Title	Nash's Field grassland experiment Silwood Park, UK
General metadata	
Abstract	Nash's Field is one of the field experiments of Imperial College London, Silwood Park campus and is part of The Ecological Continuity Trust (ECT) and the European Join Program on Agricultural Soil (EPJ soil). The experiment is a long-term study that aims to understand the degree to which nutrients, soil acidity and herbivory affect grassland ecology. It is a five-factor factorial experiment replicated in two blocks of plots using a split-plot design in a neutral grassland (MG5 Cynosurus cristatus/Centaurea debeauxii, under the UK National Vegetation Classification system). Overall, the experiment contains 8 invertebrate exclusion plots (± insects and ± molluscs, 22 x 44 m), 16 vertebrate exclusion plots (± rabbits, 22 x 22 m), 32 soil acidity plots (high vs low pH, 8 x 18 m), 96 plant competition plots (± grasses, ± herbs, 6 x 8 m) and 1,152 fertilization plots (12 combinations of N, P, K and Mg, 2 x 2 m). Except for herbicides, which were used only at the start of the experiment, all treatments have been applied continuously since 1992. Data of aboveground biomass or coverage per plant species of all herbaceous plants present has been collected annually for several years from 1992.
Keywords	Herbivory, rabbits, insects, molluscs, soil nutrients, N, K, Mg, P, diversity, meadow, grasses, Silwood Park
Links	https://www.imperial.ac.uk/silwood-park/ https://www.ecologicalcontinuitytrust.org/nash-field
DOI	**10.5281/zenodo.13345224**
Is this part of a larger study?	No
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Funding	- Mick Crawley: Department of Life Sciences, Imperial College London - Thomas Bell: U-GRASS, Understanding and enhancing soil ecosystem services and resilience in UK grass and croplands (NERC) and NERC - Catalina Estrada: Fencing replacement grant by Ecological Continuity Trust in 2023
Data set status and accessibility	
Status	
Latest update	January 2024
Latest archive date	January 2024
Metadata updated	August 2024
Accessibility	
Storage location and medium	"Research group space: SilwoodLTE", Imperial College London, ICT department
Usage rights	Open access
Data request	To Catalina Estrada with form https://www.imperial.ac.uk/silwood-park/research/field-experiments/
Geographic metadata	
Geographic description	The study site is located in Nash's Field at Silwood Park Campus from Imperial College London, Buckhurst Road, Ascot, Berkshire SL5 7PY, United Kingdom. Silwood Park campus, with 78 ha, contains grasslands, scrubland, ancient woodlands and few decades old oak-dominated woodlands. The experiment is placed in a species-poor grassland on sandy, acidic soil of the Bagshot Series (National Vegetation Classification: MG5 *Cynosurus cristatus*/ *Centaurea debeauxii*, *Danthonia decumbens* subcommunity) where introduced European rabbits (*Oryctolagus cuniculus*) have been present for thousands of years and have been particularly abundant since the 1950s. The grassland is surrounded by oak (*Quercus robur*) and birch (*Betula pendula*) woodland and a bracken (*Pteridium aquilinum*) stand. Before 1991 Nash's field was managed as a hay meadow dominated by *Agrotis capillaris, Fetusca rubra, Holcus lanatus, Galium saxalite and Rumex acetosella*. Silwood Park experiences an average annual rainfall of 698mm with little seasonal pattern (1987-2022). Mean hourly temperature is 10ºC with July max of 23 ºC and January min of 1.4 ºC (1987-2022).
Bounding coordinates	
Latitude	51.412654
Longitude	-0.64522086
UK National grid	
Square	SU
Easting	94316
Northing	69052

Temporal metadata	
Temporal description	Treatments have been applied to all plots uninterruptedly since 1992. Data was collected annually in July in all or a subset of experimental plot units (the treatment-unique 2 x 2 m subplots). Three types of data have been collected in Nash's Field: aboveground biomass (years 1992-2000, 2004, 2006, 2013) and percentage cover (years 2000, 2001, 2004-2006, 2008, 2012, 2019, 2023) of each species of herbaceous plant present in a sampled plot. In addition, plant species presence and total aboveground biomass was sampled in 2018. Some years have also included the measure of bare soil cover, dead organic matter biomass or cover and bryophyte biomass or cover. A change in the type of data collected from biomass to percentage of cover was necessary to adapt to the resources available for running the experiment. Both types of data were collected in 2000, 2004 and 2006 to aid in the comparison of results. A complete set of data (1,152 plot units) is available for 1997 (biomass), 2000 (biomass and cover), 2005 (cover) and 2006 (cover), 2019(cover). Data from a subset of plots were surveyed in all other years. The file: "NashKS_data_summary.pdf" describes available data collected from Nash's Field plots K-S from 1992.
Begin	1992
End	Ongoing
Taxonomic metadata	
Taxonomic authority	
Type	Website
Author	NBN Atlas (National Biodiversity Network)
Authority	UKSI (UK species inventory by Natural History Museum)
Link	nbnatlas.org
General Information	Please refer to table NashKS_taxa for information of species recorded.
Methods metadata	
General experimental design	The experiment is a multi-factor factorial experiment replicated in two blocks of 22 x 44 m plots using a split-plot design. - Factor 1: <u>Invertebrate herbivore exclusion</u>: There are eight 22 x 44 m plots. Four plots (s, l, m, n, p, q, r, k) separated at least 10 m from each other. Each plots is assigned a with and without insecticide, and with and without molluscicide treatment: Table: PLOTTYPE

Table: PLOTTYPE

Treatment	Code	Plot name
Insecticide spray	spr.mol	m
Insecticide spray	spr.mol	q
Molluscicide pellets	ins.pel	n
Molluscicide pellets	ins.pel	p
Insecticide spray and molluscicide pellets	spr.pel	s
Insecticide spray and molluscicide pellets	spr.pel	r
Nothing applied	ins.mol	l
Nothing applied	ins.mol	k

Pesticides are applied two or three times during the spring - summer period in April/May, May/June and June/July. Last application of insecticide is given to kill cinnabar moth caterpillars. Insecticide spray is applied using a hand-pumped, backpack sprayer, during calm, dry spells. Molluscicide pellets are applied using a two-wheeled, hand-driver spreader.

Insects are excluded with a combination of knockdown (contact) insecticides with broad spectrum and systemic insecticides. Known products applied over the duration of the experiment.

