

Table S1. List of all recorded diatom taxa and their distribution within four main groups of fens: (1) calcareous fens (14 samples); (2) brown-moss fens (12 samples); (3) mineral-rich *Sphagnum*-fens (3 samples); (4) mineral-poor *Sphagnum*-fens (9 samples). The total number of individuals of particular species in samples/the number of its occurrence within each group are given.

Taxon	Comments	Groups of fens			
		1	2	3	4
<i>Achnantheidium minutissimum</i> agg.		2875/14	774/12	252/3	151/6
<i>Achnanthes</i> sp. 1		5/4	102/10	12/1	2/1
<i>Achnanthes</i> sp. 2		6/2	13/2		1/1
<i>Achnanthes</i> sp. 3		1/1			
<i>Achnanthes</i> sp. 4		1/1			
<i>Achnanthes</i> sp. 5				1/1	
<i>Achnanthes</i> sp. 6				7/1	
<i>Achnanthes</i> sp. 7		1/1			
<i>Achnanthes</i> sp. 8			4/1		
<i>Achnanthes</i> sp. 9			24/1		
<i>Adlafia aqueductae</i> (Krasske) Moser, Lange-Bert. et Metzeltin				6/1	
<i>Adlafia minuscula</i> (Grunow) Lange- Bertalot		39/13	38/4	18/3	5/2
<i>Amphipleura pellucida</i> Kützing		7/2			
<i>Amphora copulata</i> (Kützing) Schoeman et Archibald		9/3	6/3		
<i>Amphora montana</i> Krasske		24/3			
<i>Amphora normannii</i> Rabenhorst		2/2			
<i>Amphora ovalis</i> (Kützing) Kützing		1/1			
<i>Amphora pediculus</i> (Kützing) Grunow		30/1	1/1		1/1
<i>Amphora</i> sp. 1		2/1			
<i>Aulacoseira distans</i> (Ehr.) Simonsen					95/3
<i>Brachysira</i> sp.				1/1	168/6
<i>Brachysira</i> sp.			2/1		
<i>Brachysira vitrea</i> (Grunow) Ross in Hartley			1/1		27/3
<i>Caloneis alpestris</i> (Grunow) Cleve		11/6			
<i>Caloneis bacillum</i> (Grunow) Cleve	Some individuals resembled <i>Caloneis constans</i> Reichardt.	32/10	23/6	1/1	
<i>Caloneis tenuis</i> (Gregory) Krammer		223/7	2/2	4/2	5/2
<i>Campylodiscus hibernicus</i> Ehrenberg		4/2			
<i>Cavinula cocconeiformis</i> (Gregory ex Greville) Mann et Stickle			7/3		
<i>Chamaepinnularia mediocris</i> (Krasske) Lange-Bertalot			122/2	209/3	39/8
<i>Cocconeis</i> cf. <i>neodiminuta</i> Krammer		2/2			
<i>Cocconeis placentula</i> C.G. Ehrenberg	including varieties <i>euglypta</i> , <i>lineata</i> , and <i>placentula</i>	15/9	3/2		1/1
<i>Cymbella affinis</i> Kützing		18/8			3/1
<i>Cymbella amphicephala</i> Naegeli		30/7	5/2	3/1	1/1
<i>Cymbella austriaca</i> Grunow in A. Schmidt et al.	including <i>Cymbopleura austriaca</i> (Grunow) nov. comb. and <i>Cymbopleura subaustriaca</i> (Grunow) Krammer	28/9			

