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Block, push or pull? Three responses to monkey crop-raiding in Japan

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Chapter 3 Block, Push or Pull? Three Responses to Monkey Crop-Raiding in Japan John

Knight

Introduction

The Japanese macaque, *Macaca fuscata*, is a major crop pest in rural Japan. This chapter is about how people deal with this problem. I focus on three responses to monkey crop-raiding: obstructing monkey entry into villages and fields (what I call the ‘block’ response), chasing the monkeys back to the forest (what I call the ‘push’ response), and luring the monkeys away from fields using food handouts at another site (what I call the ‘pull’ response). I describe the effectiveness of these interventions and monkey resistance to them. I then show how these responses lead to a change in the perception of monkey crop-raiding, which ceases to appear simply as a monkey problem and comes to be seen as something caused by other people. Monkey crop-raiding in Japan becomes a site of social division among humans as much as a site of conflict between humans and monkeys.

My theoretical point of reference in this discussion is monkey y and its determinants. Food exploitation among nonhuman primates is informed by a concern with safety vis-à-vis potential predators (Miller 2002). The mobility and use of space of nonhuman primates can therefore be accounted for in terms of both their attraction to food and their avoidance of threat, as well as the trade-off between them. This general point applies to situations in which the range of nonhuman primates overlaps with human space. In these circumstances, human threat and human food are likely to play their part in influencing primate mobility, alongside other

Page: 59

Sequence number: 1

Author: anon

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threat and food sources. In what follows I shall examine how human threat and human food come to shape the pattern of mobility of Japan's pest monkeys.

Engai

What is known as *engai* or 'monkey damage' is widespread in regional Japan, affecting rural communities in monkey range areas across the country. In 2007 monkeys reportedly caused some ¥1.6 billion (~\$13 million) worth of crop damage in Japan, affecting around 3,700 hectares of farmland (Ministry of Agriculture n.d.). This may well be an underestimate as much low level monkey crop feeding tends to go unreported. The size of the crop-raiding monkey population in Japan is large and growing. In many prefectures a majority of monkey troops are engaged in crop-raiding (Watanabe 2007: 147). These monkeys feed on a wide range of crops, especially fruit and vegetables. Repeated monkey depredations and ruined harvests leads to highly negative views of the monkey *dorobō* or 'thieves' and can erode the will to continue farming.

The problem tends to be especially severe in depopulated mountain villages.

A characteristic of the depopulated village is that there is much less human activity in it. During my fieldwork in the mountainous interior of Wakayama Prefecture, the village of Takayama was a place with a serious monkey problem. Residents claimed that the monkey problem worsened dramatically following the closure of the village primary school in the late 1980s. Their reasoning was that the monkeys found it much easier to enter the now much quieter village environment. Asari Tetsuichi, a mushroom-grower in Takayama, touched on this point in an interview:

‘If there were lots of people around, they [the monkeys] would not enter. Even if there

59

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were only children about, making lots of noise, I don't think that they would come. But children have steadily decreased and there are only a few old people about. They [the monkeys] are clever, they know that It [the village] has become quiet, too quiet If you go there, and walk all the way through during the daytime, you will hardly meet anyone'.

Farming and agroforestry activity is of special importance in this connection. The primatologist David Sprague refers to the existence of a 'buffer zone of human activity' around the village, whereby 'the foothills surrounding villages were once used, occupied, and defended by humans and their domesticated animals under traditional agriculture' (Sprague 2002: 264). However, with depopulation and the decline of farming, this buffer zone has ceased to exist. Village farmland and the a belt of woodland around the village no longer contains an active daytime human presence, which means that monkeys entering this zone are unlikely to be disturbed. As one recent newspaper report on the wildlife problem puts it, 'the people pressure at the boundary between forest and village has weakened' (in Shikoku Shinbun 2008).

The reduced human presence in it makes the village a much easier place for monkeys to raid. To appreciate why this is, we must draw a distinction between the monkey's spatial boldness and its boldness vis-à-vis people. A monkey may be bold enough to enter a village field to feed on the crops there, but too timid to do so when there is a human about. Or again, when it is actually raiding a field, the appearance or sound of a human (or even a car in the distance) may be enough to send the monkey fleeing for cover in the nearby forest. Although bold enough to enter human space, the monkey is still intolerant of any human presence. The amount of crop damage that such a monkey causes is limited by the imperative of avoiding human encounters.

