**Ulex europaeus**

**System:** Terrestrial

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plantae</td>
<td>Magnoliophyta</td>
<td>Magnoliopsida</td>
<td>Fabales</td>
<td>Fabaceae</td>
</tr>
</tbody>
</table>

**Common name**
jonc marin (French), gorse (English), vigneau (French), vlrish furze (English), Gaspeldoorn (Dutch), Ginestra spinosa (Italian), Tojo (Spanish), bois jonc (French), furze (English), whin (English), ajonc (French), Stechginster (German), kolcolist zachodni (English, Poland), chacay (English, Brazil), picapica (English, Brazil)

**Synonym**

**Similar species**

Ulex minor

**Summary**

Ulex europaeus is a spiny, perennial, evergreen shrub that grows in dense and impenetrable thickets which exclude grazing animals. It is common in disturbed areas, grasslands, shrublands, forest margins, coastal habitats and waste places. Ulex europaeus is a very successful and tenacious plant once it becomes established and is extremely competitive, displacing cultivated and native plants, and altering soil conditions by fixing nitrogen and acidifying the soil. It creates an extreme fire hazard due to abundant dead material and its oily, highly flammable foliage and seeds. Soil is often bare between individual plants, which increases erosion on steep slopes where Ulex europaeus has replaced grasses or forbs. Spiny and mostly unpalatable when mature, Ulex europaeus reduces pasture quality where it invades rangeland. Ulex europaeus understorey in cultivated forests interferes with operations; increasing pruning and thinning costs and can interfere with the growth of conifer seedlings.

**Species Description**

Many-branched shrubs to 6-20 dm tall; young branches usually terminating in a spine, younger parts somewhat glaucous, and hirsute to tomentose. Phyllodes 4-14mm long, usually spine-tipped. Calyx yellow, 12-16 (-20)mm long, densely villous, persistent; corolla yellow, 15-20mm long. Pods 11-20mm long, 6-8mm wide, slightly compressed, densely villous. Seeds 1-4, brownish green, reniform." (Wagner et al., 1999. In PIER, 2002)
Notes
The geographical distribution of gorse depends primarily on temperature. It cannot survive in arid climates, or in continental regions where there are extremes of heat and cold. Day length may also affect its latitudinal distribution, as short-day conditions inhibit maturation and prevent thorn formation and flowering. (IPM, 2000)

Gorse is a successful invasive species because it can: (1) fix nitrogen; (2) acidify and (at least temporarily) impoverish soils by taking up bases; (3) survive on a variety of soil types; (4) produce copious amounts of heat-tolerant seeds with long-term viability; and (5) regenerate rapidly from seeds and stumps after disturbances such as brush clearing or fires. (Hoshovsky, 1989)

Lifecycle Stages
Seed viability varies from place to place. In one study, they remained dormant but viable in the soil for up to 30 years, with one report of 70 years of dormancy (Zabkiewicz 1976. In Hoshovsky, 1989). In New Zealand, experiments suggested that 90% of seed would be lost after 20 years in two sites, but after 200 years in a third (Hill et al., 1996)

Uses
Introduced from Western Europe as an ornamental or hedge shrub (CDFA). It has potential for land reclamation and has been used as a hedge plant and for binding soil on dry sandy banks. On marginal land it is a source of food for cattle and ponies and formerly, after removal of spines, it was used for fodder (Binggeli, 1997). It is used as an ornamental shrub, hedge plant, pollen (for New Zealand bees), medicinally, flowers for dye particularly for easter eggs, formerly as fuel, food for livestock and windbreaks (Blood, Kate. pers.comm. 12 January 2001). Lectins extracted from seeds will bind selectively to certain glycoproteins and glycolipids, and are widely used in tissue typing (Audette et al., 2000). It sometimes acts as a nurse crop for native regeneration (Hackwell, 1980), but sometimes not (Lee et al., 1986).

