

K. Hemmings and P. Rollings, 'This disagreeable weed': arable plant conservation may benefit from historic publication insights, *Environment and History*. 2025

Supplementary material Part A. Arable-associated species in present publications

World Flora Online citation	Common name	Listed in Wilson, Plantlife and/ or AHDB. 1 = First wildflower, 2 = weed, 3 = both	1 = First described before 1777. Y/N	Arable-associated in archival sources Y/N. na = not published in an archival source	GB Red List status (Leach 2021). *or where considered an archaeophyte (Wigginton 1999)	Sentiment score for archival weed status - for arable associated species in archival sources only
WFO (2024): <i>Adonis annua</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000521134">http://www.worldfloraonline.org/taxon/wfo-0000521134</a> . Accessed on: 09 Jul 2024	Pheasant's-eye	1	Y	Y	EN	0.011
WFO (2024): <i>Aethusa cynapium</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000522564">http://www.worldfloraonline.org/taxon/wfo-0000522564</a> . Accessed on: 09 Jul 2024	Fool's Parsley	2	Y	Y	LC	0.081
WFO (2024): <i>Agrostemma githago</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000524512">http://www.worldfloraonline.org/taxon/wfo-0000524512</a> . Accessed on: 09 Jul 2024	Corncockle	1	Y	Y	EW*	-0.281
WFO (2024): <i>Agrostis gigantea</i> Roth. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000843693">http://www.worldfloraonline.org/taxon/wfo-0000843693</a> . Accessed on: 09 Jul 2024	Black Bent	2	Y	Y	LC	-0.123
WFO (2024): <i>Agrostis stolonifera</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000844489">http://www.worldfloraonline.org/taxon/wfo-0000844489</a> . Accessed on: 09 Jul 2024	Creeping Bent	2	Y	Y	LC	-0.123
WFO (2024): <i>Ajuga chamaepitys</i> (L.) Schreb. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000933181">http://www.worldfloraonline.org/taxon/wfo-0000933181</a> . Accessed on: 09 Jul 2024	Ground Pine	1	Y	N	EN	
WFO (2024): <i>Alliaria petiolata</i> (M.Bieb.) Cavara & Grande. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000526081">http://www.worldfloraonline.org/taxon/wfo-0000526081</a> . Accessed on: 09 Jul 2024	Garlic Mustard	2	Y	N	LC	
WFO (2024): <i>Alopecurus myosuroides</i> Huds. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000845620">http://www.worldfloraonline.org/taxon/wfo-0000845620</a> . Accessed on: 09 Jul 2024	Black-grass	2	Y	Y	LC	-0.417
WFO (2024): <i>Alyssum alyssoides</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000529216">http://www.worldfloraonline.org/taxon/wfo-0000529216</a> . Accessed on: 09 Jul 2024	Small Alison	1	Y	na	Unavailable	
WFO (2024): <i>Anchusa arvensis</i> (L.) M.Bieb. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000533553">http://www.worldfloraonline.org/taxon/wfo-0000533553</a> . Accessed on: 09 Jul 2024	Bugloss	1	Y	Y	LC	-0.536
WFO (2024): <i>Anthemis arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000010729">http://www.worldfloraonline.org/taxon/wfo-0000010729</a> . Accessed on: 09 Jul 2024	Corn Chamomile	1	Y	Y	EN	0.079
WFO (2024): <i>Anthemis cotula</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000032964">http://www.worldfloraonline.org/taxon/wfo-0000032964</a> . Accessed on: 09 Jul 2024	Stinking Chamomile	1	Y	Y	VU	-0.683

WFO (2024): <i>Anthriscus caucalis</i> M.Bieb. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000538624">http://www.worldfloraonline.org/taxon/wfo-0000538624</a> . Accessed on: 09 Jul 2024	Bur Chervil	1	Y	N	LC	
WFO (2024): <i>Anthriscus sylvestris</i> (L.) Hoffm. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000538692">http://www.worldfloraonline.org/taxon/wfo-0000538692</a> . Accessed on: 09 Jul 2024	Cow Parsley	2	Y	N	LC	
WFO (2024): <i>Apera interrupta</i> (L.) P.Beauv. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000848265">http://www.worldfloraonline.org/taxon/wfo-0000848265</a> . Accessed on: 09 Jul 2024	Dense Silky-bent	1	Y	na	Unavailable	
WFO (2024): <i>Apera spica-venti</i> (L.) P.Beauv. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000848273">http://www.worldfloraonline.org/taxon/wfo-0000848273</a> . Accessed on: 09 Jul 2024	Loose Silky-bent	3	Y	Y	NT	-0.006
WFO (2024): <i>Aphanes arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001003065">http://www.worldfloraonline.org/taxon/wfo-0001003065</a> . Accessed on: 09 Jul 2024	Parsley-piert	2	Y	Y	LC	0.028
WFO (2024): <i>Arabidopsis thaliana</i> (L.) Heynh. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000541830">http://www.worldfloraonline.org/taxon/wfo-0000541830</a> . Accessed on: 09 Jul 2024	Thale Cress	1	Y	N	LC	
WFO (2024): <i>Arnoseris minima</i> (L.) Schweigg. & Korte. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000028808">http://www.worldfloraonline.org/taxon/wfo-0000028808</a> . Accessed on: 09 Jul 2024	Lambs Succory	1	Y	Y	RE	0.009
WFO (2024): <i>Arrhenatherum elatius</i> (L.) P.Beauv. ex J.Presl & C.Presl. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000849608">http://www.worldfloraonline.org/taxon/wfo-0000849608</a> . Accessed on: 09 Jul 2024	False Oat-grass	2	Y	Y	LC	-0.493
WFO (2024): <i>Atriplex patula</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000556421">http://www.worldfloraonline.org/taxon/wfo-0000556421</a> . Accessed on: 09 Jul 2024	Common Orache	2	Y	Y	LC	-0.239
WFO (2024): <i>Avena fatua</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000851838">http://www.worldfloraonline.org/taxon/wfo-0000851838</a> . Accessed on: 09 Jul 2024	Wild Oat	2	Y	Y	LC	-0.264
WFO (2024): <i>Avena sterilis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000852332">http://www.worldfloraonline.org/taxon/wfo-0000852332</a> . Accessed on: 09 Jul 2024	Winter Wild-oat	2	Y	Y	Unavailable	
WFO (2024): <i>Avena strigosa</i> Schreb. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000852368">http://www.worldfloraonline.org/taxon/wfo-0000852368</a> . Accessed on: 09 Jul 2024	Bristle Oat	1	Y	Y	Unavailable	
WFO (2024): <i>Bellis perennis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000072578">http://www.worldfloraonline.org/taxon/wfo-0000072578</a> . Accessed on: 09 Jul 2024	Daisy	2	Y	N	LC	
WFO (2024): <i>Brassica nigra</i> W.D.J.Koch. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000571314">http://www.worldfloraonline.org/taxon/wfo-0000571314</a> . Accessed on: 09 Jul 2024	Black Mustard	3	Y	Y	LC	-0.409
WFO (2024): <i>Briza minor</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000854792">http://www.worldfloraonline.org/taxon/wfo-0000854792</a> . Accessed on: 09 Jul 2024	Lesser Quaking-grass	1	Y	N	LC	
WFO (2024): <i>Bromus arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000855198">http://www.worldfloraonline.org/taxon/wfo-0000855198</a> . Accessed on: 09 Jul 2024	Field Brome	1	Y	Y	Unavailable	
WFO (2024): <i>Bromus diandrus</i> Roth. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000855460">http://www.worldfloraonline.org/taxon/wfo-0000855460</a> . Accessed on: 09 Jul 2024	Great Brome	3	Y	N	Unavailable	

