

*Rattus norvegicus*  正體中文

**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Rodentia	Muridae

**Common name** Rata de noruega (English, Dominican Republic), Wanderratte (German), Norway rat (English), brown rat (English), ratto grigio (Italian), surmolotto (Italian), rotta (Finnish), isorotta (Finnish), rat surmolot (French), rata noruega (Spanish), water rat (English), tikus riul (English, Indonesia), common rat (English), sewer rat (English), pouhawaiki (Maori), ratto di fogna (Italian), topo delle fogne (Italian)

**Synonym** *Mus norvegicus* , Berkenhout, 1769  
*Mus decumanus* , Pallas, 1778  
*Mus hibernicus* , Thompson, 1837  
*Epimys norvegicus* , Miller, 1912

**Similar species** *Rattus rattus*, *Rattus exulans*

**Summary** The Norway rat (*Rattus norvegicus*) is globally widespread and costs primary industry hundreds of millions of dollars per year. It has caused or contributed to the extinction or range reduction of native mammals, birds, reptiles and invertebrates through predation and competition. It restricts the regeneration of many plant species by eating seeds and seedlings, eats food crops and spoils human food stores by urinating and defecating in them. Additional economic damage is caused by chewing through power cables and spreading diseases.



[view this species on IUCN Red List](#)

## Species Description

The Norway rat has brown fur on the back with pale grey fur on its belly. The adults normally weigh 150 - 300g, and may reach up to 500g, and are up to 390mm long. They have relatively small ears - which usually do not cover the eyes when pulled forward. The tail is shorter than the head-body length - the opposite is true for the ship rat *R. rattus* (Wittenberg, R. (ed.) 2005). Females have 12 nipples.

## Lifecycle Stages

On Frigate Island in the Seychelles, juvenile rats first ventured from the den when they were 30-50g in weight (Thorsen *et al.*, 2000; in Innes, 2001).

## Habitat Description

Norway rats can be widespread, utilising most habitat types, but they appear to show a preference for wetland habitats. The home range of the Norway rat averaged 5.8ha for males and 5.1ha for females, according to the results from a small study on Kapiti Island off New Zealand (Bramley, 1999; in Innes, 2001). In the UK, male rats had a mean range length of 678m, with that of females being smaller (Macdonald *et al.*, 1999; in Innes, 2001). In Europe, the Norway rat exists primarily in close relationship with humans, but there are also 'wild' populations along water edges. The Norway rat is considered to be territorial throughout most of the year, but they will spread when food is scarce, and migrations have been observed (Wittenberg, R. (ed.) 2005). Norway rats rarely climb trees. In the Galapagos Islands, they prefer to move along underground cracks and crevices in the lava rocks (Key and Woods, 1996; in Innes, 2001). From the distribution and recorded reinvasions of Norway rats it appears that they can cross up to 1km of water comfortably, and up to 2km of open water more rarely when conditions are suitable (mudflats, intermediate rocky islets, tidal flow, *etc.*) (Russell and Clout, 2005).

## Reproduction

Placental, sexual. Females are polyestrous and ovulate spontaneously. Breeding largely determined by food availability.

Litter size normally 6 - 11, gestation is 21-24 days, young weaned at about 28 days. Females can be sexually active in the season of their birth.

## Nutrition

Omnivorous and opportunistic - including raw or cooked meat and vegetable matter, grains and other seeds and berries as well as roots and a wide variety of vertebrate and invertebrate species. Adults require about 10% of their body weight per day in dry grain, and when on a dry diet they need to drink about 25ml of water. *R. norvegicus* in captivity has been observed to withdraw food to the nest, and sometimes store it there (Barnett and Spencer, 1951; in Campbell *et al.*, 1984).

Norway rats on Breaksea Island, New Zealand, have been reported to eat invertebrates (beetles, spiders, wetas and flies), fish, shellfish, vegetation, and birds. A Japanese study showed that *Rattus norvegicus* is essentially omnivorous, eating plant matter and animal matter (eg. insects) in equal volumes (Yabe, 2004). Norway rats have also been known to attack and kill young rabbits (Bettesworth, 1972; B. Zonfrillo, pers. comm.; M. Imber, pers. obs.; in Imber *et al.*, 2000).

