

Whaup's Up? – The Status and Future of Curlew in Scotland

27 September 2018, Battleby Conference Centre, Perth

The Conference at Battleby was the fourth in a series of meetings held to highlight the drastic decline of breeding Curlews in the United Kingdom and Ireland, and to seek ways of reversing this trend, particularly in lowland and farmland areas, where the decline is even more serious than in the uplands. Previous meetings had been held in Higginstown, Ireland (November 2016), Slimbridge, England (February 2017) and Builth Wells, Wales, in January 2018. This Scottish conference was hosted by Scottish Natural Heritage (SNH) with the support of Working for Waders (WfW), a new initiative in Scotland. Further information on previous meetings is available on the websites of the Curlew Forum www.curlewcall.org and Working for Waders www.workingforwaders.com. The presentations made at Battleby can be consulted on these websites.

Alan Lauder, Chairman of the Irish Curlew Task Force, opened the Conference by noting that participants had come to the meeting because they loved Curlews; he highlighted problems in Ireland – grassland intensification, burning and wildfires, land abandonment which caused reversion to scrub, opportunities for predators and summer flooding in the lowlands; this had led to a decrease from 10,000 breeding pairs in the 1980s to only 120 at present; as a Scotsman, he warned Scotland not to be complacent and identified the day's tasks as: keeping an open mind, listening to local knowledge and focussing on the lowlands.

The first session, chaired by Davy McCracken of Scotland's Rural College and Co-chair of the WfW initiative, was entitled "Setting the Scene". The first presentation on 'The importance of Curlew to Scotland' was by Lewis Macdonald, a Member of the Scottish Parliament for 19 years and Species Champion for Curlew in the Parliament for the last five years. He said that the Curlew was symbolic of nature and environment in Scotland, a bird whose loss was impossible to contemplate. He referred to a new biodiversity challenge fund of two million pounds, beyond the £75,000 already granted specifically for Curlews by SNH, and referred to agri-environmental schemes for Curlew, likely to be affected by Brexit. He commented that greater focus on Curlew was needed in the parliamentary sphere, and noted that while discussions were important, action was needed.

The next speaker, on the subject of 'The National Picture in Scotland', was Dr Chris Wernham, head of operations in Scotland since 2002 for the British Trust for Ornithology (BTO); she referred to the Curlew's status as 'near-threatened' internationally and red-listed in UK. The BTO's Wetland Bird Survey (WeBS) showed a steady decline in Scotland since 1975, with a 50% decline both in numbers and range since Baxter and Rintoul's 1953 book. BTO Atlas work showed a steady decline of breeding Curlews since 1972, especially in western Scotland, with a contraction of range of 11% in 20 years in Scotland (against 17% in Britain as a whole and 78% in Ireland). In fact all breeding waders in Scotland (except Snipe and Greenshank) were in decline (with only Redshank numbers falling more severely than Curlew) in all landscapes, but most of all in the lowlands. Turning to discussion of the reasons for change, she noted that the 'Understanding Predation Project' highlighted the need for both scientists and those with local knowledge to collaborate when investigating the main drivers of change for a variety of species and predators; there was agreement that predation and habitat or land-use change were the main drivers and that foxes and crows, rather than Buzzards or Ravens, were the main predators, but also some divergence: those with local knowledge rated predation as more important than did scientists, they considered the range of predators to be wider (including Stoat, Badger, Sparrowhawk and gulls), and they also thought that disturbance was a major issue. A recent BTO study had emphasized that presence of semi-natural grassland and gamebird abundance were favourable factors for Curlew. In conclusion she noted that not all the news was bad – there were still large contiguous areas of Curlew breeding habitat in Scotland and areas of major concentration; if the

different parties continued to work together as was occurring under Working for Waders, there was good hope of finding a solution.

