Rattus rattus eating endangered green turtles (*Chelonia mydas*) on an island off the coast of East Kalimantan

The introduction of non-native rats to isolated islands—an ecological disaster

Living in close association with people, rats cause a variety of socio-economic impacts by eating crops, damaging and contaminating stored goods such as grain, chewing power cables and spreading diseases. They also have a destructive effect on biodiversity. The three most common invasive alien rats worldwide are the black rat (*Rattus rattus*) the brown rat (*Rattus norvegicus*) and the Polynesian rat (*Rattus exulans*)[1]. All three species are omnivorous and eat a wide range of foodstuffs, including seeds, fruits, eggs and small animals of all kinds. In the Chagos *Rattus rattus* is the most common and there is also a large population of *Rattus norvegicus* on Diego Garcia.

By preying on species or competing with them for food or habitat, they have caused the decline of many small animal species worldwide, especially birds, reptiles and invertebrates. Their effect has been particularly severe on islands where native species have evolved without rats and thus have developed no defences against them. Rats are responsible for more island extinctions of birds, snakes and lizards than any other predator[2]. Releasing cats on islands with rats has never resulted in the rats' control; rather the cats have caused additional pressure on native species and caused even more devastation and more rapid extinctions of native species in such places[3]. In the end it often requires the removal of both the cats and the rats.

Successful control and eradication is possible and has been achieved on islands up to 13.000 ha in size. These programmes use commercial rodenticides which have to be distributed at certain times and in a carefully defined manner[4]. After successful eradication, steps to prevent new infestation by stowaway rats have to be implemented.

Rats are probably the world's most wide spread and worst invasive species, causing economic losses of billions of US dollars each year and having an often unpredictable impact on native species, wildlife and whole ecosystems. If they are not tackled they can change thriving islands into deserts in a very short time.

[1] Atkinson, I.A.E. (1985). The spread of commensal species of *Rattus* to oceanic islands and their effect on island avifaunas. In *Conservation of Island Birds*, vol. 3 (ed. P.J.Moore). ICBP, Cambridge, UK. pp. 35 – 81.

[2] Towns, D.R., Atkinson I.A.E. & Daugherty, C.H. (2006). Have the harmful effects of introduced rats on islands been exaggerated? Biological Invasions 8 (4): pp. 863 – 891.

[3] Courchamp, F., Chapuis, M. & Pascal, M. (2003). Mammal invaders on islands: impact, control and control impact. Biological Review 78. pp. 347 – 383.

[4] Veitch, C.R. & Clout, M.N. (eds) (2002). Turning the tide: the eradication of invasive species. IUCN/ISSG. Cambridge, UK viii – 414 pp.