## General Impacts

Norway rats are known to restrict the regeneration of many plant species by eating seeds and seedlings. They prey upon most animal species smaller than themselves such as reptiles, small birds, birds eggs and freshwater and intertidal species. Norway rats eat food crops and spoil human food stores by urinating and defecating in them. Additional economic damage is caused by rats chewing through power cables *etc.* and spreading diseases.

Both *R. norvegicus* and *Rattus rattus* 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).



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Rattus norvegicus*

## 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, [Dilks and Towns \(2002\)](#) published by New Zealand's Department of Conservation discusses how to detect and respond to rodent invasions on islands.

**Physical:** Trapping is often used on a local scale, however it generally fails to remove all individuals, as trap-shy animals can survive and repopulate the island (DoC, 2004).

**Chemical:** Use of anticoagulant poisons is the most common method of control. On islands, eradications have been achieved by the use of poisons. However, strict quarantine is required to prevent further spread of this species to additional islands. One of the world's largest successful eradication operations was on the 3,100 hectare Langara Island in British Columbia, Canada. The eradication campaign was begun (after preparation and trials) in July 1995 and the island was declared free of rats in May 1997 (Kaiser et al., 1997). Another example of a successful rat eradication was on Kapiti Island, New Zealand (1970 ha) where "second-generation" anticoagulant poisons have been used (Empson and Miskelly, 1999). The world's largest rat eradication project to date is on Campbell Island (11,300 ha), where eradication was declared in 2003. [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. \(2004\)](#) discussed 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 wooden 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 amount 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).

## Pathway

*Rattus norvegicus* can be transported in either bulk or loose equipment or simply by stowing away on a vessel. Their habit of living near wharves increases the chances of this happening.

## Principal source:

**Compiler:** IUCN SSC Invasive Species Specialist Group

Updates with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

**Review:** Pete McClelland, Dept. of Conservation, Invercargill, New Zealand

**Publication date:** 2011-03-14

## ALIEN RANGE

[1] AMERICAN SAMOA

[1] AUSTRALIA

[1] BELGIUM

[1] BRAZIL

[1] ANGUILLA

[1] BAHAMAS

[1] BERMUDA

[6] CANADA

<b>[3]</b> CAYMAN ISLANDS	<b>[1]</b> CHILE
<b>[1]</b> CHINA	<b>[4]</b> COOK ISLANDS
<b>[1]</b> CURACAO	<b>[1]</b> DENMARK
<b>[1]</b> DOMINICA	<b>[1]</b> DOMINICAN REPUBLIC
<b>[2]</b> ECUADOR	<b>[5]</b> FALKLAND ISLANDS (MALVINAS)
<b>[7]</b> FIJI	<b>[14]</b> FRANCE
<b>[8]</b> FRENCH POLYNESIA	<b>[4]</b> FRENCH SOUTHERN TERRITORIES
<b>[1]</b> GUADELOUPE	<b>[1]</b> GUAM
<b>[1]</b> ISLE OF MAN	<b>[1]</b> ISRAEL
<b>[1]</b> JAMAICA	<b>[1]</b> JAPAN
<b>[2]</b> KIRIBATI	<b>[2]</b> MALTA
<b>[4]</b> MARSHALL ISLANDS	<b>[1]</b> MARTINIQUE
<b>[2]</b> MAURITIUS	<b>[1]</b> MAYOTTE
<b>[2]</b> MEXICO	<b>[2]</b> MICRONESIA, FEDERATED STATES OF
<b>[1]</b> MONTSERRAT	<b>[3]</b> NEW CALEDONIA
<b>[60]</b> NEW ZEALAND	<b>[1]</b> NIUE
<b>[2]</b> NORTHERN MARIANA ISLANDS	<b>[5]</b> PALAU
<b>[1]</b> PERU	<b>[1]</b> PORTUGAL
<b>[1]</b> REUNION	<b>[1]</b> SAINT HELENA
<b>[1]</b> SAINT LUCIA	<b>[1]</b> SAINT PIERRE AND MIQUELON
<b>[1]</b> SAMOA	<b>[1]</b> SAO TOME AND PRINCIPE
<b>[1]</b> SEYCHELLES	<b>[1]</b> SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS
<b>[1]</b> SWITZERLAND	<b>[1]</b> TONGA
<b>[1]</b> TRINIDAD AND TOBAGO	<b>[1]</b> TURKS AND CAICOS ISLANDS
<b>[1]</b> TUVALU	<b>[7]</b> UNITED KINGDOM
<b>[13]</b> UNITED STATES	<b>[1]</b> UNITED STATES MINOR OUTLYING ISLANDS
<b>[3]</b> VANUATU	<b>[1]</b> VIRGIN ISLANDS, BRITISH
<b>[1]</b> VIRGIN ISLANDS, U.S.	<b>[3]</b> WALLIS AND FUTUNA

