

*Capra hircus*  [简体中文](#) [正體中文](#)

**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 utilise 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 communities 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).

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 100m<sup>2</sup>. 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).

## 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.

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.

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 umbellata*), snow tussock (*Chionochloa Antarctica*) and kelp (*Durvillea Antarctica*), made up half of the total. Rata (*Metrosideros umbellata*), *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, Coblenz 1978, Parkes 1984, Brennan 1986, Coblenz 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 (Coblenz 1978; Schofield 1989; Moran 1996; Desender *et al.* 1999 in Campbell and Donlan 2005).

## 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. Eradication 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 [overview of the management methods adopted for the control of \*Capra hircus\*](#) 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, J., 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 Coblenz, Oregon State University, USA.

**Publication date:** 2010-09-15

## ALIEN RANGE

<b>[2]</b> ANGUILLA	<b>[1]</b> ANTIGUA AND BARBUDA
<b>[41]</b> AUSTRALIA	<b>[1]</b> BAHAMAS
<b>[1]</b> BES ISLANDS (BONAIRE, SINT EUSTATIUS AND SABA)	<b>[2]</b> CANADA
<b>[3]</b> CAYMAN ISLANDS	<b>[1]</b> COOK ISLANDS
<b>[1]</b> CURACAO	<b>[1]</b> DOMINICAN REPUBLIC
<b>[8]</b> ECUADOR	<b>[1]</b> FALKLAND ISLANDS (MALVINAS)
<b>[1]</b> FIJI	<b>[3]</b> FRENCH POLYNESIA
<b>[3]</b> FRENCH SOUTHERN TERRITORIES	<b>[1]</b> GREECE

[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  
[Bonamia menziesii](#) CR  
[Brahea edulis](#) EN  
[Brassica villosa](#) NT  
[Brighamia rockii](#) CR  
[Bulimulus cinerarius](#) EN  
[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  
[Bobeia 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

