

Community Perceptions and Attitudes Towards Leaf-Eating Monkeys Entering Cultivation Areas in Kuningan Regency, Indonesia

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Abstract: Community perceptions of the presence of wildlife have an important role in preserving their populations. This study explores community knowledge, perceptions, and attitudes towards two leaf-eating monkeys, the Javan langur, *Trachypithecus auratus*, and the Javan surili, *Presbytis comata*. Interviews were conducted with 320 people in 32 villages bordering forests occupied by populations of these species. The data obtained were analyzed descriptively. We found that respondents generally knew that both species of leaf-eating monkeys are protected under the laws concerning threatened species but did not know about their natural distribution and important role in nature. Most of the respondents also told us that the presence of both species of monkeys is not harmful. They agreed on the need to protect their populations and disagreed with hunting. Our results show that the community tolerates the presence of leaf-eating monkeys in cultivated land, and the respondents who try to deal with disturbances are still a minority. Mitigation efforts are needed so that the presence of these monkeys does not harm the community or threaten the survival of their populations.

Keywords: Asian colobines, conservation, human-primate conflict, *Presbytis comata*, *Trachypithecus auratus*

Introduction

The presence of wildlife in cultivated areas can often cause serious problems (Alealign and Yonas 2017; Ale-mayehu and Tekalign 2022). Wildlife entering gardens will generally eat cultivated plants and can even cause significant damage (Mishra *et al.* 2020). This situation triggers conflicts between landowners of local communities and wildlife in many places (Kiffner *et al.* 2021), but with varying degrees of tolerance on the part of the local communities. Tolerance is often related to cultural beliefs and respect for wildlife. Intolerance is damaging to both the local communities and the primates and is especially serious when involving restricted-range and threatened species. Crop-raiding is widespread in Indonesia. For example, macaques on Sulawesi (Riley and Priston 2010; Zak 2016; Hardwick *et al.* 2017), long-tailed macaques (*Macaca fascicularis*), Thomas's leaf monkeys (*Presbytis thomasi*) and orangutans (*Pongo abelii* and *P. tapanuliensis*) on Sumatra (Marchal and Hill 2009; Campbell-Smith *et al.* 2010; Harahap *et al.* 2024), and proboscis monkeys (*Nasalis larvatus*) on Borneo

(Iskandar *et al.* 2017). On Java, Javan langurs (*Trachypithecus auratus*) and Javan surilis (*Presbytis comata*) are often seen entering cultivated land (Supartono *et al.* 2016a, 2016b, 2016c; Tsuji *et al.* 2019), but there have been no studies of the perceptions and attitudes of local communities concerning this. Both species are protected by the government (Permenlhk No. P.106/Menlhk/Setjen/Kum.1/12/2018) and are categorized as Vulnerable on the IUCN Red List (Nijman 2021; Nijman *et al.* 2022).

Understanding local people's views on wildlife is essential in developing conservation plans and management decisions that facilitate better coexistence between wildlife and humans (Niu *et al.* 2019). Public views on wildlife entering cultivated land can be positive or negative (Ndava and Nyika 2019; Mekonnen *et al.* 2020). In order to help develop management strategies for communities to better coexist with primates, we carried out community interviews to understand the local knowledge, perceptions, and attitudes of landowners and villagers towards the presence of leaf-eating monkeys entering their fields. Specifically, we focus on the villages in the Kuningan Regency, Indonesia

where *P. comata* and *T. auratus* can be found in forest of the neighboring Pasir Argasari Block and Pasir Tanggulun Block (Supartono *et al.* 2016b).

Methods

Research location and data collection

The first stage of this research was to determine the villages around the forest that would be used as research locations. We visited villages bordering forest in the Kuningan Regency, Indonesia, to ascertain from previous research the continued presence of the two primates in their neighboring forests (Supartono *et al.* 2016a). The study was conducted in 32 villages in Kuningan Regency (108.23–108.47°E, 6.47–7.12°S) (Fig. 1), all located around forest with sympatric populations of Javan *surilis* and Javan langurs (Supartono *et al.* 2020). The secondary forests in the regency serve as production forests managed by Perum Perhutani KPH Kuningan.

