

**Table S1.** Herbaceous species with more than 10% changes in frequency of occurrence and/or significant changes in abundance. Increases in frequency of occurrence and/or abundance of species are marked in bold and decreases by underlining. L, T, F, R, N: Ellenberg's indicator values for light, temperature, moisture, reaction and nitrogen.

	Frequency of occurrences (%)			Changes in frequency of occurrence (%)			Total abundance (sum of the mid-point percentage cover values)			Changes in abundance (%)			Ellenberg indicator values (EIVs)				
	1970s	2000s	2010s	First study period	Second study period	Total study period	1970s	2000s	2010s	First study period	Second study period	Total study period	L	T	F	R	N
<b>Winners</b>																	
<i>Acer platanoides</i>	1.5	41.8	10.4	40.3	-31.3	<b>9.0</b>	0.5	16.5	16.0	16.0	-0.5	<b>15.5</b>	4	6	x	x	x
<i>Anemone nemorosa</i>	52.2	88.1	59.7	35.8	-28.4	<b>7.5</b>	212.5	519.0	336.0	336.5	-183.0	<b>123.5</b>	x	x	5	x	x
<i>Carex sylvatica</i>	26.9	50.7	34.3	23.9	-16.4	<b>7.5</b>	9.0	24.5	66.0	15.5	41.5	<b>57.0</b>	2	5	5	6	5
<i>Dryopteris</i> sp.	86.6	94.0	95.5	7.5	1.5	<b>9.0</b>	44.0	73.5	434.0	29.5	361.0	<b>390.5</b>	-	-	-	-	-
<i>Impatiens parviflora</i>	0.0	13.4	7.5	13.4	-6.0	<b>7.5</b>	0.0	9.5	24.5	9.5	15.0	<b>24.5</b>	4	6	5	x	6
<i>Juncus effusus</i>	0.0	1.5	10.4	1.5	9.0	<b>10.4</b>	0.0	0.5	25.5	0.5	25.0	<b>25.5</b>	8	5	7	3	4
<i>Lysimachia nemorum</i>	0.0	26.9	10.4	26.9	-16.4	<b>10.4</b>	0.0	11.5	25.5	11.5	14.0	<b>25.5</b>	2	5	7	7	7
<i>Lysimachia vulgaris</i>	0.0	0.0	9.0	0.0	9.0	<b>9.0</b>	0.0	0.0	25.0	0.0	25.0	<b>25.0</b>	6	x	8	x	x
<i>Platanthera bifolia</i>	0.0	0.0	7.5	0.0	7.5	<b>7.5</b>	0.0	0.0	5.0	0.0	5.0	<b>5.0</b>	6	x	5	7	x
<i>Rubus hirtus</i>	67.2	79.1	85.1	11.9	6.0	<b>17.9</b>	52.5	552.5	569.0	500.0	16.5	<b>516.5</b>	7	4	5	x	x
<i>Rumex obtusifolius</i>	0.0	4.5	14.9	4.5	10.4	<b>14.9</b>	0.0	1.5	17.5	1.5	16.0	<b>17.5</b>	7	5	6	x	9
<i>Salvia glutinosa</i>	56.7	53.7	65.7	-3.0	11.9	<b>9.0</b>	24.0	35.0	216.0	11.0	181.0	<b>192.0</b>	4	5	6	7	7
<i>Anthriscus sylvestris</i>	0.0	0.0	10.4	0.0	10.4	<b>10.4</b>	0.0	0.0	25.5	0.0	25.5	25.5	7	x	5	x	8
