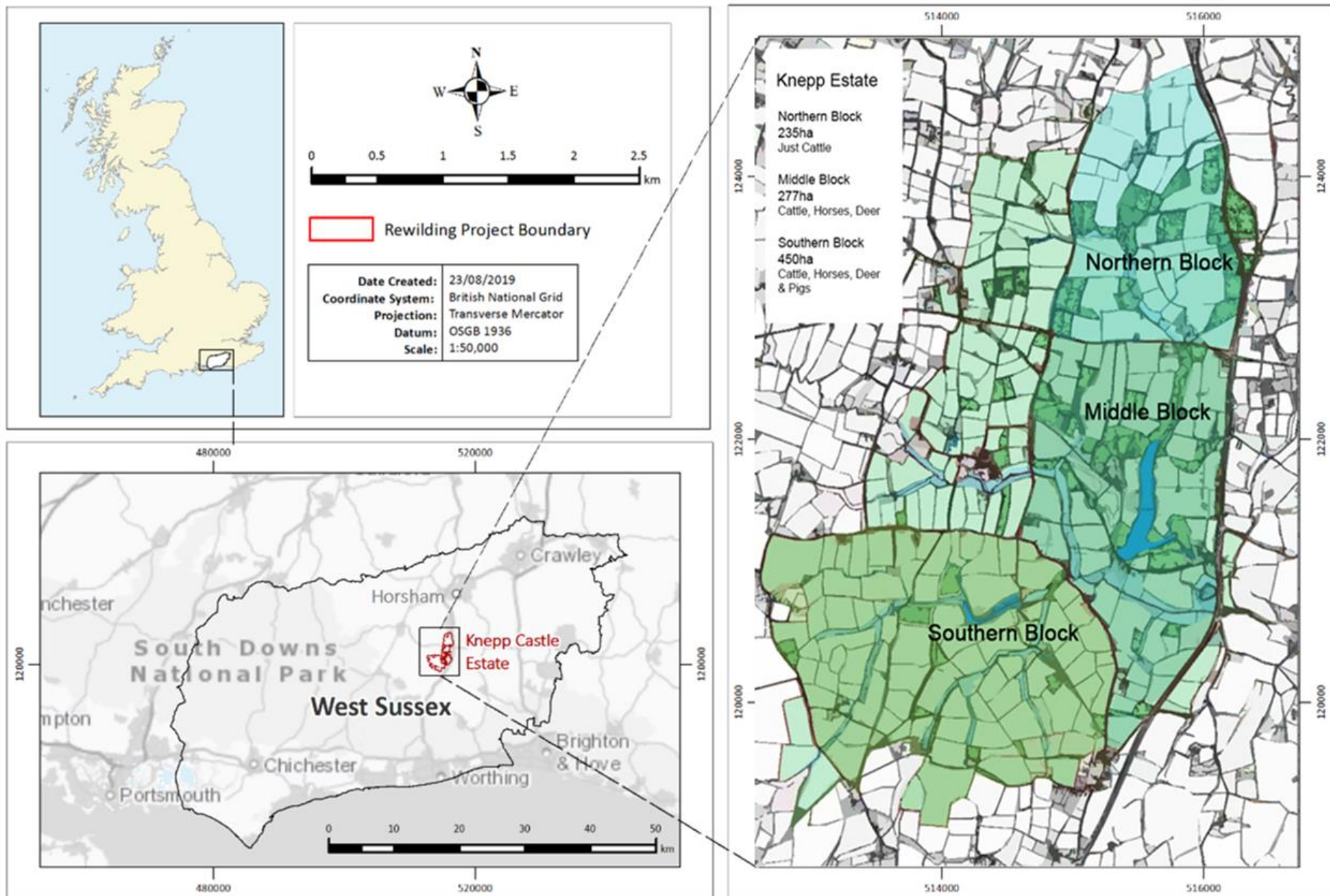


New Habitats for a connected naturescape

NBN The Sir John Burnett Memorial Lecture – Charlie Burrell



KNEPP ESTATE 1,400 ha



DIG FOR VICTORY: 1941, when these pictures were taken, Knepp's land had mostly reverted to scrub