Data collection was carried out through interviews using a structured questionnaire modelled on those of previous researchers (Senthilkumar *et al.* 2017; Niu *et al.* 2019;

Mekonnen *et al.* 2020). The questions explored the following: a) public knowledge about the population status and protected status of the leaf-eating monkeys, b) community assessments of the leaf-eating monkeys, and c) measures that have been taken by the community against them. We also asked about the size of the groups of each species seen by the respondents when they were working in the fields. We interviewed 320 people, all 18 or more years old.

All the 320 interviewees selected had seen Javan *surilis* on their agricultural land but only 279 had seen Javan langurs in their fields. The number of respondents used in the analysis concerning the disturbance caused by Javan langurs and efforts to deal with them was 279, but the number of respondents used in the analysis to describe their knowledge and attitudes towards Javan langurs remained at 320.

Data analysis

The data on knowledge of the population status and protected status of the monkeys were analyzed by calculating the percentage of respondents who knew and who did not know things related to these aspects. Data related to community assessment were also analyzed by calculating

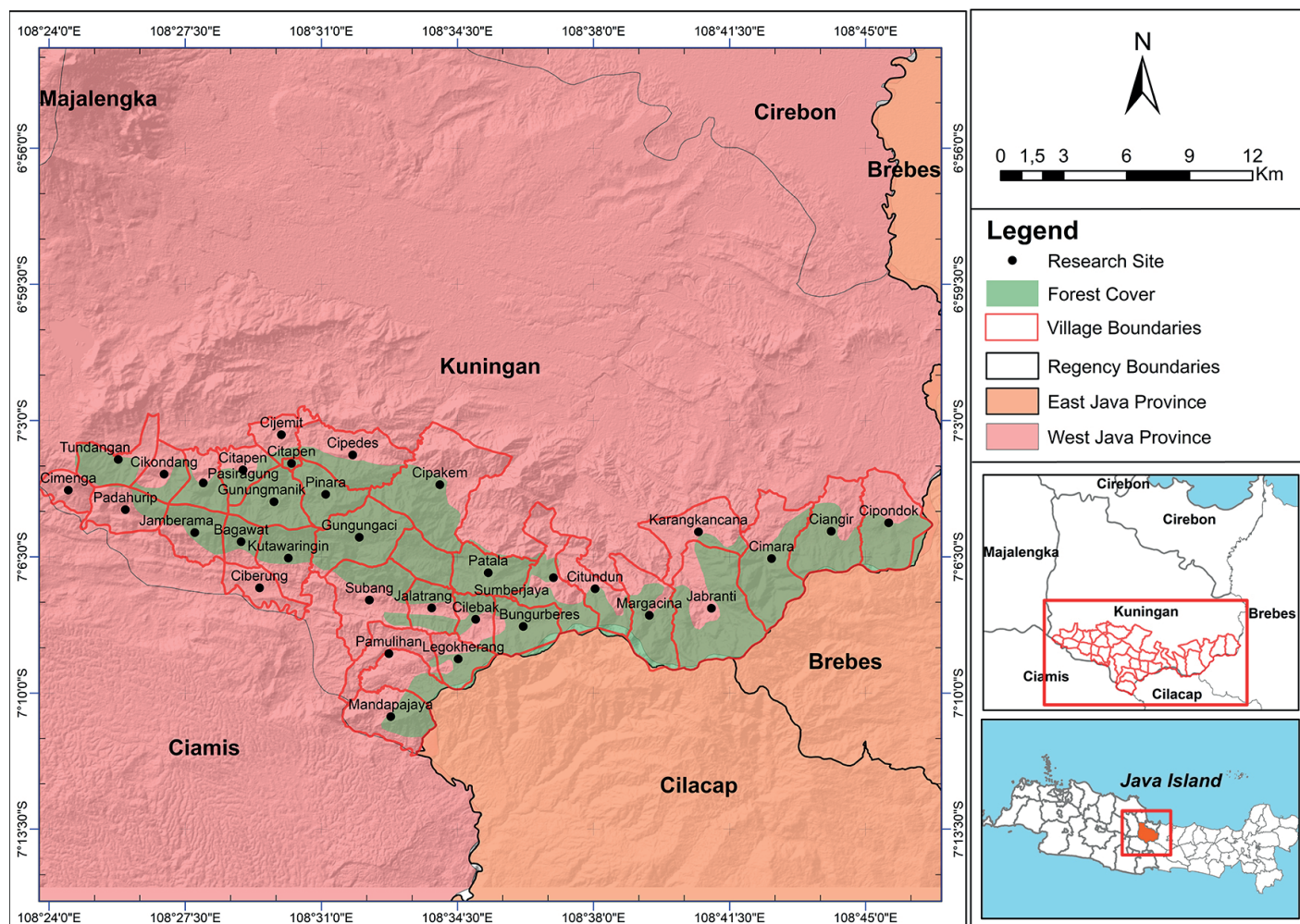


Figure 1. Location of the study site in the Kuningan Regency, in West Java, Indonesia.



Figure 2. The Javan langur, *Trachypithecus auratus*.



Figure 3. The Javan surili, *Presbytis comata*.

the percentage of the respondents' answers to each question. Data related to actions that have been taken by the community were analyzed and shown in the form of frequency tables for the answers given by each respondent (Niu *et al.* 2019; Mekonnen *et al.* 2020).

Data obtained through closed questions about the respondents' knowledge, perceptions and attitudes towards the two types of leaf-eating monkeys were analyzed by calculating the percentage value of each answer given for each question (Niu *et al.* 2019; Mekonnen *et al.* 2020). Data for open questions were analyzed by grouping each answer to each question, then calculating the percentage (Mekonnen *et al.* 2020). The relationship between gender and education level with knowledge about status (protected species and threatened species) and distribution of the two species was tested using the chi-square test. This test was also used to analyze the relationship between gender and education level with attitudes (leaf-eating monkeys need to be protected) and the relationship between gender and preferences (like, dislike, or neutral).

