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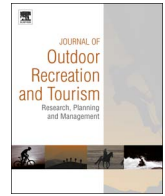
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Wildlife and flora and the perceived attractiveness of green places: A comparison between local and national green places



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ABSTRACT

Recent decades have seen a growing interest in experiencing wildlife and flora in nature-based tourism destinations, while at the same time it is far less clear whether wildlife and flora also matter in green places near home. This paper examines whether wildlife and flora affect the perceived attractiveness of green places, among the general public in the Netherlands. Differences between local green places, where relatively common wildlife and flora can be observed (e.g. ducks, hedgehogs, cow parsley), and national green places, where visitors can encounter more charismatic wildlife and flora (e.g. red deer, wild boars, orchids), are investigated as well. Data from a large online survey (the Hotspotmonitor) were used. The results show that wildlife and flora are relatively unimportant reasons for attractiveness, although slightly more important in national than in local green places. Interestingly, wildlife and flora do add significantly to the valuation of attractiveness of local green places, whereas nationally, they do not. Our results also demonstrate that wildlife and flora in green places near home are important for broad segments of the population, while they matter more for relatively old and highly educated people in green places further from home.

Management implications: Our findings suggest that more attention for geographical scale is needed in improving the roles which wildlife and flora can play in increasing the perceived attractiveness of green places. We recommend improving the valuation of attractiveness of local green places by:

- increasing awareness of the presence of wildlife and flora;
 - creating more opportunities to enjoy wildlife and flora;
 - promoting the enrichment of biodiversity.
- For national green places, we recommend:
- offering facilities which improve the visibility of charismatic wildlife and flora for the general public;
 - focusing on the special wishes and demands of nature lovers.

1. Introduction

Recent decades have seen a growing interest in experiencing wildlife and flora in green places visited for daytrips and holidays. A clear example is the rise of wildlife tourism, which can be defined as tourism in which visitors encounter wild animals (Ballantyne, Packer, & Sutherland, 2011; Higginbottom, 2004). The central idea behind the development of wildlife tourism is that multisensory wildlife experiences will lead to more intense emotional tourism experiences, to emotional affinity with nature areas, to environmental learning, and finally to stronger nature protective behavior (Ballantyne et al., 2011).

Consequently, in the marketing of international nature-based tourism destinations, attractive wildlife or mega-fauna, such as dolphins, elephants, gorillas, lions, orang-utan, rhinoceros, tigers and whales, are often used as ‘flagship species’ (Higginbottom, 2004). The use of such iconic wildlife is based on prevailing ideas of what composes an appealing ‘zoological gaze’: the appearance, charisma and behavior of animals (Curtin, 2010; Tremblay, 2008). Increasingly it has been acknowledged that not only charismatic mega-fauna, but also charismatic mega-flora such as trees and forests (Hall, James, & Bairda, 2011) or smaller flora species such as orchids (Pickering & Ballantyne, 2013) or wildflowers (Priskin, 2003) can play a significant role in

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nature-based tourism.

Thus far, most academic research into the roles of wildlife and flora in leisure and tourism has focused on large charismatic wildlife as a main attraction of nature-based tourism destinations (e.g. Cong, Wu, Morrison, Shu, & Wang, 2014; Curtin, 2009, 2010; Lemelin & Smale, 2006; Tremblay, 2008). However, it remains unclear how wildlife and flora play a role in the way people value green places closer to home. Moreover, only a few studies have paid attention to less charismatic or less exotic, more commonly present wildlife and flora (e.g. Bhatti, Church, Claremont, & Stenner, 2009). For spatial planners and leisure and tourism managers, insight into the extent to which wildlife and flora contribute to a higher valuation of green places by lay people may be useful in developing more attractive green places. This is an important aim for urbanized societies like the Netherlands, as highly valued green places are becoming more and more important for outdoor recreation (Kienast, Degenhardt, Weilenmann, Wäger, & Buchecker, 2012), having contact with nature (Mitchell & Popham, 2007), and for improving the health and well-being of the population (Coley, Kuo, & Sullivan, 1997; Groenewegen, Van den Berg, Maas, Verheij, & De Vries, 2012; Hartig & Staats, 2005; Van den Berg, Maas, Verheij, & Groenewegen, 2010).

In this study, we examine the extent to which wildlife and flora play a role in the perceived attractiveness of green places in the Netherlands. We compare the importance of wildlife and flora in the valuation of attractiveness of local and national green places. Local green places (< 2 km from home) are important for everyday leisure, whereas national green places correspond highly with the main holiday destinations (De Vries et al., 2013). In our study, wildlife and flora are defined as all species that can be encountered in the Netherlands. In general, in local places, such as urban parks, small woods, meadows, riversides, and ponds, it is likely to encounter relatively common wildlife (e.g. hedgehogs, ducks, great tits, robins, frogs, dragonflies, rabbits, roe deer, pheasants) and flora (e.g. cow parsley, bird cherry, silverweed, flowering agricultural plants). In national green places, such as National Parks, forests, lakes, the North Sea, and the Wadden Sea, visitors can also find more charismatic wildlife (e.g. red deer, wild boars, foxes, seals, sea eagles, otters, badgers, and Highland cattle) (Folmer et al., 2013; Logemann, 2011), larger numbers and a wider variety of birds (e.g. bearded tits, stilt walkers, different types of migrating birds) (Logemann, 2011), and/or rarer flora (e.g. different types of orchids) (Stichting Flora van Nederland, 2016).

Our paper starts with a literature review of what is known about wildlife and flora as main attractions of green places, followed by an examination of wildlife and flora as part of the overall nature experience of a place. Subsequently, an explanation of the data and methods is given. The results present the relative importance of wildlife and flora as a reason for attractiveness in local and national green places, as well as the extent to which people participate in recreation related to wildlife and flora. This is followed by an analysis of the importance of wildlife and flora in the valuation of local and national green places. The conclusion offers a reflection and discussion on the results. Recommendations for further research conclude the paper.

