

Flowering strips

2 localities: Stromovka City Park and University Campus

2 types of control plots – regularly intensively cut (blue) and cut only twice a year (yellow)

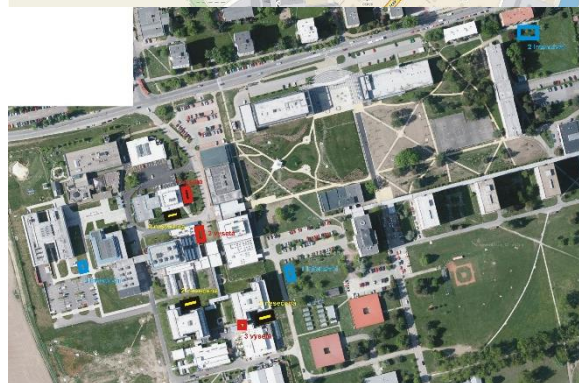
Stromovka City Park

- mesic seed mixture
- 3 strips established in October 2016
- half of each strip resown in March 2016
- 3 strips established in April 2017
- seeding rate 0.746 g/m² (seeds mixed with crushed maize)
- mown in June 2017



University Campus

- dry (2 strips) and very dry (1 strip) seed mixtures
- all 3 strips established in October 2016
- half of each strip resown in March 2017
- seeding rate 0.99 g/m² (dry) and 0.95 g/m² (very dry), seeds mixed with crushed maize
- mown only selectively in June 2017
- sloppy job of plot preparation=> expansion of shrub *Rubus fruticosus* agg.), resprouting of ornamental shrubs
- selective use of herbicide



	VERY DRY Campus	DRY Campus	MESIC Stromovka		VERY DRY Campus	DRY Campus	MESIC Stromovka
<i>Agrimonia eupatoria</i>	X	X	X	<i>Leucanthemum vulgare</i>	X	X	X
<i>Achillea millefolium</i>	X	X	X	<i>Linaria vulgaris</i>	X	X	X
<i>Anthemis tinctoria</i>	X	X	X	<i>Lotus corniculatus</i>	X	X	X
<i>Anthyllis vulneraria</i>	X	X	X	<i>Lychnis viscaria</i>	X	X	X
<i>Armeria vulgaris</i>	X	-	-	<i>Malva moschata</i>	-	X	X
<i>Astragalus glaucophyllus</i>	-	X	X	<i>Malva sylvestris</i>	-	X	X
<i>Betonica officinalis</i>	-	X	X	<i>Medicago falcata</i>	X	X	-
<i>Campanula rapunculoides</i>	-	X	-	<i>Origanum vulgare</i>	X	X	X
<i>Campanula rotundifolia</i>	X	-	-	<i>Pastinaca sativa</i>	-	X	X
<i>Campanula trachelinum</i>	-	X	X	<i>Petrorhagia prolifera</i>	X	-	-
<i>Centaurea cyanus</i>	X	X	X	<i>Pimpinella saxifraga</i>	X	-	-
<i>Centaurea jacea jacea</i>	X	X	X	<i>Plantago lanceolata</i>	-	X	X
<i>Centaurea scabiosa</i>	-	X	-	<i>Plantago media</i>	-	X	X
<i>Centaurea stoebe</i>	X	-	-	<i>Potentilla argentea</i>	X	-	-
<i>Cichorium intybus</i>	X	X	X	<i>Prunella vulgaris</i>	X	X	X
<i>Consolida regalis</i>	-	X	X	<i>Reseda lutea</i>	X	X	X
<i>Crepis biennis</i>	X	X	X	<i>Salvia pratensis</i>	X	X	-
<i>Crepis capillaris</i>	X	-	-	<i>Sanguisorba minor</i>	X	-	-
<i>Daucus carota</i>	X	X	X	<i>Saponaria officinalis</i>	X	X	X
<i>Dianthus deltooides</i>	X	X	X	<i>Scabiosa ochroleuca</i>	X	-	-
<i>Echium vulgare</i>	X	-	-	<i>Securigera varia</i>	X	X	-
<i>Galium verum</i>	X	X	-	<i>Silene dioica</i>	-	X	X
<i>Galium album</i>	-	X	X	<i>Silene latifolia alba</i>	-	X	X
<i>Genista tinctoria</i>	X	X	X	<i>Silene vulgaris</i>	X	X	X
<i>Geranium pratense</i>	-	-	X	<i>Thymus pulegioides</i>	X	X	-
<i>Hypericum perforatum</i>	X	X	X	<i>Tragopogon pratensis</i>	-	-	X
<i>Inula salicina</i>	-	X	X	<i>Trifolium arvense</i>	X	-	-
<i>Hypochaeris radicata</i>	X	X	-	<i>Trifolium campestre</i>	X	-	-
<i>Jasione montana</i>	X	-	-	<i>Trifolium medium</i>	X	X	X
<i>Knautia arvensis</i>	X	X	X	<i>Verbascum densiflorum</i>	X	X	X
<i>Leontodon autumnalis</i>	-	X	X	<i>Verbascum lychnitis</i>	X	X	X
<i>Leontodon hispidus</i>	-	X	-	<i>Verbascum nigrum</i>	X	X	-
<i>Leonurus cardiaca</i>	-	-	X				

