

4.3 Linear features

Across all trial areas it was private, farming landowners who carried out the majority of creation or restoration of linear features, whether they were hedges or cereal field margins. Again there was a preference for habitat restoration eg of gappy hedges, than planting of new hedges. This work was the main enhancement feature in all parts of the trial areas where farming, especially arable farming, is most intensive. In general, hedgerow sections are quite short and in the Alde over half the work on hedges was in lengths less than 250m. All work on field margins is funded through Countryside Stewardship but although these payments also contributed to work on hedgerows the Landfill Tax and the project's and landowner's own funds were important too. As with all work in the trial areas, project officers were only able to influence the precise location to a limited degree. Ultimately, landowners decided whether they wanted to contribute and which pieces of land they could spare. With improved targeting, the relative ease with which these linear features were restored could be used to improve links to combat fragmentation by, for example, creating hedgerows between different existing blocks of woodland.

4.4 Targets achieved

Across the four trial areas, targets for restoration work were largely achieved but those for creation were much more difficult. Some success was achieved towards the heathland/acid grassland targets in the Alde and Sherwood where funding was available but wetland and woodland creation targets were universally difficult. Despite the difficulty of achieving creation targets, it is this achievement which delivered the overall increase in percentage cover of the trial area supporting priority habitats. Were work to continue at a similar rate for 10 years the project areas might be expected to support 27%, 13%, 6% and 4% priority semi-natural habitat respectively.

4.5 Funding for restoration and landowners involved

Annex 5 and Annex 6 illustrated the proportion of work by habitat for each trial area funded through different mechanisms and carried out by different land owners.

4.5.1 The Alde

The Suffolk River Valley ESA funded 96% of the restoration /creation of grazing marsh as the ESA covers the grazing marsh areas and consequently no other mechanisms were available. However the ESA was less important, proportionately, for the other habitats as these habitats occurred outside the ESA (sometimes exclusively) and other funding options were available.

The contribution of the Suffolk Sandlings Project a local project funded through Tomorrow's Heathland Heritage (an English Nature managed HLF project), is evident in its c50% contribution towards creation and restoration of heathland and acid grassland in the Alde. 30% of this work was carried out by private landowners with the assistance of the Sandlings Project, the voluntary nature conservation sector contributed another 15% and the remaining 43% contributed by private landowners funded through other means (Countryside Stewardship, the ESA and the Habitat Restoration Project own funds).

In the Alde as in most other areas, it was the Forestry Commission's Woodland Grant Scheme which funded the majority of woodland planting and restoration.

Overall, there was some distinction between private and public bodies in the type of work they encouraged. Work on 62% of habitat blocks was carried out by nine public authorities, nature conservation NGOs and private landowners, whose main business was not farming, in 34 schemes with a mean parcel size of 11ha while 25 private farmers carried out the remaining 38% in 49 schemes with a mean parcel size of 6ha. However private farmers carried out the majority of work on linear features by length (Williamson 1999).

4.5.2 Blackmore Vale and the Ouse

In the Blackmore Vale and Ouse trial areas, commercial farming is the main land use. Here project officers had to persuade private landowners to take land out of agricultural production to achieve habitat recovery. Individual fields are larger in the Ouse (average 6.2ha) compared to Blackmore Vale (average 2.8ha) and this is probably reflected in the size of land holdings overall. Thus the area of habitat enhancement achieved through the project officer persuading one landowner to convert one field from agricultural production to a nature conservation land use is greater in the Ouse. Countryside Stewardship was the main incentive operating on both areas but the project officer in the Ouse was also able to draw on the Landfill Tax to contribute towards 18% of the restoration work. The Ouse project drew most heavily on the funding available through English Nature to achieve habitat restoration (Annex 3) but this contributed to only 1.3% by area and 7.5% by length (2.8ha and 4.5km) of the work achieved. In contrast, in Sherwood a smaller sum of money achieved 10% by area and 11% by length (49ha and 4.3km) of the work in total. This difference reflects the proportion of each individual scheme directly funded by the project, rather than contributed by the landowner.

As farming in the Ouse is mixed arable and pasture (sheep), the financial pressures on farmers were lower than in the Blackmore Vale (dairy) for the duration of the trial. Despite this, a larger total area of work was achieved in the Blackmore Vale compared to the Ouse, where private non-farming land owners made a significant contribution. The bulk of the restoration of existing broadleaf woodland was largely influenced by the Forestry Commission staff through the Woodland Grant Scheme and much of the parkland restoration on private estates was funded by the project. The work to the purple moor grass pastures which support the marsh fritillary butterfly was carried out by volunteers.

4.5.3 Sherwood

In Sherwood, the leisure and mineral industries contributed c62% of the restoration achieved in all land use categories other than field margins. Although some of this was funded through Countryside Stewardship and other mechanisms, agri-environment schemes were less important to this category of landowners as they earned their income by other means and, for the leisure industry, the management of land for nature conservation may enhance the value of the land for tourism and leisure. The same pattern can be observed in the Ouse but to a lesser degree.

The Forestry Commission contributed a significant part of heathland restoration and creation (17%) in Sherwood as they did in the Alde (12%) by taking conifer crops off former heathland but it was the leisure industry (golf courses and residential facilities) which provided opportunities for the bulk of heathland enhancement (36%) largely through Countryside

Stewardship, their own funds and that of the Habitat Restoration Project directly. The large private estates contributed 37% and local authority a further 6%, however private landowners only contributed 3%. This may reflect the land ownership in areas where it is desirable to create or manage heathland and the lack of an equivalent project to the Suffolk Sandlings project to provide practical help for landowners in Nottinghamshire.

