

**Online Resource 1** Information about the stands of taxa from *Carex flava* agg.

Diversity of plant communities with *Carex flava* agg. in Poland and their relationship with soil properties

Folia Geobotanica

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| Cluster | Relevé | Coordinates                  | Locality / habitat type                                                                                                                    | Soil properties                                                                                                  |
|---------|--------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| I       | 74     | 54°02'42.2"N<br>17°49'50.1"E | Schodno, SW edge of Lake Bielawy, Tuchola Forest, South Pomeranian Lakeland / calcareous fen                                               | C=11.7; N=0.4; C/N=30.7; org.mat=20.8; pH=7.6; P=3.9; K=35.8; Mg=1469.4; Ca=9821.5; CaCO <sub>3</sub> = 51.2.    |
|         | 75     | 53°33'37.1"N<br>18°19'50.1"E | Wałkowiska, E edge of Lake Sierosławek, Świecie Plateau, South Pomeranian Lakeland / calcareous fen                                        | C=18.6; N=0.8; C/N=23.2; org.mat=32.0; pH=7.3; P=13.1; K=39.8; Mg=1510.1; Ca=94487.7; CaCO <sub>3</sub> = 69.5.  |
|         | 76, 77 | 54°39'21.8"N<br>18°27'38.7"E | Ośłonino near Puck, Kashubian Coast District / rich fen; in some places water up to about 20 cm                                            | C=37.3; N=2.5; C/N=14.8; org.mat=64.2; pH=6.1; P=15.3; K=318.9; Mg=1198.7; Ca=5149.0; CaCO <sub>3</sub> = 0.0.   |
|         | 78, 79 | 53°14'42.2"N<br>14°48'19.7"E | Będgoszcz, N edge of Lake Będgoszcz, Pyrzyce-Stargard Plain, Szczecin Coast District / moist, extremely rich fen                           | C=29.8; N=2.4; C/N=12.5; org.mat=51.4; pH=7.0; P=15.3; K=54.8; Mg=783.1; Ca=26159.4; CaCO <sub>3</sub> = 11.3.   |
|         | 80     | 53°14'54.0"N<br>14°48'22.6"E | Będgoszcz near Lake Będgoszcz, Pyrzyce-Stargard Plain, Szczecin Coast District / wet, extremely rich fen; in some places water up to 30 cm | C=27.5; N=2.0; C/N=13.8; org.mat=47.5; pH=7.3; P=17.4; K=35.2; Mg=641.7; Ca=25361.4; CaCO <sub>3</sub> = 12.7.   |
|         | 81     | 52°59'23.5"N<br>14°54'00.2"E | Otanów, W edge of Lake Chłop, Myślibórz Lakeland, West Pomeranian Lakeland / calcareous fen                                                | C=15.4; N=0.4; C/N=36.7; org.mat=26.6; pH=7.4; P=15.3; K=36.4; Mg=3190.2; Ca=99971.3; CaCO <sub>3</sub> = 81.5.  |
|         | 82, 83 | 54°04'37.3"N<br>23°27'59.5"E | Berżniki near Kunisjanka stream, Suwałki Lakeland / rich fen                                                                               | C=18.4; N=1.3; C/N=13.9; org.mat=31.4; pH=6.8; P=0.0; K=58.1; Mg=884.9; Ca=94487.7; CaCO <sub>3</sub> = 0.0.     |
|         | 84-86  | 53°00'40.0"N<br>14°51'08.9"E | Sitno near Lake Tchórzyno, Myślibórz Lakeland, West Pomeranian Lakeland / calcareous fen                                                   | C=14.7; N=0.21; C/N=69.8; org.mat=25.3; pH=7.7; P=6.5; K=20.0; Mg=3366.6; Ca=110048.9; CaCO <sub>3</sub> = 85.0. |
|         | 87-89  | 53°00'09.2"N<br>14°50'55.1"E | Sitno near Lake Tchórzyno, Myślibórz Lakeland, West Pomeranian Lakeland / calcareous fen                                                   | C=21.5; N=1.0; C/N=22.4; org.mat=37.1; pH=7.4; P=8.7; K=35.8; Mg=2089.1; Ca=85651.9; CaCO <sub>3</sub> = 61.9.   |
