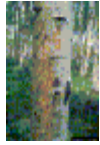
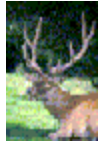
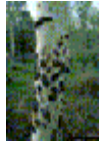


***Cervus elaphus* (mammal)** [简体中文](#) [正體中文](#)

**Taxonomic name:** *Cervus elaphus* Linnaeus, 1758

**Synonyms:**

**Common names:** cerf elaphe (French), Ciervo colorado (Spanish), deer, Edelhirsch (German), elk (English), European red deer (English), red deer (English), Rothirsch (German), Rotwild, Rothirsch (German), wapiti (Shawnee)

**Organism type:** mammal

*Red deer (Cervus elaphus)* were introduced to several countries, including North and South America, New Zealand and Australia. In Argentina they have invaded several National parks, influencing native flora and fauna and possibly disrupting ecological processes. Of particular concern is possible competition with an endangered deer endemic to the southern parts of Chile and Argentina. They also compete with livestock.

**Description**

Adult red deer (*Cervus elaphus*) are medium-sized and round-antlered, with a uniform, plain brown body, lighter below. Mature males have antlers with 10 or more tines, the uppermost pointing upwards in a cluster. The muzzle is blackish and hairless, and the hooves are grey to black. Both sexes are similar in colour. Adults typically have no spots, newborn fawns are brown or reddish-brown with a dark dorsal stripe and a creamy to light brown rump patch. White spots are scattered on the back and flanks (Nugent and Fraser 2005). Female live weights are 100-150kg, male live weights 200-300kg.

**Occurs in:**

natural forests, planted forests, range/grasslands, scrub/shrublands, tundra

**Habitat description**

The habitat types occupied by red deer (*Cervus elaphus*) in southern Chile and Argentina include native forest types and grasslands and modified vegetation types. Currently red deer are established in most forested habitat types encountered between about 34E and 55E S. Inhabited native vegetation types include: alerce forests, *Fitzroya cupressoides*; Araucaria forest, *Araucaria araucaria*; Cordilleran Cypress forest, *Austrocedrus chilensis*; Roble-Rauli-Coihue forest, *Nothofagus obliqua*, *N. nervosa*, *N. dombeyi*; Rauli-Tepa-Coihue forest, *Nothofagus nervosa*, *N. dombeyi*, *Laureliopsis philipiana*; Valdivian Rainforest complex; Lenga forest, *Nothofagus pumilio*; Nire forest, *Nothofagus antarctic*; Magallan Coihue forest, *Nothofagus betuloides*; alto-Andean vegetation; Patagonian steppe; wet meadows and riparian wetlands; brush and grassland of anthropogenic origin - e.g. forests cleared for livestock; agricultural areas and forest plantations. The present distribution of red deer has the following environmental characteristics: it covers the latitudes between 37E 42' S and 54E 55' S (non-contiguous); the longitudes between 73E 36' W and 69E 50' W (non-contiguous); and altitudes between 300m and 2,450m.

**General impacts**

In South America there is now evidence of extensive dietary overlap of red deer (*Cervus elaphus*) with an endangered native heumel (see [Hippocamelus bisulcus in IUCN Red List of Threatened Species](#)) and likely with guanaco, another native ungulate. Red deer have reached high densities locally with measureable effects on the flora (Flueck, W., pers. Comm., 2003).

Deer prevent regeneration of favoured plant species, which causes significant changes to the structure and composition of native ecosystems. At critical sites,

non-replacement of canopy species can lead to canopy collapse. There is no evidence in New Zealand, Chile or Argentina, that equilibrium has been reached between deer and the native ecosystems they inhabit. Deer continue to inhibit forest regeneration even at low density (Department of Conservation Policy Statement on Deer Control, 2002).

### Uses

Red deer (*Cervus elaphus*) have been used to stock game parks for recreational and trophy hunting. Red deer have been farmed for venison, velvet and skins/hides, as well as for Asian medicines using antlers, velvet, tails and testicles, and teeth for jewellery (Auckland Regional Council- PestFacts).

