

Reconstructing the agricultural landscape of the South Downs, England: an examination of the 1940 and 1941 World War II plough-up campaigns

Nigel Walford

*Centre for Earth and Environmental Science Research
School of Geography, Geology and the Environment*



Structure

- Aim and context
- Data Sources and Methods
- Results
- Conclusions



Research Aim

- **Aims**

- *Investigate if conditions of farms at start of WW II influenced postwar development trajectory (restructuring, amalgamation and specialisation)*
- *Explore the practicalities of capturing and integrating data records from different sources for a statistical population of agricultural holdings within a GIS framework*

- **Research questions**

- *What factors led some farmers to survive and thrive in the post WWII decades, and other decline or exit the industry?*
- *Current focus on parishes spread across the South Downs in East and West Sussex?*

- **Why South Downs**

- *Landscape unit in context of lowland Britain recently designated a National Park*
- *Significant agricultural and landscape change during 20th century*
- *Consistent and fairly complete NFS data (Short & Watkins, 1994)*
- *Author's previous research with farmers in this area and larger south-east region*



Context

- Economic, political, social and technological dimensions of agricultural change in 20th century
- Decline in UK agriculture late 19th/early 20th centuries (overseas competition and cheap prices)
- World Wars described as 'forcing house' of change
 - WW I: minimum wheat price set in 1916, County War Agriculture Executive Committees created and plough-up started
- Post WW I reversion to laissez faire - disinvestment through 1920s and 1930s, marginal agricultural land abandoned
- Marketing boards mid-1930s in recognition of poor state of parts of the industry
- Late 1930s government sought information about state of agriculture – trial (pilot) farm survey early 1940



Context

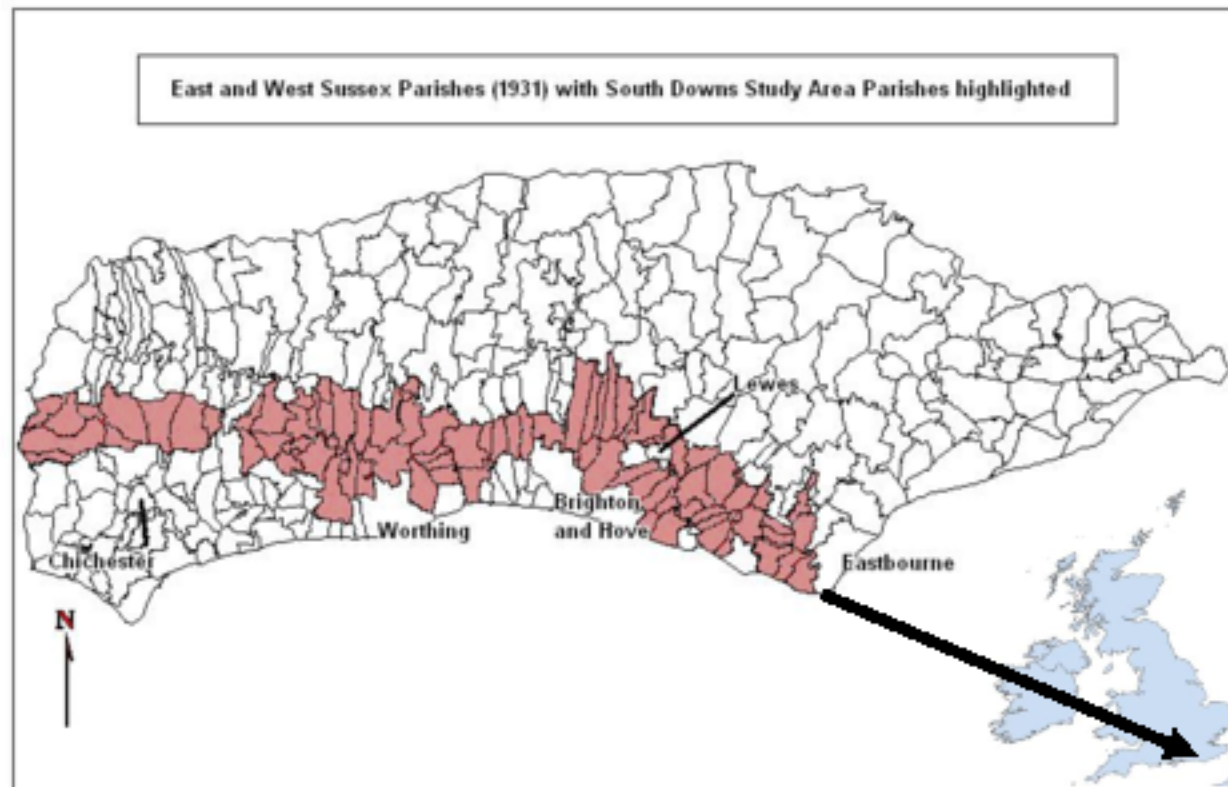
- National Farm Survey (NFS) 1941 to 1943
 - CWAECs tasked with carrying out the National Farm Survey
 - Became available under 50 year rule in 1993
 - Unique, although not unproblematic, source of individual farm level data including an assessment of farmers' managerial ability
- Pressure on land around cities and towns associated with urban expansion and ribbon development
 - Lack of consistent, national information about land use



Context – WW II Plough-up

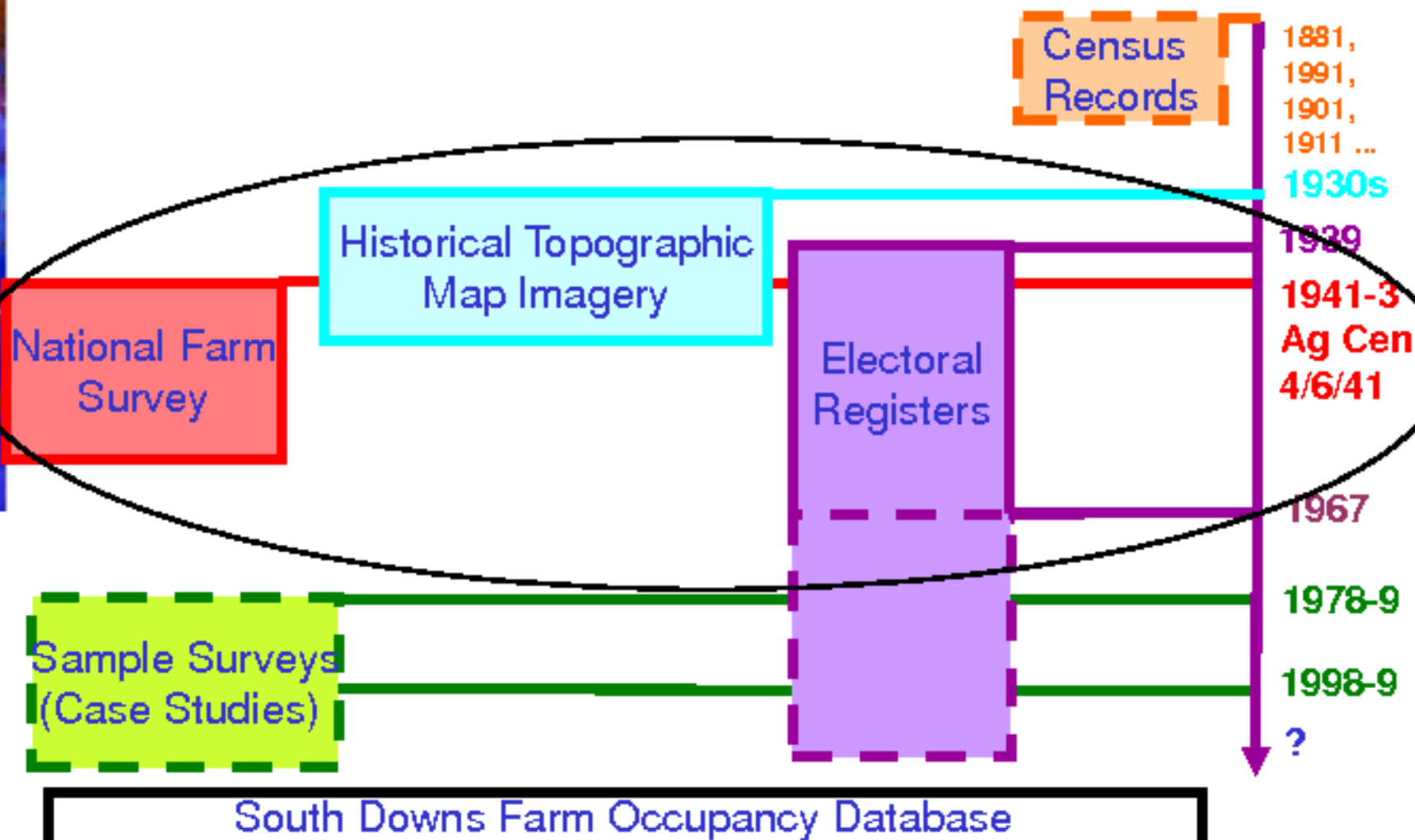
- Under the Defence Regulations CWAECs given extensive powers to “take possession of land, requisition property, enter upon and inspect land, control the use of agricultural land and direct the cultivation of agricultural land.” (Short et al. 2000, p3).
- April 1939 - proposal to pay £2 per acre (0.405 ha) to farmers who ploughed up grassland and replaced it with wheat, oats, barely, rye, mixed corn or potatoes.
- 1940, 1942 and 1942 plough-up campaigns nationally added 1.72, 0.61 and 0.46 million hectares to the area of tilled land.