|         | 90, 91 | 53°34'45.9"N<br>14°42'53.5"E | Modrzewie, Goleniów Plain, Szczecin Coast District / rich fen                                                                              | C=17.5; N=1.3; C/N=13.1; org.mat=10.2; pH=6.9; P=8.9; K=32.1; Mg=1148.4; Ca=2256.9; CaCO <sub>3</sub> = 0.0.     |

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|      | 92       | 53°10'28.7"N<br>15°00'20.8"E | Zaborsko, SE edge of Lake Zaborsko, Pyrzyce-Stargard Plain, Szczecin Coast District / rich fen                                                         | C=37.3; N=2.8; C/N=13.4; org.mat=64.2; pH=6.9; P=19.6; K=60.6; Mg=909.2; Ca=22296.1; CaCO <sub>3</sub> = 0.0.    |
| II   | 106, 107 | 54°12'20.7"N<br>15°42'31.4"E | Sianożyty, about 150 m W of village, Białogard Plain, Koszalin Coast District / rich fen                                                               | C=2.6; N=0.1; C/N=24.0; org.mat=4.6; pH=7.3; P=28.3; K=244.6; Mg=1734.7; Ca=13620.2; CaCO <sub>3</sub> = 9.1.    |
|      | 108, 109 | 53°13'10.5"N<br>14°55'05.9"E | Grędziec, E edge of Lake Miedwie, Pyrzyce-Stargard Plain, Szczecin Coast District / calcareous fen                                                     | C=6.5; N=0.4; C/N=18.5; org.mat=11.1; pH=7.3; P=52.3; K=27.4; Mg=836.8; Ca=22554.5; CaCO <sub>3</sub> = 17.8.    |
|      | 119, 120 | 54°00'28.0"N<br>17°57'47.0"E | S of road Wdzydze Kiszewskie-Gołun, ecological area "Kiszewskie Bagno" near N edge of Lake Gołun, Tuchola Forest, South Pomeranian Lakeland / poor fen | C=40.6; N=2.7; C/N=15.0; org.mat=0.0; pH=5.5; P=45.8; K=16.9; Mg=95.6; Ca=93.7; CaCO <sub>3</sub> = 0.0.         |
|      | 121, 122 | 54°39'21.8"N<br>18°27'38.7"E | Oslonino near Puck, Kashubian Coast District / rich fen; in some places there is water up to about 20 cm                                               | C=37.3; N=2.5; C/N=14.8; org.mat=64.2; pH=6.1; P=15.3; K=318.9; Mg=1198.7; Ca=5149.0; CaCO <sub>3</sub> = 0.0.   |
|      | 123      | 50°31'28.8"N<br>20°34'30.0"E | S of village Włochy, Nida Valley / depression on wet grassland with standing water                                                                     | C=3.3; N=0.3; C/N=10.2; org.mat=5.6; pH=7.3; P=13.1; K=77.2; Mg=578.8; Ca=7177.1; CaCO <sub>3</sub> = 0.0.       |
|      | 124      | 50°31'28.4"N<br>20°34'32.4"E | S of village Włochy, Nida Valley / depression on wet grassland, on sandy substrate                                                                     | C=0.5; N=0.04; C/N=11.7; org.mat=0.8; pH=7.9; P=6.5; K=21.3; Mg=47.0; Ca=437.4; CaCO <sub>3</sub> = 0.0.         |
|      | 125      | 50°58'05.8"N<br>19°56'30.8"E | Stanowiska, Przedbórz Upland/ wet grassland and in edge of pond                                                                                        | C=14.3; N=1.0; C/N=14.1; org.mat=24.5; pH=4.8; P=8.7; K=41.9; Mg=43.5; Ca=2129.7; CaCO <sub>3</sub> = 0.0.       |
|      | 126      | 51°06'17.5"N<br>18°46'06.2"E | W of village Bobrowniki, Wieluń Upland/ edge of pond (Żabi Staw) and in wet grassland                                                                  | C=2.6; N=0.2; C/N=12.9; org.mat=4.5; pH=4.5; P=6.5; K=34.5; Mg=36.2; Ca=91.3; CaCO <sub>3</sub> = 0.0.           |
|      | 127      | 51°12'07.8"N<br>18°47'02.3"E | Strugi near Kochlew, S of Florian's Spring (Źródło Floriana), Wieluń Upland / wet grassland                                                            | C=6.3; N=0.4; C/N=17.4; org.mat=10.8; pH=4.9; P=6.5; K=45.9; Mg=49.9; Ca=393.9; CaCO <sub>3</sub> = 0.0.         |