Mrs. Middlebrook. Self



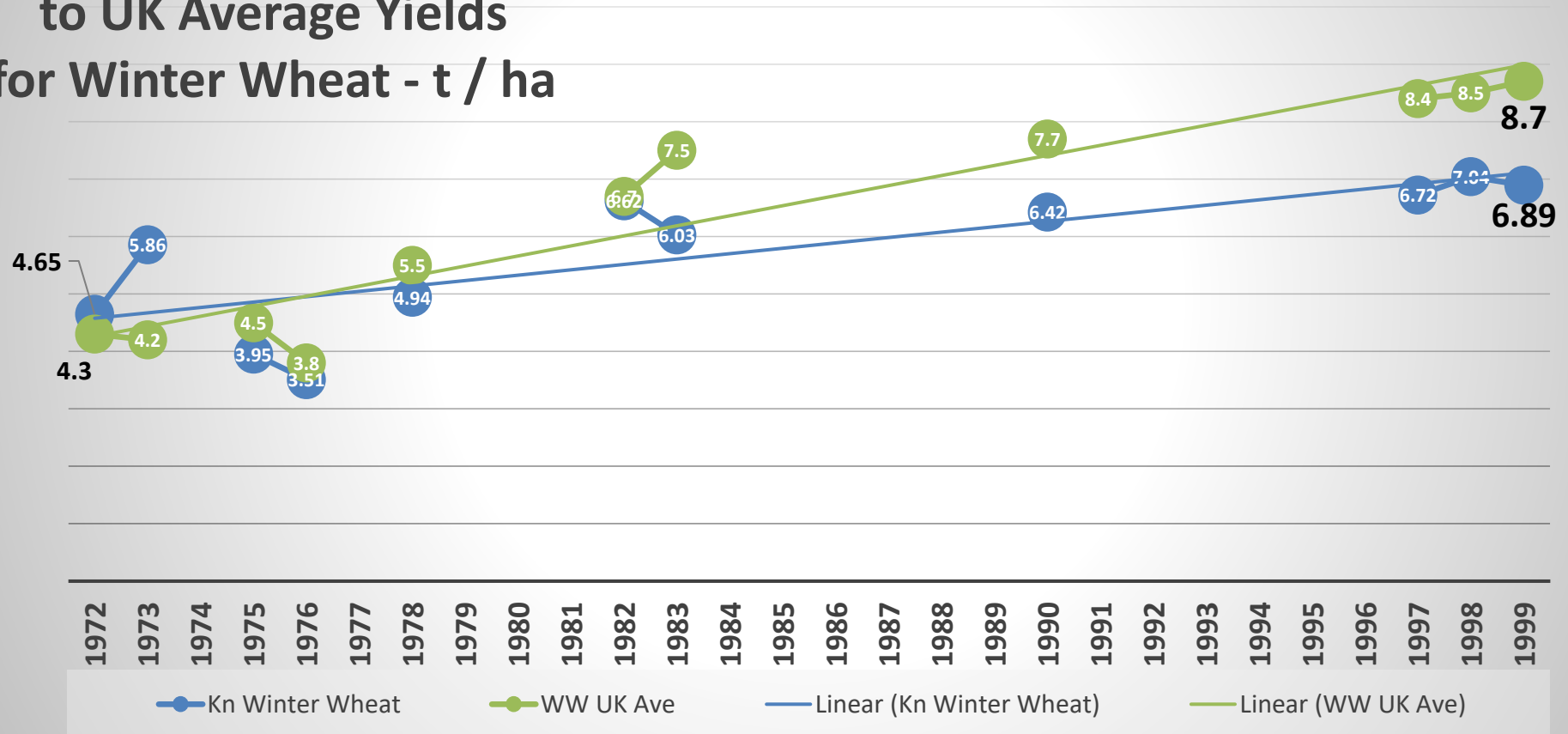
Red Polls. Knapp Providence 20th. The White Mountain Cattle! Butte Head.

Fine Wheat Crop. Duke of Gloucester reviews Canadian 3rd Div. 1943



Knepp Historic Yields Compared to UK Average Yields for Winter Wheat - t / ha

2016 World record WW
16.52 t/ha Northumberland



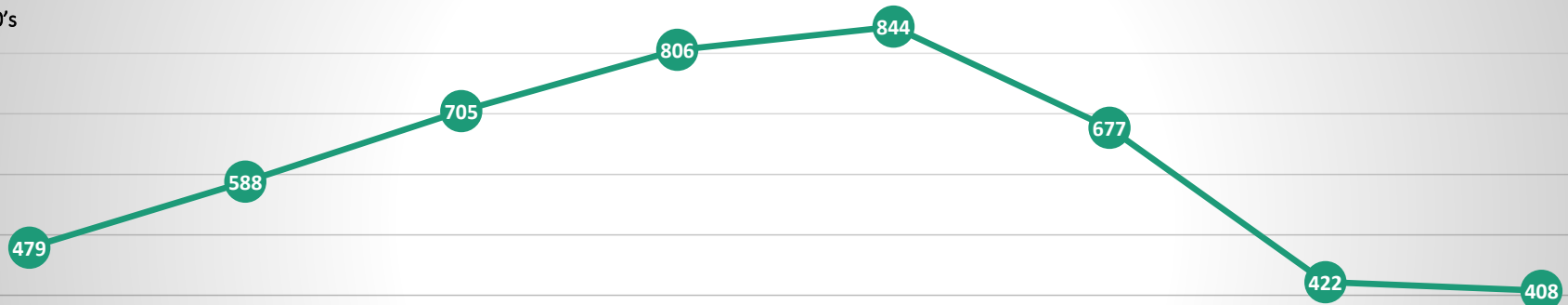
Arable: Knepp's yield for winter wheat by the late 1990s
We were **1.8** tonnes/hectare light of the UK average

Dairy at the end of the 1990s

- Milk quota looked likely to be abandoned
- Dairy industry looked like it was heading for some pretty big rocks
- Knepp dairies needed further huge investment to keep us competitive
- We were good at producing milk at a low cost but....