Results

Public knowledge of population status and protected status

The respondents interviewed were mostly male and had at least a level of primary school education. The total number of respondents who had high school and undergraduate education was just under 10% (Table 1).

In this study, most respondents knew that Javan langurs and Javan surilis are threatened species and protected by the

government. However, most respondents were unaware of the natural distribution and role in nature of the two species. Their estimates of the average group size of the two species were 11.25 individuals for Javan langur and 7.64 individuals per group for the Javan surili. A few of the respondents that answered believed that they had an important role in the forest—12 respondents for the Javan langur and 18 for the Javan surili. The important roles concerned were pollination, maintenance of ecosystem balance, as part of the food chain, seed dispersal, fertilization of the soil, and their aesthetic value (Table 1).

The respondents' knowledge of the monkeys as protected and threatened species was not related to their level of education ($P = 0.405$; $P = 0.321$, respectively) nor their gender ($P = 0.810$; $P = 0.354$, respectively) but the respondents' knowledge regarding their distribution was related to their level of education ($P = 0.012$) and gender ($P < 0.001$). Data from the two species were combined.

Community assessment and attitudes

Most of the respondents thought that the two monkeys needed to be protected. Perceptions regarding the need for them to be protected were related to education level ($P = 0.049$) but not to gender ($P = 0.724$). Regarding their interest in the two species, most of the respondents were neutral, followed by like and dislike. The level of interest for leaf-eating

monkeys was also not related to gender ($P = 0.702$). In this research, the basis for selecting people as respondents was that they had seen surilis on their land, but not that they had seen Javan langurs, so all respondents answered that surilis ate plants on their land, but 41 respondents answered that Javan langurs do not. Javan langurs and surilis usually enter their properties in the morning or evening. Most of the respondents answered that the disturbance caused by leaf-eating monkeys was not (yet) detrimental. They also suspected that their raiding crops was due to lack of food in the forest, and that they preferred eating on private land than in the forest. Most of the respondents disagreed with the hunting of the two monkeys (Table 2).