South Downs Parishes



- Images from Ouse Valley south of Lewes

Data Sources

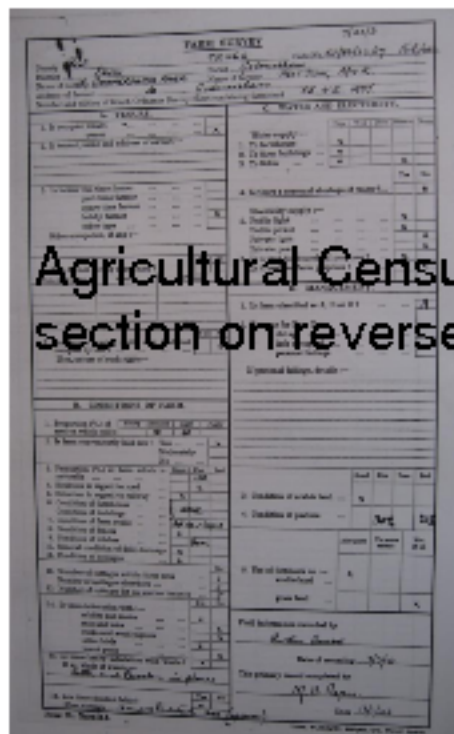




National Farm Survey

- Collection of documents at The National Archives, Kew includes 3 main parts:
 1. Original Agricultural Census forms for 4 June 1941 including supplementary surveys
 2. NFS Primary Record undertaken by CWAEC surveyors
 3. Ordnance Survey maps (1:10,000 or 1:10,560) annotated with farm boundaries, ID numbers and other details
- Parts 1 and 2 organised by parish; part 3 by OS map sheet and county
- Linkage possible by ID number (e.g. XW/303/060/006)

Examples of NFS Materials



FAIR REVIEW

NAME: *John Smith*

Address: *123 Main St, London, UK*

Occupation: *Farmer*

Year: *1950*

1. General information

2. Land

3. Buildings

4. Livestock

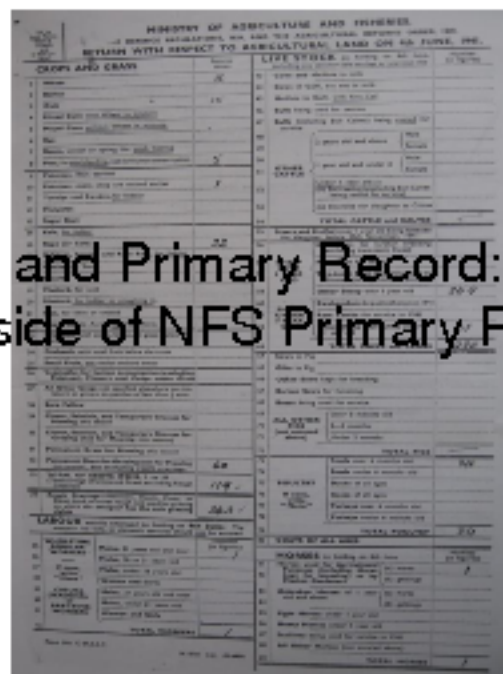
5. Crops

6. Machinery

7. Other

8. Summary

9. Remarks



INVENTORY OF AGRICULTURE AND TRIVIAL RETURNS WITH RESPECT TO AGRICULTURAL LAND ON 30 JUNE 1950

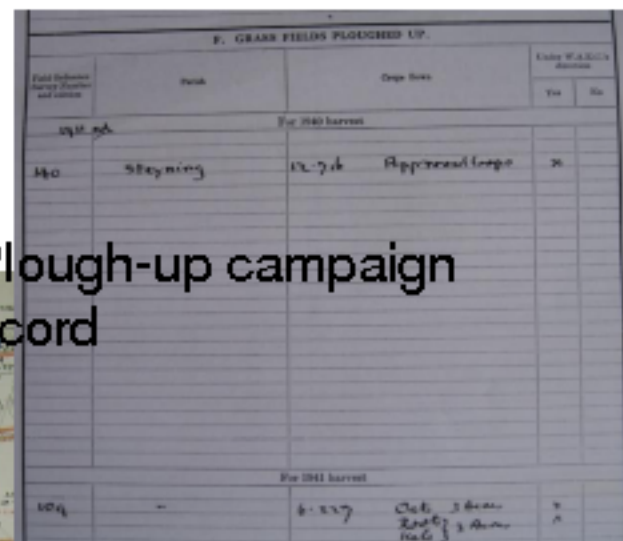
1. CROPS AND GRASS

2. LIVE STOCK

3. MACHINERY

4. OTHER

5. SUMMARY



F. GRASS FIELDS PLOUGHED UP

Field Number	Area	Depth	Year
140	Steering	12.7d	Approx. 1940
104		6.577	Oct. 1940 Early 1941