2. Wildlife and flora and the attractiveness of green places

2.1. Wildlife and flora as main attractions of green places

Wildlife and flora may affect the valuation of local green places, and green places further from home. Research has mainly focused on charismatic wildlife as the main attraction of green places further from home, such as nature-based tourism destinations and protected areas (e.g. Ballantyne et al., 2011; Curtin, 2009, 2010). Tremblay (2008) states that particular wildlife species can be true icons of nature areas, motivating people to visit green places. In the Netherlands, the presence of large charismatic animals such as wild boar and red deer draws many people to large nature areas (*source will be added after*

acceptance). Experiencing iconic wildlife species is strongly related to visitor satisfaction with a nature-based tourism destination (Curtin, 2006; Lemelin & Smale, 2006; Tremblay, 2008). However, no studies have specifically examined how wildlife contributes to the valuation of green places.

Only a few studies have addressed flora as the main attraction for nature-based tourism destinations and protected areas (e.g. Ballantyne & Pickering, 2012; Priskin, 2003; Lindemann-Matthies, Junge, & Matthies, 2010). However, there are indications that for nature-based tourism destinations, charismatic flora are as important as charismatic wildlife (Pickering & Ballantyne, 2013). Priskin (2003) discovered that wildflowers are the most important attraction for spring visitors, while Lindemann-Matthies et al. (2010) pointed out that visitors perceive plant diversity as an enhancement of grassland attractiveness. More specifically, orchids have been found to attract visitors to various protected areas, for instance in Chili (Vidal, San Martín, Mardones, Bauk, & Vidal, 2012), India (Jalal, Rawat, & Kumar, 2008), Italy and the UK (Pickering & Ballantyne, 2013). Flora also enhance local green places such as domestic gardens and urban parks (Bhatti, et al., 2009; Christie, 2004; Head & Muir, 2006; Power, 2005). Bhatti et al. (2009) found that private gardens are experienced as ‘extraordinary’ places full of enchanting encounters with flora. Despite their proven ability to enhance green places, it remains unclear whether flora play a role in the valuation of green places near home or further afield.

2.2. Wildlife and flora as part of the overall experience of green places

In addition to being main attractions of green places, wildlife and flora may also form an embedded and self-evident part of overall nature experience. In many studies, the importance of wildlife and flora in the attractiveness of green places has been analysed by incorporating wildlife and flora in more general aspects of nature, such as ‘naturalness’, ‘variety’, ‘ephemera’ or ‘biodiversity’. Tremblay (2008) states that spotting wildlife and flora is perceived as a confirmation of the naturalness of a place. This corresponds with the finding of Coeterier (1996) that Dutch people experience wildlife and flora as part of the naturalness of a landscape. Also Van den Berg, Vlek, and Coeterier (1998) proved that biodiversity is a powerful predictor of beauty ratings for specific natural landscapes in the Netherlands, among both residents and visitors.

Several studies on green places further from home, such as nature-based tourism destinations and wilderness areas, show that an overall nature experience, including experiencing wildlife and flora, influences the perceived attractiveness of a green place. For instance, Schroeder (2002) found that in the overall nature experience, vegetation (e.g. trees, wild flowers, wild plants, and grass) as well as wildlife (e.g. birds, fish and other wildlife) add to the appeal of a wilderness place. Moreover, multisensory experiences of nature (e.g. hearing, seeing, sensing and smelling flowing water, birds, and other animals) play an important role in making tourism destinations attractive (Kirillova, Fu, Lehto, & Cai, 2014). How wildlife and flora blend in with an overall nature experience at nature-based tourism destinations is illustrated by Breiby (2014), who found that tourists regard ‘seeing and hearing animals in nature’ and ‘experiencing plants in nature’ as part of a feeling of harmony with nature.

In local green places, wildlife and flora may also have a role to play in raising appreciation, while being integrated within an overall nature experience. Some studies suggest that experiencing local wildlife and flora actually augment people's emotional attachment and appreciation of green places near home. For instance, Ogunseitun (2005) found that the appreciation of ecologic diversity (flowers, animals, and landscape ratings) is strongly related to the love for a nearby green place, while Ryan (2005) discovered that many people are attached to nearby nature and “enjoy being familiar with the plants and animals there” (p. 23). However, familiarity with local wildlife and flora may give rise to

the idea that they are ubiquitous and therefore taken for granted. This is clearly illustrated by the way bird song functions as familiar background sound of green places (Hedblom, Heyman, Antonsson, & Gunnarsson, 2014; Ratcliffe, Gatersleben, & Sowden, 2013). Also flora often may be taken for granted in everyday environments (Head & Atchison, 2009). Therefore experiencing wildlife and flora may become merged into the overall nature experience of a familiar green place.

To summarize, the presence of wildlife and flora may blend in with the overall nature experience of a green place. Especially for local green places, wildlife and flora may easily be overlooked or taken for granted, due to their commonness and familiarity. In contrast, for green places further from home, such as nature-based tourism destinations and protected areas, wildlife and flora may be perceived as more charismatic, exotic and extra-ordinary. This leads us to hypothesize that wildlife and flora add more to the valuation of national green places, which tend to be visited during daytrips and holidays, than to the valuation of local green places, which are more important for everyday leisure.

3. Data and methods

3.1. Data

For our study, we used data from a large online dataset on the most attractive green places ('hotspots') in the Netherlands, called the Hotspotmonitor (HSM, see www.Hotspotmonitor.eu). This is a Google Maps-based tool which was set up by the University of Groningen, the University of Wageningen and the Netherlands Environment Assessment Agency to gain more insight into social landscape values (see De Vries et al., 2013; Sijtsma et al., 2012). In European and Dutch nature policy and planning, people's views on cultural and natural landscapes (social landscape values) are considered as important as ecological and economic values. The European Landscape Convention stresses the importance that governments react to "the public's wish to enjoy high quality landscapes and to play an active part in the development of landscapes" (Council of Europe, 2000, p. 1). In addition, the European Landscape Convention emphasizes that, for people's quality of life, positive valuations of landscapes matter a great deal: not only with regard to landscapes which are recognized as being of outstanding beauty, but also concerning landscapes in urban areas, in the countryside, in degraded areas, and in everyday areas (Council of Europe, 2000). The HSM provides insight into social landscape values of the general Dutch public, by monitoring the valuation of favorite green places at various spatial scales, as well as investigating reasons why people find these places attractive.

