GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Rattus rattus***

Rattus rattus 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Rodentia	Muridae

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

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

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 (*Yersinia pestis*) *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).

Management Info
Preventative measures: 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 (Russell *et al*., 2005). Weihong *et al*. (1999) provide useful information regarding the detection of rodent species using different trapping methods and bait.
Physical: 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).
Chemical: *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 Spurr *et al*. (2007) 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).
Biological: 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).
Integrated management: Guidelines for the Eradication of Rats From Islands Within the Falklands Group offers guidelines for the eradication of rats from islands, based on the experiences in eradicating rats from the Falklands group. This paper 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.

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ALIEN RANGE

[1] AMERICAN SAMOA
[5] ANTIGUA AND BARBUDA
[2] BAHAMAS
[1] BERMUDA
[1] ANGUILLA
[20] AUSTRALIA
[1] BARBADOS
[3] BRITISH INDIAN OCEAN TERRITORY

[3] 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 antiguae **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**

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**
Eleutherodactylus 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**

Pseudobulweria rostrata **NT**
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 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**
Trichocichla rufa **EN**
Turnagra capensis **EX**
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**

BIBLIOGRAPHY

103 references found for **Rattus rattus**

Managment information

Amaral, João & S, Almeida & M, Sequeira & Neves, Verónica. (2010). Black rat Rattus rattus eradication by trapping allows recovery of breeding roseate tern Sterna dougallii and common tern S.hirundo populations on Feno Islet, the Azores, Portugal.. Conservation Evidence. 7. 16-20.

Summary: Available from: http://www.azoresbioportal.angra.uac.pt/files/noticias_Amaral%20et%20al_ratos.pdf [Accessed 11 January 2011]

Angel, A. & Cooper, J. 2006. A Review of the Impacts of Introduced Rodents on the Islands of Tristan da Cunha and Gough. RSPB Research Report No. 17. Royal Society for the Protection of Birds, Sandy,United Kingdom.

ARCP Rat Eradication Programme - Protection of Cleared Islands: Report on Green Island Emergency and Recommendations for Future Action

Atkinson, I. A. E. and Atkinson, T. J. 2000. Land vertebrates as invasive species on islands served by the South Pacific Regional Environment Programme. In: Invasive Species in the Pacific: A Technical Review and Draft Regional Strategy. South Pacific Regional Environment Programme, Samoa: 19-84.

Summary: This report reviews available information on the adverse effects of 14 alien vertebrates considered to be &#65533;significant invasive species on islands of the South Pacific and Hawaii, supplementing the authors&#65533; experience with that of other workers.

Baker-Gabb D. 2004. National Recovery Plan for the Norfolk Island Scarlet Robin *Petroica multicolor multicolor* and the Norfolk Island Golden Whistler *Pachycephala pectoralis xanthroprocta*. Commonwealth of Australia, Canberra.

