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ORIGINAL ARTICLE

Why do people visit primate tourism sites? Investigating macaque tourism in Japan and Indonesia

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Abstract

Primates are popular species in wildlife tourism contexts and provide economic benefits to habitat countries where primate-based tourism activities are a part of the country's tourism economy. Primate tourism runs a broad gamut from safari-like expeditions within remote primate habitats to designated monkey parks and incidental primate tourism. In most forms of primate tourism, primate ecology and behaviour are directly influenced by humans, making these interfaces particularly relevant for examination using the lens of ethnoprimatology. While several studies have assessed the impact of tourism on primates, little is known about people's motivations for observing monkeys for recreational purposes. Here we present two case studies—the Jigokudani Monkey Park, Japan, and the Telaga Warna Nature Recreational Park, Indonesia—where we provide quantitative assessments of people's motivations for visiting managed (monkey parks) and unmanaged (incidental) monkey tourism sites. We further show that management regimes, socio-demographic attributes, previous experience of interactions with macaques, and feeding them play a role in people's desire to visit macaque tourism sites. In Japan, those who had interacted with macaques before were more likely to visit the park to observe macaques clearly and at close quarters. In contrast, respondents in Indonesia were more interested in the recreational opportunities offered by the nature reserve rather than in macaques. However, here too, people who had interacted with macaques earlier were more likely to visit incidental macaque tourist sites for the sole purpose of viewing or interacting with macaques. Almost 50% of the Japanese respondents visited the monkey park due to personal inclinations, while less than 14% of people in Indonesia visited the park of their own volition. Also, over 57% of the Japanese respondents said that visiting monkey parks helped them gain a better understanding of macaque behaviour, whereas only about 26% respondents said likewise in Indonesia. Unlike the Japanese respondents, most of the Indonesian respondents engaged in feeding macaques. These findings suggest that management regimes as well as socio-demographic attributes may influence people's motivations to visit macaque tourism sites.

Keywords Japanese macaque · Long-tailed macaque · Tourism · Provisioning · Indonesia · Japan

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Introduction

Humans and non-human primates (henceforth 'primates') share spaces and resources across a broad array of cultures and contexts (Priston and McLennan 2013). Ethnoprimatology, as a discipline, views humans and primates as co-constructors of integrated socio-ecological landscapes wherein they mutually influence each other (Sponsel 1997; Fuentes 2012). Ethnoprimatology thus moves away from traditional primatology by recognizing the importance of studying primates in non-pristine habitats and understanding human–primate interfaces from the perspectives of both parties involved (Fuentes 2012).

A human–primate interface that has received considerable attention from researchers is primate tourism or tourism focused on viewing or interacting with primates (Fuentes et al. 2007). Primate tourism spans a wide range from safari-like expeditions within remote primate habitats (usually to watch great apes) to incidental primate tourism (Russon and Wallis 2014). In the case of the latter, the primary motivation of tourists may not be to interact with primates, but they may do so because of the presence of groups of primates in tourist spots of cultural or archaeological significance (Sengupta and Radhakrishna 2020; sensu Grossberg et al. 2003). For example, interactions of humans with macaques and langurs are commonplace in temples or other tourist sites across India (Medhi et al. 2007). Towards the middle of this wide spectrum fall 'wild monkey parks', where the ranging patterns of primates is restricted by park authorities, and visitors can view and interact with monkeys at close quarters (Knight 2011).

Great ape tourism engaging safari-like expeditions to pristine primate habitats involves people watching primates as unobtrusively as possible (Russon and Wallis 2014). In contrast, in managed settings such as monkey parks, primate ranging is restricted by the strategic placement of feeding stations by the park authorities, and visitors often also feed monkeys (Russon and Wallis 2014). In unmanaged settings as well, such as those at incidental primate tourism sites, one of the most common forms of human–primate interactions is feeding of primates by humans (McCarthy et al. 2009; Sengupta and Radhakrishna 2020). Thus in these forms of primate tourism, primate ecology and behaviour is more directly influenced by human presence, making them particularly relevant for examination using the lens of ethnoprimatology.

While many studies have assessed the impacts of tourists on primates (Berman et al. 2014; McCarthy et al. 2009; Hsu et al. 2009), little is known about people's motivations behind visiting monkey tourist sites for recreational purposes. This especially holds true for residents of primate habitat countries. People typically prefer exotic wildlife over familiar species and are more interested in gaining knowledge about unusual or rarely seen species than commonly seen wildlife (Ballouard et al. 2011; Genovart et al. 2013). Yet monkey parks housing commonly found primate species are popular tourist destinations for residents of primate habitat countries (Knight 2010; Ilham et al. 2018; Sambou et al. 2019), and such residents also interact with primates at incidental primate tourism sites (Sengupta and Radhakrishna 2020). Studies on people's perceptions and attitudes regarding their wildlife tourism experiences in general suggest that close encounters with animal species, such as touching or feeding them, taking photos with them, and moving in proximity to them can engender an emotional attachment to the animal species and thus promote pro-conservation behaviour (Duffus and Dearden 1990; Orams 2002; Hughes 2013; Apps et al. 2018). Thus, understanding the motivations behind visiting primate tourism sites—managed or otherwise—by people residing in habitat countries can help in devising informed human–primate coexistence management strategies.

