



Payment for Ecosystem Services in NPUH

Consultancy report



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PAYMENT FOR ECOSYSTEM SERVICES

National Park Utrechtste Heuvelrug

The findings

How can visitors of National Park Utrechtste Heuvelrug contribute to ecosystem services?

Literature study

How do visitors of national parks abroad contribute to ecosystem services?

Galapagos Islands, Ecuador

- Entrance fees (based on passport)
- Tourism operating permits and licences
- Authorisation of tourism services
- Volunteering & voluntourism

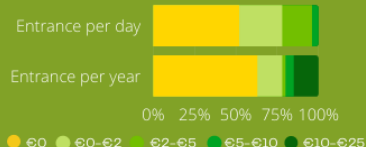
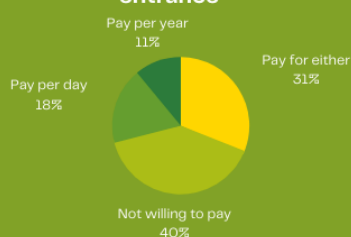
Queensland National Parks, Australia

- Permit system (1-day, 1-week, 1-month, 1-year)
 - Camping
 - Events
 - Driving
 - Restricted access area

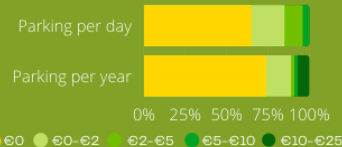
Survey

How are visitors willing to pay for nature in the National Park the Utrechtste Heuvelrug?

Willingness to pay for entrance

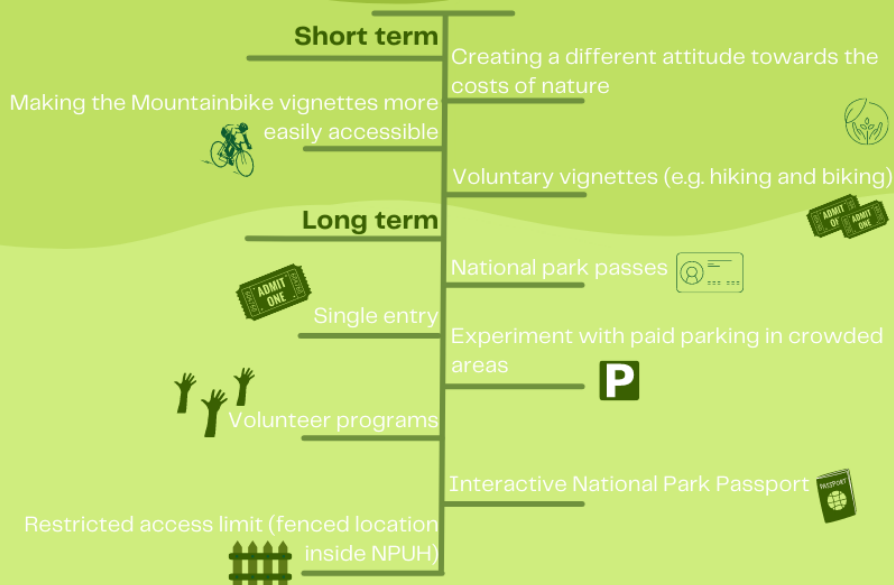


Willingness to pay for parking



Recommendations

Built on this data the following is recommended regarding payment for ecosystem services. The timeline below shows the recommendations, which are divided into short- and long term recommendations.





EXECUTIVE SUMMARY

We conducted a study to evaluate opportunities for using tourism as a tool for the management of the Utrechtse Heuvelrug. Like other national parks, the Utrechtse Heuvelrug provides a number of ecosystem services. Importantly for our case, it is a destination that people like to visit, either to enjoy nature, explore culture or to do sports and recreate. Moreover, the national park plays a role in biodiversity conservation and is a source of drinking water.

To ensure that these services can be maintained, we looked at ways in which tourism can contribute to payments for ecosystem services (PES). We took different approaches to this. First, we looked at the cases of the Galapagos Islands and Queensland, where PES has been used to gain revenue. In these cases, revenue is mainly generated from payments for entry. Moreover, incentives for nature protection are created through the promotion of volunteering and ownership of pieces of land.

We also conducted interviews with 45 visitors to the Utrechtse Heuvelrug. We asked whether visitors would be willing to pay for access to the park or parking in the area. A majority of the visitors were willing to pay for access, while a minority is willing to pay for parking. However, some local residents are in favour of paid parking, as they have trouble with finding a parking spot on the weekends. Therefore, there may be opportunities to experiment with payment systems at some places in the park.

It appears that the attitude of visitors towards the costs of nature plays an important role in willingness to pay. Some of our interviewees who are willing to pay indicated that they already donate to nature or show otherwise that they are aware of the costs and value of nature. Therefore, we also recommend to create a different attitude towards the costs of nature.

Volunteering may be a good way to improve management. During our fieldwork, we talked with some people who were volunteering for Utrechts Landschap. Meanwhile, mountain bike organizations take care of the management of the paths. Creating more incentives for volunteering can be seen as a non-monetary form of PES as it lets people do management without payment. It can also increase awareness and valuation of nature, but in our small sample of volunteers, this does not seem to result in a higher willingness to pay.

Thus, our recommendations to National Park Utrechtse Heuvelrug will be:

In the short term	In the long term
Create a different attitude towards the costs of nature	Create a national park pass and/or passport
Make the purchase of mountain bike vignettes better to access	Create a restricted access limit to places with a high natural value in the park
Create voluntary vignettes	Create permits for yearly/monthly entry but also for single entry
	Create paid parking in some of the busiest places
	Promote volunteering more



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INTRODUCTION AND BACKGROUND

150.000 years ago, ice and water masses pushed earth and stones to the middle of the Netherlands and formed the Utrechtse Heuvelrug. Today, the Utrechtse Heuvelrug consists of 20.000 hectares of consecutive forest and heathlands. When counting the flanks, this number increases to 40.000 hectares. The southern part of the Utrechtse Heuvelrug, comprising 10.000 hectares, has the official status of National Park the Utrechtse Heuvelrug (NPUH) (National Park Utrechtse Heuvelrug, n.d.).

The NPUH has a rich history and valuable nature which connects with nearby settlements like Utrecht and Amersfoort. The location of NPUH close to large settlements provides opportunities for intense use of this area for recreational purposes. Moreover, the area is appealing to visitors from elsewhere in the Netherlands due to its space for diverse recreational activities ranging from a quiet walk to adventurous mountain biking routes, and the opportunity for visitors to deepen their knowledge about Dutch history (National Park Utrechtse Heuvelrug, n.d.). For these reasons, the number of visitors visiting the Utrechtse Heuvelrug is increasing.