|      | 128, 129 | 53°33'05.0"N<br>14°20'52.6"E | E of village Stolec, Police Plain, Szczecin Coast District / edge of pond in wet grassland                                                             | C=0.1; N=0.01; C/N=12.0; org.mat=0.2; pH=6.9; P=10.9; K=46.7; Mg=60.7; Ca=112.4; CaCO <sub>3</sub> = 0.0.        |
| IIIa | 93-98    | 53°26'29.0"N<br>15°37'10.1"E | Studnica, E edge of Lake Kiełpino Duże, Ińsko Lakeland, West Pomeranian Lakeland / sandy lakeshore                                                     | C=0.7; N=0.05; C/N=14.0; org.mat=1.2; pH=5.9; P=36.1; K=16.2; Mg=30.4; Ca=80.2; CaCO <sub>3</sub> = 0.0.         |
|      | 99-102   | 53°26'31.7"N<br>15°35'37.3"E | Ińsko, N edge of Lake Długie, Ińsko Lakeland, West Pomeranian Lakeland / sandy lakeshore                                                               | C=1.3; N=0.1; C/N=13.0; org.mat=2.3; pH=5.0; P=8.7; K=37.3; Mg=59.5; Ca=206.5; CaCO <sub>3</sub> = 0.0.          |
|      | 103-105  | 53°39'38.9"N<br>18°15'35.6"E | N of village Łązek, edge of Lake Piaseczno, Tuchola Forest, South Pomeranian Lakeland / sandy lakeshore                                                | C=0.2; N=0.02; C/N=10.0; org.mat=0.4; pH=5.9; P=6.4; K=37.4; Mg=59.8; Ca=136.9; CaCO <sub>3</sub> = 0.0.         |
| IIIb | 110      | 53°09'42.1"N<br>15°01'59.0"E | Lubiatowo, N of Lake Torfowe, Pyrzyce-Stargard Plain, Szczecin Coast District / meadow near the chalk mine                                             | C=28.2; N=1.8; C/N=15.7; org.mat=48.7; pH=7.2; P=17.4; K=51.8; Mg=1737.4; Ca=51124.8; CaCO <sub>3</sub> = 31.8.  |
|      | 112, 113 | 53°10'13.6"N<br>15°02'36.7"E | Lubiatowo, Pyrzyce-Stargard Plain, Szczecin Coast District / ditch and pasture near the chalk mine                                                     | C=13.2; N=0.1; C/N=110.1; org.mat=22.8; pH=8.2; P=8.7; K=32.9; Mg=3736.9; Ca=136017.0; CaCO <sub>3</sub> = 93.9. |

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|    | 114      | 53°09'41.8"N<br>15°01'58.4"E  | Lubiatowo, N edge of Lake Torfowe, Pyrzyce-Stargard Plain, Szczecin Coast District / meadow near the chalk mine      | C=27.4; N=1.1; C/N=24.9; org.mat=47.8; pH=7.2; P=16.5; K=50.9; Mg=1675.7; Ca=50223.6; CaCO <sub>3</sub> = 33.6. |
| IV | 111      | 54°49'25.6"N<br>17°58'31.0"E  | Białogóra, Gdańsk Coast District / sandy depression on cliff                                                         | C=0.5; N=0.1; C/N=11.5; org.mat=0.8; pH=4.6; P=4.4; K=27.7; Mg=63.0; Ca=98.3; CaCO <sub>3</sub> = 0.0.          |
|    | 115      | 54°44'43.4"N<br>17°24'30.9"E  | Łeba, N of Lake Łebsko, Słowińskie Coast / depression between dunes                                                  | C=0.2; N=0.01; C/N=17.0; org.mat=0.2; pH=4.2; P=10.9; K=38.3; Mg=34.2; Ca=88.0; CaCO <sub>3</sub> = 0.0.        |
|    | 116      | 54°44'43.4"N<br>17°24'30.9"E  | Łeba, N of Lake Łebsko, Słowińskie Coast / depression between dunes                                                  | C=0.001; N=0.01; C/N=0.1; org.mat=0.0; pH=4.5; P=6.5; K=37.9; Mg=26.8; Ca=41.4; CaCO <sub>3</sub> = 0.0.        |
|    | 117, 118 | 54°44'56.4"N<br>17°25'16.9"E  | Łeba, N of Lake Łebsko, Słowińskie Coast / depression between dunes,                                                 | C=0.04; N=0.01; C/N=4.0; org.mat=0.1; pH=4.4; P=6.5; K=38.3; Mg=29.7; Ca=45.1; CaCO <sub>3</sub> = 0.0.         |
