

Less than wild? Commensal primates and wildlife conservation

Sometime in the early 1940s, just after the outbreak of the Second World War, a very unusual consignment waited in the shipyard of the Mumbai (then Bombay) port for deportation. Freight space being shaped by war demands, the fate of this particular non-essential cargo hung in the balance for some time. Finally, it was decided that it was not possible to export the monkeys, which constituted this singular shipment, at that time and that they should be released. This was, of course, one of the many consignments of rhesus macaques that were shipped from India to laboratories in North America and Europe in the 20th century until the ban in 1978 (Ahmed 2001; Rao 2003). In what was probably intended as a kind gesture, the box load of rhesus macaques were released in and around Mumbai (Serrao and Amladi 1979). Until then, the only species of macaque that was found in Mumbai was the bonnet macaque, *Macaca radiata* (Serrao and Amladi 1979), as the natural geographical limit of the rhesus macaque, *Macaca mulatta*, in western India was further north, around the river Tapti (Fooden *et al.* 1981; Koyama and Shekar 1981).

Although the particular contours of this tale are rather uncommon, the practice of humans transporting monkeys outside their natural geographic realms itself is not very infrequent. Humans have been responsible for the introduction of macaque species in many parts of the world that has resulted in either an extension of the geographical range of the species or the creation of new exotic populations of the species (Fooden 2000; Long 2003). Perhaps the earliest of such cases was the introduction of bonnet macaques (that are endemic to southern India) to the Mascarene Islands, east of Madagascar, by Portuguese sailors in the 16th century (Fooden 1981). The Taiwanese macaque was introduced to Japan, the long-tailed macaque to the Tinjil Island of Indonesia, and several species of macaques including the pig-tailed macaque, Japanese macaque, and Tibetan macaque were introduced to Kowloon, Hong Kong (Southwick and Southwick 1983; Kyes 1993; Burton and Chan 1996; Kawamoto *et al.* 2001). In 1938, over four hundred rhesus macaques were transported from India to the island of Cayo Santiago, near Puerto Rico; since then, this island of free-ranging, provisioned monkeys has functioned as a research facility of the Caribbean Primate Research Center (Rawlins and Kessler 1986).

1. How do we harm thee? Let us count the ways

Primates, with their dependence on tropical forests and fruit-bearing trees, number among the most highly threatened animal groups in the world. The IUCN (2010) Red List classifies nearly half the world's primate species (48% of 634 species) as threatened with extinction. *Primates in Peril*, an effort at recognizing the world's 25 most endangered primates, identifies hunting, trade, loss of habitat, forest fragmentation and habitat disturbance as the most critical factors that endanger the future survival of many species. The multiple impacts of these factors on the dynamics of primate communities are well known, and conservation efforts typically focus on mitigating or resolving these threats. Traditionally, introduced species have not been considered a major threat for primates, primarily because common invasive species originate from temperate Eurasia and therefore do not affect primates either through competition or predation (Cowlshaw and Dunbar 2000). Hence, the long-term effects of bringing together primate species that were historically separated by large geographic distances have only rarely been examined in any detail.

Introductions of non-native macaque species into areas where a native species already exists typically results in the creation of hybrid individuals. In Wakayama Prefecture in Japan, for example, macaque

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populations produced by the hybridization of native Japanese macaques and introduced Taiwanese macaques has been a cause of much concern, and governmental efforts have been launched to eliminate such populations (Kawamoto *et al.* 2001; Kawamoto 2005). Similarly, hybrid macaques are also known to occur in Kowloon, Hong Kong, where, as mentioned earlier, many species of exotic macaques have been introduced over the years (Burton and Chan 1996). However, altering the geographic ranges of primate species can also have other far-reaching consequences, as was recently demonstrated by a study by Kumar *et al.* (2011) on the geographical limits of the rhesus and bonnet macaque in India. Thirty years ago, the bonnet and rhesus macaque had separate geographic ranges in the southern and northern regions of the country; the river Tapti in the west, river Godavari in the east and the semi-arid Deccan plateau in central India formed natural geographic barriers to the spread of the two species (Pocock 1939; Prater 1971; Roonwal and Mohnot 1977; Fooden 2000). Today, however, the rhesus macaque has extended its geographical range in India into the southern peninsula, while the bonnet macaque has been eliminated from many areas within its former distributional range (Kumar *et al.* 2011). The southward movement of the rhesus macaque may have been partly due to land-use changes occurring along the river Godavari, not to forget the manmade bridges, which facilitated the spread of the species. The authors argue that a critical factor that propelled this spread of the species into peninsular India was the multiple translocations of species – typically aggressive rhesus macaques into the range of the bonnet macaque, leading to escalated conflict also with people living in these areas.

Rhesus macaque–human conflict is a major issue in many parts of the country, and the usual solution demanded by people affected by the conflict is translocation of the problem macaques (Chaudhuri 2007). Over the past few decades, hundreds of rhesus macaques have been translocated in Andhra Pradesh from the urban conflict-ridden parts of the state into villages abutting forest patches or Protected Forest Areas in the southern parts of the state. This influx has led to the widespread establishment of the rhesus macaque, accompanied by the disappearance of the bonnet macaque in these areas (Kumar *et al.* 2011). Apart from actual loss of geographic range sustained by the endemic bonnet macaque (the rhesus macaque has extended its distributional limits by approximately 3500 km² in southeastern India, an area that is now almost devoid of bonnet macaque groups), group sizes have also reduced considerably in these areas along with striking changes in the age–sex composition of these groups (Kumar *et al.* 2011; Kumar *et al.*, submitted).

