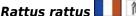


FULL ACCOUNT FOR: Rattus rattus





**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Rodentia	Muridae

Hausratte (German), European house rat (English), bush rat (English), blue rat Common name

(English), ship rat (English), roof rat (English), black rat (English)

**Synonym** Mus rattus, Linnaeus, 1758

> Mus alexandrinus, Geoffroy, 1803 Musculus frugivorus, Rafinesque, 1814 Mus novaezelandiae, Buller, 1870

**Similar species** Rattus norvegicus

A native of the Indian sub-continent, the ship rat (Rattus rattus) has now **Summary** 

> spread throughout the world. It is widespread in forest and woodlands as well as being able to live in and around buildings. It will feed on and damage almost any edible thing. The ship rat is most frequently identified with catastrophic declines of birds on islands. It is very agile and often frequents tree tops searching for food and nesting there in bunches of leaves and twigs.



view this species on IUCN Red List

### **Species Description**

A slender rat with large hairless ears, the ship rat (Rattus rattus) may be grey-brown on the back with either a similarly coloured or creamish-white belly, or it may be black all over. The uniformly-coloured tail is always longer than the head and body length combined. Its body weight is usually between 120 and 160 g but it can exceed 200 g.

The work of Yosida (1980) and his co-workers has shown that there are two forms of R. rattus that differ in chromosome number. The more widespread Oceanic form has 38 chromosomes and is the ship rat of Europe, the Mediterranean region, America, Australia and New Zealand. Present indications are that it is the Oceanic form that has reached islands in the South Pacific, but studies are needed to confirm this. The Asian form has probably reached some islands north of the equator, e.g. the Caroline Islands. On the basis of colour variation in rats on Ponape and Koror Islands, described by Johnson (1962) as Rattus rattus mansorius, we suspect that these rats may be the Asian form of *R. rattus* (SPREP. 2000).

#### **Notes**

Ship rats can be widespread, utilising most habitat types, but they show a preference for drier habitats. They generally avoid swimming.

## **Lifecycle Stages**

Rattus rattus: gestation 20-22 days; weaning 21-28 days; sexual maturity 3-4 months; total life may not exceed two years.



FULL ACCOUNT FOR: Rattus rattus

### **Habitat Description**

Ship rats can be widespread, utilising most habitat types, but they show a preference for drier habitats. They generally avoid swimming. Ship rats in a New Zealand study (Hooker and Innes, 1995; in Innes, 2001) were mostly arboreal, but were also frequently recorded on the ground. The mean range length for females was 103m, and 194m for males. Another study (Dowding and Murphy, 1994; in Innes, 2001) found that rats generally used 3-4 dens each throughout their range. In the Mediterranean region *R. rattus* is most common in forests and shrublands up to 1080m in elevation (Martin *et al.*, 2000).

## Reproduction

A placental mammal with dependent young. Litter size 3-10 (average 5-8), with frequency of litters dependent on season and food supply. The interval between litters may be as little as 27 days.

#### **Nutrition**

Ship rats are omnivorous generalists, yet can be very selective feeders. They eat both plant and animal matter all year round.

A Japanese study showed that *R. rattus* is primarily herbivorous, but can change its food habits when it is thirsty, or when food is in short supply (Yabe, 2004).

### **General Impacts**

The ship rat has directly caused or contributed to the extinction of many species of wildlife including birds, small mammals, reptiles, invertebrates, and plants, especially on islands. Ship rats are omnivorous and capable of eating a wide range of plant and animal foods. These include native snails, beetles, spiders, moths, stick insects and cicadas and the fruit of many different plants (Innes 1990). They also prey on the eggs and young of forest birds (Innes et al., 1999). In the recovery programme for the endangered Rarotonga flycatcher or kakerori (see Pomarea dimidiata in the IUCN Red List of Threatened Species), Robertson et al. (1994) identified ship rats as the most important predator affecting the breeding success of this bird. Several cases are known where predation on seabirds can be reliably attributed to ship rats. These include sooty terns (see Sterna fuscata in IUCN Red List of Threatened Species) in the Seychelles Islands (Feare, 1979), Bonin petrels (see Pterodroma hypoleuca in IUCN Red List of Threatened Species) in Hawai'i (Grant et al., 1981), Galapagos dark-rumped petrels (see Pterodroma phaeopygia in IUCN Red List of Threatened Species) in the Galapagos Islands (Harris, 1970), and white-tailed tropicbirds (see Phaethon lepturus in IUCN Red List of Threatened Species) in Bermuda (Gross, 1912).