<i>Acer pseudoplatanus</i>	71.6	88.1	73.1	16.4	-14.9	1.5	29.0	110.5	230.0	81.5	119.5	<b>201.0</b>	4	x	6	x	7
<i>Galium odoratum</i>	79.1	76.1	74.6	-3.0	-1.5	-4.5	239.0	261.0	573.0	22.0	312.0	<b>334.0</b>	2	5	5	6	5
<i>Hieracium murorum</i>	0.0	0.0	6.0	0.0	6.0	6.0	0.0	0.0	7.0	0.0	7.0	<b>7.0</b>	-	-	-	-	-
<i>Impatiens noli-tangere</i>	58.2	64.2	59.7	6.0	-4.5	1.5	310.0	203.0	584.0	-107.0	381.0	<b>274.0</b>	4	5	7	7	6
<i>Polystichum braunii</i>	0.0	1.5	6.0	1.5	4.5	6.0	0.0	0.5	9.5	0.5	9.0	<b>9.5</b>	3	4	6	6	7
<i>Senecio</i> sp.	65.7	74.6	67.2	9.0	-7.5	1.5	24.5	32.5	146.0	8.0	113.5	<b>121.5</b>	7	-	-	x	8
<i>Stellaria holostea</i>	7.5	13.4	13.4	6.0	0.0	6.0	2.5	21.5	60.5	19.0	39.0	<b>58.0</b>	5	6	5	6	5
<i>Veronica montana</i>	23.9	58.2	17.9	34.3	-40.3	-6.0	13.0	19.5	33.5	6.5	14.0	<b>20.5</b>	4	5	7	5	6
<b>Losers</b>																	
<i>Anthriscus nitida</i>	22.4	31.3	1.5	9.0	-29.9	<u>-20.9</u>	7.5	27.5	3.0	20.0	-24.5	<u>-4.5</u>	4	4	6	8	8
<i>Arum alpinum</i>	10.4	1.5	1.5	-9.0	0.0	<u>-9.0</u>	3.5	0.5	0.5	-3.0	0.0	<u>-3.0</u>	-	-	-	-	-
<i>Athyrium filix-femina</i>	89.6	98.5	23.9	9.0	-74.6	<u>-65.7</u>	128.5	330.0	67.0	201.5	-263.0	<u>-61.5</u>	3	x	7	x	6
<i>Chaerophyllum aromaticum</i>	10.4	3.0	0.0	-7.5	-3.0	<u>-10.4</u>	3.5	1.0	0.0	-2.5	-1.0	<u>-3.5</u>	7	5	7	6	8
<i>Chrysosplenium alternifolium</i>	17.9	1.5	0.0	-16.4	-1.5	<u>-17.9</u>	6.0	0.5	0.0	-5.5	-0.5	<u>-6.0</u>	4	4	8	7	5
<i>Corylus avellana</i>	35.8	19.4	11.9	-16.4	-7.5	<u>-23.9</u>	12.0	6.5	9.0	-5.5	2.5	<u>-3.0</u>	6	5	x	x	5
<i>Daphne mezereum</i>	44.8	10.4	3.0	-34.3	-7.5	<u>-41.8</u>	15.0	3.5	1.0	-11.5	-2.5	<u>-14.0</u>	4	x	5	7	5
<i>Galeopsis speciosa</i>	7.5	22.4	0.0	14.9	-22.4	<u>-7.5</u>	2.5	7.5	0	5.0	-7.5	<u>-2.5</u>	7	x	5	x	8
<i>Gentiana asclepiadea</i>	11.9	1.5	4.5	-10.4	3.0	<u>-7.5</u>	6.5	0.5	4.0	-6.0	3.5	<u>-2.5</u>	7	x	6	7	2
<i>Geranium phaeum</i>	23.9	11.9	3.0	-11.9	-9.0	<u>-20.9</u>	8.0	4.0	6.0	-4.0	2.0	<u>-2.0</u>	6	x	5	6	5
<i>Glechoma hirsuta</i>	52.2	55.2	20.9	3.0	-34.3	<u>-31.3</u>	52.5	31.0	51.5	-21.5	20.5	<u>-1.0</u>	-	-	-	-	-
<i>Lonicera xylosteum</i>	23.9	6.0	0.0	-17.9	-6.0	<u>-23.9</u>	8.0	2.0	0.0	-6.0	-2.0	<u>-8.0</u>	5	6	5	7	6