Years	Type	Name	Active ingredient	Dosis[2]	Note
1992-2014	Molluscicide	Mifaslug, Corso 3SSP	3% w/w metaldehyde	0.011 Kg m^{-2}	Maybe more but no records
1992-2014	Insecticide, broad spectrum, contact	Ambush, Clayton Pontoon 48EC	Synthetic pyrethoid 150 g/ha-1, Chlorpyrifos		Maybe more but no records
1992-2014	Insecticide, systemic	Dimethoate-40, Danading Progress	dimethoate 336 g/ha or 400g/l		Maybe more but no records
2015	Molluscicide	Corso 3SSP, sipcam, MAPP 15491	3% w/w metaldehyde		Out of market in 2015
2015-2017	Insecticide, broad spectrum, contact	Pontoon 48EC Clayton48EC, MAPP 14555	Chlorpyrifos480 g/l		Out of market/banned 2015
2015-2020	Insecticide, systemic	Danadim ProgressTM, MAPP 15890	400g/l (39% w/w) Dimethoate		Out of market/banned
2016-present	Molluscicide	[1]Gusto3, Adama, MAPP 14308	3% w/w metaldehyde	0.01 Kg m^{-2}	Out of market/banned
2016-present	Molluscicide	[1]Triger3, Certis, MAPP 14304	3% w/w metaldehyde	0.01 Kg m^{-2}	Out of market/banned
2018-present	Insecticide, broad spectrum, contact	Decis Protech, Bayer, MAPP 16160	15 gl (1.5% w/w) deltamethrin		
2021-present	Insecticide, systemic	Mainman	500 g / kg flonicamid		

[1]HSE issued permit for trial purposes until our molluscicide pellets supply finished. Permit # COP2022/00268
[2] Max recommended in packaging

- Factor 2. <u>Large herbivore exclusion</u>: Half of each 22 x 44 m plots is enclosed with a fence 1 m high and 3 cm square wire-mesh. The fence is supported by wooden posts and reinforced on the top with a rigid wire. Mesh was buried 5 cm deep with bottom 15 cm turned outwards to prevent rabbits digging through. Each fenced/unfenced square measures 22 m^2. Fence excludes rabbits but does not stop voles, wood mice or deer of entering the plot. Fences were replaced in November 2023 in all fenced plots.

Fenced squares are cut for hay with a hand-held sickle bar mower in late August each year, and cut herbage is raked and removed from the plots. Tree samplings are removed from all plots.

- Factor 3. <u>Soil pH treatments</u>: Fenced and unfenced squares are divided into two 8 x 18 m subplots, separated by 2 m, to create limed and unlimed treatments. Lime in Nash's Field has decreased soil acidity from 4.1 to 7. In Autumn 1991,1993,1994, 1999 and 2003, 20 tonnes ha^{-1} or $2kg/m^2$ of CaO were applied to all limed subplots. Most recently lime is applied every five years, last applications were done on February 2015 and 2020.

Plots where limed are applied are indicated in the field with a row of 9 iron rods painted white located in the southwest corner of each 2 x 2 m nutrient plot. Unlimed plots' rods are unpainted.

- Factor 4. <u>Plant competition</u>: Each 18 x 8 m subplot for both limed and unlimed treatments was subdivided into three 6 x 8 m plots to create three treatments: minus grass, minus herbs and control.

Minus herbs treatment: herbs were removed with the selective herbicide, Pasturol (Dicamba + MCPA + Mecoprop at 2.7 kg active ingredient ha^{-1}) from Farmers Crop Chemicals, Inkberrow, Worcs, UK;

Minus grass treatment: grasses were removed with the selective herbicides Clout (alloxydim-sodium at 1.0 kg active ingredient ha^{-1}) from Hortichem, Ongar, Essex, UK, or Checkmate (sethoxydim at 870 g active ingredient ha^{-1}) from Rhone Poulenc Agriculture Ltd, Ongar, Essex, UK.

Herbicides were applied in late April each year from 1992 to 1994 following products instructions. Nothing was applied to control plots. No application of herbicides has been done since 1994.

- Factor 5. <u>Mineral fertilization</u>: Each of the 6 x 8 m plant competition plots is split into 12 $4m^2$ subplots for the application of different combination of nutrients: N, P, K and Mg.

Table: NUTTREAT

Treatment	Code	Minerals applied	Iron rod colour code
No nutrients	no.nutr	none	white
Plus K	plus.k	K	green
Plus Mg	plus.mg	Mg	yellow
Plus N	plus.n	N	red
Plus P	plus.p	P	blue
Plus P, K	plus.pk	P, K	blue-green
Minus P, K	min.pk	N, Mg	blue-green-white
Minus K	min.k	N, Mg, P	green-white
Minus Mg	min.mg	N, P, K	yellow-white
Minus P	min.p	N, K, Mg	blue-white
Minus N	min.n	K, Mg, P	red-white
All nutrients	all.nutr	N, Mg, P, K	blue-unpainted