Types of plants eaten

Based on information from the respondents, there are 55 plants that provide food for the two monkeys: 25 hardwoods, 18 cultivated for their fruits, and 12 annual vegetables and nuts. The plants most widely eaten are sengon, mahogany, and lamtoro for hardwoods; banana, petai and papaya for fruit crops; and long bean, peanut, and cassava of the annual crops (Table 3).

Measures to stop crop-raiding

Only a small percentage of respondents mentioned that they had tried to stop or reduce the damage caused by the

Table 1. Characteristics and knowledge of respondents on population status and protection status.

Question	Categories	Javan langur		Javan surili	
		Respondent	%	Respondent	%
Gender	Male	268	83.75	268	83.75
	Female	52	16.25	52	16.25
	Total	320	100	320	100
Education	Elementary school	234	73.13	234	73.13
	Junior High school	58	18.13	58	18.13
	Senior High school	24	7.50	24	7.50
	College	4	1.25	4	1.25
	Total	320	100	320	100
Knew it was a protected species	No	102	31.88	113	35.31
	Yes	218	68.13	207	64.69
	Total	320	100	320	100
Knew it was an endangered species	No	135	42.19	122	38.13
	Yes	185	57.81		61.88
	Total	320	100	320	100
Knew the distribution of the species	No	257	80.31	271	84.69
	Yes	63	19.69	49	15.31
	Total	320	100	320	100
Knew their important role in nature	Believe	12	3.75	18	5.63
	Not sure	46	14.38	33	10.31
	Do not know	262	81.88	269	84.46
	Total	320	100	320	100

monkeys (Table 4). We recorded as many as 11 ways that the community have tried in dealing with this. The most common were yelling, catapults, throwing stones or other objects, and chasing them (Table 5). Most respondents indicated that they were not effective (Table 4). A few mentioned that incidents of disturbance by the monkeys had been reported to the local village government but with no

measures being taken. Most respondents said that they had never seen anybody hunting them (Table 4).

Discussion

The leaf-eating monkeys referred to in this study are Javan langurs and Javan surilis. On the one hand, these two

Table 2. Respondents' assessment and attitude towards leaf-eating monkeys.

Question	Categories	Javan Langurs		Javan Surili	
		Resp.	%	Resp.	%
Need to be protected	No	52	16.25	54	16.88
	Yes	268	83.75	266	83.13
	Total	320	100	320	100
Favorite	Neutral	250	78.13	175	54.69
	Like	37	11.56	94	29.38
	Dislike	33	10.31	51	15.94
	Total	320	100	320	100
Eating plants on cultivated land	No	41	12.81	-	-
	Yes	279	87.19	320	100.00
	Total	320	100	320	100
Detrimental rate	Not yet detrimental	202	72.40	199	62.19
	Already detrimental	77	27.60	121	37.81
	Total	279	100	320	100
Time to enter the cultivated land	Morning	93	33.33	146	45.63
	Morning and Afternoon	5	1.79	2	0.63
	Morning and Evening	28	10.04	54	16.88
	Afternoon	52	18.64	41	12.81
	Afternoon and Evening	7	2.51	3	0.94
	Evening	94	33.69	74	23.13
	Total	279	100	320	100
Causes of entry into cultivated land	Lack of food in the forest	135	48.39	171	53.44
	The food on the cultivated land is more delicious	28	10.04	42	13.13
	There is less food in the forest and more delicious on cultivated land	43	15.41	43	13.44
	Forest destruction	20	7.17	16	5.00
	Forest destruction and lack of food in the forest	2	0.72	3	0.94
	Do not know	51	18.28	45	14.06
Total	279	100	320	100	
Agree to be hunted	Agree	19	6.81	30	9.38
	Don't agree	260	93.19	290	90.63
	Total	279	100	320	100

Table 3. Plants eaten by Javan langurs and Javan surilis.