This means that the more depopulated the village the more vulnerable to monkey raids it tends to

60

Page: 61

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become. The significance of this is that even wary monkeys – that do not tolerate the presence of humans – are able to raid fields in sparsely populated places. In short, depopulation lowers the habituation threshold for monkey crop-raiding.

However, over time monkeys become bolder. Their increasing boldness is manifested not just in the frequency of their visits to the village, but also in their greater tolerance of human encounters. The presence of humans in and about the village is no longer the automatic deterrent to would-be monkey crop-raiders it was earlier. The monkey's flight distance – the distance at which a human presence causes monkeys to flee – contracts, which means the animal reacts only to close-up encounters. In a manual on *engai* countermeasures compiled by the primatologist Izawa Kōsei, a flight distance of 100 metres is taken as the standard; where this flight distance exists, the degree of monkey habituation is low and *engai* tends not to be a problem (Izawa and MSC 2005: 81). But where *engai* is rife this flight distance may decline to 50 metres or even disappear altogether as monkeys cease to flee even when people are nearby (*ibid.*).

Another expression of the greater boldness of monkeys is house entry behaviour. Monkeys get into houses by opening or unlocking windows and doors, feed on the food they find in the kitchen (even, in some cases, reportedly opening refrigerators), and feed on the edible offerings (fruit, candies, cakes etc.) made to family ancestors in the *butsudan* altar. One of the most disagreeable aspects of monkey entry into houses is the mess and odour they tend to leave behind them (especially when they defecate in the house). Monkeys also dislodge roof tiles, fiddle with outside television antennae (affecting television pictures), and interfere with telephone cables (occasionally causing village telephone lines to go down).

Engai in these conditions can readily be accounted for in terms of the combined effect of food and threat. Villages were once high-threat places; despite the appealing crops in the village,

61

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the presence of people (including hunters) there tended to deter monkeys from raiding. Threat avoidance prevailed over food appeal. But in the era of depopulation villages have become lowthreat places that no longer deter monkeys from entering. Today food appeal rather than threat avoidance determines the monkey's relationship with the village.

Blocking the Monkeys

Let us now look at how villages respond to this monkey problem. Perhaps the most obvious response is to block the entry of the monkeys into the village. Fencing is a widespread response to the general *engai* problem in rural Japan. Fences are erected around individual fields, around a wider area of farmland, and along the perimeter of the village (the boundary with the forest). Hard-mesh fences are used, sometimes extending horizontally at the top to form a roof above the field – a structure sometimes described as an *ori* or 'cage'. Resorting to 'cages' as a means of defending farmland from monkeys occasions wry comments from farmers. As one man in Owase in Mie Prefecture put it, 'for human beings to cultivate inside cages is a preposterous state of affairs, but as protection against damage this is the only method that works' (Chūnichi Shinbun 1997). The raiding monkeys were turning the village into a kind of human zoo!

There are other, less expensive and more easily maintainable fencing solutions available to the farmer. In recent years, flexible fencing, which is difficult for monkeys to climb over, has become popular. But simple fencing is likely to be less effective against the agile monkey than against other animals, as monkeys are able to climb over fences in a way that animal pests such as wild boar and deer cannot. This is the background to the spread of electric fencing in villages

suffering from *engai*. Unlike many of the other tactics used to try and stop *engai*, electric fencing

62

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has proved quite effective and has many champions in rural localities. The primatologist Fukuda Fumio has concluded that electric fencing is the only practical long-term solution to the problem of monkey damage in most of rural Japan (Fukuda 1992: 293). That said, electric fencing is not totally reliable. Monkeys sometimes climb over an electric fence by deftly avoiding contact with the live parts of the structure. Moreover, the effectiveness of electric fencing is conditional on proper maintenance, which is not always carried out. When a fence does short out, there may be a long delay in repairing it, and where this happens repeatedly the farmer is likely to lose faith in electric fencing.