The ship rat is most frequently identified with catastrophic declines of birds on islands. The best documented examples in the Pacific region are Midway Island in the Leeward Islands of Hawai'i (Johnson, 1945; Fisher and Baldwin, 1946), Lord Howe Island (Hindwood, 1940; Recher and Clark, 1974) and Big South Cape Island, New Zealand (Atkinson and Bell, 1973). Atkinson (1977) brought together circumstantial evidence suggesting that ship rats, rather than disease, were responsible for the decline of many species of Hawai'ian native birds during the 19th century.

There are few indications of rat-induced declines in native birds on islands nearer the equator (latitude 15°N to 20°S). This zone coincides with the distribution of native land crabs, animals that also prey on birds and their eggs. The long co-existence between land crabs and some island birds may have resulted in the development of behaviours among the birds that gives them a degree of protection against rats. Atkinson (1985) suggested that this might be the reason why rat-induced catastrophes are less apparent within the equatorial zone, but this hypothesis has never been tested (SPREP, 2000).

Species of weight similar to or smaller than that of rats appear to be the most vulnerable to predation. Impacts also appear to be more severe on smaller islands, where rat densities tend to be higher and do not fluctuate. Constant predation pressure results in a reduction in colony size on these islands (Martin *et al.*, 2000). Both *R. rattus* and *R. norvegicus* transmit the plague bacterium (<u>Yersinia pestis</u>) via fleas in certain areas of the world. There have been a series of recent outbreaks in Madagascar in recent years (Boiser *et al.* 2002).



FULL ACCOUNT FOR: Rattus rattus

#### **Management Info**

<u>Preventative measures</u>: Research has shown that it can often be difficult to eradicate rats from islands in the early stages of invasion, hence it is better to prevent rodents arriving on islands in the first place. Eliminating a single invading rat can be disproportionately difficult because of atypical behaviour by the rat in the absence of conspecifics, and because bait can be less effective in the absence of competition for food (<u>Russell et al., 2005</u>). <u>Weihong et al.</u> (1999) provide useful information regarding the detection of rodent species using different trapping methods and bait.

<u>Physical</u>: The use of poison baits is the only proven way to remove rodents from large islands. Trapping generally fails to remove all individuals, as trap-shy animals can survive and repopulate the island (DOC, 2004). <u>Chemical</u>: *Rattus rattus* can be eradicated from small areas or seasonally controlled using proprietary rat poison products in an appropriate manner. The largest island to date from which ship rats have been eradicated is Barrow Island (23 000 ha, Western Australia) (Morris, 2002).

Second-generation anticoagulant poisons are used widely for ship rat control, but possible consequences of any ongoing control should always be considered. These consequences include primary or secondary poisoning of species we are aiming to protect or other non-target species, secondary poisoning of other vertebrate pests such as cats, and development of resistance to these poisons by ship rats. It is not known whether their tree-climbing habits will make eradication more difficult (SPREP, 2000).

Fisher *et al.* (2004) suggest that diphacinone especially, and also coumatetralyl and warfarin, should be evaluated in field studies as alternative rodenticides in New Zealand. Brodifacoum, the most widely used rodenticide in New Zealand currently, can acquire persistent residues in non-target wildlife. Mineau *et al.* (2004) presented a risk assessment of second generation rodenticides at the 2nd National Invasive Rodent Summit. O'Connor and Eason (2000) discusses the variety of baits which are available for use on offshore islands in New Zealand.

An investigation <u>Spurr et al. (2007)</u> was carried out to assess the behavioural response of ship rats to four different bait station types. Yellow plastic pipe, wooden box ('rat motel'), and\r\nwooden tunnel bait stations were found all suitable for surveillance of ship rats and the first two at least for Norway rats (all were readily entered and had a similar\r\namount of bait eaten from them).

