

**NATURAL HISTORY SOCIETY OF NORTHUMBRIA****SUMMARY OF EVIDENCE**

**1.** My name is David Gardner-Medwin. I represent The Natural History Society of Northumbria. The Society's objects include 'the conservation of the natural environment in the North East of England, including its geology, flora and fauna'. To this end the Society objects to the proposals for wind farms at Green Rigg, Steadings and Ray. We approve of the sustainable harnessing of windpower and have never before opposed a windfarm development. But in our opinion all three of these proposed windfarms will do more harm to the environment than good.

**2. Carbon balance.**

**2.1** The Society recognises the severe threat to human beings and to flora and fauna throughout the world of global warming, caused principally by the release of greenhouse gases into the atmosphere. It therefore strongly supports the government's intention to save energy and produce it by sustainable means. Production is not sustainable where the total energy used to create the means of production outweighs the output. Where the usage and the output of energy are nearly equal, other factors become crucial in determining whether the proposed means of generation is acceptable. We believe that to be the situation in the cases before this Inquiry.

**2.2** In assessing the contribution these particular windfarms may be able to make to sustainable energy production, it is essential to calculate both the predicted output of the turbines (in terms of equivalent carbon fuel saved during their lifetime) and the total cost in terms of carbon fuel consumption of their manufacture, transport, erection, servicing and decommissioning and all the associated works. It is the difference between these two figures that must be the basis for all assessments of the value of the windfarms to be set against their disadvantages. Their gross output of electricity or their output as a proportion of national energy production are inappropriate figures to use in such assessments. Nor is the financial cost relevant to the sustainability of the project. It is the net carbon cost or benefit that matters.

**2.3** The calculated output of the turbines must take into account the loss of power resulting from the electrical resistance of the cabling connecting them to the grid and to the distant point of consumption. The carbon cost needs to include the carbon fuels used in the getting and refining of the raw materials, the manufacture of the turbines themselves (whether in the UK or abroad), and of the vehicles and other equipment used (and partly worn out) in all transport, mining, road making, and workforce movements throughout the life and decommissioning of the windfarms; and the loss into the atmosphere of carbon from the felled trees and damaged peat bogs.

**2.4** Data on the predicted output of the turbines should include the raw results of the anemometer readings, not simply the interpretations made by the applicants.

**2.5** The Society does not have the expertise or detailed information required to make the calculation of the carbon cost or benefit of these projects. Making this calculation and presenting the figures to the Inquiry is the duty and responsibility of the applicants.

**2.6** We base these contentions on the Government's Energy White Paper where saving energy (nationally and internationally) is properly regarded as just as important as producing it in a sustainable way.

**2.7.** The power lines connecting the turbines to the grid have not been defined. Three matters concern us - the loss of energy in long cables; the risk of ice or snow damaging cables at times of peak demand thus reducing the long-term usefulness of the windfarms; and the very significant risk of bird strikes on cables that span areas of open moorland where birds often fly at low altitudes in conditions of poor visibility.

### **3. The objections of the Northumberland Wildlife Trust and the Royal Society for the Protection of Birds**

**3.1.** The Society fully supports the objections of the Northumberland Wildlife Trust to all three windfarm proposals and the objections of the RSPB to the Ray Wind Farm.

**3.2.** The Trust's objections concern the adverse impact on European-protected habitats such as blanket bog and on mires and species rich grasslands; on species such as the hen harrier, other Annex 1 bird species, otter, white-clawed crayfish, and large heath butterfly; and defects in the proposed mitigation.

**3.3.** The RSBP objects to the Ray Wind Farm because of inadequate proposals to protect nesting birds; understatement of the importance of the site for birds, partly the result of flaws in the ES bird surveys; failure to consider the impact of power lines on birds; and flaws in the plans for mitigation.

### **4. Problems related to the Steadings Borrow Pit and the site road near Bavington Craggs.**

**4.1** In certain weather conditions, or as a result of accident or human error, there is a risk of pollution of the Vicarage Burn from the Steadings "Borrow Pit" at Great Bavington. This burn drains to the River Wansbeck where there is one of the few remaining populations of the endangered and designated White-clawed Crayfish. The 'Borrow Pit' is a limestone quarry at almost the highest point in the district. The wind at such an exposed site is certain to distribute alkaline limestone dust over the area, which will be washed into local watercourses, and also damage plants.

**4.2 Diesel exhaust from the quarry and from numerous lorry movements** passing close to this point will also pollute the air over a prolonged period with a significant risk to pollution-sensitive lichens and rare plants on the nearby crags including the Great Bavington SSSI. Potential fuel and oil spillages will pollute soil and watercourses.

## **5. Risk to blanket bog.**

Blanket Bog is a priority habitat under the UK Biodiversity Action Plan and under European legislation. The proposed access roads for the Ray and Green Rigg windfarms will inevitably increase drainage of areas of bog where they cross peatland or drain adjacent ground, particularly in the northern part of the Ray Windfarm (between turbines 1, 2-3, 4-5, 4-10 and 11) and at Green Rigg (between turbines 1, 4-7, 8-3-9, and 8-11). We are not satisfied that the proposed attempts to avoid this can succeed. Drying out peat prevents its continued growth, leads to its gradual breakdown, releasing carbon dioxide and methane into the atmosphere, and severely diminishes its biodiversity.