KNEPP MILK SALES £

£ 000's



1992/93

1993/94

1994/95

1995/96

1996/97

1997/98

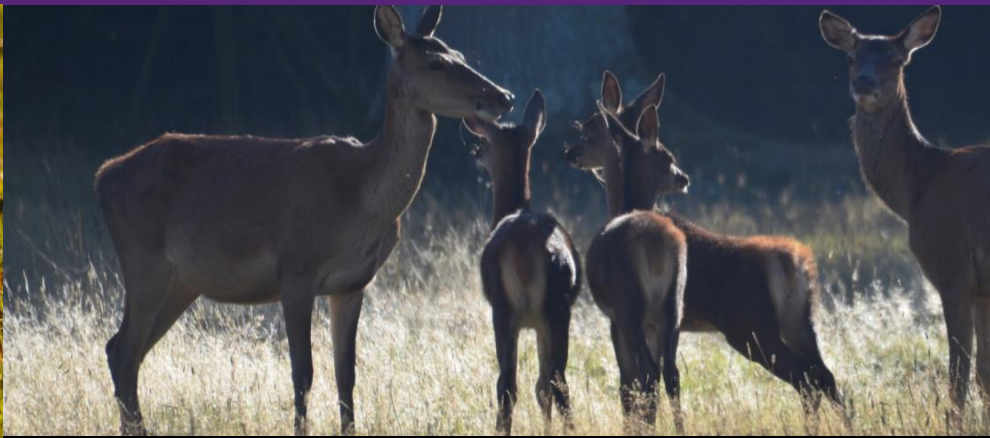
1998/99

1999/00





KNEPP'S DRIVERS











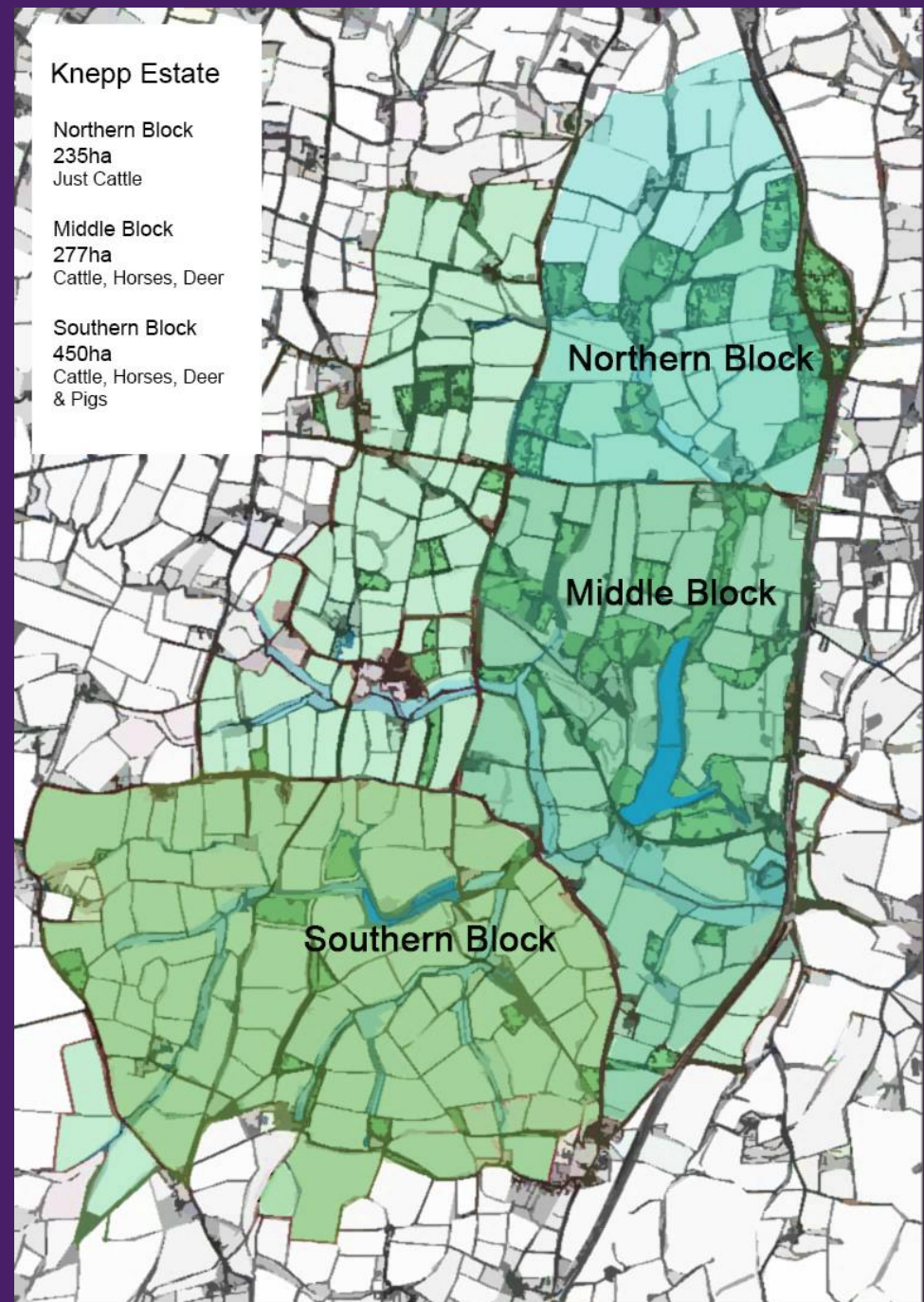
4/23/2020

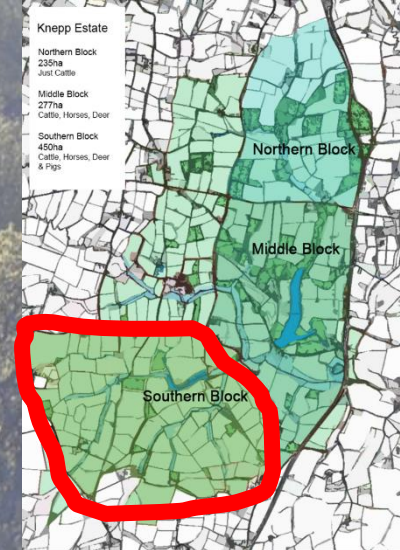
Google Earth

KNEPP ESTATE

1,400 ha

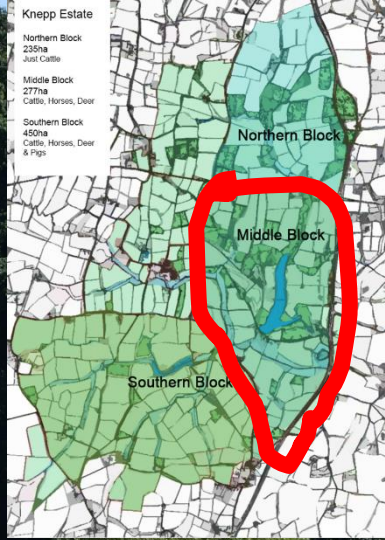
Northern Block	235 ha
Middle Block	277 ha
Southern Block	450 ha
Other	440 ha





450 ha





277 ha





235 ha



surveys and monitoring







AMAZING RECORDERS

Ringing in the autumn



1,500 birds ringed

623	blackcaps (41%)
191	whitethroats
91	willow warblers
73	chiffchaffs
71	lesser whitethroats
34	garden warblers
10	nightingales
2	grasshopper warblers



Nematoproctus praesectus

New to Britain!



Diptera Digest 2019 26, 151-160

***Nematoproctus praesectus* Loew (Diptera, Dolichopodidae) new to Britain, found together with *N. distendens* (Meigen), and notes on their habitat preferences**

C. MARTIN DRAKE

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Summary

Nematoproctus praesectus Loew, 1857 and *N. distendens* (Meigen, 1824) were recorded together at a restored wetland site in West Sussex, the former being the first record for Britain. A key and figures are provided for separating both sexes. They were part of a species-rich assemblage of wetland dolichopodids that included several nationally scarce species. The ecology of *N. distendens* is summarised from British and published continental records, and it is tentatively suggested that it requires seasonally fluctuating water levels.

Introduction