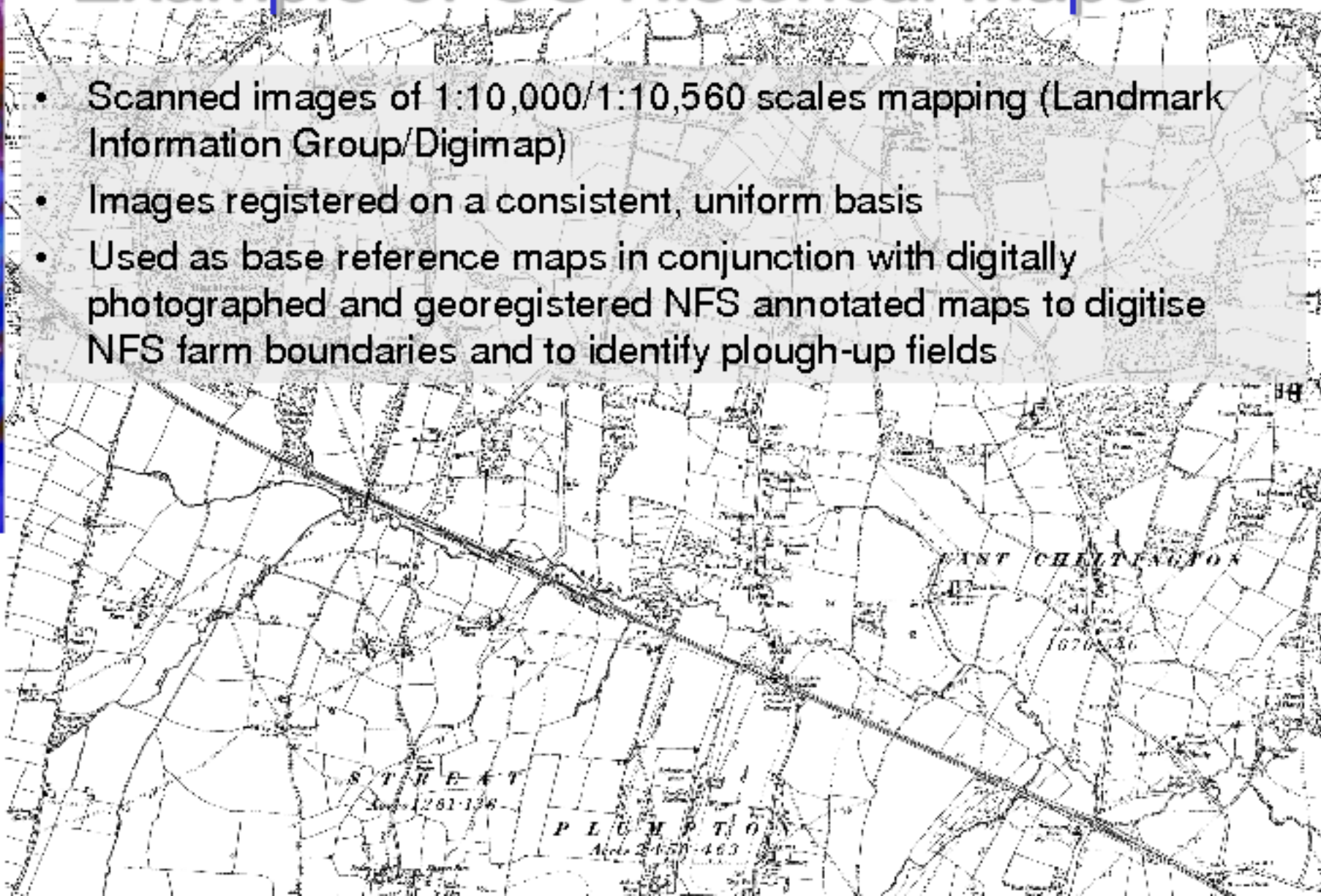
Agricultural Census and Primary Record: Plough-up campaign section on reverse side of NFS Primary Record

Photographed OS map used in NFS showing farm boundary and identification annotation (part of Plumpton and West Chilmington parishes)



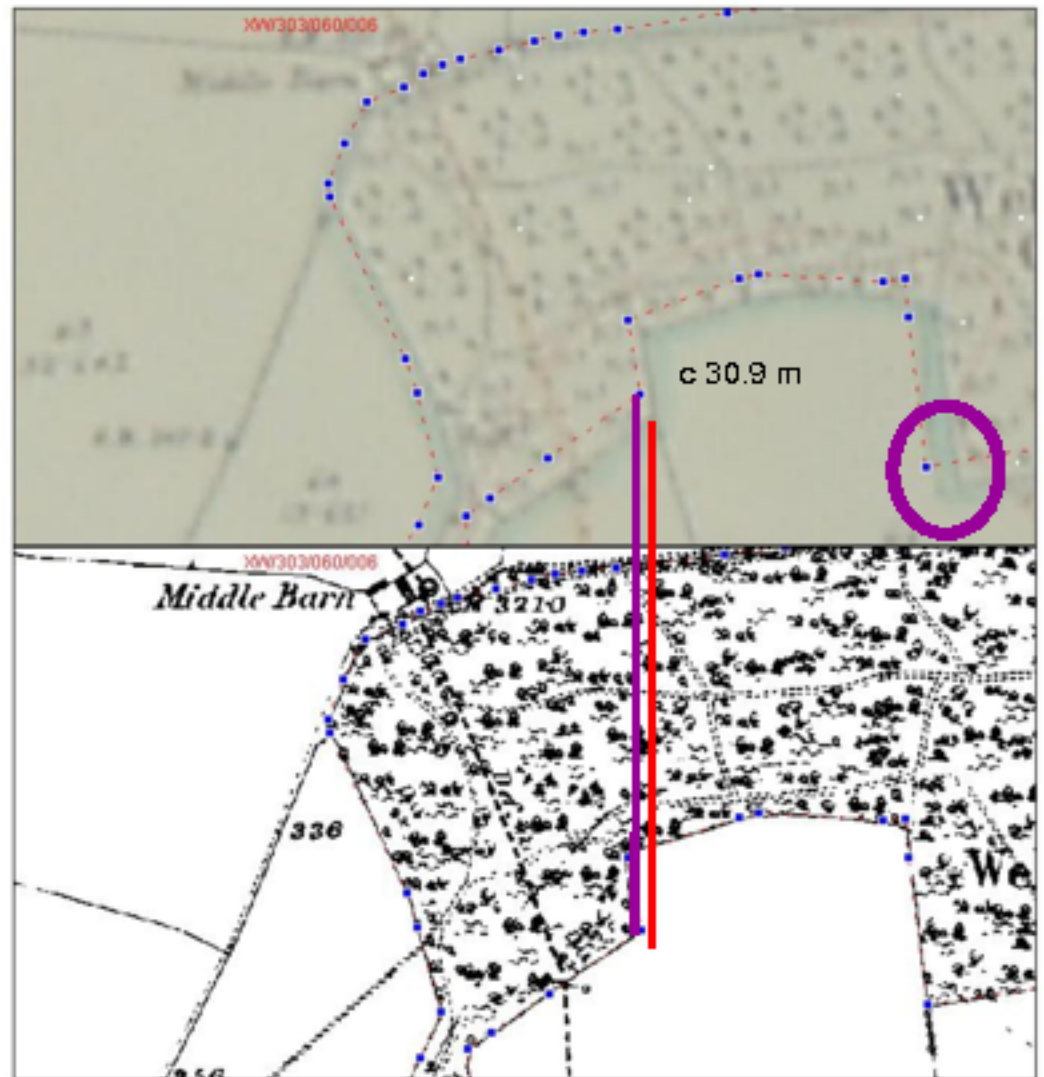
Example of OS Historical Maps

- Scanned images of 1:10,000/1:10,560 scales mapping (Landmark Information Group/Digimap)
- Images registered on a consistent, uniform basis
- Used as base reference maps in conjunction with digitally photographed and georegistered NFS annotated maps to digitise NFS farm boundaries and to identify plough-up fields



But ... it's not all plain sailing!

- Digitising of farm and field boundaries
 - Geo-registration differences between NFS digitally photographed maps and OS historical maps.
- Standardised to **OS base maps**.