### Notes

In southern Latin America the invasion of red deer (*Cervus elaphus*) has occurred in temperate rain forests, ecotonal areas and tree-less steppe areas. The invasion is encouraged through plantations of exotic conifers in ecotonal and steppe areas. The only important predator is the native puma (*Puma concolor*).

### Geographical range

Native range: Eurasia.

Known introduced range: North and South America, New Zealand and Australia. It has proven to be very successful in establishing viable populations and in South America has invaded very distinct environments.

### Introduction pathways to new locations

*Acclimatisation societies*:

*Agriculture*:

*Ignorant possession*:

*Landscape/fauna "improvement"*:

*Road vehicles (long distance)*:

*Smuggling*:

### Local dispersal methods

*Agriculture (local)*: Through escapes from confinement.

*Escape from confinement*:

*Forestry (local)*: Forests serve as corridors for migration/dispersal.

*Natural dispersal (local)*: Through migration/dispersal.

*People sharing resources (local)*:

### Management information

Preventative measures: Risk Assessment models for assessing the risk that exotic vertebrates could establish in Australia have been further explored by the Western Australia Department of Agriculture & Food (DAFWA) to confirm that they reasonably predict public safety, establishment and pest risks across a full range of exotic species and risk levels.

The [Risk assessment for the Red deer \(\*Cervus elaphus\*\)](#), has been assigned a VPC Threat Category of **EXTREME**.

Mammals and birds were assessed for the pest risk they pose if introduced to Australia, by calculating Vertebrate Pests Committee (VPC) Threat Categories. These categories incorporate risk of establishing populations in the wild, risk of causing public harm, and risk of becoming a pest (eg causing agricultural damage, competing with native fauna, etc). The 7-factor Australian Bird and Mammal Model was used for these assessments.

Physical: In Argentina, wild red deer (*Cervus elaphus*) are generally treated as a resource, mainly for trophy hunting, and currently there is no comprehensive strategy to monitor and control populations. Although considered an unwanted invasive species in National parks, current manipulations are restricted to trophy hunting. Only where densities have reached high levels on some private lands, red deer are specifically culled to decrease the density. Several provinces and National parks with wild red deer have established their hunting regulations, though not being based on population characteristics or conservation goals (Werner, F., pers. comm., 2004).

**Integrated management:** The Department of Conservation in New Zealand has released a policy statement on deer control, ([Department of Conservation Policy Statement on Deer Control, 2001](#)), which adopts an integrated approach to control of deer, working with all interest groups.

Please follow this link for a [case study on the management of red deer in New Zealand](#) compiled by the IUCN SSC Invasive Species Specialist Group (ISSG).

### **Nutrition**

The dietary breadth of red deer (*Cervus elaphus*) is evidenced by the habitat types invaded so far, which range from temperate rain forests to cold-dry steppe habitat. Females feed on the more lush habitats whilst the males prefer the poorer feeding areas.

### **Reproduction**

Normally one offspring per female. In some parts of Argentina, 10-30% of yearling females breed.

### **Lifecycle stages**

In Patagonia, sexual maturity of red deer (*Cervus elaphus*) females is at 1 or 2 years of age; gestation lasts approximately 240 days; males reach their maximum development at 12-14 years of age; life span in the wild in both sexes is 18-20 years.

**This species has been nominated as among 100 of the "World's Worst" invaders**

**Reviewed by:** Dr. Werner T. Flueck, Consejo Nacional de Investigaciones Cientificas y Tecnologica and Centro de Ecologia Aplicada del Neuquen, Argentina.

**Principal sources:** Dr. Werner T. Flueck, Consejo Nacional de Investigaciones Cientificas y Tecnologica and Centro de Ecologia Aplicada del Neuquen, Argentina

**Compiled by:** IUCN/SSC Invasive Species Specialist Group (ISSG)

To contribute information, please contact [Shyama Pagad](#).

**Last Modified:** Wednesday, 26 May 2010

***Cervus elaphus* (mammal)** [简体中文](#) [正體中文](#)

Countries (or multi-country features) with distribution records for *Cervus elaphus* in the Global Invasive Species Database.