We used HSM version 1.2 (2010) for our study. The central question of the HSM is the following: "Which places do you find very attractive, valuable or important and why?" (Sijtsma et al., 2012: 142). Respondents could choose from places which are dominated by green, water, and/or nature, which we refer to as "green places". On three different maps, respondents were asked to pinpoint their most favorite green place on local (< 2 km from home), regional (< 20 km from home), and national (the Netherlands) spatial scale. Thus, the green places included in the HSM were chosen by the respondents themselves and not pre-determined by the researchers. Respondents could place one marker at local, one marker at regional, and two markers at national scale. The distinction between local, regional and national places was made, because of the possible different meanings and recreational options these places offer. Local green places are important to everyday recreational behavior, regional green places are in people's living environment (commuting and going to school), and national green places correspond highly with the most important daytrip- and holiday destinations in the Netherlands (see De Vries et al., 2013). In our paper, we only include local and national green places, as these types of places differ most from each other with regard

Table 3.1

Reasons for attractiveness and their description in the Hotspotmonitor.

Term	I find this place attractive, because...:
Green	Green cover
Quiet	Few other people
Natural	Nature can run its own course
Water	Attractive water surface, river, lake or sea
Open	Panoramic and open views
Recreation	Good opportunities for recreation
Silence	Few disturbing sounds
Variation	Variation in type of vegetation, land use and between seasons
Non-urban	Little skyline disturbance, built-up area, roads etc.
Personal bond	Place has a special meaning for me
Historical	Many visible historical elements
Wildlife and flora	Special wildlife and flora
Harmony	Harmony in the landscape
Farming use	The landscape is used by farmers

to wildlife and flora and recreational use. In addition, we only use the first placed marker on national scale, as this was the first choice of respondents.

In the HSM survey, the respondents were asked explicitly to value the attractiveness of their favorite green place, on a scale of 1–10 (i.e., from very unattractive to very attractive). Moreover, respondents had to indicate the reasons why they find that place attractive (a closed question) and what recreational activities they undertake there (a closed question). The respondents were asked to limit their answers to about three reasons for attractiveness, but the results showed that most of the respondents had chosen more reasons for attractiveness. There was no answer category 'other'. The reasons for attractiveness in the HSM (Table 3.1) had been derived from previous relevant studies (Brown & Reed, 2000; Coeterier, 1996; De Vries et al., 2007; Ode, Tveit, & Fry, 2008), and include a separate indicator for the presence of special wildlife and flora (following: Buijs & van Kralingen, 2003). With regard to recreational activities, we included recreation related to wildlife and flora in our study: 'observe birds', 'observe wildlife' (other than birds), and 'observe flora'. In the remaining part of the paper, 'observe wildlife' refers to observing wildlife other than birds.

The online survey of the HSM version 1.2 was conducted in 2010 among members of one of the largest internet panels in the Netherlands, operated by the Dutch market research agency GfK (see De Vries et al., 2013). For the spatial representativeness of the HSM survey, six regions with different landscape characteristics were selected by De Vries et al. (2013): Groningen (North), Arnhem (East), Utrecht (the Centre), Enschede (East), Amsterdam (West) and Eindhoven (South). In total, 6854 members were approached, of whom 3616 participated (De Vries et al., 2013). For our study, we took out the respondents with missing values on the two most important variables – the valuation of the attractiveness of their green place, and the reasons for attractiveness – as well as the respondents who marked their green place too far into the North Sea, or outside the Netherlands. In total, 2602 respondents remained in our database. Our respondents were of all ages, equally divided by gender, well-educated, and living predominantly in urban areas (Table 4.1). Compared to the Dutch population, our respondents were relatively young (67% versus 53% younger than 50), and higher educated (56% versus 31% bachelor degree or higher), while men and women, and rural and urban residents, were equally represented (Statistics Netherlands, 2015).

3.1.1. Dependent variable

The valuation of attractiveness of green places was measured by a rating on a scale from 1 to 10, from very unattractive (1) to very attractive (10) (corresponding with De Vries et al., 2013). The valuation of attractiveness of green places was used as a dependent variable in our regression analysis. More than 95% of the respondents

Table 4.1

Descriptive statistics of all respondents, and of respondents who regard wildlife and flora as a reason for attractiveness of local, and national green places.

	Total sample N=2602	Wildlife and flora as reason attractiveness			
		Local green places N=242		National green places N=428	
			Cramer's V		Cramer's V
Valuation of attractiveness	8.2 (.9)	8.2 (.9)		8.7 (.9)***	
Mean valuation (Standard Deviation)					
<i>Sociodemographics</i>					
Age			.092***		.062***
18–34	30.6%	17.8%		25.7%	
35–49	36.4%	40.1%		35.0%	
50+	33.1%	42.1%		39.3%	
Gender			.041**		.087***
Male	48.6%	55.0%		58.4%	
Female	51.4%	45.0%		41.6%	
Education			.026		.065**
Up to lower secondary	10.7%	12.0%		10.0%	
Higher secondary	10.0%	10.7%		8.4%	
Medium vocational	23.1%	22.3%		19.9%	
Higher vocational	34.4%	36.0%		34.3%	
Academic	21.8%	19.0%		27.3%	
Place of residence			.014		.004
Urban	66.1%	64.0%		66.6%	
Rural	33.9%	36.0%		33.4%	
Nature images ^a	N =2216	N=198	.033	N=360	.079***
Wilderness image	39.7%	44.2%		46.9%	
Inclusive image	20.5%	20.2%		19.7%	
Aesthetic image	25.5%	23.2%		24.2%	
Functional image	14.2%	12.1%		9.2%	

^a The total sample for nature images is lower (N=2216 compared to N=2602), because of missing values. Cramer's V indicates whether the profile of respondents who regarded wildlife and flora as reason for attractiveness differs from the profile of all respondents of the sample. This has been calculated separately for local and national green places.

** $p < .05$.

*** $p < .01$.

rated their favorite green places between 7 and 10, with a modus of 8.0 for both local as well as national green places. Therefore, the variance of the valuation of attractiveness of green places was relatively low ($s^2 = .855$ for local, and $s^2 = .897$ for national green places).

