Lotus corniculatus 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Fabales	Fabaceae

Common name

hop 'o my thumb (English), paprastasis garzdenis (English, Lithuania), komonica zwycrajna (English, Poland), Hornklee (German), kurdglisprchkhila (English, Georgia), devil's-claw (English), cuernecillo (Spanish), bloomfell (English), ragaine vanagnadzini (English, Latvia), loto corniculado (English, Spain), keltamaite (English, Finland), karingtand (English), palyavaya akatzyya (English, Belarus), kurdlis prukhila (English, Georgia), harilik noiahammas (English, Estonia), cuernecillo del campo (Spanish), lyadvenetz zhigulevski (English, Russian Federation), lyadvenetz somnitelnyi (English, Russian Federation), lyadvenetz krymski (English, Russian Federation), lyadvenetz olgi (English, Russian Federation), lyadvenetz komarova (English, Russian Federation), lyadvenetz baltiiski (English, Russian Federation), lyadvenetz kavkazski (English, Russian Federation), lyadvenetz ruprekhta (English, Russian Federation), lyadvenetz rogatyi (English, Russian Federation), lyadvenetz polevoi (English, Russian Federation), pied-de-poule (English, France), zayachchy bratki (English, Belarus), birdfoot deervetch (English), birdsfoot trefoil (English), cornette (French), ginestrina (English, Italy), cube (French), garden birdsfoot trefoil (English), Dutchman's clogs (English, England), crowtoes (English), garden bird's-foot-trefoil (English), cat's clover (English), rutvitza ragataya (English, Belarus), tryzaouka (English, Belarus), yellow treefoil (English), bird's-foot trefoil (English), ground honeysuckle (English), sheep-foot (English), upright trefoil (English), common lotus (English), ghizdei marunt (English, Russian Federation), Gemeiner Hornklee (English, Germany), hen-and-chickens (English, England), devil's fingers (English, England), lady's slippers (English, England), granny's toenails (English, England), gafgaz gurdotu (English, Azerbaijan), buinuzlu Gurdotu (English, Azerbaijan), lady's fingers (English, England), ekhdzherarvuit (English, Armenia), ebert khoshoontzor (English, Mongolia), lotier corniculé (French), cornichão (English)

Synonym

Lotus corniculatus , var.*arvensis* (Schkuhr) Ser. ex DC.
Lotus ambiguus , Besser ex Spreng.
Lotus arvensis , Pers.
Lotus balticus , Miniaev
Lotus carpetanus , Lacaita
Lotus caucasicus , Kuprian
Lotus corniculatus , var. *arvensis* (Pers.) Ser.
Lotus corniculatus , var. *glaber* Opiz
Lotus corniculatus , subsp. *major* (Scop.) Gams
Lotus corniculatus , var. *major* (Scop.) Brand
Lotus filicaulis , Durieu
Lotus frondosus , (Freyn) Kuprian
Lotus japonicus , (Regel) K.larson
Lotus komarovii , Miniaev
Lotus major , Scop.
Lotus olgae , Klokov
Lotus peczoricus , Miniaev and Ulle
Lotus ruprechtii , Miniaev
Lotus ucrainicus , Klokov
Lotus zhegulensis , Klokov
Lotus ambiguus , Spreng
Lotus caucasicus , Kuprian.
Lotus ciliatus , sensu Schur
Lotus corniculatus , L. var. *crassifolia* Fr.
Lotus corniculatus , L. var. *kochii* Chrtkova
Lotus corniculatus , L. var. *maritimus* Rupr.
Lotus tauricus , Juz.