Click a country or multicountry feature for distribution records:

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**Alien Range**[Argentina](#)[Chile](#)[New Zealand](#)[Peru](#)[South America](#)[Virgin Islands, USA](#)

## *Cervus elaphus* (mammal) [简体中文](#) [正體中文](#)

### Management Information

Preventative measures: Risk Assessment models for assessing the risk that exotic vertebrates could establish in Australia have been further explored by the Western Australia Department of Agriculture & Food (DAFWA) to confirm that they reasonably predict public safety, establishment and pest risks across a full range of exotic species and risk levels.

The [Risk assessment for the Red deer \(\*Cervus elaphus\*\)](#), has been assigned a VPC Threat Category of **EXTREME**.

Mammals and birds were assessed for the pest risk they pose if introduced to Australia, by calculating Vertebrate Pests Committee (VPC) Threat Categories. These categories incorporate risk of establishing populations in the wild, risk of causing public harm, and risk of becoming a pest (eg causing agricultural damage, competing with native fauna, etc). The 7-factor Australian Bird and Mammal Model was used for these assessments.

Physical: In Argentina, wild red deer (*Cervus elaphus*) are generally treated as a resource, mainly for trophy hunting, and currently there is no comprehensive strategy to monitor and control populations. Although considered an unwanted invasive species in National parks, current manipulations are restricted to trophy hunting. Only where densities have reached high levels on some private lands, red deer are specifically culled to decrease the density. Several provinces and National parks with wild red deer have established their hunting regulations, though not being based on population characteristics or conservation goals (Werner, F., pers. comm., 2004).

Integrated management: The Department of Conservation in New Zealand has released a policy statement on deer control, ([Department of Conservation Policy Statement on Deer Control, 2001](#)), which adopts an integrated approach to control of deer, working with all interest groups.

Please follow this link for a [case study on the management of red deer in New Zealand](#) compiled by the IUCN SSC Invasive Species Specialist Group (ISSG). [简体中文](#)  
[正體中文](#)

### Location Specific Management Information

#### [Argentina](#)

In Argentina, wild red deer are principally treated as a resource, mainly for trophy hunting. Although considered as an unwanted invasive species in National parks and other protected areas, current manipulations are restricted to trophy hunting. Only where densities have reached high levels on some private lands, red deer are specifically culled to decrease the density. Generally, population manipulations are not based on field data, and there are no basic wildlife management approaches employed. Red deer are also commonly kept in enclosures stocked with imported specimens. The aim is to release supposedly superior offspring to the wild, sell individuals to other enclosures or use the animals for hunting within the enclosure. Frequently, animals from enclosures are sold for the purpose of new releases to areas without red deer presence. Cases of escapees have been common.

#### [Auckland Region](#) (North Island)

Feral deer are declared animal pests in the Auckland Regional Animal Pest Management Strategy. The ARC (Auckland Regional Council) and land owners may use one or a combination of the following techniques to control deer where they become a threat to areas of high conservation value:

- Shooting - hunting and spotlight shooting by licensed shooters.
- Poison - must be an approved toxic substance and only applied by licensed operators.

#### [New Zealand](#)

Please follow this link for a [case study on the management of red deer in New Zealand](#) compiled by the IUCN SSC Invasive Species Specialist Group (ISSG).

## *Cervus elaphus* (mammal) [简体中文](#) [正體中文](#)

### General Impact

In South America there is now evidence of extensive dietary overlap of red deer (*Cervus elaphus*) with an endangered native huemul (see [Hippocamelus bisulcus in IUCN Red List of Threatened Species](#)) and likely with guanaco, another native ungulate. Red deer have reached high densities locally with measureable effects on the flora (Flueck, W., pers. Comm., 2003).

Deer prevent regeneration of favoured plant species, which causes significant changes to the structure and composition of native ecosystems. At critical sites, non-replacement of canopy species can lead to canopy collapse. There is no evidence in New Zealand, Chile or Argentina, that equilibrium has been reached between deer and the native ecosystems they inhabit. Deer continue to inhibit forest regeneration even at low density (Department of Conservation Policy Statement on Deer Control, 2002).

