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 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).

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 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).
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. "nEradiation 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 Coblentz, Oregon State University, USA.

Publication date: 2010-09-15
FULL ACCOUNT FOR: Capra hircus

[2] ANGUILLA
[41] AUSTRALIA
[1] BES ISLANDS (BONAIRE, SINT EUSTATIUS AND SABA)
[3] CAYMAN ISLANDS
[1] CURACAO
[8] ECUADOR
[1] FIJI
[3] FRENCH SOUTHERN TERRITORIES
[2] GAUDELOUPE
[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] ANTIGUA AND BARBUDA
[1] BAHAMAS
[2] CANADA
[1] COOK ISLANDS
[1] DOMINICAN REPUBLIC
[1] FALKLAND ISLANDS (MALVINAS)
[3] FRENCH POLYNESIA
[1] GREECE
[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; NT = 16; LR/nt = 1; DD = 5; LC = 5;

Abutilon menziesii CR
Abutilon sandwicense CR
Acacia anegadensis CR
Acacia koaia VU
Aceros narcondami EN
Achyranthes mutica CR
Acrocephalus kerearake NT
Acrocephalus luscinius CR
Acrocephalus vaughhani EN
Actinella actinophora VU
Alectryon macrococcus CR
Aloe pillansii CR
Alsinidendron trinerve CR
Alsinidendron viscosum CR
Amazona barbadensis VU
Anolis longiceps VU
Androcymbium psammophilum VU
Argyroxiphium sandwicense VU
Antirrhinum charidemi CR
Armeria soleirolii EN
Asparagus arborescens CR
Atelognathus reverberii EN
Begonia samhaensis EN
Bidens cosmoides EN
Bidens molokaiensis VU
Bidens wiebkei CR
Bobea timonioides EN
Bonamia menziesii CR
Bowdleria rupestris EX
Brassica rupestris NT
Brassica villosa NT
Brighamia insignis CR
Brighamia rockii CR
Bulimulus cinerarius EN
Bulimulus albermalensis DD
Bulimulus darwini VU
Bulimulus jacobii 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
Centarea pringens  EN
Centranthus amazonum  CR
Chamaesyce eleanoriae  CR
Charpentiera densiflora  CR
Chinchilla lanigera  CR
Cicer canariense  EN
Collocalia bartschi  EN
Convolvulus lopezscasasii  EN
Corvus hawaiiensis  EW
Ctenitis squamigera  CR
Cyanea asplenifolia  VU
Cyanea procera  CR
Cyclura carinata  CR
Cyclura onchipis  EX
Darevskia rostombekevi  EN
Dipodomys insularis  CR
Discula tetrca  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 eugella  CR
Euastacus girumulayn  CR
Euastacus guruhgi  CR
Euastacus hiytricosus  EN
Euastacus jagara  CR
Euastacus maclae  CR
Euastacus montelthorurum  CR
Euastacus polysetosus  EN
Euastacus setosus  CR
Euastacus spinichelatus  EN
Euastacus suttoni  VU
Euastacus valentulus  LC
Euastacus yanga  LC
Euphrasia poliocerca  VU
Bulimulus olla  EN
Bulimulus sculpturatus  CR
Bupleurum kakiskalae  CR
Canariella jandiaensis  CR
Canavalia napalesiensis  CR
Canavalia sandichiana  VU
Canvhus agroniodioides  CR
Centaurom sebenaoides  CR
Centranthus trinervis  EN
Chamaesyce remyi  CR
Cheirophus santos-abreui  CR
Christella boydai  EN
Coccycuzus ferrugineus  VU
Colubrina oppositifolia  CR
Cordia rupicola  CR
Crambe microcarpa  EN
Cumarinana odorata  VU
Cymeana procera  CR
Cyclura cychlura  VU
Cyclura steinhegeri  EN
Dendroica subita  NT
Discula lyelliana  CR
Ducula galeata  EN
Echium handiens  CR
Epicrates monensis  EN
Euastacus armatus  DD
Euastacus bidawalis  EN
Euastacus brachythorax  EN
Euastacus claytoni  EN
Euastacus dalagarbe  CR
Euastacus diversus  EN
Euastacus gamiario  CR
Euastacus gumar  EN
Euastacus hirsuus  EN
Euastacus jagbar  CR
Euastacus maccal  EN
Euastacus mirangudjin  CR
Euastacus pilosus  EN
Euastacus rieki  EN
Euastacus simplex  VU
Euastacus sulcatus  VU
Euastacus uropinosis  EN
Euastacus wiowuru  NT
Euastacus yareansis  VU
Euphorbia haeleleleana  EN
FULL ACCOUNT FOR: Capra hircus