	Minerals have been applied annually during the first weeks of April since 1992
	N: Ammonium nitrate (NH_4NO_3) or prilled urea ($CO(NH_2)_2$) at 144 kg ha^{-1}year^{-1} K: Muriate of potash (KCl:NaCl) at 224 kg ha^{-1} year^{-1} P: Triple superphosphate ($Ca(H2PO4)2 \cdot H2O$) at 35 kg ha^{-1} year^{-1} Mg: Epsom salts ($MgSO4.7H_2O$) at 11 kg ha^{-1} year^{-1} Content of soil minerals in Nash's field made in 1991 registered 5.6±0.47 mg kg^{-1} $NaHCO_3$-soluble P (1 SE, n=8), 88.4±7.0 mg kg^{-1} exchangeable K (1 SE, n=8), and 37.5±21 (1 SE, n=8) mg kg^{-1} Mg. Modelled total atmospheric N deposition estimated are to be 22 kg N ha^{-1}yr^{-1} A coloured iron rod on the northwest corner of each 2 x 2 m plot indicates the nutrient treatment received. Colour codes for each treatment appear in table NUTTREAT <u>Seed sowing</u>: In spring 1996 seeds of 62 grassland species were sown into the southern half of all Plus Mg and Minus MG plots (1 x 2m subplots). 57 of these species were not found in Nash's Field at the time. Seeds from John Chambers' Wildflower seeds, Kettering, UK were applied at a rate of 5 g m^{-2}. Prior to sowing in the field, all species were tested for germination rate and susceptibility to potential toxic effects of insecticide and molluscicide in greenhouse trials: *Achillea millefolium, Agrimonia eupatoria, Anthyllis vulneraria, Bellis perennis, Campanula glomerata, Campanula rotundifolia, Centaurea debeauxii, Centaurea scabiosa, Cerastium fontanum, Cichorium intybus, Clinopodium vulgare, Daucus carota, Digitalis purpurea, Filipendula vulgaris, Fragaria vesca, Galium mollugo, Galium verum, Geranium pratense, Pilosella officinarum, Hippocrepis comosa, Hypericum perforatum, Hypochoeris radicata, Knautia arvensis, Lathyrus pratensis, Leontodon hispidus, Leucanthemum vulgare, Linaria vulgaris, Lotus corniculatus, Lotus pedunculatus, Lychnis flos-cuculi, Malva moschata, Medicago lupulina, Ononis repens, Ononis spinosa, Pimpinella saxifraga, Plantago lanceolata, Plantago media, Poterium sanguisorba, Primula veris, Primula vulgaris, Prunella vulgaris, Ranunculus acris, Reseda lutea, Reseda luteola, Rhinanthus minor, Rumex acetosa, Saxifraga granulata, Scabiosa columbaria, Scorzoneroides autumnalis, Silene latifolia, Betonica officinalis, Stellaria graminea, Succisa pratensis, Tanacetum vulgare, Thymus praecox subsp. arcticus, Tragopogon pratensis, Trifolium dubium, Trifolium repens, Veronica chamaedrys, Vicia cracca, Vicia sativa and Vicia tetrasperma.* Summary: The experimental design contains 8 invertebrate exclusion plots (22 x 44 m), 16 vertebrate exclusion plots (22 x 22 m), 32 soil pH plots (8 x 18 m), 96 plant competition plots (6 x 8 m), 1,152 fertilization plots (2 x 2 m) and 192 seed-sown subplots (1 x 2 m).
Data collection	Data collected in Nash's Field experiment includes aboveground biomass and percentage cover of each species of herbaceous plant present in a sampled plot, total biomass, presence of species and soil pH. <u>Aboveground biomass</u>: measured in one 50 x 25 cm quadrat selected at random from the central 1 x 1 m section of each 2 x 2 m fertilized plot. Plants are cut to ground level using scissors and then species are separated in the laboratory before being dried (24 h at 80 °C) and weighted. Cut plant material that cannot be assigned to a plant species is also dried and weighed. This biomass is then divided

and added to the biomass of each species present in the 2x2 m plot according to its relative proportion [$B_a + ((B_a / B_t) * B_r)$) where B_a is the biomass of plant a, B_t is total biomass for the 2 x 2 m plot and B_r is the biomass of the remaining plant material for the same plot]. Thus, although scale precision is two decimal places (0.01 g), precision in the biomass data table ranges from 0.1 to up 1 x 10^{-9}, due to the distribution of weight from each plot's residual biomass.

Percentage cover: measured for the whole area of each fertilized plot (2 x 2 m). The percentage of the plot covered by each plant species, bare soil, dead organic matter or bryophytes in each experimental plot is estimated by two people. Values entered are percentages agreed by both researchers. Estimations are done by eye standing by the border. Because plant foliage can overlap with each other, for any given fertilized 2 x 2 m plot the added cover for all species present can be higher than 100%. For any given plant species, bare soil, dead organic matter or bryophytes with a percentage of cover lower than 1% a qualitative score of "+", "++", or "+++" is recorded. In the data table "+" was converted to 0.01% and "++" to 0.1% in years 2000, 2001 and 2004, and "+" was converted to 0.1%, "++" to 0.2% and "+++" to 0.3% for cover data in years 2005, 2006, 2008 and 2012.

Percentage of dead matter and bryophytes cover is estimated from their present over bare soils and excluding any present under live vegetation.

Biomass data 2018/2019. The presence of plant species in the whole 2x2 m plot was registered as well as the dry aboveground biomass for all plants combined for the central 0.5 x 0.5 m section of the plot (Tables: NashKS_presence.csv, NashKS_biomass_total.csv). For two plots in the unfenced area of plot L, only the aboveground biomass of the entire 2x2 m plot was measured (Table: NashKS_biomass_UGRASS.csv). Weight was measured at least 72 hours of drying at 75°C. (Table: NashKS_biomass_total.csv).

Data soil pH 2019: Soil pH was measured on 2007 and February 2019 to assess the need of lime application on limed plots. For 2019 soil pH was measured in random nutrient plots (see Table: NUTTREAT) across all other treatments (invertebrate herbivores -plots K to S, vertebrate herbivores -fences, pH control and herbicides). A total of 96 plots were sampled. pH was measured with a Hanna Instruments GroLine soil pH tester -HI981030 calibrated with 7.0 and 4.0 pH buffer solutions. Two holes ca 8cm deep were done in the centre of each plot. One pH measure was read in each hole after soil was soaked with tap water. The probe was clean with tap water and dried between each measure (Table: NashKS_pH.csv). Three measures outside plots were done as controls. Three measures of soil temperature were done the last day of sampling (Feb 13) between 10 and 11 am with a glass and mercury thermometer. Soil temperature at about 8cm deep was in average 6,3 °C (5, 7, 7 °C).

Biomass data 2019: The dry aboveground biomass for all plants combined for the central 0.5 x 0.5 m section of some the plots were measured in the last week of July. Wet weight was measured one day after cutting and dry wet at least 72 hours of drying at 75°C after that. (Table: NashKS_biomass_total.csv).

