

Appendix 1. Indicator herb species of more valuable semi-natural grasslands from a conservation point of view modified from Lindahl (1997) and found in our study area. Plant species frequently visited by solitary bees and butterflies are modified from (Jennersten 1984, Pettersson et al. 2004).

Species	(Lindahl 1997)	(Jennersten 1984, Pettersson et al. 2004)
<i>Arnica montana</i>	x	
<i>Campanula</i> spp.		x
<i>Centaurea</i> spp.	x	x
<i>Cirsium</i> spp.	x	x
<i>Dactylorhiza</i> spp.	x	
<i>Galium saxatile</i>	x	
<i>Helianthemum nummularium</i>	x	
Hieracium/Pilosella/Crepis		x
<i>Hypochoeris maculata</i>	x	
<i>Knautia arvensis</i>	x	x
<i>Lathyrus</i> spp.	x	x
<i>Leontodon hispidus</i>	x	x
<i>Leucanthemum vulgare</i>	x	x
<i>Lotus corniculatus</i>	x	x
<i>Lychnis flos-cuculi</i>	x	
<i>Lychnis viscaria</i>	x	x
<i>Pimpinella saxifraga</i>	x	
<i>Platanthera</i> spp.	x	
<i>Polygala vulgaris</i>	x	
<i>Potentilla</i> spp.	x	x
<i>Primula veris</i>	x	
<i>Ranunculus acris</i>		x
<i>Rhinanthus</i> spp	x	
<i>Saxifraga granulata</i>	x	
<i>Scorzonera humilis</i>	x	
<i>Solidago virgaurea</i>		x
<i>Succisa pratense</i>	x	x
<i>Trifolium medium</i>	x	x
<i>Trifolium pratense</i>	x	x
<i>Vicia</i> spp.		x
<i>Viola</i> spp.	x	

Appendix 2. All recorded solitary bee species, butterflies and burnet moths (Zygaenidae) and their total abundance during six standard transect walks at 16 farms in southern Sweden in 2005. Solitary bees, butterflies and burnet moths sorted descending after abundance (total number of individuals recorded).

Species	Abundance	Red-listed
<b>Solitary bees</b>		
<i>Andrena haemorrhoa</i> <sup>a</sup>	257	
<i>Andrena denticulata</i> <sup>a</sup>	238	
<i>Lasioglossum calceatum</i>	212	
<i>Andrena hattorfiana</i> <sup>a</sup>	129	1
<i>Melitta haemorrhoidalis</i> <sup>a</sup>	113	
<i>Macropis europaea</i> <sup>a</sup>	96	
<i>Lasioglossum albipes</i>	77	
<i>Andrena subopaca</i>	55	
<i>Halictus tumulorum</i>	54	
<i>Nomada ruficornis</i>	52	
<i>Lasioglossum fulvicorne</i>	47	
<i>Andrena praecox</i>	44	
<i>Lasioglossum fratellum</i>	44	
<i>Andrena minutula</i>	40	
<i>Andrena fuscipes</i> <sup>a</sup>	37	
<i>Lasioglossum villosulum</i>	35	
<i>Andrena lathyri</i> <sup>a</sup>	29	
<i>Sphcodes ephippius</i>	28	
<i>Nomada flavopicta</i> <sup>a</sup>	24	
<i>Nomada panzeri</i>	23	
<i>Andrena helvola</i>	21	
<i>Halictus rubicundus</i>	20	
<i>Andrena nigroaenea</i>	18	
<i>Lasioglossum leucozonium</i>	17	
<i>Nomada leucophthalma</i>	17	
<i>Chelostoma campanularum</i>	16	
<i>Lasioglossum leucopus</i>	14	
<i>Andrena cineraria</i>	13	
<i>Andrena semilaevis</i>	13	
<i>Andrena vaga</i>	13	
<i>Osmia rufa</i>	13	
<i>Andrena humilis</i>	12	1
<i>Dufourea dentiventris</i>	12	1
<i>Lasioglossum rufitarse</i>	12	
<i>Sphcodes monilicornis</i>	12	
<i>Andrena carantonica</i>	11	
<i>Nomada armata</i> <sup>a</sup>	11	1
<i>Sphcodes geofrellus</i>	11	
<i>Nomada goodeniana</i>	10	
<i>Nomada rufipes</i> <sup>a</sup>	10	
<i>Andrena tibialis</i>	9	
<i>Colletes daviesanus</i>	9	
<i>Hylaeus communis</i>	9	
<i>Nomada flavoguttata</i>	9	
<i>Chelostoma florissomme</i>	8	
<i>Hylaeus confusus</i>	8	
<i>Nomada fulvicornis</i>	8	
<i>Nomada lathburiana</i>	8	
<i>Andrena fucata</i>	6	
<i>Andrena wilkella</i>	6	
<i>Hylaeus rinki</i>	6	
<i>Nomada marshamella</i>	6	
<i>Sphcodes crassus</i>	5	
<i>Andrena fulva</i>	4	
<i>Andrena lapponica</i>	4	
<i>Megachile willughbiella</i>	4	
<i>Nomada striata</i>	4	
<i>Hylaeus brevicornis</i>	3	
<i>Megachile circumcincta</i>	3	
<i>Megachile versicolor</i>	3	
<i>Osmia leaiana</i>	3	
<i>Panurgus banksianus</i>	3	1
<i>Sphcodes gibbus</i>	3	
<i>Andrena bicolor</i>	2	
<i>Andrena clarkella</i>	2	
<i>Hylaeus hyalinatus</i>	2	
<i>Lasioglossum punctatissimum</i>	2	
<i>Osmia caerulescens</i>	2	
<i>Sphcodes pellucidus</i>	2	
<i>Andrena fulvida</i>	1	
<i>Andrena minutuloides</i>	1	
<i>Andrena tarsata</i>	1	
<i>Colletes succinctus</i>	1	
<i>Eucera longicornis</i>	1	
<i>Hoplitis claviventris</i>	1	
<i>Hoplitis leucomelana</i>	1	
<i>Hylaeus gibbus</i>	1	
<i>Lasioglossum semilucens</i>	1	
<i>Osmia uncinata</i>	1	
<i>Panurgus calcaratus</i>	1	1
<i>Sphcodes albilabris</i>	1	
<i>Sphcodes ferruginatus</i>	1	
<i>Sphcodes hyalinatus</i>	1	
<b>Butterflies</b>		
<i>Aphantopus hyperantus</i>	5856	
<i>Gonepteryx rhamni</i>	1404	
<i>Maniola jurtina</i>	1393	
<i>Clossiana selene</i>	1062	
<i>Inachis io</i>	497	
<i>Mesoacidalia aglaja</i>	394	
<i>Pieris napi</i>	358	
<i>Argynnis paphia</i>	324	
<i>Thymelicus lineola</i>	312	
<i>Aglais urticae</i>	261	
<i>Lycaena virgaureae</i>	238	
<i>Ochlodes faunus</i>	193	
<i>Pieris brassicae</i>	167	
<i>Lycaena phlaeas</i>	145	
<i>Brenthis ino</i>	114	
<i>Callophrys rubi</i>	95	
<i>Mellicta athalia</i>	91	
<i>Plebejus argus/idas</i>	77	