No.	Local name	Scientific name	Javan langur	Javan surili	Total	Part eaten
Hardwood						
1	Sengon	<i>Falcataria falcataria</i>	96	9	105	Shoot, fruit
2	Mahoni	<i>Swietenia macrophylla</i>	61		61	Shoot
3	Lamtoro	<i>Leucaena leucocephala</i>	46	7	53	Shoot, fruit
4	Kihiyang	<i>Albizia procera</i>	29	1	30	Shoot, fruit
5	Jati	<i>Tectona grandis</i>	27		27	Shoot
6	Ficus	<i>Ficus</i> sp.	15	5	20	Shoot, fruit
7	Afrika	<i>Maesopsis eminii</i>	11	2	13	Shoot
8	Randu	<i>Ceiba pentandra</i>	5	2	7	Shoot, fruit
9	Jeunjing	<i>Paraserianthes</i> sp.	5	1	6	Shoot, fruit
10	Picung	<i>Pangium edule</i>	2	4	6	Shoot
11	Kaliandra	<i>Calliandra houstonia</i> var. <i>calothyrsus</i>	5		5	Shoot, fruit
12	Salam	<i>Syzygium polyanthum</i>	3	2	5	Shoot
13	Aren	<i>Arenga pinnata</i>	2	2	4	Shoot
14	Kihampelas	<i>Ficus tinctoria</i> ssp. <i>gibbosa</i>	4		4	Shoot
15	Putat	<i>Planchonia valida</i>	3	1	4	Shoot
16	Dadap	<i>Erythrina variegata</i>	3		3	Shoot
17	Kihujan	<i>Samanea saman</i>	3		3	Shoot
18	Hantap	<i>Sterculia coccinea</i>	2		2	Shoot
19	Huru	<i>Litsea</i> sp.	1	1	2	Shoot
20	Mindi	<i>Melia azedarach</i>	2		2	Shoot
21	Suren	<i>Toona sureni</i>	2		2	Shoot
22	Buni	<i>Antidesma bunius</i>	1		1	Shoot, fruit
23	Cebreng	<i>Gliricidia sepium</i>	1		1	Shoot
24	Rasamala	<i>Altingia excelsa</i>	1		1	Shoot
25	Kersen	<i>Muntingia calabura</i>		1	1	Shoot
Agricultural fruit-producing plants						
26	Pisang	<i>Musa</i> sp.	114	302	416	Fruit
27	Petai	<i>Parkia speciosa</i>	73	107	180	Shoot, fruit
28	Pepaya	<i>Carica papaya</i>	22	74	96	Fruit
29	Rambutan	<i>Nephelium mutabile</i>	3	30	33	Fruit
30	Kopi	<i>Coffea</i> sp.	16	13	29	Shoot
31	Jambu	<i>Psidium guajava</i>	8	15	23	Shoot, fruit
32	Mangga	<i>Mangifera indica</i>	2	16	18	Fruit
33	Durian	<i>Durio zibethinus</i>	6	10	16	Shoot
34	Nangka	<i>Artocarpus heterophyllus</i>	4	12	16	Shoot
35	Alpukat	<i>Persea americana</i>	1	9	10	Shoot, fruit
36	Jengkol	<i>Archidendron pauciflorum</i>	3	7	10	Shoot
37	Pakel	<i>Mangifera foetida</i>	1	3	4	Shoot
38	Kelapa	<i>Cocos nucifera</i>		3	3	Young fruit
39	Pala	<i>Myristica fragrans</i>		2	2	Shoot
40	Sawo	<i>Manilkara zapota</i>		2	2	Shoot
41	Kedondong	<i>Spondias dulcis</i>		1	1	Shoot
42	Cengkeh	<i>Syzygium aromaticum</i>	1		1	Shoot
43	Melinjo	<i>Gnetum gnemon</i>	1		1	Shoot
Seasonal plants/ vegetables						