The next speaker was Alistair MacGugan, who spoke on 'Curlew in the context of Working for Waders' of which he is Co-chair. He too recalled the iconic status of the Curlew and the general feeling that 'something must be done'; WfW had adopted an approach of 'All for one and one for all', recognising the importance of both scientific research and local knowledge, accepting the role of predation and habitat and land-use change, and highlighting the need to improve habitat quality. WfW had a fluid membership, including many conservation bodies, and aimed to attract more input from the farming and crofting communities; it was not a top-down body, but aimed to provide opportunities for cross-connections. Action was now under way with a series of projects across Scotland in three fields – information needs, raising awareness and collaboration at a landscape scale, with a Facilitation Team linking the three. People were passionate about waders; WfW was galvanising this enthusiasm and promoting action through little steps by a large number of people.

David Douglas and Irena Tomankova then presented 'RSPB's Curlew Trial Management Project in Scotland'. Irena began by recalling the article in "British Birds" which had identified Curlew as the most pressing bird conservation priority in the UK, because of the presence of 25% of the world breeding population, with a (partly) different 25% of the population wintering in UK. RSPB's project aimed to monitor breeding Curlews over five years at six sites (two in Scotland, two in England, one in Wales and one in Northern Ireland) with at each site a managed area and a nearby unmanaged control area, over a range of habitats. Management activities included control of predators (Foxes, Carrion and Hooded Crows) and habitat management through rush cutting and vegetation thinning. Intensive monitoring was carried out with five visits in the breeding season and vegetation monitoring in mid-July after the breeding season. The results four years into the project showed that Curlews preferred lower vegetation density and moderate rush cover. David then reviewed wider issues for Curlew recovery. Addressing the root causes of higher predation, he highlighted issues where wider information was needed: the UK had the highest density of Carrion and Hooded Crows and the second highest density of Foxes in Europe; increased areas of forest were a source of predators; the annual release of 35 (perhaps 70!) million non-native gamebirds (Pheasants and Red-legged Partridges) represented a large introduction of biomass into the countryside (though its impact on predator abundance remained unclear); and animal husbandry practices led to increased availability of carrion. RSPB was investigating the need for sharper definition of targets: how much Curlew recovery was enough? Could 'Favourable Conservation Status' concepts be applied in Scotland and the wider UK?

The final presentation in this session was on 'Scottish wintering Curlew – population trends' by Bob Swann of the Highland Ringing Group, who spoke on ringing results from the Moray Firth in the northeast of Scotland. WeBS data had registered a rapid increase in numbers of Curlews wintering in Scotland as a whole from the 1980s (when Curlew ceased to be a quarry species) until about 2000, followed by a gradual but constant decline. Numbers had however remained stable on the Moray Firth, perhaps because it was the internationally important wintering site closest to the birds' Scandinavian breeding grounds. A satellite tag attached to a Curlew in 2009 showed that this bird spent 80% of the year on the wintering grounds, 15% at its Finnish breeding site and the remaining 26 days on migration; 49 geolocators - much cheaper but less accurate than satellite tags - had also been fitted; 16 had been retrieved, and showed similar results, only four staying to nest in Scotland, with four in Norway, five in Sweden and three in Finland. Many birds had been colour-ringed, and showed that wintering Curlews returned to virtually the same feeding territories on mudflats in successive winters. A surprising feature of the catches was the very low number of juveniles, less than 5% of the total, against 20% in Oystercatcher and 30% in Redshank, perhaps because dominant adults forced young birds to winter further south or, more worryingly, perhaps simply because of the low production of young, even among Scandinavian breeders.