| Va | 52       | 49°03'16.5"N<br>22°41'30.7"E  | Wołosate, Szczawinka river valley, Bieszczady Mts, / poor fen                                                        | C=2.8; N=0.2; C/N=15.5; org.mat=4.8; pH=4.1; P=8.7; K=83.4; Mg=35.7; Ca=6.3; CaCO <sub>3</sub> = 0.0.           |
|    | 66       | 50°13'33.8"N<br>16°45'50.7"E  | Międzygórze, Massif of Śnieżnik, Eastern Sudetes / poor fen near forest roadside                                     | C=1.7; N=0.1; C/N=15.1; org.mat=2.9; pH=3.8; P=32.7; K=237.6; Mg=402.1; Ca=105.6; CaCO <sub>3</sub> = 0.0.      |
|    | 68       | 50°51'07.3"N<br>15°33'38.8"E  | Karpniki, Rudawy Janowickie Mts, / fen and forest roadside                                                           | C=4.8; N=0.3; C/N=17.3; org.mat=8.4; pH=4.0; P=13.1; K=250.1; Mg=122.0; Ca=200.6; CaCO <sub>3</sub> = 0.0.      |
|    | 69       | 50°51'15.1"N<br>15°54'32.1"E  | Karpniki, Rudawy Janowickie Mts, Western Sudetes / fen along roadside                                                | C=5.7; N=0.3; C/N=20.3; org.mat=9.8; pH=4.6; P=15.3; K=160.1; Mg=196.5; Ca=276.8; CaCO <sub>3</sub> = 0.0.      |
|    | 70       | 50°50'45.5"N<br>15°54'38.5"E  | Karpniki, Rudawy Janowickie Mts, Western Sudetes / forest roadside                                                   | C=18.4; N=1.0; C/N=18.2; org.mat=31.7; pH=3.4; P=10.9; K=33.1; Mg=185.2; Ca=497.1; CaCO <sub>3</sub> = 0.0.     |
|    | 71       | 50°46'10.0"N<br>15°43'36.8"E  | Karpacz, Karkonosze Mts, Western Sudetes / fen and forest roadside                                                   | C=5.5; N=0.3; C/N=18.9; org.mat=9.5; pH=3.9; P=19.6; K=211.8; Mg=250.3; Ca=142.4; CaCO <sub>3</sub> = 0.0.      |
|    | 72       | 50°46'07.2"N<br>15°43'05.4"E  | Karpacz, Karkonosze Mts, Western Sudetes / fen and forest roadside                                                   | C=2.8; N=0.1; C/N=21.4; org.mat=4.8; pH=3.9; P=21.8; K=13.0; Mg=153.5; Ca=11.2; CaCO <sub>3</sub> = 0.0.        |
| Vb | 59       | 53°13'22.6"N<br>15°40' 45.9"E | Kiełpino, Choszczno Lakeland, West Pomeranian Lakeland / moderate-rich fen                                           | C=36.7; N=2.9; C/N=12.3; org.mat=63.2; pH=5.5; P=23.9; K=75.7; Mg=121.9; Ca=12603.3; CaCO <sub>3</sub> = 0.0.   |
|    | 60, 61   | 54°11'55.1"N<br>15°41'32.4"E  | Bagicz, N of road Sianożęty-Bagicz, about 700 m from the Baltic coast, Białogard Plain / fen grassland near roadside | C=2.5; N=0.1; C/N=25.2; org.mat=4.3; pH=7.2; P=13.1; K=201.8; Mg=1462.6; Ca=15119.7; CaCO <sub>3</sub> = 0.0.   |
|    | 62       | 54°40'02.0"N<br>17°20'18.4"E  | Kluki, S of village, Słowińskie Coast / moderate-rich fen                                                            | C=6.3; N=0.4; C/N=15.3; org.mat=10.8; pH=4.9; P=8.7; K=37.8; Mg=144.2; Ca=2221.3; CaCO <sub>3</sub> = 0.0.      |
|    | 63, 64   | 54°39'07.5"N<br>17°10'17.7"E  | Gardna Wielka, E edge of Lake Gardno, Słowińskie Coast / moderate-rich fen                                           | C=4.8; N=0.4; C/N=13.8; org.mat=8.4; pH=4.5; P=6.5; K=37.6; Mg=62.4; Ca=386.4; CaCO <sub>3</sub> = 0.0.         |

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|     | 65     | 54°37'29.1"N<br>17°06'37.3"E | Retowo, S of Lake Gardno, Słowińskie Coast / moderate-rich fen                                                     | C=37.5; N=2.9; C/N=12.7; org.mat=64.6; pH=5.0; P=26.2; K=63.7; Mg=273.9; Ca=11814.0; CaCO <sub>3</sub> = 0.0.   |