Table 3. *Cont'd.*

No.	Local name	Scientific name	Javan langur	Javan surili	Total	Part eaten
44	Kacang panjang	<i>Vigna unguiculata</i>	1	8	9	Shoot, fruit
45	Kacang tanah	<i>Arachis hypogaea</i>	1	7	8	Peanuts
46	Singkong	<i>Manihot esculenta</i>	2	4	6	Bulbs
47	Jagung	<i>Zea mays</i>		5	5	Fruit
48	Mentimun	<i>Cucumis sativus</i>	1	3	4	Fruit
49	Labu siam	<i>Sechium edule</i>		3	3	Fruit
50	Talas	<i>Colocasia esculenta</i>		3	3	Bulbs
51	Tomat	<i>Solanum lycopersicoides</i>		3	3	Fruit
52	Ubi	<i>Ipomoea batatas</i>		3	3	Bulbs
53	Cabai	<i>Capsicum frutescens</i>	1	1	2	Fruit
54	Buncis	<i>Phaseolus vulgaris</i>		1	1	Fruit
55	Padi	<i>Oryza sativa</i>		1	1	Shoot
	Total		592	686	1278	
	No. of spp.		43	41	55	

Table 4. Measures to stop the leaf monkeys eating the villagers' crops.

Questions	Categories	Javan langur		Javan surili	
		Respondent	%	Respondent	%
Direct effort	Not yet	217	77.78	236	73.75
	Already	62	22.22	84	26.25
	Total	279	100	320	100
Effectiveness	No	58	20.79	76	23.75
	Yes	4	1.43	12	3.75
	Blank	217	77.78	232	72.50
	Total	279	100	320	100
Report to other party	Ever	23	8.24	35	10.94
	Never	256	91.76	285	89.06
	Total	279	100	320	100
The party to whom the report is made	Village governance	23	8.24	35	11.25
	Blank	256	91.76	285	88.75
	Total	279	100	320	100
Efforts to handle by other parties	Not yet	273	97.85	309	96.56
	Already	6	2.15	11	3.44
	Total	279	100	320	100
Seeing the hunting incident	Never	212	75.99	257	80.31
	Ever	67	24.01	63	19.69
	Total	279	100	320	100

Table 5. Efforts that have been made in handling the disorder of leaf-eating monkeys.

No.	Handling efforts	Javan langur	Javan surili
1	Shouted	34	30
2	Catapulted	7	19
3	Being chased	6	15
4	Thrown using stones or other objects	10	7
5	Driven out by the dog	1	2
6	Using firecrackers	-	1
7	Putting up a scarecrow	2	1
8	Using clappers	1	1
9	Fencing with nets	1	2
10	Wrap the fruit in cloth	-	1
11	Shot	1	-

species are classified as Vulnerable and protected (Permenlhk No. P.106/Menlhk/Setjen/Kum.1/12/2018), highlighting a need to conserve the species. On the other hand, they often enter cultivated land to eat crops (Supartono *et al.* 2016a, 2016b; Supartono 2019). Even though there is no evidence in this study of these monkeys being killed, farmers or landowners do have the opportunity to kill them when they are being detrimental (Mekonnen *et al.* 2020), further threatening the sustainability of their populations (Poornima *et al.* 2022), as has happened with such as elephants (Shaffer *et al.* 2019; Gunawansa *et al.* 2023) and orangutans (Meijaard *et al.* 2011; Maskulino *et al.* 2021). The public's view of their co-existence with wild animals, including leaf-eating monkeys, is very important in developing conservation strategies (Niu *et al.* 2019; Robbins 2021).

Community knowledge, perception and attitudes.

Most of the respondents knew that Javan langurs and Javan surilis are protected and threatened species, and an understanding of this aspect can only be positive in influencing their attitudes regarding their co-existence (Khatun *et al.* 2012). A person's knowledge and perspective on something is often related to their level of education (Digun-Aweto *et al.* 2016) and may also be influenced by gender and occupation (Poornima *et al.* 2022). In this study, however, community knowledge about the status of these monkeys was not related to education level or gender, except in their understanding of the monkeys' distributions. This knowledge is likely the result of accumulated information and experience gained throughout their lives (Robbins 2021). Although there is as yet no definite explanation, this information and experience can be obtained from electronic media, print media, from forestry and agricultural workers, or other related parties. Many agricultural and forestry officers have been deployed to villages in the Kuningan Regency (including the villages involved in this study) to provide assistance to the communities regarding agriculture, forestry and the

environment. The knowledge held by the community as to the conservation status of the two monkeys is very helpful in preserving their populations (Bernárdez-Rodríguez *et al.* 2021; Venart *et al.* 2024).

