

FULL ACCOUNT FOR: Capra hircus





System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Artiodactyla	Bovidae

Common name Hausziege (German), goat (English)

Synonym

Similar species

Summary The goat (Capra hircus) was domesticated 10,000 years ago in the highlands

of western Iran. These herbivores have a highly varied diet and are able to ultilise a larger number of plant species than other livestock. Goats alter plant communities and forest structure and threaten vulnerable plant species. The reduction of vegetation reduces shelter options for native animals and overgrazing in native communitties leads to ecosystem degradation. Feral goats spread disease to native animals. Native fauna on islands are

particularly susceptible.

view this species on IUCN Red List

Species Description

Males weigh between 45 and 55 kilos and females weigh between 25 and 35 kilos. Colouration is highly variable from mostly black, to various shades of brown, and from single-coloured to multi-coloured. Black anterior with brown posterior is a common pattern. Horns are dimorphic, having homonymous spiral and anterior keel. Males are bearded and produce pheromones during the breeding season.

Uses

The ability of goat herds to survive in harsh environments has lead to their introduction onto many islands, including Saint Helena Island, the Juan Fernandez Islands and Hawaii. They provided food for colonising people (specifically European colonisers and ship crews) (Campbell and Donlan 2005). Fishermen may have spread goats onto new islands, such as San Benitos (Mexico) and Pinta Island and Marchena Island (Galapagos Islands, Ecuador) (Campbell and Donlan 2005), \r\n

Goats were domesticated 10,000 years ago in the highlands of western Iran (Zeder and Hesse 2000, in Campbell and Donlan 2005). Goats are used for their fur and meat as well as for milk and cheese production. Goat meat is the most highly consumed meat source in the world. More goats milk is consumed than cows milk. Angora goats have long soft fur which is utilised to produce a soft silk-like fabric called mohair. In New Zealand, mohair prices are strong (2006) and farm gate returns are good. Although little is known of optimum farm management systems, it is considered that the farming of angora goats could contribute to the positive growth of the economy (Mohair NZ Business Plan 2006). The French are well known for utilising goat products for economic purposes; making cheese and other goat milk products (Canus Undated). Some cosmetic products have claimed to help eczema sufferers (Johnson 2006).

Habitat Description

Goats usually move in herds that roam over territories up to 20km wide. Sometimes herd ranges can be as small as 100m2. Males usually wander more widely than females. Grasslands, scrub lands, rocky outcrops and semi-open or open forests are all used extensively by goats as habitat substrate. In bad weather, they may seek shelter under rocky ledges (SPREP, 2000).



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Reproduction

Both sexes are physiologically capable of reproduction at about 6 months of age. Dominant males fight to win females. They follow a serial pattern and attend to one female after another as they come into estrus. In one sense this is termed polygyny, as males breed with as many females as they can during a breeding period, but more properly this is serial monogamy as a male will tend a female for extended periods, both before and after copulation and before leaving in search of a different mate.\r\n

Realised reproduction varies among populations, seasons and years. At best a typical female goat would produce one young in its first pregnancy and twin kids in subsequent pregnancies. However, most females are at less than optimal condition, which may result in a twinning rate of as little as 0%. At best, herds may produce twins at a rate of 80% or more. Triplets are not uncommon.

Nutrition

Goats are herbivores and will forage on any palatable plants in their home range. Goats have rather large rumino-reticular volume so they are able to subsist on poorer quality plants than most herbivores, therefore goats can survive and subsist in heavily exploited environments. \r\n

In a study conducted by Chimera, Coleman and Parkes (1995) the rumen contents of 49 goats (captured in 1989) were identified and the dry weight of each component was measured to produce a breakdown of the diet of a small, unique remnant population (now extinct) of feral goats on Auckland Island (a subantarctic island located south of New Zealand). Woody plants and grasses made up the bulk of their diet (41% and 39%, respectively); seaweeds made up 13%, ferns 4% and herbaceous species 3%. At least 40 plant species were eaten by the goats, but only three species, rata (*Metrosideros umbellate*), snow tussock (*Chionochloa Antarctica*) and kelp (*Durvillea Antarctica*), made up half of the total. Rata (*Metrosideros umbellate*), *Coprosma foetidissima*, *Pseudopanax simplex* and *Carex appressa* were the most commonly found species - eaten in at least some quantity by 90%, 80%, 76% and 69% of the goats (respectively). Unidentified grasses composed 21.4% of the total contents (dry weight) and were found in 100% of goats. NB: This population had a unique genetic makeup as it evolved separately for over 100 years on an isolated island with a cold and harsh climate and so it may not represent the dietary preferences of all goats. However, it highlights the huge adaptability of goats and their ability to subsist in particular and inhospitable landscapes.