5. Added value of the project and key lessons learnt

5.1 The vision map approach

The Habitat Restoration Project has pioneered the use of landscape-scale maps to encourage the restoration of specific wildlife habitats in particular locations appropriate to the trial areas. These maps show simply how and where international (Habitat and Species Directive), national (BAP) and local (Natural Area) priority habitats might be enhanced at a landscape-scale. A link is made with the characteristic species associated with these habitats providing a clear explanation for landowners of the objectives of the project. **The map-based approach is clearer than written text for landowners, conservation advisers and policy makers as it relates to a familiar landscape, enables particular land holdings to be placed in geographical context, stresses the importance of habitat links** (one of the original aims of the project), **avoids mention of habitats and species which are not appropriate** to that area yet may be part of the wider landscape of the county or region, and **shows the natural juxtaposition of individual habitats** depending on soil, landform etc (Wheeler 1999, Williamson 1999). The simple maps provide a unified vision which several advisers from different organisations can share and promote separately in their work with landowners and policy makers.

In each trial area the project officer was able to agree the nature conservation vision not just with other conservation organisations but also with landowners and their representatives and the commercial sectors in Sherwood.

The vision summaries made a direct link between habitat enhancement and species conservation. This was a particularly valuable mechanism for the project officer in the Ouse where landowners were particularly interested in creating habitat for barn owls and farmland birds such as skylark and lapwing (Wheeler 1999). Several landowners supported the erection of 12 barn owl boxes at field corners where linear field margins, ditches, riverine strips and woodland edges provided a network of foraging areas for barn owls. This work funded by the Environment Agency, the Hawk and Owl Trust and the Habitat Restoration Project had the dual advantage of encouraging the landowners involved to enhance their grassland habitat for barn owls and, as the boxes were very conspicuous, provided a discussion point for other farmers locally. A pair of barn owls nested successfully in one of the boxes in both 1998 and 1999. This link between flagship species and habitats could be enhanced in future promotion as a means of encouraging appropriate habitat management.

Despite initial reservations about the use of the maps, project officers found them valuable tools in discussions with landowners. Initial concerns related to a fear that landowners would find them too prescriptive and would be frightened away from restoration work. Experience in each trial area, however, demonstrated that with careful, sensitive promotion landowners did not feel that they were being singled out for attention, as it was clear that all landowners were considered equally, and the voluntary nature of the project was stressed during discussion. An initial option in the Blackmore Vale of limiting the use of the

vision map to conservation professionals and advisers was rejected to ensure complete transparency in the project's objectives.

In the Aide, a questionnaire at the beginning of the project revealed that many farmers did not fully understand which habitats and species were really under threat and which were lower priority. **Due to the vision map, and other work by the project officer**, a second end of project questionnaire revealed that **landowners were much clearer on the key nature conservation priorities for the Suffolk coast and heaths** (Williamson 1999). The concept is now to be expanded to cover the entire Suffolk Coasts and Heaths Natural Area to extend the work of the project across a wider geographical area, building on the lessons learnt.

In addition, the approach will be developed in the Chilterns to test, through a GIS framework, whether numerical enhancement targets set independently for chalk grassland, beech woodland and arable weeds can be co-located on the chalk scarp, where the soil is most suitable or whether there will be conflict for space. The approach could be further enhanced to take account of historic, recreational and other landscape objectives for an area and provide the basis of an integrated heritage conservation vision for valuable landscapes.

One disadvantage on the general approach, however, is that the vision map does not direct restoration towards particular sites, only general areas, so achieving specific linkages between habitat parcels is difficult. The more detailed approach which will be adopted in the Chilterns model, necessitated by a more intimate landscape and smaller land parcels, will test and refine this issue further.

5.2 Enhanced wildlife benefits

The Habitat Restoration Project **concentrated its advice on the delivery of BAP and Natural Area habitat and species targets** for the four trial landscapes. Through the vision map and project officers advice, landowners were encouraged to concentrate on positive management and creation of those habitats which would achieve the greatest benefit to wildlife in the trial area. Thus **resources (money, time, expertise) were concentrated on the most important habitats**. This approach was successful as most of the restoration achieved was in keeping with the habitats proposed in the vision.

Section 4.2 above summarises the extent of habitat restoration and creation achieved in each trial area and the pattern of that restoration in relation to landscape features. A significant proportion of the **restoration targets for heathland, grazing marsh, estuarine and linear habitats (hedges, cereal field margins, water courses) were achieved** reflecting those habitats for which funding is most readily available either overall eg for heathland through Tomorrow's Heathland Heritage or relatively in relation to the area taken out of production eg for cereal field margins through Countryside Stewardship. As a result, it is **relatively easy to achieve the creation of linear features in intensively farmed areas and to make specific habitat linkages** as this type of work fits well with farm businesses. However, achieving the **creation of large blocks of habitat**, especially if this involves taking land out of agricultural production, even with the enhanced funding mechanisms available for some habitats **is difficult for private owners to undertake**.

The impact of the work in creating high quality wildlife habitat is being monitored through the projects' long term monitoring programme (section 6). This is a 10 year programme which will

test whether restoration and creation work has achieved the anticipated vegetational and structural changes at both a site and landscape scale. The results of this work cannot be anticipated and for the purposes of this discussion it is assumed that the restoration and creation work has achieved the desired outcome (section 4.1 above). In each trial area the project achieved restoration and creation, and therefore presumed wildlife benefit, which would not have taken place without its existence.