3.1.2. Independent variables

The reasons for attractiveness (Tables 3.1, 4.2) were included as independent variables in the regression analyses. Protected status and land-use of green places were added as independent variables, to find out whether the perceived attractiveness can be explained by characteristics and qualities of green places (Table 4.2). Person characteristics (sociodemographics and nature images, Table 4.1) were added as well, because variables such as age, gender and education may also have an effect on the perceived attractiveness of green places.

The place related variable protected status of a green place was constructed by calculating the distance between the markers placed by respondents to pinpoint the location of their favorite green place and the Dutch Nature Network (Ministry of Agriculture, Nature Management, and Fisheries, 1996). The Nature Network includes Natura 2000 areas and all other protected areas in the Netherlands. All markers that were placed in the Nature Network were coded 1 (protected status, with a margin of 500 m), and all remaining markers were coded 0 (not protected). For the construction of the place related variable 'land use' we determined the land-use type where the favorite green places were located. We used the typology of Statistics Netherlands (2008) for that, distinguishing between 'water' (e.g. streams, rivers, lakes, sea), 'forest', 'dry nature' (e.g. dry grassland, dry heather), 'wet nature' (e.g. marshland, wet grassland, wet heather, peat), and 'agriculture'.

The degree of urbanity of the place of residence was determined by using the address density of Statistics Netherlands (following Den Dulk, Van De Stadt, Vliegen, 1992). We divided the five original

categories into two commonly used categories: urban versus rural places, with more or fewer than 1000 addresses per km² as criterion (e.g. Bijker & Haartsen, 2012).

We included respondents' nature images, as they can provide more insight into why wildlife and flora may be important as reasons for attractiveness. Nature images combine people's beliefs, values, and value orientations regarding the meaning of 'nature' and how it should be managed. A scale to measure nature images has been developed by Buijs (2009). In the HSM survey, respondents' nature image was measured by 20 statements on what nature means to them, and how nature should be managed. The respondents' dominant nature image was determined using cluster analysis (see: Buijs, Elands, & Langers, 2009), resulting in four nature images: the wilderness, inclusive, aesthetic and functional nature image. The first three images reflect the Arcadian image of nature which predominates in modern Western societies (Worster, 1985). People with a wilderness image of nature prefer natural areas without humans or human artifacts. A broader definition of nature is held by people with an inclusive nature image, as they regard humans as part of nature. They reject the nature-culture divide. People with an aesthetic image focus on the hedonistic and aesthetic values of nature; they value nature most for leisure and tourism purposes. People with a functional nature image appreciate nature predominantly for its utilitarian values, such as opportunities for hunting, and fishing (Buijs, 2009). Among our respondents, the wilderness image was the most dominant nature image (Table 4.1). This corresponds with previous research on the most common nature image of the general Dutch public (Buijs, 2009).

3.2. Method

Using SPSS 20.0, we did a multiple regression analysis with the valuation of attractiveness as dependent variable, and reasons for

Table 4.2
Descriptive statistics of reasons for attractiveness, place characteristics and recreation related to wildlife and flora for local and national green places.

	Green places		Cramer's V
	Local N = 2602	National N = 2602	
Mean valuation (standard deviation)	8.0 (.9)	8.4 (.9) ^{***}	–
Mean valuation			
<i>Reasons for attractiveness</i>	(%)	(%)	
Green	75.5	60.8	.158 ^{***}
Quiet	46.6	50.0	.033 ^{**}
Natural	39.5	51.2	.118 ^{***}
Water	34.0	47.3	.136 ^{***}
Open	25.2	39.3	.151 ^{***}
Recreation	24.0	42.9	.200 ^{***}
Silence	15.8	30.4	.174 ^{***}
Variation	13.1	31.2	.217 ^{***}
Non-urban	13.3	28.5	.186 ^{***}
Personal bond	11.3	23.5	.162 ^{***}
Historical	10.7	13.1	.037 ^{**}
Wildlife and flora	9.3	16.4	.107^{**}
Harmony	5.5	8.3	.055 ^{**}
Farming use	.7	1.6	.044 ^{***}
<i>Place characteristics</i>			
Protected area	43.6	84.9	.431 ^{***}
Water (rivers, lakes, sea)	3.4	28.1	.339 ^{***}
Forest	27.0	31.2	.046 ^{***}
Dry nature	22.5	23.9	.016
Agriculture	7.6	4.9	.057 ^{***}
Wet nature	39.4	11.9	.314 ^{***}
<i>Recreation related to wildlife and flora</i>			
Observing birds	2.8	21.5	.287^{***}
Observing flora	5.3	8.5	.064^{**}
Observing wildlife	7.0	7.6	.012

^{***} $p < .001$.

^{**} $p < .05$.

attractiveness, place characteristics, sociodemographics, and nature images as independent variables. Due to the low variance of the dependent variable, this yielded a low adjusted r^2 (adjusted $r^2 = .062$) and relatively small differences in prediction power of the independent variables. Therefore, we decided to dichotomize the dependent variable into 'valuation at or below 8.0' (coded 0) and 'valuation above 8.0' (coded 1) and to carry out a binary regression analysis. We found similar, but more distinct differences in the relationship between the valuation of the attractiveness of green places and the independent variables. Despite the low prediction powers of our regression models, they still provided insight into which reasons for attractiveness were mostly associated with a higher valuation of green places. They were therefore useful for our aim, to compare the relative importance of wildlife and flora in the valuation of attractiveness of green places on different spatial scales. However, it does make clear that there are other reasons for attractiveness which affect the valuation of favorite green places as well.

For the regression analysis, we could not use all reasons for attractiveness, because some variables were too small in number. Correlations between independent variables were low ($r < .3$), and therefore all remaining variables could be used in the regression analyses. We estimated three different models for the valuation of both favorite local, and favorite national green places. In Section 4, we present the estimates in odds ratios, which express the likelihood of an independent variable contributing to a valuation higher than 8.0. In Model 1, we include only reasons for attractiveness; in Model 2 we add

place characteristics; and in Model 3 we add sociodemographics, and nature images. We start Section 4 of this paper by discussing the most important reasons for finding a green place attractive, and whether or not wildlife and flora play a role in this.