<i>Mercurialis perennis</i>	74.6	71.6	53.7	-3.0	-17.9	<u>-20.9</u>	409.5	175.5	307.0	-234.0	131.5	<u>-102.5</u>	2	x	x	8	7
<i>Oxalis acetosella</i>	65.7	74.6	41.8	9.0	-32.8	<u>-23.9</u>	314.5	71.5	109.5	-243.0	38.0	<u>-205.5</u>	1	x	5	4	6
<i>Phyteuma spicatum</i>	10.4	4.5	0.0	-6.0	-4.5	<u>-10.4</u>	3.5	1.5	0.0	-2.0	-1.5	<u>-3.5</u>	x	x	5	6	5
<i>Polygonatum multiflorum</i>	55.2	44.8	13.4	-10.4	-31.3	<u>-41.8</u>	18.5	15.0	9.5	-3.5	-5.5	<u>-9.0</u>	2	x	5	6	5
<i>Populus tremula</i>	11.9	1.5	1.5	-10.4	0.0	<u>-10.4</u>	4.0	0.5	0.5	-3.5	0.0	<u>-3.5</u>	6	5	5	x	x
<i>Primula elatior</i>	9.0	6.0	0.0	-3.0	-6.0	<u>-9.0</u>	3.0	2.0	0.0	-1.0	-2.0	<u>-3.0</u>	6	x	6	7	7
<i>Ribes uva-crispa</i>	40.3	25.4	7.5	-14.9	-17.9	<u>-32.8</u>	13.5	8.5	10.0	-5.0	1.5	<u>-3.5</u>	4	5	x	x	6
<i>Sambucus racemosa</i>	11.9	14.9	3.0	3.0	-11.9	<u>-9.0</u>	4.0	5.0	3.5	1.0	-1.5	<u>-0.5</u>	6	4	5	5	8
<i>Sanicula europaea</i>	28.4	10.4	7.5	-17.9	-3.0	<u>-20.9</u>	9.5	6.0	7.5	-3.5	1.5	<u>-2.0</u>	4	5	5	8	6
<i>Stellaria nemorum</i>	19.4	40.3	0.0	20.9	-40.3	<u>-19.4</u>	9.0	13.5	0.0	4.5	-13.5	<u>-9.0</u>	4	x	7	5	7
<i>Symphytum tuberosum</i>	11.9	10.4	1.5	-1.5	-9.0	<u>-10.4</u>	4.0	20.5	3.0	16.5	-17.5	<u>-1.0</u>	5	8	5	6	7
<i>Viburnum opulus</i>	13.4	0.0	0.0	-13.4	0.0	<u>-13.4</u>	4.5	0.0	0.0	-4.5	0.0	<u>-4.5</u>	6	5	x	7	6

Table 4. Continuation.

	Frequency of occurrences (%)			Changes in frequency of occurrence (%)			Total abundance (sum of the mid-point percentage cover values)			Changes in abundance (%)			Ellenberg indicator values (EIVs)				
	1970s	2000s	2010s	First study period	Second study period	Total study period	1970s	2000s	2010s	First study period	Second study period	Total study period	L	T	F	R	N
<i>Viola reichenbachiana</i>	19.4	23.9	9.0	4.5	-14.9	<u>-10.4</u>	9.0	8.0	5.5	-1.0	-2.5	<u>-3.5</u>	4	x	5	7	6
<i>Abies alba</i>	71.6	70.1	50.7	-1.5	-19.4	<u>-20.9</u>	26.5	23.5	141	-3.0	117.0	114.0	3	5	x	x	x
<i>Actaea spicata</i>	61.2	41.8	17.9	-19.4	-23.9	<u>-43.3</u>	20.5	14	38	-6.5	24.0	17.5	3	5	5	6	7
<i>Carex pilosa</i>	53.7	47.8	40.3	-6.0	-7.5	<u>-13.4</u>	687.5	847.5	730.5	160.0	-117.0	43.0	4	6	5	5	5