<u>Biological</u>: Contraceptive methods of control are currently experimental, but the potential for effective control using contraceptive methods is promising. National Wildlife Research Center (USA) scientists are working on several possible formulations that may make effective oral immunisation possible (Nash and Miller, 2004). <u>Integrated management</u>: <u>Guidelines for the Eradication of Rats From Islands Within the Falklands Group</u> offers guidelines for the eradication of rats from islands, based on the experiences in eradicating rats from the Falklands group.

#### **Pathway**

Rattus rattus usually stow away in freight carried within the hull, holds and living spaces of ships

### **Principal source:**

Compiler: IUCN SSC Invasive Species Specialist Group

Review: Dick Veitch, Auckland, New Zealand.

Pubblication date: 2011-01-11

#### **ALIEN RANGE**

[1] AMERICAN SAMOA[1] ANGUILLA[5] ANTIGUA AND BARBUDA[20] AUSTRALIA[2] BAHAMAS[1] BARBADOS

[1] BERMUDA [3] BRITISH INDIAN OCEAN TERRITORY



FULL ACCOUNT FOR: Rattus rattus

[31 CANADA

[3] COOK ISLANDS

[1] DOMINICA

[7] ECUADOR

[11] FIJI

[12] FRENCH POLYNESIA

[1] GREECE

[1] GUAM

[4] ITALY

[8] KIRIBATI

[9] MARSHALL ISLANDS

[4] MAURITIUS

[4] MEXICO

[1] MONTSERRAT

[7] NEW CALEDONIA

[1] NIUE

[5] PALAU

[1] PERU

[1] PUERTO RICO

[1] SAINT BARTHELEMY

[1] SAINT LUCIA

[1] SAMOA

[6] SEYCHELLES

[2] SPAIN

[3] TONGA

[1] TURKS AND CAICOS ISLANDS

[1] UNITED KINGDOM

[3] UNITED STATES MINOR OUTLYING ISLANDS

[2] VIRGIN ISLANDS, BRITISH

[2] WALLIS AND FUTUNA

[4] CAYMAN ISLANDS

[1] CURACAO

[1] DOMINICAN REPUBLIC

[1] FALKLAND ISLANDS (MALVINAS)

[4] FRANCE

[6] FRENCH SOUTHERN TERRITORIES

[2] GUADELOUPE

[1] INDONESIA

[1] JAMAICA

[2] MALTA

[5] MARTINIQUE

[1] MAYOTTE

[8] MICRONESIA, FEDERATED STATES OF

[1] NAURU

[64] NEW ZEALAND

[4] NORTHERN MARIANA ISLANDS

[6] PAPUA NEW GUINEA

[1] PORTUGAL

[1] REUNION

[3] SAINT HELENA

[1] SAINT MARTIN (FRENCH PART)

[1] SAO TOME AND PRINCIPE

[10] SOLOMON ISLANDS

[1] TANZANIA, UNITED REPUBLIC OF

[1] TRINIDAD AND TOBAGO

[3] TUVALU

[19] UNITED STATES

[6] VANUATU

[1] VIRGIN ISLANDS, U.S.

## Red List assessed species 222: EX = 21; EW = 1; CR = 43; EN = 53; VU = 57; NT = 24; DD = 4; LC = 19;

Acomys nesiotes **DD** Acrocephalus caffer EN Acrocephalus rimatarae VU Acrocephalus taiti VU Afroablepharus africana VU Alectryon macrococcus CR Amaurocichla bocagei VU Aphrastura masafuerae CR

Aplonis fusca **EX** Atlantisia rogersi VU Branta sandvicensis VU Callaeas cinereus EN Camarhynchus pauper CR Charmosyna amabilis CR Chelonia mydas EN