4. Results

4.1. Who regarded wildlife and flora as a reason for attractiveness?

Respondents who regarded wildlife and flora as a reason for attractiveness of their local green place were slightly older (> 35 years or older) and more often male, compared to respondents in general (Table 4.1). Their level of education, place of residence and nature image did not differ from respondents in general. At the national level, respondents who regarded wildlife and flora as a reason for attractiveness tended to be older (50+), more often male, more highly-educated, and adhered to a wilderness image more often than respondents in general. Comparing these two groups, it is noted that on a local scale, wildlife and flora were regarded as a reason for attractiveness among broader population segments than on a national scale. Nationally, they were also more likely to retain a wilderness nature image. In general, respondents who regarded wildlife and flora as a reason for attractiveness rated both their local and national green place significantly higher than others; respectively 8.2 versus 8.0 for local green places, and 8.7 versus 8.4 for national green places (Table 4.1).

4.2. Wildlife and flora as a reason for attractiveness of local and national green places

For both local and national green places, wildlife and flora were not mentioned very often as a reason for attractiveness (Table 4.2). However, wildlife and flora were chosen significantly more often as a reason for the attractiveness of national green places than of local green places (16.4% versus 9.3%). Local green places were perceived mainly as attractive for their greenness, quietness (absence of humans) and naturalness, while the attractiveness of national green places was made up of a combination of greenness, quietness, naturalness, water, spaciousness, and recreational qualities of the natural environment (Table 4.2). Local green places were significantly more often located in agricultural land and wet nature than the national ones. National green places were significantly more often located in protected areas, water areas, and forests than local green places. There was also a difference in the recreational behavior related to wildlife and flora in the different types of green places. Respondents participated significantly more often in observing birds and flora in national than in local green places. Regarding the observation of birds in particular, this difference was remarkably large (21.5% versus 2.8%, Table 4.2). It is also remarkable that respondents did not participate more often in observing wildlife in national green places, compared to local ones. In short, we can state that wildlife and flora more often played a role in the attractiveness of favorite national than local green places. However, compared to other reasons of attractiveness, wildlife and flora were relatively unimportant in both types of green places.

4.3. Wildlife and flora contributing to the valuation of local and national green places

Despite the relative unimportance of wildlife and flora as reason for finding green places attractive, our regression analysis on the valuation of green places revealed a different and spatially reversed effect. As presented in Table 4.3, Model 1, regarding wildlife and flora as a reason for attractiveness significantly increased the likelihood of valuing local green places higher than 8.0. Wildlife and flora were the second most influential factor in the valuation of local green places, after having a personal bond with the place.

After controlling for place characteristics, the relative importance of

Table 4.3
Predictors for the valuation of attractiveness of local, and national green places (odds ratios^a).

	Likelihood of valuation of attractiveness of green places > 8.0 (in odds ratios)					
	Local green places (N=2216)			National green places (N=2209)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<i>Reason for attractiveness</i>						
Green	1.13	1.17	1.13	.87	.91	.92
Quiet	.93	.93	.94	1.29**	1.28**	1.30***
Natural	1.06	1.02	1.03	1.00	.96	.95
Water	1.18	1.17	1.20	1.17*	1.07	1.09
Open	1.25*	1.20*	1.21	1.04	1.03	1.01
Recreation	1.06	1.11	1.14	.87	.86	.90
Silence	1.52***	1.46***	1.47***	1.50***	1.45***	1.48***
Variation	1.60***	1.61***	1.55***	1.39***	1.40***	1.33***
Non-urban	1.05	1.08	1.08	1.26**	1.25**	1.27**
Personal bond	2.37***	2.42***	2.48***	1.43***	1.47***	1.48***
Historical	1.52***	1.54***	1.52***	1.27	1.27*	1.25
Wildlife and flora	1.69**	1.69**	1.67**	1.20	1.20	1.13
Protected area		1.25**	1.27**		1.72***	1.68**
<i>Land use (ref. Wet nature)</i>						
Water		1.27	1.27		1.24	1.18
Forest		1.38**	1.37**		.97	.92
Dry nature		1.22	1.18		1.12	1.02
Agriculture		1.11	1.08		1.09	1.09
<i>Age (ref. age 18–34)</i>						
35–49			1.45***			1.20
50+			1.68***			1.73***
Gender: Female (ref. Male)			1.29**			1.15
<i>Education (ref. Academic)</i>						
Up to lower secondary			.62**			.72*
Higher secondary			.80			.71**
Medium vocational			.81			.65***
Higher vocational (BA)			.95			.73**
Place of residence: Rural (ref. Urban)			1.02			1.09
<i>Recreation related to wildlife and flora related recreation</i>						
Observing birds			1.29			1.24*
Observing flora			.91			1.45*
Observing wildlife			1.06			.67**
<i>Nature images (ref. Functional)</i>						
Wilderness			1.02			1.20
Inclusive			1.37*			1.33*
Aesthetic			.90			1.09
Constant	.17***	.13***	.09***	.52***	.31***	.25***
<i>Statistics of models</i>						
Nagelkerke R2	.067	.076	.095	.069	.081	.106
–2 loglikelihood	2313.279	2299.475	2270.240	2933.324	2912.273	2867.800
Chi-square	101.463	115.267	144.502	117.255	138.306	182.780

* $p < .10$.

** $p < .05$

*** $p < .001$

^a Estimates are in odds ratios=likelihood that the independent variable has an effect on the dependent variable; > 1=more likely; < 1=less likely, close to 1: no effect.

wildlife and flora remained the same in the valuation of local green places (Table 4.3, Model 2). Local green places located in protected areas and forests were more likely to be valued higher than 8.0 than other local green places. After adding sociodemographics, wildlife and flora became the third most influential variable affecting the valuation of local green places, after having a personal bond with the place, and being older than 50 (Table 4.3, Model 3). Respondents of 35 or older, females, low educated respondents and respondents retaining an inclusive nature image valued green places higher than other respondents. Participation in recreation related to wildlife and flora near home did not affect the valuation.