Nematoproctus is a small genus of medium-sized flies with three west Palaearctic species (Pollet 2011). The genus falls within the subfamily Rhaphiinae and the species resemble *Rhaphium* but are distinguished by the arista being placed mid-dorsally rather than at or very close to the apex of the postpedicel. In Britain, *N. distendens* (Meigen, 182 and Crossley 2005) and, although found from Hampshire and rarely recorded (Fig. 1). This paper reports the addition of *N. praesectus* to the British fauna, and the presence of a population of *N. distendens*.

The 2019 spring field meeting of the Dipterists Forum main attraction was visiting England's first and largest re-wetted site, where many decades this farm was intensive arable and dairy but difficult heavy Wealden clay, and inspired by examples from the Netherlands and the ideas of Frans Vera (2000), the decision was made to remove all internal stock barriers and allow the site to develop into a variety of large herbivores. The result is about 1,400ha of diverse habitat (Tree 2018). While most of the site is made up of open water, there are many waterbodies scattered through the area, consisting of small sluggish tributary streams, ponds and a lake, many of which are seasonally dry.

Spring of 2019 was particularly dry so sampling was limited to small waterbodies. A second visit was made by the author in mid July 2019. 34 species of dolichopodids were recorded, and in July at least 59 species. Other recorders added another three species, representing about 20% of the British dolichopodids. *Nematoproctus praesectus* was recorded, and from several sites. *N. distendens* was also found.