<i>Circaea lutetiana</i>	46.3	56.7	38.8	10.4	-17.9	<u>-7.5</u>	18.0	33.5	113.5	15.5	80.0	95.5	4	5	6	7	7
<i>Dentaria bulbifera</i>	91.0	91.0	74.6	0.0	-16.4	<u>-16.4</u>	320	463	323	142.5	-140.0	2.5	3	5	5	7	6
<i>Euphorbia amygdaloides</i>	26.9	26.9	14.9	0.0	-11.9	<u>-11.9</u>	11.5	11.5	20.0	0.0	8.5	8.5	4	5	5	8	5
<i>Fraxinus excelsior</i>	38.8	61.2	10.4	22.4	-50.7	<u>-28.4</u>	15.5	93.5	28.0	78.0	-65.5	12.5	4	5	x	7	7
<i>Milium effusum</i>	46.3	47.8	35.8	1.5	-11.9	<u>-10.4</u>	15.5	21.0	54.0	5.5	33.0	38.5	4	x	5	5	5
<i>Paris quadrifolia</i>	44.8	56.7	25.4	11.9	-31.3	<u>-19.4</u>	15.0	19.0	26.0	4.0	7.0	11.0	3	x	6	7	7
<i>Petasites albus</i>	46.3	28.4	20.9	-17.9	-7.5	<u>-25.4</u>	106.5	43.5	158.0	-63.0	114.5	51.5	4	4	6	x	5
<i>Prenanthes purpurea</i>	9.0	9.0	1.5	0.0	-7.5	<u>-7.5</u>	3.0	3.0	3.0	0.0	0.0	0.0	4	4	5	5	5
<i>Scrophularia nodosa</i>	16.4	14.9	4.5	-1.5	-10.4	<u>-11.9</u>	5.5	5.0	6.5	-0.5	1.5	1.0	4	5	6	6	7
<i>Symphytum cordatum</i>	68.7	68.7	59.7	0.0	-9.0	<u>-9.0</u>	243.5	281.0	160.5	37.5	-120.5	-83.0	-	-	-	-	-
<i>Ulmus glabra</i>	23.9	35.8	10.4	11.9	-25.4	<u>-13.4</u>	22.5	12.0	13.5	-10.5	1.5	-9.0	4	5	6	7	7
<i>Carex digitata</i>	4.5	9.0	0.0	4.5	-9.0	-4.5	1.5	3.0	0.0	1.5	-3.0	<u>-1.5</u>	3	x	5	x	4
<i>Cerasus avium</i>	1.5	6.0	0.0	4.5	-6.0	-1.5	0.5	2.0	0.0	1.5	-2.0	<u>-0.5</u>	-	-	-	-	-
<i>Circaea alpina</i>	4.5	7.5	0.0	3.0	-7.5	-4.5	1.5	2.5	0.0	1.0	-2.5	<u>-1.5</u>	4	4	7	5	5
<i>Dentaria glandulosa</i>	61.2	46.3	61.2	-14.9	14.9	0.0	275.0	86.5	220.5	-188.5	134.0	<u>-54.5</u>	-	-	-	-	-
<i>Euonymus europaea</i>	6.0	13.4	0.0	7.5	-13.4	-6.0	2.0	4.5	0.0	2.5	-4.5	<u>-2.0</u>	6	5	5	8	5
<i>Rubus idaeus</i>	3.0	14.9	0.0	11.9	-14.9	-3.0	1.0	19.5	0.0	18.5	-19.5	<u>-1.0</u>	7	x	x	x	6
Mixed reaction																	
<i>Fagus sylvatica</i>	59.7	92.5	38.8	32.8	-53.7	<u>-20.9</u>	39.5	53.0	120.5	13.5	67.5	<b>81.0</b>	3	5	5	x	x
<i>Galeobdolon luteum</i>	92.5	95.5	83.6	3.0	-11.9	<u>-9.0</u>	258.5	480.0	714.5	221.5	234.5	<b>456.0</b>	-	-	-	-	-
<i>Geranium robertianum</i>	52.2	19.4	20.9	-32.8	1.5	<u>-31.3</u>	20.0	6.5	53.5	-13.5	47.0	<b>33.5</b>	5	x	x	x	7
<i>Pulmonaria obscura</i>	73.1	58.2	14.9	-14.9	-43.3	<u>-58.2</u>	49.5	19.5	54.0	-30.0	34.5	<b>4.5</b>	4	5	6	8	7