**Red List assessed species 67: EX = 7; CR = 13; EN = 15; VU = 20; NT = 10; LC = 2;**

<a href="#">Acrocephalus rimatarae</a> <b>VU</b>	<a href="#">Acrocephalus rodericanus</a> <b>EN</b>
<a href="#">Afroablepharus africana</a> <b>VU</b>	<a href="#">Alectroenas rodericana</a> <b>EX</b>
<a href="#">Anas eatoni</a> <b>VU</b>	<a href="#">Anas georgica georgica</a> <b>LC</b>
<a href="#">Anas nesiotis</a> <b>EN</b>	<a href="#">Anthus antarcticus</a> <b>NT</b>
<a href="#">Aphrastura masafuerae</a> <b>CR</b>	<a href="#">Aplonis mavornata</a> <b>EX</b>
<a href="#">Apteryx owenii</a> <b>NT</b>	<a href="#">Arvicola sapidus</a> <b>VU</b>
<a href="#">Charadrius sanctaehelenae</a> <b>CR</b>	<a href="#">Copsychus sechellarum</a> <b>EN</b>
<a href="#">Coracina newtoni</a> <b>CR</b>	<a href="#">Coracina typica</a> <b>VU</b>
<a href="#">Cyanolimnas cerverai</a> <b>CR</b>	<a href="#">Cyanoramphus ulietanus</a> <b>EX</b>
<a href="#">Cyanoramphus zealandicus</a> <b>EX</b>	<a href="#">Cyclura pinguis</a> <b>CR</b>
<a href="#">Eretmochelys imbricata</a> <b>CR</b>	<a href="#">Eudyptes chrysocome</a> <b>VU</b>
<a href="#">Ferminia cerverai</a> <b>EN</b>	<a href="#">Foudia sechellarum</a> <b>NT</b>
<a href="#">Fratercula arctica</a> <b>LC</b>	<a href="#">Fulica alai</a> <b>VU</b>
<a href="#">Gallirallus australis</a> <b>VU</b>	<a href="#">Haematopus chathamensis</a> <b>EN</b>
<a href="#">Himantopus novaezelandiae</a> <b>CR</b>	<a href="#">Hypsipetes olivaceus</a> <b>VU</b>
<a href="#">Larus bulleri</a> <b>EN</b>	<a href="#">Leiopisma telfairii</a> <b>VU</b>
<a href="#">Megapodius laperouse</a> <b>EN</b>	<a href="#">Mergus australis</a> <b>EX</b>
<a href="#">Oligoryzomys victus</a> <b>EX</b>	<a href="#">Oligosoma acrinasum</a> <b>NT</b>
<a href="#">Oligosoma fallai</a> <b>VU</b>	<a href="#">Oligosoma otagense</a> <b>EN</b>
<a href="#">Oreomystis bairdi</a> <b>CR</b>	<a href="#">Phalacrocorax campbelli</a> <b>VU</b>
<a href="#">Phalacrocorax featherstoni</a> <b>EN</b>	<a href="#">Philesturnus carunculatus</a> <b>NT</b>
<a href="#">Phoebetria palpebrata</a> <b>NT</b>	<a href="#">Procellaria aequinoctialis</a> <b>VU</b>
<a href="#">Procellaria cinerea</a> <b>NT</b>	<a href="#">Prosobonia leucoptera</a> <b>EX</b>

