GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: ***Coronilla varia***

Coronilla varia 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Fabales	Fabaceae

Common name coronilla morada (Spanish), coronille bigarr◆ (French), axseed (English), crown-vetch (English), trailing crown-vetch (English), coronille vari◆ (French), bunte Kronwicke (German), arvejilla morada (Spanish), ruda inglesa (Spanish)

Synonym *Securigera varia* , (L.) Lassen subsp. *orientalis* Jahn

Similar species *Vicia spp.*

Summary *Coronilla varia* is a perennial herb with creeping stems that may reach 0.6 - 2 metres. It is tolerant of drought, heavy precipitation, and cold temperatures, but it is intolerant of shade. *C. varia* is adapted to all coarse and medium textured soils, but it does not grow well in fine textured, saline, and alkaline soils. It reproduces prolifically and spreads rapidly *via* creeping rhizomes. In the United States *C. varia* has been extensively planted for erosion control along many roads and other disturbed areas. It has also been widely planted for ground cover on steep banks, mine reclamation, and as a cover crop on cropland.

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Species Description
VDCR/VNPS (UNDATED) describes *C. varia*, a member of the pea family, as a perennial herb with creeping stems that may reach 0.6 - 2m in length. The compound leaves bear 15 to 25 leaflets. The pea-like, pink to white flowers occur in clusters at the end of extended stalks. The narrow, leathery seedpods may be 5 - 8cm long. The following three characteristics together distinguish *C. Varia* from other legumes: its compound leaves have an odd number of leaflets, the leaves and flower stalks arise from the main stem, and the flowers occur in a radiating cluster called an umbel.

Lifecycle Stages
Coronilla varia will typically have a large seed bank stored in the soil, and seeds do not require a period of cold stratification to germinate (Tu 2003). Seeds remain viable in soil for less than a year to 5 years (USGS 2002).

Uses
Tu (2003) reports that in the United States, *C. varia* has been extensively planted for erosion control along many roads, highways, and disturbed areas. It has also been widely planted for ground cover, mine reclamation, and as a cover crop as it provides nitrogen to soil through its association with cyanobacteria. It produces high quality forage for livestock. While it can be poisonous to single stomached animals if ingested in large quantities, there is generally little or no bloat hazard to other livestock. Deer and elk eat *C. varia*, and rabbits, ground-nesting birds, and meadow voles often use it as cover. Caterpillars and butterflies may use it as a host plant.

Habitat Description
Tu (2003) describes *Coronilla varia* as tolerant of a broad range of environmental conditions. It can withstand periods of drought as well as heavy precipitation (up to 165cm annual precipitation), but it cannot tolerate flooded soil conditions. It is tolerant of cold temperatures (down to –33°C) but is intolerant of shade. *C. varia* is well adapted to all coarse and medium textured soils, including sands, gravelly-rocky soils, and loams. It does not grow particularly well in fine textured soils, but can survive in silts and clays. It can grow in soils ranging in pH from 5.0 to 7.5 and is not tolerant of saline and alkaline soils. Since *C. varia* was largely planted in the United States for erosion control, it is now located mostly along roadsides, rights-of-way, open fields, waste areas, and on gravel bars along streams.

Reproduction
Coronilla varia reproduces vegetatively by rhizome sprouts and sexually *via* the production of seeds (Tu 2003). The number of seeds per plant is 11-1000, and the frequency of sexual reproduction for a mature plant is once a year (USGS 2002).

Nutrition
Coronilla varia can grow in soils of low fertility.

General Impacts
Tu (2003) states that *Coronilla varia* can invade and dominate avariety of vegetation types. It is a serious threat to many natural areas because of its prolific seeding ability and rapid rate of vegetative spread *via* its rhizomes, which can create dense, single-species stands. The character of a natural area can be transformed from a richly diverse habitat into just another weedy tract (VDCR/VNPS UNDATED). Tu (2003) reports that when plant communities become thoroughly infested, native plant biodiversity decreases and natural successional processes are altered. It is able to competitively reduce and/or exclude the growth of most native plant species (primarily by shading), such as the native rare plant *Solidago shortii* in the southeastern United States. By excluding native plants, wildlife that rely on natural habitats and communities are then compromised. *C. varia* can alter ecosystem function and nutrient cycling, leading to further degradation of those infested habitats. When *C. varia* invades new habitats, soil nitrogen increases (roots fix nitrogen with symbiotic cyanobacteria) and overall fuel load changes in fire-adapted communities. *C. varia* can be poisonous to single stomached animals if ingested in large quantities.