To keep the area in good condition, management for biodiversity protection, cultural landscapes, and other common properties are becoming more important. To maintain a well-balanced state of the National Park, good management to protect the area is needed. However, these organisational costs (e.g., contract design) for realising nature conservation (often represented by an increase in labour inputs) are expensive (Jongeneel, Roelof A. & Polman, Nico B.P. & Slangen, Louis H.G., 2008). For the NPUH the yearly costs for nature, landscape, recreation and cultural history are around 18,3 million euros. They get around 6,7 million euros in subsidies per year leaving a gap of around 11,6 million euros (Nationaal park Utrechtse Heuvelrug, 2018). To cover these costs income must be generated.

One way to generate this income is through tourism. Recent economic valuation studies within National Park the Hoge Veluwe estimate that the total economic value of the ecosystem services (e.g., recreation and recreational hunting, and biodiversity conservation) provided by that forest ecosystem is around €10.8 million per year. This can be translated to €2000/ha/year. Of this 10.8 million, the total value of the recreation services is estimated at €6.14 million (Hein, 2011). These outcomes highlight the importance of investing in ecosystem services for sustainable nature and tourism management.

The National Park the Hoge Veluwe is privately owned and fenced, which makes it possible to generate a high amount of income through entrance fees (Hein, 2011). Since this is not possible in NPUH, the Utrechtse Heuvelrug has implemented other initiatives to generate revenue streams (e.g., selling mountain bike and equestrian vignettes to visitors). Unfortunately, these initiatives are not generating enough income to pay for the management of ecosystem services within the National Park. Although the commissioners seem hesitant to install an entrance fee for the Utrechtse Heuvelrug, it is still valuable to consider this option. Increasingly, national parks use payments for entry to gain revenue for protection. For the Utrechtse Heuvelrug, visitors could buy a pass between 2015 and 2020, but this project has been discontinued (Heuvelrug Erfgoed Pas, 2021). While there are some practical problems with payment for entry the main concern for payment is public opinion. Therefore, it is valuable to know how visitors of the park would respond to the requirement to pay for entry as well as parking.

The objective of this report is to find conventional as well as innovative ways in which value can be generated for managing common protected areas and cultural landscapes through recreation and tourism in NPUH. We focus on payment for ecosystem services (PES) systems, on which we elaborate in the next chapter. We discuss two cases of PES systems for value creation abroad and study the



willingness to pay (WTP) of visitors of NPUH. Hereby, we aim to gain insight in the potential of using PES systems for NPUH. On the basis of our findings, we provide recommendations for management of the national park.

PAYMENTS FOR ECOSYSTEM SERVICES

Ecosystem services refer to all services provided by ecosystems that benefit society (Braat & Groot, 2012). Examples are the provision of materials, such as food products, and recreational and cultural services, such as the enjoyment of nature, scenic beauty, etc. (Braat et al., 2017). In many cases, however, the ecosystems providing these services are under threat by human activities that change the surface of the Earth, its atmosphere, and the oceans. Therefore, initiatives are created to protect and restore nature, such as the establishment of National Parks. Since these initiatives are costly, a source of income is needed to provide for the actions needed to preserve valuable ecosystem services. This income can be generated through payments for ecosystem services (PES).

PES refers to policies that compensate those who conduct actions that ensure the continuation or restoration of an ecosystem's ability to provide important services (Jack et al., 2008). Concerning the funding of PES, two categories can be defined; PES can consist of government or public sector funding or of user-generated fundings. NPUH receives some funding from the government in the form of subsidies, but this is insufficient for management, as discussed previously. Therefore, there is interest to add income generated from users, which in this case are visitors to the park. Users pay directly for ecosystem services, either voluntarily or under obligations (de Groot, 2011). In National Parks, PES schemes often take the form of compulsory entrance fees (Wilson & Tisdell, 2003; Melstrom & Vasarhelyi, 2019), but NPUH has mainly worked with voluntary contributions such as donations.

For the success of PES, local support and devotion to the plan of action are crucial (de Groot, 2011). Therefore, payments must go to those who manage ecosystems (Jack et al., 2008). Thus, PES involves monetary contributions towards landowners or managers that can provide or protect those ecosystem services (Braat, Costanza & Farber, 2017). Additionally, the type of reward (monetary (cash), and/or non-monetary (in-kind)) should be based on local factors that are empathetic towards specific poverty contexts (de Groot, 2011). Non-monetary contributions (such as area-based development) can hereby provide stimulus to engage in PES schemes (Carius, 2012).

WILLINGNESS TO PAY FOR ECOSYSTEM SERVICES

The success of entrance fees as a PES scheme depends on the visitors' willingness to pay (WTP). WTP can be influenced by one's awareness of the values of ecosystem services and the costs to preserve them (Obeng & Aguilar, 2018). For instance, Wilson and Tisdell (2003) found that visitors are more willing to pay entrance fees for a National Park if they know that their money is used for conservation. Other factors may also be influential, however. For instance, Botzen and van Beukering (2018) found that visitors may be willing to pay for ecosystems because they get moral satisfaction from giving, regardless of whether they attach values to nature.

Still, there is reason to increase awareness of visitors for conservation and value of nature as this may increase the general WTP of people interested in visiting the national park. However, we should remain wary of the fact that WTP does not automatically translate to more payments. Even when people indicate that they are willing, it is possible that they will not actually do so. However, Liu (2020) shows that there is a relation between environmental attitudes, WTP and the behaviour of paying for additional services of nature.



METHODOLOGY

We want to answer the following research question: How can visitors of National Park Utrechtse Heuvelrug contribute to ecosystem services? To answer this main research question two sub-questions are created, which help define our research strategy (see Appendix I Research Strategy). The two sub-questions go as follows; 1) How do visitors of national parks abroad contribute to ecosystem services? 2) How and how much are visitors willing to pay for nature in the National Park the Utrechtse Heuvelrug?

To answer the first sub-question a literature review is conducted to understand how other national parks worldwide create monetary value and if and how these options can be implemented within the National Park the Utrechtse Heuvelrug. To do this, two different case studies from other National Parks abroad are being compared. Hereby, we focus on the methods of payment in The Galapagos Islands (Ecuador) and Queensland National Parks (Australia). These case studies are assimilated and used as the basis for our further research. Whereby the scope is on what would work in the case of National Park the Utrechtse Heuvelrug and how this can be applied to the NPUH.