|     | 67     | 50°13'14.7"N<br>16°45'53.9"E | Międzygórze, Massif of Śnieżnik, Eastern Sudetes / fen grassland                                                   | C=5.0; N=0.5; C/N=11.0; org.mat=8.7; pH=4.0; P=17.4; K=89.9; Mg=250.3; Ca=117.1; CaCO <sub>3</sub> = 0.0.       |
|     | 73     | 50°50'25.3"N<br>15°46'23.0"E | Mysłakowice, Jelenia Góra Basin, Eastern Sudetes / moderate-rich fen                                               | C=5.6; N=0.4; C/N=15.4; org.mat=9.6; pH=5.4; P=21.8; K=8.0; Mg=447.1; Ca=550.9; CaCO <sub>3</sub> = 0.0.        |
| VI  | 17, 18 | 49°03'13.9"N<br>22°46'22.6"E | Przełęcz Bukowska (mountain pass), Bieszczady Mts / fen along a stream                                             | C=12.3; N=0.8; C/N=15.0; org.mat=21.1; pH=5.1; P=21.8; K=104.9; Mg=439.3; Ca=1190.9; CaCO <sub>3</sub> =0.0.    |
|     | 19, 20 | 49°03'24.8"N<br>22°45'39.9"E | Przełęcz Bukowska (mountain pass), Bieszczady Mts, / fen along a stream                                            | C=1.8; N=0.2; C/N=11.7; org.mat=3.0; pH=5.3; P=17.4; K=149.7; Mg=446.9; Ca=556.2; CaCO <sub>3</sub> =0.0.       |
|     | 22     | 49°08'26.9"N<br>22°34'07.1"E | Brzegi Górne, Bieszczady Mts / rich fen                                                                            | C=9.7; N=0.6; C/N=15.6; org.mat=16.7; pH=6.6; P=32.7; K=179.2; Mg=1475.4; Ca=2907.8; CaCO <sub>3</sub> =0.0.    |
|     | 23, 24 | 49°04'02.2"N<br>22°40'47.4"E | Wołosate-Ustrzyki Górne, Bieszczady Mts / rich fen and roadside ditch                                              | C=2.1; N=0.1; C/N=15.1; org.mat=3.7; pH=7.4; P=28.3; K=190.8; Mg=667.5; Ca=12912.7; CaCO <sub>3</sub> =0.0.     |
|     | 25     | 49°09'35.2"N<br>22°27'36.4"E | Wetlina, Bieszczady Mts / calcareous fen near river                                                                | C=4.7; N=0.2; C/N=24.7; org.mat=8.1; pH=7.6; P=28.3; K=248.8; Mg=4207.9; Ca=28319.6; CaCO <sub>3</sub> =23.1.   |
|     | 48, 49 | 49°04'41.6"N<br>22°39'42.4"E | N of village Wołosate, Bieszczady Mts / rich fen                                                                   | C=7.1; N=0.6; C/N=11.9; org.mat=12.1; pH=5.9; P=11.0; K=122.9; Mg=140.7; Ca=408.2; CaCO <sub>3</sub> =0.0.      |
|     | 50, 51 | 49°03'13.4"N<br>22°42'21.8"E | Wołosate, Przełęcz Beskid (mountain pass), Bieszczady Mts / rich fen and roadside ditch                            | C=4.8; N=0.3; C/N=19.0; org.mat=8.2; pH=7.3; P=28.3; K=203.8; Mg=4005.2; Ca=21066.6; CaCO <sub>3</sub> = 16.4.  |
|     | 53, 54 | 49°03'15.2"N<br>22°41'29.1"E | Bieszczady Mts, Wołosate, Szczawinka valley / fen near forest roadside                                             | C=4.7; N=0.3; C/N=18.8; org.mat=8.1; pH=6.7; P=21.8; K=171.0; Mg=681.2; Ca=1218.4; CaCO <sub>3</sub> = 0.0.     |
| VII | 1      | 53°38'44.5"N<br>16°11'32.8"E | Kluczewo, W edge of Lake Prosino, Drawsko Lakeland, West Pomeranian Lakeland / moderate-rich fen                   | C=34.9; N=2.7; C/N=12.8; org.mat=60.2; pH=5.5; P=15.3; K=92.5; Mg=265.4; Ca=9639.6; CaCO <sub>3</sub> = 0.0.    |
|     | 3      | 53°38'21.8"N<br>16°11'16.7"E | Kluczewo, W edge of Lake Prosino, Drawsko Lakeland, West Pomeranian Lakeland / moderate-rich fen                   | C=34.7; N=2.9; C/N=11.9; org.mat=60.2; pH=5.5; P=15.3; K=92.8; Mg=266.4; Ca=9639.6; CaCO <sub>3</sub> = 0.0.    |