WFO (2024): Bromus hordeaceus L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000855692">http://www.worldfloraonline.org/taxon/wfo-0000855692</a> . Accessed on: 09 Jul 2024	Soft-brome	2	Y	Y	LC	-0.02
WFO (2024): Bromus secalinus L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000856443">http://www.worldfloraonline.org/taxon/wfo-0000856443</a> . Accessed on: 09 Jul 2024	Rye Brome	3	Y	Y	NT	-0.155
WFO (2024): Bromus sterilis L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000856589">http://www.worldfloraonline.org/taxon/wfo-0000856589</a> . Accessed on: 09 Jul 2024	Barren Brome	2	Y	Y	LC	0.028
WFO (2024): Buglossoides arvensis (L.) I.M.Johnst. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000574420">http://www.worldfloraonline.org/taxon/wfo-0000574420</a> . Accessed on: 09 Jul 2024	Field Gromwell	1	Y	Y	EN	-0.254
WFO (2024): Bunium bulbocastanum L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000574803">http://www.worldfloraonline.org/taxon/wfo-0000574803</a> . Accessed on: 09 Jul 2024	Greater Pignut	1	Y	Y	LC	0.028
WFO (2024): Bupleurum rotundifolium L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000575774">http://www.worldfloraonline.org/taxon/wfo-0000575774</a> . Accessed on: 09 Jul 2024	Thorow-wax	1	Y	Y	EW*	0.028
WFO (2024): Camelina sativa Crantz. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000582189">http://www.worldfloraonline.org/taxon/wfo-0000582189</a> . Accessed on: 09 Jul 2024	Gold-of-pleasure	1	Y	Y	LC	-0.395
WFO (2024): Capsella bursa-pastoris Medik. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000585589">http://www.worldfloraonline.org/taxon/wfo-0000585589</a> . Accessed on: 09 Jul 2024	Shepherd's purse	2	Y	Y	LC	-0.297
WFO (2024): Caulis platycarpus L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000591123">http://www.worldfloraonline.org/taxon/wfo-0000591123</a> . Accessed on: 09 Jul 2024	Small Bur-parsley	1	Y	Y	RE	0.005
WFO (2024): Centaurea cyanus L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-000008997">http://www.worldfloraonline.org/taxon/wfo-000008997</a> . Accessed on: 09 Jul 2024	Cornflower	3	Y	Y	EN*	-0.322
WFO (2024): Centaurea nigra L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000043513">http://www.worldfloraonline.org/taxon/wfo-0000043513</a> . Accessed on: 09 Jul 2024	Common Knapweed	2	Y	N	LC	
WFO (2024): Chaenorhinum minus (L.) Lange. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000598753">http://www.worldfloraonline.org/taxon/wfo-0000598753</a> . Accessed on: 09 Jul 2024	Small Toadflax	1	Y	Y	LC	-0.168
WFO (2024): Chenopodium album L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000600897">http://www.worldfloraonline.org/taxon/wfo-0000600897</a> . Accessed on: 09 Jul 2024	Fat-hen	3	Y	Y	LC	-0.486
WFO (2024): Chenopodium ficifolium Sm. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000601268">http://www.worldfloraonline.org/taxon/wfo-0000601268</a> . Accessed on: 09 Jul 2024	Fig-leaved Goosefoot	1	Y	N	LC	
WFO (2024): Chenopodium hybridum L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000601402">http://www.worldfloraonline.org/taxon/wfo-0000601402</a> . Accessed on: 09 Jul 2024	Maple-leaved Goosefoot	1	Y	Y	Unavailable	
WFO (2024): Chenopodium murale L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000601534">http://www.worldfloraonline.org/taxon/wfo-0000601534</a> . Accessed on: 09 Jul 2024	Nettle-leaved Goosefoot	1	Y	N	EN	
WFO (2024): Chenopodium polyspermum L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000601652">http://www.worldfloraonline.org/taxon/wfo-0000601652</a> . Accessed on: 09 Jul 2024	Many-seeded Goosefoot	1	Y	N	LC	

WFO (2024): <i>Chenopodium urbicum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000601889">http://www.worldfloraonline.org/taxon/wfo-0000601889</a> . Accessed on: 09 Jul 2024	Upright Goosefoot	1	Y	N	CR	
WFO (2024): <i>Cirsium arvense</i> (L.) Scop. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000006870">http://www.worldfloraonline.org/taxon/wfo-0000006870</a> . Accessed on: 09 Jul 2024	Creeping Thistle	2	Y	Y	LC	-0.482
WFO (2024): <i>Cirsium vulgare</i> (Savi) Ten. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000081703">http://www.worldfloraonline.org/taxon/wfo-0000081703</a> . Accessed on: 09 Jul 2024	Spear Thistle	2	Y	N	LC	
WFO (2024): <i>Conium maculatum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000617964">http://www.worldfloraonline.org/taxon/wfo-0000617964</a> . Accessed on: 09 Jul 2024	Hemlock	2	Y	N	LC	
WFO (2024): <i>Convolvulus arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001296633">http://www.worldfloraonline.org/taxon/wfo-0001296633</a> . Accessed on: 09 Jul 2024	Field Bindweed	2	Y	Y	LC	-0.353
WFO (2024): <i>Cynosurus cristatus</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000861316">http://www.worldfloraonline.org/taxon/wfo-0000861316</a> . Accessed on: 09 Jul 2024	Crested Dog's-tail	2	Y	N	LC	
WFO (2024): <i>Dactylis glomerata</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000861498">http://www.worldfloraonline.org/taxon/wfo-0000861498</a> . Accessed on: 09 Jul 2024	Cock's-foot	2	Y	N	LC	
WFO (2024): <i>Daucus carota</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000638442">http://www.worldfloraonline.org/taxon/wfo-0000638442</a> . Accessed on: 09 Jul 2024	Wild Carrot	2	Y	N	LC	
WFO (2024): <i>Delphinium ajacis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000639671">http://www.worldfloraonline.org/taxon/wfo-0000639671</a> . Accessed on: 09 Jul 2024	Larkspur	1	Y	Y	Unavailable	
WFO (2024): <i>Descurainia sophia</i> (L.) Webb ex Prantl. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000641996">http://www.worldfloraonline.org/taxon/wfo-0000641996</a> . Accessed on: 09 Jul 2024	Flixweed	1	Y	N	LC	
WFO (2024): <i>Echium plantagineum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000662991">http://www.worldfloraonline.org/taxon/wfo-0000662991</a> . Accessed on: 09 Jul 2024	Purple Viper's-bugloss	1	Y	na	Unavailable	
WFO (2024): <i>Elymus repens</i> (L.) Gould. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000866643">http://www.worldfloraonline.org/taxon/wfo-0000866643</a> . Accessed on: 09 Jul 2024	Common couch	2	Y	Y	LC	-0.438
WFO (2024): <i>Equisetum arvense</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001108914">http://www.worldfloraonline.org/taxon/wfo-0001108914</a> . Accessed on: 09 Jul 2024	Field Horsetail	2	Y	Y	LC	-0.585
WFO (2024): <i>Erigeron canadensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000015917">http://www.worldfloraonline.org/taxon/wfo-0000015917</a> . Accessed on: 09 Jul 2024	Canadian fleabane	2	Y	Y	Unavailable	
WFO (2024): <i>Erodium cicutarium</i> (L.) L'Hér. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000676799">http://www.worldfloraonline.org/taxon/wfo-0000676799</a> . Accessed on: 09 Jul 2024	Common Stork's-bill	1	Y	N	LC	
WFO (2024): <i>Erodium moschatum</i> (Burm.f.) L'Hér. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000676987">http://www.worldfloraonline.org/taxon/wfo-0000676987</a> . Accessed on: 09 Jul 2024	Musk Stork's-bill	1	Y	N	LC	
WFO (2024): <i>Erysimum cheiranthoides</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000678580">http://www.worldfloraonline.org/taxon/wfo-0000678580</a> . Accessed on: 09 Jul 2024	Treacle-mustard	1	Y	Y	LC	-0.049