To answer the second sub-question, a survey is conducted in order to obtain information from visitors about their perception of costs for nature protection and how they would want to contribute to ecosystem services. The survey is conducted in two areas in the National Park the Utrechtse Heuvelrug. We interviewed 24 people near the visitor centre in Amerongen on the 19th of November and 21 near the pyramid at Austerlitz on the 23rd of November.

This survey is filled in by visitors of the national park in order to analyse whether people are aware of the costs of nature and if they understand the importance of contributing with either money or non-monetary (e.g., community volunteering) tasks. The first questions are some general questions to gain an overview of the demographic of the visitors and the reasons for visiting. The following questions are about whether the visitors volunteer in the national park and in what way, and lastly questions about the willingness of visitors to pay and how would they prefer to contribute if at all. Because there were so little respondents who did volunteering, it was decided to leave this out of the main focus of this report. The results will be analysed and compared to evaluate the willingness to pay of the visitors of the Utrechtse Heuvelrug.

RESEARCH FINDINGS

LITERATURE REVIEW

In this chapter two case studies are discussed that could set an example for PES schemes in the Utrechtse Heuvelrug, even though the two cases are quite different from the Dutch national park. Both have elements that can serve as a source of inspiration as the management of the two works with several strategies to create value for ecosystem services. First of all, the Galapagos Islands are relatively similar to the Utrechtse Heuvelrug concerning its complexity. Just like the Utrechtse Heuvelrug, the Galapagos Islands have inhabitants living next to the natural environment and similarly, the ecosystems are delicate and suffering because of the over-exploitation and rapidly growing human presence, however both on a different scale (Parque Nacional Galápagos Ecuador, 2011). Besides that, the difference in geological location is enormous, therefore not all management discussions will be useful for NPUH. Secondly, we choose to analyze how Queensland, Australia is managing their national park because they rely heavily on daily/weekly/monthly permits to create a better system for accessing their parks and ensuring that they have the financial support to keep the parks and the wildlife present intact. Their online booking system is ensuring that the camping areas are not over-



crowded, by providing permits, thus creating a more pleasant environment for the people and a more free place for the wildlife present. We believe that is a good example of permit schemes that could be useful for NPUH (Queensland government, 2016).

THE GALAPAGOS ISLANDS, ECUADOR

The Galapagos Islands are very well known for their extraordinary wildlife and its fascinating natural beauty. As the native animals on the oceanic islands show little or no fear of man, the archipelago, approximately 1000km from mainland Ecuador, has been very attractive to tourism. Because of that, there has been pressure on the delicate ecosystems, which formed great concern (de Groot, 1983). The Galapagos Islands is a protected area but is suffering due to the over-exploitation of natural resources by the rapidly growing human presence, which is explicitly linked to the global economy.

In recent years, the Ecuadorian government has had a growing interest in possible sustainable solutions to the environmental problems in the Galapagos (Pizzitutti et al., 2017). This led to a good example of a very well-organized PES scheme. Namely, each visitor is required to pay an entrance fee when entering the Galapagos for the natural protected areas and will receive a Galapagos stamp in its passport. What a visitor must pay to enter the protected area differs per nationality and age. This means that there are no entrance fees for Galapagueños, low entrance fees for national and international people living in Ecuador (US \$3-\$6), medium entrance fees for people from countries belonging to the Andean Community of Nations or Mercosur (US \$25-\$50), and high entrance fees for international tourists (US \$100). Entrance fees are not the only way income is generated to finance the conservation of biodiversity of marine, terrestrial flora, fauna and to benefit the local community. Generally speaking, the income generated by the public as well as tourist activities that are carried out in the protected area is derived from the following three sources: entrance fee, tourism operating permits and licences, and the authorisation of tourism services. Besides that, in the Galapagos there are several volunteer programs some of which are scientific and require skill and experience, other programs are related to learning about, participating in, and contributing directly to the parks' management activities. These activities are mainly focused on national students and professionals and next to those voluntourism programs are focusing on wildlife, nature and local communities (Parque Nacional Galápagos Ecuador, 2011). In return for all payments for the national park, tourists get to enjoy and experience the extraordinary natural environment of the Galapagos Islands, which is almost completely untouched and if not, restored to its original state (Tellkamp, 2017).

QUEENSLAND NATIONAL PARKS, AUSTRALIA

A case study that proves to be quite successful in generating monetary value for national parks is the case of Queensland. In this province of Australia, all the national parks fall under the Queensland governmental department of environment and science and are managed by Queensland Parks and Wildlife Service. There are over 1000 national parks in Queensland and the Queensland Parks and Wildlife Service manages over 12.5 million hectares of land (Queensland government, 2014). In a study of 2008 about the value of spending from tourism, it was estimated that over 749 million Australian dollars per year are generated directly by tourism. This amount is coming from the existence of the national parks exclusively. The spending of tourists visiting the national parks accounts for about 28% of all tourists spending in Queensland (Ballantyne et al, 2008). In the case of Queensland-Australia, the Government is offering permits for access to their national parks. If you are camping, driving in a recreational area, hosting an event there, or conducting a business in Queensland's Park and forests you need to purchase a permit.

In the case of camping in their national parks, forests, or conservational parks you have to book and pay for a camping permit. The camping areas can be booked online, and you need to pay to secure



your booking. They offer clear instructions on how to do that on their site. For obtaining a permit to access the recreational areas you can choose to pay for one day, one week, one month, or one year. Each recreational area has different costs. You also need a permit for activities such as cave tours, orienteering, rock-climbing, or white-water rafting. For these permits there aren't any additional fees.

In the case of Queensland, you also need a permit to be able to access the restricted areas. In the "restricted access area" you need a special permit to access the recreational areas. A restricted area is declared over a park or recreation area, or part of a park or recreation area, by regulation or by a special sign known as a regulatory notice near the entrance of that area. They have created restricted access areas mostly for environmental reasons so that they can protect the wildlife or resources. The permit can be permanent, temporary, or seasonal (Queensland Government, 2016).

Queensland's main objective is to conserve the nature of its natural parks and protect the native wildlife. They believe that offering access through permits, allows people to enjoy nature, but it also makes the people understand that everything comes at a price. Thus, they connect the fact that when people are paying for entering the park, they will take care of nature (Queensland Government, 2016).

