Supplementary Material for the Manuscript:

Vegetation of temperate inland salt marshes on their northwestern border (North German Plain)

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Supplementary Data S1. Syntaxonomical notes containing information, which supplements that in the Discussion.

Note 1
Salicornietum europaeae Tüxen 1974 (cluster 1)
The genus *Salicornia*, with a high number of taxa described at various taxonomic ranks with hardly determinable species in the field, is a "nightmare of botanists"(cf. Kadereit et al. 2007). Several taxa have been described repeatedly under different names in Europe (in both coastal and inland regions), which increased the confusion. In our study, we use the widely defined name *Salicornia europaea* L. (syn.: *S. herbacea* L., *S. annua* Sm.).
According to Krüger et al. (2002) in inland saline areas of Germany is *Salicornia ramossissima*. According to Piirainen (2009), *Salicornia europaea* L. includes *Salicornia appressa* Dumort. (heterotypic synonyms: *S. intermedia* E. S. Marshall; *S. pusilla* (Hook. f.) E. S. Marshall; *S. ramosissima** (Hook. f.) E. S. Marshall), *S. europaea* L., *S. obscura* P. W. Ball & Tutin and *S. patula* Duval-Jouve (heterotypic synonym: *S. europaea* subsp. *duvalii* (A. Chev.) Maire).
This name is also used in recent vegetation studies for the populations occurring in the inland salt marshes of the North European Plain (e.g., Piernik 2012 and Muscolo et al. 2014 from Poland) and in the Baltic coastal salt marshes (Pätsch et al. 2019). It was also used in the older literature from inland Germany (Weinert 1957).
The nomenclature confusion in the *Salicornia* genus was inherited by the nomenclature of plant communities. Several syntaxa with different *Salicornia* species have been published, which are now regarded as synonyms. In the case of Germany, the most frequently used name for inland and coastal *Salicornia* stands is *Salicornietum ramosissimae* Christiansen 1955 (most of the works listed in Schubert 2001). However, it is a phantom name. Christiansen (1955) published eight relevés from the Wadden Sea: pure stands with *Salicornia stricta*, one relevé documenting the co-occurrence of *S. stricta* and *S. patula* and stands with *S. patula* and *Suaeda maritima*, and he described two associations – *Salicornietum strictae* and *Salicornietum patulae*. In addition, different modifications and combinations appeared in the later studies, for example, *Salicornietum brachystachyae = ramosissimae = patulae* in Hobohm & Pott (1992; Table 3). The name *Salicornietum europaeae* was used by Weinert (1957) in incomplete form without including the syntaxon authorities.
Our aim was not an exhaustive revision of plant communities with *Salicornia* genus, so in order to avoid taxonomic confusion, we use the widely defined name *Salicornietum europaeae* Tüxen 1974 (cf. Géhu & Franck 1982). This association has been published under different names: *Salicornietum europaeae* Warming 1906 (nom. inval., art. 2a), *Salicornietum europaeae* (Warming 1906) Hogquette 1927, *Salicornietum europaeae* van Langendonck 1933, *Salicornietum europaeae* de Litardière & Malcuit 1927, *Salicornietum herbaceae* Altehage 1939, *Salicornietum europaeae* Christiansen 1955; the list continues with various forms of the names *Salicornietum* (*ramosisimae*, *patulae*, *herbaceae* etc.). We regard all of them as synonyms. Communities with *Salicornia* were published under the above-listed names from each coast of temperate Europe (the Atlantic, the Baltic, the Adriatic and the Black Sea) and from the inland salt marshes of the North European Plain, Pannonian Basin,

Transylvanian Basin and inland Bulgaria. Resolving these complex issues is a task for the future.

* Davy et al. (2001) considers *S. ramosissima* as variant of *S. europaea*.

Note 2
Suaedetum maritimae (Conard 1953) Pignatti 1953 (cluster 3)
The name *Suaeda maritima* has been incorrectly used in both historical and recent vegetation studies. For instance, in the Pannonian Basin it is the association *Suaedetum pannonicae* (Soó 1933) Wendelberger 1943 (syn. *Suaedetum maritimae* Soó 1927), mentioned in the latest surveys (e.g. Borhidi et al. 2012, Dítě et al. 2017). From Transylvania, where only *Suaeda prostrata* occurs (Dítě et al. 2021), the association was published under the name *Suaedetum maritimae* (Soó 1927, 1957) Wendelberger 1943 in the latest related survey (Pop et al. 2002). In the southern part of the Pannonian Basin in Vojvodina the most frequently used name for *Suaeda prostrata* is *Suaeda maritima*, and its vegetation is incorrectly designated *Suaedetum maritimae* Soó 27 (e.g. Knežević et al. 2002, 2009). As an illustration of the inconsistency of using the correct name of species/communities, stands of *Suaeda prostrata* from the Wadden Sea have been published under the name *Suaedetum prostratae* J. M. Géhu 1975 (Hobohm & Pott 1992).