[Pseudobulweria macgillivrayi](#) CR  
[Pterodroma cervicalis](#) VU  
[Pterodroma longirostris](#) VU  
[Pterodroma sandwichensis](#) VU  
[Puffinus bulleri](#) VU  
[Puffinus griseus](#) NT  
[Puffinus newelli](#) EN  
[Sterna albobriata](#) EN  
[Trogodytes cobbi](#) VU  
[Vini kuhlii](#) EN  
[Zosterops modestus](#) EN

[Pterodroma cahow](#) EN  
[Pterodroma externa](#) VU  
[Pterodroma phaeopygia](#) CR  
[Puffinus auricularis](#) CR  
[Puffinus creatopus](#) VU  
[Puffinus mauretanicus](#) CR  
[Puffinus yelkouan](#) NT  
[Thinornis novaeseelandiae](#) EN  
[Turdus olivaceofuscus](#) NT  
[Zosterops chloronothus](#) CR

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**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.

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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.

Brown, P. E. 1949. The breeding of avocets in England, 1948. *British Birds* 42: 2-13.

**Summary:** Including the impact of predation by rats.

Chapuis, J., Boussès, P., & Barnaud, G. 1994. Alien mammals, impact and management in the French Subantarctic Islands. *Biological Conservation*, 67, 97-104.

**Summary:** Cet article présente la situation actuelle et les impacts des populations introduites de mammifères dans les îles subantarctiques françaises. Les moyens de contrôle en place ou planifiés sont également présentés.



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Rattus norvegicus*

[CONABIO. 2008. Sistema de información sobre especies invasoras en México. Especies invasoras - Mamíferos. Comisión 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](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 México cuenta actualmente con información acerca de nombre científico, familia, grupo y nombre común, así como hábitat, estado de la invasión en México, rutas de introducción y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la página 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 sección novedades, para conocer los cambios.

Especies invasoras - Mamíferos is available from:

[http://www.conabio.gob.mx/invasoras/index.php/Especies\\_invasoras\\_-\\_Mam%C3%ADferos](http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Mam%C3%ADferos) [Accessed 30 July 2008]

Drever M. C. & Harestad A. . 1998. Diets of Norway rats (*Rattus norvegicus*) on Langara Island, Queen Charlotte Islands, British Columbia: Implications for conservation of breeding seabirds. *Canadian Field-Naturalist* 112: 676 - 683.

[Gargominy, O., Bouchet, P., Pascal, M., Jaffre, T. and Tourneau, J. C. 1996. Consequences des introductions d'especes animales et vegetales sur la biodiversite en Nouvelle-Caledonie. Rev. Ecol. \(Terre Vie\) 51: 375-401.](#)

**Summary:** Consequences to the biodiversity of New Caledonia of the introduction of plant and animal species.

[ITIS \(Integrated Taxonomic Information System\), 2005. Online Database \*Rattus norvegicus\*](#)

**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+norvegicus&p\\_format=&p\\_ifx=plgt&p\\_lang=](http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Rattus+norvegicus&p_format=&p_ifx=plgt&p_lang=) [Accessed March 2005]

Lattanzio, R. M. and Chapman, J. A. 1980. Reproductive and physiological cycles in an island population of Norway rats. *Bulletin of the Chicago Academy of Sciences* 12: 1-68.