Through its use of GIS, the project has been able to monitor the impact of directed restoration and creation work on habitat fragmentation in each of the trial areas. The four individual trial area reports and section 4.2 above, describe the approach which has been taken and the measurements made. There are no national figures or data sets to assess the level of fragmentation in different landscapes but overall the project has reduced fragmentation even if this is not always measurable as a reduction in mean-inter patch distance (Table 6, and section 4.2). The impact of this on species abundance and distribution is difficult to assess but is being modelled in an independent research project (Bailey *pers com*) and will also be assessed through the long term monitoring work on bats, farmland birds and butterflies which the project is undertaking (section 6).

5.3 Achieving value for money

5.3.1 The project officer

The Project Officer's pro-active approach (or other neutral, single centre for advice) has proved vital in getting landowners engaged in the habitat restoration process. Initial questionnaires in the Alde and Ouse, and the practical experience in Sherwood, indicated that landowners found the plethora of conservation organisations, sources of advice and funding very confusing (Wheeler 1999, Williamson 1999). The Sherwood one-stop-shop for advice, where the advisers chose to integrate their work, proved popular amongst themselves and with landowners (Hewston and Scott 2000 and section 3.6 above). Habitat Restoration Project officers were pro-active in their approach encouraging all landowners in the trial area to become involved. This approach is only otherwise adopted by ESA offices but when combined with the stratified targeting approach as adopted in Sherwood had the added advantage of ensuring that it was those landowners who were most likely to be able deliver habitat enhancement in the most important locations who were approached first.

In the Ouse, no other organisations were active for the duration of the trial and although most of the funding mechanisms (especially Countryside Stewardship) were, in theory, open to landowners irrespective of the project, it is unlikely that landowners would have entered into them. This is particularly true for work funded through the Landfill Tax and by the local authorities which the project brokered. In addition, the project officer's enthusiasm and support encouraged landowners to apply for **Countryside Stewardship funds**, supporting and enhancing the work of the Stewardship Officer, which **resulted in a higher success rate for these funds in the trial area (73%) than more generally (55%)** (Wheeler 1999). A similar pattern was observed in the Alde, 80% compared to 44-54% (Williamson 1999).

Project officers are, however, expensive (between £20K and £40K per full-time-year) (Table 3) and there is unlikely to be sufficient resources to fund them nationally at the same rate as the Habitat Restoration Project has done, but the approach could also be achieved through **better integrated working from existing project officers** and advisers working with other

government, agency and voluntary organisations. The benefits would be further enhanced if the project officer was not tied to one grant scheme (that of their sponsoring department) but could advise on other schemes if those were better suited the landowner's needs. Integrated arrangements need not all be exactly the same across the country but could be tailored to suit local requirements

The Habitat Restoration Project has funded project staff for under three years. In each area, project officers noticed an **increase in interest in the project after two years** reflecting the minimum time it appears to take for landowners to really become aware of the project and how it can help. Those projects which followed similar work in the same area (Ouse, Alde and Sherwood) found it easier to engage private landowners in discussions about restoration. In Blackmore Vale the combination of financial pressures on agriculture and the entirely novel nature of the work in that part of Dorset made the project officer's task difficult. Because of the continuing interest in the work being shown in each area all four trials are continuing for the time being although in different forms. Although it has not been tested, it appears that a minimum time period of five years is required for a project officer to become fully engaged with private landowners in achieving restoration although the permanent integrated approach outlined above would be preferable. A longer term project would also probably achieve a higher added value from its work than a short three year project.

Overall, **the value of the project** should be judged not just on its achievements in financial terms but on the **overall wildlife outcomes** achieved in comparison to that achieved in other areas where similar sums have been spent through grant aid to landowners without the assistance of a project officer. This is not possible within the scope of this project but should be considered for the future and be based on the monitoring results from the trial areas.

5.3.2 Providing the best technical advice

To provide best technical guidance, the project commissioned a **literature review into current best practice** in the creation of several habitats important in each trial area (Dryden 1997). This was promoted within the trial areas, used by the project officers and promoted by the project nationally. It ensured that project officers had access to the most up to date guidance on practical restoration techniques which they could pass on the landowners and other advisers locally.

Project officer's skills in habitat management ensured that they were able to **help landowners carry out work for which the only limitations were technical knowledge, suitable machinery and raw materials**. In each area, project officers contributed to machinery rings or networks of skill and expertise which ensured they were able to help landowners with advice, the hire or loan of machinery, supplies of local provenance seed for the establishment of both hay meadow and heathland (often harvested by the project for the purpose from elsewhere in the trial area). This approach was particularly well developed in Sherwood where the project funded the harvesting of heather seed and brash from one area of heathland for sowing on other areas (Hewston and Scott 2000) and in the Ouse where the Commission for the New Towns funded the harvesting and temporary storage of hay from a hay meadow for strewing on another area prepared for hay meadow creation (Wheeler 1999).

Although ADAS and FWAG were well placed to advise agricultural owners, there was **no similar source of high profile advice to the leisure industry**. New golf courses especially

provide huge opportunities for habitat creation and are currently served only by the Sports Turf Research Institute (whose ecologist covers the whole country and is largely focussed on courses with existing habitats) and some contribution from the voluntary nature conservation sector.