## **6. Risks to watercourses.**

**6.1** We are concerned about the potential pollution of watercourses both during the construction and decommissioning phases and also from road water run-off throughout the life of the developments. At Steadings, wind-blown limestone dust from the borrow pit and from the use of limestone for road-making will find its way into local watercourses. Pollution of burns (particularly the Curtis Burn flush) is a significant risk at Green Rigg. We are not satisfied with precautions to prevent pollution of the tributaries of the Ottercops Burn and upper reaches of the Wansbeck by quarrying at the Ray borrow pit near turbine 3, and of the Lisle Burn and Ray Burn from nearby borrow pits.

**6.2** The Small Burn will be crossed by the access road to Steadings turbine 22. Downstream, the burn and marsh have a moderately rich and scarce flora and pollution or other interference with it would be most undesirable. No measures to prevent this are mentioned in the proposals.

## **7. Risks to local flora**

**7.1** The botanical impacts of the developments appear to have been based on phase 1 habitat surveys and have not taken sufficiently into account the risks to individual rare, scarce and threatened plant species that have been recorded in the area. In some places, such as Great Bavington, the whin outcrops in close proximity to limestone, providing a potentially particularly rich and scarce local flora.

**7.2** Although no adequate lichen survey has been done in any of the windfarm sites, the whin crags and rock outcrops remote from previous air pollution are the sites where scarce lichens are most liable to be affected by the introduction of new sources of traffic pollution (especially sulphur dioxide). Quarry dust is another particular risk, near borrow pits and road works. Limestone dust greatly impoverishes lichen biodiversity. The existing diversity of the lichen flora in the Great Bavington area and to a lesser extent near other whin outcrops such as Sweethope Crag, will be significantly impoverished by the proposed the quarrying and roadworks.

**7.3** The whin crags near Great Bavington have a particularly rich and scarce flora for which a portion is designated a SSSI. They lie close to the proposed Steadings

'borrow pit'. The flora of these crags are at grave risk of damage by dust pollution from this quarry and road works as well as from vehicle exhaust pollution during the period of heavy vehicle movements during the construction and decommissioning phases of the project. Scarce and rare (Red Data Book) species at risk in the Great Bavington district, include Annual Knawel, Maiden Pink, Wild Chives, the Hairy Stonecrop and the Mountain Pansy.

**8. Bat surveys.** We are not satisfied with the bat survey reports. Bat roosts, and records of the Brown Long-eared Bat are notably absent from the ecological surveys. We are aware of roosts for this species within range of the Ray site. Permission for the development should be refused in the absence of a full bat survey.

**9. Bird Surveys.**

**9.1** We disagree with the conclusions of the three ES bird surveys on the impacts the developments will have on birds and on the effects of the proposed mitigation.

**9.2** The importance of some bird species in the area, and of the risks to them, have been ignored or underestimated, particularly the raven, a Northumberland Red Data List species, which is unlikely to remain as a potential breeding species if the developments go ahead. The importance of the area for breeding and wintering skylarks and for wintering fieldfares and redwings is also underestimated.

**9.3** The effects on breeding waders of planting tree belts is likely to be greater than suggested. Waders, such as curlews and golden plover tend to avoid nesting within 200-400 metres of tree belts or woods that might conceal predators. Tree planting as mitigation for raptors and squirrels is likely therefore to have an adverse effect on waders.

**9.4** Buzzards, lapwings, curlews, golden plovers, starlings, skylarks, redwings, fieldfares and ravens are all species that commonly fly (some of them in flocks) at the heights of the turbine blades (45-125m). We believe that these species in some weather conditions (wind with cloud, or with glare from low sun) would be at risk from collisions.

**9.5** The variation in behaviour of some species has not been taken into account. The hen harrier commonly hunts at low altitudes, but during mating displays it undertakes elaborate flights at higher altitudes. Skylarks, ravens, lapwings and other birds also display at heights where turbines present risks in any but very clear weather conditions. The daily or seasonal flights of some species (geese, whooper swans, ducks, flocks of thrushes and starlings) would be at risk in low cloud. None of the mitigation measures do or could limit these risks. Lighting turbines at night, for aircraft safety, would add to collision risks for migrating birds.

**9.6.** The presence of displaying hen harriers is of far greater importance than the Environmental Statements suggest. Only about ten pairs of hen harriers breed annually in England. They are under heavy pressure from gamekeepers, despite protective UK and European legislation. The presence of even one pair of displaying

hen harriers carries a high potential for future breeding, if they remain undisturbed. The building works, the wind turbines (whether or not actual collision occurs) and more frequent human access to the Ray Estate would all put the continued presence of this rare species at great risk. If breeding were to occur, juvenile birds would be at particular risk of collisions with the turbines.

*If significant harm [to biodiversity] cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused. (PPS9.)*

## **10: The mediaeval landscape.**

**10.1** A remarkably unchanged ‘mediaeval landscape’ extends over a very large proportion of the Steadings site and parts of the Ray site. We are not aware of another comparable area in this region. The archaeological reports have failed to emphasise the rarity and value of the area as a whole as a site of special archaeological importance. Its survival seems to be principally the result of the adverse climate change and warfare in the 14<sup>th</sup> century leaving a formerly well populated arable farmland fit only for pasture, which it remains today. The windfarm developments would impose the greatest transformation to affect the district since mediaeval times, and create irreversible changes to landscape and individual historic structures.

**10.2** The site of Steadings turbine 22, the anemometer and their access road may be taken as an example. To the east is a hillside pasture with well preserved rig and furrow, to the west a low-lying remnant marsh. Between them lies a raised linear structure, surely a mediaeval field wall. The proposed access road lies very close to these structures. The opportunity for future study of the detailed ecological-historical archaeology of this unspoiled site would be severely compromised by the proposed developments.

**11. We conclude** that the applications for all three developments ought to be refused.