Lecorre, com pers, 2007

**Summary:** Personnal communication with Matthieu Lecorre, from the University of La Réunion.

Lorvelec, O., Pascal, M., Delloué, X., Chapuis, J.L. 2007. Les mammifères terrestres non volants des Antilles françaises et l'introduction récente d'un écureuil. *Rev.Ecol. (Terre Vie)*, 62, 295-314

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

[Lorvelec, O., Pascal, M., & Pavis, C. 2001. Inventaire et statut des Mammifères des Antilles françaises \(hors Chiroptères et Cétacés\). In Rapport n° 27 de l'Association pour l'Etude et la Protection des Vertébrés et Végétaux des Petites Antilles, Petit-Bourg, Guadeloupe.](#)

**Summary:** Article de synthèse sur les mammifères (hors chiroptères et cétacés) des Antilles françaises. L'origine des espèces introduites et leurs impacts avérés ou potentiels sont discutés.

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

Louette M. 1999. La Faune terrestre de Mayotte - Musée Royal de l'Afrique Centrale, 247 p.

**Summary:** Synthèse générale sur la faune terrestre de Mayotte

Mendelssohn H & Yom-Tov, 1987. Eds. Vol 7: Mammals. Plants and Animals of the Land of Israel. Ministry of Defence/The Publishing House, Society for the Protection of Nature in Israel.

Meyer, J.-Y. , Butaud, J.F. 2007. Rats as transformers of native forests in the islands of French Polynesia (South Pacific). In Rats, Humans, and their impacts on islands : integrating historical and contemporary ecology. University of Hawaii. Conference 27-31 March 2007.

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[Meyer, J.-Y. & Picot, F. 2001. Achatines attack! The impact of Giant African land snails on rare endemic plants in La Réunion Island \(Mascarene Is., Indian Ocean\). Aliens, 14, 13-14.](#)

**Summary:** Available from: [http://www.issg.org/pdf/aliens\\_newsletters/A14.pdf](http://www.issg.org/pdf/aliens_newsletters/A14.pdf) [Accessed 10 November 2009]

Micol, T. & Jouventin, P. 1995. Restoration of Amsterdam Island, South Indian Ocean, following control of feral cattle. *Biol. Conserv.*, 72, 199-206.

Moors, P. J. 1990. Norway rat. In King, C. M. (ed.) *The Handbook of New Zealand Mammals*. Oxford University Press, Auckland: 192-206.

Moors P. M. 1985. Norway Rats (*Rattus norvegicus*) on the Noises and Motukawao Islands, Hauraki Gulf, New Zealand. *New Zealand Journal of Ecology* 8: 37 - 54.

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**Summary:** Available from:

[http://inpn.mnhn.fr/isb/servlet/ISBServlet?action=Espece&typeAction=10&pageReturn=ficheEspeceDescription.jsp&numero\\_taxon=61585](http://inpn.mnhn.fr/isb/servlet/ISBServlet?action=Espece&typeAction=10&pageReturn=ficheEspeceDescription.jsp&numero_taxon=61585) [Accessed March 2008]

Pascal, M., Barré, N., De Garine-Wichatitsky, Lorvelec, O., Frétey, T., Brescia, F., Jourdan, H. 2006. Les peuplements néo-calédoniens de vertébrés : invasions, disparitions. Pp 111-162, in M.-L. Beauvais et al., : Les espèces envahissantes dans l'archipel néo-calédonien, Paris, IRD éditions, 260 p. + cd-rom

**Summary:** Synthèse des introductions d'espèces de vertébrés en Nouvelle-Calédonie et évaluation de leurs impacts.

Picot F. 2005. - Plan de conservation du Mazambron marron, *Aloe macra* Haw., Aloe section Lomatophyllum Rowley. CBNM, non publié

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<https://www.iucngisd.org/gisd/species.php?sc=159> [Accessed 04 April 2026]



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FULL ACCOUNT FOR: *Rattus norvegicus*

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Pye, T. and Bonner, W. N. 1980. Feral brown rats, *Rattus norvegicus*, in South Georgia (South Atlantic Ocean). Journal of Zoology, London 192: 237-255.

Urtizbera, pers.comm., 2007

**Summary:** Personal communication with Frank Urtizbera, from the Direction de l'Agriculture et de la Forêt .