WFO (2024): <i>Euphorbia exigua</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000962021">http://www.worldfloraonline.org/taxon/wfo-0000962021</a> . Accessed on: 09 Jul 2024	Dwarf Spurge	1	Y	Y	VU	0.016
WFO (2024): <i>Euphorbia helioscopia</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000962471">http://www.worldfloraonline.org/taxon/wfo-0000962471</a> . Accessed on: 09 Jul 2024	Sun Spurge	1	Y	Y	LC	0.031
WFO (2024): <i>Euphorbia platyphyllos</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000964052">http://www.worldfloraonline.org/taxon/wfo-0000964052</a> . Accessed on: 09 Jul 2024	Broad-leaved Spurge	1	Y	Y	LC	0.028
WFO (2024): <i>Fallopia convolvulus</i> (L.) Á.Löve. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000685786">http://www.worldfloraonline.org/taxon/wfo-0000685786</a> . Accessed on: 09 Jul 2024	Black-bindweed	3	Y	Y	LC	-0.168
WFO (2024): <i>Festuca rubra</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000871854">http://www.worldfloraonline.org/taxon/wfo-0000871854</a> . Accessed on: 09 Jul 2024	Red Fescue	2	Y	N	LC	
WFO (2024): <i>Filago gallica</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000017194">http://www.worldfloraonline.org/taxon/wfo-0000017194</a> . Accessed on: 09 Jul 2024	Narrow-leaved Cudweed	1	Y	na	RE	
WFO (2024): <i>Filago germanica</i> (L.) Huds. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-000063706">http://www.worldfloraonline.org/taxon/wfo-000063706</a> . Accessed on: 09 Jul 2024	Common Cudweed	1	Y	na	NT	
WFO (2024): <i>Filago lutescens</i> Jord. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000114324">http://www.worldfloraonline.org/taxon/wfo-0000114324</a> . Accessed on: 09 Jul 2024	Red-tipped Cudweed	1	Y	N	EN	
WFO (2024): <i>Filago pyramidata</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000035570">http://www.worldfloraonline.org/taxon/wfo-0000035570</a> . Accessed on: 09 Jul 2024	Broad-leaved Cudweed	1	Y	na	EN	
WFO (2024): <i>Fumaria capreolata</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000693173">http://www.worldfloraonline.org/taxon/wfo-0000693173</a> . Accessed on: 09 Jul 2024	White Ramping-fumitory	1	Y	Y	LC	-0.291
WFO (2024): <i>Fumaria officinalis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000693355">http://www.worldfloraonline.org/taxon/wfo-0000693355</a> . Accessed on: 09 Jul 2024	Common Fumitory	3	Y	Y	LC	-0.005
WFO (2024): <i>Fumaria parviflora</i> Lam. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000693383">http://www.worldfloraonline.org/taxon/wfo-0000693383</a> . Accessed on: 09 Jul 2024	Fine-leaved Fumitory	1	Y	Y	VU	
WFO (2024): <i>Galeopsis angustifolia</i> Ehrh. ex Hoffm. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000967942">http://www.worldfloraonline.org/taxon/wfo-0000967942</a> . Accessed on: 09 Jul 2024	Red Hemp-nettle	1	Y	Y	CR	0.007
WFO (2024): <i>Galeopsis segetum</i> Neck. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000968049">http://www.worldfloraonline.org/taxon/wfo-0000968049</a> . Accessed on: 09 Jul 2024	Downy Hemp-nettle	1	Y	Y	RE	-0.011
WFO (2024): <i>Galeopsis speciosa</i> Mill. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000968053">http://www.worldfloraonline.org/taxon/wfo-0000968053</a> . Accessed on: 09 Jul 2024	Large-flowered Hemp-nettle	1	Y	Y	VU	0.086
WFO (2024): <i>Galeopsis tetrahit</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000968061">http://www.worldfloraonline.org/taxon/wfo-0000968061</a> . Accessed on: 09 Jul 2024	Common Hemp-nettle	1	Y	Y	LC	-0.102
WFO (2024): <i>Galium aparine</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000968296">http://www.worldfloraonline.org/taxon/wfo-0000968296</a> . Accessed on: 09 Jul 2024	Cleavers	3	Y	Y	LC	-0.023

WFO (2024): Galium spurium L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000970236">http://www.worldfloraonline.org/taxon/wfo-0000970236</a> . Accessed on: 09 Jul 2024	False Cleavers	1	Y	Y	Unavailable	
WFO (2024): Galium tricornutum Dandy. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000970442">http://www.worldfloraonline.org/taxon/wfo-0000970442</a> . Accessed on: 09 Jul 2024	Corn Cleavers	1	Y	Y	CR	0.028
WFO (2024): Gastridium ventricosum (Gouan) Schinz & Thell. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000872880">http://www.worldfloraonline.org/taxon/wfo-0000872880</a> . Accessed on: 09 Jul 2024	Nit-grass	1	Y	na	LC	
WFO (2024): Geranium columbinum L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000700265">http://www.worldfloraonline.org/taxon/wfo-0000700265</a> . Accessed on: 09 Jul 2024	Long-stalked Cranes's-bill	1	Y	N	LC	
WFO (2024): Geranium dissectum L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000700368">http://www.worldfloraonline.org/taxon/wfo-0000700368</a> . Accessed on: 09 Jul 2024	Cut-leaved Crane's-bill	2	Y	Y	LC	0.028
WFO (2024): Geranium molle L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000700868">http://www.worldfloraonline.org/taxon/wfo-0000700868</a> . Accessed on: 09 Jul 2024	Dove's-foot Crane's-bill	2	Y	Y	LC	0.028
WFO (2024): Geranium pusillum L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000701157">http://www.worldfloraonline.org/taxon/wfo-0000701157</a> . Accessed on: 09 Jul 2024	Small-flowered Crane's-bill	1	Y	Y	LC	
WFO (2024): Glebionis segetum Fourr. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000091403">http://www.worldfloraonline.org/taxon/wfo-0000091403</a> . Accessed on: 09 Jul 2024	Corn Marigold	1	Y	Y	VU	-0.341
WFO (2024): Holcus lanatus L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000874509">http://www.worldfloraonline.org/taxon/wfo-0000874509</a> . Accessed on: 09 Jul 2024	Yorkshire-fog	2	Y	N	LC	
WFO (2024): Holosteum umbellatum L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000724345">http://www.worldfloraonline.org/taxon/wfo-0000724345</a> . Accessed on: 09 Jul 2024	Jagged Chickweed	1	Y	N	Unavailable	
WFO (2024): Hyoscyamus niger L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001021850">http://www.worldfloraonline.org/taxon/wfo-0001021850</a> . Accessed on: 09 Jul 2024	Henbane	1	Y	N	VU	
WFO (2024): Hypochaeris glabra L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-000005915">http://www.worldfloraonline.org/taxon/wfo-000005915</a> . Accessed on: 09 Jul 2024	Smooth Cat's-ear	1	Y	N	VU	
WFO (2024): Iberis amara L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000728768">http://www.worldfloraonline.org/taxon/wfo-0000728768</a> . Accessed on: 09 Jul 2024	Wild Candytuft	1	Y	N	VU	
WFO (2024): Jacobaea vulgaris Gaertn. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000031875">http://www.worldfloraonline.org/taxon/wfo-0000031875</a> . Accessed on: 09 Jul 2024	Common Ragwort	2	Y	N	LC	
WFO (2024): Kickxia elatine (L.) Dumort. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000357274">http://www.worldfloraonline.org/taxon/wfo-0000357274</a> . Accessed on: 09 Jul 2024	Sharp-leaved Fluellen	3	Y	Y	LC	0.028
WFO (2024): Kickxia spuria (L.) Dumort. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000357128">http://www.worldfloraonline.org/taxon/wfo-0000357128</a> . Accessed on: 09 Jul 2024	Round-leaved Fluellen	3	Y	Y	LC	0.028
WFO (2024): Lamium amplexicaule L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000222440">http://www.worldfloraonline.org/taxon/wfo-0000222440</a> . Accessed on: 09 Jul 2024	Henbit Dead-nettle	3	Y	N	LC	