|     | 5      | 53°33'55.4"N<br>18°19'25.6"E | Wda river valley, Tuchola Forest, South Pomeranian Lakeland / wet grassland between river and <i>Pinus</i> forest  | C=13.9; N=1.0; C/N=13.4; org.mat=24.0; pH=5.5; P=17.4; K=41.1; Mg=347.4; Ca=4102.0; CaCO <sub>3</sub> = 0.0.    |
|     | 6      | 53°33'37.1"N<br>18°19'50.1"E | Wałkowiska, E edge of Lake Sierosławek, Świecie Plateau, South Pomeranian Lakeland / calcareous fen                | C=21.0; N=1.3; C/N=16.5; org.mat=36.2; pH=7.1; P=19.6; K=38.4; Mg=1006.4; Ca=62834.9; CaCO <sub>3</sub> = 44.5. |
|     | 7, 8   | 53°39'29.5"N<br>18°16'35.3"E | W of village Stara Rzeka, Czyściewnica river valley, Tuchola Forest, South Pomeranian Lakeland / moderate-rich fen | C=36.2; N=2.9; C/N=12.2; org.mat=62.4; pH=5.6; P=30.5; K=72.9; Mg=314.8; Ca=12541.2; CaCO <sub>3</sub> = 0.0.   |

|        |                              |                                                                                                                  |                                                                                                                 |
|--------|------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 9      | 53°40'04.9"N<br>18°14'06.7"E | E of village Laski, Grzybienica Mała river valley, Tuchola Forest, South Pomeranian Lakeland / moderate-rich fen | C=7.1; N=0.5; C/N=13.8; org.mat=12.8; pH=4.3; P=8.7; K=33.5; Mg=62.8; Ca=949.8; CaCO <sub>3</sub> = 0.0.        |
| 10     | 53°39'26.6"N<br>18°14'07.1"E | SE of village Zazdrość, Tuchola Forest, South Pomeranian Lakeland / wet grassland                                | C=22.9; N=1.8; C/N=13.0; org.mat=39.5; pH=5.5; P=15.3; K=40.6; Mg=98.5; Ca=6166.5; CaCO <sub>3</sub> = 0.0.     |
| 11     | 54°04'37.3"N<br>23°27'59.5"E | Berżniki, Kunisjanka stream, Suwałki Lakeland / rich fen                                                         | C=38.2; N=2.5; C/N=15.4; org.mat=65.9; pH=5.9; P=17.4; K=47.8; Mg=482.1; Ca=12374.6; CaCO <sub>3</sub> = 0.0.   |
| 12     | 53°24'27.9"N<br>20°04'07.4"E | SE of village Dąbrówno, Chełmno-Dobrzyń Lakeland / meadow with <i>Equisetum palustre</i>                         | C=6.6; N=0.6; C/N=11.8; org.mat=11.4; pH=7.0; P=21.8; K=42.9; Mg=464.6; Ca=3992.0; CaCO <sub>3</sub> = 0.0.     |
| 13     | 53°52'11.5"N<br>21°48'42.4"E | E of village Borki, near Nietlickie Bagno, Masurian Lakeland / calcareous fen                                    | C=9.2; N=0.5; C/N=17.7; org.mat=15.9; pH=7.3; P=21.8; K=48.7; Mg=1002.6; Ca=34674.9; CaCO <sub>3</sub> = 24.9.  |
| 14     | 54°18'38.8"N<br>22°45'58.7"E | Kramnik, N of village, Suwałki Lakeland / wet grassland                                                          | C=5.0; N=0.4; C/N=12.0; org.mat=8.7; pH=6.5; P=15.3; K=75.3; Mg=266.2; Ca=1155.9; CaCO <sub>3</sub> =0.0.       |
| 15     | 54°20'45.4"N<br>22°58'35.3"E | NE of village Potopy near Wizajny, Suwałki Lakeland / calcareous fen (used as a pasture)                         | C=16.6; N=1.1; C/N=14.7; org.mat=28.6; pH=7.1; P=26.2; K=108.9; Mg=2503.5; Ca=29288.3; CaCO <sub>3</sub> =18.5. |
| 21     | 49°08'22.9"N<br>22°35'51.7"E | Bieszczady Mts, Połonina Caryńska / depression with standing water in meadow                                     | C=17.7; N=1.2; C/N=14.6; org.mat=30.5; pH=5.7; P=23.9; K=192.5; Mg=898.5; Ca=2480.3; CaCO <sub>3</sub> =0.0.    |