Identification

Specimens were identified using Parent (1938). Males of *N. distendens* in having almost entirely yellow legs, rather than small genital cerci. When using the key to genera by d'Asa (1998) the genitalia of *praesectus* caused the key to fail as he 'conspicuous', since the only then-known British species,

151

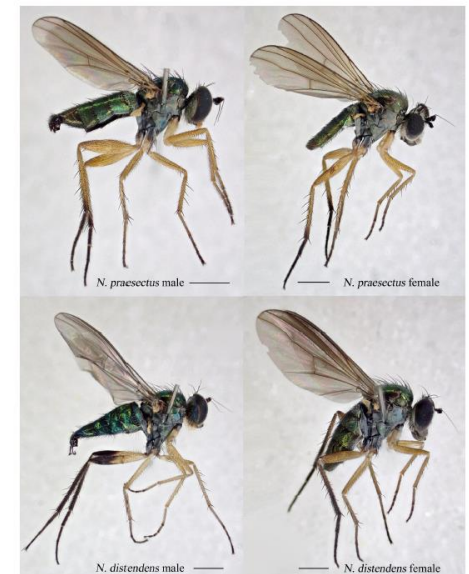


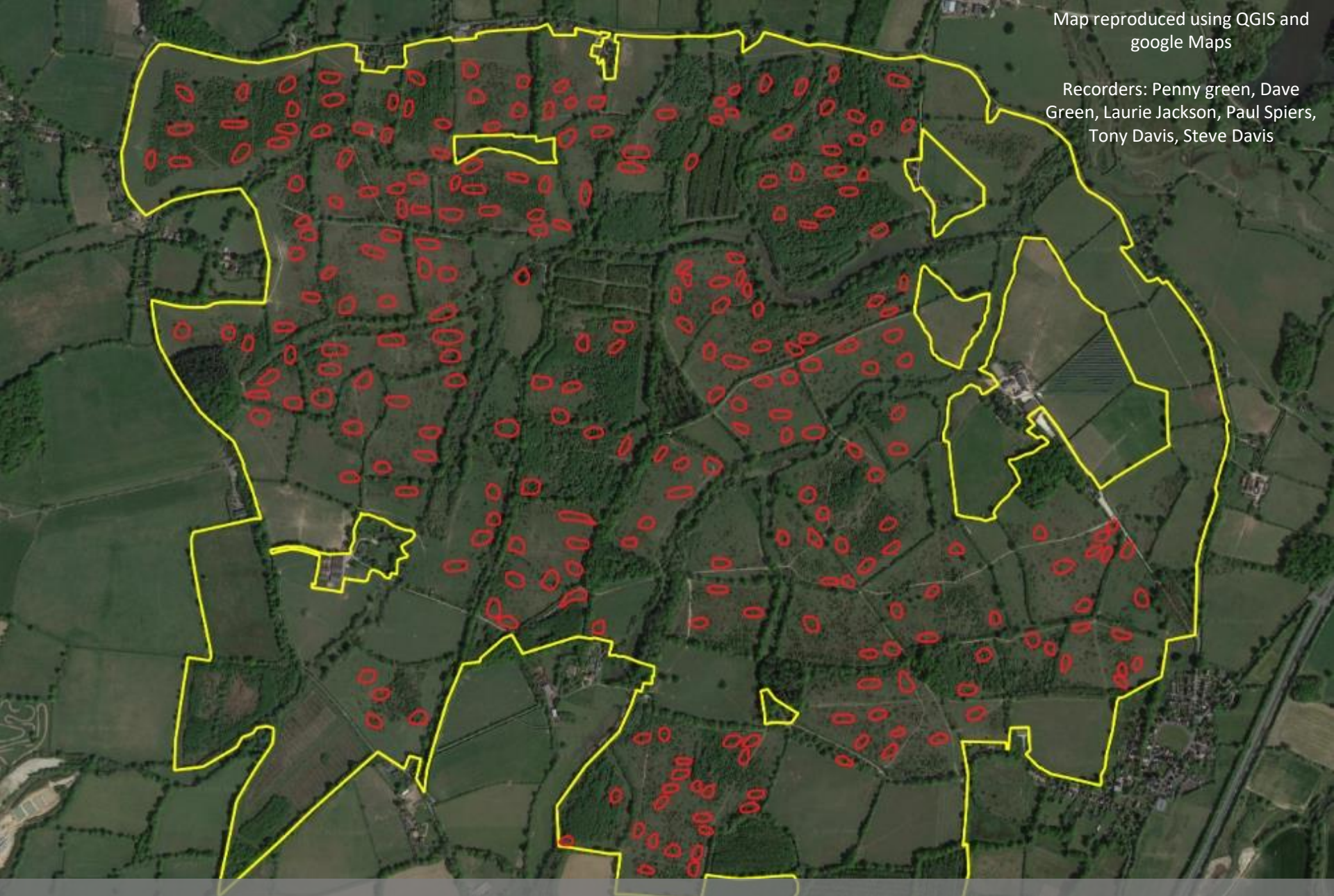
Fig. 2. *Nematoproctus praesectus* (above) and *N. distendens* (below) of each sex (males on left, females on right), from Knepp Castle Estate, May 2019. Scale line = 1mm. Photographs by Andrew J. Cunningham.