WFO (2024): <i>Lamium purpureum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000222642">http://www.worldfloraonline.org/taxon/wfo-0000222642</a> . Accessed on: 09 Jul 2024	Red Dead-nettle	2	Y	Y	LC	0.006
WFO (2024): <i>Lapsana communis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000086921">http://www.worldfloraonline.org/taxon/wfo-0000086921</a> . Accessed on: 09 Jul 2024	Nipplewort	2	Y	Y	LC	-0.382
WFO (2024): <i>Lathyrus aphaca</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000212673">http://www.worldfloraonline.org/taxon/wfo-0000212673</a> . Accessed on: 09 Jul 2024	Yellow vetchling	1	Y	Y	VU	0.03
WFO (2024): <i>Legousia hybrida</i> Delarbre. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000814819">http://www.worldfloraonline.org/taxon/wfo-0000814819</a> . Accessed on: 09 Jul 2024	Venus's-looking-glass	3	Y	Y	LC	0.028
WFO (2024): <i>Lepidium campestre</i> (L.) W.T.Aiton. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000358297">http://www.worldfloraonline.org/taxon/wfo-0000358297</a> . Accessed on: 09 Jul 2024	Field Pepperwort	1	Y	Y	LC	-0.275
WFO (2024): <i>Lolium perenne</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000878441">http://www.worldfloraonline.org/taxon/wfo-0000878441</a> . Accessed on: 09 Jul 2024	Perennial Rye-grass	2	Y	N	LC	
WFO (2024): <i>Lolium temulentum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000878503">http://www.worldfloraonline.org/taxon/wfo-0000878503</a> . Accessed on: 09 Jul 2024	Darnel	1	Y	Y	CR	-0.331
WFO (2024): <i>Lysimachia arvensis</i> (L.) U.Manns & Anderb. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000744184">http://www.worldfloraonline.org/taxon/wfo-0000744184</a> . Accessed on: 09 Jul 2024	Scarlet Pimpernel	2	Y	Y	LC	-0.038
WFO (2024): <i>Lythrum hyssopifolia</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000366897">http://www.worldfloraonline.org/taxon/wfo-0000366897</a> . Accessed on: 09 Jul 2024	Grass-poly	1	Y	N	EN	
WFO (2024): <i>Malva multiflora</i> (Cav.) Soldano, Banfi & Galasso. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000449221">http://www.worldfloraonline.org/taxon/wfo-0000449221</a> . Accessed on: 09 Jul 2024	Smaller Tree-mallow	1	Y	na	Unavailable	
WFO (2024): <i>Malva setigera</i> K.F.Schimp. & Spenn. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000449618">http://www.worldfloraonline.org/taxon/wfo-0000449618</a> . Accessed on: 09 Jul 2024	Rough Mallow	1	Y	na	Unavailable	
WFO (2024): <i>Matricaria chamomilla</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000003146">http://www.worldfloraonline.org/taxon/wfo-0000003146</a> . Accessed on: 09 Jul 2024	Scented Mayweed	2	Y	Y	LC	0.028
WFO (2024): <i>Melampyrum arvense</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001137337">http://www.worldfloraonline.org/taxon/wfo-0001137337</a> . Accessed on: 09 Jul 2024	Field Cow-wheat	1	Y	Y	EN	0.293
WFO (2024): <i>Mentha arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000240349">http://www.worldfloraonline.org/taxon/wfo-0000240349</a> . Accessed on: 09 Jul 2024	Corn Mint	1	Y	Y	LC	-0.017
WFO (2024): <i>Mercurialis annua</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000241716">http://www.worldfloraonline.org/taxon/wfo-0000241716</a> . Accessed on: 09 Jul 2024	Annual Mercury	1	Y	Y	LC	-0.225
WFO (2024): <i>Misopates orontium</i> (L.) Raf. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000451121">http://www.worldfloraonline.org/taxon/wfo-0000451121</a> . Accessed on: 09 Jul 2024	Weasel's Snouts	1	Y	Y	VU	0.028
WFO (2024): <i>Myosotis arvensis</i> Hill. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000367842">http://www.worldfloraonline.org/taxon/wfo-0000367842</a> . Accessed on: 09 Jul 2024	Field Forget-me-not	2	Y	Y	LC	0.028