<i>Cymbella laevis</i> Naegeli		4/1			
<i>Cymbella lanceolata</i> (Agardh) Agardh		1/1	1/1		
<i>Cymbella subaequalis</i> Grunow		30/9	6/3		
<i>Decussata placenta</i> (Ehrenberg) H. Lange-Bertalot			9/3		
<i>Delicata delicatula</i> (Kützing) Krammer		67/8			
<i>Denticula tenuis</i> Kützing		93/7			1/1
<i>Diadsmis</i> sp. 1		12/4	2/2		
<i>Diatoma anceps</i> (Ehrenberg) Kirchner			5/2	1/1	
<i>Diploneis elliptica</i> (Kützing) Cleve		3/2	3/1		
<i>Diatoma hyemalis</i> agg.	including <i>Diatoma hyemalis</i> (Roth) Heiberg and <i>D. mesodon</i> (Ehrenberg) Kützing	1/1	4/2		
<i>Diploneis oblongella</i> (Naegeli) Cleve-Euler		36/11	26/5	3/1	
<i>Diploneis ovalis</i> agg.	including <i>Diploneis fontanella</i> Lange-Bertalot, <i>D. fontium</i> Reichardt et Lange-Bertalot and <i>D. krammeri</i> Lange-Bertalot et Reichardt	19/8	44/10	3/1	4/3
<i>Diploneis petersenii</i> Hustedt		10/4	5/3	1/1	3/2
<i>Encyonema lunatum</i> agg.	including <i>Encyonema neogracile</i> Krammer and <i>E. lunatum</i> (W. Smith) Van Heurck		8/4	3/2	18/5
<i>Encyonema minutum</i> agg.	including <i>E. minutum</i> (Hilse in Rabenhorst) D.G. Mann, <i>E. silesiacum</i> (Bleisch ex Rabenh.) D. G. Mann in Round, Crawford & Mann, and <i>E. ventricosum</i> Kützing	2/2	94/7	7/1	1/1
<i>Encyonopsis cesatii</i> (Rabenhorst) Krammer		177/11		6/1	23/2
<i>Encyonopsis microcephala</i> (Grunow) Krammer		16/6			
<i>Eucocconeis laevis</i> (Kützing) Meister		29/11			
<i>Eunotia bilunaris</i> (Ehrenberg) Mills var. <i>bilunaris</i>		2/1	11/4		1/5
<i>Eunotia exigua</i> (Brebisson ex Kützing) Rabenhorst var. <i>exigua</i>			10/4		
<i>Eunotia exigua</i> var. <i>tenella</i> (Grunow) Nörpel et Alles			3/3	12/3	1266/9
<i>Eunotia glacialis</i> Meister			2/1		1/1
<i>Eunotia implicata</i> Nörpel, Lange- Bertalot et Alles			89/5	3/1	32/4
<i>Eunotia incisa</i> Gregory	Some individuals resembled <i>E.</i> <i>boreoalpina</i> Lange-Bertalot et Nörpel-Schempp.		2/2		400/9
<i>Eunotia</i> cf <i>inflata</i> (Grunow) Nörpel- Schempp et Lange-Bertalot		1/1	5/4	3/1	26/3

<i>Eunotia minor</i> (Kützing) Grunow in Van Heurck		64/5	8/2	1/1
<i>Eunotia monodon</i> C.G. Ehrenberg				3/2
<i>Eunotia nymanniana</i> Grunow in Van Heurck				26/3
<i>Eunotia paludosa</i> Grunow			3/2	141/9
<i>Eunotia soleirolii</i> (Kützing) Rabenhorst				7/2
<i>Eunotia</i> sp. 1		1/1		
<i>Eunotia</i> sp. 2	1/1			
<i>Eunotia steinecke</i> Petersen		186/6	337/3	43/8
<i>Eunotia tetraodon</i> Ehrenberg		1/1		3/3
<i>Fallacia insociabilis</i> (Krasske) D.G. Mann	4/2	2/1		
<i>Fragilaria acus</i> (Kützing) Lange-Bertalot	1/1			
<i>Fragilaria capucina</i> Desmazières		8/4		1/1
<i>Fragilaria gracilis</i> Østrup		5/1	3/1	31/1
<i>Fragilaria</i> sp.1		3/1		
<i>Fragilaria</i> sp.2			2/1	
<i>Fragilaria</i> sp.3	1/1			
<i>Fragilaria</i> sp.4				3/1
<i>Fragilariforma virescens</i> (Ralfs) D.M. Williams et Round				2/2
<i>Frustulia crassinervia</i> (Breb.) Lange-Bertalot et Krammer				67/8
<i>Frustulia saxonica</i> Rabenhorst	1/1			7/4
<i>Frustulia</i> sp. 1			1/1	
<i>Frustulia vulgaris</i> (Thwaites) De Toni	9/7	22/7		
<i>Gomphonema angustatum</i> agg.	including <i>G. micropus</i> Kützing and <i>G. productum</i> (Grunow) Lange-Bertalot et Reichardt	185/14	114/12	11/2
<i>Gomphonema angustum</i> Agardh		188/11		
<i>Gomphonema clavatum</i> agg.	including <i>Gomphonema clavatum</i> Ehrenberg, <i>G. montanum</i> Schuman and <i>G. subclavatum</i> Grunow	15/5	55/11	3/2 6/2
<i>Gomphonema gracile</i> Ehrenberg	Some individuals resembled <i>G. acidoclinatum</i> Lange-Bertalot et Reichardt and <i>G. hebridense</i> Gregory	52/7	52/7	10/3 28/6
<i>Gomphonema lagerheimii</i> A.Cleve			1/1	
<i>Gomphonema parvulum</i> (Kützing) Kützing		168/10	76/12	12/3 11/4
<i>Gomphonema</i> sp. 1			1/1	
<i>Gomphonema</i> sp. 2				1/1
<i>Gomphonema tergestinum</i> Fricke	There occurred intermediary morphotypes resembling <i>Reimeria sinuata</i> .	5/4		
<i>Gyrosigma attenuatum</i> (Kützing) Rabenhorst		2/1		