Monkey intrusion into farmland can be blocked in other ways. In Japan there is a long-established practice known as the *sarunoban* or ‘monkey watch’ in which somebody is stationed near fields to protect them from monkey raids (see Knight 2003: 107–9). As the monkey is a diurnal animal, *sarunoban* is in principle a day-long, dawn-to-dusk undertaking (especially as harvest time approaches). Sometimes co-operation in field-guarding involves no more than two or three households with adjacent plots of farmland, as in the Hongū village of Ōtsuga where the members of three farming households take turns patrolling their ricefields in the weeks running up to the harvest in September. But as with many other areas of village co-operation (such as festival organization), collective field-guarding is said to have greatly declined in recent decades and farming households are more likely to guard their fields themselves.

Field-guarding, performed by both men and women, is known to be hard, hot work. One elderly man described to me the practice of field-guarding as follows:

‘Other people have given up guarding because it’s so hard If you knew what time they were coming, that would be one thing, but you don’t know, so you just go on guarding with no idea. It wouldn’t be so bad if, say, you knew that they were definitely

63

This page contains no comments

coming during the day ahead But you have to be ready to act at any time You sit there, holding on to the firecrackers [to throw at the monkeys], and you have to play the radio and the music throughout You just don't know when they will come. Just when you think they are not going to come, then they will suddenly come It's just at this sort of time [early evening] when the sun has set and it has turned dark and there is no longer a human presence [in the fields] that they'll [finally] come! [They come] in the evening [at dusk], at dawn, or they come during the day just when you leave the fields for a while ...'.

As these comments indicate, field-guarding is a battle of wits with the monkeys. The guard must stay alert throughout the day, making sure he avoids dozing off after lunch in the heat of the early afternoon. Where a number of fields have to be protected, the task is all the more demanding, especially if the field guard has to move about to keep all his farmland in view (such as where a field or part of a field is not in his line of sight or located in another part of the valley). Then there is the possibility the monkeys will raid the fields either before the field guard arrives or after he leaves.

Some farmers delegate the task of *sarunoban* to dogs. In Japan, dogs are known as the fiercest enemy of the monkey, an antagonism captured in the proverb, *yome to shūtome inu to saru*, 'like wife and mother-in-law, so dog and monkey'. Japanese breeds are often used for field-guarding against monkeys, but in some areas of Japan imported breeds may be deployed (for example, Shetland sheepdogs in Nagano Prefecture). However, the efficacy of posted guarddogs is said to be limited because the clever monkeys soon realize the dogs are confined and cannot harm them, and proceed to raid the fields with impunity. One option, of course,

might be for the farmer to release the dog so it can chase the monkeys back into the forest. But
the

64

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problem here is that dogs that chase monkeys may become so involved in the pursuit they end up getting lost in the forest¹.

Pushing Away the Monkeys

The purpose of fencing is to block the movement of monkeys towards village fields. But there is another possibility: reform of the behaviour of the monkeys. If monkeys were to learn to keep away from villages and not raid farmland, frictions with residents could be greatly reduced.

Fear-inducement is the basis of this approach. To get monkeys to keep away from the village, villagers must make it a frightening place for them. To this end, assorted scare tactics are used against the monkeys. *Kakashi* or scarecrows are a common sight in (or at the edge of) fields, especially vulnerable forest-edge fields, and are directed against monkeys as well as other kinds of animals. Typically life-size, the *kakashi* usually has a straw-filled body, a hat of some kind (a wide-brimmed straw hat, a bonnet, a peaked cap, or even a safety helmet), a face (a doll's head, a plastic noh mask, or just a pair of sunglasses), and is dressed in old clothes (a smock, a shirt, a blouse, a baseball top, a raincoat, and so on). The *kakashi* is usually in an upright standing position as this makes them most visible to monkeys from afar (although sometimes they are seated or slightly bent over holding a farming implement). Occasionally, the *kakashi* holds a toy gun (or a stick or rod resembling a gun) in the belief that monkeys are

¹ On the use of dogs to protect crops from monkeys, see Wada (1998: 98), Yoshida (2012), and Nishiyama (2012).

particularly fearful of armed hunters. Usually there is just a single *kakashi* in the field, but one sometimes sees large fields with kakashi placed on different sides.

