



VEGETATION MANAGEMENT GUIDELINE

Trailing Crown Vetch (*Coronilla varia* L. syn. *Securigera varia* Vent)

SPECIES CHARACTER

DESCRIPTION

Trailing crown vetch is a herbaceous perennial legume a reclining growth habit, stems 0.6 - 2 m long and a strong root system. The compound leaves bear 15-25 oblong leaflets and lack a terminal tendril. The pea-like pinkish lavender to white flowers are produced in hemispherical umbels on long, extended stalks. The narrow, leathery, finger-like seedpods are 5 - 8 cm long.

SIMILAR SPECIES

Trailing crown vetch is distinguished from other plants in the legume family by the following characteristics: 1) compound leaves with an odd number of leaflets ranging between 15-25, 2) the presence of leaves and flower stalks arising from the main stem, and 3) the occurrence of flowers in an umbel. The native vetches (*Vicia* spp.) and vetchlings (*Lathyrus* spp.) have terminal tendrils, but milkvetches (*Astragalus* spp.) do not. Trailing crown vetch should be accurately identified before attempting any control measures. If identification of the species is in doubt, the plant's identity should be confirmed by a knowledgeable individual or by consulting plant identification manuals or keys.

DISTRIBUTION

The natural distribution of trailing crown vetch is Europe, southwest Asia and northern Africa. It is introduced or naturalized in the United States from Maine to South Dakota, south to Virginia, West Virginia, Kentucky, Illinois, and Missouri. This species is widely distributed in Illinois, with occurrences recorded from over half the counties.

HABITAT

Trailing crown vetch has been grown extensively in the northern two-thirds of the United States for temporary ground cover, mine reclamation, erosion control, green fertilizer crop and forage for livestock. It is also used as a bank stabilizer along roads and waterways. It prefers open, sunny areas and occurs along roadsides and other rights-of-way and in open fields.

LIFE HISTORY

Trailing crown vetch flowers appear from May to August with most occurring in June and July. Seeds ripen through August and September. Flower and fruit production may occur later in the year if there is sufficient rainfall or if the plants were mowed during the earlier flowering period. Trailing crown vetch is a perennial that can spread rapidly by seed and its multi-branched root system. It has a relatively impermeable seedcoat and can remain viable in the seedbank for up to 10 years. Deer and small mammals will browse on ripening seedpods



and may assist in seed dispersal.

EFFECTS UPON NATURAL AREAS

Trailing crown vetch is a serious management threat to natural areas because it is a prolific seed producer and rapid rhizomes development. This aggressive exotic can form single species stands that can reduce and/or exclude native vegetation. It is widespread in Illinois along roadsides and in waste grounds and is a serious invader of open communities such as prairies, dunes, glades and barrens.

CONTROL RECOMMENDATIONS

RECOMMENDED PRACTICES IN NATURAL COMMUNITIES OF HIGH QUALITY

Initial efforts in areas of heavy infestation

An integrated approach is perhaps the best management tool for crown vetch. It may be necessary to employ control measures for several years to achieve desired results. Early detection is critical as crown vetch may be difficult to control once it becomes firmly established.

In fire-adapted communities, prescribed burning in late spring can temporarily reduce the size of the population and may give existing native vegetation a slight competitive edge. Prescribed burning may promote seed germination by scarifying the seedcoat and will need to be repeated for several years to achieve adequate control.

Where feasible, late-spring mowing is a useful tool for reducing the height of trailing crown vetch making treatment with herbicide easier after the stems have resprouted.

Treatment with a 1% solution of clopyralid (Transline) is recommended for trailing crown vetch. This herbicide is selective for legumes, but may also effect composites, nightshades and certain smartweeds. Care should be used when applying Transline in prairies where legumes and composites are often important components of the community. Crown vetch develops an extensive root system; therefore, the entire infestation should be treated. If only a portion of the infestation is treated, the crown vetch will rapidly re-colonize the entire site. Monitoring and re-treatment may be necessary and successful eradication may require several years of monitoring and re-treatment because of recruitment from dormant seeds in the seedbank.