5.3.3 Funding options

In two of the trial areas particularly the project officers have been able to bring **additional non-agri-environmental funds** into the area to help **achieve habitat restoration and creation**. This enhances the value of the project officer beyond that which could be expected to be achieved by existing Countryside Stewardship, ESA or Forestry Commission staff. Because the project was not associated specifically with any grant-making body or agency, project officers were able to approach all sources of funding on a landowner's behalf to acquire the best financial arrangement for them saving the landowner's time in filling in applications which were inappropriate or unlikely to succeed. Financial arrangements were then made directly between the landowner and the grant awarding body or their agent. Although each project used some of the additional capital funding English Nature put in to the project, and the Sherwood project officer was also able to fund work through English Nature's Wildlife Enhancement Scheme, payments were not approved automatically, rather individual schemes had to compete with other work in the trial area on an annual basis before financial arrangements were approved (see Annex 3). The contribution made by the additional sources of funds confirms the need for additional monies to help top up the grant available through government schemes. These additional monies were used to fund elements not covered through other schemes and care was taken to ensure no double funding occurred.

In the Alde and Ouse trial areas the **success rate for Countryside Stewardship applications** was higher than more generally. In the Ouse the project achieved 73% success compared to 55% for Buckinghamshire as a whole (Wheeler 1999) and in the Alde the project achieved an 80% success rate in 1996 and 1997 compared to a national success rate of 44% and 54% for the two years respectively (Williamson 1999).

In addition, the **project brokered additional funds** from the Landfill Tax (Ouse, Sherwood), local authorities (Ouse, Sherwood and Blackmore Vale), the Commission for the New Towns (Ouse), directed funding available through the leisure and minerals industry (Sherwood), achieved a further capital grant from WWF to continue work (Ouse), worked closely with other voluntary organisations (Blackmore Vale), encouraged landowners to direct their own funds in the most advantageous direction (all areas), achieved contributions from the Environment Agency (Sherwood, Blackmore Vale, Ouse), corporate sponsorship, grant making trusts and public donations (Sherwood) such that the **Alde and Ouse project officers brought in between two and three times the running costs of the project** in funding for practical work over a **two to three year period** (Hewston and Scott 2000, Wheeler 1999, Williamson 1999).

Overall, **about 60% (by area) or 71% (by number of schemes) of work was funded through the national schemes with which landowners might be expected to be familiar** (Countryside Stewardship, ESA, Woodland Grant Scheme and Farm Woodland Premium Scheme). The project has demonstrated a higher success rate with these schemes within the trial areas than took place without a project officer while the remaining work was all funded through the more obscure funding sources which project officers brokered and which were

unlikely to be used without the work of the project. In all areas, but particularly the Ouse, landowners felt that the Government was sending mixed messages about national nature conservation and BAP priorities by encouraging applications in to Countryside Stewardship yet turning down a significant proportion of applications (Wheeler 1999). This put landowners off becoming involved in nature conservation work and many were unwilling to resubmit an application the following year. The increased level of funding for agri-environment schemes, particularly Countryside Stewardship, from December 1999 may help redress this concern and promote a pro-nature conservation message from all sections of Government.

The Sherwood one-stop-shop for advice on funds for restoration/creation work encouraged landowners to contact the Sherwood Forest Trust first for advice. This allowed other advisers in Sherwood to **concentrate on providing advice direct to those landowners which would benefit most from their type of funding mechanism and thus increasing the value achieved through the project**. In addition, **overt targeting was taken further than in the other trial areas** when land management advice was targeted towards those groups of landowners who were most likely to respond positively to it. This was possible as a significant proportion of land owners were not involved in agriculture but with the leisure and mining industries, forestry, the public sector and the defence estate. This approach increased the effectiveness of the advice which the project officer gave and increased the likelihood that this would be translated into positive action on the ground.

Landowners were divided at the start of the project into three categories:

- Group 1 (10%) - land managers with an appreciation of wildlife or sporting interests, experience of habitat restoration and environmental land management schemes, a relatively high level of knowledge of the advisory services and technical management work and a good fit between their core business aims and habitat restoration. Increased to 40% during the project.
- Group 2 (70%) - land managers with a low level of awareness, knowledge and experience of environmental land management schemes, habitat restoration or the advisory services but a latent interest in wildlife, countryside sports or habitats and a good fit between core business and habitat restoration. Decreased to 50% during the project.
- Group 3 (20%) - land managers with no interest in wildlife, countryside sports and a poor fit between core business and habitat restoration. Reduced to 10% during the project.

Managers who were willing to pay for nature conservation advice generally fitted into the first category and were well served by FWAG, ADAS and other consultancies. The project facilitated increased activity by identifying the Group 1 land owners and encouraging them in receiving visits from, and in working with, FWAG, ADAS etc. This released the project officer to target Group 2 through promotion and relationship building to fund start up schemes and provide hands on guidance through restoration work or environmental land management schemes applications. Once these landowners gained knowledge and experience they became more willing to pay for advice and 'moved' to Group 1. The project made little attempt to become involved with Group 3 managers. This last group might be considered the main

category of ownership if this same classification had been applied to the Blackmore Vale trial area.

5.4 Establishing and promoting effective policies and procedures

5.4.1 The ESA mechanism

The ESA mechanism proved one of the most effective means of achieving habitat restoration and was the **only mechanism where large blocks of work were achieved on privately farmed and owned land**. The Suffolk trial area was the only one which coincided (in part) with an ESA and it was within its boundaries that significant blocks of work took place. Elsewhere such work was restricted to work carried out by public and nature conservation bodies.