Similar species

Coronilla varia, Trifolium spp., Medicago spp., Lotus pedunculatus

Summary

Lotus corniculatus (bird's foot trefoil) is a low growing perennial legume that has long been valued as an agricultural crop. Lotus corniculatus is native to much of Europe, Asia and parts of Africa, but now has a near global distribution. Over most of its range, Lotus corniculatus is not considered invasive, although in a few areas it has out-competed native vegetation.

view this species on IUCN Red List

Species Description
Lotus corniculatus is a perennial, herbaceous member of the pea family (Fabaceae). It can be distinguished from all other members of the pea family by its five leaflets and head-like umbels of bright yellow flowers. *L. corniculatus* blooms from May-September in the United States. The root system includes a long tap root, which may be longer than 3 feet, and a fibrous mat near the soil surface consisting of secondary roots, rhizomes, and modified stems (stolons). (OSU, undated).
The stems of *L. corniculatus* are nearly square (USDA Forest Service, 2006), erect or sprawling on the ground, branched, either smooth or sparsely hairy, and up to one and a half feet long. (USGS-NRWRC, 2006). Numerous stems arise from a basal, well-developed crown with branches arising from leaf axils.(Frame, undated (a)) The leaves are alternate and pinnately compound. The leaflets are somewhat hairy, smooth, elliptic, rounded or pointed at the tip, and tapering to the base. They are up to 2/3 an inch long and 1/3 an inch wide, and lack stalks. The flowers are up to 2/3 an inch long, with ten stamens and superior ovaries. (USGS-NRWRC, 2006). \"Ripe pods are cylindrical, 15-30mm long, 2-3mm wide, brown to almost black, borne at right angles to the top of the peduncle (hence 'bird's-foot' trefoil as the common name). Seeds are irregularly rounded, somewhat flattened, 1.3-1.5mm long, variable in colour at maturity, olive to brownish to almost black, frequently speckled and shiny.\" (Jones and Turkington, 1986). Seeds are ejected from the pods as the pods rupture at maturity (OSU, undated), averaging 375,000 seeds per pound. (Bush, 2002).

Notes
Lotus corniculatus seeds are one of the most common impurities of white clover seeds and some commercially available grasses. (OSU, undated). The Cornell University Poisonous Plants Information Database lists *L. corniculatus* as a potential poison. The primary poison contained in *L. corniculatus* is CN tannini, which affects cattle and sheep most often. (ASCU, 2003)

Lifecycle Stages
Lotus corniculatus sometimes behaves as a hemicryptophyte, dying back to a small crown of short shoots during the winter. In northern regions, it can also behave as a genophyte, losing all above ground parts during the winter. (Jones & Turkington, 1986). Unless cut, plants show one flush of growth per year above ground beginning in March/April and continuing until late June. (Jones & Turkington, 1986).

Uses
Strains of *L. corniculatus* selected after introduction from Europe are now of major importance as both a pasture and hay crop. (NewCROP, 1997). On well-drained soils with adequate moisture, *L. corniculatus* yields 4 tons of hay per acre. (Bush, 2002). *L. corniculatus* has a deep, branched root system that can tolerate both wet and moderately dry conditions, and is unusual among legumes in that it does not cause bloat in cattle. (NewCROP, 1997) \"Birdsfoot trefoil is more tolerant of grazing than alfalfa and red clover, and will normally outlive red clover by several years.\" (UMass, 2006). Like many plants in the pea family, *L. corniculatus* is a nitrogen-fixer and is thus utilized to enhance poor pastures. (OSU, undated). Bird's foot trefoil is commonly used along sides of roads for erosion prevention (Bush, 2002). Being a nitrogen fixer, *L. corniculatus* has the potential to maintain vegetative cover of sand dunes by adding nitrogen to the soil. (Ede, 1997). It also provides food for elk, deer, Canadian geese (Bush, 2002) sheep, voles, and rabbits. (Jones &Turkington, 1986). At shooting preserves and around ponds, it provides cover for pheasants and ducks. (Bush, 2002).

