Macaca fascicularis (crab-eating macaque) are native to south-east Asia and have been introduced into Mauritius, Palau (Angaur Island), Hong Kong and parts of Indonesia (Tinjil Island and Papua). They are considered to be invasive, or potentially invasive, throughout their introduced range and management may be needed to prevent them from becoming invasive in areas such as Papua and Tinjil. They are opportunistic mammals and reach higher densities in degraded forest areas, including habitats disturbed by humans. They have few natural predators in their introduced ranges. Macaca fascicularis impact native biodiversity by consuming native plants and competing with birds for fruit and seed resources. In addition, they facilitate the dispersal of seeds of exotic plants. Macaca fascicularis may also impact on the commercial sector through their consuming of agriculturally important plant species and damaging of crops.

Species Description
Upper parts dark brown with light golden brown tips, under parts light grey; tail dark grey/brown and equal to head and body length. Crown hairs directed backwards; sometimes forming short crest on mid-line. Skin is black on feet and ears, muzzle light greyish pink. Eyelids often with prominent white markings, white spots sometimes seen on ears. No perineal swelling. Males 3.5kg - 8.3kg; Females 2.5kg - 5.7kg.

Notes
Natural predators of crab-eating macaques (Macaca fascicularis) include large carnivores (panthers and sun-bears in Java), snakes and possibly large raptors. Some primate taxonomists consider M. fascicularis to be more of a species group or superspecies, as it has a complex relationship with other species such as M. mulatto, M. cyclopis, and M. fuscata.
Lifecycle Stages
Gestation 167 days. Lactation 14-18 months. Duration of oestrus 11 days. Females become sexually mature at 4. Live up to 25 years on average; up to 37 years in captivity. Sex ratios within troops usually biased towards females.

Uses
In their natural range, crab-eating macaques (*Macaca fascicularis*) are occasionally used as a food source for some indigenous forest dwelling peoples. In Mauritius, they are sold to the pharmaceutical industry with a value of approximately US$1500 per individual, and in Angaur, Palau they are sold as pets.

Habitat Description
Crab-eating macaques (*Macaca fascicularis*) inhabit a wide range of habitats including riverine, secondary and primary forest, forest periphery, mangrove and nipa swamp, coastal forest, and urban and agricultural settings, in both their natural and introduced range. They have a preference for secondary habitats which have been disturbed by human activity and are highly adaptive to new environments. Occur from sea level to 1200m and can travel at least 1828m in their natural range.

Reproduction
Placental. Sexual. Polyoestrous. May breed at any time of year. They typically give birth to single young, rarely twins, every two years.

Nutrition
Herbivorous: Fruit and seeds make up 60 - 90% of the dietary intake of macaques. They will also eat leaves, flowers, roots and bark. 
Carnivorous: They prey on vertebrates (including bird chicks and nesting female birds) and invertebrates.
Omnivorous: In Mauritius they have been recorded eating bird eggs.

General Impacts
Crab-eating macaques (*Macaca fascicularis*) may negatively impact biodiversity by eating the eggs and chicks of endangered forest birds. They compete with native birds for resources such as native fruits. They may aggravate the negative effects of exotic plant species by consuming their fruits and aiding dispersal of their seeds. Macaques feed on sugar cane and other crops, affecting agriculture and livelihoods, and can be aggressive towards humans. Macaques may carry potentially fatal human diseases, including B-virus.
Management Info
Preventative measures: Plantations of Japanese red cedar (Cryptomeria japonica) appear to provide protection to native birds (and eggs) from the predation and scavenging of macaques. Quarantine measures need to be more effective in places such as Papua (Indonesia) to prevent the range expansion of the current population.
Physical: In Mauritius live-trapping has been carried out for export and research. Socio-religious reasons may mean this solution is not appropriate. Animals may become trap-shy. Local communities in Papua and Palau have hunted macaques with some success.
Biological: The immuno-vaccine Porcine Zona Pellucida (PZP) (which causes infertility in females) is currently being trialled in Hong Kong to investigate its use as a population control.

Pathway
Introduced by acclimatisation societies.


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Review: Neville Kemp, Indo-Pacific Conservation Alliance.

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ALIEN RANGE

Red List assessed species 7: EX = 1; EN = 4; VU = 2;
Coffea myrtifolia EN
Foudia rubra EN
Lophopsittacus mauritianus EX
Psittacula eques EN
Falco punctatus VU
Hypsipetes olivaceus VU
Nesoenas mayeri EN

BIBLIOGRAPHY
14 references found for Macaca fascicularis

Management information

Summary: Confidential report summarising the problems posed by crab-eating macaques on Mauritius and the feasibility of humane population control.


Summary: Eradication case study in Turning the tide: the eradication of invasive species.


Summary: General paper on mammal invaders to islands and the effect they can have on endemic fauna. General information on management strategies deRuiters, J.R. 1992. Capturing Wild Long-tailed Macaques (Macaca fascicularis), Folia Primatology 59: 89 - 104.

Summary: Effective techniques for capturing macaques

IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. Summary: The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on taxa that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on taxa that are categorized as Extinct or Extinct in the Wild; on taxa that cannot be evaluated because of insufficient information (i.e. are Data Deficient); and on taxa that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme (i.e. are Near Threatened).


Summary: A comprehensive source of information on characteristics, distribution, management, impacts and risk assessment of crab-eating Macaques (Macaca fascicularis).


General information


Summary: History of all land vertebrate introductions on Mascarene Islands, including Macaca fascicularis and its effect possible impact on endemic vertebrates.

ITIS (Integrated Taxonomic Information System). 2004. Online Database Macaca fascicularis

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.


Summary: This paper contains information on the management of long-tailed macaques on Tinjil Island, Indonesia.


Summary: General ecology of crab-eating macaques on Mauritius.


Summary: General ecology of crab-eating macaques on Mauritius.


Summary: Distribution, abundance, and putative ecological strategy of Macaca fascicularis on the Island of Mauritius, Southwestern Indian Ocean.