<a href="#">Convolvulus lopezsocasii</a>	EN	<a href="#">Cordia rupicola</a>	CR
<a href="#">Corvus hawaiiensis</a>	EW	<a href="#">Crambe microcarpa</a>	EN
<a href="#">Ctenitis squamigera</a>	CR	<a href="#">Cumarinia odorata</a>	VU
<a href="#">Cyanea asplenifolia</a>	CR	<a href="#">Cyanea procera</a>	CR
<a href="#">Cyclura carinata</a>	CR	<a href="#">Cyclura cychlura</a>	VU
<a href="#">Cyclura onchiopsis</a>	EX	<a href="#">Cyclura stejnegeri</a>	EN
<a href="#">Darevskia rostombekovi</a>	EN	<a href="#">Dendroica subita</a>	NT
<a href="#">Dipodomys insularis</a>	CR	<a href="#">Discula lyelliana</a>	CR
<a href="#">Discula tetrica</a>	CR	<a href="#">Ducula galeata</a>	EN
<a href="#">Echium gentianoides</a>	VU	<a href="#">Echium handiense</a>	CR
<a href="#">Encephalartos lehmannii</a>	NT	<a href="#">Epicrates monensis</a>	EN
<a href="#">Erigeron frigidus</a>	EN	<a href="#">Euastacus armatus</a>	DD
<a href="#">Euastacus australasiensis</a>	LC	<a href="#">Euastacus bidawalis</a>	EN
<a href="#">Euastacus bispinosus</a>	VU	<a href="#">Euastacus brachythorax</a>	EN
<a href="#">Euastacus clarkae</a>	CR	<a href="#">Euastacus claytoni</a>	EN
<a href="#">Euastacus crassus</a>	EN	<a href="#">Euastacus dalagarbe</a>	CR
<a href="#">Euastacus dharawalus</a>	CR	<a href="#">Euastacus diversus</a>	EN
<a href="#">Euastacus eungella</a>	CR	<a href="#">Euastacus gamilaroi</a>	CR
<a href="#">Euastacus girurmulayn</a>	CR	<a href="#">Euastacus gumar</a>	EN
<a href="#">Euastacus guruhgi</a>	CR	<a href="#">Euastacus hirsutus</a>	EN
<a href="#">Euastacus hystricosus</a>	EN	<a href="#">Euastacus jagabar</a>	CR
<a href="#">Euastacus jagara</a>	CR	<a href="#">Euastacus maccai</a>	EN
<a href="#">Euastacus maidae</a>	CR	<a href="#">Euastacus mirangudjin</a>	CR
<a href="#">Euastacus monteithorum</a>	CR	<a href="#">Euastacus pilosus</a>	EN
<a href="#">Euastacus polysetosus</a>	EN	<a href="#">Euastacus rieki</a>	EN
<a href="#">Euastacus setosus</a>	CR	<a href="#">Euastacus simplex</a>	VU
<a href="#">Euastacus spinichelatus</a>	EN	<a href="#">Euastacus sulcatus</a>	VU
<a href="#">Euastacus suttoni</a>	VU	<a href="#">Euastacus urospinosus</a>	EN
<a href="#">Euastacus valentulus</a>	LC	<a href="#">Euastacus wiowuru</a>	NT
<a href="#">Euastacus yanga</a>	LC	<a href="#">Euastacus yarreansis</a>	VU
<a href="#">Eupherusa poliocerca</a>	VU	<a href="#">Euphorbia haeleeleana</a>	EN
<a href="#">Frankenia portulacifolia</a>	VU	<a href="#">Fritillaria epirotica</a>	EN
<a href="#">Gallirallus sylvestris</a>	EN	<a href="#">Gardenia brighamii</a>	CR
<a href="#">Genista benehoavensis</a>	VU	<a href="#">Geomitra grabhami</a>	CR
<a href="#">Globularia ascanii</a>	CR	<a href="#">Gouania vitifolia</a>	CR
<a href="#">Hemicycla efferata</a>	CR	<a href="#">Hemicycla paeteliana</a>	CR
<a href="#">Hemignathus parvus</a>	VU	<a href="#">Hesperomannia arborescens</a>	CR
<a href="#">Heteromys oasicus</a>	EN	<a href="#">Hibiscadelphus woodii</a>	CR
<a href="#">Hyloxalus infraguttatus</a>	NT	<a href="#">Iguana delicatissima</a>	EN
<a href="#">Isoplexis isabelliana</a>	EN	<a href="#">Isotomus jarmilae</a>	EN
<a href="#">Kokia kauaiensis</a>	CR	<a href="#">Kunkeliella psilotoclada</a>	CR
<a href="#">Lactuca palmensis</a>	LC	<a href="#">Larus audouinii</a>	NT
<a href="#">Laterallus spilonotus</a>	VU	<a href="#">Ledebouria insularis</a>	EN
<a href="#">Leiopelma hochstetteri</a>	VU	<a href="#">Leiostyla macilenta</a>	VU
<a href="#">Leipoa ocellata</a>	VU	<a href="#">Lepidoblepharis colombianus</a>	DD
<a href="#">Lepidoblepharis montecanoensis</a>	DD	<a href="#">Leptochloa ginae</a>	EN
<a href="#">Ligusticum huteri</a>	CR	<a href="#">Limonium sventenii</a>	CR
<a href="#">Lotus pyranthus</a>	CR	<a href="#">Loxioides bailleui</a>	CR
<a href="#">Loxops caeruleirostris</a>	CR	<a href="#">Macaca sylvanus</a>	EN
<a href="#">Mammillaria albicoma</a>	EN	<a href="#">Mastus amenazada</a>	VU
<a href="#">Mastus claudia</a>	VU	<a href="#">Megapodius laperouse</a>	EN
<a href="#">Melanomys zunigae</a>	CR	<a href="#">Melicope haupuensis</a>	CR
<a href="#">Melicope mucronulata</a>	CR	<a href="#">Melicope saint-johnii</a>	EN
<a href="#">Metastelma anegadense</a>	CR	<a href="#">Microcavia shiptoni</a>	NT