The second session, under the theme “Curlew Conservation” was chaired by Sarah Sanders, manager of RSPB’s Curlew recovery programme, who noted that the aim was to identify opportunities and challenges and to define what sort of policies were needed. The first speaker was Davy McCracken, Head of Scotland’s Rural College’s Hill & Mountain Research Centre and Co-chair of Working for Waders, on the subject of ‘Do agri-environment schemes work for Curlew?’ He began by saying that, given the decline in Curlews, he had been surprised to be asked to address this topic. Action on any biodiversity project required: recognition of the issues; understanding of the processes involved; raising awareness; ensuring the issue was a priority policy; identifying parameters; delivering funding mechanisms; and monitoring outcomes. This approach had been used with Corncrake and Corn Bunting, and could be used with Curlew. Curlews were beginning to be a priority, but had not yet been fully recognised as a crucial issue; there were potentially conflicting priorities between Curlew conservation and forestry expansion. A report to the Scottish Parliament in July 2017 had noted that ‘Several studies have looked at ways to improve breeding success for waders, but, so far, not at a sufficiently large scale to affect national trends’. The decline was strong in western Scotland, but there was a lack of detail and local knowledge. Rural Development Programmes could be relevant but were prescriptive and lacking local input; none had ‘Curlew’ in their title! He said that he had so far presented a somewhat negative picture, but agri-environmental schemes could work for Curlew in Scotland, on condition that there was proper focus on Curlew, a funding scheme was developed, facilitation was put in place to bring people together, and a flexible, not a prescriptive approach was adopted; there should be a results-based approach, leaving initiative to farmers and land managers.

Brendan Callaghan, Head of Delivery and Regions for Forestry Commission Scotland (FCS), then spoke on ‘Forestry and Curlew in Scotland’, noting that there was in Scotland a strong focus on woodland creation. The Scottish Climate Change plan involved increasing woodland creation targets so that the area covered by woodland rose from 18% at present to 21% in 2032. An analysis of all options to combat climate change show that increase of forestation was the cheapest and most effective. The approach to woodland creation had changed; until 1988 mainly conifers had been planted but since then most trees planted had been broad-leaved. Since 2015 planting of 22,000 hectares had been approved across Scotland and 10,000 hectares planted, (though in the area actually planted, 40% had been native and 60% conifers because a small number of very large projects had contributed to a major share of the forested area). He noted that woodland creation was beneficial to farmers, and provided details of guidance on the process for new applications, emphasizing that such applications needed to be consistent with legislation on biodiversity. In summary he noted that: there was a strong drive for woodland creation to combat climate change; the new application process demanded FCS consultation with SNH and RSPB; there was increased emphasis on careful site and species assessment; the role of FCS was to resolve issues in woodland creation projects, and would therefore expect to protect Curlews in key areas by restricting planting or introducing other mitigation measures such as habitat management.

‘A Farmer’s Perspective’ was the title of the next talk, presented by Martin Kennedy, Vice President of the National Farmers Union of Scotland, himself a farmer in Perthshire. He thanked the organizers for the opportunity to put the farmer’s point of view, and introduced his own farm, noting that his pure Highland Cattle were doing a fantastic job for biodiversity on high ground. The reason it was so important to hold much more extensive consultations with the farming community was that farmers and crofters managed 5.7 million hectares in Scotland (73% of Scotland’s land mass), with more than 1.5 million hectares currently under agri-environment schemes. Farmers and crofters had generations of experience on food production and care for the environment. Land management was vital for Curlews, and mediation important on shooting estates. Scotland was only 63% self-sufficient in food production; the figure should be higher, given the large availability of water. Criticisms of farmers included: excessive use of chemicals (but their use had now greatly diminished); intensive farming

systems (but only 8% of Scotland was subject to such operations); carbon emissions (but the role of farmland in sequestering such emissions was rarely recognised); support payments (but farmers did not like these either). In conclusion he noted that there was a need for much greater consultation with the farming and crofting community, and a recognition of what they were doing for animals and birds on farmland (notably for Lapwings and Oystercatchers, both of which were decreasing). It was vital to ensure that the landscape was conserved for the next generation.