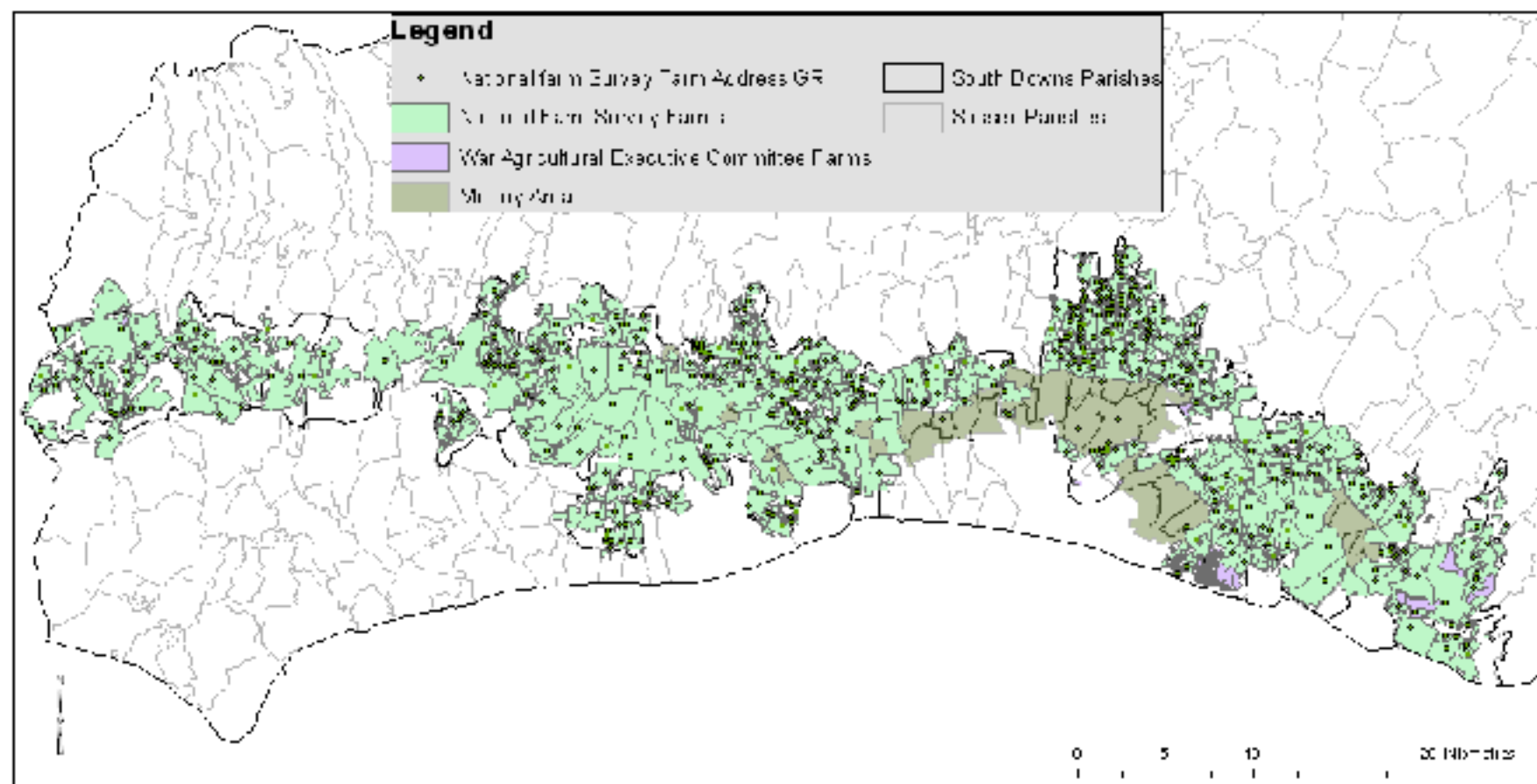
Data Capture Issues

- Attributes captured from Primary and Agricultural Census Records
 - One or more parts of NFS missing
 - NFS farmers occupying/managing > 1 farm
 - NFS farms without point grid references for their address (usually small farms)
 - NFS farms with point grid reference, but no farm polygon (in military area)
 - Land in parish attributed to NFS farmer with address outside study area
 - NFS farmers and/or farms absent from the electoral registers in 1939, 1946 and other years
 - NFS records for East Sussex omit plough land area, field area used as a estimate

Records Captured

NFS farms with point grid references and map polygons	514 (89%)
Farmers on > 1 holding (multiple extent farms))	102 (18%)
Farmers and/or farms absent from 1939/40 electoral register	70 (12%)
Farms with point grid references and map polygon (in military area)	9 (2%)
NFS farms with point grid references, but no map polygon	6 (1%)
NFS farm with map polygon, but no attribute data	1 (0.2%)
Sub-total	521 (90%)
Statistical population of NFS farmers and farms	
NFS farms in parishes without point grid references for address (usually small farms) or map polygons	55 (10%)
Total NFS farmers/farms in study area parishes with or without point grid references and/or with or without map polygons	576 (100%)

Types of NFS Farm captured



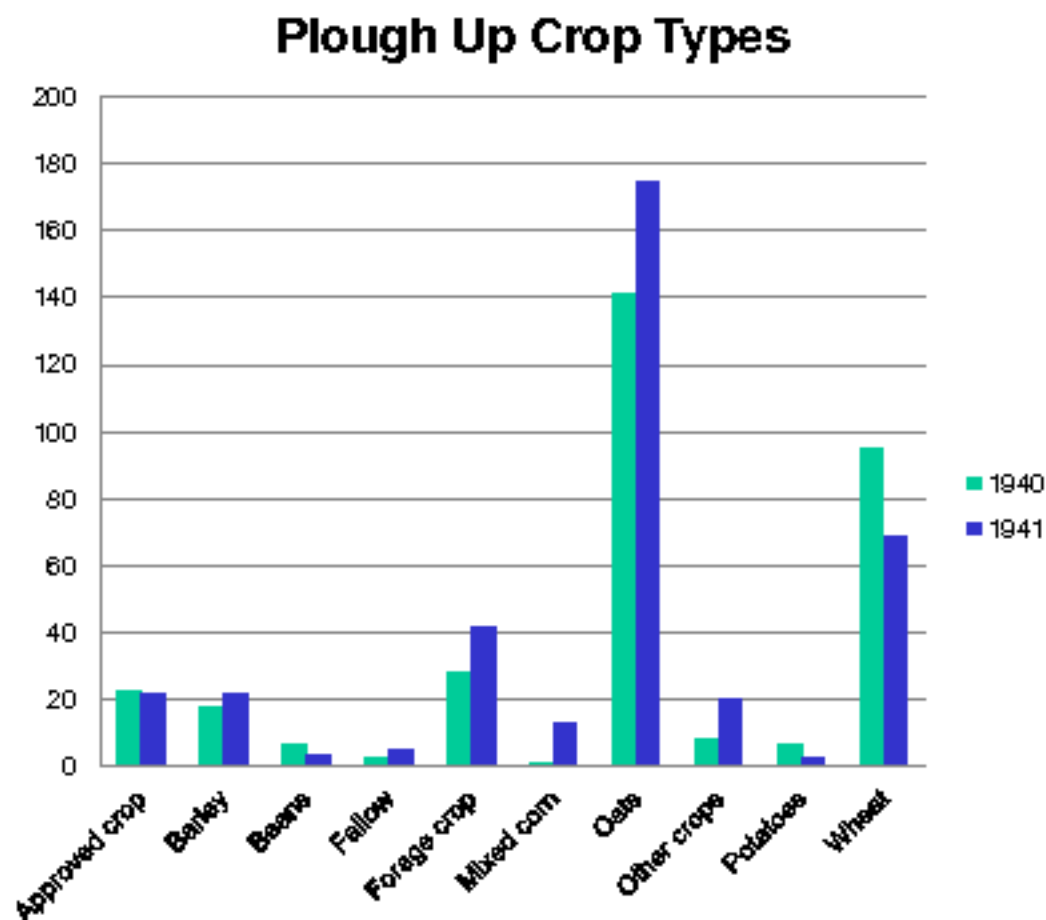
Results

- Results relate to 520 NFS farms with polygons and grid references
- Farms and land in 1940 and 1941 plough up campaigns
- Lower percentage in East Sussex