| 26     | 50°31'27.2"N<br>20°33'55.8"E | S of village Włochy, Nida Valley / wet grassland                                                                 | C=11.8; N=0.6; C/N=19.0; org.mat=20.3; pH=7.1; P=23.9; K=47.8; Mg=160.4; Ca=57095.5; CaCO <sub>3</sub> =41.6.   |
| 28     | 50°59'58.4"N<br>20°01'36.8"E | E of village Kajetanów, Przedbórz Upland / wet grassland                                                         | C=38.9; N=2.9; C/N=13.1; org.mat=67.2; pH=5.5; P=13.1; K=83.3; Mg=309.5; Ca=11320.3; CaCO <sub>3</sub> =0.0.    |
| 29     | 50°59'48.1"N<br>20°01'49.0"E | E of village Kajetanów, Przedbórz Upland / wet grassland                                                         | C=5.7; N=0.5; C/N=11.0; org.mat=9.9; pH=5.2; P=6.5; K=39.9; Mg=37.6; Ca=1071.1; CaCO <sub>3</sub> =0.0.         |
| 30     | 51°12'07.8"N<br>18°47'02.3"E | Strugi near Kochlew, S of Florian's Spring (Źródło Floriana) / wet grassland                                     | C=6.3; N=0.4; C/N=17.4; org.mat=10.8; pH=4.9; P=6.5; K=45.9; Mg=49.9; Ca=393.9; CaCO <sub>3</sub> =0.0.         |
| 31     | 53°34'42.2"N<br>14°21'25.1"E | Zalesie, near Lake Świdwie, Police Plain, Szczecin Coast District / moderate-rich fen                            | C=11.7; N=1.0; C/N=12.1; org.mat=20.2; pH=5.6; P=8.7; K=39.5; Mg=89.9; Ca=3389.7; CaCO <sub>3</sub> =0.0.       |
| 32-36  | 53°42'14.6"N<br>15°01'17.9"E | E of village Ogorzele, Goleniów Plain, Szczecin Coast District / wet grassland                                   | C=6.9; N=0.7; C/N=10.6; org.mat=11.9; pH=5.6; P=8.7; K=44.4; Mg=69.4; Ca=1304.7; CaCO <sub>3</sub> =0.0.        |
| 38, 39 | 50°13'14.7"N<br>16°45'53.9"E | Międzygórze, Massif of Śnieżnik, Eastern Sudetes / fen used as a pasture                                         | C=4.7; N=0.4; C/N=11.6; org.mat=8.0; pH=4.6; P=17.4; K=219.3; Mg=387.5; Ca=226.4; CaCO <sub>3</sub> =0.0.       |
| 40, 41 | 50°12'40.2"N<br>16°44'29.6"E | Jaworek, Massif of Śnieżnik, Eastern Sudetes / wet grassland                                                     | C=7.7; N=0.7; C/N=11.3; org.mat=13.3; pH=5.0; P=15.3; K=109.2; Mg=243.5; Ca=508.3; CaCO <sub>3</sub> =0.0.      |
| 42     | 50°16'25.9"N<br>17°00'22.2"E | Bielice, Massif of Śnieżnik, Eastern Sudetes / fen along stream                                                  | C=10.0; N=0.8; C/N=12.1; org.mat=17.3; pH=5.0; P=24.0; K=56.6; Mg=582.4; Ca=1286.8; CaCO <sub>3</sub> =0.0.     |

|      |        |                                |                                                                                                     |                                                                                                              |
|------|--------|--------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|      | 43     | 50°15'59.2"N<br>17°00'06.1"E   | Bielice, Massif of Śnieżnik, Eastern Sudetes / meadow with <i>Equisetum palustre</i>                | C=6.9; N=0.5; C/N=12.8; org.mat=11.9; pH=4.7; P=30.5; K=91.5; Mg=696.4; Ca=437.0; CaCO <sub>3</sub> =0.0.    |
|      | 44     | 50°49'59.3"N<br>15°56'22.1"E   | Rędziny, Przełęcz Rędzińska (mountain pass), Rudawy Janowickie Mts, Western Sudetes / wet grassland | C=7.3; N=0.6; C/N=12.7; org.mat=12.5; pH=5.2; P=30.5; K=51.2; Mg=713.6; Ca=623.0; CaCO <sub>3</sub> =0.0.    |