Apart from the academic interest it piques, the study by Kumar and his colleagues is instructive for two points it raises – one, the many secondary, and unacknowledged, ways in which human actions threaten primate survival, and two, the indifference and disregard with which many commensal primates are treated. Based on their study findings, Kumar *et al.* (2011) recommend a re-evaluation of the IUCN conservation status for the bonnet macaque. Earlier studies have reported the disappearance of or decrease in bonnet macaque numbers in many parts of Karnataka, possibly due to hunting, trapping, translocation and changes in land-use patterns (Kumara and Singh 2004; Singh and Rao 2004; Kumara 2007; Kumara *et al.* 2010). In their paper on the conservation status of the bonnet macaque and the Hanuman langur in Karnataka, for example, Kumara *et al.* (2010) caution that these common primates are decreasing gradually and may soon become locally extinct unless conservation actions are taken to prevent this natural calamity. Yet, it is unlikely that any conservation plans will be formed in a hurry to redress issues that ail the bonnet or the rhesus macaque, commonly perceived as pest species that need no protection.

2. Do commensal primates merit least concern?

Commensalism has traditionally been defined as a relation between two kinds of organisms in which one obtains food or other benefits from the other without damaging or benefiting it in any way (Douglas 1994). When applied to primates (and many other mammal species), however, the term is more loosely used to mean living in association with humans and benefiting from them (Bronson 1984; Southwick and Siddiqi 1994; Lee and Priston 2005). Some primates, notably the macaques of Asia and the baboons of Africa, display a striking ability to thrive near human habitations, feeding on human foods and living in urban areas. In particular, the macaque affinity for human spaces, more prominent in some species than in others, led Richard *et al.* (1987) to categorise macaques as belonging to two ecological groups – weed macaques that ‘depend on and compete with people through much of their range’ and non-weed macaques that ‘reach their highest density in forests where they have little or no contact with people’. The long-tailed

macaque *Macaca fascicularis*, rhesus macaque *M. mulatta*, bonnet macaque *M. radiata* and the toque macaque *M. sinica* are considered weed macaques, while the remaining 16-odd species belong to the other category. With strikingly different life-history strategies (Singh and Sinha 2004), weed macaques appear to be more ecologically successful and have a greater geographical distribution than do non-weed species, and are more common and abundant within their distribution zones. In many areas of their distribution range, they also resort to crop and kitchen raiding, leading to conflict situations that result in financial damage and injuries to both humans and the macaques.

Due to their common status, commensal macaques rarely incite any conservation fervour. Indeed, the case of the bonnet and rhesus macaques in India is a telling example of the scant attention that such commonly found species have merited, even from conservationists. Labelled 'Least Concern' by the IUCN Red List, bonnet and rhesus macaques are used indiscriminately in laboratories, kept as pets, and traded and translocated arbitrarily across the country. From a biological perspective, these species are remarkable for their capacity to adapt to practically any kind of habitat. Culturally, though, this ecological flexibility that permits them to flourish in forests as well as cities, labels them as less than wild and, hence, less deserving of concern. Commensal primates enjoy a strange and complex relationship with their human counterparts. In many cultures across the world, primates are deified as a representation of spiritual power and these beliefs, it is claimed, serve to protect them (Southwick and Siddiqi 1994; Cowlshaw and Dunbar 2000). Certainly, some studies attest that religious beliefs do protect monkeys from being killed, even when their crop depredations have caused irreparable financial losses to farmers (Wang *et al.* 2006; Riley 2007; Jhardhari *et al.* 2008; Saraswat 2010). Equally, large numbers of macaques have been killed or trapped in response to human conflict situations, despite prevailing religious/cultural values that deem this to be iniquitous (Singh and Rao 2004; Nijman and Nekaris 2010). A different perspective is offered by Fuentes *et al.* (2005), when they suggest that reverence and protection for the temple monkeys in Bali stem, not from human beliefs about the innate sanctity of the monkeys, but from the monkeys' position as residents of a 'sacred geography'.

Most conservation biologists will agree that all living species must be protected, not only because they possess ecological, economic and cultural value, but also for ethical reasons. In practice, however, some species are considered more worthy of protection than are others. Such decisions to extend greater protection to certain species is usually based on the degree of extinction risk the species faces and/or its evolutionary uniqueness (Cowlshaw and Dunbar 2000). The origins of wildlife conservation and management lie in attempts to preserve hunting grounds that functioned as economic resources for certain classes of people. Although this philosophy in time changed to a more inclusive approach, with the emphasis today on integrated conservation efforts that involve elements of sustainable utilisation and community conservation, it is not surprising that commensal primates do not feature on our list of animals to be saved. Their greatest fault is, perhaps, that they are too much like us – common and hardy, true survivors. Maybe our unconcern for them is the greatest compliment we could pay them – we treat them in exactly the same fashion we treat our human brethren.

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