This paper is guided by two main lines of enquiry: (1) What motivates people to visit monkey tourism sites? (2) Do these motivations differ between settings where primate ranging and feeding is managed (monkey parks) and in unmanaged settings (incidental primate tourism sites)? To this end, in the following sections, we present two case studies providing quantitative assessments of reasons why people visit such sites. People's attitudes towards wildlife can be influenced by various aspects of their socio-cultural identities such as age, gender, ethnicities, and religious practices (Dickman 2010). For example, tourists from European countries and the United States fed bonnet macaques in India mainly driven by their desire to interact with these exotic animals that are not found in the wild in their countries, whereas Indians were mainly guided by their religious beliefs in doing so (Sengupta and Radhakrishna 2020). Thus, in our case studies, we further assess whether such socio-cultural attributes influence people's visits to primate tourism sites in two primate habitat countries—Japan and Indonesia. The specific study areas in the two countries represent different kinds of macaque tourism—a monkey park in Japan and an incidental macaque tourism site in Indonesia—and will thus provide richer insights into people's motivations to visit macaque tourism sites across different management regimes and cultures.

Methods

Study area

In Japan, our study site was the Jigokudani Monkey Park (JMP) which is located in the Yokoyugawa Valley, Shiga

Heights, Nagano Prefecture (36°43′N, 138°27’ E, approximately 800 m a.s.l.; Fig. 1). The forest around JMP is dominated by planted *Cryptomeria japonica*, wild *Betula* spp., and *Quercus* spp. in the lower areas and *Fagus crenata* in the higher areas (Wada and Ichiki 1980). Japanese macaques (*Macaca fuscata*) have been provisioned at JMP since 1962 (Wada and Ichiki 1980). Other animals such as the Asiatic black bear, Japanese badger, Japanese serow, racoon dogs, and red foxes are present in the study area (Tsuji et al. 2020). However, since most of these animals are nocturnal, visitors rarely get to see these mammals during hours when the park is open (9 am to 4 pm). The Japanese serow is not frequently encountered. Many birds such as the Oriental turtle dove, alpine accentor, winter wren, meadow bunting, great tit, and blue-and-white flycatcher can be seen in the study area (YT personal observations). Many ecological and behavioural studies have been conducted by researchers at JMP (Wada and Ichiki 1980; Tokida et al. 1994; Tanaka 1998; Zhang et al. 2007; Takeshita et al. 2018; Tsuji et al. 2020).

JMP is a popular site for tourists who wish to watch monkeys bathe in the hot springs (Matsuzawa 2018; Fig. 2). Apart from visiting the hot springs, visitors also go hiking in the Shiga highlands and for skiing in the winter. The area covering the visitor centre and the hot spring is 0.27 ha.

Fig. 2 People watching/taking photographs of Japanese macaques at JMP (photo credit: Yamato Tsuji)

The number of visitors at JMP is ~ 700 per day, or around 240,000 per year (T. Hagiwara pers. comm.) The entrance fee for adult visitors is 800 JPY (~ USD 7.29 as of 14th June 2021). While visitors are prohibited from feeding the macaques, the park staff provision them routinely during the winter (Tsuji et al. 2020). We thus chose JMP as a site representing a managed macaque tourism site.

