GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Lespedeza cuneata***

Lespedeza cuneata 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Fabales	Fabaceae

Common name

Chinese bush-clover (English), Chinese lespedeza (English), perennial lespedeza (English), sericea lespedeza (English), silky bush-clover (English), lesp&#65533;d&#65533;za soyeux (French), Japanischer Klee (German), lespedeza perenne (Spanish), Himalayan bushclover (English), hairy lespedeza (English)

Synonym

Anthyllis cuneata , Dum. Cours.
Aspalathus cuneata , D. Don
Hedysarum sericeum , Thunb.
Lespedeza juncea , var. *sericea* Forbes & Hemsl.
Lespedeza sericea , Benth.
Lespedeza sericea , Miq.
Lespedeza juncea , subsp. *sericea* (Maxim.) Steenis
Lespedeza juncea , var. *sericea* Maxim.

Similar species

Summary

Lespedeza cuneata is a long-lived perennial that grows well in grasslands, pastures, along roadsides, drainage areas, fencerows and in other disturbed areas. It is often found as a weed in cultivated areas, fallow and abandoned fields, meadows and marshes. It is adapted to a wide range of climatic conditions and is tolerant of drought. Lespedeza cuneata can survive freezing winter temperatures, but is often damaged by late spring freezes. Lespedeza cuneata grows best in deep soils, such as deep sands with organic matter or sandy loams with clay loam subsoil. It will also grow on strongly acidic to neutral soils. Dispersal is aided by animals that consume the fruits then pass the seeds; autumn dispersal is aided by the collection of hay in infested fields.

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Species Description
Remaley (1997) states that *L. cuneata* is a warm season, perennial herb of the pea family (*Fabaceae*). It has an erect growth form, ranging from about 1 - 1.5m in height, and leaves that alternate along the stem. Each leaf is divided into three smaller leaflets, about 1.2 - 2.5cm long, which are narrowly oblong and pointed, with awl-shaped spines. Leaflets are covered with densely flattened hairs, giving a greyish-green or silvery appearance. Mature stems are somewhat woody and fibrous with sharp, stiff, flattened bristles. Violet to purple flowers emerge either singly or in clusters of 2-4, from the axils of the upper and median leaves.
Stevens (2002) states that *L. Cuneata* can be distinguished by leaf shape, flower colour, and by its general growth form. It is the only species within the genus *Lespedeza* with cuneate or wedge-shaped leaf bases. \r\n\r\n\r\nIt has flowers of two types: chasmogamous (petaliferous) flowers or cleistogamous (apetalous) flowers. The chasmogamous flowers are typically cream-white to yellow-white in colour, and the upper-most (banner) petal can have pink- or purple-coloured veins. The calyx is 3 to 4mm long. Chasmogamous flowers grow in clusters of 1 to 4 flowers per leaf axis. Cleistogamous flowers are always self-fertilized (versus cross-fertilized in chasmogamous flowers), typically do not open, and do not have showy petals. Cleistogamous flowers have a calyx 1.5 to 2.0mm long and are generally scattered among the chasmogamous flowers (Pieters 1934, Stitt 1946, Hanson and Cope 1955b, in Stevens, 2002). Stevens (2002) states that the fruits are 3 to 5mm long and are glabrous or with appressed hairs. Seeds are shiny, slightly flattened, ellipsoid to oval, and can be tan, olive, purple, or a mottled brown colour. Seeds from the two flower types can easily be distinguished from each other by their shape and size (McKee and Hyland 1941, Cope 1966a,b,1971, in Stevens, 2002).

Notes
A few crossings occurs among different species of the genus *Lespedeza* (Pieters 1934, in Stevens, 2002). *L. cuneata* can produce viable hybrids from crossings with *L. latissima*, *L. inschanica*, and *L. hedysaroides* (Hanson and Cope 1955a, in Stevens, 2002). No viable hybrids, however, have been obtained from crosses between American perennial species and other Asian species, or when perennial *Lespedeza* species attempt to hybridize with annual *Lespedeza* species. Hybrids were also not viable when crossing between species with different chromosome numbers (Brinkley *et al*. 1959, in Stevens, 2002).