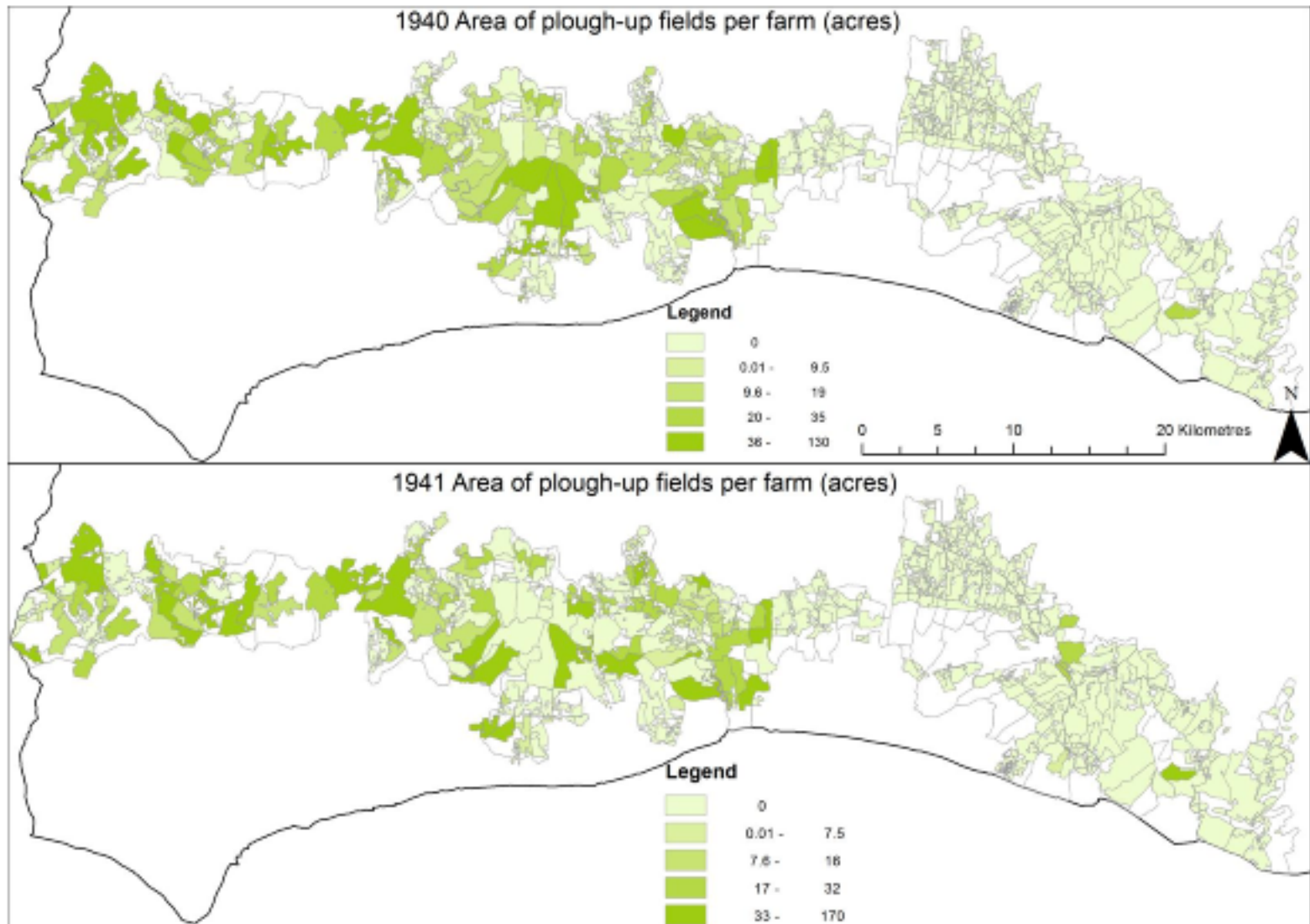
	1940	1941	1940 & 1941	
N of farms	172 (33%)	177 (34%)	110 (21%)	
			1940	1941
N of fields	292	336	39	
Mean PU area (acres)	26.2	26.0	28.7	32.6
Percent of farmed area	12.8	12.8	11.9	10.7

Fields and crops - 1940 and 1941

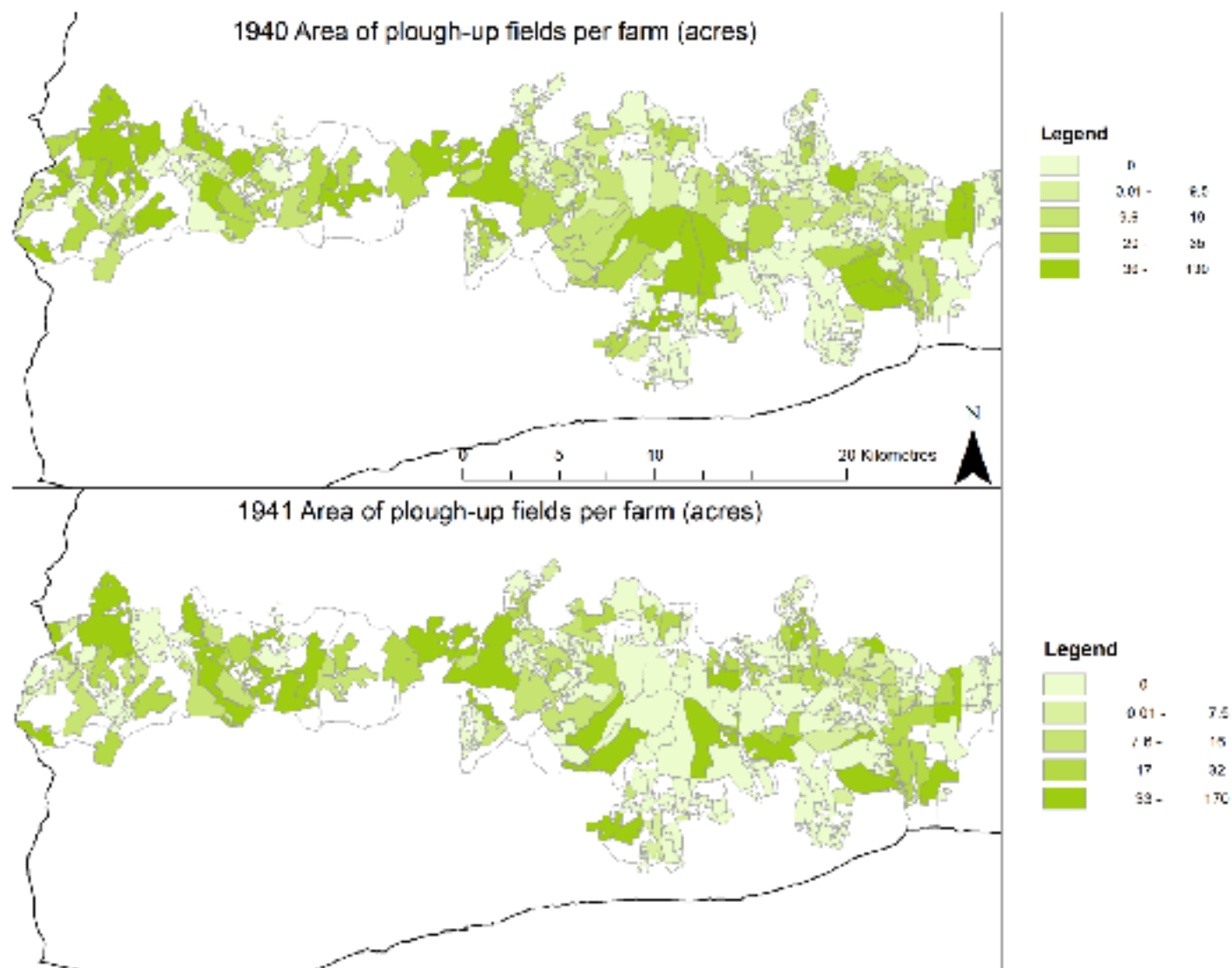
- Barley, oats and wheat dominate both years
- Unspecified 'Approved crop' likely to be cereals
- Forage crops also evident