Within ESAs, funding for field margin creation is not available except through Countryside Stewardship. If submitted, this would be a package of work on its own and therefore unlikely to receive Countryside Stewardship funding. Within some ESAs, where arable weeds, field edge farmland birds and other boundary features are important this may make the conservation of these features difficult.

5.4.2 Countryside Stewardship

Countryside Stewardship is an effective mechanism for **creating linear features in intensively farmed areas**. Take up of the cereal field margin option in the Ouse, Alde and Sherwood trial areas was good and selected areas are being monitored in all trial areas to assess the vegetation changes they undergo over the next 10 years. Monitoring of farmland birds and field edge butterflies will give some indication of the impact of these linear features on these species over the same time. The funding rate of Countryside Stewardship is high per unit length for both 2m and 6m margins and linking land around field edges fits easily within the farm business. Farmers do not require new machinery or equipment to carry out this type of habitat creation.

However, the levels of payments currently available for restoring, and more particularly creating, blocks of habitat are not high within Countryside Stewardship. Consequently most **blocks of habitat restoration or creation were carried out by landowners who were already interested in doing it** and for whom the additional resources were a useful impetus. In the Alde, nine public authorities, nature conservation NGOs and private landowners whose business was not farming, carried out 62% by area of the blocks of restoration work in 34 schemes with a mean parcel size of 11ha while 25 private farmers carried out the remaining 38% in 49 schemes with a mean parcel size of 6ha. However, **private farmers carried out the vast majority of work on linear features by length**.

The take up of, and interest in, **Countryside Stewardship appears to be strongly influenced by the state of the agricultural economy**. At the start of the project in 1996 and 1997 when farming, particularly arable farming, was fairly profitable landowners told project officers that they were not interested in entering into a 10 year Countryside Stewardship scheme. However in the last two years of the project, 1998 and 1999, landowners, particularly in the dairying areas became more interested in Countryside Stewardship as a 10 year scheme seemed to provide some certainty in an uncertain agricultural environment. However, in the Blackmore Vale the current very low rates of return from dairy and beef production have meant that even

10 year schemes are not attractive as small farmers work to keep the business intact and all forms of conservation work became of lower importance.

Landowners and project officers raised a number of other concerns about Countryside Stewardship and its ability to deliver elements of the Biodiversity Action Plan within the farmed environment as follows. It should be stressed that these views are those generated within the project areas. Their more general validity must therefore be considered with caution and are not necessarily English Nature policy.

- **The scheme is a multi-objective one** and the scoring system was not weighted in favour of BAP priority habitats and species. As a result work which includes access, landscape and historic considerations as well as enhancement of biodiversity is more likely to succeed and there is the possibility that opportunities to reduce fragmentation will be lost because the scheme does not also include some of these additional areas.
- **Additions to the scheme were often rejected.** If an applicant decided to apply for additional items after the agreement had started, the additions were often rejected as the original work was not included in the revised score. Links between neighbouring farms were therefore difficult to achieve as a piece of work adjacent to quality habitat in another ownerships did not qualify for additional points. Again opportunities for the reversal of fragmentation may be lost.
- **Annual variation in the quality of application being approved.** Due to the highly competitive nature of the scheme during the course of the trial, the quality of applications which were approved each year reflected the total number submitted. This made it difficult for project officers to judge the quality or extent of work which was likely to be funded and advise landowners appropriately and for landowners to understand how two similar schemes, if submitted in different years, might not both be funded.
- The procedure to apply for Countryside Stewardship was **time consuming and complex**, which some farmers found off putting when applying for funds which they might not receive.
- **Overall under funding.** This has two aspects reflecting both the total number of schemes which can be funded in any one year and the levels of payment for individual pieces of work. Although the levels of payment are sufficient to encourage landowners into cereal field margin creation, they are not sufficient to encourage land out of agricultural production and into another lower input /output conservation system (Williamson 1999).
- For farmers growing rape, **the time scale for deciding applications was too late.** Applicants did not always know the outcome of their application until end-November by which time they should have sown winter rape. Consequently they had to take the chance that their application was successful and not plant up any field margins, running the risk that if the application was turned down they had lost the production on the margins concerned.

- To encourage farmers to receive a **Countryside Stewardship management plan** options for underwriting the cost of a management plan should be considered provided the plan comes up to an approved standard. Farmers might then be willing to undertake some elements of the plan at a later date at their own cost if the application was not successful.

These concerns were all raised before the change in levels of funding announced in December 1999 were known. They are still of concern in some areas and should be addressed but it is to be hoped that with the changes in funding levels they will become less of an issue. During the trial, anything which the project could do to increase the success of applications, or decrease landowner's disincentive from applying was welcomed and increased the amount of positive restoration/creation work which was undertaken.

5.4.3 FWAG Landwise Plans

The Habitat Restoration Project offered 50% grant to any landowner interested in contracting FWAG to write a Landwise Plan for their holding. Take up of this overall was poor. In total only seven plans (Alde - 3, Sherwood - 3, Ouse - 1) were written partially reflecting limited activity by FWAG in the Ouse and Sherwood areas during the trial and partly because of farming landowners disinclination to pay for nature conservation advice if in addition it was going to cost them money to carry out the work proposed. This may appear contradictory to the project's experience in Sherwood (4.5 above) but in Sherwood many landowner's core business lay outside agriculture.