Regarding national green places, wildlife and flora did not significantly affect the likelihood of a rating higher than 8.0 (Table 4.3, Model 1). After adding place characteristics, a protected status

increased the likelihood of a high valuation of national green places most (Table 4.3, Model 2). Finally, after controlling for sociodemographics, and nature images, being older than 50 became the most important variable affecting the likelihood of a high valuation. Other remarkable results were that highly-educated (academic) respondents were more likely to rate their favorite national green places higher than other respondents. Participation in observing birds and flora increased the likelihood of a rating above 8.0 as well, while participation in observing wildlife decreased the likelihood (Table 4.3, Model 3). In addition, respondents with an inclusive image were more likely to rate their favorite national green place higher than other respondents. Gender did not matter in the perceived attractiveness of national green places.

Based on our results, we have to reject the hypothesis that wildlife

and flora add more to the valuation of attractiveness of national than to local green places. Respondents who regarded wildlife and flora as a reason for attractiveness were more likely to value their local green place higher than 8.0 than respondents who did not; while for national green places, no difference was found. In the valuation of local green places, wildlife and flora were relatively important, as only having a personal bond and age (> 50) had more effect on the likelihood of a rating higher than 8.0.

5. Conclusions

We conclude that wildlife and flora play a role in the valuation of green places, and that this works differently for green places near home than for green places further from home. Although wildlife and flora are mentioned significantly less often as a reason for the attractiveness of local than of national green places, they do increase the likelihood of a higher valuation of the attractiveness of local green places. This supports the idea that people may regard wildlife and flora as inseparable, embedded aspects of local green places. When asked for reasons for attractiveness, respondents mention natural attributes which relate to the overall character of green places, such as green ('green cover'), and naturalness ('nature taking its own course'). These reasons for attractiveness, as well as some others, such as variation ('variation in type of vegetation, land use and between seasons'), implicitly include the presence of wildlife and flora in green places. Furthermore, wildlife and flora may be part of an individual's personal bond with a green place, as wildlife and flora can play a role in childhood memories, social interactions, and other experiences with a local green place. In local green places, people may not be consciously aware of wildlife and flora, as local green places may serve as settings for daily life leisure activities that are not nature-based, such as exercise, relaxation, socializing, walking the dog, and so on (Manning & More, 2002). It is also possible that the types of wildlife and flora that are found in local green places are not exotic or charismatic flag ship species, and therefore not explicitly acknowledged as a reason for attractiveness. However, they do increase the likelihood of a higher valuation of local green places; they can make local green places special.

With regard to national green places, *wildlife and flora as a reason for attractiveness do not affect the valuation*, whereas *participation in recreation related to wildlife and flora does*. People who are interested in observing birds, and/or flora, find national green places more attractive than people who do not. Birdwatchers and flora observers are more likely to value national green places higher than people who do not indulge in these leisure pastimes. It is possible that birdwatchers and flora observers are more selective in the green places they value. We know that serious birders prefer places that meet their criteria on expected presence and variety of bird species (Cole & Scott, 1999). In contrast, people who observe wildlife are more likely to value national green places lower than others do. This may be related to a perceived lack of wildlife visibility in visited green places. In the Netherlands, many people are drawn to large protected areas to see wildlife such as red deer and wild boar, but a quarter of visitors have never seen them, about half have seen them once in their lives, and only 16% see them once a year (Buijs & Langers, 2014). This may lead to dissatisfaction and explain a lower valuation of national green places among people who visit especially to observe wildlife.

We also found that the profile of people who regard wildlife and flora as a reason for attractiveness differs between local and national green places. In local green places, wildlife and flora are regarded as attractive features among broader segments of the population (35+, males, different educational backgrounds and adhering to different nature images) than in national green places (50+, males, university degree, holding a wilderness image). On the national scale, the profile of people who regard wildlife and flora as a reason for attractiveness corresponds with the profile of nature lovers (Curtin, 2008; Lee &

Scott, 2011; Loubster, Mouton, & Nel, 2001; Pickering & Ballantyne, 2013; Priskin, 2003). The effects of age and education may also indicate that having experienced and being more familiar with green places plays a role in the perceived attractiveness. In addition, people who regard wildlife and flora as a reason for the attractiveness of national green places are more likely to retain a wilderness image of nature than others do. Most remarkable is that locally, people's nature image does not affect the importance of wildlife and flora as a reason for attractiveness. This seems to demonstrate that local green places provide wildlife and flora experiences for a more varied group of people than national green places do.

Further research may focus on gaining more insights into *how, why* and *what kind of* wildlife and flora contribute to a high valuation of green places. Not much is known yet about how wildlife and flora are experienced, which species are appreciated most, how wildlife and flora relate to experiencing other natural elements of green places, how they contribute to a personal bond with a green place, and how wildlife and flora contribute to everyday leisure activities, especially in green places near home. Furthermore, more research could be done into the different profiles of wildlife and flora admirers, and into the potential role of leisure constraints of various groups.

Our results imply that the way wildlife and flora are marketed in leisure and tourism thus far is limited to a specific audience: nature lovers and those who can afford nature-based tourism. A stronger focus on improving opportunities to enjoy wildlife and flora near home can add to the attractiveness of local green places, for a broader audience.