<i>Hantzschia amphioxys</i> (Ehr.) Grunow in Cleve et Grunow		8/4	13/4		
<i>Hippodonta capitata</i> (Ehr.) Lange- Bert., Metzeltin et Witkowski		1/1			
<i>Kobayasiella</i> cf <i>micropunctata</i> (Germain) Lange-Bertalot		23/4	90/6	65/3	387/6
<i>Meridon circulare</i> agg.	including <i>Meridon circulare</i> (Greville) Agardh and <i>Meridion</i> <i>constrictum</i> Ralfs	15/6	286/10	23/3	
<i>Navicula cryptocephala</i> Kützing		38/8	109/11	8/2	
<i>Navicula cryptotenella</i> Lange- Bertalot		104/14	68/10	4/2	11/1
<i>Naviculadicta digitulus</i> (Hustedt) Lange-Bertalot				20/1	
<i>Navicula lanceolata</i> (Agardh) Ehrenberg	sensu Lange-Bertalot	4/1			
<i>Navicula menisculus</i> Schumann		13/4	3/1		
<i>Navicula phyllepta</i> Kützing		2/1			
<i>Navicula pseudobryophila</i> Hustedt		3/2			
<i>Navicula pseudokotschyi</i> Lange- Bertalot		3/2			
<i>Navicula radiosa</i> Kützing		2/1			
<i>Navicula recens</i> (Lange-Bertalot) Lange-Bertalot		1/1			
<i>Navicula rhynchocephala</i> Kützing	sensu Lange-Bertalot		6/3		
<i>Navicula seibigiana</i> Lange-Bertalot		29/4			
<i>Navicula</i> sp. 1			1/1		
<i>Navicula</i> sp. 2			1/1		
<i>Navicula</i> sp. 3		1/1			
<i>Navicula</i> sp. 4		2/1			
<i>Navicula</i> sp. 5		7/1			
<i>Navicula</i> sp. 6			6/1		
<i>Navicula</i> sp. 7					1/1
<i>Navicula</i> sp. 8				1/1	
<i>Navicula</i> sp. 9		1/1			
<i>Navicula tridentula</i> Krasske			8/3	2/2	
<i>Navicula tripunctata</i> (O.F.Müller) Bory					1/1
<i>Navicula trivialis</i> Lange-Bertalot		6/2			
<i>Navicula veneta</i> Kützing		8/3	2/2		
<i>Neidium affine</i> (Ehrenb.) Pfitzer var. <i>affine</i>		1/1			
<i>Neidium binodeforme</i> Krammer		8/5			
<i>Neidium bisulcatum</i> (Lagerstedt) Cleve					6/1
<i>Neidium hercynicum</i> A. Mayer					19/6
<i>Neidium iridis</i> (Ehrenberg) Cleve			4/2		
<i>Neidium</i> sp.1				1/1	
<i>Nitzschia amphibia</i> Grunow		44/7			
<i>Nitzschia archibaldii</i> Lange-Bertalot			85/1		
<i>Nitzschia debilis</i> Pantocsek		1/1			

