Thanks to CEH for sharing data from a massive systematic ecological monitoring effort. Agree about magnitude: easily the most comprehensive survey in Wales. As usual for CEH products, well-organised and easily accessible.

I have concerns having to do with impact and uncertainties. About impact, the authors list monitoring the impact of Glastir activities as a primary motivation. But in fact they present no evidence that they monitor or could monitor any outcome of any local individual activity; not their purpose and in fact precluded by their sample design? The survey data have inherent value; why list them as relevant to Glastir-funded activities if readers and data providers both know the irrelevance of these data to that effort? If the proposal that funded this work justified its efforts based on ability to detect impact of specific albeit as-yet unspecified remediation activities, the careful necessary systematic sample design precludes such detection?

Authors offer a second (worthy) motivation: to quantify status and trends. Good, agreed. But particularly trends require uncertainties; value of such-and-such parameter at such-and-such date differs significantly (or not) from same value measured at a different date. Even water chemistry data, some of which (PO4) fall below LOD (limits of detection), have no associated uncertainties. One understands why uncertainties for binary presence-absence data or species lists might prove challenging (but others have addressed these issues?), but - in my extensive but not exhaustive perusal - no file had a +/- uncertainty column. One understands, given this wide range of parameters, that a single encompassing uncertainty (e.g. $\pm$ 95% CI) will not suffice, but reader never finds any uncertainty estimates while authors apparently avoid the topic? ESSD readers expect and require better detail?

Emphasize - data have enormous independent value, not least because of consistency in sample design, parameter choice, quality control, and skill of execution with previous and on-going English, Scottish, etc. surveys (also by CEH). But as a monitoring tool for Glastir impacts? Not likely.

I suspect I understand their caution, but how can one read any description of monitoring ecosystems of Wales without encountering the word ‘sheep’. In my direct experience, including time in Snowden, the country was and remains extensively and thoroughly ‘sheep-burnt’. Perhaps mention of “livestock” (line 393) or “gazing animals” (line 127) allows authors to allude to sheep without actually mentioning them as the dominant land surface modifier? Any Glastir-funded monitoring effort must carefully follow Glastir expectations, language and protocols or (more cynically) measure only ecosystem features not impacted by sheep? From other reports we learn that Wales houses “10 million” sheep, that 75% of Welsh land is “devoted” to livestock, about negative impacts on vegetation, soil compaction, water quality, etc. From their avian-focussed viewpoint, UK RSPB's State of Nature report found that “60% of animal and plant species in Wales have declined over the last 50 years and 31% have declined strongly with farming practices being blamed for loss of habitats.” Does that report and countless others overstate or miss key factors? If authors intend these data to provide “an unbiased national assessment of stock and condition of common habitats” (line 347), and understanding that careful description of data gathering must precede subsequent analysis, results reported so far seem to fit the general characterization (Section 3.1) of ‘no change, ‘not much deterioration’, or not ‘as much progress as hoped’. I recognize confusing difficult-to-navigate lines between Glastir funding for monitoring and rigorous national ecological monitoring, but the present project as defined here, wanting to have both, actually satisfies neither?

One final comment related to question of uncertainties: authors rely almost exclusively on internal technical reports not available to most potential data users. Most references refer to technical reports, of UK govt or especially Glastir or CEH. Very few references listed here come from science journals, even fewer from open science journals? Rare good examples George et al., Wood et al. (Note that authors have ESSD abbreviated differently among several Wood et

al. references.) For documents not easily available (see below), we need them included as part of metadata for this activity.

Repeat: excellent data easily accessible and skillfully managed. Questions or concerns from this reviewer have mostly to do with overstatement or mis-statement of intent and impact!

Specific comments:

In Table1, X plots, 200 m2 subsequently reduced to 4 m2? Funding or personnel limitation, but no discussion of impact on data?

Cores thaw during posting? (e.g. line 181)

Peat only mentioned once (in Table 2 methods for SOC (ii)). (Peat related to blanket bogs?) Peat mining represents a substantial ecosystem disturbance?

Emmett and GMEP team 2014, 2017 cited several times, evidently key documents in terms of information, approach, organization, but simply not available? Certainly not available to this reader. Make those full documents available as part of GMEP metadata, on specific CEH GMEP landing page?

Concern, which CEH must have addressed in prior ESSD publications, about reliance on ESRI and ArcGIS, a proprietary software not available to many ESSD readers. These authors to assure that full-function open access alternatives (e.g QGIS) exist in all cases?