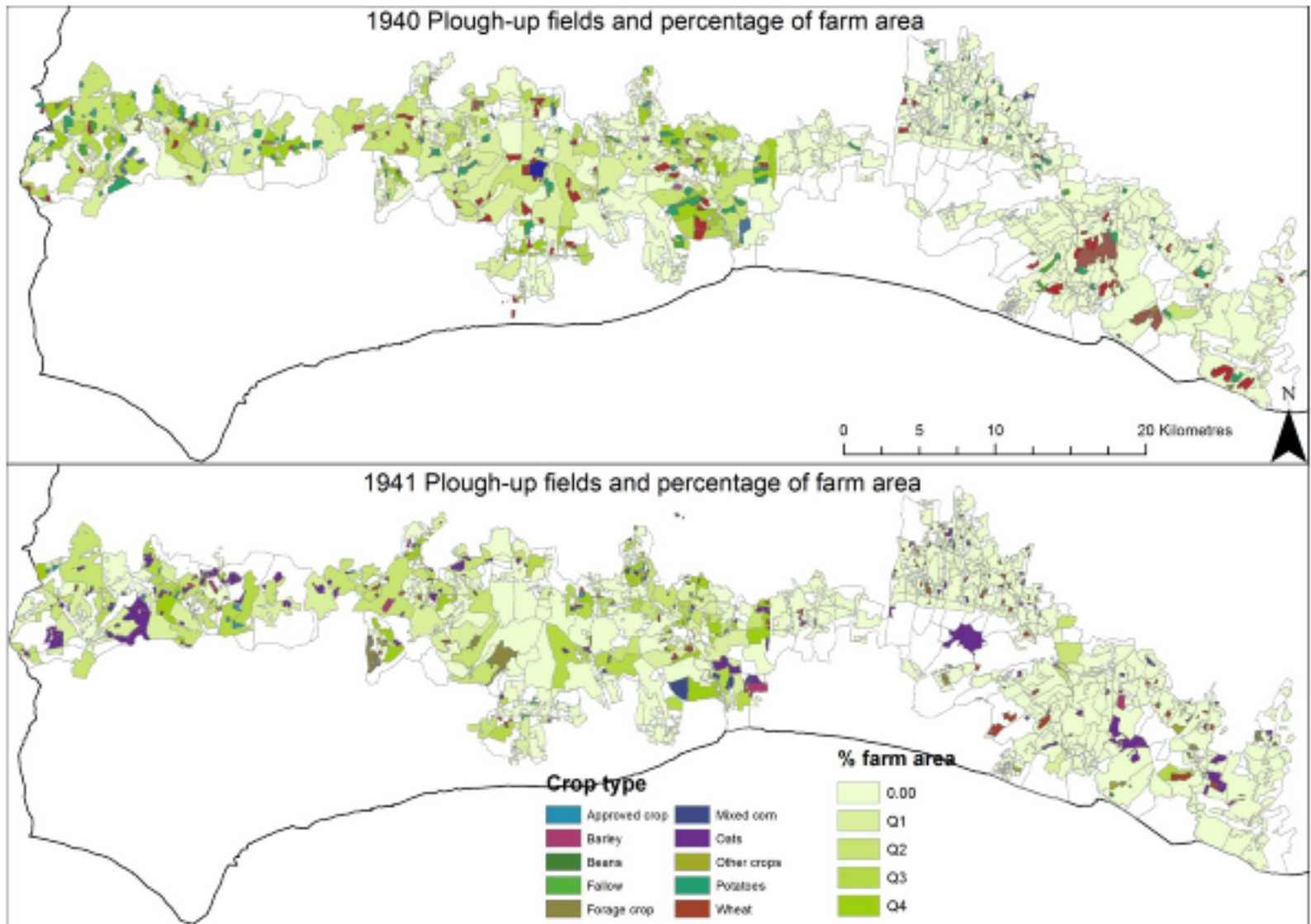
Area of Plough-up Land 1940 and 1941



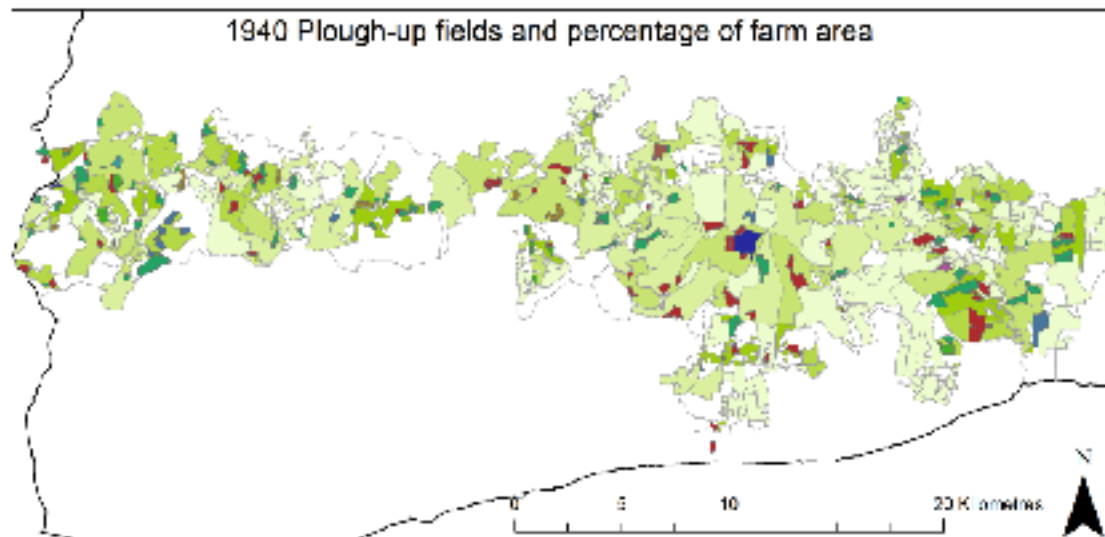
West Sussex: 1940 and 1941 Plough-up Land Area



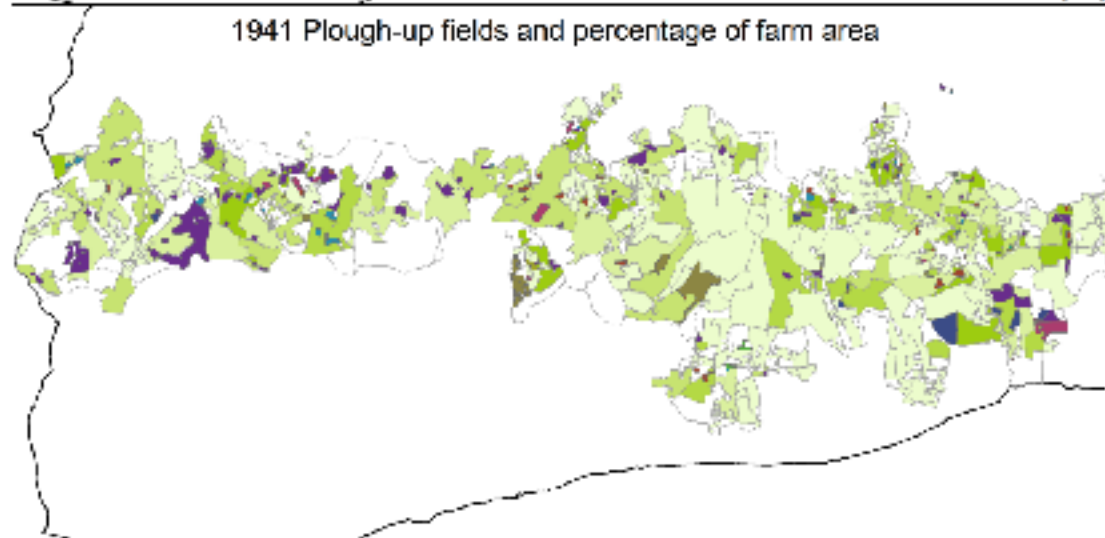
Plough-up Campaigns 1940 and 1941



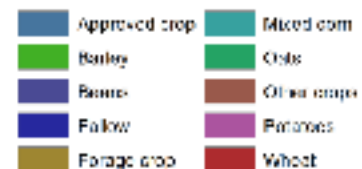
West Sussex: 1940 and 1941 Plough-up Campaigns