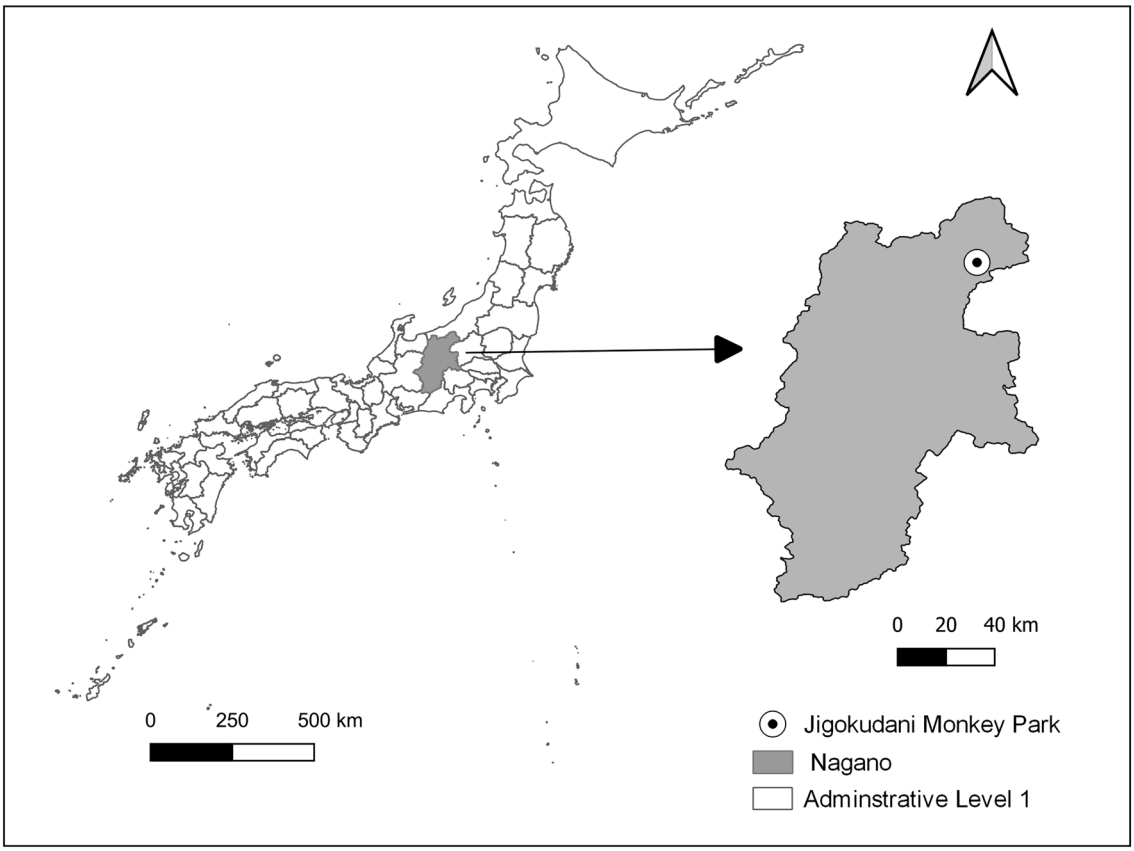

Fig. 1 Location of Jigokudani Monkey Park, Shiga Heights

In Indonesia, our study site was the Telaga Warna Nature Park (TW) that is located in the sub-district of Cisarua, District Bogor (6°702′S, 106°996′E; Fig. 3) in West Java, Indonesia, and comprises a nature reserve (550 ha) and a nature recreational park (5 ha; Nila et al. 2014). There are two groups of long-tailed macaques *Macaca fascicularis* in TW which are habituated to human presence. One group inhabits the centre of TW (Group A), whereas the other is found in the nature park (Group B). TW is spread over an area of 5 ha. People must pay to enter the area where the macaques are found. The entrance fee per person is IDR 25,000 (~USD 1.76 as of 14th June 2021). The forest around TW is dominated by *Castanea ergentea*, *Schima wallichii*, *Lithocarpus sundaicus*, and *Sloanea sigun* (Nila et al. 2014). TW nature recreation park itself is home to lutungs (*Trachypithecus auratus*) in addition to long-tailed macaques, whereas the larger reserve also has leaf monkeys (*Presbytis comata*) and Javan gibbons (*Hylobates moloch*; Nila et al. 2014). However, as the other species are highly arboreal, visitors mostly interact with long-tailed macaques. Several research studies have been conducted at TW over the years (Nila et al. 2014; Aryasa et al. 2017; Cholifatullah et al. 2020; Julianti et al. 2020).

TW is a popular tourist destination (Nila et al. 2014). On average, it has 135 visitors each day and 48,000 visitors a year. Apart from the park, people also visit adjoining tea plantations and camping areas. TW is not a designated monkey park, and the park authorities do not provision the macaques. Tourists are also prohibited by park authorities from feeding the macaques. Nevertheless, tourists usually feed the macaques—an earlier study reported that anthropogenic food constituted 39.9% of the diet of the long-tailed macaques (Nila et al. 2014). Thus people visiting the nature recreational park can view and interact with macaques (Fig. 4). Hence we considered TW representative of an unmanaged incidental primate tourism site.

Questionnaire surveys

We used a structured questionnaire (Table S1) to assess people's motivations for visiting JMP and TW. YT conducted this study between June and November 2018. YT and a field assistant approached visitors at JMP, introduced themselves, explained the aims of the study in detail (explicitly mentioning that the questions were in the context of JMP specifically), and asked whether they would be willing to participate in the survey. Overall, 108 visitors gave informed consent to engage in the study. All of them were Japanese nationals and YT asked the questions in Japanese. The study was given ethical clearance by the institutional review board of YT (ID 2018-05, Human Ethics Committee, Primate Research Institute, Kyoto University).

