**Appendix I**

**Questionnaire on invasive alien plants in National Parks**

**INTRODUCTION**

I’m a student enrolled in Master’s course in Environmental and Tourism Economics at the University of Trento, Italy. The questionnaire is part of research for my thesis in cost-benefit analysis of clearing invasive alien plant in National Parks that I’m currently conducting at the University of Pretoria. The compilation of this questionnaire will take approximately 10 minutes. If you could not provide us with exact details, please answer as precisely and correctly as possible.

**PART 1**

1. Have you visited any parks in South Africa?

○Yes ○ No

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 1)

○ To see animals

○ To see plants

○ To see endangered wildlife

○ Take photos of wildlife and landscapes

○ Educational reason

○ Other, specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

Number of days \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

a) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ R per person or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_R per family

b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_€ per person or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_€ per family

c) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_$ per person or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $ per family

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 (suites, cottages)

○ Chalets

○ Safari tents

○ Tour and Safari

○ Other services \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

○ No

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

a)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ R per person or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_R per family

b)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $ per person or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_$ per family

c)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ € per person or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_€ per family

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

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

9. Are you member in environmental group (e.g. WWF, Greenpeace, etc)

○Yes ○ No

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

○Yes ○ No

11. Below there 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 (NP).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Know or have heard of** | **Recognise when see** | **Problem in South Africa** | **Problem in National Parks** |
| Wattles (Acacia) | ○ | ○ | ○ | ○ |
| Pine trees (Pinus) | ○ | ○ | ○ | ○ |
| Lantana | ○ | ○ | ○ | ○ |
| Gum trees (Eucalyptus) | ○ | ○ | ○ | ○ |
| Water hyacinth | ○ | ○ | ○ | ○ |
| Prickly pear (Opuntia) and other cactus plants | ○ | ○ | ○ | ○ |
| Other (specify which) | ○ | ○ | ○ | ○ |

**People have different opinions and information about invasive alien plants.** Pleaseuse the scale from 1 to 5 to respond the questions below (1=not important at all, 5= very important). We would like to remind you that there aren't either correct or more appropriate answers.

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

Agricultural weeds ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Damage on livestock ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Human health ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Ecosystem functioning ○1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Affects landscape aesthetics ○1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Expensive control methods ○1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

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

Improves biodiversity and ecosystem ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Improve landscape aesthetics ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Pastoral, food, medicinal, or

ornamental uses ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Forestry, industrial uses ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

Historical or cultural values ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ I don’t know

**PART 2:**

**PAST AND CURRENT STATE OF *OPUNTIA STRICTA* (sour prickly pear)**

Opuntia stricta *(***sour prickly pear**) is an indigenous species to 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 the spring and summer, followed by purplish-red fruits.

In South Africa, the sour prickly pearwas introduced mainly as ornamental plant at 1930s but it spread rapidly during the 1980s and had negative impact on biodiversity and landscapes, including national parks. Opuntia stricta has been declared as 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 photos indicate possible state of invasion of the prickly pear within a park. Express your preferences related to each of these photos using the scale from -2 to 2 (-2= not pleasant at all, 0 = indifferent, 2 = very pleasant).

○ Photo n.1 -2 -1 0 1 2

○ Photo n.2 -2 -1 0 1 2

○ Photo n.3 -2 -1 0 1 2

○ Photo n.4 -2 -1 0 1 2

Photo number 1 represents the current state of invasion of *Opuntia* (sour prickly pear)in some of the national parks. Actions such as research, selection of appropriate control method, 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 photo number 4. No parks (including Pilanesberg 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.

○ R 65 ○ R 20

Will you be willing to pay higher entrance fee in order to contribute in avoiding the spread of sour prickly pear in the Park (through operations such as detection, research, eradication and monitoring)?

○Yes ○ No

If yes, how much more will you be willing to pay to avoid *Opuntia* spread in the Park?

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

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

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**General Information**

17**. Gender** M ○ F ○

18. **Age** \_\_\_\_\_\_\_\_\_

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

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

○ Province of origin

○ Home language:

21. **Number of people in your family that have paid the entrance of R 65.**

n. of People\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. Number of pensioners and children in your family that have paid the entrance fee.

n. of Pensioners\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ n. of Children\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. Qualification

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

24. Please indicate if you are currently employed in one of these sectors. Otherwise, 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 = R 11.02; €1= $1.35 ) Choose one of these categories.

|  |  |  |
| --- | --- | --- |
| ○ Less than € 5,000 | ○ Less than R 55,100 | ○ Less than $6,750 |
| ○ € 5,001- € 15,000 | ○ R 55,111- R 165,300 | ○ $ 6,751- $ 20,250 |
| ○ € 15,001- € 25,000 | ○ R 165,311- R 275,500 | ○ $ 20,251- $ 33,750 |
| ○ € 25,001- € 35,000 | ○ R 275,511- R 385,700 | ○ $ 33,751- $ 47,250 |
| ○ € 35,001- € 45,000 | ○ R 385,711- R 495,900 | ○ $ 47,251- $ 60,750 |
| ○ More than € 45,001 | ○ More than R 495,911 | ○ 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 II**

|  |  |
| --- | --- |
|  |  |
| Photo1. Invasion less than 10% of cover | Photo 2. Invasion between 11% and 30% of cover |
|  |  |
| Photo 3. Invasion between 31% and 50% of cover | Photo 4. Invasion more than 50% of cover |