65

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The widespread use of *kakashi* to protect fields against monkeys would suggest that there is a belief in their efficacy as an *engai* countermeasure. However, my impression is that they are seen as more effective against animals other than monkeys. In Japan the monkey is known as an intelligent animal and one often hears farmers say that ‘clever’ monkeys learn to ignore the *kakashi* because they notice they are stationary and do not move around like real people. For this reason the farmer may alter the position or appearance of the *kakashi* or even contrive to have the *kakashi* move (for example, by attaching to its rear a sheet of wood that catches the wind and makes the structure sway and turn). But many farmers still consider it only a matter of time before the monkeys sees through the ploy.

Other kinds of frightening imagery are used. A farmer in the Hongū village of Hoshinbo used the corpse of a trapped monkey, hung upside down near the field, to keep monkeys away from his crops (Knight 2003: 104). Alternatively, images or models of scary-looking creatures may be used. In some areas huge billboards of Godzilla – the conqueror of King Kong in the famous 1962 film King Kong versus Godzilla – are erected at the edge of the village facing the forest in order to protect farms (Nomoto 1994: 136). Home-made life-size models of orang-utans have been used to protect fields in the belief that Japanese monkeys would be deterred by the presence of such ‘monkeys’ so much bigger than themselves (Nishi Nihon Shinbun Chōkan 1998). In Okazaki City in Aichi Prefecture a solar-powered animatronic tiger has been used to frighten away raiding monkeys (Suzaki 2010).

In recent years a campaign has been launched to intensify the fear factor by mobilizing villagers to behave in a more threatening way towards encroaching monkeys. The emphasis is on villagers to confront in a noisy and aggressive way monkeys that appear in and around the village in order to give them a fright. The idea is that, even if the monkeys have become bold

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enough to try and raid the fields, the frightening encounter with the villagers will henceforth dispose them to keep away.

This counterhabituation strategy is associated with a man called Inoue Masateru, an agricultural extension official working for Nara Prefecture, in collaboration with a number of primatologists, including Muroyama Yasuyuki. Inoue argues that monkeys raid village farmland not just because there is food available there, but because they encounter little resistance when doing so and lose their erstwhile fear of humans and human space. Under the conditions of rural depopulation, the monkeys in the surrounding forest become bolder in their behaviour and prepared to raid the villages they once avoided. Monkeys do not necessarily flee when the farmer appears, while in some cases monkeys (especially adult males) aggressively approach the people they encounter (Izawa and MSC 2005: 81).

In this situation, one way in which the village can start to make monkeys fearful of humans is by what is known as *oiharai* (or *oiage*) or ‘monkey chasing’. The practice of *sarunoban* was described earlier, and superficially this may resemble *oiharai*. But *sarunoban* is a somewhat passive measure, aimed at blocking monkey access to crops. *Oiharai*, on the other hand, goes further and entails the aggressive pursuit of the monkeys as they flee back to the forest.

To have maximum effect, the monkey-chasing tactic should deploy a large number of people, use loud noisemaking accessories such as firework rockets, attack the monkeys from different directions, make the assault from high ground (as this is believed to make the monkeys feel more vulnerable), and deny the monkeys the opportunity to make an easy escape (by

anticipating the likely escape path and posting people there) (Izawa and MSC 2005: 40–1). The monkey-chasers' sudden assault from all sides should throw the troop into a state of panic (ibid.:

67

This page contains no comments

40). Ideally, the monkeys learn from this experience that the village is an intolerably dangerous place and therefore opt to shift or re-centre their range back towards the forest.

The scale of the human presence in depopulated villages is much less than it was, and this, in large measure, is the source of the village's vulnerability to animal intrusion. But Inoue's argument is that remaining villagers need to compensate for their diminished numerical presence by acting more assertively towards the animals they encounter in order to help restore the animals' fear of humans. The village must become a place that animals find difficult and risky to enter and, even when entered, uncomfortable and frightening to spend any time in. Inoue and his group advocate what amounts to a policy of zero tolerance, whereby villagers collectively refuse to tolerate any monkey presence in and around the village. When a monkey is sighted, villagers must instantly react with an unambiguous, unremitting hostility towards it. The aim is to impart to the monkeys the message that *ningen wa teki da* or 'humans are the enemy' (Inoue 2002: 2) and that the village is enemy territory that is best avoided.