Tony Davis has been ringing birds for 30 years – over a couple of weeks in Sept 2018 he ringed more lesser whitethroats (*Sylvia curruca*) and black caps (*Sylvia atricapilla*) in two fields on Knepp than he has ringed in his entire career

Map reproduced using QGIS and
google Maps

Recorders: Penny green, Dave
Green, Laurie Jackson, Paul Spiers,
Tony Davis, Steve Davis



Knepp Southern Block 2019 CBC - 164 Whitethroat territories
survey was based on 4 visits rather than the standard 10 for a Common Bird Census



Dung beetle survey

- 12,178 dung beetles were collected – 13 species
- Knepp (11,677 beetles) vs organic sites (518)

Sarah Brompton MSc Conservation, UWE





How does rewilding fit into our farmed landscape?

OUR GREEN AND PLEASANT LAND





Jeroen Helmer
jeroen.helmer@ark.eu

Rewilded land - high nature areas, SSI, NNR etc... and MOD land



Lawton corridors or should we call them Climate Corridors



the need for Climate Corridors

- In Britain we estimate climate zones are moving northwards at up to 5km a year
- This is hundreds of times faster than our islands experienced during the natural climate warming at the end of the last ice age

Warming level	Species range loss (no dispersal)	Species range loss (dispersal)
1.5C	23%	12%
2.0C	30%	17%
3.2C	45%	30%
4.5C	57%	43%



Lawton corridors or should we call them Climate Corridors





Green bridges and hedges – part of the Nature Recovery Network (NRN)







Dormice and 3 nightingale territories in this 170 meter hedge



Farming for nature – nectar margins, sacrificial crops, bare earth strips for bird dusting, reservoirs for insects as pollinators and pest control....



PROCEEDINGS B

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Research



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<http://dx.doi.org/10.1098/rspb.2015.1740>

Received: 20 July 2015
Accepted: 3 September 2015

Wildlife-friendly farming increases crop yield: evidence for ecological intensification

Richard F. Pywell¹, Matthew S. Heard¹, Ben A. Woodcock¹, Shelley Hinsley¹, Lucy Ridding¹, Marek Nowakowski² and James M. Bullock¹

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²Wildlife Farming Company, Bicester OX26 1UN, UK