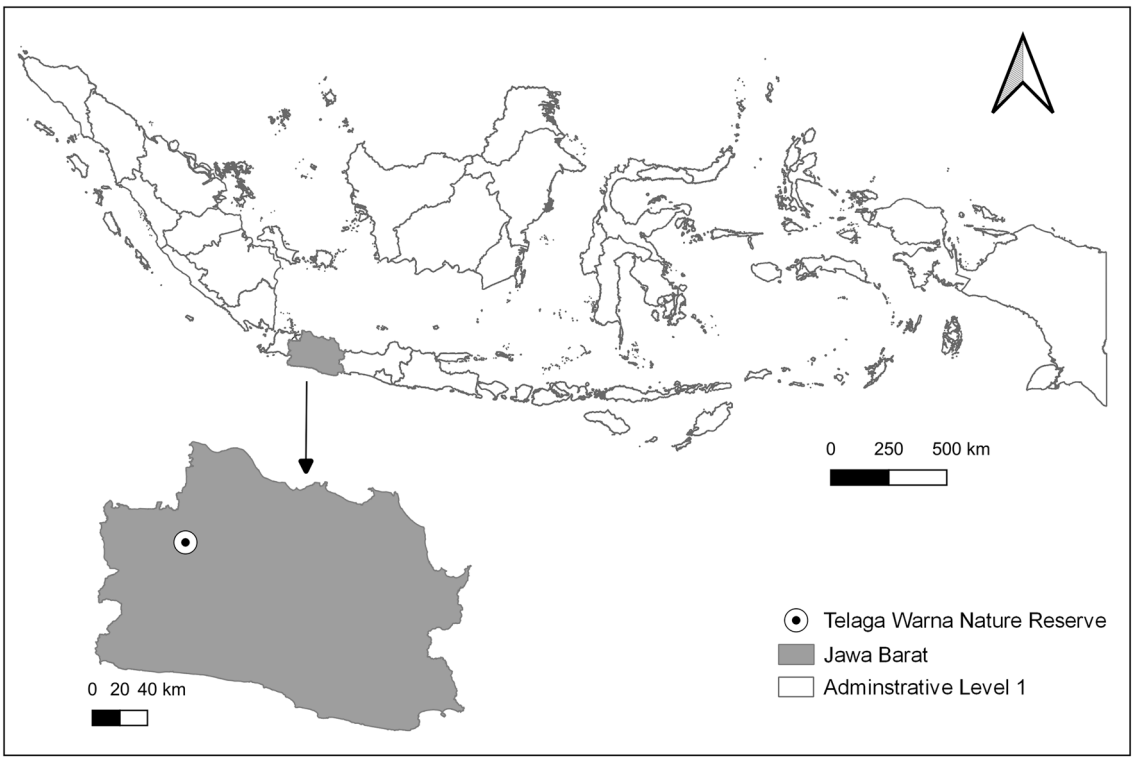

Fig. 3 Location of Telaga Warna Nature Park

Fig. 4 People interacting with long-tailed macaques at Telaga Warna (photo credit: Kanthi Arum Widayati)

At TW, RR and MFR conducted the study between March and September 2019. They approached visitors, introduced themselves, explained the aims of the study in detail (explicitly mentioning that the questions were in the context of TW specifically) and asked whether they would be willing to participate. Overall, 199 respondents provided informed consent for engaging in the study. All of them were native Indonesians and the questions were asked in Indonesian. Ethical clearance for the study was given to KAW (198/IT2.KEP MSM-IPB/SK/2019; Ethical Committee, IPB University).

Statistical analyses

To identify factors influencing the respondents' visits to JMP, we used generalized linear models (GLMs). Our response variable was whether respondents visited JMP or TW for watching/interacting with macaques or for other reasons. To this end, we used the responses to the question 'Why have you come to JMP/TW?' (1 = watching/interacting with macaques, 0 = any other purpose). We used the following predictors: age, gender, religion, experience of previously having seen macaques (1 = Yes, 0 = No), and experience of previous one-on-one interaction with macaques (1 = Yes, 0 = No; Table 1). For Indonesia, we did not use religion as a predictor, as 191 of the 199 respondents followed Islam.

We checked the association between predictor variables with Goodman and Kruskal's tau (τ) using the package 'GoodmanKruskal' in R (Pearson 2016). We then built a set of a priori candidate models with different combinations of these predictors specifying a binomial error structure and logit link function (Tables S2). We ranked the models using the second-order Akaike information criterion (AICc). We considered models ΔAICc < 2 as providing a good fit for our data. In the case that there were multiple models with ΔAICc < 2, we averaged them using the package 'MuMIn' in R (Barton 2018). A large number of studies over the past 5 years or so have pointed out the importance of using effect sizes rather than *p*-values (which is at the core of null hypothesis significance testing) for understanding relationships between predictor and response variables (Colquhoun 2014, 2019; Vidgen and Yasseri 2016). While *p*-values indicate the statistical significance of a result and are a function of sample size, effect sizes can reveal the magnitude of the effect being tested and that it is not an artefact of the sample size (Emerson 2016). Hence we estimated the effect sizes for predictors in the best-fit model (or the average model in the case of multiple models with ΔAICc < 2) from odds ratios. Odds ratios (ratio of the odds of event A happening in the

Table 1 Predictors used in generalized linear models for assessing factors influencing respondents' visits to monkey tourist sites

Predictors	Categories	Comment
Age	(Numeric predictor)	
Gender	Man	
	Woman	
Religion	Buddhist	Only used for Japan; Buddhism was the religious affinity of ~ 54% of the respondents (N = 108) in Japan. We did not use this predictor for Indonesia, as 191 of 199 respondents followed Islam
	Other	
Whether respondents see/have seen macaques outside the parks	Yes	
	No	
Whether the respondents have interacted with macaques previously	Yes	
	No	

presence of event B to odds of A happening in the absence of B) were calculated as the exponential of the coefficients for each of the predictors. All the analyses were done in R version 3.5.1 (R Core Team 2018).

Results

Jigokudani Monkey Park

Our respondents comprised 52 men and 53 women (three respondents did not provide information about their gender). The mean age of the respondents was 54.5 years (range: 22 to 78). Fifty-four percent of the respondents were Buddhists ($N = 108$). The other religious affinities included Christianity (5 respondents) and Shinto (1 respondent). Around 41% of the respondents did not state their religion.