Habitat Description
The ability of gorse to fix nitrogen enables this plant to colonize and dominate areas with poor soils. Gorse plants extract and retain plant nutrients such as calcium, magnesium, and sodium, which changes nutrient dynamics and can impoverish the soil (IPM, 2000). The geographical distribution of gorse depends primarily on temperature. It cannot survive in arid climates, or in continental regions where there are extremes of heat and cold. Day length may also affect its latitudinal distribution, as short-day conditions inhibit maturation and prevent thorn formation and flowering (IPM, 2000). Gorse will grow on most soil types, including acidic soils with less than 4% organic content (Zabkiewicz 1976; Hoshovsky 1986. In IPM, 2000).

Gorse grows well in shady slopes with high soil moisture and good drainage. Look for gorse in areas with degraded soils or disturbed sites such as roadsides, pasture lands, gravelly floodplains, cleared forests, or other areas following a disturbance (Cook 1987; Zielke et al. 1992. In IPM, 2000).

In Hawai‘i, naturalized in open areas and along roadsides, 760-2,000 m, forming dense, monotypic thickets. (PIER)
Reproduction
Gorse sets flower buds in mid to late summer. If conditions are warm enough, a high proportion of these buds mature to produce pods in late autumn. In cooler climates, few flowers are produced in autumn or winter, and most buds flower synchronously in spring (Hill et al., 1991). Most seeds fall beneath the bush, and only a small proportion fall beyond 4m (Hill et al., 1996). Seeds have a hard, water-impermeable seed coat that prevents immediate germination (MacCarter and Gaynor 1980. In Hoshovsky, 1989) in all but a small proportion (R. Hill, pers. comm.). The seeds produced are small, averaging 150,000 seeds/kg (Rudolf 1974. In Hoshovsky, 1989) and are produced at the rate of 500-600 seeds/square metre, with counts of up to 20,000 seeds/square metre (Zabkiewicz and Gaskin 1978a, Hartley et al. 1980) in the top 2.5cm of soil, (Hoshovsky, 1989).

Nutrition
Optimal growth is at soil pH of 4.5-5.0 (Meeklah 1979, in Hoshovsky, 1989). It will grow on most soil types (Meeklah 1979), from "good silt soil to plain boulders" (Birdling 1952, in Hoshovsky, 1989). It has been recorded as growing well on serpentine soils (Coombe and Frost 1956) and, though rarely, on highly calcareous soils (Chater 1931) in England. In New Zealand, gorse readily invades low fertility pastureland where the organic content of the soil is less than 4% (Matthews 1982, in Hoshovsky, 1989). It grows best where abundant soil moisture is available (Dancer et al. 1977) and does better on shady slopes than on sunny slopes (Birdling 1952, in Hoshovsky, 1989). According to Boyd (1984), gorse thrives where the water table is very high, although Zabkiewicz (1976) asserts that it does best where there is good drainage (Hoshovsky, 1989). Gorse has nitrogen-fixing bacteria located in nodules on its roots which thrive under aerobic conditions (Zabkiewicz 1976, in Hoshovsky, 1989). If the roots are flooded, bacterial metabolism slows down (Zabkiewicz 1976, in Hoshovsky, 1989).

General Impacts
*Ulex europaeus* is a major weed in five countries (R. Hill, pers. Comm.). It is extremely competitive, displaces cultivated and native plants, and alters soil conditions by fixing nitrogen and acidifying the soil (Egunjobi, 1969; Grubb and Suter, 1970). It creates an extreme fire hazard due to its oily, highly flammable foliage and seeds, and abundant dead material. It not only increases the risk of fire, but also produces a hotter fire than most weeds (MacCarter and Gaynor 1980. In IPM, 2000). This fire risk increase threats on the margins of native vegetation (R. Hill, pers. Comm.).