INTERVIEWS

GENERAL FINDINGS

Slightly more respondents were female (55.6%) than male (44.4%) and slightly less than half of the interviewees say they live close to the Utrechtse Heuvelrug according to their definitions (48.9%). Nearly all visitors (95.5%) visit the area for walking and 20.5% of our respondents go there sometimes for mountain biking. Furthermore, our results indicate that visitors prefer paying for an entrance fee in comparison to paying for a parking ticket.

We asked respondents whether they are willing to pay for access and parking to the national park. For both access and parking, we gave the option to pay for one day or a full year. A majority of visitors (60%) showed willingness to pay for access, while only a minority (40%) was willing to pay for parking (see appendix III Interview results, Figure 1).

DEMOGRAPHICS

In our data, we asked several general questions about the people who responded to our questionnaire. Respondents that we met in Austerlitz were more willing to pay than respondents in Amerongen. There does not seem to be a difference in willingness to pay between male and female respondents. It does appear, however, that younger people are slightly more often willing to pay for nature than older people. The only two people willing to pay €25 to €50 for a year access to the park were both 33 years old.

ENTRANCE FEE

The results show that 22 (48%) out of the 45 respondents are willing to pay for a day pass to enter the Utrechtse Heuvelrug (see appendix III Interview results, Figure 2). Out of these 22 people, around half would pay €0-2 for a visit. The other half would pay €2-5 or more. For the year access pass, the results show that 19 (42,2%) out of the 45 respondents are willing to pay to enter the Utrechtse Heuvelrug. There were some surprising results here. Out of these 19 people, 7 (36,8%) people would be willing to pay €0-2 and 7(36,8%) other people (26,4%) €10-25. This shows that there is no even distribution in the sample for the willingness to pay for a yearly pass.



Reasons for not paying for a yearly pass are infrequent visits to the Utrechtse Heuvelrug. One participant noted that she did not want to pay upfront, because she would not be sure if she visits the park often enough to get the investment out. Another group that does not want to pay for a visit, is the locals. 22 (48,9%) out of the 45 respondents consider themselves as local. Out of these 22 people, only 5 (22,7%) were willing to pay for a one-time visit to the Utrechtse Heuvelrug. When considering a one-year entrance pass, 8 (36,4%) out of the 22 locals were willing to pay because they visit the park often. This makes the amount paid per visit small so that lowers the bar to contribute for the locals. The other 14 participants in this group reasoned that they saw the Utrechtse Heuvelrug as their backyard, 'so why should we pay for that?'

PARKING

Another component of our survey is the willingness to pay for a parking spot in the Utrechtse Heuvelrug. As shown in Figure 3, 16 (35,6%) out of the 45 participants are open to paying for a one-day parking spot (see appendix III Interview Results, Figure 3). The amounts for a day pass vary between €0-10. One respondent noted that she would only be willing to pay for a day parking pass because she visits the Utrechtse Heuvelrug infrequently.

For the year parking pass, the numbers are slightly different. Only 4 (8,9%) out of the 45 participants are willing to pay for a parking pass that gives them access to the Utrechtse Heuvelrug throughout the year. A reason for the low willingness to pay is given by a participant. She lives too far away to claim a parking spot for the whole year. On the other hand, the people that are willing to pay for a one-year parking pass have their reasons too. A respondent argues that she can't park her car in the Utrechtse Heuvelrug during the weekends because it is crowded with people then. Therefore, she hopes that paid parking might help to solve this problem.

MOUNTAINBIKING

Next to the huge number of people that visit the Utrechtse Heuvelrug for hiking, there are also quite some people that go mountain biking in the Utrechtse Heuvelrug. This area is known for its hilly terrain, so many sportive enthusiasts visit the Utrechtse Heuvelrug for mountain biking. There were 9 (20%) respondents in our sample that indicated they visited the Utrechtse Heuvelrug to go mountain biking. Nevertheless, the mountain bikers also cause some turmoil as a local told us that he was frustrated to see mountain bikers parking their car in front of his house instead of driving to the forest first. He said that it made his street crowded with cars such that the inhabitants couldn't park their cars on their spot.

Furthermore, we found that some respondents were willing to pay for a vignette. While talking to one couple, they had a hard time buying the vignette. In the past, they could buy it at a restaurant near the parking area. However, as it was not profitable enough to sell these vignettes for the restaurant they quit. Additionally, they mentioned that it didn't matter to them how much the vignette would cost, but that it should be more accessible to buy.

VOLUNTEERING

Only 5 participants (10,6%) indicate that they volunteer in the area, but one did not give specific details and indicated 'never' when asked how often they volunteer. Of the remaining four respondents who volunteer, two do so about once per year. One respondent volunteers once a week and another one multiple times per week. Volunteering actions done by the respondents include cleaning and removing trash, keeping paths clean, and cutting branches.

Among volunteers, willingness to pay was not high. Only one out of four volunteers were prepared to pay for both access and parking, whether per day or year. Another one was prepared to pay for



parking, but not for access, while the remaining two were not willing to pay for anything. In the cases of willingness to pay, volunteers were prepared to pay €2-5 for access or parking for a day. Among non-volunteers, almost half of the respondents (20/41) were prepared to pay per entry. However, we should be careful here as the sample size of volunteers is very low.

MOTIVATIONS

Based on our data discussed above we can say little about the motivations behind payment for ecosystem services. However, a number of respondents left some comments after filling in the form. This gives some potentially interesting insights as to how underlying ideas and previous experiences influence one's opinion on this matter. Below we discuss some of these perceptions. A full list of the comments (in Dutch) can be found in Appendix III Interview results, Comments respondents.

A number of people indicate that they are principally against payment for nature; one respondent says that nature "should be available for everyone". Another claims that "paying money for nature is bad for poor people and national health". Some visitors also suggest alternative ways of paying. One respondent prefers to donate to Natuurmonumenten instead of paying for entry or parking, while another prefers a more general ticket to access natural areas instead of paying for access specifically to National Park the Utrechtse Heuvelrug.

Some of the residents leave specific comments regarding parking. A few local residents indicate that paid parking would have additional benefits to generating revenue for nature. One of them would welcome paid parking because it may solve the issue of full parking lots on the weekend. Some also mentioned that cars are often parked in the neighbourhood instead of at the parking. However, they did not indicate in their comments whether paid parking would be a solution for them.