5.4.4 Direct delivery of funds

Despite the conditions which English Nature imposed on the use of its funds for restoration/creation work (Annex 7), and the additional contribution to this 'pot' made by Nottinghamshire County Council, the Sherwood project officer found it very useful to be able to visit landowners with a clear idea of the types of work which would be funded and therefore able to give landowners a quick, positive response to their proposal. The paper work was all completed in the office and the Sherwood Forest Trust brokered the transactions such that the project officer felt he gained additional credibility with the community and increased the number of practical schemes he initiated counteracting some of the administrative difficulties perceived by applicants for Countryside Stewardship.

5.5 The value of partnership working

Each local project was a partnership between English Nature and another advisory body. In addition local steering groups established partnerships with landowners representatives and other conservation and advisory bodies locally. Although not initially members of the steering groups both the Forestry Commission and Environment Agency were very supportive in all trial areas.

There were a small number of jointly funded practical projects in each trial area, the number possibly limited by difficulties over multiple capital funding.

Partners each played distinctive local roles. The Environment Agency helped fund a leaflet on the importance of water courses and streams in the Blackmore Vale, contributed to a survey of

great crested newts and helped fund practical work. Similarly in the Ouse and Sherwood the Environment Agency contributed to joint funding of practical conservation work. The director of the Sherwood Forest Trust and the chair of the Sherwood steering group was seconded from the Forestry Commission. In this area, as in the Alde, the Forestry Commission helped fund practical work principally by restoring or recreating heathland on their own land and in the Blackmore Vale helped the project officer by providing extensive advice to landowners on the management of woodland in the area. FWAG, particularly as the lead partner in the Blackmore Vale and to a lesser extent in the Alde, shared and helped promote the vision locally. Due to staffing difficulties, FWAG were not particularly active in the Ouse and Sherwood during the trial.

The objectives of the vision map were, to a large extent, shared by partners in each trial area helping ensure that its message was promoted to landowners through a variety of mechanisms. Better coordination at a local level and greater initial confidence in the value of the vision map would have improved this aspect which should be strengthened in future working.

The Advisors' Liaison group in Sherwood acted as a focus for all the agency advisers to get together and share information about exchange of equipment (machinery rings), specialist skills and knowledge. This added value to each of their work areas.

Having encouraged joint working in the course of the trial, particular problems were encountered when partners wished to share English Nature's survey information (Phase 1) of the trial area. In each area, this information had been collected in confidence and undertakings had been given to landowners that it would not be passed on to others without their permission. English Nature was not therefore able to share this information with its partners locally. Permission was requested, and largely granted, for the Sherwood and Ouse information to be passed to the Nottinghamshire and Milton Keynes local record offices respectively. In the Blackmore Vale, confidentiality was a major concern of many landowners and the different approaches of English Nature and the Environment Agency over public availability led to some uncertainty regarding the funding and deposition of the great crested newt survey. Giving landowners an undertaking of confidentiality had been essential in getting the Blackmore Vale trial started but the necessity for this should be considered very carefully in future work.

5.6 Wider applications of the lessons learnt

There are a number of distinct general messages which can be concluded from this aspect of the work. They are summarised below.

- The vision map approach was a popular and valuable educational tool for landowners and conservation professionals alike in improving their understanding of the appropriateness of quantitative BAP habitat and species targets for a particular area.
- The key obstacles preventing private landowners carrying out habitat enhancement include: loss of income, uncertainty of obtaining funds to pay for work, funds that do not cover the full cost of the work, schemes that do not tie directly to BAP and lead to confusion, inappropriate skills and machinery. If the project can help with the last three of these, this helps offset the other financial obstacles although these still need to be overcome.

- Habitat creation was consistently more difficult to achieve than restoration particularly in blocks, rather than strips, if this involved taking land out of agricultural production.
- Landowners whose principal income is derived from sources other than farming are more likely to undertake restoration/creation work. This was particularly marked in the contribution of the minerals and leisure industries in Sherwood.
- Farmers are unwilling to carry out work that they will not be able to revert to productive agricultural land in the future. This is a particular problem in encouraging woodland planting with which the project, in keeping with other similar schemes, has made only limited gains.
- For some landowners, the main limiting factor in carrying out restoration and creation is a lack of suitable machinery, skills and expertise. Anything which the project could do to help alleviate this was welcomed in the trial areas and led to positive restoration in some areas. This practical approach is being encouraged through the multi-agency FACT programme (Forum for the Application of Conservation Techniques) which encourages positive practical conservation management.
- The environmental land management schemes favoured by farmers are those which impinge least upon their farm business eg cereal field margins and lower tier ESA payments. This reflects both the limited income available from Countryside Stewardship/ESA payments and the additional long term land management responsibilities outside normal farm work which habitat restoration and management entails.
- There were a number of particular concerns raised in each trial area about Countryside Stewardship particularly in relation to the state of the agricultural economy. These are summarised in 5.4.2 above but may now be addressed through the additional funding available for the Countryside Stewardship scheme.
- There is a significant roll on from previous advisory schemes which enhances the value of projects, which follow. In Blackmore Vale there had been no previous work making the project officers job a more difficult one. The overt targeted approach adopted in the Sherwood trial area provided an opportunity to concentrate project officer's advice with those landowners which were most likely to respond.
- Project officers are an expensive option but their contribution can also be partly achieved through improved joint working between existing advisers in particular local areas. Their particular contribution lies in a proactive approach to coordinated guidance, sourcing funds for practical help (30%-40% on work achieved in the trial areas), assistance with form filling and raising the quality of Countryside Stewardship and other applications submitted. One-stop-shops were popular with landowners and helped increase the effectiveness of those advisers involved in the scheme.
- Timescale. Three years is not long enough for the project to become adequately known to landowners and five years might be a more appropriate time scale for pump-priming work. It also takes some time for conservation professionals, who have spent many years conserving existing habitats to begin to think seriously about restoration and

enhancement. Project officers noted a significant increase in interest in, and awareness of, the project after two years but were not able to fully capitalise upon this in the final year. With more money available for conservation than at the start of the trial and as the BAP agenda, which addresses habitat enhancement having moved on during the last three years, there is greater interest in developing this aspect of nature conservation now than there was in 1996.

