

South West Peatland Partnership

Reflections on using virtual collar systems on Exmoor and Dartmoor: challenges, opportunities

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Overview

Interactions between grazing and peatland restoration has been a continuous consideration by both the South West Peatland Partnership (SWPP) and graziers. Discussions include how restoration might impact livestock movements as well as how grazing can be used as a tool for managing degraded uplands dominated by *Molinia Caerulea* (purple moor-grass). In partnership with graziers, the partnership purchased NoFence virtual fence and Digitanimal GPS tracking collars and set up two monitoring projects.

Using Nofence collars to manage *Molinia Caerulea* on Exmoor

NoFence collars were trialled on a 380ha upland plateau on northern Exmoor characterised by deep peat blanket bog, wet and dry heath, acid grassland, and valley mire. The grazier was concerned about the deterioration of the SSSI due to *Molinia* dominance and challenges with escaping cattle due to numerous public access points to the site. 80 NoFence collars (Figure 1) were purchased by the South West Peatland Partnership in April 2022 as a trial to overcome these challenges. *Molinia* poses a problem on peatlands as it is an indicator of dry and degraded peat, and can give rise to hummocks in the landscape. By reducing *Molinia* cover and increasing biodiversity the partnership aims to encourage more wet moorland species e.g. Sphagnum mosses to help raise the water table and hydrologically restore the site to a more peat forming habitat.

Data from the remaining working collars shows how the cattle are utilising the space (Figure 2). The cattle are still making some impact on the *Molinia* and the stock are being prevented from straying off the site. However, the original intended use of mob-style grazing of the *Molinia* has not been achieved.



Figure 2. Grazing heatmap May–August 2024. Red: where cattle spend the most amount of time. Green: where cattle spend less time or are moving through. The heatmap shows that cattle spend most of their time grazing areas above incised valleys and around water. The expanse of *Molinia* in the centre of the site is avoided by the cattle.

What Next?

Collars that are no longer working need to be sent to NoFence for repair once the cattle are gathered at the end of the grazing season. SWPP is having an ongoing dialogue with the grazier about the potential for using the collars in the next few years.

Using Digitanimal collars to track grazing preferences on Dartmoor

100 Digitanimal collars were purchased by the SWPP in 2022 and fitted to a sample of a flock of 200 Scotch Blackface sheep that graze the Forest of Dartmoor Common. Collars recorded the location of the sheep every 30 minutes for five months (June – October) before restoration works took place to determine where sheep were grazing. The long-term ambition is to repeat this once works have been completed to indicate whether restoration influences grazing behaviour.

Results

Analysis of data revealed the flock spent 0.4% of their time within proposed restoration areas (Figure 3) with the majority of their time spent on grassland, where restoration is not typically focused. Sheep showed a low preference for Blanket Mire and Wet Heath; vegetation communities typically associated with peatland restoration works (Table 1.)

NVC Classification	% of data points within classification
U4e (Grassland)	39.6
M15b (Wet Heath)	7.0
M15d (Wet Heath)	6.8
U4 (Grassland)	6.7
U5a (Grassland)	6.1
U5d (Grassland)	4.0
U5 (Grassland)	3.8
M25b (Mire)	3.1
M17a (Blanket Mire)	3.0
M17c (Blanket Mire)	2.8

Table 1: Percentage of time sheep spent grazing different vegetation types across the site

