

Cochlearia is probably a biennial plant. The large number of dead plants among the living ones suggests this. Flowering may be delayed until the second year. The season begins shortly after the snow has melted along the coast, usually about the 15th of June and lasts until about the end of September.

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SUGGESTION FOR THE ASSIGNMENT OF TORREYOCHLOA TO PUCCINELLIA

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ON the basis of cytological and morphological data, Church (1949) removed from *Glyceria* the "pauciflora group" of species and proposed for them the new genus *Torreyochloa*. The purpose of the present discussion is to indicate first that the valuable data supplied by Church demonstrate that the species of the "pauciflora group" of *Glyceria* should be transferred to *Puccinellia* and second to validate for use the binomial which is necessary for the eastern North American species which is involved in this consideration.

The separation of *Glyceria* from *Puccinellia* in current manuals and floras is unsatisfactory. In the new eighth edition of Gray's Manual, for example, Fernald (1950), in his key, described the sheaths of *Glyceria* as closed and the lodicules as united. Yet, as species no. 13 under *Glyceria*, he listed *G. pallida* with the lower sheaths free (= open) at the summit, but did not mention the lodicules which are free. Mrs. Chase (1951), in the useful second edition of Hitchcock's Manual, separated *Puccinellia* on a basis of the faint nerves of the flowering glumes and the habitat

in saline soil, but ignored discrepancies pointed out by Church between the "pauciflora group" and the rest of *Glyceria*.

Older authors similarly had trouble in differentiating *Glyceria* and *Puccinellia*. Hackel (1887) separated *Glyceria* from *Puccinellia* (as *Atropis*) on the basis of the evident awns ("Gr. deutlich") and connate lodicules as opposed to the absence of awns and free lodicules in *Puccinellia*. Belk (1939) has shown, however, that the lodicules are free in *Glyceria canadensis* and in some populations of *G. striata*, both species which clearly belong in *Glyceria* on a basis of many other characteristics. Hackel's statement about awns on the flowering glumes of *Glyceria* is perplexing and untrue. Since "Granne" appears elsewhere in his text with the usual meaning, namely awns, the reference to awns in *Glyceria* appears to be a mistake.

Church (1949) reported that *Glyceria pauciflora*, *G. erecta*, *G. pallida* and *G. fernaldii* all have sporophytic numbers of 14 chromosomes, whereas species of *Glyceria* have numbers which are multiples of 10. Because of this cytological difference and certain differences in morphology which are well indicated in his table 2, he rightly concluded that these and four related species should be removed from *Glyceria*. Accordingly, he proposed the new genus *Torreyochloa* for this group of species. Although Fernald (1950) and Chase (1951) had the chance to review the evidence for *Torreyochloa*, both rejected it and continued to include in *Glyceria* the species assigned to it by Church.

The species placed in *Torreyochloa* by Church differ from *Glyceria* in having the leaf—sheaths open, not closed and the second empty glumes with three nerves instead of one. These both are characteristics by which *Puccinellia* likewise differs from *Glyceria*. On the other hand, *Torreyochloa* has in common with *Glyceria* the prominent nerves of the flowering glumes and usually the adjustment to freshwater conditions, although in the Montezuma Marshes of New York *Glyceria pallida* occurs in brackish situations and *Puccinellia distans* grows in this same area. Other morphological characteristics, such as compression of the spikelets, vary too much to be useful for separating genera. On a basis of the morphological differences and similarities of *Glyceria*, *Torreyochloa* and *Puccinellia*, a decision as to relationships might be difficult, since the condition of the sheaths and

nervation of the second empty glumes need to be weighed in importance against the prominence of the nerves of the flowering glumes and the adjustment to habitat. Fortunately, the cytological data of Church indicate how these morphological data should be evaluated. For *Glyceria* he reported sporophytic numbers of 20, 40 and 60; for *Torreyochloa* 14; and for *Puccinellia* 14, 28, 42, 56 and 63. The alignment of *Torreyochloa*, on a basis of number of chromosomes, is with *Puccinellia*. Further, the chromosomes are similar in size, being larger and longer than those of *Glyceria*. The condition of the sheaths, the nervation of the second empty glumes, the branching of the stigmas, the apices of the grains and the chromosome all indicate such a close similarity between *Torreyochloa* and *Puccinellia* that they should not be separated as genera. Instead, *Torreyochloa* should be included in *Puccinellia* as a section, distinguished primarily by the prominent nerves of the flowering glumes. This conclusion requires the following formal changes of nomenclature:

Sectio **Torreyochloa** (Church) stat. nov., fundata super *Torreyochloa* Church, Am. Jour. Bot. **36**: 163 (1949).

Puccinellia pallida (Torrey) comb. nov., fundata super *Windsoria pallida* Torrey, Cat. Pl. City N. Y., p. 19, 91 (1819).

Since the taxonomic status of other species assigned by Church to *Torreyochloa* is uncertain, their transfer is best postponed until clear specific differences are established between them and *Puccinellia pallida*. The North American species of this relationship comprise a series and essentially replace each other geographically and altitudinally. They may all belong to a single polytypic species. The names involved include *Glyceria fernaldii* St. John, the doubtful status of which as a species already has been discussed by Fassett (1946); *Glyceria pauciflora* Presl, only slightly different morphologically from *Puccinellia pallida*; *G. erecta* Hitch., possibly a subalpine and alpine subspecies of *G. pauciflora*; *G. californica* Beetle and *G. otisii* Hitch., which may be respectively a high altitude dwarf and a lax shade form; and *G. natans* Kom. and *G. viridis* Honda, both of which require further study before their status can be evaluated.

The inclusion of *Torreyochloa* as a section of *Puccinellia* requires redefinition of both *Glyceria* and *Puccinellia*. As reconstituted, the two genera may be separated as follows:

- A. Sheathes of leaves usually connate; nerves of upper empty glumes single; styles present; chromosomes small or medium in sets of 10. *Glyceria*.
- AA. Sheaths of leaves open; nerves of upper empty glumes 3; styles absent; chromosomes large, in sets of 7. *Puccinellia*.

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PERLUSTRATIONES PLANTARUM ARCTICARUM II:

'PARRY PLANTS' IN THE MANCHESTER MUSEUM

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AMONG the most interesting of the many botanical collections given by the late James Cosmo Melvill (1845–1929) to the Manchester Museum were three small sets of Parry plants totalling about 130 specimens which were kindly sent to me for identification at Oxford some years ago by the then Curator of the Museum's herbaria, Miss Grace Wigglesworth, as indicated in 'The Manchester Museum . . . Report for the Year 1941–42,' pp. 6–7. The specimens were mounted on small pieces of drawing paper, generally about 16 cm. long by 9 cm. wide, which had subsequently been stuck on to large herbarium sheets stamped nearby with a letter (A, B or C) to indicate the set to which each specimen belonged. To distinguish the small, original sheets from the large herbarium ones, the former will hereafter be called "sheetlets." Although these sheetlets were of varying texture and color within each set, and usually more than one of them was stuck on each herbarium sheet, the stamped letters or other