<a href="#">Micromeria glomerata</a>	CR	<a href="#">Mimus macdonaldi</a>	VU
<a href="#">Mimus melanotis</a>	EN	<a href="#">Mimus trifasciatus</a>	CR
<a href="#">Minuartia dirphya</a>	CR	<a href="#">Mogera uchidai</a>	DD
<a href="#">Moho bishopi</a>	EX	<a href="#">Monilearia granostrata</a>	CR
<a href="#">Montivipera bornmuelleri</a>	EN	<a href="#">Munroidendron racemosum</a>	CR
<a href="#">Myadestes obscurus</a>	VU	<a href="#">Myadestes palmeri</a>	CR
<a href="#">Myiarchus semirufus</a>	EN	<a href="#">Napaeus lichenicola</a>	VU
<a href="#">Naufraga balearica</a>	CR	<a href="#">Neraudia ovata</a>	CR
<a href="#">Nesillas aldabrana</a>	EX	<a href="#">Nesotriccus ridgwayi</a>	VU
<a href="#">Nothoecstrum peltatum</a>	CR	<a href="#">Obelus discogranulatus</a>	EN
<a href="#">Obelus moratus</a>	VU	<a href="#">Oceanodroma macrodactyla</a>	CR
<a href="#">Ochrosia inventorum</a>	CR	<a href="#">Ochrosia kilaueaensis</a>	CR
<a href="#">Oldenlandia adscensionis</a>	EX	<a href="#">Oligosoma acrinatum</a>	NT
<a href="#">Oreomystis mana</a>	EN	<a href="#">Paroreomyza montana</a>	EN
<a href="#">Parvilacerta fraasii</a>	EN	<a href="#">Pelargonium insularis</a>	CR
<a href="#">Pennantia baylisiana</a>	CR	<a href="#">Peromyscus madrensis</a>	EN
<a href="#">Petrogale penicillata</a>	NT	<a href="#">Phyllodactylus leei</a>	VU
<a href="#">Picris willkommii</a>	EN	<a href="#">Pinaroloxias inornata</a>	VU
<a href="#">Pinguicula nevadensis</a>	EN	<a href="#">Podarcis levendis</a>	VU
<a href="#">Podarcis lilfordi</a>	EN	<a href="#">Pomarea nukuhivae</a>	EX
<a href="#">Portulaca samhaensis</a>	EN	<a href="#">Pritchardia glabrata</a>	EN
<a href="#">Procellaria westlandica</a>	VU	<a href="#">Proechimys decumanus</a>	VU
<a href="#">Pseudonestor xanthophrys</a>	CR	<a href="#">Pseudosphegastes bergeri</a>	EN
<a href="#">Psittirostra psittacea</a>	CR	<a href="#">Pteralyxia kauaiensis</a>	EN
<a href="#">Pterodroma arminjoniana</a>	VU	<a href="#">Pterodroma baraui</a>	EN
<a href="#">Pterodroma brevipes</a>	VU	<a href="#">Pterodroma cervicalis</a>	VU
<a href="#">Pterodroma externa</a>	VU	<a href="#">Pterodroma feae</a>	NT
<a href="#">Pterodroma longirostris</a>	VU	<a href="#">Pterodroma madeira</a>	EN
<a href="#">Pterodroma phaeopygia</a>	CR	<a href="#">Pterodroma sandwichensis</a>	VU
<a href="#">Pterodroma solandri</a>	VU	<a href="#">Pteropus mariannus</a>	EN
<a href="#">Ptilinopus huttoni</a>	VU	<a href="#">Puffinus creatopus</a>	VU
<a href="#">Puffinus newelli</a>	EN	<a href="#">Puffinus opisthomelas</a>	NT
<a href="#">Quercus cedrosensis</a>	VU	<a href="#">Rhionaeschna galapagoensis</a>	EN
<a href="#">Ribes sardoum</a>	CR	<a href="#">Ruprechtia apetala</a>	LR/nt
<a href="#">Salvia herbanica</a>	CR	<a href="#">Scalesia aspera</a>	VU
<a href="#">Scalesia atractylodes</a>	CR	<a href="#">Scalesia divisa</a>	CR
<a href="#">Scalesia incisa</a>	VU	<a href="#">Scalesia retroflexa</a>	VU
<a href="#">Scalesia stewartii</a>	VU	<a href="#">Scalesia villosa</a>	VU
<a href="#">Schiedea kaalae</a>	CR	<a href="#">Sideritis marmorea</a>	CR
<a href="#">Silene holzmannii</a>	EN	<a href="#">Sinapidendron sempervivifolium</a>	EN
<a href="#">Somuncuria somuncurensis</a>	CR	<a href="#">Stenopterus creticus</a>	EN
<a href="#">Sylvilagus graysoni</a>	EN	<a href="#">Teline rosmarinifolia</a>	EN
<a href="#">Tephrosia pondoensis</a>	VU	<a href="#">Theba impugnata</a>	VU
<a href="#">Thymus carnosus</a>	NT	<a href="#">Tinostoma smaragditis</a>	EN
<a href="#">Todiramphus godeffroyi</a>	CR	<a href="#">Todiramphus ruficollaris</a>	VU
<a href="#">Triplax emgei</a>	VU	<a href="#">Trochetiopsis ebenus</a>	CR
<a href="#">Tumbezia salvini</a>	NT	<a href="#">Vermivora crissalis</a>	NT
<a href="#">Vini ultramarina</a>	EN	<a href="#">Xantusia riversiana</a>	LC
<a href="#">Xerosecta giustii</a>	CR	<a href="#">Zelkova abelicea</a>	VU