CONNECTION BETWEEN LITERATURE AND INTERVIEWS

Both cases of the literature review use an entrance fee in their PES scheme. For the Galapagos islands, you already pay an entrance fee for the national parks before entering the national park. In the case of Queensland, you can also pay the entrance fee when you are already in the park. The Utrechtse Heuvelrug, on the other hand, does not have an entrance fee currently. One factor that makes it hard to have an entrance fee in the Utrechtse Heuvelrug, is the geographical structure of the national park. Since it is not fenced and villages and roads are within and right next to the park, people cannot be fully excluded from the national park. In both the literature review case studies, it actually is a 'traditional' national park. The area in Galapagos and Queensland is clearly assigned with the purpose of conserving nature, whereas National Park the Utrechtse Heuvelrug has multiple purposes. This makes it harder in the case of the Utrechtse Heuvelrug to find a one-size-fits-all solution for generating money from the visitors.



DISCUSSION AND CONCLUSION

To maintain a well-balanced state of the NPUH good management to protect the area will be needed. As the organizational costs for realising nature conservation are expensive, the management of the NPUH has implemented some initiatives to generate revenue streams for maintaining the park. Unfortunately, these are not generating enough income. Therefore, this research aims to gain insight into what way visitors are willing to contribute towards ecosystem services, by answering the following question; How do visitors of National Park Utrechtse Heuvelrug want to contribute to ecosystem services? For this reason, a literature study into case studies and their use of payments for ecosystem services was carried out and a questionnaire about the willingness to pay of visitors of the NPUH was carried out.

The results from the literature study show that both case studies work with permits for accessing the nature area. This can be seen as an example for the NPUH as right now the whole national park is free to access. The example from the Galapagos shows a way of creating value through different types of entrance fees based on their nationality and distance from the park. The example of Queensland shows how permits for various activities can create value and manage tourists. Both of these cases could be used as an example of how to create value for ecosystem services in the NPUH. By creating restricted areas, (parking) permits and a national park pass and/or passport the NPUH can get their visitors to contribute to ecosystem services while still enjoying the natural area.

The results from the survey about the willingness to pay for fees within the NPUH showed that when they go visit the area, they like to be active (95% go hiking and 20.5% mountain bikes). For value creation, it is therefore recommended to focus on marketing the protection of the areas within the National Park that can be used for recreation. For these reasons, the management of the National Park could best focus on making the mountain bike vignettes more accessible. Additionally, does the data show that the willingness to pay is higher in Austerlitz than Amerongen. Thus, when the management of the Utrechtse Heuvelrug focuses on implementing payments for ecosystem services, it is best to target the visitors at Austerlitz.

A majority (60%) is willing to pay an entrance fee. By looking at the results from the willingness to pay for a daily or yearly entrance fee we see that 22 out of 45 respondents (48%) are willing to pay for a day pass to enter the Utrechtse Heuvelrug when the fee is not higher than €5. When comparing this towards an annual pass, we see that 19 out of 45 (42%) are willing to pay a fee. The amount that can be asked for an annual pass is, however, more divided between the different visitors. Nevertheless, does the preference lay with €0-2 and €5-10, as they both scored 36%. This distinction seemed to appear due to the visit frequency of the visitors to the National Park. Additionally, locals are also not very enthusiastic about paying an entrance fee, as they see the Park as their backyard. In the survey, only five participants indicated to volunteer in the NPUH. For this reason, no conclusions will be drawn for volunteering.

Contrary to the WTP for entrance fees, we see that the minority (40%) is willing to pay for parking. The frequency of visiting also affects the willingness to pay for a daily or annual parking fee. It appears that 35% is willing to pay for a day ticket if the amount is not higher than €10. Selling a day ticket also proves to be more successful among the visitors, as only 8% is willing to pay for an annual parking membership. For the annual fee, the respondents prefer the lowest price category (€0-2). The results also showed that some locals get frustrated with mountain bikers, as they park their car in the street resulting in fewer car parks for locals.



The results indicate that the respondents prefer paying for an entrance fee in comparison to paying for a parking ticket. Additionally, is the willingness to pay among volunteers not that high (10.6%). Thus, when the management of the NPUH focuses on implementing PES it is best to target visitors that are non-volunteers within the National Park.

As seen in both the literature study and the survey, one of the ways that visitors of the NPUH would be willing to contribute to ecosystem services is to pay an entrance fee. This is however difficult to implement in the NPUH so the creation of a national park pass and/or passport, having restricted access limits and having paid parking in some places could be another way of visitors to contribute to ecosystem services.

RECOMMENDATIONS

The National Park Utrechtse Heuvelrug is a hybrid place, a natural area in which people and nature live right next to each other, for this reason, the human- and the natural world are entangled. Therefore, the national park cannot be fenced and there is not really an entrance to the national park. However, there are more ways to generate value for the ecosystem services of the Utrechtse Heuvelrug. This chapter discusses short-term ways and long-term ways in which the Utrechtse Heuvelrug can create value for ecosystem services. The short-term recommendations are relatively easy to implement, while the long-term recommendations will need a larger amount of time to plan and implement.

SHORT TERM

- **Creating a different attitude towards the costs of nature** – changing visitors attitudes towards the costs of nature can make people more willing to pay, considering visitors knowledge and understanding what it means to maintain nature and that extra fees are required for that. We would recommend transparency, letting people know where the money is invested because this could help in the willingness of visitors to pay. And when creating this awareness refer the visitors to the web page related to one of the next recommendation: the voluntary vignettes. We recommend this because people would become more aware of the value of nature, which then can lead to a different attitude towards the costs of nature.
- **Making the purchase of mountain bike vignettes easier accessible** – create an online platform in which people interested in mountain biking could purchase a daily purchase online. According to our literature in the case of Queensland - Australia, online platforms that are easily accessible can make the process of the purchase of permit faster, which most people prefer instead of staying in a long line or having to go to a specific location to buy their permit.
- **Voluntary vignettes** – In all national parks in the Netherlands mountain bike vignettes are mandatory, next to that in the Utrechtse Heuvelrug equestrian vignettes are mandatory as well. The people that want to practice their sport are willing to pay for those vignettes, and by doing so they will contribute to the ecosystem services. Next to that 41.2% of the survey respondents stated that they would be willing to pay for annual entrance to the national park. Therefore, we would suggest implementing voluntary vignettes for any other activities that can be done in the national park such as hiking vignettes or biking vignettes.

LONG TERM:

- **National park passes** – A recommendation for the Utrechtse Heuvelrug National Park but also for all of the national parks in the Netherlands would be to create a national park pass. With



this pass, you can support and get yearly access to all the national parks of the Netherlands. This is recommended because 41.2% of the survey respondents stated that they would be willing to pay for annual entrance to NPUH. A national park pass for only the Utrechtse Heuvelrug was already created in 2015 but was discontinued in 2020 due to Covid-19. (<https://www.heuvelrugerfgoedpas.nl/koop-de-pas/>) We recommend a national park pass for all the national parks of the Netherlands because according to our results most people were not interested in buying a pass only for the Utrechtse Heuvelrug National Park, taking into account that they don't visit this particular park often.