Barun, A., Simberloff, D., Tvrtkovic, N. & Pascal, M., 2011. Impact of the introduced small Indian mongoose (*Herpestes auropunctatus*) on abundance and activity time of the introduced ship rat (*Rattus rattus*) and the small mammal community on Adriatic islands, Croatia. NeoBiota 11 (2011) : 51-61 doi: 10.3897/neobiota.11.1819
Summary: Available from: http://www.pensoft.net/journals/neobiota/article/1819/abstract/impact-of-the-introduced-small-indian-mongoose-herpestes-auropunctatus-on-abundance-and-activity-time-of-the-introduced- [Accessed December 1 2011]
Bell, B.D. 2002. The eradication of alien mammals from five offshore islands, Mauritius, Indian Ocean. In *Turning the tide: the eradication of invasive species*: 40-45. 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.
BirdLife International 2008. Species factsheet: *Pomarea dimidiata*. Downloaded from http://www.birdlife.org on 2/9/2008
Summary: Available from: http://www.birdlife.org/datazone/species/index.html?action=SpcHTMDetails.asp&sid=6076&m=0 [Accessed 2 September 2008]
BirdLife International January 17 2007. News: Islet inhabitants benefit from rat removal
Summary: Available from: http://www.birdlife.org/news/news/2007/01/rat_removal.html [Accessed 19 January 2007]
BirdLife Malta Undated. The Yelkouan Shearwater Project
Summary: Available from: http://lifeshearwaterproject.org.mt/en/project/ [Accessed 25 July 2007]
Bomford, M., 2003. Risk Assessment for the Import and Keeping of Exotic Vertebrates in Australia. Bureau of Rural Sciences, Canberra.
Summary: Available from: http://www.feral.org.au/wp-content/uploads/2010/03/PC12803.pdf [Accessed August 19 2010]
Brown, D. 2006a. Preliminary Operational Plan For Rat and Mouse Eradication from Tristan da Cunha. Unpublished report to RSPB.
Brown, D. 2006b. A Feasibility Study for the Eradication of Rats and Mice from Tristan da Cunha. Unpublished report to RSPB.
Burbidge, A.A., 2004. Montebello Renewal: Western Shield review�February 2003. Conservation Science Western Australia 5(2), 194-201.
Burbidge and Morris., 2002. Introduced mammal eradications for nature conservation on Western Australian islands: a review. In Turning the tide: the eradication of invasive species: 64-70. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.
Summary: Available from: http://www.issg.org/database/species/reference_files/vulvul/Burbidge.pdf [Accessed 12 March 2003]
Carter and Bright., 2002. Habitat refuges as alternatives to predator control for the conservation of endangered Mauritian birds. In *Turning the tide: the eradication of invasive species*: 71-78. 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.
Chagos Island Restoration Project 2006 (CERP). Fauna and Flora International.
Christie, J.E., D.J. Brown, I. Westbrooke and E.C. Murphy., 2009. Environmental predictors of stoat (*Mustela erminea*) and ship rat (*Rattus rattus*) capture success. DOC Research & Development Series 305. Published by Publishing Team Department of Conservation PO Box 10420, The Terrace Wellington 6143, New Zealand
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.
Cossios E. Daniel, 2010. Vertebrados naturalizados en el Per�: historia y estado del conocimiento (Naturalised vertebrates in Peru: history and state of knowledge) Rev. peru. biol. 17(2): 179 - 189 (Agosto 2010)
Summary: Available from: http://sisbib.unmsm.edu.pe/BVrevistas/biologia/v17n2/pdf/a07v17n2.pdf [Accessed 23 February 2011]
Cunningham, D.M. and Moors, P.J., 1993. Guide To The Identification And Collection Of New Zealand Rodents. Department of Conservation, NZ.
Summary: A Guide To The Identification And Collection Of New Zealand Rodents, information on trapping methods.
Dilks, P and Towns, D., 2002. Developing tools to detect and respond to rodent invasions of islands: workshop report and recommendations. DOC SCIENCE INTERNAL SERIES 59
Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/DSIS59.pdf [Accessed 19 February 2008]
Doty, R. E. 1945. Rat control on Hawaiian sugar cane plantations. Hawaiian Planters Record 49(2): 71�241.
Gerber, G. 1997. Nesting Behavior of the Little Cayman rock iguana, *Cyclura nubila caymanensis*. Joint Annual Meeting, American Society of Ichthyologists and Herpetologists/Herpetologists League/Society for the Study of Amphibians and Reptiles. University of Washington, Seattle, U.S.A.
Innes, J., Hay, R., Flux, I., Bradfield, P., Speed, H. and Jansen, P. 1999. Successful recovery of North Island kokako Callaeas cinerea wilsoni populations, by adaptive management. Biological conservation 87: 201-214.
Invasive Species Specialist Group. 2003. Takitimu Conservation Area (Cook Islands) - Landowning clans in charge of the Kakerori Recovery Programmes. In: Aliens 17. Invasive Species Specialist Group of the IUCN Species Survival Commission
Summary: Available from: http://www.issg.org/pdf/aliens_newsletters/A17.pdf [Accessed 12 March 2010]

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).
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: 93114.