## BIBLIOGRAPHY

48 references found for *Capra hircus*

## Management information

Medina, M. M. & Martin, A., 2009. A new invasive species in the Canary Islands: a naturalized population of ferrets *Mustela furo* in La Palma Biosphere Reserve. *Fauna & Flora International, Oryx*, 44(1), 41-44 doi:10.1017/S0030605309990743

**Summary:** Available from: [http://www.lacerta.de/AS/Bibliografie/BIB\\_5107.pdf](http://www.lacerta.de/AS/Bibliografie/BIB_5107.pdf) [Accessed 30 April 2011]

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 significant invasive species on islands of the South Pacific and Hawaii, supplementing the authors' experience with that of other workers.

Atkinson, R., J. Renteria, W. Simbana. 2008. The Consequences of Herbivore Eradication on Santiago: Are We In Time to Prevent Ecosystem Degredation Again? In Galapagos Report 2007-8 FCD, PNG, and INGALA, Puerto Ayora, Galapagos, Ecuador.

Bellchambers, K., 2004. Improving the development of effective and humane trapping systems as a control method for feral goats in Australia.

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]

Bullock, D. J., S. G. North, M. E. Dulloo, and M. Thorsen., 2002. The impact of rabbit and goat eradication on the ecology of Round Island, Mauritius. In *Turning the tide: the eradication of invasive species*: 53-63. 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*.

Campbell, K.J, Baxter, G.S, Murray, P.J, Coblenz, B.E, Donlan, C.J & Carrion G., V in review, Increasing the efficacy of Judas goats by sterilisation and pregnancy termination , Wildlife Research.

Campbell, K.J, Baxter, G.S, Murray, P.J, Coblenz, B.E & Donlan, J.D in review, Development of a prolonged estrus effect for use in Judas goats , Applied Animal Behaviour Science.

Campbell, K.J & Donlan, C.J 2005, A review of feral goat eradication on islands , *Conservation Biology*, vol. 19, no. 5, pp. 1362-74.

Coblenz, B. E. 1978. The effects of feral goats (*Capra hircus*) on island ecosystems. *Biological Conservation* 13(4): 279-286.

**Summary:** Feral goats are implicated in habitat destruction and alteration of species composition on sensitive insular ecosystems. In the absence of population control goats become ecologically dominant and cause extinction of numerous endemic species. Removal of goats can lead to rapid recovery of suppressed flora. Problems associated with excessive goats have rarely been studied.

Daly, K. and Gorup, P. 1987. Eradication of feral goats from small islands. *International Council for Bird Preservation*. 46pp.

Forsyth, D. M., J. P. Parkes, D. Choquenot, G. Reid, and D. Stronge., 2002. *Sustained control of feral goats in Egmont National Park, New Zealand*. 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*.

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/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.

Juan Luis Rodríguez Luengo, pers.comm., Dec 20th 2006 [Aliens-L] Control of Barbary sheep in La Palma

Kessler, C.C., 2002. Eradication of feral goats and pigs and consequences for other biota on Sarigan Island, Commonwealth of the Northern Mariana Islands. In *Turning the tide: the eradication of invasive species*: 132-140. 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*.

Klinger, R. C.; P. Schuyler, and J. D. Sterner., 2002. The response of herbaceous vegetation and endemic plant species to the removal of feral sheep from the Santa Cruz Island, California. 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, Switzerland and Cambridge, UK.

