Trento, Italy. The questionnaire is part of the research for my thesis in a cost-benefit analysis of clearing invasive alien plants in national parks, which I'm currently conducting at the University of Pretoria. The completion of this questionnaire will take approximately 10 minutes. If you are unable to provide me with exact details, please answer as precisely and correctly as possible.

#### Part 1

##### 1. Have you visited any parks in South Africa?

Yes	No
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##### 2. If yes, list the parks that you've visited

\_\_\_\_\_

\_\_\_\_\_

##### 3. What is your main reason for visiting the park? (The answer can be more than one)

- To see animals
- To see plants
- To see endangered wildlife
- To take photographs of wildlife and landscapes
- Educational reasons
- Other, specify \_\_\_\_\_

##### 4. How many days will you spend in this park?

Number of days	
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##### 5. Could you give an estimate of the total cost (including travel, meals and lodging, visits) for the holiday in this park?

Per person	Per family
R	R
€	€
\$	\$

##### 6. Did you book any of these services? If yes, please select the appropriate service. Otherwise, select 'No' and go to question number 8.

- Lodge (suite, cottage)
- Chalet
- Safari tent
- Tour and safari
- Other services \_\_\_\_\_
- No

##### 7. If yes, could you please give the amount that you have paid for the service?

Per person	Per family
R	R
€	€
\$	\$

##### 8. How important is the conservation of the environment and the typical landscape within protected areas? (1 = not at all, 5 = very important). We would like to remind you that there isn't either correct or incorrect answer.

1	2	3	4	5
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##### 9. Are you member of an environmental group? (e.g. WWF, Greenpeace, etc.)

Yes	No
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##### 10. Have you heard about invasive alien plants? If NO, go directly to Part 2 of the questionnaire.

Yes	No
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11. Below is a list of plants. In the first column please tick the plants that you know or have heard of. In the second column, tick the plants that you can recognise when you see them. In the third column, tick the plants that you think are a problem in South Africa. In the fourth column, tick the ones that you think are a problem in national parks.

Plants	Know or have heard of	Recognise on sight	Problem in South Africa	Problem in national parks
Wattle ( <i>Acacia</i> )				
Pine tree ( <i>Pinus</i> )				
Lantana				
Gum tree ( <i>Eucalyptus</i> )				
Water hyacinth				
Prickly pear ( <i>Opuntia</i> ) and other cactus plants				
Other (specify which)				

People have different opinions and information about invasive alien plants. Please use the scale from 1 to 5 to respond the questions below (1 = not at all important, 5 = very important). We would like to remind you that there isn't either a correct or incorrect answer.

##### 12. What are the *negative* impacts of invasive alien plants? Please answer all the questions.

	1	2	3	4	5	I don't know
Agricultural weeds						
Damage to livestock						
Human health						
Ecosystem functioning						
Affects landscape aesthetics						
Expensive control methods						

##### 13. What are the *positive* impacts of invasive alien plants? Please answer all the questions.

	1	2	3	4	5	I don't know
Improves biodiversity and ecosystem						
Improves landscape aesthetics						
Pastoral, food, medicinal or ornamental uses						
Forestry or industrial uses						
Historical or cultural values						



**Part 2**



**Past and current state of *Opuntia stricta* (sour prickly pear).** *Opuntia stricta* (sour prickly pear) is an indigenous species from North America. It is an erect or sprawling shrub up to 2 m (6.6 ft) in height. It has a fleshy stem with no leaves, and spines with hairy features. This plant produces lemon-yellow flowers in spring and summer, followed by purplish-red fruits. In South Africa, the sour prickly pear was introduced mainly as an ornamental plant in the 1930s, but it spread rapidly during the 1980s and had a *negative impact on biodiversity and landscapes*, including national parks. *Opuntia stricta* has been declared a weed, because when it invades an area it grows into dense patches that end up restricting the growth of other plant species.