<i>Nitzschia dissipata</i> (Kützing) Grunow	37/5	2/1		
<i>Nitzschia dubia</i> W. Smith	27/1			
<i>Nitzschia hantzschiana</i> Rabenhorst	31/7	122/8	35/2	19/2
<i>Nitzschia linearis</i> (Agardh) W. Smith	253/13	189/7	1/1	
<i>Nitzschia palea</i> (Kützing) W. Smith	174/13	124/6	29/3	11/3
<i>Nitzschia perminuta</i> (Grunow) M. Peragallo		69/4		
<i>Nitzschia semirobusta</i> Lange- Bertalot	2/1			
<i>Nitzschia sinuata</i> (Thwaites) Grunow	3/2			
<i>Nitzschia</i> sp. 1	7/1			
<i>Nupela</i> sp. 1	1/1			
<i>Nupela</i> sp. 2		1/1		
<i>Nupela</i> sp. 3				3/1
<i>Pinnularia appendiculata</i> (Agardh) Cleve		19/5	1/1	19/5
<i>Pinnularia borealis</i> Ehrenberg	3/1	4/4	1/1	
<i>Pinnularia brandeliformis</i> Krammer		1/1		
<i>Pinnularia divergens</i> W. Smith	1/1			
<i>Pinnularia major</i> (Kützing) Rabenhorst				10/2
<i>Pinnularia microstauron</i> (C.G. Ehrenberg) P.T. Cleve	1/1	1/1		
<i>Pinnularia nodosa</i> (Ehrenberg) W. Smith		5/1		
<i>Pinnularia obscura</i> Krasske	6/4	6/3	1/1	
<i>Pinnularia rupestris</i> Hantzsch in Rabenhorst	5/2	9/2	1/1	1/1
<i>Pinnularia</i> sp. 1		4/1		
<i>Pinnularia</i> sp. 2	1/1			
<i>Pinnularia</i> sp. 3			2/1	
<i>Pinnularia</i> sp. 4		1/1		
<i>Pinnularia</i> sp. 5		4/1		
<i>Pinnularia stomatophora</i> (Grunow) Cleve		5/4	1/1	2/2
<i>Pinnularia subcapitata</i> Gregory		48/8	5/3	141/9
		Some individuals resembled <i>P. sinistra</i> Krammer.		
<i>Pinnularia viridis</i> agg.	15/8	37/11	3/1	65/6
<i>Placoneis elginensis</i> (Greg.) Cox	7/5	20/6		
<i>Placoneis ignorata</i> (Schimanski) Lange-Bertalot	2/2	23/6		
<i>Planothidium lanceolatum</i> agg.	42/10	931/12	5/2	
		including <i>P. lanceolatum</i> (Brébisson ex Kützing) Lange-Bertalot and <i>P. frequentissimum</i> (Lange-Bertalot) Lange-Bertalot		
<i>Psammothidium subatomoides</i> (Hustedt) Bukht. et Round	26/9	236/11	11/2	21/1
<i>Psammothidium ventrale</i> (Krasske) Bukht. et Round		1/1		

<i>Reimeria sinuata</i> (Gregory) Kociolek et Stoermer	3/3	1/1				
<i>Rhoicosphenia abbreviata</i> (Agardh) Lange-Bertalot	1/1					
<i>Rhopalodia gibba</i> (Ehrenberg) O.Müller var. <i>gibba</i>	22/3					
<i>Rossithidium petersenii</i> (Hustedt) F.E. Round et Bukhtiyarova		1/1	24/1			
<i>Sellaphora pupula</i> (Kützing) Mereschkowsky	12/6	19/6	2/1			
<i>Stauroneis acuta</i> W. Smith	4/1	1/1				
<i>Stauroneis anceps</i> Ehrenberg	5/3	6/2	1/1			
<i>Stauroneis gracillima</i> Hustedt		4/2				
<i>Stauroneis kriegei</i> Patrick		1/1				
<i>Stauroneis smithii</i> Grunow	16/8		1/1			
<i>Stauroneis</i> cf. <i>subgracilis</i> Lange- Bertalot et Krammer	2/1	12/4				
<i>Stauroneis tackei</i> (Hustedt) Krammer et Lange-Bertalot	3/1					
<i>Staurosira mutabilis</i> (W. Smith) Grunow		124/2				
<i>Stenopterobia delicatissima</i> (Lewis) Brebisson ex Van Heurck				19/3		
<i>Surirella angusta</i> Kützing	17/5	12/3				
<i>Surirella brebissonii</i> Krammer et Lange-Bertalot	27/11	2/2				
<i>Surirella helvetica</i> Brun	5/1					
<i>Surirella linearis</i> W.M. Smith	1/1					
<i>Surirella</i> cf. <i>minuta</i> Brebisson	3/2	1/1				
<i>Surirella spiralis</i> Kützing	6/3					
<i>Surirella tenera</i> Gregory		13/3				
<i>Synedrella parasitica</i> (W. Smith) Round et Maidana	2/1					
<i>Tabellaria fenestrata</i> (Lyngbye) Kützing			2/1	19/1		
<i>Tabellaria flocculosa</i> agg.		including <i>Tabellaria flocculosa</i> (Roth) Kützing and <i>Tabellaria</i> <i>ventricosa</i> Kützing	1/1	4/2	3/1	170/7
<i>Ulnaria ulna</i> (Nitzsch) Compère			7/4		2/1	