General Impacts

Biodiversity on islands is greatly threatened, making the introduction of herbivores a great risk (Campbell and Donlan 2005). Unfortunately, goats (*Capra hircus*) have been established on many such islands. Goats alter plant communities and forest structures and threaten vulnerable plant species; the flow-down effect of these outcomes includes increased soil erosion and the reduction of native fauna that share a similar environmental niche (Spatz and Mueller-Dombois 1973, Coblentz 1978, Parkes 1984, Brennan 1986, Coblentz and Van Vuren 1987, Cronk 1989, Walker 1991, Moran 1996, Desender *et al.* 1999, in Campbell and Donlan 2005). In some island ecosystems it has been the case that goats are the most destructive herbivore present (King, 1985). Feral goats are particularly destructive in such environments and cause a huge loss in native vegetation due to their grazing habits. This leads to ecosystem degradation and biodiversity loss (Coblentz 1978; Schofield 1989; Moran 1996; Desender *et al.* 1999 in Campbell and Donlan 2005).



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Management Info

Goats have been eradicated from approximately 120 islands and there is hope that native communities will recover rapidly (Hamann 1979, 1993, in Campbell and Donlan 2005). The largest islands on which substantial goat populations have been removed are: Lanai Island (Hawaii), San Clemente (USA), Pinta Island (Galapagos Islands, Ecuador) and Raoul Island (New Zealand) (Campbell and Donlan 2005). In general, goat eradication management for islands larger than 500 hectares requires detailed planning and the use of specialised technology, equipment and personnel. Securing funds for eradication programmes may be an obstacle to goat control (Campbell and Donlan 2005).

The introduction of modern eradication technology has greatly improved the effectiveness of goat control programmes, making goat eradication more likely. Some control methods include the employment of aerial hunting (helicopter), specially trained goat-hunting dogs, Global Positioning Systems and Geographic Information System techniques as well as sterilised goats marked with radiotelemetry collars, called "Judas goats", which gravitate to, and therefore detect, wild goat herds. Judas goats are used to find wild herds and are especially suitable for finding the last few survivors or to detect the presence of wild goats when it is uncertain whether they have been eradicated. Hunting dogs are particularly useful in situations when goat density is low and vegetation density is high. Aerial hunting is appropriate in situations where there is less ground cover and a higher density of goats. \r\nEradication is always the better option when compared to short-term control. If short-term control is chosen, goats should be kept at low densities.

Please follow this link for an <u>overview of the management methods adopted for the control of Capra hircus</u> compiled by the ISSG.

Guidelines for managing the impact of feral goats have been developed under the Vertebrate Pest Program (VPP) Australia administered by the Bureau of Resource Sciences (BRS). The purpose of these guidelines is to assist in the development of cost-effective strategies to reduce the damage feral goats' cause to production and conservation. Management techniques and strategies for feral goat management are recommended and illustrated by case studies. Deficiencies in knowledge, management and legislation are identified. Please follow this link to view and download Parkes, I., R Henzell & G Pickles, 1995. Managing Vertebrate Pests: Feral Goats

Pathway

Goats (*Capra hircus*) were released as potential food for people marooned by shipwrecks. Goats (*Capra hircus*) were introduced to islands for their milk.

Principal source:

Compiler: IUCN SSC Invasive Species Specialist Group (ISSG) with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

Review: Dr. Bruce Coblentz, Oregon State University, USA.

Pubblication date: 2010-09-15

ALIEN RANGE

[2] ANGUILLA [1] ANTIGUA AND BARBUDA

[41] AUSTRALIA [1] BAHAMAS

[1] BES ISLANDS (BONAIRE, SINT EUSTATIUS AND SABA) [2] CANADA

[3] CAYMAN ISLANDS [1] COOK ISLANDS

[1] CURACAO [1] DOMINICAN REPUBLIC

[8] ECUADOR [1] FALKLAND ISLANDS (MALVINAS)

[1] FIJI [3] FRENCH POLYNESIA

[3] FRENCH SOUTHERN TERRITORIES [1] GREECE



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[2] GUADELOUPE [1] JAMAICA

[1] MAURITIUS

[4] MEXICO [14] NEW ZEALAND

[2] NORTHERN MARIANA ISLANDS

[1] PORTUGAL [1] REUNION [1] SAINT LUCIA

[4] SPAIN

[7] UNITED STATES

[4] VIRGIN ISLANDS, BRITISH

[1] HAITI

[2] KIRIBATI

[1] MAYOTTE

[1] NEW CALEDONIA

[1] NORFOLK ISLAND

[1] PITCAIRN

[1] PUERTO RICO

[4] SAINT HELENA

[3] SEYCHELLES

[2] TURKS AND CAICOS ISLANDS

[1] VENEZUELA

[1] VIRGIN ISLANDS, U.S.