When asked about their reason(s) for visiting the park, 62% ($N = 108$) gave reasons related to macaques (45 of the respondents provided more than one reason). Fifty-five percent of the respondents ($N = 108$) in fact said watching macaques was the main reason why they came to the park. The other chief reasons given were: the popularity of the park as a tourist destination (37%) and liking parks and trails in general (18.5%). When asked whose idea it was to come to the park, again most respondents gave multiple responses. Forty-eight percent reported that it was their own idea; other responses included family (34.3%), friends (21.3%) and others (2%) (Table 2).

When asked whether they had seen macaques outside the park, 95.4% ($N = 108$) answered in the affirmative; 63 of the 67 people who said they came to see macaques had seen macaques outside the park previously. Respondents stated that they had seen macaques near their own houses/workplaces (10.8%), forests (35.2%), zoos (58.3%), other parks (25%), and other places (25.1%). On being asked why they were willing to pay for visiting the park, 44% ($N = 105$ respondents who answered this question) said that they did so to closely watch and interact with the macaques without hindrance. The other responses included better environment at the park (35.2%), famous place for sightseeing (7%), and no particular reason (13.8%).

The majority (83%) of the respondents ($N = 108$) had not experienced a one-on-one interaction with macaques outside the park; a small percentage (17%) claimed that they had experienced such interactions. The contexts of such interactions included feeding macaques (6 respondents), macaques foraging on their crops (2 respondents), macaques stealing food/objects (9 respondents), and macaques causing injury (1 respondent). Some respondents (14%, $N = 108$) claimed to have interacted with the macaques inside the park. These interactions occurred when respondents approached macaques to take a closer look/take a photograph, or when macaques approached the respondents. As feeding was banned inside JMP, none of the respondents fed macaques at the park. Six respondents who said they had fed macaques elsewhere, said that they did so because they liked feeding animals (1), could watch or interact with macaques more closely (4), or could easily take photos or videos (1). When asked whether their religion or local folklore influenced their feeding behaviours, all the respondents answered in the negative.

On being asked what they thought were the positive effects of human–macaque interactions within the park, again most respondents gave more than one reason. Fifty-six percent of the respondents ($N = 108$) said that such interactions promoted happiness, 57.4% thought it helped them understand macaque behaviour better, and 36.1% opined that it enabled children to learn about animals. The other responses included that these interactions provided entertainment (14.8%), generated income (1%), promoted human–macaque co-existence (4%), and ensured that there was no shortage of food for the macaques (11%). One respondent said there was no benefit.

Regarding the detrimental effects of human–macaque interactions, 47.2% of the respondents ($N = 108$) were concerned about bidirectional disease transmission, a similar percentage were worried that feeding would bring about physiological changes in macaques including hyper-aggression, and 23.1% felt that this would cause increased conflict with humans. Twenty-six percent of the respondents were not aware of any negative impacts (Table 2).

Two of the candidate models had $\Delta\text{AICc} < 2$ (Table S2). The average model contained the following predictors: age and whether people had interacted with macaques outside the park (Table 3). The effect size for age was negligible. The odds of older people (> 54 years, the average age of the respondents) visiting parks to watch or interact with macaques over younger respondents (< 54 years) was 1.02. Those who had interacted with macaques outside were 3.42 times as likely to visit as those who had not.

Telaga Warna

The respondents comprised 102 men and 97 women. The mean age of the respondents was 27.8 years (range 17–63; $N = 199$ respondents). Over 95% ($N = 199$) of the respondents were followers of Islam. The remaining respondents were Buddhists (2 respondents), Christians (6), and those who did not state their religion (1).

When asked about their reason(s) for visiting the park, very few respondents (12.6%, $N = 199$) gave reasons related to macaques. The majority of the respondents stated that they chose to visit the park because they liked parks and trails in general (55%) and because it was a popular tourist destination (30.1%). Other responses

Table 2 Comparison of participant responses at Jigokudani Monkey Park (JMP), Japan and Telaga Warna (TW), Indonesia

Questions	Responses	Percent of respondents	
		JMP ($N=108$)	TW ($N=199$)
Why have you come to the macaque tourism site?	I like visiting parks/nature trails	18.5	55
	I want to see macaques	55	12.6
	This is a tourist attraction	37	30.1
	Other	0	2.3
Whose idea was it to visit the macaque tourism site?	Mine	48	13.6
	Family member	34.3	22.6
	Friend	21.3	51.3
	Other	2	12.5
Have you seen macaques outside the park?	Yes	95.4	61.3
	No	4.6	38.7
Have you had a one-on-one interaction with macaques outside of the park?	Yes	17	41
	No	83	59
Why do you still feel the need to come to the park to pay and see the macaques	I can watch and interact with macaques	44	28.6
	The park has a better environment	35.2	23.1
	Famous place for sightseeing	7	0
	Other	13.8	48.3
Have you interacted with macaques in the park?	Yes	14	31
	No	86	69
Do/have you feed/fed macaques?	Yes	0	63
	No	100	37
What are the positive effects of human–macaque interactions in the park?	Interacting with animals makes people happy	56	17.6
	Children get to learn about animals	36.1	26.6
	We get to see and understand macaque behaviour better	57.4	26.1
	Entertainment	14.8	24.6
	So the macaques have no shortage of food	11	0
	Other	5	5.1
Do you think these interactions can have any negative impact for either of the parties involved?	Bidirectional disease transmission	47.2	24.6
	Higher aggression in animals	47.2	51.3
	They will lose fear of humans, thereby increasing conflict	23.1	11.6
	Other	0	1.5
	There are no negative aspects	26	11