### Location Specific Impacts:

#### [Argentina](#)

*Agricultural:* Red deer (*Cervus elaphus*) compete with domestic herbivores (Werner, F., pers.comm., 2003).

*Competition:* Negative ecological impact of red deer (*Cervus elaphus*) has been described for both Chile and Argentina, and competition with native ungulates, such as guanaco, *Lama guanicoe*, or the Patagonian huemul (see [Hippocamelus bisulcus in IUCN Red List of Threatened of Species](#)), has been suggested.

*Cervus elaphus* showed an important overlap of resource use with the Patagonian huemul, *Hippocamelus bisulcus*, in the lenga forest habitat, *Nothofagus pumilio*. These included use of habitat and the dietary trophic niche. The amplitude of the ecological niche of the red deer was more than that of the huemul, suggesting that the red deer might be more flexible and opportunistic than the huemul in the use of the natural resources. The distribution of huemul in relation to the red deer was determined and mapped, and surveys of eight regions revealed the recent extinction of huemul in 50% of them. [Smith-Flueck, J.M. 2003.](#)

*Modification of successional patterns:* Red deer (*Cervus elaphus*) have been shown to affect forest rejuvenation dynamics (Werner, F., pers.comm., 2003).

#### [Chile](#)

*Competition:* Negative ecological impact of red deer (*Cervus elaphus*) has been described for both Chile and Argentina, and competition with native ungulates, such as guanaco, *Lama guanicoe*, or the Patagonian huemul (see [Hippocamelus bisulcus in IUCN Red List of Threatened of Species](#)), has been suggested.

*Cervus elaphus* showed an important overlap of resource use with the Patagonian huemul, *Hippocamelus bisulcus* in the lenga forest habitat, *Nothofagus pumilio*. These included use of habitat and the dietary trophic niche. The amplitude of the ecological niche of the red deer was more than that of the huemul, suggesting that the red deer might be more flexible and opportunistic than the huemul in the use of the natural resources. The distribution of huemul in relation to the red deer was determined and mapped, and surveys of eight regions revealed the recent extinction of huemul in 50% of them. [Smith-Flueck, J.M. 2003.](#)

#### [New Zealand](#)

*Competition:* The Kea (*Nestor notabilis*) is listed as 'Vulnerable (VU) in the IUCN Red List of Threatened Species. Introduced mammals may be competing for depleting winter food resources, they include brush-tailed possums ([Trichosurus vulpecula](#)), Himalayan thar ([Hemitragus jemlahicus](#)), hare ([Lepus europaeus](#)), Chamois (*Rupicapra rupicapra*) and Red deer (*Cervus elaphus*) (BirdLife International 2008).

#### [Auckland Region](#) (New Zealand)

*Disease transmission:* Feral deer can act as vectors for Bovine Tb.

The fact that deer can disperse long distances means that they have the potential to spread TB and re-infect possum populations from which the disease has been eliminated.

*Habitat alteration:* Deer browsing and bark stripping have a significant impact on natural areas.

The Department of Conservation New Zealand, in its policy on deer control, states that deer prevent regeneration of favoured plant species, which causes significant changes to the structure and composition of native ecosystems. At critical sites, non-replacement of canopy species can lead to canopy collapse.

### South America

*Competition:* Negative ecological impact of red deer (*Cervus elaphus*) has been described for both Chile and Argentina, and competition with native ungulates, such as guanaco, *Lama guanicoe*, or the Patagonian huemul (see [Hippocamelus bisulcus in IUCN Red List of Threatened of Species](#)), has been suggested.