WFO (2024): <i>Nepeta cataria</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000250846">http://www.worldfloraonline.org/taxon/wfo-0000250846</a> . Accessed on: 09 Jul 2024	Cat-mint	1	Y	N	VU	
WFO (2024): <i>Noccaea perfoliata</i> (L.) Al-Shehbaz. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001343010">http://www.worldfloraonline.org/taxon/wfo-0001343010</a> . Accessed on: 09 Jul 2024	Perfoliate Pennycress	1	Y		Published but v	VU
WFO (2024): <i>Orobancha minor</i> Sm. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000387593">http://www.worldfloraonline.org/taxon/wfo-0000387593</a> . Accessed on: 09 Jul 2024	Common Broomrape	1	Y	Y	LC	-0.148
WFO (2024): <i>Papaver dubium</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000480422">http://www.worldfloraonline.org/taxon/wfo-0000480422</a> . Accessed on: 09 Jul 2024	Long-headed Poppy	3	Y	Y	LC	-0.155
WFO (2024): <i>Papaver rhoeas</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000481006">http://www.worldfloraonline.org/taxon/wfo-0000481006</a> . Accessed on: 09 Jul 2024	Common Poppy	3	Y	Y	LC	-0.169
WFO (2024): <i>Persicaria lapathifolia</i> (L.) Delarbre. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000488400">http://www.worldfloraonline.org/taxon/wfo-0000488400</a> . Accessed on: 09 Jul 2024	Pale Persicaria	2	Y	Y	LC	-0.155
WFO (2024): <i>Persicaria maculosa</i> Gray. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000488462">http://www.worldfloraonline.org/taxon/wfo-0000488462</a> . Accessed on: 09 Jul 2024	Redshank	2	Y	N	LC	
WFO (2024): <i>Petroselinum segetum</i> W.D.J.Koch. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000393576">http://www.worldfloraonline.org/taxon/wfo-0000393576</a> . Accessed on: 09 Jul 2024	Corn Parsley	1	Y	Y	LC	0.028
WFO (2024): <i>Phalaris paradoxa</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000889756">http://www.worldfloraonline.org/taxon/wfo-0000889756</a> . Accessed on: 09 Jul 2024	Awned Canary-grass	2	Y	na	Unavailable	
WFO (2024): <i>Phleum pratense</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000890092">http://www.worldfloraonline.org/taxon/wfo-0000890092</a> . Accessed on: 09 Jul 2024	Timothy	2	Y	N	LC	
WFO (2024): <i>Poa annua</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000891536">http://www.worldfloraonline.org/taxon/wfo-0000891536</a> . Accessed on: 09 Jul 2024	Annual Meadow-grass	2	Y	N	LC	
WFO (2024): <i>Poa trivialis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000894135">http://www.worldfloraonline.org/taxon/wfo-0000894135</a> . Accessed on: 09 Jul 2024	Rough Meadow-grass	2	Y	N	LC	
WFO (2024): <i>Polycarpon tetraphyllum</i> (L.) L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000395614">http://www.worldfloraonline.org/taxon/wfo-0000395614</a> . Accessed on: 09 Jul 2024	Four-leaved Allseed	1	Y	N	LC	
WFO (2024): <i>Polygonum aviculare</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000489656">http://www.worldfloraonline.org/taxon/wfo-0000489656</a> . Accessed on: 09 Jul 2024	Knotgrass	2	Y	Y	LC	-0.285
WFO (2024): <i>Ranunculus arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000461176">http://www.worldfloraonline.org/taxon/wfo-0000461176</a> . Accessed on: 09 Jul 2024	Corn Buttercup	1	Y	Y	CR	-0.602
WFO (2024): <i>Ranunculus minimus</i> E.H.L.Krause. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000463065">http://www.worldfloraonline.org/taxon/wfo-0000463065</a> . Accessed on: 09 Jul 2024	Mousetail	1	Y	Y	VU	0.028
WFO (2024): <i>Ranunculus muricatus</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000462855">http://www.worldfloraonline.org/taxon/wfo-0000462855</a> . Accessed on: 09 Jul 2024	Rough-fruited Buttercup	1	Y	N	Unavailable	



WFO (2024): <i>Ranunculus parviflorus</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000463478">http://www.worldfloraonline.org/taxon/wfo-0000463478</a> . Accessed on: 09 Jul 2024	Small-flowered Buttercup	1	Y	Y	LC	0.028
WFO (2024): <i>Ranunculus sardous</i> Crantz. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000463281">http://www.worldfloraonline.org/taxon/wfo-0000463281</a> . Accessed on: 09 Jul 2024	Hairy Buttercup	1	Y	N	LC	
WFO (2024): <i>Raphanus raphanistrum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000402425">http://www.worldfloraonline.org/taxon/wfo-0000402425</a> . Accessed on: 09 Jul 2024	Wild Radish	3	Y	Y	LC	-0.497
WFO (2024): <i>Reseda lutea</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000462651">http://www.worldfloraonline.org/taxon/wfo-0000462651</a> . Accessed on: 09 Jul 2024	Wild Mignonette	1	Y	Y	LC	0.028
Unavailable	Greater Yellow-rattle	1	Y	Y	LC	-0.192
WFO (2024): <i>Roemeria argemone</i> (L.) C.Morales, R.Mend. & Romero García. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000404705">http://www.worldfloraonline.org/taxon/wfo-0000404705</a> . Accessed on: 09 Jul 2024	Prickly Poppy	1	Y	Y	VU	0.009
WFO (2024): <i>Roemeria hispida</i> (Lam.) Stace. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-1000000007">http://www.worldfloraonline.org/taxon/wfo-1000000007</a> . Accessed on: 09 Jul 2024	Rough Poppy	1	Y	Y	LC	-0.104
WFO (2024): <i>Rumex crispus</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000403671">http://www.worldfloraonline.org/taxon/wfo-0000403671</a> . Accessed on: 09 Jul 2024	Curled Dock	2	Y	Y	LC	-0.51
WFO (2024): <i>Rumex obtusifolius</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000403904">http://www.worldfloraonline.org/taxon/wfo-0000403904</a> . Accessed on: 09 Jul 2024	Broad-leaved Dock	2	Y	Y	LC	-0.337
WFO (2024): <i>Scandix pecten-veneris</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000434334">http://www.worldfloraonline.org/taxon/wfo-0000434334</a> . Accessed on: 09 Jul 2024	Shepherd's-needle	3	Y	Y	CR	-0.184
WFO (2024): <i>Scleranthus annuus</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000441933">http://www.worldfloraonline.org/taxon/wfo-0000441933</a> . Accessed on: 09 Jul 2024	Annual Knawel	1	Y	Y	EN	0.028
WFO (2024): <i>Senecio vulgaris</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000011329">http://www.worldfloraonline.org/taxon/wfo-0000011329</a> . Accessed on: 09 Jul 2024	Groundsel	2	Y	Y	LC	-0.014
WFO (2024): <i>Sherardia arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000309707">http://www.worldfloraonline.org/taxon/wfo-0000309707</a> . Accessed on: 09 Jul 2024	Field Madder	1	Y	Y	LC	0.123
WFO (2024): <i>Silene gallica</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000440573">http://www.worldfloraonline.org/taxon/wfo-0000440573</a> . Accessed on: 09 Jul 2024	Small-flowered Catchfly	1	Y	Y	EN	0.01
WFO (2024): <i>Silene latifolia</i> Poir. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000440842">http://www.worldfloraonline.org/taxon/wfo-0000440842</a> . Accessed on: 09 Jul 2024	White Campion	2	Y	N	LC	
WFO (2024): <i>Silene noctiflora</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000440809">http://www.worldfloraonline.org/taxon/wfo-0000440809</a> . Accessed on: 09 Jul 2024	Night-flowering Catchfly	1	Y	Y	VU	0.028
WFO (2024): <i>Sinapis alba</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000432649">http://www.worldfloraonline.org/taxon/wfo-0000432649</a> . Accessed on: 09 Jul 2024	White Mustard	1	Y	Y	LC	-0.219
WFO (2024): <i>Sinapis arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000432651">http://www.worldfloraonline.org/taxon/wfo-0000432651</a> . Accessed on: 09 Jul 2024	Charlock	2	Y	Y	LC	-0.416