6. Monitoring ecological change

6.1 Why monitor?

The Habitat Restoration Project has undertaken ecological monitoring on 10 restoration or creation sites in each trial area. The purpose is to test whether the ecological changes which are expected to take place when converting say arable land to hay meadow are taking place on the Habitat Restoration Project sites. Ecological change is long term and the project has embarked on a 10 year monitoring programme to test whether the predicated changes are taking place within the anticipated time scale.

6.2 The monitoring method

The monitoring method was developed and tested by Wye College, University of London, based on the nationally agreed standards for monitoring stability or change on Sites of Special Scientific Interest (Mitchley *et al* 1998). The method assesses botanical composition and structure checking for the presence and abundance of species indicative of ecological progression in the desirable direction as well as species indicative of the previous vegetation type. The method is quick and simple and provides a tool to enable rapid assessment of the success of restoration and creation work in the field. As predicted by Kirby (1995) the project did not test whether restoration/creation sites began to support the rarer animal species (vertebrates or invertebrates) because of the expected length of time necessary to see any change. Because of the novel nature of the method developed, the project has also used conventional botanical monitoring by randomly located sample quadrats to measure floristic composition and structure which will provide a control for the method as well as additional data from the field sites.

Baseline survey was carried out in the Alde and Ouse in 1998 and in Blackmore Vale and Sherwood in 1999; the first summer after practical work had been undertaken. The project proposes to undertake repeat monitoring in years 2/3, 4/5 and 9/10 of the trials and will compare vegetation change over this time.

6.3 Results

The results from the first field season (1998) in the Alde and Ouse are available as Burch *et al* 2000. The results from the second field season are available as internal English Nature reports (Baker, Sheppard, Gillespie 1999; Wilson 1999). As a result of their development work and the first year's field trials, Wye college also wrote a monitoring manual for field staff explaining how to use the method in the field (Mitchley 2000).

As the work set out to monitor ecological change and at the time of writing there was only one year's field data from each of the trial sites, analysis of whether change is occurring in the predicted direction is not yet available.

All original data is held in hard copy and electronically by English Nature (Lowlands) and in hard copy with the relevant English Nature local teams.

6.4 Species monitoring

Several farmland BAP species use different habitat elements (habitat mosaics) at a landscape scale to complete their life cycle (Simonsen and Thomas 1999). One of the major objectives of the Habitat Restoration Programme has been to explore the delivery of habitat enhancement at this scale. Limited monitoring of a number of taxonomic groups has been carried out at this scale in some of the trial areas. This work has centred on farmland birds (skylark, yellow hammer, linnet) in the Ouse (Wilson *et al* 2000); hedgerow and field margin butterflies in all trial areas; barn owls in Ouse based on records from nest boxes; and bats, particularly pipistrelle species in all trial areas. Field work was carried out in summer 1999 and spring 2000.

6.5 Species modelling

These field results are being built into GIS based models to test whether the preferred landscapes (habitat mosaics) for individual species are sufficiently similar to be mutually beneficial. If so, promotion of the preferred mosaic for one flagship species would benefit others, but if contradictory the conflict should be explored and resolved. The project Phase 1/ BAP land-use data set is one of the few data sets available for testing these ideas.

6.5.1 Farmland birds

Existing models of skylark, yellowhammer and linnet numbers in relation to different habitat structures in farmland were used to predict the numbers of each species that would be expected in different hedge/ditch samples within the Ouse trial area where restoration has, and has not, taken place. The models were also used to predict the impact on these populations of several agricultural change scenarios (expansion/reduction in spring cereals, increase in area of organic crops, re-installment of mixed farming habitat mosaics) and to predict where additional hedges, ditches and cereal field margins should/should not be created to improve the landscape for these species and to compare this with the changes achieved (Wilson *et al* 2000).

6.5.2 Other species

Preferred landscape models for brown hare, pipistrelle bat and other species are being developed at the Centre for Conservation Biology, Stanford University, California (Bailey *pers com*), Durham University (Thomas *pers com*) and by the Forestry Commission (Purdey *pers com*). The impact of the restoration/creation achieved through the project and possible alternative forestry expansion targets on these population models will be tested.

7. Role of GIS in the project

7.1 Use of GIS in the Habitat Restoration Project

The Habitat Restoration Project has adopted a new approach in the use of GIS to that used previously within English Nature. Previously, GIS had been confined to site specific or natural Area boundary mapping, but the Habitat Restoration Project information has been plotted and analysed at a landscape scale (100km²).

Analysis and interpretation of the data in traditional (hard copy) form would have been time consuming if not impossible but using GIS, once the data were captured, it was possible to carry out analysis at a landscape scale simply, accurately and repeatedly to consider alternative questions and issues. The Habitat Restoration Project has given English Nature the opportunity to develop new ways of working and set standards in GIS which can be used in future work. The project has used both MapInfo (clear presentation) and Intergraph systems (greater analytical capability) for different aspects of the work.