- **Interactive National Park Passport** – The National Park Passport is a more interactive version of the national park pass and will require more planning. The idea is that visitors could get a National Park Passport in the municipality, online, or at another centrally located place. The visitor could get stamps or stickers at different highlights of national parks or other facilities within the National Parks. In order to create more interest for the buyers, discounts on food and beverages could be provided for visitors with a National Park Passport.
- **Restricted access limit (fenced location inside the National Park)** – Taking into account that Utrechtse Heuvelrug National Park is not fenced to have a way to control the passes and access, an idea would be to create restricted access to certain locations from the national park, in which people need to access with a permit instead of total free entrance. In this case, if someone would be interested in accessing the restricted areas, they would need to apply for a permit for which they pay. Through the creation of restricted areas, the conservation of the areas in the park will involve and mass-tourism could also be avoided. We recommend this after assessing the method used of Restricted access limit in recreational areas in the national park of Queensland, Australia, thus offering a solution to the problem of the Utrechtse Heuvelrug National Park not being fenced.
- **Single entry** – It is important to keep in mind that international visitors or people that are not interested in buying permits because they are not visiting National Parks often, would prefer a single entry or perhaps a one-day parking access. In this case, the areas should be also accessible for them and not restricted only for monthly/yearly permits. According to our surveys, some people only came to the Utrechtse Heuvelrug National Park for the first time and are not thinking of revisiting, thus a single entry ticket would be the answer.
- **Experiment with paid parking in crowded areas** – A majority of visitors indicate that they are not willing to pay for parking. However, according to our surveys, some of the local residents welcome paid parking as they say that parking spots are often too full, especially on weekends. Hence, it may be a good idea to experiment with paid parking in certain areas. Perhaps those areas should be chosen where crowding is most of an issue, or where local residents complain about full parking spots. In those cases, it is likely that there will be support from the local community.
- **Volunteering** – Through volunteering management costs can be lower. During our visits for our surveys, we met people who worked for Utrechts Landschap, some of them even volunteered multiple times a week. Thus, we recommend promoting more effectively volunteering which can result in a great solution to management issues and can also help reduce the need for financial resources.



BIBLIOGRAPHY

Atmodjo, E., Lamers, M., & Mol, A. (2017). Financing marine conservation tourism: Governing entrance fees in Raja Ampat, Indonesia. *Marine Policy*, 78, 181-188.

Ballantyne, R., Brown, R., Pegg, S., & Scott, N. (2008). Valuing tourism spend arising from visitation to Queensland national parks. Sustainable Tourism Cooperative Research Centre, Gold Coast.

Botzen W., W., J., van Beukering P., J., H. (01 March 2018). Geographical scoping and willingness-to-pay for nature protection. *Journal of Integrative Environmental Sciences*, Volume 15, 2018 - Issue 1. <https://doi.org/10.1080/1943815X.2018.1441158>

Braat, L. C., Costanza, R., Farber, S., Fioramonti, L., Grasso, M., Groot de, R., Kubiszewski, I., Sutton, P. (27 September 2017). Twenty years of ecosystem services: How far have we come and how far do we still need to go? *Ecosystem Services*, Volume 28, Part A, Pages 1-16. <https://doi.org/10.1016/j.ecoser.2017.09.008>

Braat, L. C., Groot de, R. (23 August 2012). The ecosystem services agenda: bridging the worlds of natural science and economics, conservation and development, and public and private policy. *Ecosystem Services*, 1 (1), 4-15. <https://doi.org/10.1016/j.ecoser.2012.07.011>

Carius, F., (January 2012). Payments for Ecosystem Services Towards an Implementation Strategy. Retrieved from: https://www.researchgate.net/publication/255912796_Payments_for_Ecosystem_Services_Towards_an_Implementation_Strategy

Groot de, R. S. (1983). Tourism and conservation in the Galapagos Islands. *Biological Conservation*, 26(4), 291–300. [https://doi.org/10.1016/0006-3207\(83\)90093-9](https://doi.org/10.1016/0006-3207(83)90093-9)

Groot de, K. (July 2011). Payments for environmental services (PES) from tourism. Retrieved from: <https://edepot.wur.nl/177106>

Hein, L. 2011. Economic benefits generated by protected areas: the case of the Hoge Veluwe forest, the Netherlands. *Ecology and Society* 16(2): 13. [online] URL: <http://www.ecologyandsociety.org/vol16/iss2/art13/>

Heuvelrug Erfgoed Pas. (2021). Bestel de pas. Accessed on 09-12-2021, from <https://www.heuvelrugerfgoedpas.nl/koop-de-pas/>

Jack, B. K., Kousky, C., & Sims, K. R. (2008). Designing payments for ecosystem services: Lessons from previous experience with incentive-based mechanisms. *Proceedings of the national Academy of Sciences*, 105(28), 9465-9470.

Jongeneel, Roelof A. & Polman, Nico B.P. & Slangen, Louis H.G. (January 2008). Cost-Benefit Analysis Of The Dutch Nature Conservation Policy: Direct, Indirect Effects And Transaction Costs Of The Ecological Main Structure In The Netherlands. DOI: 10.22004/ag.econ.43970. [online] URL: <https://ideas.repec.org/p/ags/eaee08/43970.html>

Liu, Y. (June 2020). The willingness to pay for ecosystem services on the Tibetan Plateau of China *Geography and Sustainability*. Volume 1, Issue 2, June 2020, Pages 141-151. <https://doi.org/10.1016/j.geosus.2020.06.001>

Melstrom, R. T., & Vasarhelyi, L. (2019). Modeling recreation demand and fees at national parks. *Annals of Tourism Research*, 77, 175-178.



Nationaal Park Utrechtse Heuvelrug. (n.d.). Ontdek Nationaal Park Utrechtse Heuvelrug. Retrieved from Nationaal Park Utrechtse Heuvelrug: <https://www.np-utrechtseheuvelrug.nl/activiteiten/over-npuh/>

Nationaal Park Utrechtse Heuvelrug (2018). Samenwerkingsagenda. Retrieved december 17, 2021, from Nationaal Park Utrechtse Heuvelrug: <https://www.np-utrechtseheuvelrug.nl/wp-content/uploads/2020/11/Samenwerkingsagenda-25-januari-2018-digitaal-1.pdf>

Obeng, E. A., & Aguilar, F. X. (2018). Value orientation and payment for ecosystem services: Perceived detrimental consequences lead to willingness-to-pay for ecosystem services. *Journal of environmental management*, 206, 458-471.