WFO (2024): <i>Sisymbrium officinale</i> (L.) Scop. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000432010">http://www.worldfloraonline.org/taxon/wfo-0000432010</a> . Accessed on: 09 Jul 2024	Hedge Mustard	2	Y	N	LC	
WFO (2024): <i>Solanum nigrum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001029815">http://www.worldfloraonline.org/taxon/wfo-0001029815</a> . Accessed on: 09 Jul 2024	Black Nightshade	2	Y	Y	LC	0.028
WFO (2024): <i>Sonchus arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000092611">http://www.worldfloraonline.org/taxon/wfo-0000092611</a> . Accessed on: 09 Jul 2024	Perennial Sowthistle	2	Y	Y	LC	-0.374
WFO (2024): <i>Sonchus asper</i> (L.) Hill. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000031264">http://www.worldfloraonline.org/taxon/wfo-0000031264</a> . Accessed on: 09 Jul 2024	Prickly Sowthistle	2	Y	Y	LC	
WFO (2024): <i>Sonchus oleraceus</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000069236">http://www.worldfloraonline.org/taxon/wfo-0000069236</a> . Accessed on: 09 Jul 2024	Smooth Sowthistle	2	Y	Y	LC	-0.397
WFO (2024): <i>Spergula arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000439880">http://www.worldfloraonline.org/taxon/wfo-0000439880</a> . Accessed on: 09 Jul 2024	Corn Spurrey	3	Y	Y	VU	-0.268
WFO (2024): <i>Stachys arvensis</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000313721">http://www.worldfloraonline.org/taxon/wfo-0000313721</a> . Accessed on: 09 Jul 2024	Field Woundwort	1	Y	Y	NT	0.417
WFO (2024): <i>Stellaria media</i> (L.) Vill. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000436325">http://www.worldfloraonline.org/taxon/wfo-0000436325</a> . Accessed on: 09 Jul 2024	Common Chickweed	2	Y	Y	LC	-0.469
WFO (2024): <i>Taraxacum</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-4000048154">http://www.worldfloraonline.org/taxon/wfo-4000048154</a> . Accessed on: 09 Jul 2024	Dandelion	2	Y	Y	Unavailable	
WFO (2024): <i>Teucrium botrys</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000321904">http://www.worldfloraonline.org/taxon/wfo-0000321904</a> . Accessed on: 09 Jul 2024	Cut-leaved Germander	1	Y	na	Unavailable	
WFO (2024): <i>Thlaspi arvense</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000410873">http://www.worldfloraonline.org/taxon/wfo-0000410873</a> . Accessed on: 09 Jul 2024	Field Penny-cress	1	Y	Y	LC	0.008
WFO (2024): <i>Torilis arvensis</i> (Huds.) Link. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000409709">http://www.worldfloraonline.org/taxon/wfo-0000409709</a> . Accessed on: 09 Jul 2024	Spreading Hedge-parsley	3	Y	Y	EN	-0.114
WFO (2024): <i>Torilis nodosa</i> (L.) Gaertn. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000411340">http://www.worldfloraonline.org/taxon/wfo-0000411340</a> . Accessed on: 09 Jul 2024	Knotted Hedge-parsley	1	Y	Y	LC	0.028
WFO (2024): <i>Tripleurospermum inodorum</i> (L.) Sch.Bip. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000014118">http://www.worldfloraonline.org/taxon/wfo-0000014118</a> . Accessed on: 09 Jul 2024	Scentless Mayweed	2	Y	Y	LC	0.028
WFO (2024): <i>Urtica dioica</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000416616">http://www.worldfloraonline.org/taxon/wfo-0000416616</a> . Accessed on: 09 Jul 2024	Common Nettle	2	Y	N	LC	
WFO (2024): <i>Urtica urens</i> L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000416948">http://www.worldfloraonline.org/taxon/wfo-0000416948</a> . Accessed on: 09 Jul 2024	Small Nettle	2	Y	Y	LC	-0.511
WFO (2024): <i>Valeriana dentata</i> (L.) All. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000426844">http://www.worldfloraonline.org/taxon/wfo-0000426844</a> . Accessed on: 09 Jul 2024	Narrow-fruited Cornsalad	1	Y	Y	EN	

WFO (2024): Valeriana locusta L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000426723">http://www.worldfloraonline.org/taxon/wfo-0000426723</a> . Accessed on: 09 Jul 2024	Common Cornsalad	1	Y	Y	LC	-0.023
WFO (2024): Valeriana rimosa (Bastard) Christenh. & Byng. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0001423348">http://www.worldfloraonline.org/taxon/wfo-0001423348</a> . Accessed on: 09 Jul 2024	Broad-fruited Cornsalad	1	Y	Y	EN	-0.043
WFO (2024): Veronica agrestis L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000419706">http://www.worldfloraonline.org/taxon/wfo-0000419706</a> . Accessed on: 09 Jul 2024	Green Field-speedwell	3	Y	Y	LC	-0.234
WFO (2024): Veronica arvensis L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000419753">http://www.worldfloraonline.org/taxon/wfo-0000419753</a> . Accessed on: 09 Jul 2024	Wall Speedwell	2	Y	N	LC	
WFO (2024): Veronica hederifolia L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000425778">http://www.worldfloraonline.org/taxon/wfo-0000425778</a> . Accessed on: 09 Jul 2024	Ivy-leaved Speedwell	2	Y	Y	LC	-0.276
WFO (2024): Veronica triphyllos L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000425084">http://www.worldfloraonline.org/taxon/wfo-0000425084</a> . Accessed on: 09 Jul 2024	Fingered Speedwell	1	Y	Y	CR	0.006
WFO (2024): Veronica verna L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000425925">http://www.worldfloraonline.org/taxon/wfo-0000425925</a> . Accessed on: 09 Jul 2024	Spring Speedwell	1	Y	N	EN	
WFO (2024): Vicia sativa L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000212779">http://www.worldfloraonline.org/taxon/wfo-0000212779</a> . Accessed on: 09 Jul 2024	Common Vetch	2	Y	Y	LC	0.028
WFO (2024): Vicia tetrasperma (L.) Schreb. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000212802">http://www.worldfloraonline.org/taxon/wfo-0000212802</a> . Accessed on: 09 Jul 2024	Smooth Tare	1	Y	Y	LC	-0.218
WFO (2024): Viola arvensis Murray. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000426676">http://www.worldfloraonline.org/taxon/wfo-0000426676</a> . Accessed on: 09 Jul 2024	Field Pansy	3	Y	na	LC	
WFO (2024): Viola tricolor L. Published on the Internet; <a href="http://www.worldfloraonline.org/taxon/wfo-0000424643">http://www.worldfloraonline.org/taxon/wfo-0000424643</a> . Accessed on: 09 Jul 2024	Wild pansy	3	Y	Y	NT	0.015

Supplementary material Part B. Arable-associated species in archival publications but not in present publications

World Flora Online citation	Common name	Number of archival publications linking species to arable
<a href="http://www.worldfloraonline.org/taxon/wfo-0000841743">WFO (2024): <i>Agrostis capillaris</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000841743. Accessed on: 10 Oct 2024</a>	Common Bent-grass	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000556494">WFO (2024): <i>Atriplex prostrata</i> subsp. <i>calotheca</i> (Rafn) M.A.Gust. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000556494. Accessed on: 10 Oct 2024</a>	Spear-leaved Orache	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000568964">WFO (2024): <i>Borago officinalis</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000568964. Accessed on: 10 Oct 2024</a>	Borage	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000856327">WFO (2024): <i>Bromus ramosus</i> Huds. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000856327. Accessed on: 10 Oct 2024</a>	Hairy Brome	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000856539">WFO (2024): <i>Bromus squarrosus</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000856539. Accessed on: 10 Oct 2024</a>	Corn Brome	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000013986">WFO (2024): <i>Centaurea scabiosa</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000013986. Accessed on: 10 Oct 2024</a>	Greater Knapweed	4