The key point of the campaign is that fencing alone cannot be the solution to monkey encroachment. Although physically impressive, fences by themselves are unlikely to be enough to keep resourceful monkeys out of the village. What is required is a rounded response that involves not just *butsuriteki shōheki* or 'physical barriers' to monkey entry, but also *shinriteki shōheki* or 'psychological barriers' (Muroyama 2003: Ch.6). Villagers must exert a *shinritekina puresshā* or 'psychological pressure' on the monkeys that is strong enough to deter them from entering the village (Inoue 2002: 93). The best kind of fences for keeping monkeys out, in other words, are not the physical ones that can be seen, but the psychological ones that cannot be seen (ibid.: 28). Ultimately, an active rural citizenry prepared to confront monkeys encountered in and around the village is the key to reversing the advanced state of monkey habituation that

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underpins the present-day scale of *engai*. If *engai* monkeys meet with a consistent and uncompromising hostility from villagers, they will eventually become wary of approaching the village.



Pulling Away the Monkeys

In the previous sections of this paper, monkey colonization of human spaces has appeared as the basic problem underlying *engai*. It followed that the solution lay in humans resisting and even reversing this advance of the monkeys. In this section I shall consider an alternative response: the exploitation rather than the reversal of monkey encroachment. Instead of pushing monkeys back to the forest, intensify the pull of the human zone. Use the appeal of the human foods to assert human control over the monkeys in a way that both exploits them as a resource and neutralizes them as a pest.

One site of crop-raiding after the Second World War was at the foot of Takasakiyama. Takasakiyama is a coastal mountain that falls within the municipality of Ōita City on the northeast coast of the island of Kyushu in southwestern Japan. In the late 1940s and early 1950s, the monkeys on this mountain became a serious pest, damaging crops on nearby farmland.irate farmers tried to repel the monkeys and some demanded they be eradicated.

The local mayor responded by proposing a very different kind of solution to the problem. He suggested that City Hall should create a park on the mountain in which to feed the monkeys on a daily basis and allow them to serve as a tourist attraction. In the process, the monkeys

would be diverted from farmland because monkeys that regularly feed in the park would have no need to raid the farmer's crops. The mayor claimed that his idea of feeding the Takasakiyama

69

Page: 70

Sequence

number: 1 Author:

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 monkeys then become more fearful or more aggressive or even more nocturnal in their 'raiding' patterns?

monkeys would ‘kill two birds with one stone’: it would create a tourist attraction and solve the monkey pest problem at one and the same time (Ueda Tamotsu, in Nakagawa 2003: 126).

If one thinks about it, *engai* itself is due to the attractive power of food. Villages inadvertently pull monkeys in to feed on farmland crops. When farmers block and push away monkeys, they are attempting to deny the monkeys access to the crops by means of some form of physical obstruction. But there are clearly problems with this strategy: monkeys may get through or around physical barriers or raid when the field guard has fallen asleep or gone home. The mayor’s provisioning proposal offered a neat alternative: it would use the underlying cause of the crop raid – food appeal – to defeat the crop raid. Food appeal would divert the monkeys away from farmland to the feeding station.

However, provisioning, narrowly conceived, was open to the following, fairly obvious objection: that providing food crops to monkeys to protect food crops from monkeys was selfdefeating and contradictory because in the end valuable human food would be lost to monkeys in any case. Recalling the above characterization of *engai* monkeys as ‘thieves’, one is tempted to offer the analogy of paying thieves not to steal. Yes, one stops the act of theft, but only by giving the thief what he was intent on stealing. If, in this way, one defeats the monkey thieves, this is surely a hollow victory. In other words, in its simple diversionary form, provisioning would be deficient.

This is where the second part of Ueda’s idea comes in: by linking provisioning with touristic display, he could argue that providing food to monkeys to protect human food did make sense because the food given out would additionally bring in tourists willing to pay to see the

monkeys attracted by it. As Mayor Ueda saw it, provisioning would not just pull monkeys away from fields, but also ultimately pull in tourists to see the monkeys. In return for the food given

70

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away to the monkeys, the human side would benefit in terms of farm protection and tourism promotion.