Columba bollii LC Columba trocaz LC Coracina typica VU

Cyanolimnas cerverai CR Cyanoramphus cookii EN Dendrocygna arborea VU Acrocephalus aequinoctialis EN Acrocephalus kerearako NT Acrocephalus rodericanus EN Aegialomys galapagoensis VU Alectroenas rodericana EX Alsophis antiquae CR **Anisomys imitator LC** Aplonis cinerascens VU Aplonis pelzelni CR

Bostrychia bocagei CR Bulweria bulwerii LC Camarhynchus heliobates CR

Cettia haddeni NT Chasiempis ibidis EN

Clytorhynchus sanctaecrucis EN

Columba junoniae NT Coracina newtoni CR Corvus hawaiiensis EW Cyanoramphus auriceps NT Cyanoramphus saisseti VU

Ducula aurorae EN

Global Invasive Species Database (GISD) 2025. Species profile Rattus rattus. Available from: https://www.iucngisd.org/gisd/species.php?sc=19 [Accessed 30 August 2025]



FULL ACCOUNT FOR: Rattus rattus

Ducula galeata EN

Eleutherodactylus orcutti CR

Epicrates monensis EN

Eudyptes schlegeli **VU** 

Eunymphicus cornutus VU

Falco eleonorae LC

Ferminia cerverai EN

Foudia rubra EN

Fregata aquila VU

Gallicolumba erythroptera CR

Gallinula nesiotis VU

Gerygone modesta VU

Haematopus chathamensis EN

Hemiphaga novaeseelandiae NT

Hypsipetes olivaceus VU

Lanius newtoni CR

Larus audouinii NT

Larus fuliginosus VU

Leiopelma hochstetteri VU

Leptodactylus fallax CR

Megalurulus mariei LC

Melamprosops phaeosoma CR

Mesembriomys macrurus LC

Mesocapromys auritus EN

Mesocapromys sanfelipensis CR

Mimus melanotis EN

Moho bishopi EX

Mohoua ochrocephala EN

Myadestes palmeri CR

Mystacina robusta CR

Neospiza concolor CR

Nesofregetta fuliginosa EN

Nesoryzomys darwini EX

Nesoryzomys indefessus EX

Nesoryzomys swarthi VU

Notiomystis cincta VU

Oligoryzomys victus EX

Oreomystis bairdi CR

Oryzomys gorgasi EN

Otus capnodes CR

Pachycephala jacquinoti NT

Palmeria dolei CR

Phalacrocorax aristotelis LC

Phalacrocorax harrisi VU

Phoboscincus bocourti EN

Phoebastria irrorata CR

Pomarea dimidiata EN Pomarea iphis VU

Pomarea nigra CR

Pomarea whitneyi CR

Porzana palmeri **EX** 

Procellaria cinerea NT

Procellaria parkinsoni VU

Progne modesta **VU** 

Eleutherodactvlus cooki VU

Emberiza socotrana VU

Eretmochelys imbricata CR

Eumeces longirostris CR

Eunymphicus uvaeensis EN

Falco punctatus VU

Foudia flavicans VU

Foudia sechellarum NT

Fulica alai VU

Gallicolumba kubaryi VU

Gerygone insularis **EX** 

Gymnuromys roberti LC

Haematopus meadewaldoi EX

Hydromys chrysogaster LC

Isoodon auratus VU

Lariscus obscurus NT

Larus cachinnans LC

Leiopelma hamiltoni EN

Leiopelma pakeka **VU** 

Loxioides bailleui CR

Megapodius laperouse EN

Melomys fraterculus CR

Mesocapromys angelcabrerai EN

Mesocapromys nanus CR

Mimus macdonaldi VU

Mimus trifasciatus CR

Moho braccatus **EX** 

Mundia elpenor EX

Mysateles meridionalis CR

Myzomela chermesina VU

Nesocichla eremita NT

Nesoromys ceramicus EN

Nesoryzomys fernandinae **VU** 

Nesoryzomys narboroughi VU

Nestor meridionalis EN

Oceanodroma homochroa EN

Oligosoma acrinasum NT

Oreomystis mana EN

Oryzomys nelsoni EX

Otus insularis EN Pachyptila vittata LC

Peromyscus madrensis EN

Phalacrocorax featherstoni EN

Philesturnus carunculatus NT

Phoebastria albatrus VU

Phoebetria fusca EN

Pomarea fluxa EX

Pomarea mira EX

Pomarea nukuhivae EX

Porzana atra VU

Procellaria aequinoctialis VU

Procellaria conspicillata VU

Procellaria westlandica VU

Prosobonia cancellata EN

Global Invasive Species Database (GISD) 2025. Species profile Rattus rattus. Available from:

https://www.iucngisd.org/gisd/species.php?sc=19 [Accessed 30 August 2025]