<a href="http://www.worldfloraonline.org/taxon/wfo-0000595158">WFO (2024): <i>Cerastium arvense</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000595158. Accessed on: 10 Oct 2024</a>	Mouse-ear Chickweed	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000595603">WFO (2024): <i>Cerastium glomeratum</i> Thuill. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000595603. Accessed on: 10 Oct 2024</a>	Sticky Mouse-ear Chickweed	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000080671">WFO (2024): <i>Cichorium intybus</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000080671. Accessed on: 10 Oct 2024</a>	Chicory	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000890516">WFO (2024): <i>Clinopodium acinos</i> Kuntze. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000890516. Accessed on: 10 Oct 2024</a>	Basil Thyme	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000892607">WFO (2024): <i>Clinopodium nepeta</i> (L.) Kuntze. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000892607. Accessed on: 10 Oct 2024</a>	Lesset Calamint	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0001297552">WFO (2024): <i>Cuscuta europaea</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0001297552. Accessed on: 10 Oct 2024</a>	Dodder	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0001021374">WFO (2024): <i>Datura stramonium</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0001021374. Accessed on: 10 Oct 2024</a>	Thornapple	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000864353">WFO (2024): <i>Digitaria sanguinalis</i> (L.) Scop. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000864353. Accessed on: 10 Oct 2024</a>	Crabgrass	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000650478">WFO (2024): <i>Diplotaxis muralis</i> DC. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000650478. Accessed on: 10 Oct 2024</a>	Annual Wall-rocket	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000963920">WFO (2024): <i>Euphorbia peplus</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000963920. Accessed on: 10 Oct 2024</a>	Milkweed	3
<a href="http://www.worldfloraonline.org/taxon/wfo-0000691487">WFO (2024): <i>Foeniculum vulgare</i> Mill. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000691487. Accessed on: 10 Oct 2024</a>	Fennel	1

<a href="http://www.worldfloraonline.org/taxon/wfo-0000970557">WFO (2024): Galium verrucosum Huds. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000970557. Accessed on: 10 Oct 2024</a>	Warty Bedstraw	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0001090276">WFO (2024): Glaucium corniculatum (L.) Curtis. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0001090276. Accessed on: 10 Oct 2024</a>	Red-horned Poppy	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000874519">WFO (2024): Holcus mollis L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000874519. Accessed on: 10 Oct 2024</a>	Creeping Soft-grass	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000356720">WFO (2024): Knautia arvensis (L.) Coult. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000356720. Accessed on: 10 Oct 2024</a>	Field Scabious	3
<a href="http://www.worldfloraonline.org/taxon/wfo-0000222425">WFO (2024): Lamium album L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000222425. Accessed on: 10 Oct 2024</a>	White Dead-nettle	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000212684">WFO (2024): Lathyrus hirsutus L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000212684. Accessed on: 10 Oct 2024</a>	Singletary Pea	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000065073">WFO (2024): Leucanthemum vulgare subsp. vulgare . Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000065073. Accessed on: 10 Oct 2024</a>	Ox-eye Daisy	3
<a href="http://www.worldfloraonline.org/taxon/wfo-0000446438">WFO (2024): Linaria vulgaris Mill. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000446438. Accessed on: 10 Oct 2024</a>	Yellow Toadflax	1
Not available	Crested Cow-wheat	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000185378">WFO (2024): Melilotus indicus (L.) All. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000185378. Accessed on: 10 Oct 2024</a>	Annual Yellow Sweetclover	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000368596">WFO (2024): Myosotis scorpioides L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000368596. Accessed on: 10 Oct 2024</a>	Water Forget-me-not	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0001136632">WFO (2024): Odontites vernus (Bellardi) Dumort. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0001136632. Accessed on: 10 Oct 2024</a>	Red Bartsia	3

<a href="http://www.worldfloraonline.org/taxon/wfo-0000183367">WFO (2024): <i>Ononis arvensis</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000183367. Accessed on: 10 Oct 2024</a>	Field Restharrow	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000183372">WFO (2024): <i>Ononis spinosa</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000183372. Accessed on: 10 Oct 2024</a>	Spiny Restharrow	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000384792">WFO (2024): <i>Orlaya daucoides</i> (L.) Greuter. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000384792. Accessed on: 10 Oct 2024</a>	Hedgehog Parsley	2
<a href="http://www.worldfloraonline.org/taxon/wfo-0000480424">WFO (2024): <i>Papaver dodecandrum</i> (Forssk.) Medik. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000480424. Accessed on: 10 Oct 2024</a>	Violet-horned Poppy	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000889657">FO (2024): <i>Phalaris canariensis</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000889657. Accessed on: 10 Oct 2024</a>	Canary Grass	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000893396">WFO (2024): <i>Poa pratensis</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000893396. Accessed on: 10 Oct 2024</a>	Smooth Meadow-grass	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0001016615">WFO (2024): <i>Potentilla anserina</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0001016615. Accessed on: 10 Oct 2024</a>	Silverweed	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0001012987">WFO (2024): <i>Rubus divaricatus</i> P.J.Müll. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0001012987. Accessed on: 10 Oct 2024</a>	Red-stemmed Bramble	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000899661">WFO (2024): <i>Setaria verticillata</i> (L.) P.Beauv. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000899661. Accessed on: 10 Oct 2024</a>	Sticky Bristle-grass	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000440022">WFO (2024): <i>Spergula pentandra</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000440022. Accessed on: 10 Oct 2024</a>	Five-stamened Spurrey	1
<a href="http://www.worldfloraonline.org/taxon/wfo-0000314357">WFO (2024): <i>Stachys palustris</i> L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000314357. Accessed on: 10 Oct 2024</a>	Marah Woundwort	1

[WFO \(2024\): Teesdalia nudicaulis \(L.\) W.T.Aiton. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000411015. Accessed on: 10 Oct 2024](http://www.worldfloraonline.org/taxon/wfo-0000411015)

Shepherd's Cress 1

[WFO \(2024\): Torilis japonica DC. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000411355. Accessed on: 10 Oct 2024](http://www.worldfloraonline.org/taxon/wfo-0000411355)

Upright Hedge-parsley 1

[WFO \(2024\): Trifolium arvense L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000212967. Accessed on: 10 Oct 2024](http://www.worldfloraonline.org/taxon/wfo-0000212967)

Hare's-foot Clover 1

[WFO \(2024\): Tussilago farfara L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000117140. Accessed on: 10 Oct 2024](http://www.worldfloraonline.org/taxon/wfo-0000117140)

Coltsfoot 2

[WFO \(2024\): Vicia bithynica L. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000212732. Accessed on: 10 Oct 2024](http://www.worldfloraonline.org/taxon/wfo-0000212732)

Bithynian Vetch 1

[WFO \(2024\): Vicia hirsuta \(L.\) Gray. Published on the Internet;http://www.worldfloraonline.org/taxon/wfo-0000212743. Accessed on: 10 Oct 2024](http://www.worldfloraonline.org/taxon/wfo-0000212743)