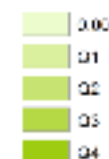
Legend



Legend



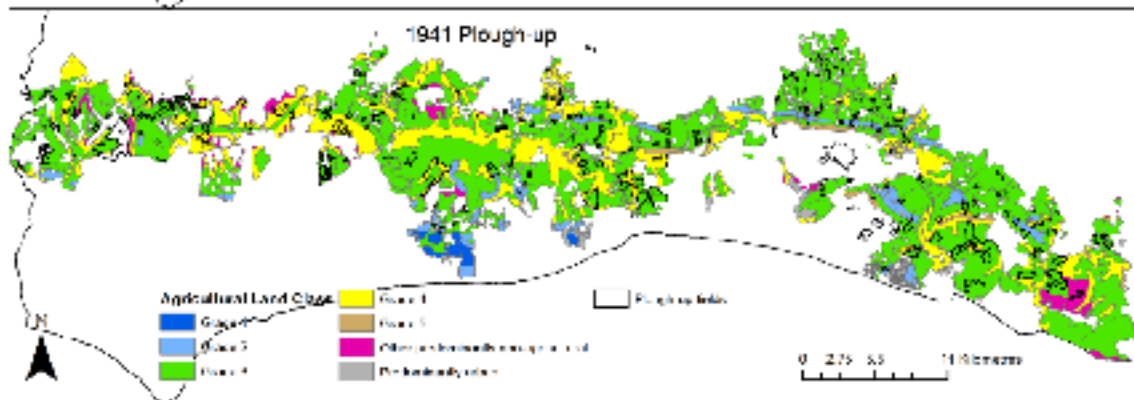
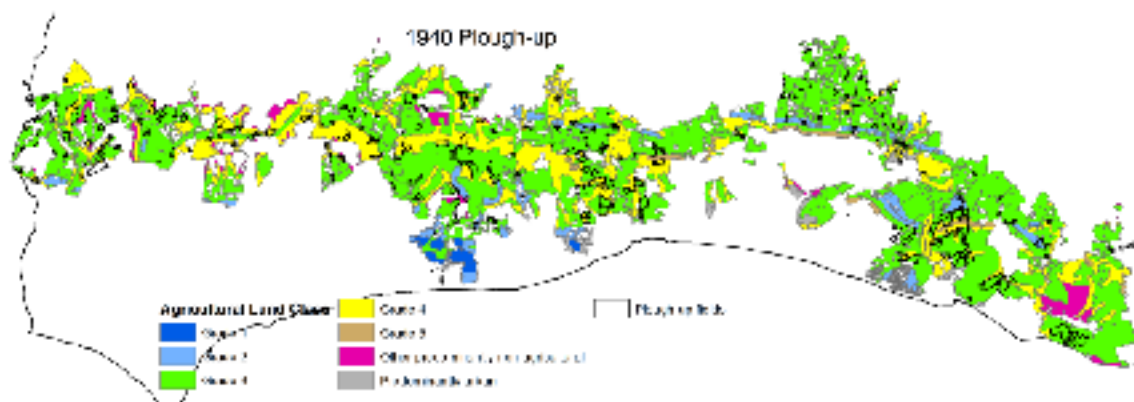
Legend



Agricultural Land Class

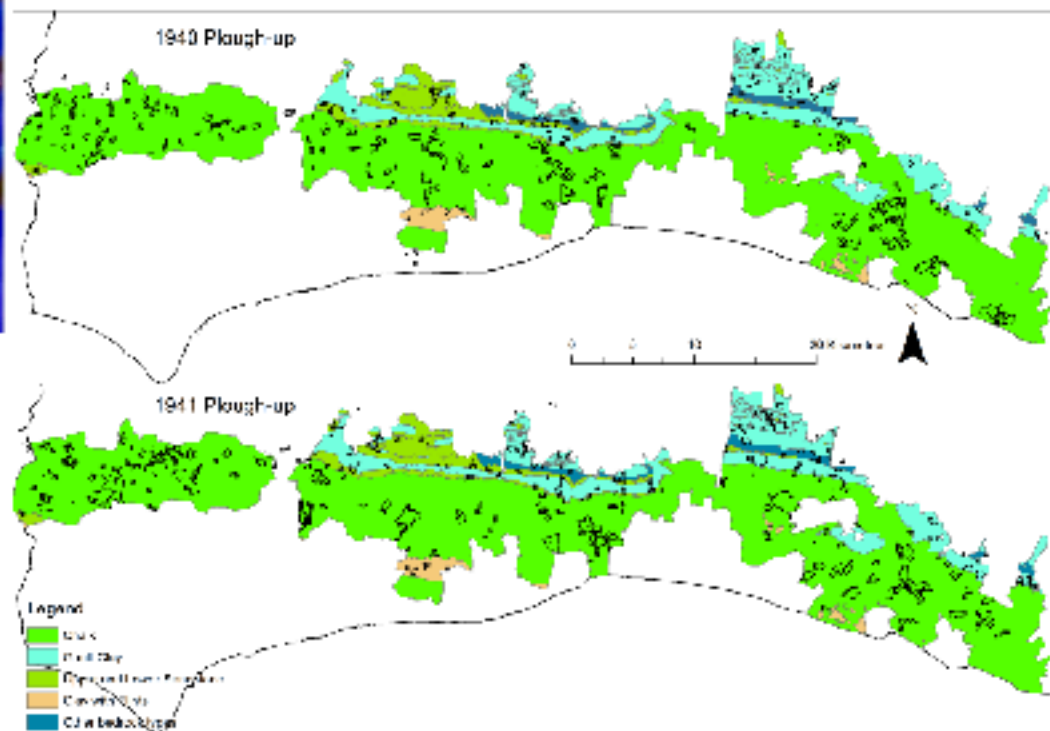
- Plough-up preferentially on poorer quality land (4 and 5) land with respect to South Downs parishes and NFS farms

Agric Land Class	South parishes	South Downs farms	1940 & 1941 Plough up
1	501.4 (0.8%)	550.9 (1.0%)	
2	2,487.3 (3.9%)	2,714.9 (5.1%)	211.4 (2.5%)
3	37,890.7 (59.1%)	33,901.9 (63.9%)	5,481.8 (63.6%)
4	14,299.8 (22.3%)	12,456.3 (23.5%)	2,300.8 (26.7%)
5	914.1 (1.4%)	661.3 (1.2%)	534.7 (6.2%)
Other	6,323.1 (9.3%)	1,813.4 (3.4%)	37.3 (0.4%)
Urban	1,669.1 (2.6%)	933.5 (1.8%)	34.8 (0.4%)
Total	64,085.5	53,032.2	8,617.5