Many of the respondents at JMP provided multiple responses to some of the questions

Table 3 Model-averaged coefficients of predictors of people visiting Jigokudani Monkey Park, Japan

Predictors	Estimate	SE	*Z* value	*P*
Intercept	−0.18	0.78	0.23	0.82
Interacted outside the park Yes	1.23	0.69	1.76	0.07
Age	0.02	0.01	1.29	0.19

were that visits were for recreation (4 respondents) and to accompany someone ($N=1$). When asked whose idea it was to come to the park, the majority responded that it was friends (51.3%), family (22.6%, $N=199$), and others (12.5%); very few (13.6%) said it was their own idea (Table 2).

When asked whether they had seen macaques outside the park, 61.3% ($N=199$) answered in the affirmative; respondents stated that they had previously seen macaques in forests (6%), zoos (27.6%), other parks (22.1%), and other places (1.5%). On being asked why they were willing to pay for visiting the park, 28.6% of the respondents ($N=199$) said that they did so to closely watch and interact with the macaques without hindrance; 23.1% said that they did so because of a better environment at the park. The other reasons included entreaty by family members

(1 respondent), recreation/pastime (7), and to see nature (1). Eighty-four of the respondents did not answer this question.

About 41% of the respondents ($N = 199$) had experienced one-on-one interactions with macaques outside the park. Such interactions primarily occurred in the context of macaque feeding (32.6%) and when macaques stole food/objects (5%). Only two respondents complained about macaque-caused injury and property damage. Around 31% of the respondents ($N = 199$) interacted with the macaques inside the park, in order to take photos/selfies (30.2%), feed macaques (21.6%), and watch them in close quarters (9.5%). About 63% of respondents stated that they had fed macaques at TW during this visit or earlier visits. When asked why they fed macaques, most of them (25.1%, $N = 199$) responded that they liked feeding animals, while others said that it allowed them closer interaction with macaques (13.6%), to watch macaques at close quarters (11.6%), and to easily shoot photos/videos (12.1%). Other reasons were feeling sorry for macaques (1 respondent) and curiosity about animals (1 respondent). Twelve of our respondents said that macaques should be fed because their religious teachings urged them to treat all beings created by God equally; the remaining were not influenced by religion.

On being asked what they thought were the positive effects of human–macaque interactions within the park, respondents ($N = 199$) stated that they got to understand macaque behaviour (26.1%), that it was entertaining (24.6%), that children got to learn about animals (26.6%), and that such interactions promoted happiness (17.6%). Regarding the detrimental effects of human–macaque interactions, most of the respondents worried that it would bring about physiological changes in macaques and increase aggression in macaques (51.3%). Others were concerned about bidirectional disease transmission (24.6%), and worried that it would exacerbate human–macaque conflict (11.6%). A few (11%) stated that there were no negative impacts due to human–macaque interactions, and only one respondent thought that these interactions would interfere with macaque ecology (Table 2).

Five of the candidate models had $\Delta AICc < 2$ (Table S3). The average model contained the following predictors: age, gender, whether people had seen macaques outside the park, and whether they had interacted with macaques outside the park (Table 4). The effect size for the first three predictors was low. The odds of older people visiting parks to watch or interact with macaques over younger respondents was 1.02. Men were 0.58 times less likely to visit the park for the same reason as women. Those who had seen macaques outside the park were 1.38 times as likely to visit the park as those who did not. Those who had interacted with macaques outside were 9.78 times as likely to visit as those who had not.

Table 4 Model-averaged coefficients of predictors of people visiting Telaga Warna Nature Reserve, Indonesia

Predictors	Estimate	SE	*Z* value	*P*
Intercept	−3.50	0.73	4.80	< 0.001
Interacted with macaques outside the park Yes	2.28	0.60	3.84	< 0.001
Gender male	−0.55	0.46	1.18	0.24
Age	0.02	0.02	1.06	0.29
Seen outside the park Yes	0.32	0.80	0.40	0.69

Discussion

Historical overviews of literary works, performance arts, sculptures, and paintings attest that across the ages, human cultures have been fascinated with primate species and have closely observed their activities and attempted to decipher their behavioural interactions (Janson 1952; van Gulik 1967; Ohnuki 1995; Radhakrishna 2013, 2018; Rice and South 2015; Zhang 2015). Humans also observe and document other living organisms (Radhakrishna 2013), but the fascination with primate species is singular and may be attributed to visible similarities between primates and humans (Corbey and Corbey 2005; Radhakrishna and Jamieson 2018). Japan is known to be a nation where human and primates 'have come to an accommodation over their mutual existence within their overlapping habitats' (Mito and Sprague 2013). Likewise, in Indonesia, humans and macaques have coexisted across a range of cultures and contexts for centuries (Riley and Fuentes 2011). The human–primate interface though is characterized by a complex interplay of cultural, economic, and ecological factors which may vary from region to region (Loudon et al. 2006). The case studies highlighted in this paper provide interesting insights into differences in people's motivations to interact with primate species.

