

Clarifying the Use of Herbaria Records for the NWPL 2018 Update

Herbaria records are one source of information that Panel members may use to inform their best professional judgment in voting on wetland indicator status ratings. The analysis of herbaria records presented for *Carex vulpinoidea* in the NWPL 2018 update presentation, which was applied to several other select species, was a means of increasing available information on the distribution of this species and contributing to the breadth of information available to Panel members. Individual herbarium records for given plant species represent anecdotes and not quantitative data points, and any analysis of herbaria records to determine wetland frequency is subject to potential errors due to collection bias and any assumptions applied in the analysis. To be sure, herbaria records are not collected evenly across the landscape, nor are they collected with wetland frequency determination in mind. In general, these data are best utilized in a qualitative fashion because they will not meet the assumptions of many common statistical analyses.

Nonetheless, viewed collectively, the mass of herbaria records for a given species may point towards broad trends in habitat preference and tolerance. That is, despite the inherent habitat biases in herbaria records, we should not expect the bulk of habitat descriptions found in herbaria records for a given species to deviate drastically from that species' actual wetland frequency. For instance, *C. vulpinoidea* is rated OBL in four regions and FACW in three regions, yet its herbaria records are distributed fairly evenly across wetland and non-wetland habitats. For an OBL rated species (which indicates that >99% of that species' occurrences are concentrated in the relatively small percentage of the landscape comprised of wetland habitat) to be documented in herbaria records evenly in wetland and non-wetland habitat points towards a potential inconsistency between its perceived and actual wetland frequency. For a FACW rated species (which indicates that the vast majority of its occurrences are concentrated in the relatively small percentage of the landscape comprised of wetland habitat) this at least merits reconsideration of this species' regional wetland ratings.

Regardless, wetland indicator status ratings are determined by the Regional and National Panels based on best professional judgment, and the extent to which herbaria records are factored into such determinations, individually or collectively, is left to the discretion of individual panel members.