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References

- Ballantyne, M., & Pickering, C. (2012). Ecotourism as a threatening process for wild orchids. *Journal of Ecotourism*, 11, 34–47. <http://dx.doi.org/10.1080/14724049.2011.628398>.
- Ballantyne, R., Packer, J., & Sutherland, L. A. (2011). Visitors' memories of wildlife tourism: implications for the design of powerful interpretive experiences. *Tourism Management*, 32, 770–779. <http://dx.doi.org/10.1016/j.tourman.2010.06.012>.
- Bhatti, M., Church, A., Claremont, A., & Stenner, P. (2009). 'I love being in the garden': enchanting encounters in everyday life. *Social & Cultural Geography*, 10(1), 61–67. <http://dx.doi.org/10.1080/14649360802553202>.
- Bijker, R. A., & Haartsen, T. (2012). More than Counter-urbanisation: migration to popular and less-popular rural areas in the Netherlands. *Population, Space and Place*, 18(5), 643–657.
- Breiby, M. A. (2014). Exploring aesthetic dimensions in a nature-based tourism context. *Journal of Vacation Marketing*, 20, 163–173. <http://dx.doi.org/10.1177/1356766713514243>.
- Brown, G., & Reed, P. (2000). Validation of forest values typology for use in national forest planning. *Forest Science*, 46(2).
- Buijs, A. E. (2009). Lay people's images of nature: frameworks of values, beliefs and value orientations. *Society and Natural Resources*, 22, 417–432. <http://dx.doi.org/10.1080/08941920801901335>.
- Buijs, A. E., Elands, B. H. M., & Langers, F. (2009). No wilderness for immigrants: cultural differences in images of nature and landscape preferences. *Landscape and Urban Planning*, 91, 113–123. <http://dx.doi.org/10.1016/j.landurbplan.2008.12.003>.
- Buijs, A. E., & Langers, F. (2014). *Publieke visies op het beheer van wilde dieren. [Lay people's visions on the management of wildlife]. Alterra-report 2502 Wageningen: Alterra Wageningen UR (University, Research Centre)*.
- Buijs, A. E., & van Kralingen (2003). *Het meten van beleving. Inventarisatie van bestaande indicatoren en meetmethoden. [The measurement of perception/ experience. Inventarisation of existing indicators and measurement methods] Alterra Rapport 782 Wageningen, The Netherlands: . Reeks Belevingsonderzoek nr. 8. Alterra*.
- Christie, M. E. (Ed.). (2004). *People, places and gardens. The geographical review (Special issue)*, 94.
- Coetier, J. F. (1996). Dominant attributes in the perception and evaluation of the Dutch landscape. *Landscape and Urban Planning*, 34, 27–44.