Because of various characteristics of the plant, the soil is often bare between individual gorse plants, which increases erosion on steep slopes where gorse has replaced grasses or forbs. Spiny and mostly unpalatable when mature, gorse reduces pasture quality where it invades rangeland. Gorse understory in forests interferes with cultural operations, increasing pruning and thinning costs (Balneaves and Zabkiewicz 1981. In IPM, 2000), and can interfere with the growth of conifer seedlings (Clements et al., 2001). It excludes grazing animals from rangelands and pasture (Richardson and Hill, 1998; Tulang, 1992).
Management Info

Preventative measures: A Risk Assessment of *Ulex europaeus* for Hawai‘i and other Pacific islands was prepared by Dr. Curtis Daehler (UH Botany) with funding from the Kaulunani Urban Forestry Program and US Forest Service. The alien plant screening system is derived from Pheloung *et al.* (1999) with minor modifications for use in Pacific islands (Daehler *et al.*, 2004). The result is a score of 20 and a recommendation of: "Likely to cause significant ecological or economic harm in Hawai‘i and on other Pacific Islands as determined by a high WRA score, which is based on published sources describing species biology and behaviour in Hawai‘i and/or other parts of the world." A Risk assessment of *Ulex europaeus* for Australia was prepared by Pacific Island Ecosystems at Risk (PIER) using the Australian risk assessment system (Pheloung, 1995). The result is a score of 26 and a recommendation of: reject the plant for import (Australia) or species likely to be a pest (Pacific).

Cultural: In Oregon, forest managers use fast-growing tree species to shade out gorse. This technique has also been used in New Zealand and Hawai‘i. Planting acid-tolerant, fast-growing species in gorse thickets may eventually shade out gorse without further management efforts (IPM, 2000). McCarter and Gaynor (1980; in IPM, 2000) report that the combined effect of competition of white clover (*Trifolium repens*) and the symbiont *Rhizoctonia* fungi will prevent gorse establishment in situations of extreme competition among pasture species and defoliation caused by grazing stock. It has also been stated that a healthy, well-fertilised sward of pasture which is not overgrazed or pugged will be more resistant to gorse invasion than poorly managed pasture (BOPRC, undated).

Chemical: Many herbicides are not very effective on gorse because of the shape of the "leaves" and the thick cuticles on the spines which help prevent absorption of herbicides. Large, isolated gorse bushes can be killed by cutting and spraying the stumps with Grazon, Tordon or Escort. A motorised knapsack sprayer uses little herbicide and kills small, scattered gorse bushes. Herbicides registered for use on gorse are: activated amitrole, Answer, Escort, glyphosate, Grazon, Reglone, Tordon, Brushkiller, Touchdown, Trounce Gorsekiller and Versatill. Herbicide Ballistic Technology (HBT™) is a new technique designed to improve the efficiency of incipient weed management with accurate long-range delivery of effective herbicide doses. Dr. James Leary, CTAHR Invasive Weed Specialist, introduces Herbicide Ballistic Technology (HBT) to control invasive weeds in Hawaii. Trials have been carried out on banana poka (*Passiflora tarminiana*), Australian tree fern (*Sphaeropteris cooperi*), kahili ginger (*Hedychium gardnerianum*), including basal bark applications to strawberry guava (*Psidium cattleianum*). Please watch this YouTube video on the use of Herbicide Ballistic Technology (HBT™) in the management of gorse.

Integrated management: Successful clearance of gorse requires a combination of methods: good pasture management, good grazing management and the appropriate follow-up herbicide application (AgResearch, 1999).

Click here for Information about physical, chemical and biological control

Pathway

Introduced from Western Europe as an ornamental or hedge shrub. (CDFA) Introduced as a hedge plant to contain livestock. (Coombs *et al.* 1995)

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


Publication date: 2010-10-04

ALIEN RANGE
[13] AUSTRALIA
[1] CHILE
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[1] INDIA
[1] IRAN, ISLAMIC REPUBLIC OF
[1] ITALY
[8] NEW ZEALAND
[1] POLAND
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[1] SOUTH AMERICA
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[19] UNITED STATES

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[1] INDONESIA
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[1] MAURITIUS
[1] PERU
[1] REUNION
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[1] SPAIN
[1] UNITED KINGDOM
[1] URUGUAY

Red List assessed species 2: EW = 1; CR = 1;
Loxioides bailleui CR  Trochetiopsis erythroxylon EW

BIBLIOGRAPHY
65 references found for Ulex europaeus

Management information
Summary: Fact sheet discussing the use of goats in controlling weeds, including gorse.
Summary: Fact sheet outlining various methods of controlling gorse.