Dave Parish, the head of lowland research in Scotland for the Game and Wildlife Conservation Trust, then addressed the question: 'Does Predator Control Work for Curlew'? He noted that Curlews faced many other problems, not just predation; long-term Curlew declines were caused by changes in land use, notably: field drainage, sward improvement, early mowing, conversion of grass to arable, change in livestock densities and forestry plantations. The proximate cause of decline was however reduced breeding success; for a stable population each pair needed to produce 0.48 – 0.62 chicks per annum (i.e. half a chick a year or one chick every two years), whereas average chick production across Europe was estimated in 2012 as 0.34 chicks per year. Curlew nest predation had increased in Europe from 16% pre-1980 to 65% between 1996 and 2006. High levels of predation, plus loss or degradation of habitat led to reduced breeding success. A GWCT project in the Hampshire Avon in England had shown how nine tagged foxes concentrated in wader breeding habitats (with other untagged animals probably also present), and wader numbers had declined despite agri-environmental schemes. A BTO study had shown an association between Curlew decline and the abundance of generalist predators. Two recent reviews summarising the results of many studies showed that reduced predator numbers more often than not led to significant benefits for prey species, both target and non-target. The best evidence of the success of predator control came from experimental work at Otterburn in northern England, where fledging success in three wader species (including Curlew) was much higher with predator control, and the number of birds returning to breed in the following year increased; with predator control, numbers of breeding Curlews was predicted to double in five years, without control, they were predicted to halve. However, results varied from site to site, probably depending on initial predator density; if there were not too many predators, there was no need for control, on the other hand if there were problems, it was better to adopt the precautionary principle and not to wait. Other possible methods included use of electric fences to exclude predators, particularly in areas with public access, where control of predators might be difficult. Existing evidence showed that predator control was a very valuable tool for Curlew population recovery, but it had to be used wisely – carried out with respect of existing legislation, in a limited period (from February to July), on an appropriate scale (in collaboration with neighbours) and by competent practitioners using best practice.

The final speaker in the second session was James Pearce-Higgins, BTO Director of Science, whose subject was 'From agriculture to windfarms – identifying problems and testing solutions'. He chronicled a journey from despair to hope, based on the results of observations by 50,000 volunteers. UK had lost half its breeding population of Curlews in the last 20 years, while wintering numbers had also declined, with fragmentation of populations in the west. Right across Europe too, there was a slide in breeding numbers; Curlews were a group prone to extinction: of eight species in the world two were perhaps extinct already, one was endangered, one vulnerable, while Eurasian Curlew, the focus of the present conference, was classed as near-threatened. One reason for the decline was habitat change, and more specifically grazing, grassland improvement, agricultural intensification, bog drainage and peat extraction, vegetation change and afforestation (particularly when there was woodland within 1 km radius of the site); arable farming and afforestation had negative effects on Curlew abundance, while presence of semi-natural grassland was positive. A second reason for the decline was predator pressure; abundance of crows and foxes had a very strong negative effect on Curlew abundance, strip burning had a smaller negative effect; gamebird abundance correlated with good Curlew numbers. The third factor strongly influencing the decline was climate change: there was a projected decline of 60% in numbers of individual Curlews by the year 2100 caused by a warmer,

drier climate. Wind farms did have a slight negative on Curlew numbers, but were not a major factor in the decline. Thus, while there was strong evidence that all three major factors were going the wrong way for Curlew, the solutions were now clear and could be tested (they would be presented in a major paper based on work in UK and the Netherlands, to appear in the coming week, and available on the Curlew Forum and WfW websites); agri-environment schemes (especially higher-level schemes) and site protection measures could be effective in maintaining breeding Curlews. In conclusion, he said that what worked for waders in general was known (though perhaps with less certainty for Curlews): agricultural schemes which achieved appropriate grazing levels, management of water levels and reduction of loss through agricultural activities; reduction of predation by nest protection and predator control. Resolution of the decline required funding and cooperation of different sectors, and testing of the best solutions for each locality.