Plant traits data 2023: Measured as part of palatability study. Leaves for about five individual plants taken to estimate traits. Leaves were clipped and put in a sealed bag with spray water until set for rehydration in the lab. Rehydration was

	done by setting the plant in a flask with water or pressed between two sheets of water-soaked tissue and stored at 2 to 5ºC overnight. Leaves were then scanned on a A4-sized paper with scale line and area was estimated using ImageJ software. A portion of the fresh leave was then drilled to take disks for palatability experiment. The rest were then weighted fresh and after 72h of drying at about 70ºC.
Quality control	Professor Mick Crawley has managed this experiment since 1991. He has been directly involved in the schedule of chemical treatments (pesticides, lime, fertilizers), species identification, collection of data and training of people involved in all aspects of the project. This guarantee the accuracy of plant identification and consistency in the methods applied.
	Table NashKS_collectors.csv contain the contact information of people involved in collecting and identifying species
	Control for the effectiveness of pesticide application has been tested once. Results are included in the Supporting Information for Allan and Crawley, Ecology Letters (2011) 14: 1246-1253
	Measures of soil pH are available 2007 and for 96 plots in 2019.
	Curation of data files, addition of 2004 and 2006 biomass data to datasheets, addition of 2019, 2023 cover data and creation of metadata has been done by Catalina Estrada from January 2016. Read README_NashKS.txt to see specific changes.
Data table metadata	
Number of tables	10
	NashKS_collectors.csv
	NashKS_biomass.csv
	NashKS_cover.csv
	NashKS_presence.csv
	NashKS_pH.csv
	NashKS_biomass_total.csv
	NashKS_plots.csv
	NashKS_treatments.csv
	NashKS_traits.csv
	NashKS_taxa.csv
Format	.csv, .txt

File name	**NashKS_collectors.csv**		
Description	**This table contains name and affiliation of people involved in data collection**		
Size	1KB		
Case sensitive	No		
Number or records	14 rows		
Number of attributes	7 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description

collectorID	code given to each collector	String	Nominal Code formed by first letter or name dot and second name
FirstName	First name of data collector	String	Text
SecondName	Second name of data collector	String	Text
email	Permanent email address of collector	String	Text NA: not known
position	Title within the institution	String	Text
institution	Name of the institution where the collector is associated	String	Text
Notes	Additional information	String	Text

File name	NashKS_biomass.csv		
Description	**This table contains the aboveground dry biomass of each plant species in a nutrient plot**		
Size	5.1MB		
Case sensitive	No		
Number or records	38779 rows		
Number of attributes	18 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
record	Consecutive number for each plant biomass record	Integer	Min: 1
year	Year data was collected	Integer	Date YYYY format Min: 1992, Max 2013
plot.type	Type of each 44 x 22 m plot defined by its invertebrate exclusion treatment	String	Nominal Code included in table PLOTTYPE
plot	A letter given to each 44 x 22 m plot	Character	Nominal letters k, l, m, n, p, q, r, s
insecticide	Whether plot is treated for exclusion of insects or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal insects: no insecticide applied spray: insecticide applied
molluscicide	Whether plot is treated for exclusion of molluscs or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal molluscs: no molluscicide applied pellets: molluscicide applied

fencing	Whether plot is fenced for vertebrate exclusion treatment or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal fenced: enclosed inside a rabbit-proof fence rabbit: left unfenced
lime	Whether plot is treated with lime for soil pH management or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal limed: treated for increasing pH unlimed: untreated
herbicide	Whether plot was treated with herbicide for the plant competition treatment Link to table: NashKS_treatments, NashKS_plots	String	Nominal min.herb: selective herbicide applied to remove herbs min.grass: selective herbicide applied to remove grasses control: no herbicide applied
nutrient	Name of fertilizer treatment applied to $2m^2$ plots Link to table: NashKS_treatments, NashKS_plots	String	Nominal Code included in table NUTTREAT
n	Whether nitrogen is applied to soil	String	Nominal n.yes: nitrogen applied n.no: nitrogen no applied
p	Whether phosphorus is applied to soil	String	Nominal p.yes: phosphorus applied p.no: phosphorus no applied
k	Whether potassium is applied to soil	String	Nominal k.yes: potassium applied k.no: potassium no applied
mg	Whether magnesium is applied to soil	String	Nominal mg.yes: magnesium applied mg.no: magnesium no applied
taxa	Species code name for which biomass was measured Link to table: NashKS_taxa	String	Code names, higher taxonomic and trait information given in table: NashKS_taxa
data.type	Code name that defines the type of data given for each species	String	Biomass: dry aboveground plant biomass
value	Dry weight of the aboveground tissues for the given taxa measured in a 25x50 cm quadrat	Floating point	**Unit: grams of biomass in a 25x50 cm quadrat** Precision: $1x10^{-9}$ Type: real

collectorID	Name code of person responsible for collection and entry of data Link to table: NashKS_collectors.csv	String	Nominal Code name for person responsible of data

File name	NashKS_cover.csv		
Description	**This table contains the percentage cover of each plant species in a nutrient plot**		
Size	7.5MB		
Case sensitive	No		
Number or records	59452 rows		
Number of attributes	18 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
record	Consecutive number for each plant cover record	Integer	Min: 1
year	Year data was collected	Integer	Date YYYY format Min: 2000, Max 2023
plot.type	Type of each 44 x 22 m plot defined by its invertebrate exclusion treatment	String	Nominal Code included in table PLOTTYPE
plot	A letter given to each 44 x 22 m plot	Character	Nominal letters k, l, m, n, p, q, r, s
insecticide	Whether plot is treated for exclusion of insects or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal insects: no insecticide applied spray: insecticide applied
molluscicide	Whether plot is treated for exclusion of molluscs or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal molluscs: no molluscicide applied pellets: molluscicide applied
fencing	Whether plot is fenced for vertebrate exclusion treatment or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal fenced: enclosed inside a rabbit-proof fence rabbit: left unfenced
lime	Whether plot is treated with lime for soil pH management or not Link to table: NashKS_treatments,	String	Nominal limed: treated for increasing pH unlimed: untreated

	NashKS_plots		
herbicide	Whether plot was treated with herbicide for the plant competition treatment Link to table: NashKS_treatments, NashKS_plots	String	Nominal min.herb: selective herbicide applied to remove herbs min.grass: selective herbicide applied to remove grasses control: no herbicide applied
nutrient	Name of fertilizer treatment applied to $2m^2$ plots Link to table: NashKS_treatments, NashKS_plots	String	Nominal Code included in table NUTTREAT
n	Whether nitrogen is applied to soil	String	Nominal n.yes: nitrogen applied n.no: nitrogen no applied
p	Whether phosphorus is applied to soil	String	Nominal p.yes: phosphorus applied p.no: phosphorus no applied
k	Whether potassium is applied to soil	String	Nominal k.yes: potassium applied k.no: potassium no applied
mg	Whether magnesium is applied to soil	String	Nominal mg.yes: magnesium applied mg.no: magnesium no applied
taxa	Species code name for which cover was measured Link to table: NashKS_taxa	String	Code names, higher taxonomic and trait information given in table: NashKS_taxa
data.type	Code name that defines the type of data given for each species	String	Cover: percentage of plot covered by given species
value	Percentage of 2 x 2 m plot covered by plant species	Floating point	Unit: percentage Precision: 0.0 but values 0.1, 0.2, 0.3 included Type: real
collectorID	Name code of person responsible for collection and entry of data Link to table: NashKS_collectors.csv	String	Nominal Code name for person responsible of data