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), 255256
Recher, H. F. and Clark, S. S. 1974. A biological survey of Lord Howe Island with recommendations for conservation of the islands wildlife. Biological Conservation 6: 263273.
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.
Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/drds246.pdf [Accessed 2 September 2008]
Robertson, H.A.; Saul, E.K. 2007: Conservation of kakerori (*Pomarea dimidiata*) in the Cook Islands in 2005/06. DOC Research & Development Series 285. Department of Conservation, Wellington. 19 p.
Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/drds285.pdf [Accessed 2 September 2008]
Robertson, H.A.; Saul, E.K. 2008: Conservation of kakerori (*Pomarea dimidiata*) in the Cook Islands in 2006/07. DOC Research & Development Series 296. Department of Conservation, Wellington. 19 p.
Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/drds296.pdf [Accessed 2 September 2008]
Russell, James C., David R. Towns, Sandra H. Anderson and Mick N. Clout., 2005. Intercepting the first rat ashore. Brief communications Nature 437, 1107 (20 October 2005)
Summary: Available from: http://www.nature.com/nature/journal/v437/n7062/pdf/4371107a.pdf [Accessed 19 February 2008]
Sommer, E. 2006. Trip report. Unpublished report to RSPB.
Sowls, A. L. and G. V. Byrd., 2002. Preventing rat introductions to the Pribilof Islands, Alaska, USA. In *Turning the tide: the eradication of invasive species*: 406 - 414 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.
Spurr, E.B., G.A. Morriss, J. Turner, C.E. O'Connor, P. Fisher., 2007. Bait station preferences of ship rats
Summary: Available from: http://www.doc.govt.nz/upload/documents/science-and-technical/drds271.pdf [Accessed 19 June 2007]
Tershy, B. R., C. J. Donlan, B. S. Keitt, D. A. Croll, J. A. Sanchez, B. Wood, M. A. Hermosillo, G. R. Howald, and N. Biavaschi., 2002. Island conservation in north-west Mexico: a conservation model integrating research, education and exotic mammal eradication. In *Turning the tide: the eradication of invasive species*: 293-300. 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.
The Garry Oak Ecosystems Recovery Team (GOERT)., 2007. Exotic vertebrate species in Garry oak and associated ecosystems in British Columbia
Summary: Available from: http://www.goert.ca/pubs_invasive.php#vertebrate_species [Accessed 13 February 2008]
Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.
Summary: This database compiles information on alien species from British Overseas Territories.
Available from: http://www.jncc.gov.uk/page-3660 [Accessed 10 November 2009]
Varnham, K. J. & Meier G. G. 2007. Rdum tal-Madonna rat control project, December 2006 - March 2007, Final report. Unpublished report to BirdLife Malta & RSPB, 28pp.
Weihong, Ji.; C.R. Dick Veitch and John, L. Craig., 1999. An evaluation of the efficiency of rodent trapping methods: the effect of trap arrangement, cover type and bait. New Zealand Journal of Ecology (1999) 23(1): 45-51 New Zealand Ecological Society
Summary: Available from: http://www.newzealandecology.org/nzje/free_issues/NZJEcol23_1_45.pdf [Accessed 19 February 2008]

General information

Atkinson, I. A. E. 1977. A reassessment of factors, particularly *Rattus rattus* L., that influenced the decline of endemic forest birds in the Hawaiian Islands. Pacific Science 31: 109133.
Atkinson, I. A. E. 1985. The spread of commensal species of Rattus to oceanic islands and their effects on island avifaunas. In Moors, P. J. (ed.) Conservation of Island Birds. ICBP Technical Publication No.3: 35-81.
Atkinson, I. A. E. and Bell, B. D. 1973. Offshore and outlying islands. In Williams, G. R. (ed.) The Natural History of New Zealand. A.H. and A.W. Reed, Wellington: 372-392.