Respondents at JMP visited the park primarily to see the macaques (Table 1). Although the majority had seen macaques earlier, they chose to visit the park so that they could observe macaques clearly and at close quarters. In contrast, respondents at TW were more interested in the recreational opportunities offered by the nature park than in macaques. Most of them had seen macaques earlier and they chose to visit the nature park to enjoy its ambience. More tellingly, ~ 50% of the Japanese respondents visited the monkey park due to personal inclinations, while less than 14% of people in Indonesia visited the park of their own volition. Also, over 57% of the Japanese respondents said that visiting monkey parks helped them gain a better understanding of macaque behaviour, whereas only about 26% respondents said likewise in Indonesia.

Some of the differences at the two sites may exist because, unlike Japan, Indonesia has as many as 48 primate species which include a wide variety ranging from slow lorises to orangutans (Estrada et al. 2018). As mentioned earlier, TW itself is home to three species of primates apart from the macaques. Long-tailed macaques are also commonly seen in other nature reserves, agricultural areas, villages, religious sites, and cemeteries across Java (Peterson and Riley 2013). Therefore, encountering long-tailed macaques may not be a very special or memorable event for residents of Java.

The long history of monkey parks in Japan may also explain the deeper interests of Japanese tourists in macaque behaviour. Provisioning Japanese macaques was initiated in the 1950s by researchers who wanted to conduct behavioural observations. Media coverage of these provisioned macaques and the development of primatology as a discipline in Japan piqued the interest of the general public, which led to the establishment of commercial monkey parks (Kurita 2014). Thus, there is a social tradition in Japan over the last seven decades or so of visiting monkey parks to observe their behaviour. This may also explain the interest of people to visit JMP because they enjoyed observing macaque behaviour.

Provisioning is a significant aspect of human–primate interactions in many primate-habitat countries, for some human communities derive pleasure from feeding and interacting with macaques, and some others consider that feeding primates is critical to obtaining spiritual merit (Fuentes et al. 2007; Radhakrishna 2016). Knight (2010) suggested that monkey parks in Japan offer visitors a convenient and easy way to view wild monkeys by allowing them to feed the macaques. Recognizing the negative consequences of provisioning practices, however, governance protocols in tourist sites in many Asian countries have banned the feeding of monkeys (Hsu et al. 2009; Dhiman and Mohan 2014; Kurita 2014; Riley et al. 2016), and JMP falls in this category. So while the 'convenience principle' (Knight 2010) may explain some of the attractiveness of certain monkey tourist sites, it definitely is not a factor which motivates people to visit JMP. This lends credence to our results indicating that visitors in Japan seem to be more driven by the urge to observe macaque behaviour and ecology in natural settings as a reason to visit monkey parks than to have physical interactions with primates. Mito and Sprague (2013) indeed suggest that while macaques have gone from being highly revered to being objects of ridicule to being important subjects of scientific research, most Japanese residents are keen observers of the macaque.

In sharp contrast to JMP is the finding that most of the respondents in TW fed the macaques (Table 1). Across South and South East Asia, provisioning of primates is a common cultural practice and it often has religious underpinnings (Radhakrishna 2016). Studies in India across the states of West Bengal, Himachal Pradesh, and Goa have all shown that Indians are strongly influenced by their religious affinity in feeding macaques (Sengupta and Radhakrishna 2018a, b, 2020). Monks in China are known to feed Tibetan macaques, guided by the Buddhist philosophy of providing food to everyone (Zhao 2005). However, our study findings do not support the 'religious value' motivation, as only 6% of respondents in Indonesia fed monkeys for religious reasons. This is in contrast to results from Bali, Indonesia (Loudon et al. 2006; Peterson et al. 2015). Long-tailed macaques are ubiquitously present in Balinese temples, and humans regularly feed them, often owing to their 'perceived sacredness' (Fuentes et al. 2005; Peterson et al. 2015). Outside of this context, however, they are often treated as a pest species in Bali (Peterson and Riley 2013). This may also explain why most of the respondents in Java were not particularly interested in watching macaques at TW. About one-third of the respondents who fed macaques in TW did so because they liked feeding macaques and to closely interact with them. Other studies have also commented on the human practice of feeding wildlife for reasons of interactions—Newsome and Rodger (2008) suggest that the practice of intentionally feeding wildlife species arises from humans' need to be in close contact with animals. According to Soga and Gaston (2016), the decrease in human contact with nature and wildlife—referred to as the 'extinction of experience' by Pyle (1993) and as 'nature-deficit disorder' by Louv (2011)—due to loss of natural habitat and biodiversity, and the growth of sedentary and virtual pastimes, leads to changes in people's health and well-being and in their attitudes towards nature. Cox and Gaston (2018) suggest that the increase in popularity for feeding wildlife may be the conscious or subconscious response of people to compensate for this lack of interactions with nature.

Both the Japanese and Indonesian respondents who had experienced one-on-one interactions with the macaques were more likely to visit the parks with the intent of watching monkeys. However, Japanese visitors tend to visit monkey parks for the more visceral experience of observing wildlife in nature (Knight 2006). This is borne out by the 56% of Japanese respondents who said that the beneficial effect of human–macaque interaction in the park was that it made people happy. On the other hand, Indonesian respondents were more likely to visit a macaque tourist site due to its appeal as an overall 'nature experience', as evident from the observation that 55% of the respondents at TW said that they visited the place because they 'liked parks and trails'. Identifying macaque tourist sites as a nature experience has also been reported for visitors at macaque tourism sites in other parts of Indonesia. At Padangtegal, Sangeh, and Alas Kedaton, > 50% of the respondents were motivated by their interest in nature, nature education, and wildlife to visit such areas (Fuentes et al. 2007).