When applying any herbicide, spot application should be done with a hand or backpack sprayer and should be uniform such that the entire leaf is wetted. **Do not spray so heavily that herbicide drips off the target species.** Care should be taken to avoid contacting non-target species. Native plants, left unharmed, will be important in re-colonizing the site after crown vetch is controlled. The herbicide should be applied while backing away from treated areas so as not to walk through the wet herbicide. By law, herbicides only may be applied according to label instructions and by licensed herbicide applicators or operators when working on public properties.

Initial efforts in areas of light infestation

Same as given above for heavily infested areas.

Maintenance control

Repeat recommendations for heavily infested areas.

RECOMMENDED PRACTICES ON BUFFER AND SEVERELY DISTURBED SITES

Initial efforts in areas of heavy infestation

Same as given above for heavily infested areas. In addition, the following chemical control methods are effective and could be used.

The herbicide 2,4-D amine (dimethylamine salt of 2,4-D) is a low volatility formulation that can be foliar applied in early spring when crown vetch is growing actively. 2,4-D amine should be applied by hand or backpack sprayer at the recommended application rate on the label for spot application. Phenoxy herbicides are broadleaf selective plant growth regulators that will not harm grasses but precautions must be taken in the vicinity of sensitive nontarget plants. To reduce vapor drift, use an amine rather than an ester formulation of 2,4-D. The control area should be spring- or fall-burned to remove accumulated plant litter to insure complete foliar coverage. A follow-up treatment using recommended label rates is necessary to obtain complete results.

In addition, Roundup (glyphosate) is a broad spectrum, translocated herbicide that can be foliar applied as a 1 or 2% solution during early spring when the plant is actively growing. Avoid direct application to any body of water, sensitive species, or areas that need to be protected from drift and direct application. Roundup is non-selective and care should be taken to avoid nontarget plants. To insure good foliar coverage, the previous year's growth should be prescribed-burned to eliminate duff accumulation. A follow-up application of Roundup may be necessary the following fall or early spring to combat regeneration from underground parts or seeds.

A 1% solution of 2,4-D and Triclopyr (tradename Crossbow), 2,4-D with dicamba (tradename Weed-b-Go), or a 2% solution of Triclopyr (tradename Garlon 3A) may be effective when applied as foliar spray to crown vetch plants in a state of rapid growth (spring or early summer before flowering). Triclopyr is dicot specific.

Frequent mowing or intensive grazing can considerably reduce the vigor of large colonies, but must be repeated for more than one year and livestock and mowing devices are potential dispersal agents for seeds. Crown vetch may be poisonous to single-stomached animals if ingested in large quantities. Mowing equipment should be inspected, and cleaned if necessary, after use to prevent spread of crown vetch seed.

Initial efforts in areas of light infestation

Same as given above for heavily infested areas.

Maintenance control

A periodic prescribed fire regime should control this species in fire-adapted communities. Late-spring mowing can be used when fire is not feasible.

FAILED OR INEFFECTIVE PRACTICES

Hand pulling is ineffective unless it is repeated numerous times during the growing season and all pieces of the root must be removed to avoid re-sprouting. Early spring burns may stimulate

crown vetch. No effective biological controls that are feasible in natural areas are known.

REFERENCES

- Gleason, H. A. 1952. The new Britton and Brown illustrated flora of the northeastern United States and adjacent Canada. Vol 2. The New York Botanical Garden, New York. 655 pp.
- Fernald, M. L. 1950. Gray's manual of botany, eighth edition. American Book Co., New York. 1632 pp.
- Invasive Species Specialist Group. No date. Global invasive species database: *Coronilla varia*. Available from: <http://www.issg.org> [Accessed August 30, 2004].
- Mohlenbrock R. H. 2002. Vascular flora of Illinois. Southern Illinois University Press, Carbondale. 490 pp.
- Tu, M. 2003. Element Stewardship Abstract for *Coronilla varia* L. The Nature Conservancy. Available from: <http://tncweeds.ucdavis.edu> [Accessed August 28, 2004].
- Virginia Department of Conservation and Recreation and Virginia Native Plant Society. Undated. Invasive alien plant species of Virginia: Crown vetch (*Coronilla varia* L.). Available from <http://www.dcr.stat.va.us/dnh> [Accessed August 30, 2004].

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- Schwegman, John. 1989. Division of Natural Heritage, Illinois Department of Natural Resources, Springfield, Illinois.
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