The mayor's monkey tourism scheme had an appealing simplicity to it. It suggested that the relationship between local people and monkeys could be transformed, almost at a stroke, from one in which monkeys undermined local livelihoods to one in which they contributed to the local economy. The linkage of provisioning with crop protection was also important politically, as it potentially broadened support for the mayor's initiative, especially among the farmers directly affected. Presented in this way, the organized feeding of the monkeys would not be a pro-tourism measure at the expense of farming, but a cross-sector initiative that would serve the interests of both tourism and farming.

The mayor implemented his idea and in the spring of 1953 'Takasakiyama Natural Zoo' opened. The monkeys proved a big hit with the public, drawing huge crowds of visitors. More than half a million people came to the park in its first year of operation, and this annual figure steadily increased in subsequent years, so that, by its tenth year, the park was attracting almost a million and a half visitors a year (Takasakiyama 1998: 26). Takasakiyama had become (to use a term that appeared in one newspaper article on the park) a *takara no yama* or a 'treasure mountain' (Yomiuri Shinbun 1995) or (to recall another newspaper term applied to the park) a *dorubako* or 'goldmine' (literally, 'dollar box') (Ōita Gōdō Shinbun 1971). The mayor's monkey feeding initiative had created out of nothing one of the most popular attractions in the country.

Inspired by the mayor's initiative, localities in different parts of the country were soon opening their own parks – overall, forty-one monkey parks were opened (nineteen in the 1950s, seventeen in the 1960s, and five in the 1970s) (see Knight 2011: 35–6).

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In terms of farm protection, however, provisioning has been less successful. Regular provisioning did not instantly make *engai* a thing of the past, as reports of monkey damage in nearby settlements continued to emerge after the parks were up and running. A 1959 survey of monkey parks found that, following the onset of provisioning, monkey damage decreased in only four out of twelve parks, while in two parks the level of monkey damage had actually increased (Itani 1959: 39). More recent reports indicate that provisioning may well precede – and, by implication, cause – crop-raiding (Hayashi and Watanabe 2000: 86; Mito et al. 2000: 50). The precise effect of provisioning would therefore seem to vary from place to place, and while it might be an effective crop protection measure in some localities, elsewhere it can have the opposite effect².

In the long run, provisioning in response to crop-raiding proves to be counter-productive and results in monkey damage on a larger scale. Provisioned troops change their ranging behaviour and relocate away from the forest to the area around the park. This relocation of the troop range towards the park means that, even if the immediate incidence of crop-raiding declines because of the diversionary effect of the park as an alternative feeding ground, the potential for crop-raiding inevitably increases because the park tends to be part of the *satoyama* zone of the mountains that adjoins human settlements. A second reason why provisioning does not divert monkeys from farms in the long run is that it introduces monkeys to human food produce. The monkeys become accustomed not just to the food of the park, but to

² A key consideration here is the effect that provisioning tends to have on reproduction – see Knight (2011: 41122).

humanproduced food more generally, including the crops grown by nearby farmers. The third reason why provisioning leads to crop-raiding is that it habituates monkeys to humans. Although

72

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unprovisioned monkeys too become habituated to humans and this is an important factor in *engai* in general, the fact remains that the extent of habituation is much greater with the provisioned monkeys of the parks³.

These have not been the only responses to monkey crop-raiding in post-war Japan. Another response is monkey capture and culling. In post-war Japan the monkey was de-listed as a game animal, as a result of which it cannot be hunted for commercial or recreational purposes. Yet monkeys are, in effect, hunted (more precisely, trapped) in large numbers as pests. In the ten-year period 1989–98, an average of more than six thousand monkeys were culled or removed as nuisance animals each year (Sprague 2002: 260). The figure increased to more than ten thousand a year in the late 1990s and went on to reach 14,000 in 2004 (Kawai 2009: 20). Primatologists are concerned about this high rate of culling, which, along with habitat degradation due to the spread of timber plantations, they see as ‘the major current threat to the ecological security of Japanese monkey populations’ (Sprague 2002: 261). Yet culling does have a measure of support among local farmers⁴.

The Transfiguration of *Engai*

This chapter has described various ways in which humans interfere with the mobility of pest monkeys. But this human interference also has a larger effect, one which changes the way in

³ Provisioned monkeys in the monkey parks do sometimes act aggressively towards people (see Knight 2011: 2334, 241-2). However, the level of macaque violence towards people in Japan appears to be considerably less than that reported for some groups of macaques in China – Zhao and Deng (1992).