- Cole, J. S., & Scott, D. (1999). Segmenting participation in wildlife watching: a comparison of casual wildlife watchers and serious birders. *Human Dimensions of Wildlife*, 4, 44–61. <http://dx.doi.org/10.1080/10871209909359164>.
- Coley, R. L., Kuo, F. E., & Sullivan, W. C. (1997). Where does community grow? The social context created by nature in urban public housing. *Environment and Behavior*, 29, 468–494.
- Cong, L., Wu, B., Morrison, A. M., Shu, H., & Wang, M. (2014). Analysis of wildlife tourism experiences with endangered species: an exploratory study of encounters with giant pandas in Chengdu, China. *Tourism Management*, 40, 300–310. <http://dx.doi.org/10.1016/j.tourman.2013.07.005>.
- Council of Europe (2000). The European landscape convention. *European Treaty Series – No. 176*. Italy, Florence.
- Curtin, S. (2006). Swimming with Dolphins: a phenomenological exploration of tourist recollections. *International Journal of Tourism Research*, 8, 301–315. <http://dx.doi.org/10.1002/jtr.577>.
- Curtin, S. (2009). Wildlife tourism: the intangible, psychological benefits of human-wildlife encounters. *Current Issues in Tourism*, 12, 451–474. <http://dx.doi.org/10.1080/13683500903042857>.
- Curtin, S. (2008). *Wildlife tourism: tourist expectations, experiences and management implications* (Ph.D thesis). [Retrieved from] (<http://eprints.bournemouth.ac.uk/10303>).
- Curtin, S. (2010). What makes for memorable wildlife encounters? Revelations from 'serious' wildlife tourists. *Journal of Ecotourism*, 9(2), 149–168. <http://dx.doi.org/10.1080/14724040903071969>.
- De Vries, S., Buijs, A., Langers, F., Farjon, H., van Hinsberg, A., & Sijtsma, F. J. (2013). Measuring the attractiveness of Dutch landscapes: identifying national hotspots using Google Maps. *Applied Geography*, 45, 220–229. <http://dx.doi.org/10.1016/j.apgeog.2013.09.017>.
- De Vries, S., Roos-Klein Lankhorst, J. R., & Buijs, A. E. (2007). Mapping the attractiveness of the Dutch countryside: a GIS-based landscape appreciation model. *Forest, Snow and Landscape Research*, 81, 43–58.
- Den Dulk, C. J., Van De Stadt, H., & Vliegen, J. M. (1992). Een nieuwe maatstaf voor stedelijkheid: de omgevingsadressendichtheid [A new measure for degree of urbanization: the address density of the surrounding area]. *Maandstatistiek Bevolking*, 40, 14–27.
- Folmer, A., Haartsen, T., & Huigen, P. P. P. (2013). The role of wildlife in emotional attachment to a nature-based tourism destination. *Journal of Ecotourism*. <http://dx.doi.org/10.1080/14724049.2013.864297>.
- Flora van Nederland (2016). Wilde planten en hun omgeving online [wild plants and their environment online]. Retrieved from: (<http://www.floravannederland.nl/>).
- Groenewegen, P. P., Van den Berg, A. E., Maas, J., Verheij, R. A., & De Vries, S. (2012). Is a green residential environment better for health? If so, why?. *Annals of the Association of American Geographers*, 102, 996–1003. <http://dx.doi.org/10.1080/00045608.2012.674899>.
- Hall, M., James, M., & Bairda, T. (2011). Forests and trees as charismatic mega-flora: Implications for heritage tourism and conservation. *Journal of Heritage Tourism*, 6, 309–323. <http://dx.doi.org/10.1080/1743873X.2011.620116C>.
- Hartig, T., & Staats, H. (2005). Linking preference for environments with their restorative quality. , in: Tress, B., Tress, G., Fry, G., & Opdam, P. (Eds.). (2005). *From landscape research to landscape planning: aspects of integration, education and application*. Dordrecht: Springer, 279–292.
- Head, L., & Atchison, J. (2009). Cultural ecology: emerging human-plant geographies. *Progress in Human Geography*, 33, 236–245. <http://dx.doi.org/10.1177/0309132508094075>.
- Head, L., & Muir, P. (2006). Suburban life and the boundaries of nature: resilience and rupture in Australian backyard gardens. *Transactions of the Institute of British Geographers NS*, 51, 505–524.
- Hedblom, Heyman, Antonsson, & Gunnarsson (2014). Bird song diversity influences young people's appreciation of urban landscapes. *Urban Forestry & Urban Greening*, 13, 469–474.
- Higginbottom, K. (2004). *Wildlife tourism impacts, management and planning*. Australia: CRC for Sustainable Tourism Pty Ltd.
- Jalal, J. S., Rawat, G. S., & Kumar, P. (2008). An initiative to community based orchid conservation in the Gori Valley, Uttarakhand, Western Himalaya, India. *The McAllen International Orchid Society Journal*, 9, 12–16.
- Kienast, F., Degenhardt, B., Weilenmann, B., Wäger, Y., & Buchecker, M. (2012). GIS-assisted mapping of landscape suitability for nearby recreation. *Landscape and Urban Planning*, 105, 385–399. <http://dx.doi.org/10.1016/j.landurbplan.2012.01.015>.
- Kirillova, K., Fu, X., Lehto, X., & Cai, L. (2014). What makes a destination beautiful? Dimensions of tourist aesthetic judgment. *Tourism Management*, 42, 282–293. <http://dx.doi.org/10.1016/j.tourman.2013.12.006>.
- Lee, J. K. J., & Scott, D. (2011). Participation in wildlife watching: a multiple hierarchy stratification perspective. *Human Dimensions of Wildlife*, 16, 330–344. <http://dx.doi.org/10.1080/10871209.2011.597825>.
- Lemelin, R. H., & Smale, B. (2006). Effect of environmental context on the experience of polar bear viewers in Churchill, Manitoba. *Journal of Ecotourism*, 5(3), 176–191. <http://dx.doi.org/10.2167/joe142.0>.
- Lindemann-Matthies, P., Junge, X., & Matthies, D. (2010). The influence of plant diversity on people's perception and aesthetic appreciation of grassland vegetation. *Biological Conservation*, 143, 195–202. <http://dx.doi.org/10.1016/j.biocon.2009.10.003>.
- Logemann, D. (2011). *Het nationaal park Lauwersmeer, tussentijdse evaluatie 2011 (Nationaal Park Lauwersmeer, midterm evaluation 2011)* Groningen: Overlegorgaan nationaal park Lauwersmeer (Consultative national park Lauwersmeer).
- Loubster, G. J. J., Mouton, P. L. F. N., & Nel, J. A. J. (2001). The ecotourism potential of herpetofauna in the Namaqua National Park, South Africa. *South African Journal of Wildlife Research*, 31(1–2), 13–23.
- Manning, R., & More, T. (2002). Recreational values of public parks. *The George Wright Forum*, 19, 21–30.
- Ministry of Agriculture, Nature management, and Fisheries (1996). *Nature conservation policy in The Netherlands: objectives, methods and results*. Report no. B-16. Wageningen, National Reference Centre for Nature Management.
- Mitchell, R., & Popham, F. (2007). Greenspace, urbanity and health: relationships in England. *Journal of Epidemiological and Community Health*, 61, 681–683.
- Ode, A., Tveit, M. S., & Fry, G. (2008). Capturing landscape visual character using indicators: touching base with landscape aesthetic theory. *Landscape Research*, 33, 89–117. <http://dx.doi.org/10.1080/01426390701773854>.
- Ogunseitun, O. A. (2005). Topophilia and the quality of life. *Environmental Health Perspectives*, 113(2), 143–145.
- Pickering, C. M., & Ballantyne, M. (2013). Orchids: an example of charismatic megafauna tourism? , in: Holden, A., & Fennell, D. (Eds.). (2013). *Handbook of tourism and the environment*. London, UK: Routledge.
- Power, E. R. (2005). Human-nature relations in suburban gardens. *The Australian Geographer*, 36, 39–53.
- Priskin, J. (2003). Characteristics and perceptions of coastal and wildflower nature-based tourists in the central coast region of western Australia. *Journal of Sustainable Tourism*, 11, 499–528.
- Ratcliffe, E., Gatersleben, B., & Sowden, P. T. (2013). Bird sounds and their contributions to perceived attention restoration and stress recovery. *Journal of Environmental Psychology*, 36, 221–228. <http://dx.doi.org/10.1016/j.jenvp.2013.08.004>.
- Ryan, R. L. (2005). Exploring the effects of environmental experience on attachment to urban green places. *Environment and Behavior*, 37(3). <http://dx.doi.org/10.1177/0013916504264147>.
- Schroeder, H. (2002). Experiencing nature in special places. *Journal of Forestry*.
- Sijtsma, F. J., Farjon, H., Van Tol, S., Van Hinsberg, A., Van Kampen, P., & Buijs, A. (2012). Evaluation of landscape changes - enriching the economist's toolbox with the Hotspotindex. , in: Heijman, W., & Heide, C. M. J.v.d. (Eds.). (2012). *The Economic Value of Landscapes*. London: Routledge.
- Statistics Netherlands (2008). *Land use statistics* The Hague: Statistics Netherlands.
- Statistics Netherlands (2015). *Bevolking; geslacht, leeftijd en burgerlijke staat. [Population; sex, age and marital status]* The Hague: Statistics Netherlands.
- Tremblay, P. (2008). Wildlife in the landscape: a top end perspective on destination-level wildlife and tourism management. *Journal of Ecotourism*, 7, 179–196. <http://dx.doi.org/10.1080/14724040802140535>.
- Van den Berg, A. E., Maas, J., Verheij, R. A., & Groenewegen, P. P. (2010). Green space as a buffer between stressful life events and health. *Social Science & Medicine*, 70, 1203–1210.
- Van den Berg, A. E., Vlek, C. A. J., & Coeterier, J. F. (1998). Group differences in the aesthetic evaluation of nature development plans: a multilevel approach. *Journal of Environmental Psychology*, 18, 141–157.
- Vidal, O. J., San Martín, C., Mardones, S., Bauk, V., & Vidal, C. F. (2012). The orchids of torres del paine biosphere reserve: the need for species monitoring and ecotourism planning for biodiversity conservation. *Gayana Botanica*, 69(1).
- Worster, D. (1985). *Nature's economy: a history of ecological ideas* Cambridge, UK: Cambridge University Press.