In contrast to this, our study showed that only a small percentage of people know about the natural distribution of Javan langurs and Javan surilis, and that this *is* related to their level of education. However, although some of the respondents with a bachelor's degree knew about the distributions of the two species, and were more informed than respondents with other levels of education, this study does not show a correlation. Further study is needed regarding the influence of higher education on this more advanced knowledge.

Community knowledge about the important role of wildlife in nature can support positive attitudes (Randimbiharirina *et al.* 2021) and facilitate eventual population conservation programs (Wilson and Tisdell 2005; Gomez *et al.* 2022). In our study, only a small number of landowners believed in the important role of leaf-eating monkeys, which demonstrated that community understanding of the ecological roles of leaf-eating monkeys needs to be augmented. Working with related parties such as agricultural workers, forestry officers, academic groups in the field of conservation, and local non-governmental organizations in delivering such information to the communities on the ground, we may be able to improve attitudes and foster better community participation in the preservation of wildlife and, in this case, particularly these two colobines.

Community knowledge regarding primate group sizes can help in estimating population numbers and is important in obtaining an understanding of the scale of the issue. The villagers' estimates of group sizes largely match those of field researchers elsewhere. Nijman (2017) recorded group sizes of 1–14 individuals with a median value of 7.5 individuals for the surili, *Presbytis comata*, and Supartono *et al.* (2016c) found groups of 2 to 22 with an average of 8.52 individuals. For the Javan langur, *Trachypithecus auratus*, the group size is around 5–20 individuals (Nijman 2014) with a median value of 12.5 individuals. The results of other studies suggest that the group size for Javan langurs is around 7–17 individuals (Mustari and Pasaribu 2019) with a median value of 12.

Although Javan langurs and Javan surilis often come into contact with the villagers, the community generally agrees that they need to be protected. A positive attitude towards biodiversity and conservation is a common characteristic of local communities (Truong 2022). The results of this research show that the attitude of the majority of people is in line with government policy for the protection of these species, although when asked about their level of interest, most people are neutral about the existence of leaf-eating monkeys and only a small percentage say they like the Javan langur and Javan surili. The majority of people showing a neutral attitude towards primates is not unusual, *Chlorocebus djamdjimensis* being an example (see Mekonnen *et*

al. 2020). There are many factors that influence attitudes towards wildlife. They are ethnicity, religion, education level, household income, age, and gender (Niu *et al.* 2019; Poornima *et al.* 2022). In our study, gender was not related to attitudes towards leaf-eating monkeys, in line with the results of Khatun *et al.* (2012) for *Semnopithecus entellus* in Keshabpur, Bangladesh.

The number of people who consider that Javan langurs and Javan surilis must be protected is thought to be related to the level of damage they cause. In our study, most people said that these species are not considered detrimental when entering cultivated land. Both species generally have smaller group sizes compared to long-tailed macaques (Nijman 2014; Nijman 2017; Bernathirdin *et al.* 2023) so that the damage caused may be perceived as less. Poormina *et al.* (2022) stated that those who experience a lot of crop damage tend to have negative attitudes. A positive attitude will prevail when wildlife is beneficial or does not cause fear (Digun-Aweto *et al.* 2016; Alesci *et al.* 2022) and a negative attitude prevails when their presence is detrimental (Kansky and Knight 2014; Kumara *et al.* 2018; Yazezew 2022). A study of *Cercopithecus aethiops aethiops* in the Wof-Washa Natural State Forest, Ethiopia, revealed that the majority of people did not support the conservation of this species because of the perceived extent of the damage they cause (Yazezew 2022). In our study, the presence of Javan langurs and surili not being considered detrimental was thought to be the likely explanation for the majority of respondents disapproving of their being hunted. Elsewhere, monkeys are not hunted because they have a human-like appearance (Lemos *et al.* 2021).