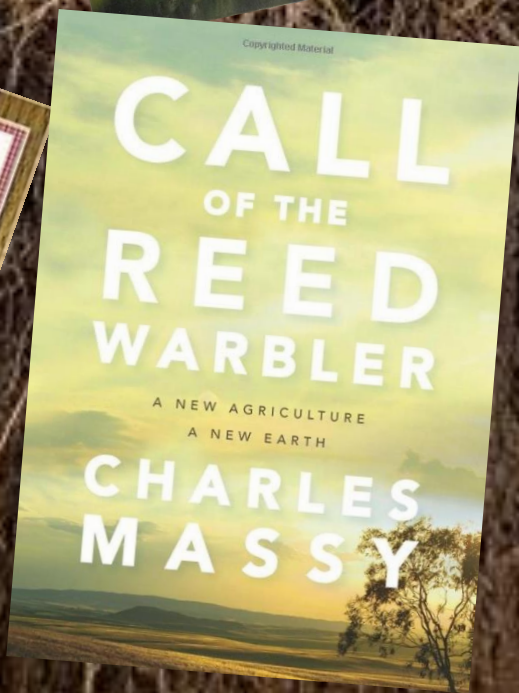
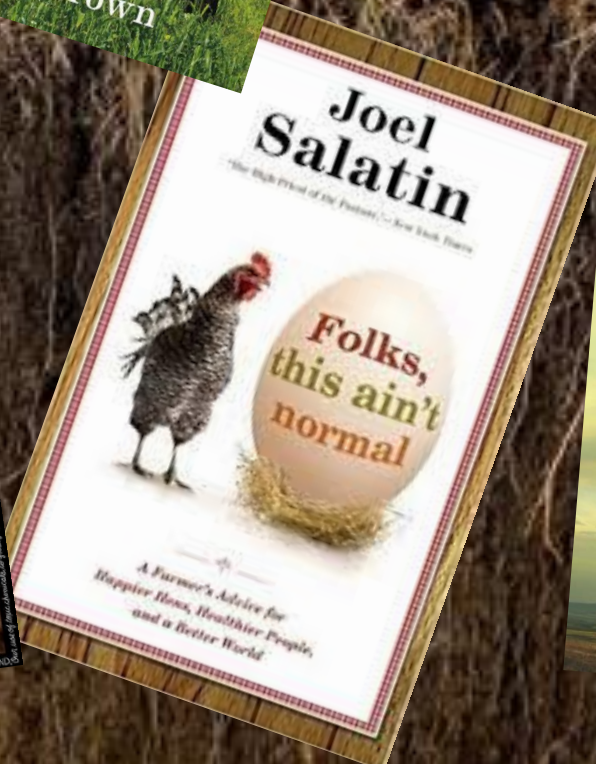
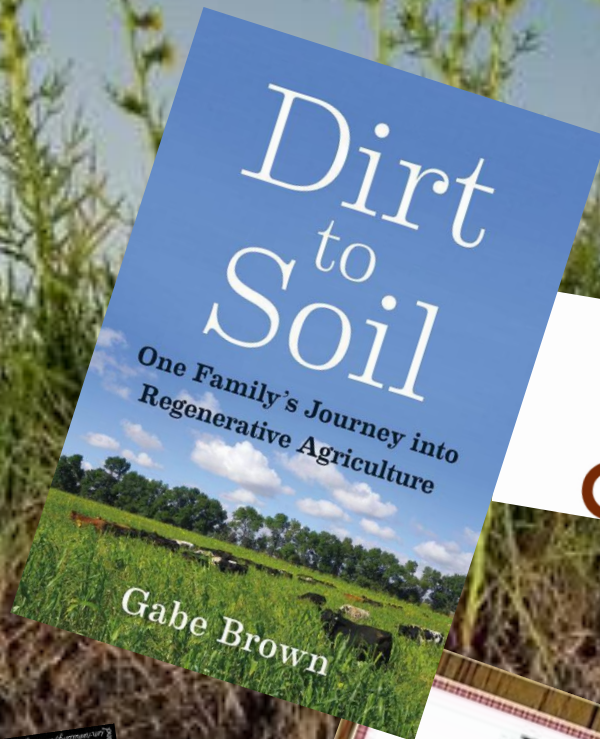
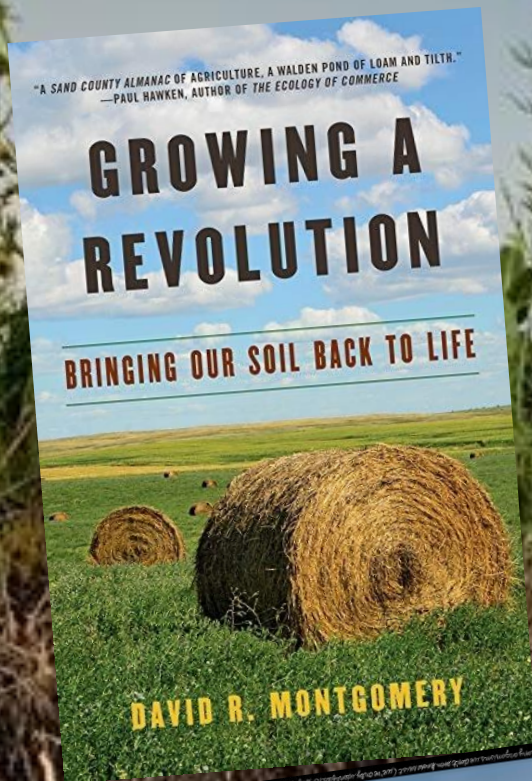
Ecological intensification has been promoted as a means to achieve environmentally sustainable increases in crop yields by enhancing ecosystem functions that regulate and support production. There is, however, little direct evidence of yield benefits from ecological intensification on commercial farms growing globally important foodstuffs (grains, oilseeds and pulses). We replicated two treatments removing 3 or 8% of land at the field edge from production to create wildlife habitat in 50–60 ha patches over a 900 ha commercial arable farm in central England, and compared these to a business as usual control (no land removed). In the control fields, crop yields were reduced by as much as 38% at the field edge. Habitat creation in these lower yielding areas led to increased yield in the cropped

“...yields at the field scale were maintained—and, indeed, enhanced for some crops—despite the loss of cropland for habitat creation.”



Regenerative farming, conservation farming...







Wood pasture and areas that are “mob-grazed”