FULL ACCOUNT FOR: Rattus rattus

Pseudobulweria rostrata
Psittirostra psittacea CR
Pterodroma cahow EN
Pterodroma hasitata EN
Pterodroma inexpectata NT
Pterodroma madeira EN
Pterodroma phaeopygia CR
Pterodroma solandri VU
Ptilinopus coralensis NT
Ptilinopus rarotongensis VU

Puffinus bulleri VU
Puffinus mauretanicus CR
Puffinus pacificus LC
Rallus longirostris LC
Rattus bontanus DD
Rattus enganus DD
Rattus hainaldi EN
Rattus lugens EN

Rattus lugens EN
Rattus nativitatis EX
Rattus tunneyi LC
Rowettia goughensis CR
Saxicola dacotiae NT
Spheniscus mendiculus EN

Sterna hirundo LC

Synthliboramphus craveri **VU**Synthliboramphus wumizusume **VU** 

Todiramphus gambieri CR
Todiramphus ruficollaris VU
Trichacichla rufa EN

Trichocichla rufa EN
Turnagra capensis EX
Vini kublii EN

Vini kuhlii EN
Vini ultramarina EN
Xerocrassa caroli LC
Zoothera margaretae NT
Zosterops chloronothus CR
Zosterops strenuus EX

Psittacula eques EN
Pterodroma alba EN
Pterodroma cookii VU
Pterodroma hypoleuca LC
Pterodroma leucoptera VU
Pterodroma magentae CR
Pterodroma sandwichensis VU
Ptilinopus chalcurus VU

Ptilinopus insularis VU
Puffinus auricularis CR
Puffinus griseus NT
Puffinus newelli EN
Puffinus yelkouan NT
Rattus adustus DD
Rattus elaphinus NT
Rattus feliceus NT
Rattus jobiensis NT
Rattus macleari EX
Rattus simalurensis EN
Rhynochetos jubatus EN
Sabal bermudana EN
Spheniscus humboldti VU
Sterna dougalii LC

Sylvilagus graysoni **EN**Synthliboramphus hypoleucus **VU** 

Terpsiphone corvina CR
Todiramphus godeffroyi CR
Tokudaia osimensis EN
Troglodytes cobbi VU
Turnagra tanagra EX
Vini peruviana VU
Xenicus longipes EX
Xerocrassa ebusitana NT
Zosterops albogularis CR
Zosterops modestus EN
Zosterops tenuirostris EN

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**Summary:** Abstract: The association between capture success of stoats (*Mustela erminea*) and ship rats (*Rattus rattus*) and landscape-scale environmental predictors was explored using trapping data from three stoat control areas located in podocarp/broadleaved forest in New Zealand. Stoat capture success was higher at trap sites where a rat was also captured at the same trap or a stoat was captured at a neighbouring trap. Drier trap sites with good soil drainage and increased proximity to the operational trapping boundary were also associated with increased stoat capture. Rat capture success was higher at trap sites where a rat had been captured at a neighbouring trap, and at trap sites that were on steeper ground, more easterly facing and within forest habitat. Trap sites with generally poor soil conditions, i.e. sites with lower soil calcium levels and wetter sites with poor drainage, and increasing distance from the forest edge were also associated with increased rat capture. There were highly variable relationships between rat and stoat capture and landscape-scale environmental predictors between the three stoat control areas. This could be due to differing topography, but also to the highly correlated nature of many of the topographic, climate and habitat predictors. Further research specifically designed to separate these effects should focus on the variables identified as common between all stoat control areas in this study. Additional investigations of whether rats captured in double trap sets act as additional bait for stoats would have practical benefits for stoat control areas. The variability of the results emphasises the importance of ensuring that traps are abundant and widespread in stoat control operations.