Management Info
Integrated management: According to Tu (2003), the best management approach for *C. varia* is probably an integrated one. To obtain desired results, it may be necessary to employ manual and mechanical methods along with another control treatment, such as a herbicide spray to control seedlings, repeated for several years and followed by active restoration efforts.
\r\nPhysical: Manual or mechanical methods of plant removal can control *C. varia* in small, isolated patches. These methods, however, are very time and labor-intensive because all pieces of the roots, must carefully be removed to avoid resprouting. Populations must be monitored for several years following plant removal because seeds stored in the soil seed bank may germinate for up to 10 years. Cutting or mowing at a frequency of less than once per year is not effective at controlling populations, but does offer a method for temporarily stopping or slowing its spread. Mowing around the periphery of the desired vegetation (natural area) will keep it from spreading into the area vegetatively, but does not prevent the arrival of seeds. Cutting or mowing removes standing biomass only, so spray herbicides have higher efficacy. Grazing can be used in combination with an herbicide treatment for control.
\r\nChemical: Herbicides are currently the most effective means to control large infestations. Herbicides can be applied with either backpack sprayers (to minimise overspray) or with a boom. Dicamba, 2,4-D, glyphosate, triclopyr, or clopyralid may be used, and 2,4-D (amine or ester) or Glyphosate applied as a 1% or 2% solution can be foliar-applied for good control when *C. varia* is actively growing. A 2% solution of triclopyr kills 99% of *C. varia* in large infestations. Clopyralid is a more target-specific herbicide than glyphosate, 2,4-D, or triclopyr, and a 0.25% solution of clopyralid with 0.5% surfactant can kill up to 100% of *C. varia* cover. All of these herbicides are active on most other native and non-native broadleaved species (dicots) and glyphosate is active on all species (monocots and dicots). Multiple applications will be required over a period of several years since dormant crownvetch seed can regenerate the stand for up to ten years after elimination of the live plants. Crownvetch is tolerant to imazethapyr, imazapic and many other herbicides.

Pathway
Coronilla varia was introduced into the United States for use in erosion control along highway embankments (VDCR/VNPS UNDATED).It is planted as a green fertilizer crop (VDCR/VNPS UNDATED).

Principal source: VDCR/VNPS (Virginia Department of Conservation and Recreation and Virginia Native Plant Society). UNDATED. Invasive Alien Plant Species of Virginia: Crown Vetch (*Coronilla varia* L.)
Tu, M. 2003. Element Stewardship Abstract for *Coronilla varia* L.. The Nature Conservancy.

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

Review: Dr. Nathan L. Hartwig Prof. Of Weed Science Emeritus\ The Pennsylvania State University

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ALIEN RANGE

[2] AUSTRALIA
[1] NEW ZEALAND
[45] UNITED STATES

BIBLIOGRAPHY
9 references found for **Coronilla varia**

Managment information
European and Mediterranean Plant Protection Organization (EPPO), 2006. Guidelines for the management of invasive alien plants or potentially invasive alien plants which are intended for import or have been intentionally imported. EPPO Bulletin 36 (3), 417-418.
Tu, M. 2003. *Element Stewardship Abstract for Coronilla varia L.*. The Nature Conservancy.
Summary: Detailed report on description, habitat, distribution, reproduction methods, uses, and control.

Virginia Department of Conservation and Recreation and Virginia Native Plant Society (VDCR/VNPS), UNDATED. *Invasive Alien Plant Species of Virginia: Crown Vetch (Coronilla varia L.).*
Summary: Detailed report on description, habitat, distribution, reproduction methods, uses, and control.
Available from: http://www.dcr.virginia.gov/natural_heritage/documents/fscova.pdf [Accessed 28 July 2008]

General information

CONABIO. 2008. Sistema de informaci□n sobre especies invasoras en M□xico. Especies invasoras - Plantas. Comisi□n Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.
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 - Plants is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]
Spanish:
La lista de especies del Sistema de informaci□n sobre especies invasoras de m□xico cuenta actualmente con informaci□n aceca de nombre cient□fico, familia, grupo y nombre com□n, as□ como h□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 - Plantas is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]
ITIS (Integrated Taxonomic Information System), 2004. Online Database *Coronilla varia*
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=26553 [Accessed December 31 2004]
Ohio State University (OSU). UNDATED. *Ohio Perennial & Biennial Weed Guide: Crown vetch*, Ohio Agricultural Research & Development Center, Ohio.
Summary: Brief summary on description, distribution, habitat and similar species.
Tu, 2003
USGS (United States Geological Survey). 2002. *Southwest Exotic Plant Information Clearinghouse*. Colorado Plateau Field Station.
Summary: Very brief account on dispersal methods, germination requirements, no. of seeds per plant, etc.
Wilcox, M. D. 2003. *Coronilla varia*. In PlantWorld - a compendium of plants of the world. Mangere Bridge, Auckland, New Zealand (unpublished).