Restoration of wetlands



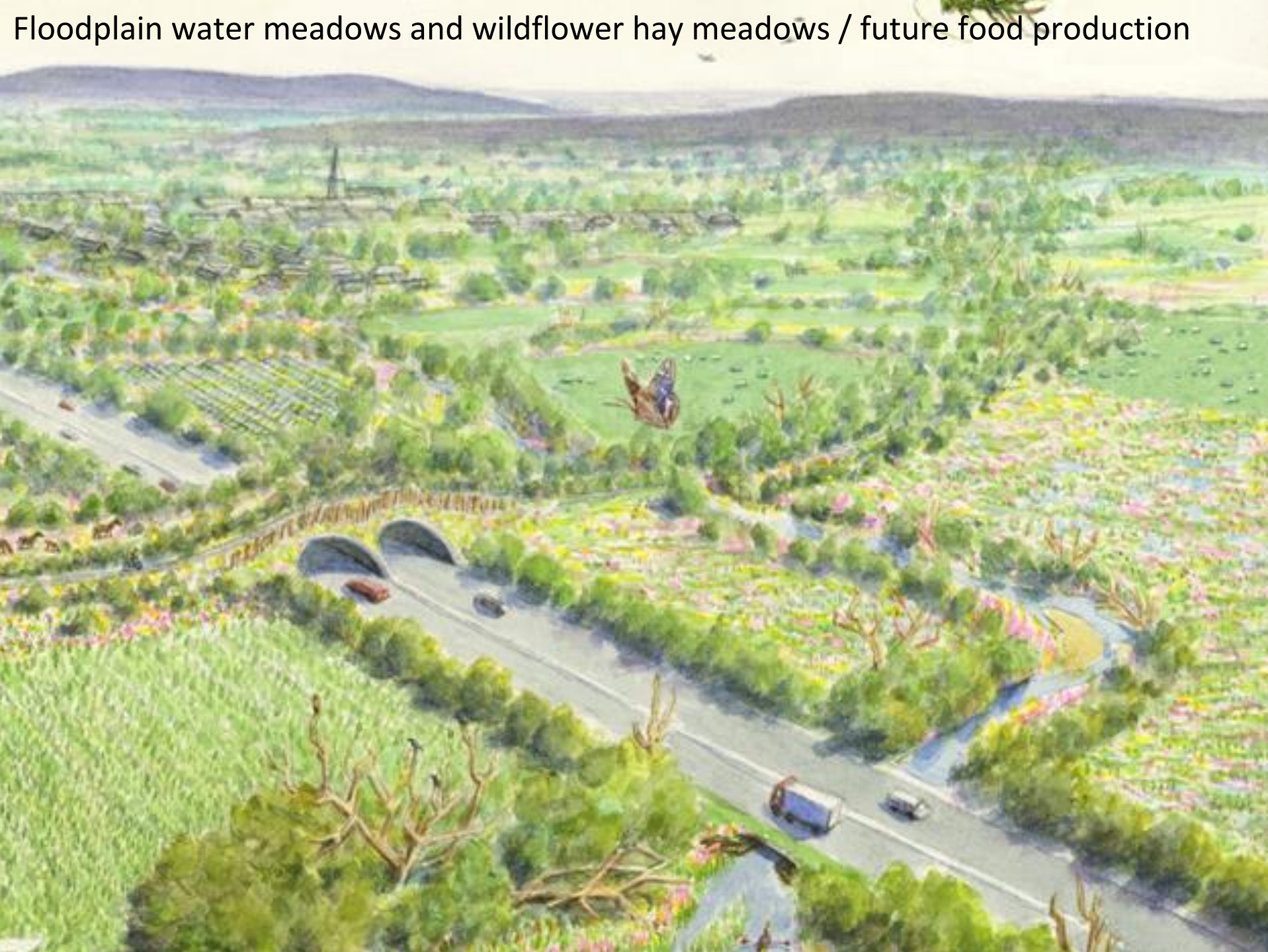


Google Earth

2001

Imagery Date: 8/6/2018 50°58'41.15" N 0°21'23.85" W elev 0 m eye alt 1.67 km







Woodland, plantations and forests - multi-species plantations



Multi-species plantations



Natural regeneration:

- Not grown in commercial nurseries (high carbon, expensive, pollution, disease)
- Local seed sources appropriate to the region (evolution, local variation)
- Mycorrhizal fungi associations and soil nutrients/bacteria from the start
- Thorny scrub provides micro-climate (moisture, aeration) and protection from grazers and browsers
- Complex, multi-generational structure of trees within scrub = rocket fuel for biodiversity
- Carbon sequestration above and below ground = much higher than plantations

CONCLUSION: All the above provide a new generation of trees that are healthy, resilient and with the natural defences to meet the challenges of warming temperatures, extreme weather events (storms, hurricanes, droughts), pollution and disease



Fully re-connected landscape for farming, nature and people



Continue
reconnecting

Nine — we will harness nature's ability to absorb carbon by planting 30,000 hectares of trees a year by 2025 and **rewilding 30,000 football pitches' worth of countryside.**

And ten — our £1bn energy innovation fund will help commercialise new low-carbon technologies, like the world's first liquid air battery being developed in Trafford, and **About 25,000 ha** for green finance through disclosure requirements.

This plan can be a **/year, would be good** in ways that create jobs and

On Wednesday I will meet UK businesses to discuss their contribution. We plan to provide clear timetables for the clean energy we will procure, details of the regulations we will change, and the carbon prices that we will put on emissions.

I will establish a "task force net zero" committed to reaching net zero by 2050, and through next year's COP26 summit we will urge countries and companies around the world to join us in delivering net zero globally.



Thank you