File name	NashKS_presence.csv
Description	**This table contains the presence a plant species in a nutrient plot**
Size	181KB
Case sensitive	No
Number or records	1438 rows
Number of attributes	18 columns

Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
record	Consecutive number for each plant presence record	Integer	Min: 1
year	Year data was collected	Integer	Date YYYY format Min/Max 2018
plot.type	Type of each 44 x 22 m plot defined by its invertebrate exclusion treatment	String	Nominal Code included in table PLOTTYPE
plot	A letter given to each 44 x 22 m plot	Character	Nominal letters k, l, m, n, p, q, r, s
insecticide	Whether plot is treated for exclusion of insects or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal insects: no insecticide applied spray: insecticide applied
molluscicide	Whether plot is treated for exclusion of molluscs or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal molluscs: no molluscicide applied pellets: molluscicide applied
fencing	Whether plot is fenced for vertebrate exclusion treatment or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal fenced: enclosed inside a rabbit-proof fence rabbit: left unfenced
lime	Whether plot is treated with lime for soil pH management or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal limed: treated for increasing pH unlimed: untreated
herbicide	Whether plot was treated with herbicide for the plant competition treatment Link to table: NashKS_treatments, NashKS_plots	String	Nominal min.herb: selective herbicide applied to remove herbs min.grass: selective herbicide applied to remove grasses control: no herbicide applied
nutrient	Name of fertilizer treatment applied to 2m^2 plots Link to table:	String	Nominal Code included in table NUTTREAT

	NashKS_treatments, NashKS_plots		
n	Whether nitrogen is applied to soil	String	Nominal n.yes: nitrogen applied n.no: nitrogen no applied
p	Whether phosphorus is applied to soil	String	Nominal p.yes: phosphorus applied p.no: phosphorus no applied
k	Whether potassium is applied to soil	String	Nominal k.yes: potassium applied k.no: potassium no applied
mg	Whether magnesium is applied to soil	String	Nominal mg.yes: magnesium applied mg.no: magnesium no applied
taxa	Code name for species found Link to table: NashKS_taxa	String	Code names, higher taxonomic and trait information given in table: NashKS_taxa
data.type	Code name that defines the type of data given for each species	String	Presence: whether species was present in nutrient plot
value	Presence of species in 2 x 2 m plot.	Integer	Number 1 means presence of species
collectorID	Name code of person responsible for collection and entry of data Link to table: NashKS_collectors.csv	String	Nominal Code name for person responsible of data

File name	NashKS_pH.csv		
Description	**This table contains measures of soil pH in nutrient plots**		
Size	151KB		
Case sensitive	No		
Number or records	1350 rows		
Number of attributes	18 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
record	Consecutive number for each plant presence record	Integer	Min: 1
year	Year data was collected	Integer	Date YYYY format Min: 2007 Max: 2019
plot.type	Type of each 44 x 22 m plot defined by its invertebrate exclusion treatment	String	Nominal Code included in table PLOTTYPE

plot	A letter given to each 44 x 22 m plot	Character	Nominal letters k, l, m, n, p, q, r, s
insecticide	Whether plot is treated for exclusion of insects or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal insects: no insecticide applied spray: insecticide applied
molluscicide	Whether plot is treated for exclusion of molluscs or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal molluscs: no molluscicide applied pellets: molluscicide applied
fencing	Whether plot is fenced for vertebrate exclusion treatment or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal fenced: enclosed inside a rabbit-proof fence rabbit: left unfenced
lime	Whether plot is treated with lime for soil pH management or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal limed: treated for increasing pH unlimed: untreated
herbicide	Whether plot was treated with herbicide for the plant competition treatment Link to table: NashKS_treatments, NashKS_plots	String	Nominal min.herb: selective herbicide applied to remove herbs min.grass: selective herbicide applied to remove grasses control: no herbicide applied
nutrient	Name of fertilizer treatment applied to $2m^2$ plots Link to table: NashKS_treatments, NashKS_plots	String	Nominal Code included in table NUTTREAT
n	Whether nitrogen is applied to soil	String	Nominal n.yes: nitrogen applied n.no: nitrogen no applied
p	Whether phosphorus is applied to soil	String	Nominal p.yes: phosphorus applied p.no: phosphorus no applied
k	Whether potassium is applied to soil	String	Nominal k.yes: potassium applied k.no: potassium no applied
mg	Whether magnesium is applied to soil	String	Nominal mg.yes: magnesium applied mg.no: magnesium no applied

data.type	Code name that defines the type of data given for each species	String	pH: soil pH
value	Soil pH at about 8 cm deep	Floating point	Type: real
collectorID	Name code of person responsible for collection and entry of data Link to table: NashKS_collectors.csv	String	Nominal Code name for person responsible of data
note	Notes of sampling	String	Text

File name	NashKS_biomass_total.csv		
Description	**This table contains measures of total aboveground biomass in nutrient plots**		
Size	32KB		
Case sensitive	No		
Number or records	213 rows		
Number of attributes	19 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
record	Consecutive number for each plot biomass record	Integer	Min: 1
year	Year data was collected	Integer	Date YYYY format Min: 2018 Max: 2019
plot.type	Type of each 44 x 22 m plot defined by its invertebrate exclusion treatment	String	Nominal Code included in table PLOTTYPE
plot	A letter given to each 44 x 22 m plot	Character	Nominal letters k, l, m, n, p, q, r, s
insecticide	Whether plot is treated for exclusion of insects or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal insects: no insecticide applied spray: insecticide applied
molluscicide	Whether plot is treated for exclusion of molluscs or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal molluscs: no molluscicide applied pellets: molluscicide applied
fencing	Whether plot is fenced for vertebrate exclusion treatment or not Link to table: NashKS_treatments,	String	Nominal fenced: enclosed inside a rabbit-proof fence rabbit: left unfenced