<i>Polyommatus amandus</i>	74	
<i>Coenonympha pamphilus</i>	42	
<i>Clossiana euphrosyne</i>	41	
<i>Pieris rapae</i>	32	
<i>Celastrina argiolus</i>	31	
<i>Anthocharis cardamines</i>	27	
<i>Colias palaeno</i>	20	
<i>Fabriciana adippe</i>	13	
<i>Cyaniris semiargus</i>	8	
<i>Polygonia c-album</i>	7	
<i>Quercusia quercus</i>	7	
<i>Leptidea sinapis</i>	6	
<i>Papilio machaon</i>	4	
<i>Polyommatus icarus</i>	4	
<i>Pyrgus malvae</i>	4	
<i>Aporia crataegi</i>	2	
<i>Nymphalis antiopa</i>	2	
<i>Erynnis tages</i>	1	
<i>Lasiommata megera</i>	1	
<i>Satyrium w-album</i>	1	
<b>Zygaenidae</b>		
<i>Zygaena viciae</i>	606	1
<i>Zygaena lonicerae</i>	39	1
<i>Adscita statices</i>	28	1

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a) solitary bees that were identified to species and counted in the field, sometimes after catching. All other solitary bees were collected for later identification.

Appendix 3. Pearson correlation matrices between farm characteristics (response variables) measured at 16 farms in southern Sweden. Significant relationships in bold, DF = 15 in all cases.

		Area of semi-natural grassland on farm	Isolation	Heterogeneity	Proportion grazed pasture	Proportion ungrazed pasture	Proportion meadows	Vegetation height	Plant species richness	Flower density	<i>Knautia arvensis</i> density
Area of semi-natural grassland on farm	Pearson r	1.000	0.111	0.261	0.057	-0.137	-0.006	0.243	0.348	0.015	0.246
	p		0.683	0.328	0.834	0.614	0.982	0.364	0.186	0.956	0.359
Isolation	Pearson r	0.111	1.000	-0.363	0.597	-0.358	-0.565	-0.330	-0.157	-0.633	-0.341
	p	0.683		0.167	0.015	0.173	0.023	0.212	0.561	0.008	0.196
Heterogeneity	Pearson r	0.261	-0.363	1.000	-0.807	0.393	0.327	0.295	0.188	0.648	0.416
	p	0.328	0.167		<0.001	0.132	0.217	0.267	0.485	0.007	0.109
Proportion grazed pasture	Pearson r	0.057	0.597	-0.807	1.000	-0.788	-0.408	-0.423	-0.266	-0.732	-0.459
	p	0.834	0.015	<0.001		<0.001	0.116	0.102	0.319	0.001	0.074
Proportion ungrazed pasture	Pearson r	-0.137	-0.358	0.393	-0.788	1.000	-0.051	0.461	0.130	0.482	0.336
	p	0.614	0.173	0.132	<0.001		0.852	0.072	0.632	0.059	0.204
Proportion meadows	Pearson r	-0.006	-0.565	0.327	-0.408	-0.051	1.000	0.084	0.510	0.350	0.328
	p	0.982	0.023	0.217	0.116	0.852		0.757	0.043	0.184	0.215
Vegetation height	Pearson r	0.243	-0.330	0.295	-0.423	0.461	0.084	1.000	0.155	0.233	0.464
	p	0.364	0.212	0.267	0.102	0.072	0.757		0.567	0.386	0.070
Plant species richness	Pearson r	0.348	-0.157	0.188	-0.266	0.130	0.510	0.155	1.000	0.225	0.353
	p	0.186	0.561	0.485	0.319	0.632	0.043	0.567		0.402	0.181
Flower density	Pearson r	0.015	-0.633	0.648	-0.732	0.482	0.350	0.233	0.225	1.000	0.439
	p	0.956	0.008	0.007	0.001	0.059	0.184	0.386	0.402		0.089
<i>Knautia arvensis</i> density	Pearson r	0.246	-0.341	0.416	-0.459	0.336	0.328	0.464	0.353	0.439	1.000
	p	0.359	0.196	0.109	0.074	0.204	0.215	0.070	0.181	0.089	