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FULL ACCOUNT FOR: Rattus rattus

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**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).

Available from: http://www.iucnredlist.org/ [Accessed 25 May 2011]

IUCN South-Eastern Europen e-Bulletin December 2006. Issue 11: Rats exterminated in important colony of Eleonora s falcon **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).

Available from: http://www.iucnredlist.org/ [Accessed 25 May 2011]

IUCN/SSC Invasive Species Specialist Group (ISSG)., 2010. A Compilation of Information Sources for Conservation Managers.

**Summary:** This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

James, R.E., and M.N. Clout, 1996. Nesting success of New Zealand pigeons (Hemiphaga novaeseelandiae) in response to a rat (Rattus rattus) poisoning programme at Wenderholm Regional Park. New Zealand Journal of Ecology 20(1): 45-51 New Zealand Ecological Society Summary: Available from: http://www.newzealandecology.org/nzje/free issues/NZJEcol20 1 45.pdf [Accessed December 11 2007]

Johnson, M. S. 1945. Rodent control on Midway Islands. US Naval Medical Bulletin 45: 384-398.

Lorvelec, O., Delloue, X., Pascal, M., & mege, S. 2004. Impacts des mammiferes allochtones sur quelques especes autochtones de l Isle Fajou (Reserve Naturelle du Grand Cul-de-sac Marin, Guadeloupe), etablis a l issue d une tentative d eradication. Revue D Ecologie - La Terre et La Vie 59(1-2): 293-307.

Summary: French language. Information about impacts, eradication methodology, results and discussion in French.

Lovegrove, T. G., C. H. Zeiler, B. S. Greene, B. W. Green, R. Gaastra, and A. D. MacArthur., 2002. Alien plant and animal control and aspects of ecological restoration in a small mainland island: Wenderholm Regional Park, New Zealand. In *Turning the tide: the eradication of invasive species*: 155-163. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.

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

MacKay, J. W. B.; Russell, J. C. 2005. Ship rat *Rattus rattus* eradication by trapping and poison-baiting on Goat Island, New Zealand. Conservation Evidence, 2, 142-144.

**Summary:** Available from: http://www.conservationevidence.com/Attachments/PDF242.pdf [Accessed 12 March 2010] Marine Turtle Newsletter No. 106, 2004

Summary: Describes the rat eradication on Sangalaki Is. as part of a green turtle (Chelonia mydas) conservation programme.

Available from: http://www.seaturtle.org/mtn/archives/mtn106/ [Accessed 19 February 2008]

McClelland, P.J., 2002. Eradication of Pacific rats (*Rattus exulans*) from Whenua Hou Nature Reserve (Codfish Island), Putauhinu and Rarotoka Islands, New Zealand. In *Turning the tide: the eradication of invasive species*: 173-181. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.

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

Megapode Newsletter Vol. 18, nr. 1 October 2004. BirdLife/WPA/SSC Megapode Specialist Group

**Summary:** Describes observations and conservation through rat eradication.

Meier, G., 2003. InGrip-Report No.1, prepared for Turtle Foundation by InGrip-Consulting & Animal Control. Hauptstr. 1 - 82541 Ammerland, Germany.

Summary: This report describes a successful rat eradication project on Sangalaki Island, East-Kalimantan in detail.

Merton., D. G., Climo, V. Laboudallon, S. Robert, and C. Mander., 2002. Alien mammal eradication and quarantine on inhabited islands in the Seychelles. In *Turning the tide: the eradication of invasive species*: 182-198. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.

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

Micol and Jouventin, 2002. Eradication of rats and rabbits from Saint-Paul Island. In *Turning the tide: the eradication of invasive species*: 199-205. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.

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

Mineau, Pierre; Richard, F. Shore; Robert, C. Hosea and ward, B. Stone., 2004. Towards a Risk Assessment of Second Generation Rodenticides: Do We have Enough Information to Proceed? Wildlife Damage Management, Internet Center for USDA National Wildlife Research Center -Staff Publications. 2nd National Invasive Rodent Summit.