Red List assessed species 284: EX = 7; EW = 1; CR = 102; EN = 80; VU = 67; LR/nt = 1; NT = 16; DD = 5; LC = 5;

Abutilon menziesii CR Acacia anegadensis CR Aceros narcondami EN Acrocephalus kerearako NT

Acrocephalus vaughani EN Actinella laciniosa VU Alectryon macrococcus CR

Alsinidendron trinerve CR Amazona barbadensis VU

Androcymbium psammophilum VU

Antirrhinum charidemi CR Aphrastura masafuerae CR Argyroxiphium sandwicense VU Asparagus arborescens VU Begonia samhaensis EN Bidens cosmoides EN Bidens wiebkei CR

Brahea edulis EN Brassica villosa NT Brighamia rockii CR **Bulimulus cinerarius EN**

Bonamia menziesii CR

Bulimulus indefatigabilis CR **Bulimulus nesioticus VU** Bulimulus perrus VU Bulimulus tortuganus VU

Cabalus modestus **EX** Campanula mairei VU Canariella huttereri EN Canavalia molokaiensis CR Canavalia pubescens CR

Capra aegagrus VU Centaurea princeps EN Centranthus amazonum CR Chamaesyce eleanoriae CR

Charpentiera densiflora CR

Chinchilla lanigera CR Cicer canariense EN Collocalia bartschi EN

Abutilon sandwicense CR

Acacia koaia VU

Achyranthes mutica CR Acrocephalus luscinius CR Actinella actinophora VU Aethionema retsina CR

Aloe pillansii CR

Alsinidendron viscosum CR

Anas wyvilliana EN Anolis longiceps VU Apalis karamojae VU

Argyroxiphium kauense CR Armeria soleirolii EN

Atelognathus reverberii EN Bencomia exstipulata VU Bidens molokaiensis VU Bobea timonioides EN Bowdleria rufescens **EX** Brassica rupestris **NT** Brighamia insignis CR Bulimulus albermalensis DD

Bulimulus darwini VU Bulimulus jacobi CR Bulimulus olla EN

Bulimulus sculpturatus CR Bupleurum kakiskalae CR Callaeas cinereus EN Canariella eutropis EN Canariella jandiaensis CR Canavalia napaliensis CR Capparis sandwichiana VU Cenchrus agrimonioides CR Centaurium sebaeoides CR Centranthus trinervis EN Chamaesyce remyi CR

Cheirolophus santos-abreui CR

Christella boydiae EN Coccyzus ferrugineus VU Colubrina oppositifolia CR



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Convolvulus lopezsocasii EN Corvus hawaiiensis EW Ctenitis squamigera CR Cyanea asplenifolia CR Cyclura carinata CR Cyclura onchiopsis EX Darevskia rostombekovi EN Dipodomys insularis CR Discula tetrica CR Echium gentianoides VU Encephalartos lehmannii NT Erigeron frigidus EN Euastacus australasiensis LC Euastacus bispinosus VU Euastacus clarkae CR Euastacus crassus EN Euastacus dharawalus CR Euastacus eungella CR Euastacus girurmulayn CR Euastacus guruhgi CR **Euastacus hystricosus EN** Euastacus jagara CR Euastacus maidae CR **Euastacus monteithorum CR Euastacus polysetosus EN Euastacus setosus CR Euastacus spinichelatus EN Euastacus suttoni VU** Euastacus valentulus LC **Euastacus yanga LC** Eupherusa poliocerca VU Frankenia portulacifolia VU Gallirallus sylvestris EN Genista benehoavensis VU Globularia ascanii CR Hemicycla efferata CR Hemignathus parvus VU Heteromys oasicus EN Hyloxalus infraguttatus NT Isoplexis isabelliana EN Kokia kauaiensis CR Lactuca palmensis LC Laterallus spilonotus VU Leiopelma hochstetteri VU

Leipoa ocellata VU
Lepidoblepharis montecanoensis DD
Ligusticum huteri CR
Lotus pyranthus CR
Loxops caeruleirostris CR
Mammillaria albicoma EN
Mastus claudia VU
Melanomys zunigae CR
Melicope mucronulata CR
Metastelma anegadense CR