The third and final session of the morning, entitled “Research and Conservation – Case Studies”, was introduced by the Chair, Alan Lauder, who noted that it would be concerned with what was happening on the ground. The first speaker was Alan Leitch, RSPB Orkney Reserves Manager, whose talk was entitled ‘Orkney - a Curlew hotspot’. The combination of three protection regimes on Orkney (officially designated sites covering 25% of the area, RSPB reserves and Local Nature Conservation Sites) was the reason for the richness of Orkney Curlew populations; the mixture of natural and semi-natural habitat alongside farmland provided suitable habitat; however, intensification of farming caused conflicts through the farming year and there was no place for complacency. From November until March wintering flocks were found around the shoreline and on some inland fields; in April and May males were singing and clutches were laid; in June and July chicks were being raised; from August the post-breeding flocks were augmented by arrival of Fenno-Scandinavian breeders. The breeding population had increased from the 1930s to a peak of about 6,000 pairs in the 1990s, though numbers had since decreased especially in bog areas, perhaps to as few as 3,000 or 3,500 pairs. Monitoring of breeding pairs showed varying results from one site to another. From 1980 to 2012 1,600 chicks had been ringed with metal rings, producing just seven recoveries away from Orkney (two in Ireland, one in Northern Ireland, three in mainland northern Scotland and one in the Western Isles), thus confirming the generally accepted view that Scottish breeding birds wintered in the south and west of UK and Ireland. Since 2013, chicks had been colour-ringed on Orkney, producing 56 re-sightings, none as yet away from Orkney, though some were returning to winter in exactly the same fields from one winter to another; birds colour-ringed in Aberdeenshire had been re-seen in Devon and Cornwall. There had been no hard winters on Orkney since 2009/10, perhaps a factor in birds remaining *in situ* in winter. The impact of predators was different in Orkney from mainland Scotland as there were no foxes, though stoats had arrived in 2007; it was not yet known whether New Zealand flatworms were affecting food availability. Further research was planned in future, including improved monitoring of chick productivity.

The next speaker was Patrick Laurie, a farmer and journalist, whose subject was ‘Curlew in Galloway, a sad tale’. He said that he was abandoning his original presentation as it was too gloomy, but the tale remained sad. He had gone into farming because farmers were the people who would really deliver change for conservation; he worked on two properties in Galloway, including a 1,600-acre hill farm and 30-acres of rough grazing using pedigree Galloway cattle, which would eat anything, producing some of the best habitat for Curlew in Scotland, but it was very fragmented with extensive afforestation nearby. He showed a map illustrating the decrease of Curlews in Galloway, which confirmed his own personal observations. But rather than dwelling on the decline, he wanted to concentrate on: why it was so hard to get farmers engaged in Curlew conservation; and what it was like to undertake predator control. The breeding season was a time when most farmers were busy making silage: Curlews were loved but not financially relevant, and it was hard to see how payments for ‘ecosystem services’ could cover Curlew conservation; younger farmers were unfamiliar with Curlews and had little concern, while older farmers regarded the decline fatalistically as inevitable

because of predation. He commented that no-one had so far mentioned the B-word – B for badger; in Galloway there were five badgers per fox. It was generally agreed that predation was a major factor in the decline of the Curlew, but the people to carry out predator control were not in place: it was a hard, grim task that had to be carried out alongside other farming activities like grazing and rush cutting. Farmers were reluctant to engage in predator control after 20 years during which it had been frowned upon; how was the public to be persuaded it was necessary? Curlew might be doomed in Galloway – it might be too late.

Dr Geoff Hilton of the Wildfowl & Wetlands Trust then presented a 'Summary of previous workshops – lessons from Ireland, England and Wales'. Recalling the earlier meetings in Ireland, England and Wales, he commented (with illustrative graphs) that the situation was even worse than had previously been thought. The meetings had not just been talk shops, but had sought solutions. The Irish meeting had led to the establishment of a national Task Force and a Curlew conservation programme, financed by government with local teams in hotspots. The English meeting had led to creation of the Curlew Forum, a voluntary and informal body which shared information on what worked, and what did not. The recent Welsh meeting had established regional coordination groups and was working towards a national action plan. Curlews, unlike other waders, were too widely dispersed for establishment of reserves to provide a solution; they were in even more trouble than the numbers suggested, because of horrendous levels of productivity; the meetings had suggested that there were generic problems (predation. Interaction with farming), but with specific problems varying from area to area, and no single overall prescription. Curlew conservation would ultimately be delivered by farmers, but should be driven by local action groups and supported by national-scale networks. Curlew conservation required: short-term emergency action to boost productivity (fences round nests, head starting); long-term solutions to underlying problems, including an understanding of predation; Curlew-friendly farmers and imaginative, flexible agri-environmental schemes; and not least, cash. In conclusion he emphasized that people loved Curlews, as illustrated in the arts and music; the UK government's 25-year plan for the environment specifically mentioned Curlews; we could not afford to fail.