Lifecycle Stages
Remaley (1997) states that scarification is necessary for the germination of seeds. Mature seeds of this genus remain viable for up to twenty years; one study found a germination rate of 60% after cold storage for 55 years. Seedlings may represent only 1% of the seeds actually available in the soil. The optimum temperature range for germination is 20° to 30° C (Qiu *et al*. 1995, in Stevens, 2002). Seedling emergence is reduced 20% with each 3° C reduction in day/night temperatures (Mosjidis 1990, in Stevens, 2002). Stevens (2002) states that the seedling growth is best at 26°/22° C day/night temperatures and at 13 to 15 hour day lengths.

Uses
Stevens (2002) states that it was widely planted in the Southeastern U.S. as early as the 1900s as forage for livestock. Cattle prefer *L. cuneata* new growth, which have fine, pliable stems and a low tannin content. It provides good forage for goats; it is, however, not good forage for dairy cattle or for hogs (Hawkins 1959, Schmidt *et al*. 1982, in Stevens, 2002). Stevens (2002) reports that allelopathic compounds in *L. cuneata*, such as tannins, inhibit the growth of other plants while also making it unpalatable to animals. The leaves are higher in tannin content than the stems, and the upper portions of the plant tend to be higher in tannin content than the lower stems (Minton 1951, in Stevens, 2002). As the plant ages, levels of tannins also increase, and grazers will often cease to feed if other palatable forage is available. It is not an important food for native birds or mammals. Some herbivores will eat *L. cuneata*, but only early in the season when shoots are tender or when no other food is available. It is sometimes used as cover for wildlife on crop fields bordering woods. Quail, grasshopper sparrows, meadowlarks, and greater prairie chickens have been documented to build nests in this plant, and bobwhite quail consume seeds of *L. cuneata* (Davison 1945, in Stevens, 2002). Stevens (2002) cites that it is planted for erosion control and soil conservation on roadways, waterways and outlets, dams, field borders, strip mine spoils, and other places that are easily eroded.

Habitat Description
Stevens (2002) reports that *L. cuneata* is adapted to a wide range of conditions. It is cultivated for pasture, from which it often escapes, and may also be found in grazed woodlands. In its native range in Asia, it grows on exposed ground and grassy lowlands (Ohiwi 1965, in Stevens, 2002). Stevens (2002) states that in North America, it occurs in disturbed habitats such as along roads, ditches, railroad tracks, and other moist, disturbed places. It is often found as a weed in cultivated areas, fallow and abandoned fields, meadows, and marshes. It is adapted to a wide range of climatic conditions, is tolerant of drought, and grows best where annual rainfall is over 76 to 89cm. It prefers winters that are dry and summers that are wet (Guernsey 1970, in Stevens, 2002). Stands of *L. cuneata* can survive freezing winter temperatures, but are often damaged by late spring freezes (Helm and Etheridge 1933, in Stevens, 2002). It can survive flooding for up to ten days in cool, moving water, but cannot survive prolonged periods submerged in warm water (Guernsey 1970, in Stevens, 2002). It can grow in shallow soils, but grows best in deep soils, such as deep sands with organic matter or sandy loams with clay loam subsoil. It will also grow on strongly acidic to neutral soils, but prefers soil pH of 6.0 to 6.5 (Guernsey 1970, in Stevens, 2002).

Reproduction
Stevens (2002) states that it can reproduce by seed, as well as spread vegetatively, forming dense stands with many upright stems. Remaley (1997) states that it begins growth from root crown buds at the base of last year’s stem. Stevens (2002) cites that a greater number of seeds are generally produced in years with high rainfall and in years when bee populations are high. Day length, amount of light available, and temperature determine the quantity of each type of flower produced, and numbers of seeds produced (McKee and Hyland 1941, Bates 1955, Ohiwi 1965, Donnelly and Paterson 1969, in Stevens, 2002). Stands can live for over 20 years, and regrowth following clipping is from lateral buds (Helm and Etheridge 1933, Hoveland *et al*. 1975, in Stevens, 2002).

Nutrition
Stevens (2002) states that *L. cuneata* establishes readily in nutrient poor soils.

General Impacts
Coladonato (1992) states that this plant is a colonizer of early to mid-seral grasslands and open forest communities. In a mixture with grass it usually becomes the dominant species after 3 to 4 years. Stevens (2002) states that *L. cuneata*'s deep taproot enables it to outcompete native plants for water and nutrients, especially during periods of prolonged drought. Although originally introduced as a forage plant, it has stems that become tough and unpalatable unless kept continually mowed or grazed. The number of stems produced by each plant increases each year, until large, pure stands are formed that can take over entire fields. In natural areas, these stands can become so dense that native plants are reduced. It also produces chemicals, such as tannins, that can inhibit the growth of other plants and promote the formation of pure stands of *L. cuneata*. It readily escapes from cultivation into native grasslands and agricultural areas, and can seriously impact natural areas.

