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## Grouse Moors in England: Research Methodology

Friends of the Earth has undertaken research into grouse moors in England - to estimate how much land they take up, and to investigate Common Agricultural Payments to some of the estates that own grouse moors. Here is our methodology.

### 1) How did we calculate the area of grouse moors in England?

The Moorland Association has a [PDF map showing 'Keeped Grouse Moors' on their website](#). We requested that the Moorland Association release this as a digital GIS map, but they declined. However, it is possible to extract GIS data recorded in a PDF. This is what we did. This forms the layer 'Grouse Moors – Moorland Association' on [our digital map here](#). Measuring the surface area of the shapes ('polygons') that make it up gives a figure of 1.3million acres.

We then decided to sense-check this figure against a number of other data sources to obtain a 'best estimate' figure for the surface area of England covered by grouse moors. Here are the main steps we followed:

- a) We intersected the Moorland Association map with **Environmental Stewardship Scheme Agreements polygons** to start to identify potential moorland. GIS data on Environment Stewardship Payments is produced by Natural England and licenced under the Open Government Licence, and is [available to download here](#).
- b) We then refined this by comparing the data with the '**MAGIC' moorland line dataset**, produced by Defra and [available online here](#), such that only polygons that overlap 'moorland' were kept.
- c) We then performed a manual 'cleanup' by **comparing the results with satellite imagery** (using an openlayers Bing map). Aerial photography shows up the distinctive patterning of grouse moors, where strips of heather has been burned or cut for shooting butts. This led us to remove some areas clearly not grouse moors, and to add in some fresh polygons where grouse moors appear to exist, but had not been captured in our previous steps.

The resulting area of land in our 'Grouse moors best estimate' map is 316,775 hectares, or 782,768 acres.

We then performed several random sample checks, extracting 1km squares around a set of 500 random points on our map and comparing these again to

satellite imagery. From these checks, we are confident that around 70% of the total surface area of our 'Grouse moors best estimate' map corresponds directly to grouse moors. 70% of 782,768 acres is **547,937 acres**.

As a comparison, the land area covered by Greater London (within the M25) is around 550,000 acres.

## **2) How we investigated farm subsidy payments to owners of grouse moors**

From the mapping outline above, we first attempted to calculate the total amount of farm subsidies paid to grouse moors under the Common Agricultural Policy (CAP). We concluded that this was very complex to do and not possible with the data, time and resources available to us, though technically it should be feasible. A more transparent farm subsidy system would clearly help: for example, though maps exist of Environmental Stewardship Payments exist, there are no equivalent public maps of overall CAP payments, which are much higher.

We decided therefore to go for a different approach: to identify the *owners* of many of the largest grouse moor estates, and to then look at what CAP subsidy they are paid.

Our investigation identified 30 grouse moor estates, covering around 300,000 acres and in total receiving over £4million in farm subsidies in 2014.

Full details and sources for each grouse moor estate are detailed in our database, [viewable in GoogleDocs here](#). The main sources and methods we used are as follows:

a) **We compared our maps of grouse moors, above, to INSPIRE polygons** – a [public Land Registry dataset](#) which relates to land ownership and shows land parcels with unique 'INSPIRE IDs'. We then identified particularly large parcels of land within areas of grouse moor, and using the corresponding INSPIRE ID to **search the Land Registry website**. In some cases, the recorded title of the land parcel itself identified the owner, e.g. 'The Gunnerside Estate'. In other cases, it was necessary to purchase full **land titles** (£3 per document) from the Land Registry to identify the owner.

b) In some cases, it was possible to find clues as to the underlying owner of the grouse moor from **Environmental Stewardship payment maps**. In other cases, these maps simply identify tenants as being the recipients of subsidy – we discounted these.

c) Sometimes it was possible to identify the extent of estates from **maps deposited with councils under Section 31(6) of the Highways Act 1980** – councils are obliged to keep a public, online register of public rights of way and some estates reveal the extent of their land this way.

d) We calculated the land area of grouse moors belonging to each estate either from the area of the corresponding INSPIRE polygons, or, in some

cases, from public statements about the size of the grouse moors (such as the websites of the estates themselves or reports in sporting publications). Where we used such external sources, these are listed in our database.

e) We used **Companies House** to check some of the organisations and entities listed in land titles and subsidy payments data. This helped confirm, for example, whether some companies were registered offshore.

f) We searched **Defra's CAP subsidy payments website** to identify total farm subsidies that were paid in 2014 to the owners of the grouse moor estates we had identified.