The final speaker in this session was Prof Steve Redpath of the University of Aberdeen, whose subject was 'Conflict and conservation'. He said he was speaking without slides, and paid tribute to Mary Colwell for her role in drawing attention to the plight of Curlews, in particular by her recent book 'Curlew Moon'. If the Curlew's decline was to be arrested, there was a need for collaboration, both on big science and on application on the ground. Scientific collaboration to untangle the Curlew problem was relatively simple, calling for hypotheses to be generated and tested, but this had to occur at landscape scale; the two problems were: the lack of cause and effect; and the risk of bias (through psychological influences, such as a tendency to support the need for predator control). Robustly designed experiments were needed but were often avoided because of the cost and for ethical reasons such as the reluctance to kill Ravens to protect breeding waders. Where experiments were possible, it was essential to carry them out. Collaboration in application of results required engagement with politicians and would lead to broad ownership of findings, gaining support and reducing conflict. This was not easy since it called for a willingness to discuss, leadership, energy, time empathy and humility. The polarised, adversarial nature of the current world meant that it was hard to collaborate, so the most crucial aspect in Curlew conservation was for all concerned to work together and to agree on basic principles. Curlews would clearly benefit from predator control and from unfragmented habitat. There was a need to accept that predators must be controlled and that habitats must change, issues which raised ethical concerns. There had to be debate and delivery; investment in large-scale experiments and an early beginning of such attempts and application.

After this final presentation, the Chair, Alan Lauder invited participants to ask questions of the speakers. In response to a query on whether diversionary feeding might be used to reduce the impact of predators, it was suggested that, while this was sometimes effective for birds of prey (such as Red

kites in East Anglia), it was unlikely to be effective with predators that had very catholic tastes. A second participant queried whether the social and political will to conserve Curlews really existed; in response it was felt that it did indeed exist, but was too diluted by competing elements. Another participant pointed to a report by Derek Ratcliffe that 5,000 Curlews had been lost because of afforestation in Dumfries and Galloway; Brendan Callaghan replied that there was a Regional Forestry strategic approach, which responded to local concerns. Another questioner asked whether badly-sited offending blocks of forestry could be removed. Another participant was doubtful whether tax-payers would pay farmers to be inefficient in food production, while promoting the public good of Curlew conservation. In response to a question on potential pressure from direct human disturbance, Chris Wernham said that there was no evidence for major effects in Scotland, though there were local pockets of disturbance. Scottish Natural Heritage was requested to see whether the pest control in upland agri-environmental schemes could be extended to lowland Curlews. The final comment related to Finland, where despite fragmentation of habitats, breeding Curlews seemed to be holding their own: could this be because of the presence of lynx and other top predators? Several speakers agreed that the absence of apex predators in Scotland meant that there was elevated abundance of meso-predators such as Foxes.

Alan Lauder, opening the afternoon session. confirmed that participants would split into six discussion groups led by: Roddy Fairley, (SNH), Simon Foster (SNH), Davy McCracken, Duncan Orr-Ewing (RSPB), Dave Parish) and Chris Wernham. Each group was to reflect on the three questions listed in the Agenda:

1. What are the threats/issues/pressures facing Curlews in Scotland? Which are the most important and where do they apply?
2. What actions do you recommend to address them?
3. Are current mechanisms adequate to implement these actions? If not, what are we going to do?

He suggested that most time be devoted to the second and third questions, as the morning's presentations had given clear indications about the main threats and pressures.