Table 1: Total number of species and their abundance in flowering strip vs intensively cut grassland in 2021.

	FLOWERING STRIPS		INTENSIVELY CUTTED GRASSLAND	
	Number of species	Abundance of species	Number of species	Abundance of species
Solitary wasp & bees	50	254	7	12
Bumblebees	4	34	1	1
Honey bee	-	199	-	25
Butterflies	11	120	6	36

In comparison with surrounding intensively cut urban grasslands, flowering strips host apparently higher number of species and their higher abundance as well.

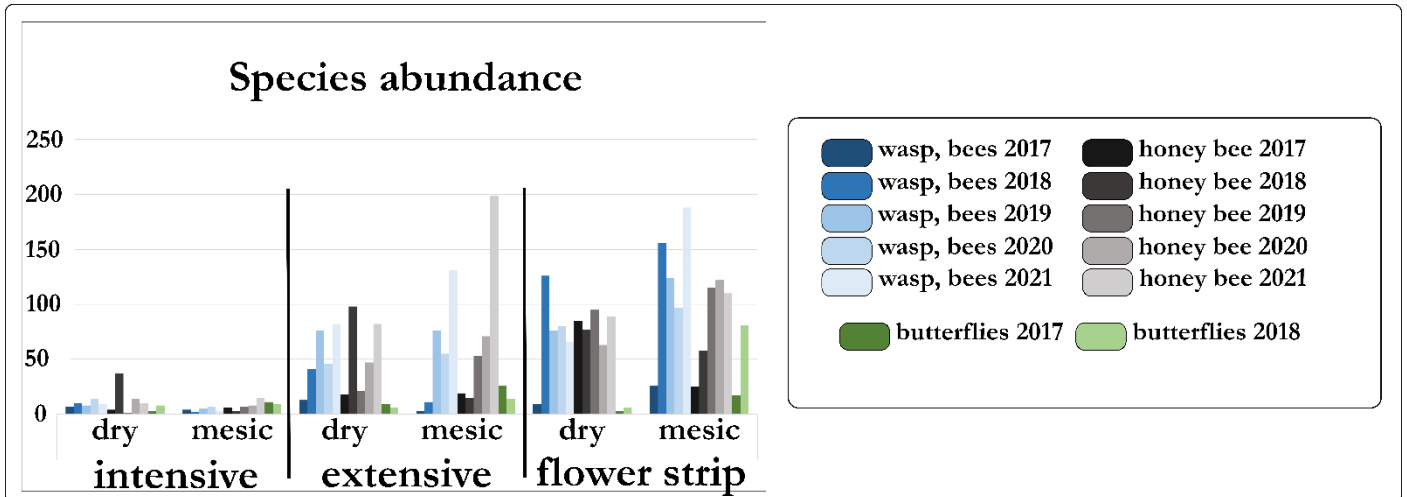
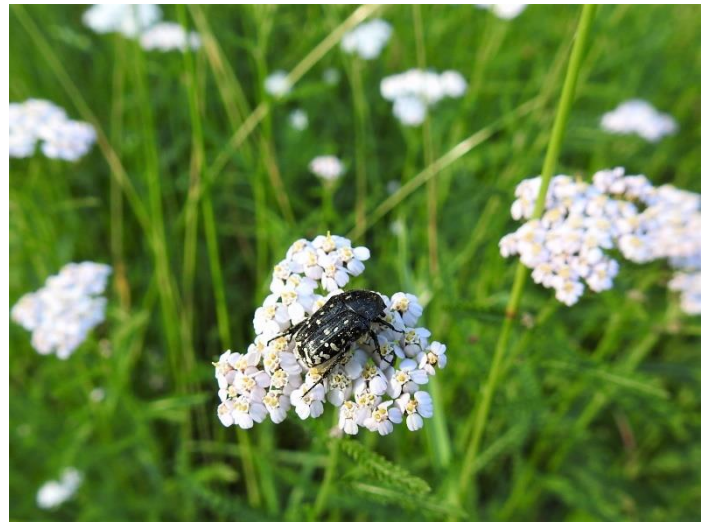