**14. The following four photographs indicate the possible state of invasion of prickly pear within a park. Express your preferences related to each of these photographs using the scale from -2 to 2 (-2 = not pleasant at all, 0 = indifferent, 2 = very pleasant).**

Photo no. 1	-2	-1	0	1	2
Photo no. 2	-2	-1	0	1	2
Photo no. 3	-2	-1	0	1	2
Photo no. 4	-2	-1	0	1	2

Photograph number 1 represents the current state of invasion of *Opuntia stricta* (sour prickly pear) in some of the national parks. Actions such as research, selection of appropriate control methods, implementation of the programme and its monitoring are necessary in order to keep the sour prickly pear under control. All of these operations involve costs.

If there isn't any control of this plant, the invasion could reach the situation present in photograph number 4. No parks (including the Pilanesberg National Park) are excluded from potential invasion since there are both environmental and human factors that can enable its dispersal.

**15. Please select the entrance fee that you have paid in this park.**

R65	R20
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**Would you be willing to pay a higher entrance fee in order to contribute to the prevention of the spread of sour prickly pear in the park (through operations such as detection, research, eradication and monitoring)?**

Yes	No
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If yes, how much more would you be willing to pay to avoid *Opuntia stricta* from spreading in the park?

**16. Could you please give reasons why you are willing to pay a higher entrance fee?**

\_\_\_\_\_

Could you please give reasons why you are willing to pay the same entrance fee?

\_\_\_\_\_

**General Information**

**17. Gender**

Male	Female
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**18. Age** \_\_\_\_\_

**19. Nationality** \_\_\_\_\_

**20. If South African, please answer the following questions:**

Province of origin	Home language
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**21. Number of people in your family who have paid the entrance fee of R65.**

Number of people	
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**22. Number of pensioners and children in your family who have paid the entrance fee.**

Number of pensioners		Number of children	
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**23. Qualification**

- School
- Graduate degree
- Post graduate – Honours
- Doctorate degree

**24. Please indicate if you are currently employed in one of these sectors. If not, select 'Other' and specify the sector or indicate your position as student, pensioner or unemployed.**

- Agriculture
- Forest industry
- Tourism
- Conservation
- Education
- Other (please specify which sector \_\_\_\_\_)
- Student
- Pensioner
- Unemployed

**25. Income per year (€1 = R11.02; €1= \$1.35). Choose one of the following categories:**

Less than €5,000	Less than R55,100	Less than \$6,750
€5,001–€15,000	R55,111–R165,300	\$6,751–\$20,250
€15,001–€25,000	R165,311–R275,500	\$20,251–\$33,750
€25,001–€35,000	R275,511–R385,700	\$33,751–\$47,250
€35,001–€45,000	R385,711–R495,900	\$47,251–\$60,750
More than €45,001	More than R495,911	More than \$60,751
I prefer not to answer	I prefer not to answer	I prefer not to answer

Thank you for filling in this questionnaire. Have a pleasant stay.

## Appendix 2



Source: Photograph courtesy of Llewellyn C. Foxcroft

**FIGURE 1:** Invasion with less than 10% cover.



Source: Photograph courtesy of Llewellyn C. Foxcroft

**FIGURE 3:** Invasion with between 31% and 50% cover.



Source: Photograph courtesy of Llewellyn C. Foxcroft

**FIGURE 2:** Invasion with between 11% and 30% cover.



Source: Photograph courtesy of Llewellyn C. Foxcroft

**FIGURE 4:** Invasion with more than 50% cover.

**Note:** This is the online appendix of Nikodinoska, N., Foxcroft, L.C., Rouget, M., Paletto, A. & Notaro, S., 2014, 'Tourists' perceptions and willingness to pay for the control of *Opuntia stricta* invasion in protected areas: A case study from South Africa', *Koedoe* 56(1), Art. #1214, 8 pages. <http://dx.doi.org/10.4102/koedoe.v56i1.1214>