The meeting then broke into small groups, reassembling afterwards in the main hall to review their discussions and conclusions. Chairing this session, Alan Lauder indicated that the main issues and threats identified: Habitat change (encompassing both intensification and de-intensification); development pressure; predator response (to changes in landscape); and climate change. He added that it was important to realise that local circumstances would vary from place to place. From the floor it was noted that a full understanding of the current situation and issues was vital in order to define what constituted success; there was a need for government and individuals to admit there was a problem; there was a lack of public awareness especially in the younger generation.

Under the second question (Actions needed to address these issues), Alan Lauder summarised the findings of the discussion groups: awareness raising was needed among the general public, communities and farmers, especially in relation to predator control; enhanced advice and facilitation (in a bottom-up approach) was needed to build capacity, leadership was essential (again, especially among the farming community, where farmer or crofter 'Curlew champions' should be established); in terms of scientific support, better mapping was required - strategic mapping, not just monitoring - and a better understanding of the need for predator control was required, moving from anecdote to evidence; predator control should be approached in a collaborative manner, with properly skilled operatives. Funding was required: there should be a ring-fenced Curlew budget, including of course support for farmers via agri-environment schemes (perhaps with payment by results, but recognising that this was not simple to implement in a fair and reliable way), but also support for volunteer observers, and a mechanism to ensure that afforestation projects did not affect Curlew habitat at

sensitive sites. Finally the potential benefits made by farming to the environment should be better appreciated – carbon sequestration (which should be funded), and the possibilities of use of liming. Comments from the floor supported these findings, calling for a Curlew Action Plan for Scotland owned by the Government, which would highlight the range of actions, and establish priorities – the easiest thing first, hot spots, simple actions; establishment of demonstration sites; It was crucial to get across the message that Curlews were still present in the lowlands, but were hanging on by the skin of their teeth.

One speaker suggested that the actions could be resumed under three headings:

- Existing data should be used to develop spatial tools to inform decision-making. This would provide a strategic overview to identify where Curlew hotspots remained and to help target conservation effort.
- This summary did not need to be top-down, as the information could be used to inspire local land-owners / communities. Engagement with key land-owners in these areas would be important. Key priorities for action were: to address issues of predation, to stop damaging management practices that destroy nests / chicks and to avoid development (forestry, wind farms) within at least 1km of wader hotspots.
- It would then be necessary to work with local groups to monitor the success of those interventions (some pilot work was under way in the Cairngorms). This would provide: useful feedback to land-owners / managers to improve practice and to identify when interventions were or were not working; would enable analysis to identify what worked where and when across the range; and would develop feedback and information exchange across areas / communities.

Finally, on the mechanisms needed, Alan Lauder summarised the groups' findings: firstly, a recognition of the importance and urgency of the situation and decline in breeding Curlews; then a landscape scale approach to farming methods and structures (with flexibility built into agri-environmental schemes) and better land-use planning through alignment of sectoral planning; better availability of bird data; better exchanges of information, both bottom-up and top-down. Working for Waders was on the cusp of greatly improving delivery of these mechanisms.

In comments from the floor on the mechanisms needed, the need for a breakthrough on Curlew issues with two or three ministers was emphasized; some speakers felt that forestry was currently dominating land use issues, though forestry representatives replied that there was a process in place to review planting applications, and that inappropriate applications would be rejected at an early stage. It was suggested that RPID (the Rural Payments and Inspections Division of the Scottish Ministry of Agriculture) should be involved in Working for Waders. Prof McCracken responded that Working for Waders had only been in existence for nine months, and that RPID was supportive in the background; it had previously accepted this approach in the case of Corncrake and Corn Bunting.

Closing the conference, Alan Lauder indicated that Working for Waders was the best body to carry forward the day's findings and conclusions. He wondered whether the WfW model might prove effective in England and Wales. Mary Colwell thanked everyone who had contributed to the meeting, which, she said, had been humbling and exciting; she urged everyone to remember that Curlews represented something irreplaceable for everyone.

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