	NashKS_plots		
lime	Whether plot is treated with lime for soil pH management or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal limed: treated for increasing pH unlimed: untreated
herbicide	Whether plot was treated with herbicide for the plant competition treatment Link to table: NashKS_treatments, NashKS_plots	String	Nominal min.herb: selective herbicide applied to remove herbs min.grass: selective herbicide applied to remove grasses control: no herbicide applied
nutrient	Name of fertilizer treatment applied to $2m^2$ plots Link to table: NashKS_treatments, NashKS_plots	String	Nominal Code included in table NUTTREAT
n	Whether nitrogen is applied to soil	String	Nominal n.yes: nitrogen applied n.no: nitrogen no applied
p	Whether phosphorus is applied to soil	String	Nominal p.yes: phosphorus applied p.no: phosphorus no applied
k	Whether potassium is applied to soil	String	Nominal k.yes: potassium applied k.no: potassium no applied
mg	Whether magnesium is applied to soil	String	Nominal mg.yes: magnesium applied mg.no: magnesium no applied
data.type	Code name that defines the type of data given for each species	String	Biomass: dry weight of aboveground plant biomass
taxa	Species code name for which biomass was measured Link to table: NashKS_taxa	String	Total: All species present combined
value	Dry weight of the aboveground tissues for the given taxa measured in a quadrat	Floating point	**Unit: grams of biomass per square m (gm^{-2})** Precision: $1x10^{-2}$ Type: real
collectorID	Name code of person responsible for collection and entry of data Link to table: NashKS_collectors.csv	String	Nominal Code name for person responsible of data

note	Notes of sampling	String	Text Code project from field experiments list

File name	NashKS_plots.csv		
Description	**This table contains the location and marking of nutrient plots**		
Size	154KB		
Case sensitive	No		
Number or records	1152 rows		
Number of attributes	20 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
record	Consecutive number for each plot biomass record	Integer	Min: 1
plot.type	Type of each 44 x 22 m plot defined by its invertebrate exclusion treatment	String	Nominal Code included in table PLOTTYPE
plot	A letter given to each 44 x 22 m plot	Character	Nominal letters k, l, m, n, p, q, r, s
insecticide	Whether plot is treated for exclusion of insects or not Link to table: NashKS_treatments	String	Nominal insects: no insecticide applied spray: insecticide applied
molluscicide	Whether plot is treated for exclusion of molluscs or not Link to table: NashKS_treatments	String	Nominal molluscs: no molluscicide applied pellets: molluscicide applied
fencing	Whether plot is fenced for vertebrate exclusion treatment or not Link to table: NashKS_treatments	String	Nominal fenced: enclosed inside a rabbit-proof fence rabbit: left unfenced
lime	Whether plot is treated with lime for soil pH management or not Link to table: NashKS_treatments	String	Nominal limed: treated for increasing pH unlimed: untreated
herbicide	Whether plot was treated with herbicide for the plant competition treatment Link to table: NashKS_treatments	String	Nominal min.herb: selective herbicide applied to remove herbs min.grass: selective herbicide applied to remove grasses control: no herbicide applied
nutrient	Name of fertilizer treatment applied to 2m^2 plots	String	Nominal Code included in table NUTTREAT

	Link to table: NashKS_treatments		
n	Whether nitrogen is applied to soil	String	Nominal n.yes: nitrogen applied n.no: nitrogen no applied
p	Whether phosphorus is applied to soil	String	Nominal p.yes: phosphorus applied p.no: phosphorus no applied
k	Whether potassium is applied to soil	String	Nominal k.yes: potassium applied k.no: potassium no applied
mg	Whether magnesium is applied to soil	String	Nominal mg.yes: magnesium applied mg.no: magnesium no applied
grid	Code name of nutrient plot location of given nutrient plot inside a large herbivore exclusion plot (each 22 x 44 m)	String	Code has a letter and a number Letter: A to H for each of eight rows Number:1 to 9 for each of 9 columns
row	Letter row location for given nutrient plot inside a large herbivore exclusion plot (each 22 x 44 m)	String	Letter: A to H for each of eight rows
column	Number column location for given nutrient plot inside a large herbivore exclusion plot (each 22 x 44 m)	Integer	Number:1 to 9 for each of 9 columns
PegColour	Colours painted in metal peg that signal a given nutrient plot on land	String	Text
latitude	Latitude WGS84, approximated location of the position of given nutrient plot	Floating point	Units: Decimal Degrees Precision: $1x10^{-7}$ Type: real
longitude	Longitude WGS84, approximated location of the position of given nutrient plot	Floating point	Units: Decimal Degrees Precision: $1x10^{-7}$ Type: real
collectorID	Name code of person responsible for collection and entry of data Link to table: NashKS_collectors.csv	String	Nominal Code name for person responsible of data

File name	NashKS_traits.csv
Description	**This table contains data on plant traits measured in nutrient plots**
Size	154KB
Case sensitive	No

Number or records	753 rows		
Number of attributes	24 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
record	Consecutive number for each plant traits was measuring	Integer	Min: 1
year	Year data was collected	Integer	Date YYYY format Min/Max 2023
plot.type	Type of each 44 x 22 m plot defined by its invertebrate exclusion treatment	String	Nominal Code included in table PLOTTYPE
plot	A letter given to each 44 x 22 m plot	Character	Nominal letters k, l, m, n, p, q, r, s
insecticide	Whether plot is treated for exclusion of insects or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal insects: no insecticide applied spray: insecticide applied
molluscicide	Whether plot is treated for exclusion of molluscs or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal molluscs: no molluscicide applied pellets: molluscicide applied
fencing	Whether plot is fenced for vertebrate exclusion treatment or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal fenced: enclosed inside a rabbit-proof fence rabbit: left unfenced
lime	Whether plot is treated with lime for soil pH management or not Link to table: NashKS_treatments, NashKS_plots	String	Nominal limed: treated for increasing pH unlimed: untreated
herbicide	Whether plot was treated with herbicide for the plant competition treatment Link to table: NashKS_treatments, NashKS_plots	String	Nominal min.herb: selective herbicide applied to remove herbs min.grass: selective herbicide applied to remove grasses control: no herbicide applied
nutrient	Name of fertilizer treatment applied to $2m^2$	String	Nominal Code included in table

