Daniel, S. and A. Johnson. 2017. *Spiranthes ovalis* var. *erostellata* (Orchidaceae) new to New York. Phytoneuron 2017-72: 1–5. Published 25 October 2017. ISSN 2153 733X

SPIRANTHES OVALIS VAR. *EROSTELLATA* (ORCHIDACEAE) NEW TO NEW YORK

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ABSTRACT

Spiranthes ovalis var. *erostellata* (Orchidaceae) is reported for the first time in New York State. First collected in 2015 and originally misidentified, it was rediscovered at the same site in 2017 and correct identification confirmed. This finding expands its known range by over 500 km to the north and by nearly 700 km to the east. This late-flowering native species was discovered in a disturbed habitat, and may be overlooked in other locations.

We report the first confirmed record of *Spiranthes ovalis* var. *erostellata* (Orchidaceae) for New York State. This is the most northern and eastern record known for this native species (Sheviak & Brown 2002).

Spiranthes ovalis Lindley var. **erostellata** Catling

New York. St. Lawrence Co.: Town of Massena, adjacent to the Wiley Dondero Canal of the St. Lawrence River, 220 m SE of Robinson Bay Rd, 2.4 km E of Barnhart Island Rd, 44.98540 N 74.81661 W, 122 m elev, 16 Sep 2017, *Daniel and Johnson s.n.* (BH).

Spiranthes ovalis var. *erostellata*, oval ladies tresses or October ladies tresses, a member of the *Spiranthes cernua* complex (Pace & Cameron 2016), is known from the southeastern to the upper midwestern USA and southwestern Ontario. We found it in extreme northern New York, a location over 500 km north-northeast of the closest confirmed record in central Pennsylvania and nearly 700 km northeast from the nearest known record in southwestern Ontario, on Walpole Island.

Figure 1. Distribution of *Spiranthes ovalis* var. *erostellata*. Modified from Sheviak and Brown (2002) to include records (red circles) from central Pennsylvania and the recent record from New York.

Throughout most of its northern range *Spiranthes ovalis* var. *erostellata* is considered a rare or uncommon species. It is listed as S1 (critically endangered) in Ontario (Oldham & Brinker 2009), where it was first found in 1985 (Brown 1986). Michael Oldham, Botanist for the Ontario Natural Heritage program, has records from four sites, but he is not aware of any reports in the province in more than a decade (Oldham, pers. comm.). It is not ranked in Michigan (Natureserv 2017), where there are records from five counties, all in the southern part of the state (Michigan Flora Online 2017). It is ranked S1 in Pennsylvania (Natureserv 2017), with five records. In addition to a 1961 collection in Franklin County in south-central Pennsylvania (Pennsylvania Flora Project 2017), the Carnegie Museum of Natural History has four herbarium collections, two from Greene County in southwestern Pennsylvania, made in 2003 and 2005 (Consortium of Midatlantic Herbaria Data Portal 2017), and two 1996 collections from Blair and Huntingdon counties in central Pennsylvania (Consortium of Midwest Herbaria Data Portal 2017). Further afield there have been several recent collections in the Chicago region (Wilhelm & Rericha 2017) and it was recently reported from southeastern Wisconsin, where it is ranked S1 (NatureServ 2017; Carter & Pace 2013). Published reports suggest that it is expanding its range (Wilhelm & Rericha 2017; Homoya 1993; Brown et. al 1987; Sheviak 1974).

Figure 2. Habitat of *Spiranthes ovalis* var. *erostellata* adjacent to the Wiley Dondero Canal of the St. Lawrence Seaway, near Massena, New York. Photo by S. Daniel.

In September 2015 we found a small population of this species at a site near the St. Lawrence Seaway in northern New York. We puzzled over it extensively and mistakenly called it *Spiranthes casei*, a species known from New York but not one familiar to the authors. At that time we did not consider *S. ovalis* as a possibility, possibly blinded by the fact that it was so far out of its known range. In August 2017 we found what we determined to be good *S. casei*. We strongly suspected, due to differences of phenology, flower structure, and habitat that what we had seen in 2015 was a different taxon altogether. We returned to the site on September 16, 2017, while leading a botany

field trip. After a search, one of the participants found four plants, which led to our finding a total of seven flowering stems in a small area. Close inspection of it revealed that this was *S. ovalis* var. *erostellata*. We sent pictures to A.A. Reznicek, curator of the University of Michigan Herbarium, who confirmed the identification.