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The Global Invasive Species Database is managed by the Invasive Species Specialist Group (ISSG) of the IUCN Species Survival Commission. It was developed as part of the global initiative on invasive species led by the Global Invasive Species Programme (GISP) and is supported through partnerships with the National Biological Information Infrastructure, Manaaki Whenua-Landcare Research and the University of Auckland. [Conditions of use](#)

## *Cervus elaphus* (mammal) 简体中文 正體中文

### 24 references found for *Cervus elaphus*:

#### Management information

1. [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]
2. [Cossio E. Daniel, 2010. Vertebrados naturalizados en el Perú: historia y estado del conocimiento \(Naturalised vertebrates in Peru: history and state of knowledge\) Rev. peru. biol. 17\(2\): 179 - 189 \(Agosto 2010\)](#)  
**Summary:** Available from: <http://sisbib.unmsm.edu.pe/BVrevistas/biologia/v17n2/pdf/a07v17n2.pdf> [Accessed 23 February 2011]
3. [Crouchley, D., Brown, D., Edge, K. and McMurtrie, P. 2007. Secretary Island Secretary Island Operational Plan: Deer Eradication. Department of Conservation: Te Anau.](#)  
**Summary:** Available from: <http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=43013> [Accessed 23 March 2007]
4. [Department of Conservation \(DOC\), 2001. Policy Statement on Deer Control, 2001.](#)  
**Summary:** Management and Deer control policy- New Zealand.  
Available from: <http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=39968> [Accessed 19 February 2008]
5. [Department Of Conservation \(DOC\), undated. Southern Islands Biodiversity Action Plan - Deer management](#)  
**Summary:** Available from: <http://www.doc.govt.nz/templates/MultipageDocumentPage.aspx?id=39666> [Accessed 19 February 2008]
6. Díaz, N. I. and J. Smith-Flueck. 2000. The Patagonian huemul. A mysterious deer on the brink of extinction. Literature of Latin America, Buenos Aires. 149 pp. (English and Spanish version available).
7. [Duncan, R., Ruscoe, W., Richardson, S. and Allen, R. 2006. Consequences of Deer Control for Kaweka Mountain Beech Forest Dynamics \(Landcare Research Contract Report: LC0607/021\).](#)  
**Summary:** Available from: <http://www.doc.govt.nz/upload/documents/conservation/threats-and-impacts/animal-pests/kaweka-deer-control.pdf> [Accessed 23 March 2007]
8. [Flueck, W. T., Jo Anne M. Smith-Flueck And C. M. Naumann, 2003. The current distribution of red deer \(\*Cervus elaphus\*\) in southern Latin America. European Journal of Wildlife Research 49\(2\): 112-119.](#)  
**Summary:** Red deer Distribution in southern latin America.
9. [Flueck, W.T, J.M. Smith-Flueck, and K.A. Rüegg, 1995. Management of introduced red deer in Patagonia. \(J.A. Bissonette and P.R. Krausman, eds.\). Integrating people and wildlife for a sustainable future. Proceedings of the first International Wildlife Management Congress. The Wildlife Society, Bethesda, Md. 525-528 proceedings.](#)  
**Summary:** Management of introduced red deer in Patagonia.



10. Flueck, W.T, M. Franken, and J.M. Smith-Flueck 1999 Red deer, cattle and horses at high elevations in the Andean precordillera: habitat use and deer density Journal of Neotropical Mammalogy (SAREM), Vol. 6, No. 2 5-12

**Summary:** Notes on red deer in Argentina.

11. Flueck, W.T. 2001 Pregnancy rates of introduced red deer in Patagonia, Argentina after a period of drought. *Ecología Austral*, Vol. 11 17-24

**Summary:** Biology red deer.

12. Flueck, W.T. 1996 Interactions between free-ranging guanaco (*Lama guanicoe*) and introduced red deer (*Cervus elaphus*) in Argentina. *Zeitschrift Jagdwissenschaft*, Vol. 42, No. 1 (12-17).

**Summary:** Impacts of red deer on native mammals.

13. Flueck, W.T. J.M. Smith-Flueck, 1993. Über das in Argentinien angesiedelte Rotwild (*Cervus elaphus* L., 1758): Verbreitung und Tendenzen. *Zeitschrift Jagdwissenschaft*, Vol. 39, No. 3 (153-160).

