

-State Species Abstract-
-Wyoming Natural Diversity Database-

SPIRANTHES DILUVIALIS
UTE LADIES'-TRESSES
Family: Orchidaceae

Status:

US Fish & Wildlife Service: LT
Agency Status: Listed as Threatened under
the Endangered Species Act.

Heritage Rank:

Global: G2 State: S1S2
Range Context: Sparse
Wyoming Contribution Rank: High

Description: Ute ladies' tresses is a perennial herb with erect, glandular-pubescent stems 12-50 cm tall arising from tuberous-thickened roots. Basal leaves are linear, up to 1 cm wide and 28 cm long, and persist at flowering time. Leaves become progressively reduced higher up the stem. The inflorescence is a loose spike 3-15 cm long of numerous, small white to ivory flowers arranged in a gradual spiral. The lip petal is oval to lance-shaped, narrowed at the middle, and has crispy-wavy margins. Sepals are separate or fused only at the base (not forming a hood-like structure) and are often spreading at their tips (Sheviak 1984; Fertig et al. 1994; US Fish and Wildlife Service 1995, 2007).

Similar Species: *Spiranthes romanoffiana* has deeply constricted lip petals, sepals fused for at least 1/2 their length into a hood-like tube, and a densely congested inflorescence and typically occurs in montane wetlands. *S. magnicamporum*, a prairie species not known from Wyoming, has strap-shaped, wavy-margined lip petals and lacks leaves at flowering time. *S. porrifolia* (also not known from Wyoming) has yellowish flowers with sepals fused for about 1/2 their length (but not forming a hood), and strap-shaped lip petals



Above: *Spiranthes diluvialis* from Goshen County, WY by Walter Fertig.

with peg-like projections near their tip (US Fish and Wildlife Service 1995). *Habenaria* [*Platanthera*] species have an elongated spur on the back of the lip petal (Sheviak 1984; Fertig et al. 1994; Heidel 2008).

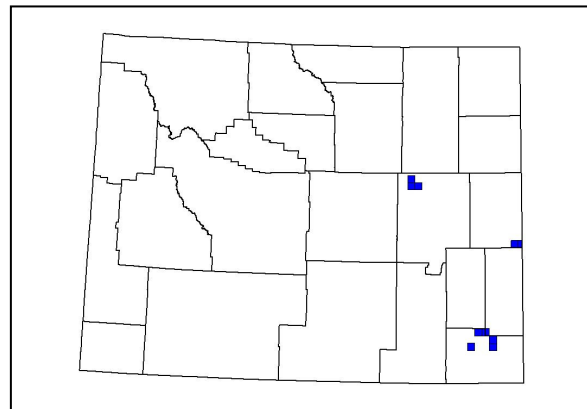
Flowering/Fruiting Period: Flowers from (late July) August – early September. Reproduces by seed. Plants do not flower every year and portions of a population remain dormant below ground each year (Heidel 2001).

Distribution: Currently known from western Nebraska, southeastern Wyoming, north-central and northwestern Colorado, northeastern and southern Utah, east-central Idaho, southwestern Montana, south-central Nevada, and central Washington (Fertig et al. 2005). In Wyoming, *S. diluvialis* is known from Converse, Goshen, Laramie, and Niobrara counties in portions of the Antelope

Creek, Horse Creek and Niobrara River watersheds.



Above: *Spiranthes diluvialis* habitat, Niobrara Co., by B. Heidel



Above: Wyoming distribution of *Spiranthes diluvialis*

Habitat: Rangewide, *S. diluvialis* occurs on major rivers with active deposition that are seasonally-flooded, and on moist, subirrigated valley bottoms of smaller perennial rivers and streams fed by groundwater discharge. Typical local settings include gravel bars, wet meadow terraces, oxbows, and seeps, and may also include springs, fens, lakes, and excavations within suitable settings, including ditches and quarries; at 220-2130 m (720-7000 ft; Fertig et al. 2005, Heidel 1998; Moseley 1998, Arft and Ranker 1998, US Fish and Wildlife Service 2007). Soils are circumneutral to slightly alkaline, typically well-drained, and typically derived from

alluvial deposits. Vegetation is relatively low in stature, dominated by graminoids, usually in full sun but sometimes in partial shade. Populations may shift along major rivers as deposition creates new habitat or erosion and succession eliminate old habitat (US Fish and Wildlife Service 1995, 2007).

In Wyoming, *S. diluvialis* is found mostly on low, flat floodplain terraces or abandoned oxbows within 0.5-50 m of small perennial streams or rivers, at 4750-5400 ft (Fertig 2000, Heidel 2007). These terrace sites are subirrigated, often seasonally flooded, and remain moist into the summer. Soils are typically sandy loams, but also include sands, loams and silt loams. These soils are derived from Quaternary alluvial deposits, have pH values from 7.3-8.3, and have comparatively lower electrical conductivity, sodium absorption ratios and clay content than unoccupied habitats that were sampled, while they had higher lime concentrations (Heidel 2007). The wet meadow communities are dominated by *Agrostis stolonifera* or *Panicum virgatum*; sometimes with *Juncus balticus* or local dominance of *Eleocharis quinqueflora*, in a narrow band between emergent aquatic vegetation and adjacent dry upland prairie (Fertig 2000, Heidel 2007). Vegetation cover is typically 75-90%, and is usually short (under 45 cm tall). Common associated species include *Equisetum laevigatum*, *Melilotus albus*, *Muhlenbergia asperifolia*, *Juncus longistylis*, *J. nodosus*, *Triglochin maritima*, *Pedicularis crenulata*, *Sisyrinchium angustifolium* and *S. montanum*, and *Schoenoplectus pungens*. The associated stream channel typically supports submerged *Chara* spp. and emergent vegetation that includes either *Typha latifolia* or *Schoenoplectus tabaernaemontanaei*.

Occurrences in Wyoming: Known from 9 occurrences, first discovered in Wyoming in 1993, most recently surveyed in 2005-06.

Abundance: The nine known occurrences range in size from less than 10 plants to over 2000 plants. An estimate of total state numbers, based on peak counts, indicate there have been at least 3800 plants in a total area of about 60 acres, subject to fluctuation from year to year (Heidel 2007).

Trends: Trends are unknown, and flowering numbers appear to have declined for small populations during drought years in those sites with limited agricultural uses.

Protection status: All known occurrences in Wyoming are on BLM, state, or private lands managed for multiple use.

Threats: Threatened by energy developments, subdivision, noxious weeds, and water developments. Prolonged idle conditions in the absence of disturbances (flooding, grazing, mowing) may be a threat just as repeated mowing and grazing during flowering may lead to decline.

Managed Areas: Wyoming populations are found on lands managed by the BLM Casper Field Office, state and private lands.

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Author: Walter Fertig

Update Author: B. Heidel

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