O'Brien, L., Townsend, M., & Ebdon, M. (2010). 'Doing something positive': Volunteers' experiences of the well-being benefits derived from practical conservation activities in nature. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 21(4), 525-545.

Parque Nacional Galápagos Ecuador. (2011). Tribute of entry – Dirección del Parque Nacional Galápagos. Retrieved December 2, 2021, from Galapagos.gob.ec website: <http://www.galapagos.gob.ec/en/tribute-of-entry/>

Pizzitutti, F., Walsh, S. J., Rindfuss, R. R., Gunter, R. Quiroga, D., Tippet, R. Mena, C. F. (2017) Scenario planning for tourism management: a participatory and system dynamics model applied to the Galapagos Islands of Ecuador. *Journal of Sustainable Tourism*, 25(8) 1117-1137 <https://doi.org/10.1080/09669582.2016.1257011>

Queensland Government. (2016). Permits and fees. Retrieved December 3, 2021, from Parks and forests, Department of Environment and Science: <https://parks.des.qld.gov.au/before-you-visit/permits-and-fees>

Rattan, J. K., Eagles, P. F., & Mair, H. L. (2012). Volunteer tourism: Its role in creating conservation awareness. *Journal of Ecotourism*, 11(1), 1-15.

Tellkamp, M. P. (2017). The Galápagos Islands: relatively untouched, but increasingly endangered. *Revista Bionatura*, 2(2), 284-287. DOI: 10.21931/RB/2017.02.02.2

Wilson, C., & Tisdell, C. A. (2003). Attitudes to entry fees to National Parks: Results and policy implications from a Queensland case study (No. 1741-2016-140680).



APPENDICES

APPENDIX I: RESEARCH STRATEGY

How do visitors in National Park the Utrechtse Heuvelrug want to contribute to ecosystem services?			
Sub-question 1: How do visitors of National Parks abroad contribute to ecosystem services?	1A: How do other National parks create monetary value from their visitors?	Sub-question 2: How are visitors willing to pay for nature in the National Park the Utrechtse Heuvelrug?	2A: To what extent are visitors willing to pay for access and parking?
	1B: What are other options for creating value for NPUH?		2B: What explains the willingness to pay by visitors of the Utrechtse Heuvelrug?
Research strategy 1: Two case studies about creating monetary value in National Parks abroad		Research strategy 2: Conducting a survey about willingness to pay within the NPUH	



APPENDIX II: QUESTIONNAIRE

Utrechtse Heuvelrug Enquête

**Vereist*

1. Wat is uw leeftijd? *

2. Wat is uw geslacht? *

Markeer slechts één ovaal.

- ☐ Man
☐ Vrouw
☐ Zeg ik liever niet
☐ Anders: _____

3. Was u er zich van bewust dat u in Nationaal Park de Utrechtse Heuvelrug bent? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee

4. Woont u in de buurt van de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee

9. Hoe vaak doet u vrijwilligerswerk in Nationaal Park de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Nooit
☐ Ongeveer een keer per jaar
☐ Ongeveer een keer per maand
☐ Ongeveer een keer per week
☐ Meerdere keren per week

10. Als u vrijwilligerswerk doet, wat voor vrijwilligerswerk doet u?

Vink alle toepasselijke opties aan.

- ☐ Biodiversiteit monitoren
☐ Afval opruimen
☐ Paden schoonhouden
☐ Omgevalen bomen opruimen

Anders: ☐ _____

Waardering van Natuur

11. Zou u bereid zijn te betalen per bezoek aan de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee

5. Hoe vaak bezoekt u de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Ongeveer een keer per jaar
☐ Ongeveer een keer per maand
☐ Ongeveer een keer per week
☐ Meerdere keren per week

6. Waarom bezoekt u de Utrechtse Heuvelrug?

Vink alle toepasselijke opties aan.

- ☐ Natuurschoon
☐ Monumenten
☐ Recreatie

Anders: ☐ _____

7. Doet u een van de volgende activiteiten tijdens een bezoek aan de Utrechtse Heuvelrug?

Vink alle toepasselijke opties aan.

- ☐ Wandelen
☐ Mountainbiken
☐ Paardrijden

8. Doet u ooit vrijwilligerswerk in de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Ja *Ga naar vraag 9*
☐ Nee *Ga naar vraag 11*

12. Indien ja, hoeveel?

Markeer slechts één ovaal.

- ☐ EUR 0,- tot EUR 2,-
☐ EUR 2,- tot EUR 5,-
☐ EUR 5,- tot EUR 10,-
☐ EUR 10,- tot EUR 25,-
☐ EUR 25,- tot EUR 50,-
☐ Meer dan EUR 50,-

13. Zou u bereid zijn te betalen voor een jaar toegang tot de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee

14. Indien ja, hoeveel?

Markeer slechts één ovaal.

- ☐ EUR 0,- tot EUR 2,-
☐ EUR 2,- tot EUR 5,-
☐ EUR 5,- tot EUR 10,-
☐ EUR 10,- tot EUR 25,-
☐ EUR 25,- tot EUR 50,-
☐ Meer dan EUR 50,-

15. Zou u bereid zijn te betalen voor een dag parkeren nabij de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee



16. Indien ja, hoeveel?

Markeer slechts één ovaal.

- ☐ EUR 0,- tot EUR 2,-
☐ EUR 2,- tot EUR 5,-
☐ EUR 5,- tot EUR 10,-
☐ EUR 10,- tot EUR 25,-
☐ EUR 25,- tot EUR 50,-
☐ Meer dan EUR 50,-

17. Zou u bereid zijn te betalen voor een jaar parkeren nabij de Utrechtse Heuvelrug? *

Markeer slechts één ovaal.

- ☐ Ja
☐ Nee

18. Indien ja, hoeveel?

Markeer slechts één ovaal.

- ☐ EUR 0,- tot EUR 2,-
☐ EUR 2,- tot EUR 5,-
☐ EUR 5,- tot EUR 10,-
☐ EUR 10,- tot EUR 25,-
☐ EUR 25,- tot EUR 50,-
☐ Meer dan EUR 50,-



APPENDIX III: INTERVIEW RESULTS

FIGURE 1:



Figure 1: The willingness of people to pay for access or parking. People could indicate how much they were willing to pay for a day or a year. Some people indicated that they were willing to pay for either (31% for access, 22% for parking).