	plots Link to table: NashKS_treatments, NashKS_plots		NUTTREAT
n	Whether nitrogen is applied to soil	String	Nominal n.yes: nitrogen applied n.no: nitrogen no applied
p	Whether phosphorus is applied to soil	String	Nominal p.yes: phosphorus applied p.no: phosphorus no applied
k	Whether potassium is applied to soil	String	Nominal k.yes: potassium applied k.no: potassium no applied
mg	Whether magnesium is applied to soil	String	Nominal mg.yes: magnesium applied mg.no: magnesium no applied
taxa	Code name for species found Link to table: NashKS_taxa	String	Code names, higher taxonomic and trait information given in table: NashKS_taxa
data.type	Code name that defines the type of data given for each species	String	plant_traits: for traits LDMS, SLA
leaves	Number of leaves used to estimate traits	Integer	Number
fresh_mass	Total weight of leaves measured soon after harvest but after about 0.8 cm^2 removed for palatability experiment	Floating point	Units: grams Precision: $1x10^{-3}$ Type: real
dry_mass	Total weight of leaves measured after drying in oven at 70ºC for 72 hours but after about 0.8 cm^2 removed for palatability experiment	Floating point	Units: grams Precision: $1x10^{-3}$ Type: real
area	Total area of leaves estimated from scanned leaves and using imageJ	Floating point	Units: square cm (cm^2) Precision: $1x10^{-3}$ Type: real
removed_area	Area of leave removed before weight measures	Floating point	Units: square cm (cm^2) Precision: $1x10^{-9}$ Type: real 0.785398163
LDMC	Leaf dry matter content estimated as leaf dry mass(g)/Leaf fresh mass (g)	Floating point	Units: grams over grams (gg^{-1}) Precision: $1x10^{-9}$ Type: real
SLA	Specific leaf area estimated as leaf surface area (cm^2) divided	Floating point	Units: square centimeters over grams (cm^2g^{-1}) Precision: $1x10^{-9}$

	leaf dry mass (g)		Type: real
collectorID	Name code of person responsible for collection and entry of data Link to table: NashKS_collectors.csv	String	Nominal Code name for person responsible of data

File name	NashKS_treatments.csv		
Description	**This table contains the explanation of treatment names in tables**		
Size	2KB		
Case sensitive	No		
Number or records	23 rows		
Number of attributes	3 columns		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
treatment.type	Code name of kind of treatment explained Link to all tables	String	Insecticide: Part of the invertebrate herbivore exclusion to exclude insects molluscicide: Part of the invertebrate herbivore exclusion to exclude mollucs fencing: Large vertebrate herbivore treatment lime: Soil pH treatment herbicide: Plant competition treatment nutrient: Mineral fertilization treatment
name	Name given to treatment explain in column treatment Link to all tables	String	Nominal Some codes included in table NUTTREAT
treatment	Brief explanation of treatment given	String	Text

File name	NashKS_taxa.csv & .txt		
Description	**Taxonomic information of plants found in Nash's Field experimetn. Follows NBN atlas names and classification https://nbnatlas.org/**		
Size	16KB		
Case sensitive	No		
Number or records	138		
Number of attributes	12		
Orientation	Variables (attributes) included as columns		
Data table structure and attribute description			
Attribute name	Definition	Type	Attribute description
site	Silwood Park experiment	String	Nominal NashKS
taxa	Code name for species Link to tables:	String	Code names is species Scientific binomial name

	NashKS_cover, NashKS_Biomass, NashKS_traits NashKS_biomass_total		separated by an underscore. Bare: Ground without vegetation Dom: dead organic matter Total: all species combined Sp_XXX: for unknown species
common_name	One common name for the species in England (NBN atlas)	String	Text
kingdom	Taxonomic kingdom the species belongs to	String	Text Plantae NA for
division	Taxonomic (plant) division the species belongs to	String	Text
family	Taxonomic family the species belongs to	String	Text
genus	Taxonomic genus the species belongs to	String	Text
species	Taxonomic species the species belongs to	String	Text
variety	Taxonomic subspecies classification	String	Text
lifeform	Lifeform group the plant belongs too	String	Text Herb, Shrub, Tree,
lifespan	Whether the plant species is an annual, biennial or perennial	String	Text Perennial, Annual, Biennial
provenance	Whether species is native or introduced to the United Kingdom	String	Text Native, Introduced
Notes	Field notes	String	Text including synonyms used in raw data and meaning of unknown and other categories

Data anomalies	-The fern bracken (*Pteridium*) covered part of plot S in 2012 and thus cover surveys were not done in all treatments. -For any given plant species, bare soil, dead organic matter or bryophytes with a percentage of cover lower than 1% a qualitative score of "+", "++", or "+++" is recorded. In the data table "+" was converted to 0.01% and "++" to 0.1% in years 2000, 2001 and 2004, and "+" was converted to 0.1%, "++" to 0.2% and "+++" to 0.3% for cover data in years 2005, 2006, 2008 and 2012 - From original biomass data in 2006: data of species "Agrotis" was added to agrotis.capilaris. Data of species "Cerastium" was added to cerastium.fontanum. Data of species "Stellaria" was added to

	stellaria.graminea. - There is not information about three unknown species found in one survey - The species "Primus" was reported in 2000, only in one 2x2m subplot of plot m. This plant does not exist and Mick Crawley thinks it might be a spelling mistake for Prunus. In file NashKS_cover the species was changed to "prunus.sp". Data2018. Mick Crawley only checked the identification of specimens brought to the lab by collectors. The dry biomass of 2 plots is unknown as two bags were labelled as PK for Plot L, limed and herbicide. We could not find out which is for nutrients PK and which for NPK. The weight for these plots was 102.75 and 106.99 g Cover data 2019. Cover for Rubus fructicosus in 2019 survey was added to column Robus sp.

Supplemental descriptors	
Affiliations	EPJ soil (https://ejpsoil.eu/) and Ecological Continuity Trust (https://www.ecologicalcontinuitytrust.org/)
Web page	https://www.imperial.ac.uk/silwood-park/research/silwood-lte/nashk-s/
Publications	21
Order	By year of publication
	Edwards GR, Crawley MJ (1999) Herbivores, seed banks and seedling recruitment in mesic grassland. Journal of Ecology 87: 423–435. Doi:10.1046/j.1365-2745.1999.00363.x Keywords: herbivory, seedling emergence, seed rain
	Edwards GR, Crawley MJ, Heard MS (1999) Factors influencing molehill distribution in grassland: Implications for controlling the damage caused by molehills. Journal of Applied Ecology 36: 434–442. Doi:10.1046/j.1365-2664.1999.00411.x Keywords: earthworm, grazing, mole, plant removal, soil pH
	Edwards GR, Bourdôt GW, Crawley MJ (2000) Influence of herbivory, competition and soil fertility on the abundance of *Cirsium arvense* in acid grassland. Journal of Applied Ecology 37: 321–334. Doi:10.1046/j.1365-2664.2000.00495.x Keywords: creeping thistle, rabbit grazing, seedling, shoot, weed management
	Rees M, Condit R, Crawley M, Pacala S, Tilman D (2001) Long-term studies of vegetation dynamics. Science 293: 650–655. http://dx.doi.org/10.1126/science.1062586 Keywords: annual plants, grasslands, succession, tropical and temperate forest
	Crawley MJ (2005) Silwood Park and its history. In: Crawley MJ, ed. The Flora of Berkshire. Harpenden, Hertfordshire, UK: Brambleby Books, 215–253.
	Del-Val E, Crawley MJ (2005) What limits herb biomass in grasslands: competition or herbivory? Oecologia 142: 202–211. Doi: 10.1007/s00442-004-1719-8 Keywords: competitor release, insects, molluscs, rabbits
	Allan E, Crawley MJ (2011) Contrasting effects of insect and molluscan herbivores on plant diversity in a long-term field experiment. Ecology Letters,