Bedrock Geology

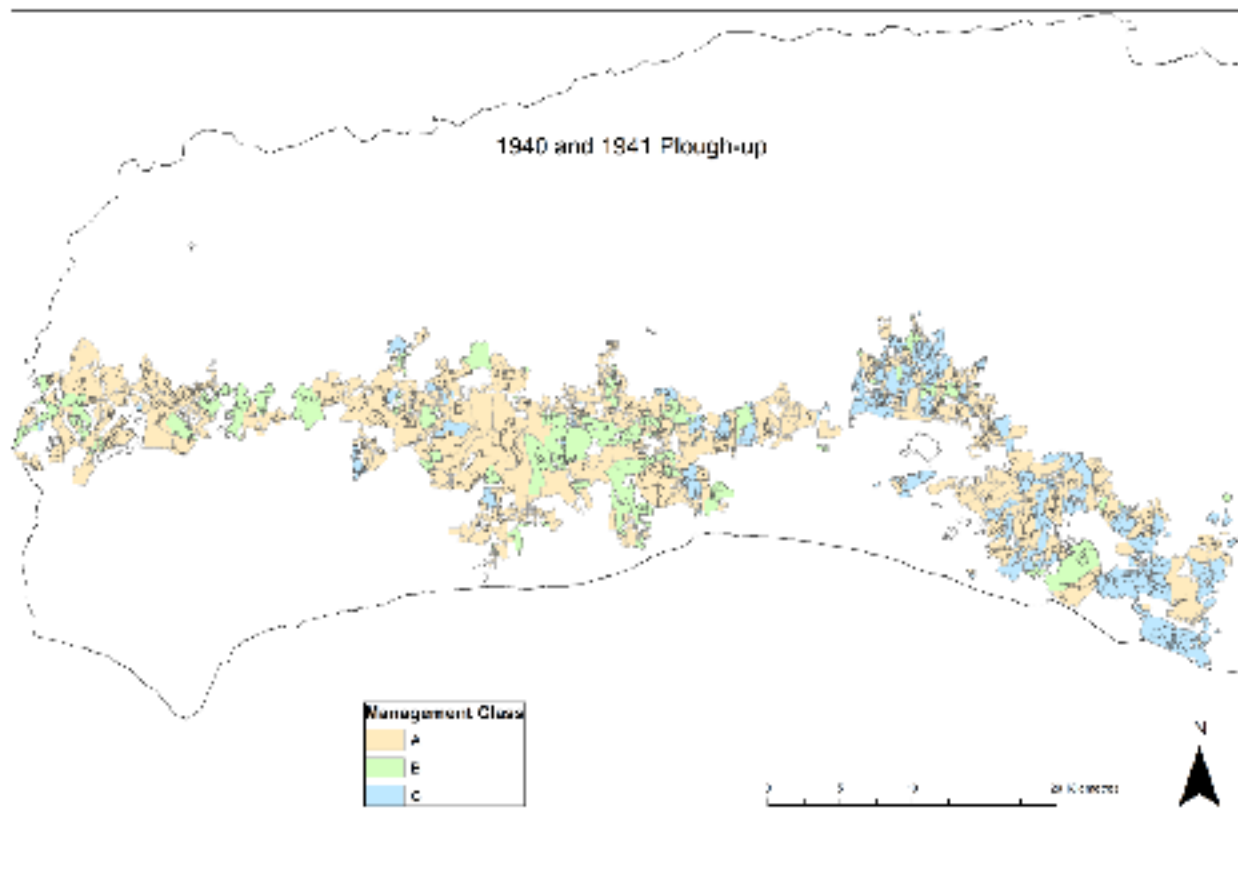
- Plough-up preferentially on Chalk with less on Sandstone and Clay with respect to South Downs parishes and NFS farms



Bedrock	South parishes	South Downs farms	1940 & 1941 Plough up
Chalk	47,988.2 (74.6%)	32,301.7 (70.4%)	7,101.7 (82.2%)
Mudstone and Gault Clay	10,026.1 (15.6%)	8,535.4 (18.6%)	836.2 (9.7%)
Upper and Lower Greensand	13,025.0 (5.1%)	3,462.5 (7.6%)	399.1 (4.6%)
Clay with flints*	1,184.4 (1.8%)	681.3 (1.5%)	44.8 (1.3%)
Other bedrock types	1,836.9 (2.9%)	875.1 (1.9%)	196.9 (2.8%)
Total	64,311.6	45,856.1	

NFS Management Class

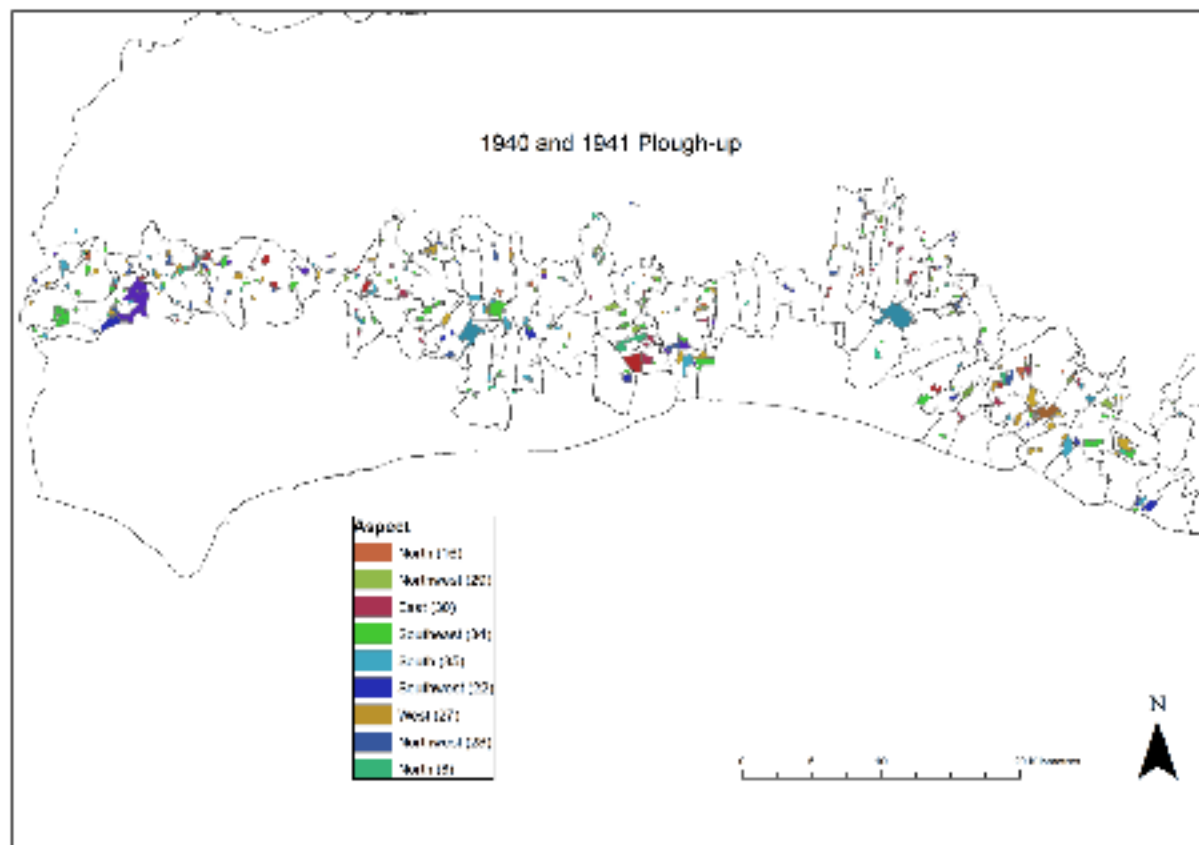
- Plough-up preferentially on Class A and to some extent B farms with respect to NFS farms on South Downs parishes



NFS Mgt Class	South Downs farms	1940 & 1941 Plough up
A	24,491.0 (61.9%)	1,616.8 (73.5%)
B	7,592.4 (19.2%)	478.5 (21.7%)
C	7,460.4 (18.9%)	105.7 (4.8%)
Total	39,543.8	2,201.0

Aspect

- TIN created from OS spot height data
- Plough-up preferentially on South and South-West, and to some extent on North-East and West facing slopes with respect to South Downs NFS farms



Aspect	South Downs farms	1940 & 1941 Plough up
N	1,044.6 (3.3%)	152.7 (3.8%)
NE	3,604.4 (11.2%)	279.3 (7.0%)
E	4,137.8 (12.9%)	467.5 (11.7%)
SE	5,464.8 (17.0%)	718.4 (17.9%)
S	3,365.9 (10.5%)	834.5 (20.8%)
SW	6,165.0 (19.2%)	384.3 (9.6%)
W	2,947.1 (9.2%)	497.1 (12.4%)
NW	3,644.8 (11.3%)	486.3 (12.1%)
N	1,684.9 (5.2%)	192.0 (4.8%)
Total	32,059.3	4,012.0



Conclusions

- Data record linkage feasible, but complexities and gaps in records remain.
- Variation in data means results for East Sussex less rich than for West Sussex.
- Plough-up campaigns dominated by certain crops individually or in combination
- NFS farms' management class (A, B or C (the latter indicating failure)) suggests few of the failing farms were involved in the plough-up.
- Up to four different crop types were planted in some fields (e.g. barley, oats, dredge corn and potatoes; and mangolds, kale, potatoes and swedes).
- Evidence of plough-up occurring preferentially under certain physical conditions.
- Whether participation in plough-up campaigns acted as a stimulus to continuity of occupation remains to be discovered.



Acknowledgements

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 - British Academy for research entitled: *An assessment of archival sources for monitoring the occupancy of agricultural land in South-East England* (Ref. SG-31506)
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