Habitat Description
Lotus corniculatus thrives in temperate regions, inhabiting roadsides, old fields, and other disturbed soils (USGS-NRWRC, 2006). In the British Isles, *L. corniculatus* is \"widespread in grasslands and species-rich heath; also found on cliffs and as a pioneer in quarries and on roadside verges.\"(Jones and Turkington, 1986). It is \"adapted to loam soils with good moisture holding capacity and also to heavy clay soils. It is not adapted to sandy soils. High soil temperatures appear to favour root diseases. Legume of choice where drainage or acidity are a problem. It will tolerate low levels of fertility but is productive only on soils with good fertility. Birdsfoot trefoil is a slow growing perennial legume adapted to cooler climates. It is slow to establish and being a light loving plant will not withstand much competition at the seedling stage.\" (UMass, 2006). It can tolerate a pH range of 5.5-7.5, and performs well on shallow or poorly drained soils compared to alfalfa. (Bush, 2002). A study in Australia showed that *L. corniculatus* has \"important potential for low fertility acidic soils on tablelands and slopes where the Australian Annual Rainfall is 650-1000mm, especially in northern New South Wales\" (Ayres, 2006). Although *L. corniculatus* prefers to grow in warm, moist places, it is intolerant of being inundated with water for prolonged periods. (Zheng, 2004).

Reproduction
Lotus corniculatus reproduces by seed and plants also spread by modified stems (stolons) and rhizomes. (OSU, undated). Jones & Turkington (1986) state that establishment of new plants from seed is rare. New shoots can arise from root crowns. (OSU, undated). The flowering period is indefinate, so the seeds set over a long summer period. Hard seeds overwinter in the soil prior to germinating and can build up seed banks. (Jones & Turkington, 1986). In some grasslands, *L. corniculatus* can flower in the first year and annually thereafter. (Jones & Turkington, 1986). The flowers are cross-pollinated by honey bees due to self-sterility. (Frame, undated (a)). After pollination, it takes between 24 and 71 days for plants to produce mature seeds. (Jones and Turkington, 1986).

General Impacts
Lotus corniculatus forms dense mats which choke out and shade native vegetation. It grows well in the arid midwest US and is problematic in prairies and open or disturbed areas such as roadsides. Prescribed burns facilitate seed germination, which threatens native prairies. (MNDNR, 2006). One study reported that suspected photosensitization occurred in lambs grazing *L. corniculatus*. One group of sucking lambs developed skin lesions on the back and ears. The tips of the ears in a few animals were shortened by 2-3 centimeters. (Stafford, 1995).

Management Info
Physical: To control small infestations of *L. corniculatus*, dig up plants by roots, making sure to remove all root fragments. (USDA Forest Service, 2006). For larger infestations, frequent mowing (more than once every 3 weeks) at a height of less than two inches (OSU, undated) for several years helps to control the plant but may set back native plants (USDA Forest Service, 2006). Controlled burns of *L. corniculatus* are not recommended because they increase seed germination and promote seedling establishment. (USDA Forest Service, 2006).
Chemical: *L. corniculatus* can be effectively controlled with general use herbicides such as: clopyralid, glyphosate, and triclopyr. (USDA Forest Service, 2006). Jones & Turkington (1986) report that morfamquat, ioxynil plus mecoprop, 2,4-D-mecoprop, dichlorprop, fenoprop, and dicamba are effective herbicide treatments on *L. corniculatus*, while MCPA-salt, 2,4-D-amine and ester have no effect. Acumen and basagran MCPB are considered very toxic herbicide treatments for *L. corniculatus* seedlings. Considerable damage to seedlings was caused by: brasoran, gesagard, and opogard; EPTC was considered an ineffective treatment. *L. corniculatus* showed no response to carbofuran or benomyl. (Jones & Turkington, 1986). \"Spot spraying affected areas, (after re-greening from a burn or mowing), with clopyralid + surfactant + dye. (This selective herbicide also affects native plants of the sunflower and pea families.)\" (MNDNR, 2006).

Pathway
Because of its nitrogen-fixing capabilities, *L. corniculatus* can be utilitzed to aid in sand dune revegetation. (Ede, 1997).

Principal source:

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review:

Pubblication date: 2006-11-16

ALIEN RANGE

[2] ARGENTINA
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[1] MONGOLIA
[1] SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS
[3] TAJIKISTAN
[25] UKRAINE

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