Var. *erostellata*, described in 1983, is more common than var. *ovalis*, differing from it in the lack of a viscidium and rostellum, thus not being insect pollinated but instead self-pollinated or autogamous (Catling 1983). It was this character, along with the very small (less than 5 mm long flowers), that helped us confirm the identification. Note the absence of viscidium and rostellum in the photo.

Figure 3. *Spiranthes ovalis* var. *erostellata*. Left: opened flower — note lack of viscidium and rostellum. Right: inflorescence. Photos by S. Daniel.

While the habitat for this species has been described as open woodland or oak savanna, often on thin, calcareous soils, in Ontario it has been found in wet-mesic prairie (Brown et al 1987). It has also been found in disturbed habitats, including old fields, ditches, and on fill (Wilhelm & Rericha 2017).

The site where we found *Spiranthes ovalis* var. *erostellata* is adjacent to the Wiley Dondero Canal of the St. Lawrence Seaway. It grows there on fill — dry, calcareous, clayey, dredge spoil from the construction of the St. Lawrence Seaway in the 1950's (Soil Survey Staff 2017). The habitat was somewhat open with low-growing herbaceous plants and a few scattered trees and shrubs nearby. The places we found the most plants tended to lack high density competition from other species.

After the initial discovery of 7 flowering stems on September 16, we returned to survey twice more, on September 21 and October 6. Our highest count was on October 6, when we tallied 66 flowering stems. They ranged in height from about 12 cm to 36 cm tall. On our October 6 survey, most plants had at least some flowers still in bud towards the top of the stem, a few plants were completely in fruit, while a few others appeared to have recently emerged, with just the lower flowers beginning to open. We searched more areas of this field as well as other nearby sites that appeared to share similar habitat features and associated species, but we only found the *Spiranthes ovalis* var. *erostellata* within a single area encompassing approximately 0.2 hectare. Within this area, the plants tended to be clustered in three discrete groups of 18, 28, and 16 flowering stems, each group within an area of approximately 40–60 m^2. A few other plants were outliers, found singly.

The dominant associates in the meadow included locally common old field species such as *Danthonia spicata, Symphyotrichum pilosum* var. *pringlei*, and *Solidago juncea*. Other plant associates included such native species as *Carex pellita*, *Carex granularis*, *Euthamia graminifolia*, *Fragaria virginiana*, as well as non-native species including *Daucus carota*, *Euphrasia stricta*, *Agrostis gigantea*, and *Phragmites australis*. The wetter portions of the site, where *S. ovalis* var. *erostellata* was not found, included several interesting species, including a large (over 100 flowering stems) population of *Spiranthes magnicamporum*, which had been recently discovered in New York (Brunton 2015), as well as *Gentianopsis crinita, Solidago ptarmicoides, and Carex viridula.*

This species is easy to overlook. It is the latest-flowering *Spiranthes* species in northeastern North America and flowers at a time when not many botanists are in the field. Further it can easily hide in taller vegetation. While *S. magnicamporum* tends to stand out, *S. ovalis* var. *erostellata* can be missed. As the fill from the St. Lawrence Seaway construction is a relatively recent event, we wonder how long this species has been present at this site and how long will it remain? Will natural succession cause it to disappear?

ACKNOWLEDGEMENTS

We appreciate the assistance provided by botanists near and far. David Werier encouraged us to publish on our find and provided helpful insights on this paper. Tony Reznicek confirmed our identification of *Spiranthes ovalis v*ar. *erostellata*. Mike Oldham provided key information regarding the species status in Ontario. Bonnie Isaac and Steve Grund provided specimen data for the species in Pennsylvania, and Jerry Wilhelm offered information on its status in the Chicago area. Dan Brunton and Rich Ring were with us in our original discovery of this population in 2015 and puzzled with us about it at the time.

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