Alien Species in Poland 2006 Ulex europaeus


Blood, Kate. pers.comm. 12 January 2001. Environmental Weed Education Coordinator. Cooperative Research Centre for Weed Management Systems (Weeds CRC), Keith Turnbull Research Institute (KTRI) PO Box 48, Frankston, Victoria, Australia 3199
Summary: Field guide on environmental weeds for south eastern Australia. The field guide is in production and may be available in July 2001. I am unable to include the ref list here. Please acknowledge appropriately. Cheers, Kate Blood
Summary: Fact sheet giving information about gorse and outlining some control options from the Bay of Plenty Regional Council in New Zealand.
**Broom and Gorse in British Columbia - A Forestry Perspective Problem Analysis.**

**Summary:** Description, distribution, habitat, reproduction, pests, impacts, management, references. Available from: http://www.for.gov.bc.ca/hfp/pubs/vegmngt/Broom-Gorse.pdf [Accessed 22 October 2002]


**Summary:** A study on the use of a screening system to assess proposed plant introductions to Hawaii or other Pacific Islands and to identify high-risk species used in horticulture and forestry which would greatly reduce future pest-plant problems and allow entry of most nonpests. Environment Waikato. 2002. Gorse (*Ulex europaeus*).


**Summary:** Synth?se des m?thodes de lutte employ?es par l'ONF ? la R?union contre une vingtaine de plantes exotiques envahissantes.


**Summary:** Element stewardship abstract for *Ulex europaeus*, including distribution, a description, habitat information and good control information. Available from: http://tncweeds.ucdavis.edu/esads/docs/documents/ulexeur.pdf [Accessed 19 June 2003]


**Summary:** Description, impacts, distribution, lifecycle, management. Available from: http://www.efn.org/~ipmpa/Noxgorse.html [Accessed 22 October 2002]


**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.


Ministry of Forests, British Columbia. Gorse, the spiny competitor. Forest Practices branch.


Motocka, P. 2000. Summaries of herbicide trials for pasture, range, and non-cropland weed control-1999. College of Tropical Agriculture and Human Resources of the University of Hawaii at Manoa.

**Summary:** Data published to assist applicators experimenting with herbicides for weed control.


PIER (Pacific Island Ecosystems at Risk). 2002. *Ulex europaeus*

Summary: Ecology, synonyms, common names, distributions (Pacific as well as global), management and impact information.


Summary: Biology, uses, distribution, impacts, pests, control, references.


Polster, David. Personal communication, 22 February 2002.

Summary: some management information.


Tasman District Council (TDC) 2001. Tasman-Nelson Regional Pest Management Strategy


The Biocontrol of Gorse, *Ulex europaeus*, in Chile: A Progress Report.


The Biological Control Program Against Gorse in New Zealand.


The Garry Oak Ecosystems Recovery Team (GOERT). 2003. Field manual of *Ulex europaeus*


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]

Wilson, Colin, Wildlife Management Officer, Department of Infrastructure, Planning and Environment, Parks & Wildlife Service, Northern Territory, Australia.

Summary: Compiler of original GISD profile of *Chromoleana odorata*.

Wotherspoon and Wotherspoon, 2002. The evolution and execution of a plan for invasive weed eradication and control.


General information


Summary: Cet ouvrage liste 1412 taxons (espèces, sous espèces et variétés) introduits en Nouvelle-Calédonie. L'auteur précise dans la majorité des cas si l'espèce est cultivée ou naturalisée.


Summary: Cet article propose un bilan des méthodes et des résultats relatifs aux études traitant de la connaissance des conséquences écologiques des invasions de plantes exotiques.

Tassin, J., Rivière, J.-N., Cazanova, M., Bruzzeses, E. 2006. Ranking of invasive woody plant species for management on Réunion Island. Weed research 46, 388-403

Summary: L'inventaire de 318 espèces de plantes ligneuses introduites à la Réunion permet de identifier 132 comme naturalisées dans les écosystèmes naturels. 26 de ces espèces choisies parmi les plus envahissantes ont été classées en fonction de leur impact biologique sur les écosystèmes indigènes.