FIGURE 2

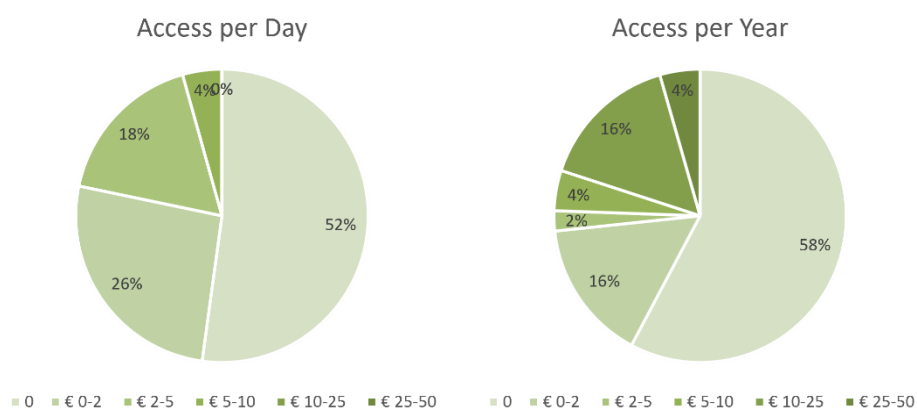


Figure 2: Willingness to pay for access. Respondents could choose to pay either per day (left) or for a full year (right).



FIGURE 3:

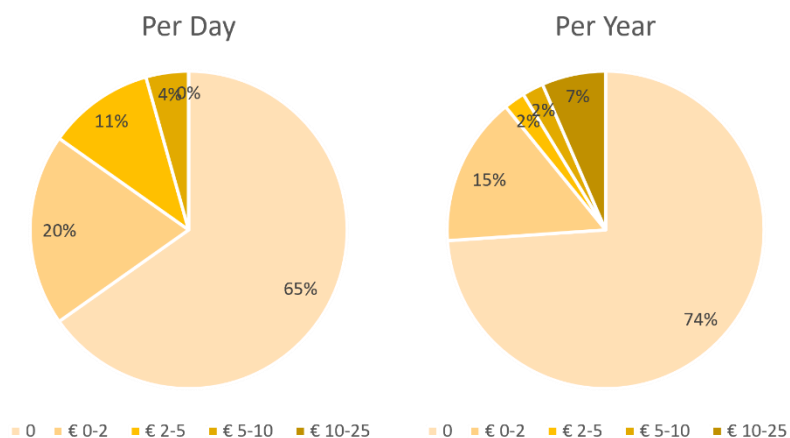


Figure 3: Willingness to pay for parking. Respondents could choose to pay either per day (left) or for a full year (right).

FIGURE 4:

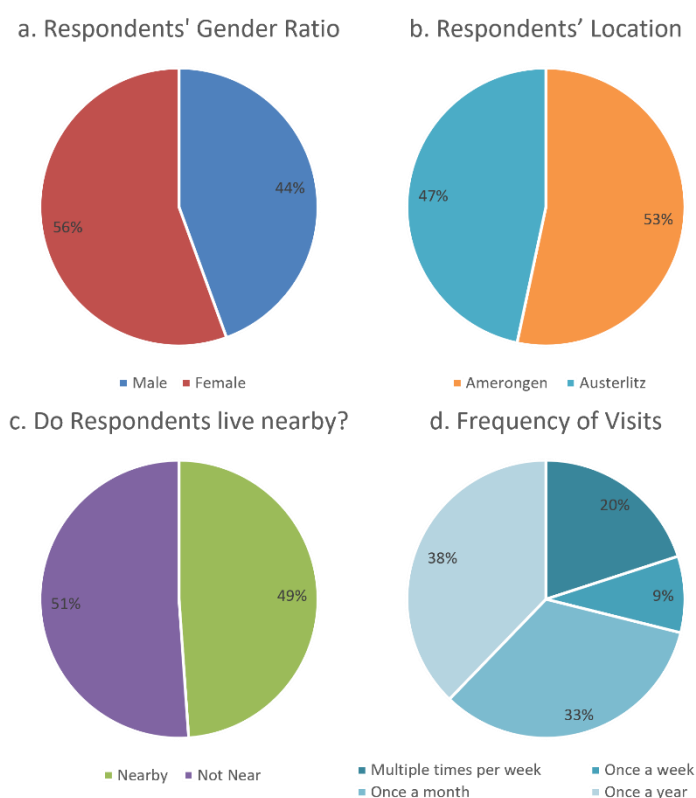


Figure 4: This figure sums up some general findings from our paper: a. the gender ratio between our respondents. b. the location where respondents were interviewed. c. whether respondents indicate whether they live near the national park (according to their own definition). d. how often respondents visit the park.



COMMENTS RESPONDENTS:

Ik betaal helemaal nergens voor!
Het is heel moeilijk om een vignetten te krijgen aangezien ze dat maar op beperkte plekken verkopen. Het vignet zelf is niet duur en de prijs zou ook niet zo uitmaken (hij wilde echt 50/60 euro betalen, het maakte hem niet uit)
Liever aan Natuurmonumenten ofzo geven 2 mensen
Overlast van mountainbiker omdat auto's in de wijk staan 2 mensen
Lid Utrechts landschap
Natuur moet vrij blijven, het moet ook toegankelijk blijven voor arme mensen. Als je parkeert met uur tarief dan wordt een dag best wel duur, een dag kaart zou wel kunnen maar liever niet, we staan er niet om te springen.
Natuurkaart IPV per park 2 mensen
Betaalt wel voor mountainbike vignet, maar wil daarnaast niet voor toegang betalen
Liever per keer dan een jaarkaart. Betalen voor een jaar vind ze niet fijn ivm onregelmatig bezoek, niet aan vast willen zitten.
Betaald wel voor vignet voor mountainbiken
Woont te ver weg om per jaar te parkeren
Voor het mountainbiken koop je daar een vignet. Prima oplossing om zo de routes te financieren. Betalen voor losse bezoeken wordt erg omslachtig denk ik.
Geld betalen voor een bos is slecht voor arme mensen en de volksgezondheid
Natuur zou voor iedereen beschikbaar moeten zijn <3
Ik zou het niet erg vinden te betalen zeker omdat in de weekeinden je vaak de auto niet kwijt kunt!