Bertram D. F. 1995. The role of introdued rats and commercial fishing in the decline of Ancient Murrelets on Langara Island, British Columbia. Conservation Biology 9: 865 - 872.
Bertram D. F. & Nagorsen D. W. 1995. Introduced rats on Queen Charlotte Island: Implications for seabird conservation. Canadian Field-Naturalist 109: 6 - 10.
BirdLife International 2004. *Puffinus yelkouan*. In: IUCN 2006. 2006 IUCN Red List of Threatened Species
Summary: Available from: http://www.iucnredlist.org/apps/redlist/details/144886/0 [Accessed 12 March 2010]
BirdLife International 2004. *Sula dactylatra*. In: IUCN 2006. 2006 IUCN Red List of Threatened Species
Summary: Available from: http://www.iucnredlist.org/apps/redlist/details/144616/0 [Accessed 12 March 2010]
BirdLife International 2004. *Sula leucogaster*. In: IUCN 2006. 2006 IUCN Red List of Threatened Species
Summary: Available from: http://www.iucnredlist.org/apps/redlist/details/144618/0 [Accessed 12 March 2010]
BirdLife International 2006. *Pomarea dimidiata*. In: IUCN 2007. 2007 IUCN Red List of Threatened Species.
Summary: Available from: http://www.iucnredlist.org/apps/redlist/details/146953/0 [Accessed 12 March 2010]
BirdLife International 2007. BirdLife s online World Bird Database: the site for bird conservation. Version 2.1. Cambridge, UK: BirdLife International.
Summary: Available from: http://www.birdlife.org/datazone/sites/index.html?action=SitHTMDetails.asp&sid=47&m=0 [Accessed 25 July 2007]
Boisier, P., Rahalison, L., Rasolomaharo, M., Ratsitorahina, M., Mahafaly, M., Razafimahefa, M., Duplantier, J.M., Ratsifasoamanana, L. & Chanteau, S. 2002. Epidemiologic features of four successive annual outbreaks of bubonic plague in Mahajanga, Madagascar. Emerging Infectious Diseases 8, 311-316.
Burbidge, A.A., Blyth, J.D., Fuller, P.J., Kendrick, P.G., Stanley, F.J. and Smith, L.E., 2000. The terrestrial vertebrate fauna of the Montebello Islands, Western Australia. CALMScience 3(2), 95-107.
Chapuis, J., Bouss�s, P., & Barnaud, G. 1994. Alien mammals, impact and management in the French Subantartic Islands. Biological Conservation, 67, 97-104.
Summary: Cet article pr�sente la situation actuelle et les impacts des populations introduites de mammif�res dans les �les subantarctiques fran�aises. Les moyens de contr�le en place ou planifi�s sont �galement pr�sent�s.
CONABIO. 2008. Sistema de informaci�n sobre especies invasoras en M�xico. Especies invasoras - Mam�feros. Comisi�n Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.
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 informaci�n sobre especies invasoras de m�xico cuenta actualmente con informaci�n aceca de nombre cient�fico, familia, grupo y nombre com�n, as� como h�bitat, estado de la invasi�n en M�xico, rutas de introducci�n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p�gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci�n, 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:
http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Mam%C3%ADferos [Accessed 30 July 2008]
Donlan, C. J., Avila-Villegas, H., Ortega, D. B., Biavaschi, N., Bodorff, N., Boyer, R., Comendant, T., Croll, D. A., Cudney-Bueno, R., Galv�n de la Rosa, R., Howald, G. R., Lozano-Rom�n, L. F., Morales, C., Morales, O., Morales-Gonzalez, Z., Raimondi, P., Sanchez, J. A., Steller, D., Tershy, B. R., Turk-Boyer, 2002. Black Rat (*Rattus rattus*) Eradication from the San Jorge Islands, Mexico. Unpublished Report, Island Conservation and Ecology Group. ICEG Technical Report: March 2002
Summary: Available from:http://advancedconservation.org/library/donlan_etal_2002b.pdf [Accessed 25 March 2012]
Feare, C. J. 1979. Ecology of Bird Island, Seychelles. Atoll Research Bulletin 226: 1-29.
Fisher, H. I. and Baldwin, P. H. 1946. War and the birds on Midway Atoll. Condor 48: 3-15.
Gargominy, O. (Ed.). 2003. Biodiversit& et conservation dans les collectivit&s fran&aises d outre-mer. Comit& fran&ais pour l UICN, Paris.
Summary: Synth&se sur la biodiversit& des &les fran&aises d outre-mer et les enjeux de conservation.
Available from: http://www.uicn.fr/Biodiversite-outre-mer-2003.html [Accessed 26 March 2008]
Grant, S. G., Pettit, T. N., Whittow, G. C. 1981. Rat predation on Bonin petrel eggs on Midway Atoll. Journal of Field Ornithology 52: 336&8.
Gross, A. O. 1912. Observations on the yellow-billed tropicbird (*Phaethon americanus* Grant) at the Bermuda Islands. Auk 29: 49-71.
Harris, M. P. 1970. The biology of an endangered species, the dark-rumped petrel (*Pterodroma phaeopygia*), in the Galapagos Islands. Condor 72: 76&84.
Hindwood, K. A. 1940. The birds of Lord Howe Island. Emu 40: 1&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]