**Summary:** Available from: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1730&context=icwdm\_usdanwrc [Accessed 19 February 2008]

Moors, P. J., Atkinson, I. A. E. and Sherley, G. H. 1992. Reducing the rat threat to island birds. Bird Conservation International 2: 93 114.



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Morris, 2002. The eradication of the black rat (*Rattus rattus*) on Barrow and adjacent islands off the north-west coast of Western Australia. In *Turning the tide: the eradication of invasive species*: 219-225. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.

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

O Connor, Cheryl E. and Charles, T. Eason., 2000. Rodent baits and delivery systems for island protection. SCIENCE FOR CONSERVATION 150 **Summary:** Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/sfc150.pdf [Accessed 19 February 2008] Pacific Invasives Initiative (PII), 2006. Eradicating invasive species from Kayangel Atoll, Palau

Summary: Available from: http://www.issg.org/cii/PII/demo/kayangel.html [Accessed 12 March 2010]

Pacific Invasives Initiative (PII), 2006. Mont Pani Mammal Control Proof-of-Concept Project

Summary: Available from: http://www.issg.org/cii/PII/demo/mtPanie.html [Accessed 12 March 2010]

Page, A and Meier, G., 2006. Rat-free habitat doubled in the Chagos Archipelago. Conservation News. 2006 FFI, Oryx, 40(3), 255 256 Recher, H. F. and Clark, S. S. 1974. A biological survey of Lord Howe Island with recommendations for conservation of the island swildlife. Biological Conservation 6: 263 273.

Robertson, H.A., 2000. Conservation of kakerori (*Pomarea dimidiata*), Rarotonga. Conservation Advisory Science Notes No. 272, Department of Conservation, Wellington.

**Summary:** Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/casn272.pdf [Accessed 2 September 2008] Robertson, H. A. Hay, J. R., Saul, E. K and McCormack, G.V. 1994. Recovery of the Kakerori: An Endangered Forest Bird of the Cook Islands, Conservation Biology 8 (4): 1078-1086.

Robertson, H.A.; Saul, E.K. 2004: Conservation of kakerori (*Pomarea dimidiata*) on the Cook Islands in 2002/03. DOC Science Internal Series 167. Department of Conservation, Wellington. 16 p.

**Summary:** Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/dsis167.pdf [Accessed 2 September 2008] Robertson, H.A.; Saul, E.K. 2005: Conservation of kakerori (*Pomarea dimidiata*) in the Cook Islands in 2003/04. DOC Research & Development Series 207. Department of Conservation, Wellington. 16 p.

**Summary:** Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/drds207.pdf [Accessed 2 September 2008] Robertson, H.A.; Saul, E.K. 2006: Conservation of kakerori (*Pomarea dimidiata*) in the Cook Islands in 2004/05. DOC Research & Development Series 246. Department of Conservation, Wellington. 18 p.

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

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Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.

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#### **General information**

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**Summary:** Cet article présente la situation actuelle et les impacts des populations introduites de mammiféres dans les éles subantarctiques franéaises. Les moyens de contréle en place ou planifiés sont également présentés.

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#### Summary: English:

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (http://www.conabio.gob.mx/invasoras/index.php/Portada), under the section Novedades for information on updates.

Invasive species - mammals is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies\_invasoras\_-\_Mam%C3%ADferos [Accessed 30 July 2008]

#### Spanish:

La lista de especies del Sistema de información sobre especies invasoras de móxico cuenta actualmente con información aceca de nombre cientófico, familia, grupo y nombre comón, asó como hóbitat, estado de la invasión en Móxico, rutas de introducción y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la pógina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualización, por favor consulte la portada

(http://www.conabio.gob.mx/invasoras/index.php/Portada), en la secci∳n novedades, para conocer los cambios.

Especies invasoras - Mam@feros is available from:

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Hindwood, K. A. 1940. The birds of Lord Howe Island. Emu 40: 1 \$\infty\$86.