Respondents from Japan were generally older and those in Indonesia were largely younger. However, this observation needs to be treated with caution, as the results may be an artefact of the sampling design. As we were constrained by the number of people who were willing to participate in the interviews, it is possible that our sample may have an over-representation of older and younger respondents at Japan and Indonesia, respectively. However, further analysis showed that, at both sites, age was not a significant factor in determining whether people came to these sites with the object of viewing or interacting with macaques.

Apart from differences in their attitudes towards nature and wildlife, respondents in the two sites also differed in their expectations regarding the benefits or costs of human–macaque interactions. Compared to Indonesians, Japanese respondents placed greater emphasis on the informative benefits of the macaque site experience than its recreational aspects. Again, while respondents in both countries agreed that greater aggression in macaques and disease transmission were the major negative consequences of feeding primates, Japanese participants were relatively more concerned about disease transmission than macaque aggression. It is likely that some of the differences are reflective of variation in the educational levels of the participants between the two sites, as education is an important factor influencing human feeding behaviour. For example, a study in India showed that people with lower levels of education were almost twice as likely to feed macaques at temples as those with higher academic degrees (Sengupta and Radhakrishna 2020). However, we could not check for the effect of the education parameter in our study, as respondents at JMP declined to answer questions related to their educational qualifications.

Above all, the primary motivation for visiting macaque tourism sites appears to be a function of what the sites offer/are perceived to offer by visitors. When the site is managed and identified as macaque-based, visitor motivations are primarily to see macaques. But when the site is incidental, visitors' motivations stem from recreational desires rather than interest in macaques. JMP is a designated monkey park, and as a tourist destination as well, it is famous as a site where Japanese macaques can be observed bathing in hot springs (Matsuzawa 2018). Hot-spring bathing is not observed in any primate other than the Japanese macaques, which occupy the northernmost limits of primate distribution and are adapted to extreme cold climates (Takeshita et al. 2018). Clearly, then, only people who are interested in macaques or in viewing this unusual behaviour would be willing to pay to enter JMP. On the other hand, encountering macaques at TW is incidental; people do not pay for viewing the macaques per se but do so to enter a nature recreational park and appear to be drawn by various features/benefits apart from the presence of macaques.

Feeding is legally banned at JMP, which may explain why none of our respondents fed the macaques. There are multiple signboards at JMP warning visitors not to feed the macaques. This information is also provided on the park website, as well as on the entry tickets. Although similar signboards and a banner are present at TW informing the visitors that they should not feed the macaques, people at TW continue to feed the macaques. Such interactions can have negative impacts for both humans and primates. For example, the duration and/or frequency of aggressive interactions between humans and Barbary macaques (*Macaca sylvanus*), Formosan macaques (*M. cyclopis*), and long-tailed macaques (*M. fascicularis*) increased when humans fed macaques (Hsu et al. 2009; Fuentes et al. 2007; Fuentes and Gamerl 2005). Such aggressive encounters often lead to injury, and in some cases have resulted in human deaths (Zhao and Deng 1992). Macaques also take people's belongings by force (Sha et al. 2009). On the other hand, primates interacting with tourists at close quarters often have poor coat conditions (Jolly 2009), show higher intra-group aggression (which is often fatal for infants; Berman et al. 2014), have greater parasitic loads (Borg et al. 2014), and are exposed to various viral and bacterial pathogens (Devaux et al. 2019). We recommend that park authorities at TW maintain stricter vigilance regarding feeding the macaques, similar to JMP, and impose fines if visitors engage in such behaviour. Flyers and posters could also be designed to inform visitors about the detrimental effects of feeding or getting too close to the macaques. This way, negative consequences for human–primate interactions can be kept at bay, even at incidental primate tourism sites.

What the case studies definitely highlight is that as human–primate interactions vary across different sites, contexts, and cultures, human–primate coexistence management plans would also have to be curated accordingly. Thus, more studies across a range of sites is the way forward in this regard. Interestingly, a common theme at both the sites was that people who had interacted with macaques in the past were more likely to visit macaque tourism sites with the specific purpose of seeing or interacting with macaques. Future studies using qualitative interviews may provide more insights into the views and actions of respondents in this regard (sensu Kendall 2008). Earlier studies, guided by an ethnoprimatology framework, revealed that primates often engage in certain behaviours repetitively which are often associated with being rewarded with food by humans—these create feedback loops within human–primate interactions (Sengupta and Radhakrishna 2018a). Thus, adopting a mixed-methods approach, employing both primate behavioural observations and interviews, would be particularly useful to understand such human–primate interfaces through the lens of ethnoprimatology (Riley et al. 2017). We also suggest planning studies across different kinds of monkey

tourism sites in the same country, and vice versa, to gain greater insights into the relative contribution of cultures and contexts in shaping people's attitudes towards and perceptions of primates.

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