	14: 1246–1253. Doi:10.1111/j.1461-0248.2011.01694.x Keywords: Biodiversity, coexistence, herbivory, insect herbivores, long-term experiments, molluscs
	Fornara DA, Banin L, Crawley MJ (2013) Multi-nutrient vs. nitrogen-only effects on carbon sequestration in grassland soils. Global Change Biology 19: 3848–3857. doi:10.1111/gcb.12323/suppinfo Keywords: ecosystem services, grasslands, nitrogen fertilization, nitrogen losses, nutrient addition, plant productivity, root mass
	Macdonald CA, Crawley MJ, Wright DJ, Kuczynski J, Robinson L, Knight R, Al-Soud WA, Sørensen SJ, Deng Y, Zhou J, Singh B (2015) Identifying qualitative effects of different grazing types on below-ground communities and function in a long-term field experiment. Environmental Microbiology 17: 841–854. Doi: 10.1111/1462-2920.12539 Keywords: soil nutrients, ecosystem function, insect herbivores, vertebrates herbivores, microbial community
	Cenini VL, Fornara DA, McMullan G, Ternan N, Lajtha K, Crawley MJ (2015) Chronic nitrogen fertilization and carbon sequestration in grassland soils: evidence of a microbial enzyme link. Biogeochemistry 126: 301. doi:10.1007/s10533-015-0157-5 Keywords: Extracellular enzyme activity, beta-1,4-glucosidase, fertilization, liming soil carbon sequestration, root C:N ratio
	Cenini VL, Fornara DA, McMullan G, Ternan N, Carolan R, Crawley MJ, Clement J-C, Lavorel S (2016) Linkages between extracellular enzyme activities and the carbon and nitrogen content of grassland soils. Soil Biology and Biochemistry 96: 198-206. doi:10.1016/j.soilbio.2016.02.015 Keywords: land use, nutrient fertilization, lime, pH, β-1,4-glucosidase, extracellular enzymes
	Mombrikotb SB (2016) The contribution of environmental selection on microbial community structure, function and biogeography. Imperial College London, PhD dissertation. 163 p
	Heyburn J, McKenzie P, Crawley MJ, Fornara DA (2017) Long-term belowground effects of grassland management: the key role of liming. Ecological Applications 27: 2001-2012. Doi: 10.1002/eap.1585 Keywords: carbon sequestration; ecosystem services; grassland management; grazing; nitrogen cycling;nutrient fertilization; soil pH.
	Heyburn J, Mckenzie P, Crawley MJ, Fornara DA (2017) Effects of grassland management on plant C:N:P stoichiometry: implications for soil element cycling and storage. Ecosphere 8(10) e01963
	Egan G, Crawley MJ, Fornara DA (2018) Effects of long-term grassland management on the carbon and nitrogen pools of different soil aggregate fractions. Science of the Total Environment, 613: 810-819. Doi: 10.1016/j.scitotenv.2017.09.165 Keywords: Soil aggregates, CO2 efflux, C sequestration, liming, grazing, inorganic nutrient treatment
	Egan G, Zhou X, Wang D, Jia Z, Crawley MJ, Fornara D (2018) Long-term effects of grassland management on soil microbial abundance: implications for soil carbon and nitrogen storage. Biochemistry, 141: 213-228. Doi: 10.1007/s10533-018-0515-1 Keywords: Agricultural liming, bacteria. Fungi, grazing, nitrogen fertilisation, soil carbon sequestration

	Guignard MS, Crawley MJ, Kovalenko D, Nichols RA, Trimmer M, Leitch AR, Leitch IJ (2019) Interactions between plant genome size, nutrients and herbivory by rabbits, molluscs and insects on a temperate grassland. Proceedings of the Royal Society b-Biological Sciences, Vol: 286. Doi: 10.1098/rspb.2018.2619 Keywords: genome size, herbivory, plant community ecology, competition, nitrogen, grassland. experiment
	Leverkus AB, Crawley MJ (2020) Temporal variation in effect sizes in a long-term, split-plot field experiment. Ecology. Doi: 10.1002/ecy.3009 Keywords: grassland, pulse experiment, press experiment, split-plot design, intraspecific competition, herbivory, long-term experiment, temporal variation
	Thornley R, Gerard FF, White K, Verhoef A (2022) Intra-annual taxonomic and phenological drivers of spectral variance in grasslands. Remote Sensing of Environment, 271. Doi: 10.1016/j.rse.2022.112908 Keywords: Solar-induced fluorescence, Stochastic radiative transfer, pest damage, whithin-canopy heterogeity
	Mombrikotb SB, Agtmaal MV, Johnstone E, Crawley MJ, Gweon HS, Griffiths RI, Bell T (2022) The interactions and hierarchical effects of long-term agricultural stressors on soil bacterial communities. Environmental Microbiology Reports 14: 711-18. https://doi.org/10.1111/1758-2229.13106
	Smith TP, Mombrikotb SB, Ransome E, Kontopoulos DG, Pawar S, Bell T (2022) Latent functional diversity may accelerate microbial community responses to temperature fluctuations. eLife: 11: e80867. https://doi.org/10.7554/eLife.80867
How to cite dataset	Crawley, M, Estrada Montes C (2024). Nash's Field grassland experiment Silwood Park, UK [Data set]. Zenodo. https://doi.org/10.5281/zenodo.13345224
How to acknowledge dataset	Department of Life Sciences, Imperial College London.
Additional information	Map (NashKS_maps.pdf), thesis on experiment (SilwoodFields_thesis.xlsx) are available online since 2016 in ICL library.