Hairy Tare 4



## Supplementary material Part C – R Code

For sentiment analysis

This R code uses the following libraries to assist with Google API access, data manipulation and reading Excel files.

```
# Wickham, H. (2023). tidyverse: Easily Install and Load the Tidyverse [Computer software]. https://CRAN.R-project.org/package=tidyverse
```

```
# Edmondson M (2020). googleLanguageR: Call Google's 'Natural Language' API [Computer software]. http://code.markedmondson.me/googleLanguageR/,  
https://github.com/ropensci/googleLanguageR,https://docs.ropensci.org/googleLanguageR/
```

```
# Schauburger P and Walker A (2023). openxlsx: Read, Write and Edit xlsx Files. [Computer software]. https://CRAN.R-project.org/package=openxlsx
```

```
# The code also uses Google Cloud API service
```

```
# Google Cloud. (2024). Natural Language API. Retrieved from https://cloud.google.com/natural-language/
```

```
# Please see googleLanguageR documentation https://cran.r-project.org/package=googleLanguageR
```

```
# and the Google Cloud Natural Language API https://cloud.google.com/natural-language/docs/reference/rest
```

```
# for further information. You will need a Google Developer account and API key for access to Google's Sentiment API.
```

```
# The API will return two values, SENTIMENT SCORE and MAGNITUDE SCORE. The sentiment score indicates the overall positivity
```

```
# or negativity of the text, ranging from -1 (negative) to +1 (positive). Whereas, the magnitude score represents the intensity
```

```
# of emotion in text, regardless of whether the sentiment is positive, negative, or neutral.
```

```
library(googleLanguageR)
```

```
library(tidyverse)
```

```
library(openxlsx)
```

```
# From the Google Cloud platform download an access key as a json file and save locally. Place the path to the key below:
```

```
gl_auth("FILE_PATH_TO_GOOGLE_API_KEY.json")
```

```
# Define a function to analyze sentiment and extract the score
```

```
analyze_sentiment <- function(text) {
```

```
  result <- gl_nlp(text, nlp_type = "analyzeSentiment")
```

```
  if (!is.null(result$documentSentiment)) {
```

```
    return(list(score = result$documentSentiment$score, magnitude = result$documentSentiment$magnitude))
```

```
  } else {
```

```
    return(NA)
```

```
  }
```

```
}
```

```
# Examples of testing the sentiment function
```

```
analyze_sentiment("No plant can be more common, nor hardly less any attractive")
```

```
analyze_sentiment("There is a lot of it, and it's ugly")
```

```

# PROCESS EXCEL FILE CONTAINING TEXT TO BE SCORED
# =====
# Read an excel file which contains a column(s) of text to be scored using the sentiment API.
spreadsheet <- read.xlsx(xlsxFile="PATH_TO_FILE.xlsx", sheet="data")

# List the column names in the Excel file with the text which we will run sentiment analysis against
text_sentiment_columns <- c('combined_text')

# The following code adds new columns to the data frame for each column in `text_sentiment_columns`, creating placeholders
# for sentiment score and magnitude. For example, if the data frame has a column called `combined_text`, it will now also
# include `combined_text_score` and `combined_text_magnitude`.
spreadsheet[, paste0(text_sentiment_columns, "_score")] <- NA
spreadsheet[, paste0(text_sentiment_columns, "_magnitude")] <- NA

# Loop through each row, perform sentiment analysis on each specified column, and store the resulting scores in a new column.
for (i in 1:nrow(spreadsheet)) {
  sentiment_score=NULL
  for (t in text_sentiment_columns) {

```

```
col_name <- eval(paste0('spreadsheet[i,]$',t))
analyse_this_text <- eval(parse(text = col_name))

# Check if we got any results from the API
if (!nzchar(analyse_this_text) || is.na(analyse_this_text)){
  sentiment_score[1] <- ""
  sentiment_score[2] <- ""
  print('No data to score')
}else{
  sentiment_score <- sapply(
    analyse_this_text,
    analyze_sentiment)
  print('Scored data')
}

score_col_name <- paste0(t,'_score')
magnitude_col_name <- paste0(t,'_magnitude')

spreadsheet[i, score_col_name] <- sentiment_score[1]
spreadsheet[i, magnitude_col_name] <- sentiment_score[2]
```

```
score_col_name <- NULL
magnitude_col_name <- NULL
sentiment_score <- NULL
col_name <- NULL
analyse_this_text <- NULL
}
}

# Now we should have results, so write to new Excel file for further analysis
write.xlsx(spreadsheet, "PATH_TO_NEW_EXCEL_FILE.xlsx")
```

For boxplots

# This R code uses the following libraries to assist with data manipulation, reading Excel files and plotting a chart.

# Wickham, H. (2023). tidyverse: Easily Install and Load the Tidyverse [Computer software]. <https://CRAN.R-project.org/package=tidyverse>

# Schauburger P and Walker A (2023). openxlsx: Read, Write and Edit xlsx Files. [Computer software]. <https://CRAN.R-project.org/package=openxlsx>

```
library(tidyverse)
```

```
library(openxlsx)
```

```
# Read the excel file which contains the plant name, species type and the sentiment scores from the Google Cloud API
```

```
# which contains the following column names :
```

```
# 1. plant_name: Name of the arable plant
```

```
# 2. combined_text_score: Numerical value from -1 to +1 of the sentiment score returned from the Google Cloud API
```

```
# 3. species_type: 1=wildflower, 2=weed or 3=both
```

```
plants_sentiment_data <- read.xlsx(xlsxFile="PATH_TO_EXCEL_FILE.xlsx")
```

```
# Exclude any records which do not have sentiment scores
```

```
plants_wildflower_weed <- plants_sentiment_data %>% filter(!is.na(combined_text_score))
```

```
# STATISTICAL TESTS
```

```
# =====
```

```
# Pairwise Mann-Whitney U tests
```

```
# Test between 'wildflower' and 'weed'
```

```
wilcox.test(combined_text_score ~ species_type, data = plants_wildflower_weed[plants_wildflower_weed$species_type %in% c("wildflower", "weed"),])
```

```
# Test between 'wildflower' and 'both'
```

```
wilcox.test(combined_text_score ~ species_type, data = plants_wildflower_weed[plants_wildflower_weed$species_type %in% c("wildflower", "both"),])
```

```
# Test between 'weed' and 'both'
```

```
wilcox.test(combined_text_score ~ species_type, data = plants_wildflower_weed[plants_wildflower_weed$species_type %in% c("weed", "both"),])
```

```
# CHART AS BOXPLOT
```

```
# =====
```

```
# Helper function to position the text in the boxplot below
```

```
n_fun <- function(x){  
  return(data.frame(y = 1,  
                    label = length(x)))  
}
```

```
# Plot boxplot with by species type
```

```
plants_wildflower_weed %>%  
  ggplot(aes(x = combined_text_score, y = species_type)) +  
  stat_boxplot(geom = 'errorbar', width = 0.6) +  
  geom_boxplot() + #geom_boxplot(fatten = NULL) +  
  stat_summary(fun = mean, geom = "point", aes(group = species_type),  
              color = "black", size = 3, shape = 4) + # For mean
```

```
stat_summary(fun.data = n_fun, geom = "text", hjust = 0.5, size = 7.05556) +  
labs(x = "Sentiment score", y = "Species type") +  
theme(  
  plot.margin = unit(c(1, 1, 1, 1), "cm"),  
  plot.background = element_rect(fill = "white", color = NA),  
  panel.background = element_rect(fill = "white"),  
  axis.line = element_line(color = "black", linewidth = .5),  
  axis.title = element_text(size = 20, color = "black", face = "bold"), # AXIS LABEL TEXT  
  axis.text = element_text(size = 20, color = "black"), # AXIS TEXT  
  axis.text.x = element_text(margin = margin(t = 10)),  
  axis.title.y = element_text(margin = margin(r = 10)),  
  axis.ticks = element_line(linewidth = .5),  
  panel.grid = element_blank(),  
  legend.position = "right",  
  legend.text = element_text(size = 20), #LEGEND TEXT  
  legend.margin = margin(t = 5, l = 5, r = 5, b = 5),  
  legend.key = element_rect(color = NA, fill = NA),  
  legend.title = element_text(size = 20),  
  legend.spacing.y = unit(0.5, 'cm')  
) +
```



```
guides(size = "none", alpha = "none", colour = guide_legend(byrow = TRUE, override.aes = list(size=6))) +  
geom_vline(xintercept=0, linetype="dashed", color = "red") +  
xlim(-1,1) +  
geom_text(aes(label = "Number of species"), x = 1, y = Inf, vjust = 2, hjust = 1, size = 7.05556,check_overlap = TRUE)  
# Save plot as PDF file  
ggsave("PATH_TO_SAVE_FILE.pdf", width = 55, height = 30, units = "cm",dpi = 300)
```