

ELEMENT STEWARDSHIP ABSTRACT  
for

*Daucus carota*

Wild Carrot

To the User:

Element Stewardship Abstracts (ESAs) are prepared to provide The Nature Conservancy's Stewardship staff and other land managers with current management-related information on those species and communities that are most important to protect, or most important to control. The abstracts organize and summarize data from numerous sources including literature and researchers and managers actively working with the species or community.

We hope, by providing this abstract free of charge, to encourage users to contribute their information to the abstract. This sharing of information will benefit all land managers by ensuring the availability of an abstract that contains up-to-date information on management techniques and knowledgeable contacts. Contributors of information will be acknowledged within the abstract and receive updated editions. To contribute information, contact the editor whose address is listed at the end of the document.

For ease of update and retrievability, the abstracts are stored on computer at the national office of The Nature Conservancy. This abstract is a compilation of available information and is not an endorsement of particular practices or products.

Please do not remove this cover statement from the attached abstract.

Authors of this Abstract:  
Nancy Eckardt

©  
THE NATURE CONSERVANCY  
1815 North Lynn Street, Arlington, Virginia 22209 (703) 841 5300

The Nature Conservancy  
Element Stewardship Abstract  
For *Daucus carota*

## I. IDENTIFIERS

Common Name: WILD CARROT

Global Rank: G?

### General Description:

*Daucus carota* is a monocarpic perennial herb and a member of the parsley family (Umbelliferae, Fernald 1951; Ammiaceae, Rydberg 1971).

### Diagnostic Characteristics:

A similar umbellifer, *Carum carvi* (caraway), is distinguished from *D. carota* by small umbellets that are separate from each other; inconspicuous, narrow bracts below the umbel; ribbed seeds without bristles that give the odor of caraway when crushed; and glabrous leaves and flower stalks.

## II. STEWARDSHIP SUMMARY

*Daucus carota* is not usually a high-priority for management, but it can be persistent or require active management on heavy soils with a good clay content. Control is achieved by hand-pulling or mowing close to the ground before seed set. On lighter sandy soils it may persist for a few years on recovering prairies but tends to decline on its own as the native grasses and forbs become established.

## III. NATURAL HISTORY

### Range:

Introduced and naturalized from Europe, *Daucus carota* inhabits dry fields and waste places at low altitudes throughout the northern United State from Vermont to Virginia west to Washington and California and north into Canada (Fernald 1951).

### Habitat:

It is often found on calcareous soil, but not restricted to it. It apparently prefers fine-particled soil and a high nutrient status, but endures a wide range of conditions (Dale 1974). Ahrenhoerster (pers. comm.) suggested that it may be more persistent on heavy soils with a good clay content. Gross and Werner (1982) stated that *D. carota* normally does not occur on newly abandoned fields because seeds do not survive for more than 1-2 years and are not often present in a newly disturbed area. Once dispersed to an area, the seedlings can emerge and survive in several types of ground cover, including those with thick vegetation. It is commonly found in fields 4-7 years after abandonment (Gross and Werner 1982).

#### Reproduction:

The following comes from Dale (1974). *Daucus carota* is protandrous; on an individual flower, the gynoecium (egg) is still immature when the pollen is released. Long filaments can facilitate self-fertilization of adjacent flowers when insect pollination fails. Seeds of the terminal, primary umbel mature first, are largest, have the highest viability, and have two to three times the number of seeds as do subsequent umbels. The umbel dries as it matures and breaks open, scattering the seeds. Flowers appear from May through October, and seeds mature and are released from mid-summer to mid-winter. The seeds have barbs, which promote dispersal by animals and wind (Gross and Werner 1982). There is no evidence for vegetative reproduction.

#### Impacts:

*Daucus carota* invades open waste ground, competing for resources with native grasses and forbs. It is a threat to recovering grasslands and prairies where it occurs because it matures faster and grows larger than many native species. It tends to come up once prescribed burning is begun on a prairie restoration site and can be persistent on soils with a good clay content.

### IV. CONDITION

#### Threats:

*Daucus carota* populations have a large proportion of annuals under favorable conditions and low density. At high densities intraspecific competition causes plants to become less vigorous, flower late, and set fewer seeds. Flowering may be delayed to a third or fourth season if conditions are unfavorable (Dale 1974). Attacks by the nymphal stage of the plant bug, *Lygus* spp., on the seed destroys the seed embryo. Roots are eaten by carrot rust fly larvae (*Psila rosae*), and lesion nematode adults and larvae (*Protyleachus* spp.), and the root knot nematode (*Meloidogyne* spp.). The aster yellow fungus, a mycoplasma transmitted mainly by leaf hoppers (*Macrostelos*) can damage 25-90% of a wild carrot patch (Dale 1974).

### V. MANAGEMENT/MONITORING

#### Management Requirements:

*Daucus carota* can be controlled along paths or in small patches by hand-pulling or mowing in mid-to-late summer before seed set. It is an early successional invader, but does not appear to significantly inhibit the establishment and recovery of native prairie species. Abundance in sandy soil generally declines on its own as natives become reestablished (Huffman, pers. comm.). It is more persistent in soils with a good clay content, and active management may be necessary in such areas (Ahrenhoerster, pers. comm.). It is particularly troublesome when it occurs on railroad and highway rights-of-way with heavy soils where frequent mowing keeps the area bare and, since incorrectly timed, simply allows for germination or scatters seeds. Ahrenhoerster (pers. comm.) recommended hand-pulling or mowing close to the ground in the first year of growth when plants are 7-10 inches high.

#### Management Programs:

On the Kitty Todd Nature Preserve in Ohio, *Daucus carota* was abundant in 1985, on relatively bare soil of a field abandoned from cultivation just two years before. Mowing was considered, but by 1987, abundance had significantly decreased on its own. Contact: Mary Huffman, Manager and Research Associate, Kitty Todd Nature Preserve, 10270 Old State Line Rd., Swanton, OH 43558. 419-867-0619.

*Daucus carota* is more persistent on the heavier soils of southeastern Wisconsin. Ahrenhoerster (pers. comm.) recommended hand-pulling or mowing close to the ground in the first year of growth when plants are 7-10 inches high. Contact: Bob Ahrenhoerster, P.O. Box 83, Northlake, WI 53064. 414-673-5878.

#### Monitoring Requirements:

*Daucus carota* should be monitored to determine if active control measures are necessary. *D. carota* is easily observed in the field, especially when in flower.

## VI. RESEARCH

#### Management Research Needs:

The persistence of *Daucus* in prairies is apparently unknown. How well does it compete with native species for available resources? Is it a concern on good quality prairies? Is active management, other than encouraging good recovery of the native community, required? How does fire affect *Daucus*, and can prescribed burns enhance or deter its growth?

## VII. ADDITIONAL TOPICS

## VIII. INFORMATION SOURCES

#### Bibliography:

Ahrenhoerster, R. 1987. Owner and Manager, Prairie Seed Source, Inc. Telephone conversation with N. Eckardt, TNC, MRO. July 17.

Dale, H. M. 1974. The biology of Canadian weeds. 5. *Daucus carota*. Can. J. Plant Sci. 54: 673-685.

Huffman, M. 1987. The Nature Conservancy, Kitty Todd Nature Preserve, Ohio, Manager. Telephone conversation with N. Eckardt, TNC, MRO. September 1, 1987.

## IX. DOCUMENT PREPARATION & MAINTENANCE

Edition Date: 1987-08-28

Contributing Author(s): Nancy Eckardt