Cordia rupicola CR Crambe microcarpa EN Cumarinia odorata VU Cyanea procera CR Cyclura cychlura VU Cyclura stejnegeri EN Dendroica subita NT Discula Iyelliana CR Ducula galeata EN Echium handiense CR Epicrates monensis EN Euastacus armatus **DD** Euastacus bidawalis EN **Euastacus brachythorax EN** Euastacus claytoni EN Euastacus dalagarbe CR **Euastacus diversus EN** Euastacus gamilaroi CR Euastacus gumar EN **Euastacus hirsutus EN** Euastacus jagabar CR Euastacus maccai EN Euastacus mirangudjin CR **Euastacus pilosus EN** Euastacus rieki EN Euastacus simplex **VU** Euastacus sulcatus VU Euastacus urospinosus EN Euastacus wiowuru NT Euastacus yarreansis VU Euphorbia haeleeleana EN Fritillaria epirotica EN Gardenia brighamii CR Geomitra grabhami CR Gouania vitifolia CR Hemicycla paeteliana CR Hesperomannia arborescens CR Hibiscadelphus woodii CR Iguana delicatissima EN Isotomus jarmilae EN Kunkeliella psilotoclada CR Larus audouinii NT Ledebouria insularis EN Leiostyla macilenta VU

Lepidoblepharis colombianus DD
Leptochloa ginae EN
Limonium sventenii CR
Loxioides bailleui CR
Macaca sylvanus EN
Mastus amenazada VU
Megapodius laperouse EN
Melicope haupuensis CR
Melicope saint-johnii EN
Microcavia shiptoni NT



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Micromeria glomerata CR Mimus melanotis EN Minuartia dirphya CR Moho bishopi EX

Montivipera bornmuelleri EN
Myadestes obscurus VU
Myiarchus semirufus EN
Naufraga balearica CR
Nesillas aldabrana EX
Nothocestrum peltatum CR
Obelus moratus VU

Ochrosia inventorum CR
Oldenlandia adscensionis EX

Oreomystis mana EN
Parvilacerta fraasii EN
Pennantia baylisiana CR
Petrogale penicillata NT
Picris willkommii EN
Pinguicula nevadensis EN
Podarcis lilfordi EN
Portulaca samhaensis EN
Procellaria westlandica VU
Pseudonestor xanthophrys CR
Psittirostra psittacea CR
Pterodroma arminjoniana VU

Pterodroma arminjohlana VV
Pterodroma brevipes VU
Pterodroma externa VU
Pterodroma longirostris VU
Pterodroma phaeopygia CR
Pterodroma solandri VU
Ptilinopus huttoni VU
Puffinus newelli EN
Quercus cedrosensis VU
Ribes sardoum CR
Salvia herbanica CR

Scalesia atractyloides CR
Scalesia incisa VU
Scalesia stewartii VU
Schiedea kaalae CR
Silene holzmannii EN

Somuncuria somuncurensis CR Sylvilagus graysoni EN

Tephrosia pondoensis VU
Thymus carnosus NT
Todiramphus godeffroyi CR

Triplax emgei **VU**Tumbezia salvini **NT**Vini ultramarina **EN**Xerosecta giustii **CR**

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48 references found for Capra hircus

Managment information

Mimus macdonaldi VU
Mimus trifasciatus CR
Mogera uchidai DD
Monilogria granostriata

Monilearia granostriata CR Munroidendron racemosum CR

Myadestes palmeri CR Napaeus lichenicola VU Neraudia ovata CR Nesotriccus ridgwayi VU

Obelus discogranulatus EN
Oceanodroma macrodactyla CR
Ochrosia kilaueaensis CR

Ochrosia kilaueaensis CK
Oligosoma acrinasum NT
Paroreomyza montana EN
Pelargonium insularis CR
Peromyscus madrensis EN
Phyllodactylus leei VU
Pinaroloxias inornata VU
Podarcis levendis VU
Pomarea nukuhivae EX
Pritchardia glabrata EN
Proechimys decumanus VU
Pseudosphegesthes bergeri EN
Pteralyxia kauaiensis EN

Pteralyxia kauaiensis EN
Pterodroma baraui EN
Pterodroma cervicalis VU
Pterodroma feae NT
Pterodroma madeira EN
Pterodroma sandwichensis VU
Pteropus mariannus EN
Puffinus creatopus VU

Puffinus opisthomelas NT Rhionaeschna galapagoensis EN Ruprechtia apetala LR/nt

Scalesia aspera VU
Scalesia divisa CR
Scalesia retroflexa VU
Scalesia villosa VU
Sideritis marmorea CR

Sinapidendron sempervivifolium EN

Stenopterus creticus EN
Teline rosmarinifolia EN
Theba impugnata VU
Tinostoma smaragditis EN
Todiramphus ruficollaris VU
Trochetiopsis ebenus CR
Vermivora crissalis NT
Xantusia riversiana LC
Zelkova abelicea VU



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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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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]

West., C. J., 2002. Eradication of alien plants on Raoul Island, Kermadec Islands, New Zealand. In *Turning the tide: the eradication of invasive species*: 381-388. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland.