The respondents said that the disruptions of the monkeys occurred throughout the day but were prevalent in the mornings and evenings. This finding is in line with Siljander *et al.* (2020) in the research in the Taita Hills, Kenya. The monkeys enter the gardens in the morning when the owners have yet to arrive and in the afternoon or evening when they have left. Leaf-eating monkeys, especially surili are sensitive to human presence (Ruhayat 1983).

Limited living space for monkeys in their natural habitat due to the expansion of residential land and crop cultivation encourages monkeys to eat plants that grow outside their habitat, including in community cultivation areas (Mekonnen *et al.* 2020). In our study, people generally believed that the disturbance occurred because the availability of food in the natural habitat had decreased, thus encouraging monkeys to enter their property.

Types of plants eaten and efforts to deal with disturbances

Wildlife eat cultivated plants because they tend to be tastier, more abundant, accessible, and nutritious than plants in nature (Li and Essen 2021). Little is done by landowners and other parties to deal with the disturbances caused by the monkeys. Reports of disturbances to those considered to be in authority are few. It is probable that the disturbances are not yet considered detrimental, as indicated in the discussion

above. Efforts to drive the monkeys away are generally limited, as they are elsewhere, to guarding the crop, putting up fences, chasing them and scaring them away (Adeola *et al.* 2018). Even though deterrence efforts to date have not threatened the populations of the two species, protection measures for the monkey populations need to be in place before conflict escalation results in retaliation killing. It is important to find a compromise that can accommodate community interests and population conservation.

Conservation implications

Conflicts between humans and wildlife are expected to continue to increase globally (Yazezew 2022) and people's knowledge and attitudes, including of the presence of primates on cultivated land, are very important in conservation (Odebisi *et al.* 2015). Community knowledge about leaf-eating monkeys is expected to help resolve potential conflicts before they occur. In this study, most of the respondents knew that Javan langurs and Javan surilis are protected and threatened species. This knowledge can be an asset for the government or other parties in establishing programs for the preservation of threatened primate populations, in this case Javan langurs and Javan surilis outside conservation areas. The more people who know about the status of leaf-eating monkeys, it is hoped that more people will be involved in conservation programs. Community involvement in forest resource management can change the perspective on conservation, including the preservation of wild animals so that it can reduce conflict (Nchor and Agbor 2018). Community involvement in conservation must benefit the community itself (Kolinski and Milich 2021). The participation of local communities is expected, therefore, to help the success of biodiversity conservation (Obradovic *et al.* 2022).

Education also has an important role in conservation (Venart *et al.* 2024). Conservation education can encourage positive public perceptions and attitudes towards threatened primates (Bernárdez-Rodríguez *et al.* 2021). Public education regarding their distribution and status and their important roles in nature is needed. This activity must be initiated by the government as the policy and funding holder by involving local universities and other parties.

Conclusion

This study concluded that the community still has positive views of the two species of leaf-eating monkeys that often enter their gardens and plots. However, programs from the government and related parties are needed from now on to maintain this positive outlook and involve the community in conserving leaf-eating monkey populations outside conservation areas. Further research is also needed to examine food availability in the remaining habitats and to urge for protection of these community forests, which can help to keep the monkeys in the forests rather than outside raiding crops.

Acknowledgments

Our thanks to the Director of Research, Technology and Community Service at the Ministry of Education, Culture, Research and Technology, who provided assistance through funding for the Research and Community Service Program for the Fiscal Year 2023. Our sincere thanks also to the village heads in Kuningan Regency who gave us permission to carry out the study. We are most grateful to two reviewers for their comments and helpful suggestions on the submitted manuscript.

Supplementary Information

Questionnaire URL

<http://www.primate-sg.org/storage/pdf/PC38_Supartono_et_al_Questionnaire.pdf>

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Received for publication: 6 September 2023

Revised: 19 April 2024