Note 3a
Triglochino maritimae-Glaucetum maritimae (cluster 4)
Mahn & Schubert (1962) described, also from Saxony-Anhalt (Magdeburg region), the association *Juncus gerardi-Glaux maritima*-Ass. with characteristic species *Juncus gerardi, Triglochin maritima, Glaux maritima* and other salt-tolerant species such as *Argentina anserina, Carex vulpina, Schenodorus pratensis* and *Festuca rubra*. One subassociation was determined with *Eleocharis palustris* (Tab. 6, p. 778-779). They considered to be transition vegetation between other geographical vicariant brackish marshes associations: *Scorzonero parviflorae-Juncetum gerardi* Wendelberger 1943 described from Pannonia, *Junco gerardi atlanticum-balticum* Nordhagen 23 from the Baltic and *Juncetum gerardi subarticum* Nordhagen 1954 from the North Sea.
The first association, frequently named as *Juncetum gerardi* Nordhagen 1923, or *Juncetum gerardi* (Warming 1906) Nordhagen 1923 (e.g. Schubert 2001, Schubert et al. 2001, Henrich et al. 2010), is invalid. Nordhagen (1923), in the study from the island of Utsire (SE coast of Norway), has not described any community, only mentioning on p. 68 coastal vegetation named *Juncus gerardi-Glaux-Agrostis stolonifera* - Assoziation. Similarly, Warming (1906), from coastal salt marshes in Denmark, did not name any type of vegetation after *Juncus gerardi*. Regarding *Juncetum gerardi subarcticum*, Nordhagen (1954) did use this name to describe a salt marsh association on the Barents Sea coast in N Norway. Dítě et al. (2019), in the same subarctic region, included this name in the association *Festuceto-Caricetum glareosae* Nordhagen 1954 of the alliance *Caricion glareosae* Nordhagen 1954. These references indicate that the syntaxon *Juncus gerardi-Glaux maritima*-Ass. used by Mahn & Schubert (1962) is a salt marsh vegetation of the boreal zone not identical with the inland salt marshes of Germany.

Note 3b
Triglochino maritimae-Glaucetum maritimae (cluster 4)
The study of Wilkoń-Michalska (1963) contains an analysis of the floristic similarities and differences of associations belonging to the order *Juncetalia maritimi* (Tab. 10, p. 92). It compared *Triglochin maritimum-Glaux maritima* with four communities: *Artemisietum*

maritimi (coasts), *Triglochin maritima-Scorzonera parviflora* (Saxony-Anhalt, Thuringia), *Juncus gerardi-Scorzonera parviflora* (Neusiedler See, Pannonia) and *Astereto-Triglochinetum* Soó 1947 (Transylvania). A clear dissimilarity was detected between the first two Central European and the two latter Central-Eastern European (continental) associations. The similarity between the Central European associations and the coastal *Artemisietum maritimi* was the reason for their inclusion in the alliance *Armerion maritimae*. Furthermore, she merged the *Triglochin maritimum-Glaux maritima* community with the association *Triglochin maritima-Scorzonera parviflora*-Ass. Altehage 1939 described from Saxony-Anhalt.

Note 3c
Triglochino maritimae-Glaucetum maritimae (cluster 4)
Krisch (1967) published from the Werra river valley (Thuringia) vegetation types *Juncus gerardi*-Gesellschaft (Tab. VII, relevés 263-267) and *Triglochin maritimum*-Gesellschaft (Tab. VII, relevés 257-262) and included them in the association *Juncus gerardi-Glaux maritima*-Assoziation Mahn und Schubert 62. He also included similar communities described from Germany: *Triglochin maritimum-Scorzonera parviflora*-Ass. Altehage, Roßmann 1939, *Triglochin maritimum-Aster tripolium*-Ass. Täglich 1955, and *Juncus gerardi-Scorzonera parviflora*-Ass. subassoziation von *Glaux maritima* Weinert 1957, however, the variant with *Glaux maritima* in the work of Weinert (1957) is not mentioned. Those relevés (Krisch l.c.) are species-poor heterogeneous stands with several dominants such as *Spergularia marina* / *Puccinellia distans* / *Juncus gerardi* / *Triglochin maritima*, with a strong prevalence of *Chenopodiaceae*. They are less typical stands than our cluster 4, occurring on secondary salt-affected soils influenced by industrial activities.

Note 4
Puccinellietum limosae (cluster 6)
Krisch (1967) published four relevés of the *Puccinellia distans*-Gesellschaft (Tab. VII, Nr. 253-256) and presented the community as a higher successive stage of the initial vegetation of saline soils of Die *Spergularia salina*-Gesellschaft (Tab. VII, Nr. 245-252). He framed both types to the association *Juncus gerardi-Glaux maritima*-Ass. Mahn und Schubert 62. Wilkoń-Michalska (1963) reported the same community from neighbouring Kujawy under the name *Puccinellia distans-Spergularia salina* Feekes 1936. Recently, Piernik (2012) published two similar vegetation types: *Puccinellia distans* (mainly from Saxony-Anhalt) and *Puccinellia distans-Spergularia salina* (mainly from Kujawy), listing them in the alliance *Puccinellion maritimae* (Christiansen 1927) R. Tx. 1937. In the phytosociological system Matuszkiewicz (2001) it is ass. *Puccinellio-Spergularietum salinae* (Feekes 1936) R.Tx. et Volk 1937 acc. to Pott (1992) it is ass. *Spergulario-Puccinellietum distantis* Feekers.
The *Puccinellia*-swards of inland Germany are very similar to the stands in the Pannonian and Transylvanian Basins. Each is dominated by *Puccinellia distans* agg. and accompanied by *Tripolium pannonicum* subsp. *tripolium* (in Pannonia subsp. *pannonicum*), *Spergularia marina* and *S. media* (Dítě et al. 2014). This species composition was published in the constancy table of the German vegetation survey by Schubert (2001, p. 233), who framed *Puccinellia*-swards to the association *Spergulario-Puccinellietum distantis* Feek (1934) 1943.

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