Innes, J. G. 1990. Ship Rat. The Handbook of New Zealand Mammals. King, C. M. (ed.) Oxford University Press: 206-225.

**Summary:** A complete reference to the ship rat in New Zealand.

ITIS (Integrated Taxonomic Information System), 2005. Online Database Rattus rattus

**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.

Available from:

 $http://www.cbif.gc.ca/pls/itisca/taxastep?king=every\&p\_action=containing\&taxa=Rattus+rattus\&p\_format=\&p\_ifx=plglt\&p\_lang=[Accessed March 2005]$ 

Global Invasive Species Database (GISD) 2025. Species profile *Rattus rattus*. Available from: <a href="https://www.iucngisd.org/gisd/species.php?sc=19">https://www.iucngisd.org/gisd/species.php?sc=19</a> [Accessed 30 August 2025]



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Lorvelec, O. & Pascal, M. 2006. Les vert�br�s de Clipperton soumis � un si�cle et demi de bouleversements �cologiques. Revue d Ecologie (La terre et la Vie), 61, 2

Lorvelec, O., Pascal, M., Delloue, X., Chapuis, J.L. 2007. Les mammif@res terrestres non volants des Antilles fran@aises et l@introduction r@cente d@un @cureil. Rev.Ecol. (Terre Vie), 62, 295-314

**Summary:** Bilan des introductions des mamifêres terrestres dans les Antilles franêaises et analyse de leurs impacts.

Lorvelec, O., Pascal, M., & Pavis, C. 2001. Inventaire et statut des Mammif\u00fares des Antilles fran\u00faises (hors Chiropt\u00fares et C\u00fatac\u00fas). In Rapport n\u00fa 27 de l Association pour l Etude et la Protection des Vert\u00fabres et V\u00fag\u00fataux des Petites Antilles, Petit-Bourg, Guadeloupe.

**Summary:** Article de synth�se sur les mammif�res (hors chiropt�res et c�tac�s) des Antilles fran�aises. L origine des esp�ces introduites et leurs impacts av�r�s ou potentiels sont discut�s.

Available from: http://www.fnh.org/francais/fnh/uicn/pdf/biodiv\_mammiferes\_antilles.pdf [Accessed 9 April 2008]

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Meier, Guntram., 2004. New sightings of a small island specialist

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Summary: Available from:

http://inpn.mnhn.fr/isb/servlet/ISBServlet?action=Espece&typeAction=10&pageReturn=ficheEspeceDescription.jsp&numero\_taxon=61587 [Accessed March 25 2008]

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Seto, Nanette W. H. and Sheila Conant., 1996. The Effects of Rat (*Rattus rattus*) Predation on the Reproductive Success of the Bonin Petrel (*Pterodroma hypoleuca*) on Midway Atoll. Colonial Waterbirds, Vol. 19, No. 2 (1996), pp. 171-185

**Summary:** Abstract: The breeding population of the Bonin Petrel (*Pterodroma hypoleuca*) on Midway Atoll has declined dramatically since the accidental introduction of the black rat (*Rattus rattus*). During 1993 and 1994, we examined the effects of rat predation on Bonin Petrel reproductive success by monitoring nesting petrels in six study sites, three of which were treated with rodenticide (treatment) and three that were not (control). Results indicate that the incubation stage of the petrels nesting cycle is most vulnerable to rat predation. Both unattended and incubated eggs were attacked by rats. Rat predation was not observed on petrel chicks in study nests. However, incidental observations of chick remains outside of burrows suggest that rat predation on chicks may occur, but at a low frequency. Sites with low burrow density suffered more from rat predation than sites with higher burrow density. The rodenticide Vengeance trademark appeared to successfully suppress the rat numbers in treated sites. The number of nests that failed due to rat predation was significantly lower in two of the three treatment sites when compared with their paired control sites. In addition, the indications of rat activity were lower at these two treatment sites than at the paired control sites. Therefore, this study provides some evidence that rodenticide application is successful in reducing the number of rats, which in turn reduces the amount of rat predation and is associated with an increase in the reproductive success of Bonin Petrels.

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