**Summary:** Red deer Distribution in South America.

14. [Fraser, K.W., Parkes, J.P. and Thomson, C. 2003. Management of New Deer Populations in Northland and Taranaki, Science for Conservation 212.](#)

**Summary:** Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/SFC212.pdf> [Accessed 23 March 2007]

15. [Massam M, Kirkpatrick W and Page A., 2010. Assessment and prioritisation of risk for forty introduced animal species. Invasive Animals Cooperative Research Centre, Canberra.](#)

**Summary:** This report documents work contributing to a project commissioned by the Invasive Animals Cooperative Research Centre to validate and refine risk assessment models used in decisions to import and manage introduced vertebrate species. The intent of the project was to: a) increase predictive accuracy, scientific validation and adoption of risk assessment models for the import and keeping of exotic vertebrates, and b) reduce the risk of new vertebrate pests establishing introduced populations in Australia.

Available from: [http://www.feral.org.au/wp-content/uploads/2010/08/DAFWA\\_RA\\_060510.pdf](http://www.feral.org.au/wp-content/uploads/2010/08/DAFWA_RA_060510.pdf) [Accessed 16 March 2011]

16. [Page, Amanda; Win Kirkpatrick and Marion Massam, August 2008, Red Deer \(\*Cervus elaphus\*\) risk assessment for Australia. Department of Agriculture and Food Western Australia](#)

**Summary:** Models for assessing the risk that exotic vertebrates could establish in Australia have been developed for mammals, birds (Bomford 2003; Bomford 2006, 2008), reptiles and amphibians (Bomford 2006, 2008; Bomford *et al.* 2005). These Risk Assessment models have been further explored by Western Australia Department of Agriculture & Food (DAFWA) to confirm that they reasonably predict public safety, establishment and pest risks across a full range of exotic species and risk levels. Mammals and birds were assessed for the pest risk they pose if introduced to Australia, by calculating Vertebrate Pests Committee (VPC) Threat Categories. These categories incorporate risk of establishing populations in the wild, risk of causing public harm, and risk of becoming a pest (eg causing agricultural damage, competing with native fauna, etc). The 7-factor Australian Bird and Mammal Model was used for these assessments.

17. [Smith-Flueck, J.M. 2003. La ecología del huemul \(\*Hippocamelus bisulcus\*\) en la Patagonia Andina de Argentina y consideraciones sobre su conservación. Doctoral thesis, Univ. Nac. Comahue, Argentina. 361 pp.](#)

**Summary:** Notes on competition and impacts.

## General references

18. [BirdLife International 2008. \*Nestor notabilis\*. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2](#)

**Summary:** Available from: <http://www.iucnredlist.org/apps/redlist/details/106001410/0> [Accessed 16 December 2012]

19. Coomes, D.A., Allen, R.B., Forsyth, D.M. and Lee, W.G. 2003. Factors Preventing the Recovery of New Zealand Forests Following Control of Invasive Deer, *Conservation Biology* 17 (2): 450–459.
20. Flueck, Werner T.; and Arlene Jones., 2005. Potential existence of a sylvatic cycle of *Taenia ovis krabbei* in Patagonia, Argentina. *Veterinary Parasitology* Volume 135, Issues 3-4, 18 February 2006, Pages 381-383
21. Hatzofe O, 2006. Invasive Species in Israel. Israel Nature & Parks Authority internal report.
22. [ITIS \(Integrated Taxonomic Information System\), 2004. Online Database \*Cervus elaphus\*](#)  
**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=180695](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=180695) [Accessed 19 February 2008]
23. Nugent, G. and Fraser, W. 2005. Red Deer. In C.M. King (Ed.): *The Handbook of New Zealand Mammals*, Second Edition, pp 401-420. Oxford University Press, Melbourne.
24. Werner, F., pers.comm., 2003

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***Cervus elaphus* (mammal)** [简体中文](#) [正體中文](#)

The followings 2 contacts offer information and advice on *Cervus elaphus*:

1. [Flueck, Werner T.](#) (Consejo Nacional de Investigaciones Cientificas y Tecnologica and Centro de Ecologica Aplicada del N)

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