|      | 45     | 51°33'24.9"N<br>17°21'24.6"E   | Nowe Grodziska, Milicz-Głogów Depression / wet grassland                                            | C=5.1; N=0.4; C/N=11.3; org.mat=8.8; pH=4.6; P=6.5; K=21.4; Mg=105.4; Ca=364.5; CaCO <sub>3</sub> =0.0.      |
|      | 46, 47 | 53°59'12"N<br>17°53'36"E       | Sidły Island on Lake Wdzydze, Tuchola Forest, South Pomeranian Lakeland / calcareous fen            | C=17.8; N=0.9; C/N=20.2; org.mat=20.4; pH=7.3; P=5.3; K=74.2; Mg=682.6; Ca=9531.7; CaCO <sub>3</sub> =58.8.  |
|      | 55-57  | 53°13'22.6"N<br>15°40' 45.9"E  | Kiełpino, Choszczno Lakeland, West Pomeranian Lakeland / moderate-rich fen                          | C=36.7; N=2.9; C/N=12.3; org.mat=63.2; pH=5.5; P=23.9; K=75.7; Mg=121.9; Ca=12603.3; CaCO <sub>3</sub> =0.0. |
|      | 58     | 53°34'45.9"N<br>14°42'53.5"E   | Modrzewie, Goleniów Plain, Szczecin Coast District / rich fen                                       | C=17.5; N=1.4; C/N=12.9; org.mat=43.3; pH=6.3; P=9.8; K=30.2; Mg=1062.3; Ca=1849.3; CaCO <sub>3</sub> =0.0.  |
| VIII | 2      | 53°38'49.9"N<br>16°11'35.5"E   | Kluczewo, W edge of Lake Prosino, Drawsko Lakeland, West Pomeranian Lakeland / alder forest         | C=35.1; N=2.8; C/N=12.4; org.mat=60.2; pH=5.4; P=15.3; K=92.6; Mg=265.8; Ca=9639.6; CaCO <sub>3</sub> =0.0.  |
|      | 4      | 53°38'49.5"N<br>16°11'34.4"E   | Kluczewo, W edge of Lake Prosino, Drawsko Lakeland, West Pomeranian Lakeland / alder forest         | C=24.2; N=2.0; C/N=11.9; org.mat=41.7; pH=5.1; P=17.4; K=82.7; Mg=303.9; Ca=4997.7; CaCO <sub>3</sub> =0.0.  |
|      | 16     | 53°34'50.8"N<br>18°20'25.1"E   | Osie, Stary Tartak, Tuchola Forest, South Pomeranian Lakeland / alder carr near edge of Lake Czerno | C=39.7; N=2.8; C/N=14.2; org.mat=68.5; pH=5.4; P=58.9; K=59.2; Mg=734.8; Ca=9671.4; CaCO <sub>3</sub> =0.0.  |
|      | 27     | 50°59'58.4"N<br>20°01'36.8"E   | E of village Kajetanów, Przedbórz Upland / alder thickets near the ditch                            | C=2.6; N=0.2; C/N=13.1; org.mat=4.5; pH=7.0; P=8.7; K=33.5; Mg=51.5; Ca=506.1; CaCO <sub>3</sub> =0.0.       |
|      | 37     | 53°13'22.8"N,<br>15°40' 45.4"E | Kiełpino, Choszczno Lakeland, West Pomeranian Lakeland / alder carr                                 | C=37.8; N=3.0; C/N=12.6; org.mat=65.2; pH=6.5; P=13.1; K=75.4; Mg=174.1; Ca=15925.1; CaCO <sub>3</sub> =0.0. |

#### Explanations:

C – total carbon concentration [%], N – total nitrogen concentration [%], C/N – ratio between organic carbon and nitrogen concentration; org. mat. [%] – organic matter content; pH – soil pH; P [mg/kg] – phosphorus content; K [mg/kg] – potassium content; Mg [mg/kg] – magnesium content; Ca [mg/kg] – calcium content; CaCO<sub>3</sub> – carbonates concentration;

cluster I – samples with *C. lepidocarpa*; cluster II – samples with *C. viridula* from fens and wet grasslands; cluster IIIa – samples with *C. viridula* from sandy lakeshores; cluster IIIb – samples with *C. viridula* from sites near a chalk mine; cluster IV – samples with *C. viridula* from dunes; cluster Va – samples with *C. demissa* from poor acidic fens; cluster Vb – samples with *C. demissa* from moderate-rich fens and fen grasslands; cluster VI – samples with *C. flava* from fens and wet grasslands with *Valeriana dioica* subsp. *simplicifolia* from Bieszczady Mts; cluster VII – samples with *C. flava* from fens and wet grasslands without *Valeriana dioica* subsp. *simplicifolia*; cluster VIII – samples with *C. flava* from *Alnus* forest.