Management Info
Stevens (2002) states that the potential for large-scale restoration of wildlands infested with *L. cuneata* is probably low, unless the entire area is continually treated for several consecutive years. Complete elimination of *L. cuneata* is difficult. If control efforts are applied when the infestation is still minimal, the potential for successful restoration is moderate to high.
\r\nPreventative measures: In the USA, the increasing range of *L. cuneata* can be slowed if it is no longer sold or planted as erosion control along highways or around reservoirs. Its use as a forage plant should also be halted. Listing of *L. cuneata* as a noxious species will facilitate stopping its spread.
\r\nChemical: Spraying can kill mature plants, but large numbers of viable seeds can remain in the seed bank for several years. Pastures and rangelands must also be monitored for several years to determine if it is completely destroyed. Disturbed areas have a high potential for invasion by this weed. Plants are difficult to identify in the first year of growth and can develop into large stands before they are noticed. It is difficult to find and spray all the plants in an area.
\r\nMost current management procedures require the use of herbicides to control the growth and expansion of *L. cuneata*. Metsulfuron methyl (Escort®), triclopyr (Garlon®), clopyralid (Transline®) and glyphosate (RoundUp®) are some herbicides that are known to control this invasive. Herbicide should be applied early to midsummer, during the flower bud stage. A 2% triclopyr solution or a 0.5% clopyralid solution is effective in controlling *L. cuneata* during the vegetative stage prior to branching or during flowering. In wet sites, a 2% solution of an aquatic-approved glyphosate formulation (Rodeo®, Aquamaster®) is effective from early summer until seed set (Remaley 1998, in Stevens, 2002).
\r\nIntegrated management: The best control method combines both mechanical and chemical treatments. Hand pulling is impractical due to its extensive perennial root system, but mowing plants at the flower bud stage for two to three consecutive years can significantly reduce the vigor of stands as well as control further spread. Mowing followed by an herbicide treatment is likely the most effective option for the successful control.
\r\nPrescribed burning, by itself, does not control populations of *L. cuneata*. Spring burns actually stimulate resprouting and encourage seed germination. Even so, prescribed burns applied late in the season and in combination with other control methods can help control *L. cuneata*. Late season burns decrease mature plant vigor, remove that year’s seeds, and decrease seedling survival. Following a late season burn, herbicide can be applied, then mowed for good control results.

Pathway
Remaley (1997) states that the plant was first introduced to the southern United States for soil improvement, livestock forage, and wildlife forage and cover.*L. cuneata* was introduced to the southeastern United States in the 1800s for forage and for soil conservation measures (Stevens, 2002), such as bank stabilization (Remaley, 1997).Remaley (1997) states that the plant was first introduced to the southern United States for soil improvement, livestock forage, and wildlife forage and cover.

Principal source: Element Stewardship Abstract for *Lespedeza cuneata* (Dumont-Cours.) G. Don (Stevens, 2002) Chinese lespedeza *Lespedeza cuneata* (Dumont) G. Don (Remaley, 1997)

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

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Pubblication date: 2005-01-24

ALIEN RANGE

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[1] SOUTH AFRICA

[32] UNITED STATES

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4 references found for **Lespedeza cuneata**

Managment information

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Summary: Detailed report on description, distribution, impacts, habitats and control.
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Remaley T., 1997 *Lespedeza cuneata* (Dumont) G. Don . National Park Service, Plant Conservation Alliance, Alien Plant Working Group.
Summary: Detailed report on description, distribution, habitat, reproduction methods and management.
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Stevens S. 2002 *Element Stewardship Abstract for Lespedeza cuneata (Dumont-Cours.) G. Don*. The Nature Conservancy.
Summary: An Element Stewardship Abstract containing detail report on description, distribution, dispersal methods, impacts, habitats and control.
Available from http://tncweeds.ucdavis.edu/esadocs/documnts/lespcun.html [Accessed 27 May 2003].

General information

ITIS (Integrated Taxonomic Information System), 2005. Online Database *Lespedeza cuneata*
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.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Lates+niloticus&p_format=&p_ifx=plglt&p_lang=
[Accessed March 2005]