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Editorial Open Access

An Online Forum for Exchanging Ideas for Dealing with Issues of Pest Monkeys

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Habitat countries for nonhuman primates worldwide have witnessed increasing degrees of conflict between humans and feral monkeys over the last several decades. Primatologists and conservation managers are often at a loss of how best to deal with the issue because, more often than not, the conflict is owed to, or exacerbated by, inappropriate human practices rather than to monkey behavior, per se. Although countries and the primate species involved differ, as do local situations, there are basic elements common to most such conflicts. The practical solutions to finding workable approaches to reducing human-monkey conflict situations appear to be fairly straight forward compared to the greater challenge of overcoming ingrained cultural attitudes, inappropriate knee-jerk reactions by the public and authorities, and misunderstanding among policy makers and their wildlife management bureaucracies. It is hoped that this open access publisher of the OMICS Publishing Group with its facilities for language translation, social networking and audio enhancement can serve as a useful forum for informal information sharing about successful approaches both in reducing human-monkey conflicts and in implementing them by way of wildlife managers.

Publications on human-monkey conflicts appear to be rare compared to local reports, word-of-mouth communications and media clippings. My perspective in this editorial is based primarily on my four decades of primate field research in Sri Lanka and brief visits to other countries in the region, discussions and conferences with colleagues and managers. This consideration excludes the mindless mass killings of wildlife and habitat destruction that occurs as a result of logging and similar commercial operations in far too many tropical regions. I confine myself to environmental contexts where nonhuman primates still survive near humans such that conflict between them can even occur.

Primates become pests for one reason only: they seek easy to obtain food and water near human habitation. Macaques, baboons and guenons (Sub-family Cercopithecinae) having more or less omnivorous diets, and adventurous inclinations, are far more likely to adopt new food types in human modified environments than are their more strictly leaf-eating cousins of the Sub-family Colobinae. That is not to say that some, like the hanuman or gray langur of the Indian subcontinent and Sri Lanka cannot become pests: they do. With persistent and often insistent feeding by humans these less likely candidates for commensalism too; have been converted to the easy life of raiding. You might ask what harm can be done by donating human food to monkeys, it is after-all motivated by a benign and well-intentioned sentiment? The sentiment, of course is a salvation for monkeys in countries with strong Hindu and Buddhist traditions. The problem arises because artificial feeding leads to changes in monkey behavior and population ecology and to an overpopulation of tame, sometimes aggressive, monkeys near human habitation.

In natural undisturbed forest or savannah primate habitats, in which primates evolved and to which they are well adapted, the numbers of primates in any population are kept in check by the availability of natural food sources and water. Although disease and predation may have a temporary depressive effect on local population numbers, over the long term, zero-population growth is the rule for primate populations in stable environments, or, their numbers wax and wane with changes in environmental quality. The effect of crops, garbage and purposeful feeding of monkeys is to release the natural cap on population growth. An empirical example of this is clear from our studies at Polonnaruwa, Sri Lanka, where two groups of toque macaques (*Macaca sinica*) with overlapping home ranges had different degrees of access to human refuse. Over a thirty-year period the group with less than 2% garbage in their diet remained stable in size or actually declined slightly in numbers, whereas the one with more than 30% of human food in their diet increased exponentially, or 5 fold in number (Figure 1). The pattern is common to all primate species where human food is accessible to them. In towns, villages, tourist sites and temples, where food refuse is often disposed openly, monkeys are a common occurrence and their numbers grow. At the same time, inappropriate human behavior, such as offering food to monkeys, converts them into aggressive pests that raid property.

Different countries have applied different solutions to controlling

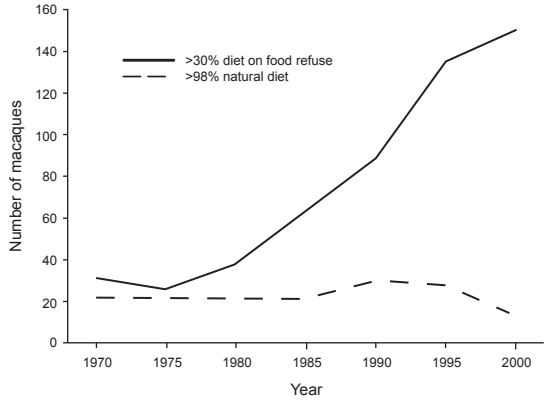

Figure 1: Contrasting the population growth of two neighboring groups of toque macaques (*Macaca sinica*) at Polonnaruwa, Sri Lanka, that differs in the degree of human food refuse in their diets, over a thirty year period.

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monkey numbers: killing, sterilization, and trans-locating. Culling is not ethically or politically acceptable in some countries and is pointless (see below). Sterilization of monkeys, either surgically or with hormonal implants, ought to target females, rather than males, as they are the bottle-neck for birth rates. However, the procedures are laborious, require well qualified personnel, are expensive and ultimately their effects are short-lived. The method has been applied with some success in smaller populations, such as are found in Hong Kong, but it is impractical on a larger scale. Capturing and trans-locating pest monkeys into rural or forested areas is a popular approach among many bureaucrats because of its political, albeit deceptive, appeal. By themselves, none of these methods are effective in the long-term in controlling pest monkeys because they address the symptom (too many monkeys) and ignore the root cause of primate population growth. As long as monkeys have access to human crops or food scraps monkey numbers will grow. Sites where monkeys have been removed by culling or trans-locating will be repopulated from neighboring monkey populations that are attracted to the ecological void left by the removed monkeys. Translocation is particularly inappropriate on several counts: (a) monkeys are injured and killed in the capture and transport and release process. (b) If the site of release is a natural forest or protected area with resident primates of the same species, the transferred newcomers clash in territorial disputes with resident monkeys, the carrying capacity of the habitat for that species is exceeded and monkeys are subject to mortality. (c) In areas of India and Sri Lanka, street-wise monkeys from towns or tourist sites have been transported and released into rural areas with the drastic result of aggressive town monkeys causing havoc in places where, over millennia, villagers and local forest-dwelling monkeys had lived more or less peacefully in mutual respect and exclusivity. Basically, problem monkeys from well-to-do townships are dumped into rural communities having lesser political and economic clout. Translocating monkeys should be banned on grounds of this sociopolitical abuse of poor human communities alone. (d) Trans-locating monkeys of one subspecies into the habitat of another undermine biodiversity and cloud the genetic history of the species in scientific studies.

The solution lies not in controlling pest monkeys after their numbers have already grown and developed aggressive attitudes towards humans, but in preventing their numbers from growing in the first place. This is achieved best by implementing measures to prevent monkeys from gaining access to human food. Limiting food and water supplies reduces monkey numbers because it slows their birth rates, delays their age of reproductive maturation and impacts their survival. The importance of this basic biological principle and its application to preventing monkey's access to human foods has been recognized and acted upon by several nations. In Singapore, for example, the deterrent for feeding monkeys can be a fine of $50,000 and a 6 months jail term. Similar legislation has been adopted in many countries. But the threat of fines alone merely may discourage some people; it needs to be accompanied by other measures, such as the installation of monkey-proof garbage disposals, safe-guarding of crops, and in particular, the education of the public and wildlife authorities to adopt more effective measures to prevent the build-up of large numbers of pest monkeys. The challenge is particularly strong at the extremes of public sentiments towards monkeys: religious donations to monkeys as deities on one hand, and unsympathetic eradication on the other. It is hoped that a forum for the exchange of ideas on this topic may contribute to conservation and a reduction of human-monkey conflict.