⁴ There are, however, other reports that suggest more mixed feelings about monkey culling even in affected communities – see, for example, Watanabe and Ogura (1996: 10).

which the *engai* problem is perceived. For when humans intervene in monkey mobility, they are prone to become associated with, and even held responsible for, any negative effects of that

73

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mobility. In other words, monkey mobility becomes human-associated monkey mobility – something for which one group of humans can blame another group of humans. The negative effects of human-altered monkey mobility come to be seen as human-caused instances of damage.

One example of this is where one farmer's 'block' or 'push' response has a knock-on effect on other nearby farms. By blocking out the animals through fencing or by pushing away the animals through *oiharai*, the farmer tends to deflect the problem onto neighbouring farmers. Or again where one village protects itself from *engai* through fencing and/or *oiharai*, it may end up deflecting those monkeys onto the farmland of an unprotected (or at least less well protected) adjacent village. In both cases the party that has had the monkeys deflected onto it is forced to protect itself by following suit and erecting fencing or practicing *oiharai* itself. In this way, there develops a kind of chain reaction in response to *engai*. But in this situation the parties incurring monkey damage as a result of the protective measures taken by neighbours may well see these neighbours as responsible for the damage incurred. The actions of that farmer (or that village) caused the damage to my farm (or my village), requiring that I undertake expensive or burdensome protective measures too.

Something similar occurs with the pull strategy. We saw above how provisioning can become a cause of *engai* in park-edge settlements. This is likely to lead to affected farmers blaming the park for the damage. In the park-edge theatre crop-raiding monkeys are firmly associated with the parks. Although parks may represent the monkeys as 'wild monkeys', villagers tend to see the monkeys as belonging to the parks that feed them (see Knight 2011: 398–9). Moreover, they readily assume that all monkeys in the area are provisioned monkeys

attached to the park. Consequently, any monkey damage around the park tends to be attributed to

74

This page contains no comments

park monkeys. When local people complain about monkeys, they are implicitly – sometimes explicitly – complaining about the parks deemed responsible for them and their high numbers.

The monkey parks may well dispute this charge. Park managers point out that not all monkey troops in the area are provisioned and that unprovisioned monkeys could therefore be responsible for the damage. After all, most *engai* in Japan exists in localities where there are no monkey parks. In some cases, managers refer back to the existence of *engai* caused by unprovisioned monkeys in the local area in the days before the park was established (and, in part at least, in response to which provisioning was initiated in the first place). But this refusal by the park to accept responsibility for park-edge damage tends to go down badly with affected residents, further polarizing the relationship between the park and the local community.

What this means is that the local perception of *engai* changes. Whereas once *engai* was experienced as a conflict between humans and monkeys, it comes to be seen as a conflict between humans. *Engai* now points beyond the monkeys themselves to the people deemed to have directed or redirected them to the victim's farmland.

Conclusion

In a recent book on monkey parks in Japan called *Herding Monkeys to Paradise*, I examined how humans control monkey troop movements for the purpose of touristic display (Knight 2011). In this paper I have returned to the theme of human-induced monkey mobility in Japan by looking at three different responses to the problem of crop-raiding. We have seen that none of these three responses is wholly effective. Blocking monkey access to fields is a hit-and-miss affair because monkeys can learn to penetrate fences or bypass guards. Pushing or chasing away

raiding monkeys requires a level of manpower that many Japanese villages today no longer have. And

75

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pulling monkeys away from fields to a feeding station, while it may succeed in diverting the animals in the short term, can prove counter-productive longer term as monkey numbers and levels of habituation increase and crop-raiding in park-edge settlements becomes a major problem.

Engai also becomes a conflict between people. Antagonism can arise between farmer and farmer but also between farmers and those involved in monkey tourism. Although, in theory the interests of farmers and tourist operators were supposed to become aligned through provisioning, in practice many farmers hold the tourist operators of the park responsible for the monkey damage to their crops. Provisioning was supposed to help tackle crop-raiding by pulling monkeys away from the fields, but it has had the effect of pulling the monkey tourism sector into the crop-raiding problem.

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