Frankenia portulacifolia VU
Gallirallus sylvestris EN
Genista benehaeensis VU
Globularia ascarnii CR
Hemicyclea efferata CR
Hemignathus parvuus VU
Heteromyos oasicus EN
Hyoxalus 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 zünigae CR
Melicope mucronulata CR
Metastelma anegadense CR
Micromeria glomerata CR
Mimus melanotis EN
Minuartia dirpha CR
Mo ho bishopi EX
Montivipera bornmuelleri EN
Myadestes obscurus VU
Myiarchus semirufus EN
Naufragia balearica CR
Nesillas alabrana EX
Nothocestrum peltatum CR
Obelus moratus VU
Ochrosia inventorum CR
Oldenlandia adscensionis EX
Oreomystis mana EN
Parvilacerta frasasi EN
Pennantia baylisiana CR
Petrogale penicillata NT
Picris willkommii EN
Pinguicula nevadensis EN
Podarcis lilfordi EN
Portulaca samphaensis EN
Procellaria westlandica VU
Pseudonestor xanthophrys CR
Psittirostra psittacea CR
Fritillaria epirota 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 psilotolclada CR
Larus audouini VU
Ledebouria insularis EN
Leiostyla macilenta VU
Lepidoblepharis colombianus DD
Leptochloa ginae EN
Limonium sventenii CR
Loxioides bailleui CR
Macaca sylvanus EN
Mastus amenazada CR
Megapodus laperausi EN
Melicope haupuensis CR
Melicope saint-johnii EN
Microcavia shiptoni NT
Mimus macdonaldii VU
Mimus trifasciatus CR
Mogera uchidae DD
Monilearia granostriata CR
Munroidenron racemosum CR
Myadestes palmeri CR
Napaeus lichenicol CR
Neraudia ovata CR
Nesotriccus ridgwayi VU
Obelus discogranulatus EN
Oceanodroma macrodactyla CR
Ochrosia kilauaeensis CR
Oligosoma acrinasum NT
Paroreomyza montana EN
Pelargonium insularis CR
Peromyscus madrensis EN
Phyllodactylus leei VU
Pinaroloxias inornata VU
Podarcis levendis VU
Pomarea nukuivhia EX
Pritchardia glabrata EN
Proechimys decumanus VU
Pseudophesastes bergeri EN
Pteralyxia kauaiensis EN
FULL ACCOUNT FOR: *Capra hircus*

**BIBLIOGRAPHY**

48 references found for *Capra hircus*

**Management information**


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.


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


Summary: Eradication case study in Turning the tide: the eradication of invasive species.
Campbell, K. J.; Baxter, G. S.; Murray, P. J.; Coblentz, B. E.; Donlan, C. J.; & Carrion, G. V. in review. Increasing the efficacy of Judas goats by sterilisation and pregnancy termination. Wildlife Research.


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.


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).


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 GO7603 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 Rod?quez Luengo, pers.com., 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: 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.


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


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.


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


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


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


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]


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


General information

Barthelat, pers. comm., 2007

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


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:

Spanish:
La lista de especies del Sistema de informaci?n sobre especies invasoras de m?xico cuenta actualmente con informaci?n acerca de nombre cient?fico, familia, grupo y nombre com?n, as? como ?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:


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

Fraser, Ross Kingsley Timpson, Pete McClelland, Ian Hill, Greg Sherley., undated. Auckland Island Goats A Rare Breed of New Zealand Origin


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.


Summary: Bilan des introductions des mammif?res terrestres dans les Antilles fran?aises et analyse de leurs impacts.

Summary: Synth?se et ?tude de la faune de Mayotte

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

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


Summary: California, M. (Ed.) The Handbook of New Zealand Mammals: 406-423


Summary: Available from:

