ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PMORC2B140
Data Sensitivity: YES

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Spiranthes delitescens*
COMMON NAME: Canelo Hills Ladies'-Tresses; Canelo Ladies'-Tresses; Madrean Ladies'-Tresses
SYNONYMS: *Spiranthes graminea* Lindl. (in part)
FAMILY: Orchidaceae

AUTHOR, PLACE OF PUBLICATION: Sheviak, C.J. 1990. Rhodora 92:213-231.

TYPE LOCALITY: North of Canelo, Santa Cruz County, Arizona.

TYPE SPECIMEN: NYS. C.J. Sheviak 1 August 1984.

TAXONOMIC UNIQUENESS: *Spiranthes* has been treated as a large genus with many sections containing 300 species; three sections containing 29 taxa occur in the United States and Canada. Alternatively, the genus has been partitioned into many (35) small genera (Luer 1975). Chromosome number of *S. delitescens* (2N = 74) different from *S. graminea* (2N = 44) (Sheviak 1990).

DESCRIPTION: Slender, erect, terrestrial orchid. In bloom reaches 60.0 cm (24.0 in.) tall. Three to ten linear-lanceolate, grass-like leaves, 18.0 cm (7.2 in.) long and 1.5 cm (0.6 in.) wide, grow basally on stem. Fleshy, swollen roots about 5.0 mm (0.2 in.) in diameter. Twisted spike inflorescence may contain up to 45 tubular white flowers, consisting of wide-spreading lateral sepals and linear petals, with a pleated lip 6.0-8.0 mm (0.24-0.32 in.) long, creamy or pale-yellow center. Column slender, rostellum elongate and deeply bifid.

AIDS TO IDENTIFICATION: *S. delitescens* can be distinguished from other Mexican and southwest U.S. *Spiranthes* species by: (1) shape of medium-sized flowers: floral tube curving into a horizontal apex and having an ascending base, sepals curving outward and downward, distinct pubescence; trichomes glandular-capitate, tapered toward apex; (2) habitat and (3) elevation.

ILLUSTRATIONS: Line drawing of habit and flower (Sheviak, 1990: Fig.1, p.214).
Color photo (Robin Silver *in* http://www.biologicaldiversity.org/swcbd/species/chltress....)

TOTAL RANGE: Known only from southern Arizona; possible (undocumented) from northern Mexico.

RANGE WITHIN ARIZONA: Four cienegas in southern Arizona: one in Cochise County, and three in Santa Cruz County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous Perennial.

PHENOLOGY: Flowering occurs in late July-early August, when temperatures range from 60°F at night to 100°F during day. During that time, precipitation averages 15-20 inches. Plants visible July-August. Fruits mature three weeks after flowers form, usually during August.

BIOLOGY: Perennial deciduous mycotrophic plant, dependent upon mycorrhizal relationship with fungus for part or all of its nourishment. Totally parasitic upon fungus for germination and early growth stages. The elapsed time for *S. delitescens* between germination and first appearing above ground is not known, but for many terrestrial orchids this initial below ground stage is measured in years. After first appearing above ground, *S. delitescens* is partially photosynthetic, but remains dependent upon its endophytic fungus for some amount of nourishment. It can revert to the underground state and remain below ground for a year or more. The number of years in the vegetative state before blooming is not known. After reaching blooming size, it does not always bloom in successive years, but can revert to either the vegetative or underground states. It is capable of going directly from the underground state to the blooming state without an intervening vegetative state.

Anecdotal evidence that *delitescens* requires disturbances such as grazing (increases germination) or fire. Can be tremendous lag between action and growth.

HABITAT: Marshy wetland or cienega intermixed with tall grasses and sedges. Grows on slope near water so soil is drained (aerated) although saturated. Grows in very dense vegetation. As slope increases, growth increases.

ELEVATION: About 4,000 ft. (1,220 m). Based on records in the Heritage Data Management System (HDMS), elevation ranges from 4,585 to 4,970 ft. (1398 - 1516 m) (AGFD, unpublished data accessed 2002).

EXPOSURE: Full sun.

SUBSTRATE: Finely grained, highly organic, saturated soils.

PLANT COMMUNITY: Associated plant species include: *Bidens* spp., *Carex* spp., *Juncus* spp., *Eleocharis* spp., *Typha* spp., and *Equisetum* spp.

POPULATION TRENDS: The Nature Conservancy has monitored the plants at its Canelo Hills reserve since 1979, and has made yearly counts of the total population since 1993. There is not a clear trend in the data because the total number of plants varies greatly from year to year. The total number of plants was as high as 521 in 1995 and as low as 19 in 1997. Only one plant bloomed in 1997, but 107 plants bloomed in 1995. There is some, but incomplete, evidence that burning helps maintain the orchid population, probably by eliminating the buildup of thatch which the small orchid plants cannot penetrate (Coleman 1999).

The orchids at Canelo Hills are monitored on a yearly basis, but the other three locations are not. An informal survey of the Sheehy Springs location in 1999 turned up 731 blooming plants. Based on that count, Sheehy Springs is perhaps the largest colony of *S. delitescens.*

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: LE (USDI, FWS 1997)
[PE USDI, FWS 1996]
[C1 USDI, FWS 1994]
[PE USDI, FWS 1993]
[C1 USDI, FWS 1993]

STATE STATUS: Highly Safeguarded (Arizona Native Plant Law, 1993)

OTHER STATUS: Not Forest Service Sensitive (USDA, FS Region 3 1999)
[Forest Service Sensitive (USDA, FS Region 3, 1990), status designated under *Spiranthes graminea*]

MANAGEMENT FACTORS: Determine optimum habitat conditions and manage accordingly to facilitate recovery; management "tools" could include fire and/or grazing. Spread of invasive exotics such as Johnson grass (*Sorghum halapense*) could become a problem because competition for light and other resources in the

dense cienega vegetation may be limiting. Lack of grazing could hurt. Cattails and sedges could form large mats that flower cannot grow through.

Many of their ecosystems have not yet recovered from the widespread erosion and channel entrenchment that resulted from poor management practices of over a century ago. Possibly the greatest threat to the survivability and fecundity of the orchid is the dense vegetation surrounding the small orchid plants. The invasion of *Sorghum halepense* into the cienega and the aggressive growth of *Equisetum* spp. may exacerbate the problem (The Nature Conservancy Arizona Field Office, pers. comm.). Other threats may include, growing water demands and associated diversions and impoundments, uncontrolled livestock grazing, the introduction of invasive non-native plant species, and sand and gravel mining. (NatureServe 2001).

PROTECTIVE MEASURES: The Nature Conservancy has purchased two of the known sites and is monitoring the plants at one of the sites.

SUGGESTED PROJECTS: Monitor known populations to determine trends; evaluate effects of prescribed fire and grazing on population numbers. Survey any seepy area at 4,000-5,000 ft. range in July. Problems are downcutting at Empire Cienega and groundwater pumping. At Canelo, Johnson grass is moving in. At three private sites, no Johnson grass invasion. Monitor grazing and fire effects side by side.

LAND MANAGEMENT/OWNERSHIP: The Nature Conservancy - Canelo Hills Cienega; Private.

SOURCES OF FURTHER INFORMATION

LITERATURE CITATIONS:

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ADDITIONAL INFORMATION:

Revised: 1990-11-27 (SR)
1991-10-20 (BKP)
1994-08-18 (DBI)
1994-08-31 (PLW)
1995-05-15 (DBI)
1997-01-07(SMS)
1998-12-04(DJG)
2000-03-24 (RAC)