Johnson, D. H. 1962. Rodents and other Micronesian mammals collected. In Storer T. I. (ed.) Pacific Island rat ecology. Bernice P. Bishop Museum Bulletin 225: 21–38.
Langford, D. and Burbidge, A.A., 2001. Translocation of mala from the Tanami Desert, Northern Territory to Trimouille Island, Western Australia. Australian Mammalogy 23, 37-46.
Lorvelec, O., Delloue, X., Pascal, M., & Mege, S. 2004. Impact des mammif–res allochtones sur quelques esp–ces autochtones de l –let Fajou (R–serve Naturelle du Grand Cul-de-Sac-Marin, Guadeloupe), –tablis — l issue d une tentative d –radication. Revue d Ecologie (La Terre et la Vie), 59, 293-307.
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 mamif–res terrestres dans les Antilles fran–aises et analyse de leurs impacts.
Lorvelec, O., Pascal, M., & Pavis, C. 2001. Inventaire et statut des Mammif–res des Antilles fran–aises (hors Chiropt–res et C–tac–s). In Rapport n– 27 de l Association pour l Etude et la Protection des Vert–br–s et V–g–taux 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]
Louette M. 1999. La Faune terrestre de Mayotte - Mus–e Royal de l Afrique Centrale, 247 p.
Summary: Synth–se g–n–rale sur la faune terrestre de Mayotte
Meier, Guntram., 2004. New sightings of a small island specialist
Summary: Available from: http://www.birdlife.org/news/news/2004/07/imperial-pigeon.html [Accessed 12 March 2010]
Mus–um national d Histoire naturelle [Ed]. 2003-2006 . *Rattus rattus*. Inventaire national du Patrimoine naturel
Summary: Available from: http://inpn.mnhn.fr/isb/servlet/ISBServlet?action=Espece&typeAction=10&pageReturn=ficheEspeceDescription.jsp&numero_taxon=61587 [Accessed March 25 2008]
Pascal, M., Barr–, N., De Garine-Wichatitsky, Lorvelec, O., Fr–tey, T., Brescia, F., Jourdan, H. 2006. Les peuplements n–o-cal–doniens de vert–b–br–s : invasions, disparitions. Pp 111-162, in M.-L. Beauvais *et al*., : Les esp–ces envahissantes dans l–archipel n–o-cal–donien, Paris, IRD –ditions, 260 p.+ c–d–rom
Summary: Synth–se des introductions d esp–ces de vert–br–s en Nouvelle-Cal–donie et –valuation de leurs impacts.
Pascal, M., Brithmer, R., Lorvelec, O., & Venumi–re, N. 2004a. Cons–quences sur l avifaune nicheuse de la r–serve naturelle des –lets de Sainte-Anne (Martinique) de la r–cente invasion du rat noir (Rattus rattus), –tablis — l issue d une tentative d –radication. Revue d Ecologie (La Terre et la Vie), 59, 309-318.
Pascal, M., Lorvelec, O., Borel, G., & Rosine, A. 2004. Structures sp–cifiques des peuplements de rongeurs d agro-–cosyst–mes et d –cosyst–mes naturels de la Guadeloupe et de la Martinique. Rev.Ecol. (Terre Vie), 59, 283-292.
Probst J.-M. 1997. Animaux de la R–union. Azal–es Editions. 168 pp.
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: 1078–1086.
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.
Yosida, T. H. 1980. Cytogenetics of the Black Rat: karyotype evolution and species differentiation. University of Tokyo Press.