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

Mobini, S, Heath, A.M & Pugh, D.G 2002, Theriogenology of sheep and goats , in D.G Pugh (ed.), *Sheep and goat medicine*, W. B. Saunders Company, Philadelphia, pp. 129-86.

O Dempsey, N 1993, Sheep self mustering - muster in your sleep, Information series Q193026. Agdex 430/75, Queensland Department of Primary Industries, Charleville, Queensland.

Parkes, J., Henzell, R. and Pickles, G. 1996. *Managing Vertebrate Pests: Feral Goats*. Australian Government Publishing Service: 129pp.

**Summary:** A comprehensive review of the history and biology of feral goats in Australia, the damage they cause, and community attitudes to feral goat management. A wide range of strategies for goat control are discussed and recommended.

Parkes, J. P. 1990. Eradication of feral goats on islands and habitat islands. *Journal of the Royal Society of New Zealand* 20: 297-304.

Parkes, J. P. 1990. Feral goat control in New Zealand. *Biological Conservation* 54: 335-348.

Parkes, J. P.; N. Macdonald, and G. Leaman., 2002. An attempt to eradicate feral goats from Lord Howe Island. In *Turning the tide: the eradication of invasive species*: 233-239. 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*.

Parkes, J., R. Henzell & G. Pickles, 1995. *Managing Vertebrate Pests: Feral Goats. Vertebrate Pest Program (VPP) Bureau of Resource Sciences (BRS)*.

**Summary:** Available from: [http://www.daff.gov.au/brs/land/feral-animals/apamp/managing\\_vertebrate\\_pests\\_feral\\_goats](http://www.daff.gov.au/brs/land/feral-animals/apamp/managing_vertebrate_pests_feral_goats) [Accessed 21 June 2010]

Rainbolt, R. E. and Coblenz, B. E. 1999. Restoration of insular ecosystems: control of feral goats on Aldabra Atoll, Republic of Seychelles. *Biological Invasions* 1(4): 363-375.

**Summary:** Control of goats on Aldabra Atoll was studied and implemented October 1993 to May 1994 and November 1994 to May 1995. A total of 882 goats was killed using traditional and Judas goat hunting techniques. Judas goats became increasingly important over time. Rudge, M. R. and Smit, T. 1970. Expected rate of increase of hunted populations of feral goats (*Capra hircus* L.) in New Zealand. *New Zealand Journal of Science* 13: 256-259.

Schuyler, P. T.; D. Garcelon and S. Escobar., 2002. Control of feral goats (*Capra hircus*) on Santa Catalina Island, California, 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*.

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*.

Torr, 2002. Eradication of rabbits and mice from subantarctic Enderby and Rose Islands. In *Turning the tide: the eradication of invasive species*: 311-318. 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*.

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]

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.nzec.org.nz/nzje/free\\_issues/NZJcol19\\_2\\_203.pdf](http://www.nzec.org.nz/nzje/free_issues/NZJcol19_2_203.pdf) [Accessed 12 March 2010]

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]

De Garine-Wichatitsky, M., Spaggiari, J., Menard, C. 2004. Ecologie et impact des ongulés introduits sur la forêt sèche de Nouvelle Calédonie. IAC/CIRAD, Programme Elevage et Faune, Païta, Nouvelle-Calédonie, 50p et 128 p d annexes.

Feldmann, pers. comm., 2007

**Summary:** Personal communication with Philippe Feldmann, an biodiversity expert from the CIRAD- Centre de coopération internationale en recherche agronomique pour le développement

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]

Gargominy, O. (Ed.). 2003. Biodiversité et conservation dans les collectivités françaises d'outre-mer. Comité français pour l'UICN, Paris.

**Summary:** Synthèse sur la biodiversité des îles françaises 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](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 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.

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

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

**Summary:** Personal communication with Jean Yves Meyer, from the Délégation à 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

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

Rudge, M. R. 1990. Feral goat. In King, C. M. (ed.) The Handbook of New Zealand Mammals: 406-423.

Vandamme, A. 2001. Diagnostic sur les espèces spontanées à Mayotte. Perception et utilisation de ces espèces par les paysans.

Mémoire ISTOM/CIRAD. 73 pp.