Fig. 1 Abundance of solitary wasp and bees, honey bee and butterflies in intensively cut, extensively cut grassland and flowering strip.

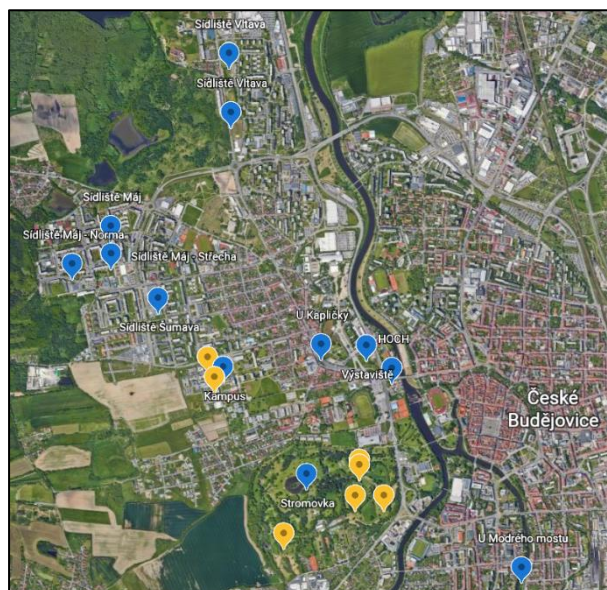


Extensive vs Intensive urban grasslands

- 11 localities of mosaic like cutted grasslands
- Pair plots in:
 - o Intensively mown (ca 6 times/year) area
 - o Extensively mown (ca 3 times/year) area

MONITORING OF VEGETATION AND INSECT

- Monitoring mown areas every 4th week
 - o estimate cover of vascular plants on scale 0-4
 - o estimate cover of flowering species on scale 0-4
 - o estimate the number of flowering species on scale 0-3
- o 15 minute monitoring butterflies
- o 15 minute monitoring (+net sweeping) hymenopterous insect
- Phytosociological relevés in 16 m² plots once a year in June



In 2021 **81 vascular plant species** were identified on extensively cutted urban grasslands. **Six** of them are considered **threatened** based on the Czech red list of vascular plants (Grulich et al. 2012): *Saxifraga tridactylites*, *Filago arvensis*, *Aphanes arvensis*, *Sagina apetala*, *Campanula glomerata* and *Hieracium glomeratum*.

Table 2: Total number of species and their abundance in flowering strip vs intensively cutted grassland in 2021.

	EXTENSIVELY CUTTED GRASSLAND		INTENSIVELY CUTTED GRASSLAND	
	Number of spp	Abundance of spp	Number of spp	Abundance of spp
Wasp & bees	38	198	16	16
Honey bee	-	351	-	43
Butterflies	11	47	2	7
Snout leaf beetles (<i>Curculionidae</i>)	18	67	11	39
<i>Chrysomelinae</i> leaf beetles	1	4	0	0