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

Youngquist (ed.), Current therapy in large animal theriogenology, 1st edn, W. B. Saunders, Philadelphia, pp. 594-8.

General information

Barthelat, pers. comm., 2007

Summary: Personal communication with Fabien Barthelat, an expert of flora of Mayotte.

Chimera, C.; Coleman, M.C.; Parkes, J.P. 1995. Diet of feral goats and feral pigs on Auckland Island, New Zealand. New Zealand Journal of Ecology 19: 203-207.

Summary: Available from: http://www.nzes.org.nz/nzje/free_issues/NZJEcol19_2_203.pdf [Accessed 12 March 2010]
CONABIO. 2008. Sistema de información sobre especies invasoras en Móxico. Especies invasoras - Mamóferos. 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 [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:

http://www.conabio.gob.mx/invasoras/index.php/Especies invasoras - Mam%C3%ADferos [Accessed 30 July 2008]

De Garine-Wichatitsky, M., Spaggiari, J., Menard, C. 2004. Ecologie et impact des ongul®s introduits sur la for®t s®che de Nouvelle Cal®donie. IAC/CIRAD, Programme Elevage et Faune, Pa®ta, Nouvelle-Cal®donie, 50p et 128 p d annexes. Feldmann, pers. comm., 2007

Summary: Personal communication with Philippe Feldmann, an biodiversity expert from the CIRAD- Centre de coop@ration internationale en recherche agronomique pour le d@veloppement

Fraser, Ross Kingsley Timpson, Pete McClelland, Ian Hill, Greg Sherley., undated. Auckland Island Goats A Rare Breed of New Zealand Origin **Summary:** Available from: http://www.rarebreeds.co.nz/auckgoats.html [Accessed 23 February 2010]



FULL ACCOUNT FOR: Capra hircus

Gargominy, O. (Ed.). 2003. Biodiversit et conservation dans les collectivit fran aises doutre-mer. Comit fran ais pour l'UICN, Paris.

Summary: Synth se sur la biodiversit des se les francaises d'outre-mer et les enjeux de conservation.

Available from: http://www.uicn.fr/Biodiversite-outre-mer-2003.html [Accessed 26 March 2008]

ITIS (Integrated Taxonomic Information System), 2004. Online Database Capra hircus

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.itis.gov/servlet/SingleRpt/SingleRpt/Search_topic=TSN&search_value=180715 [Accessed 18 February 2008] 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.

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

Summary: Synth�se g�n�rale sur la faune terrestre de Mayotte

Meyer, J.-Y. pers. comm., 2007

Summary: Personal communication with Jean Yves Meyer, from the D�I�gation � la Recherche of French Polynesia

Moverly, A.V. (1953) Pitcairn Island: An economic survey. Transactions of the Fiji Society 4: 61-67. In: Varnham, K. (2005) Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough, United Kingdom

Mus@um national d Histoire naturelle [Ed]. 2003-2006. Capra hircus. Inventaire national du Patrimoine naturel

Summary: Available from:

http://inpn.mnhn.fr/isb/servlet/ISBServlet?action=Espece&typeAction=10&pageReturn=ficheEspeceDescription.jsp&numero_taxon=61097 [Accessed March 25 2008]

Pascal, M., Barr, N., De Garine-Wichatitsky, Lorvelec, O., Fr, ty, T., Brescia, F., Jourdan, H. 2006. Les peuplements n ocal doniens de vert b b b r 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 oditions, 260 p.+ c d rom

Summary: Synth se des introductions d especes de vert bres en Nouvelle-Cal donie et valuation de leurs impacts.

Rudge, M. R. 1990. Feral goat. In King, C. M. (ed.) The Handbook of New Zealand Mammals: 406 \$\displays423\$.

Vandamme, A. 2001. Diagnostic sur les esp€ces spontan€es € Mayotte. Perception et utilisation de ces esp€ces par les paysans. M€moire ISTOM/CIRAD. 73 pp.