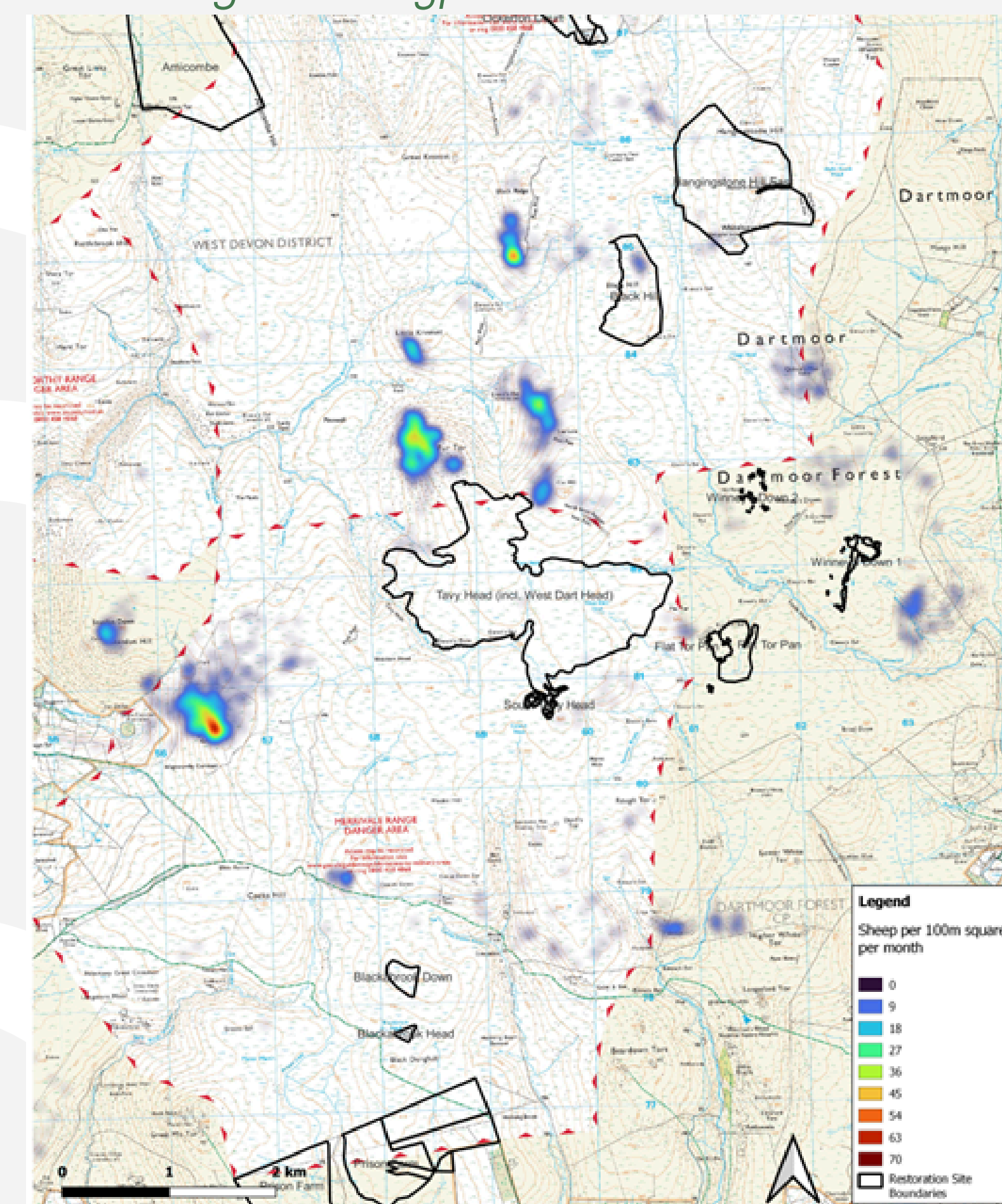


Figure 3. Heat map showing sheep per 100m²/month in October 2022 in reference to proposed areas for restoration. Minimal change in location was shown across the monitored months.

Limitations

After one season, more than half of the collars stopped working due to water ingress. 100 collars represent a small sample size of the approximately 7,000 sheep that graze the Forest of Dartmoor, and cattle and ponies were not represented in this study.

What Next?

The SWPP hopes to collect more data once restoration has taken place to determine if works affect grazing patterns displayed by the sheep as well as to collect data across more months of the year in order to give a more complete dataset.



Figure 1: Cow wearing a NoFence collar

Results

Year 1: Small pasture boundaries were created, and cattle were moved at 1-6 days intervals depending on water or grazing availability. These regular stock movements were found to be very labour intensive.

Year 2: To save time, cattle were given larger pastures that required less regular interventions.

Year 3: Increasing technical problems meant that around half of the collars were offline and not reporting. Therefore, one large boundary that encompassed most of the site was established.

Reflections on using GPS/ virtual fence collars.

The GPS data collected shows a clear image of where both cattle and sheep are spending their time, and provides the SWPP and graziers with a more realistic view of how works influence livestock movements and therefore enables us to have more informed conversations with land users about restoration. Our experience with the collars so far is that after one year a high number of both brands started to run into technical problems, primarily due to water ingress. This has led the partnership to question how fit for purpose the technology currently is for use in the wet, upland environment of the UK's South West. Carrying out regular maintenance, ground truthing and resolving technical issues is hugely time consuming. SWPP staff have managed this work as graziers themselves often don't have the time. There are concerns around who will provide funding for the repair and/or replacement of the collars when they run into problems beyond the warranty period which is usually 2 years.