The majority of the GIS work carried out through the project was conducted 'in house' as not all of the tasks which have been asked of the GIS system were formulated at the start of the project and much more has been undertaken than was originally considered. This was easier to manage in-house than it would have been through contractors. Some repetitive tasks (digitising the Phase 1 data sets for the Sherwood and Blackmore Vale trial areas) were however contracted out once the protocols had been developed in-house. The costs of carrying out the GIS work was approximately £65K over three years for all trial areas (Annex 8).

7.2 Work undertaken

Key tasks have covered the production of the vision maps, capture of baseline information, development of standard reporting procedures, fragmentation analysis, design of database to hold monitoring information and the development work to help contractors and researchers carry out the species modelling work.

7.3 Lessons learnt

These relate to three areas of data capture, analysis and reporting.

7.3.1 Data capture

Many of the lessons regarding data inputting relate to stages of the project before GIS work began eg supervision of Phase 1 survey, but confirm that consideration of the option for GIS should be given in the design of basic field survey methods. The project has developed data handling standards which should ensure that future inputting is more coordinated (Bailey and Isaacs 1999).

Contracting out the digitising of two Phase 1 data sets has enabled a standard set of tender documents to be developed and tested (Bailey and Isaacs 1999). Supervision of these contracts by those who understand the technical aspects is essential if a quality product is to be received.

7.3.2 Analysis

A standard set of fragmentation queries (patch compactness, connection and nearest neighbour) have been established using basic GIS tools. These figures enable comparisons between and within trial areas to be made (see section 4.2). Although this is not novel GIS work, it was new to English Nature and could now be used more widely with other data sets.

7.3.3 Reporting

A house style for all the high quality mapped outputs (consistent with the Data Protection Act and project's confidentiality undertakings) was developed and was consistent across all project reports. Overall the use of GIS has conferred the following advantages on the project:

- a high quality mapped output was easily available;
- standard protocols have been developed;
- analysis was quick and reliable; eg of land use pattern, location of restoration, funding options, landscape-scale species requirements;
- visual models helped plan restoration objectives and understand constraints;
- the data set provided an integrated system to store all the Habitat Restoration Project data and a research base for the future.

Initial data capture in digital form was expensive, but once captured the cost of repeated or alternative requests for complex analysis was quick and relatively inexpensive. Holding the basic data in detailed form (Phase 1) has enabled more generalised outputs (BAP land use maps) to be developed. Had the data been collected in a general form it would not have been possible to provide the more detailed analysis as it was subsequently required.

8. The future

As described in section 2.4, combatting habitat fragmentation is vital to English Nature's work and to nature conservation, especially in the lowlands. The lessons from the Habitat Restoration Project are being taken forward and developed in a number of different ways.

There are currently about 20 landscape-scale nature conservation initiatives being funded by English Nature nationally or through local teams, many in partnership with nature conservation NGOs or other government agencies. The vision map approach is being continued and refined in the Suffolk Coasts and Heaths and the Chilterns (section 5.1) and developed specifically for other priority areas including the River Waveney in Norfolk/Suffolk, the Culm grasslands in Devon and in several county targeting projects, eg for Norfolk, Oxfordshire, Yorkshire and Kent. The approach is also used in English Nature's input to targeting of Countryside Stewardship. A landscape view is taken specifically in the conservation of mobile species including bats, red squirrels, curl bunting and other farmland birds, arable areas and some lepidoptera and bees. The success of the individual trials at a local level is such that each is continuing to deliver practical restoration within the local community. An input to, and lessons from, these projects could be successfully achieved through the skills of a landscape ecologist.

Increased funding of agri-environment schemes from 2000 onwards will provide additional incentives for landowners to help with farm-scale landscape change. For these funds to be used most effectively, English Nature and others must help MAFF develop a clear idea of the level and nature of change acquired at a landscape-scale to deliver BAP, taking opportunities presented through the Rural Development Plans.

Renewed consideration is being given to the best ways of providing practical nature conservation advice to landowners and managers. The FACT and ENPACT Programmes which develop and deliver practical land management to landowners has much to contribute as has a recent review of the most appropriate and successful sources of advice to landowners.

Each of these areas will draw upon the lessons learnt during the Habitat Restoration Project and continue to take them forward.

9. References

- BAILEY, S-A. & ISAACS, J. 1999. Translation of Phase 1 data from field maps to GIS - Learning gained from the Habitat Restoration Project. Peterborough: *English Nature Research Reports*, No. 312.
- BAKER, SHEPPARD, GILLESPIE. 1999. *Field results from Habitat Restoration Project monitoring in the Sherwood trial area*. Peterborough: English Nature (Internal Habitat Restoration Project report. Contract No. HAB/CON/012).
- BURCH, F., MITCHLEY, J., BUCKLEY, P., WATT, T. 2000. Habitat restoration monitoring. Development of monitoring methodologies within the Ouse and Alde trial areas. Peterborough: *English Nature Research Reports*, No. 321.
- DRYDEN, R. 1997. Habitat Restoration Project: fact sheets and bibliographies. Peterborough: *English Nature Research Reports*, No. 260.
- EPPEY, K. 2000. Habitat Restoration Project: Enriching the Vale. Final project report of the Blackmore Vale trial area. Peterborough: *English Nature Research Reports*, No. 376.
- EPPEY, K., HORTON, P. & HALL, J. 1998. Opportunities for enriching the Vale - a vision for habitat restoration in the Blackmore Vale. Peterborough: *English Nature Research Reports*, No. 371.
- HEWSTON, G., HORTON, P. & HALL, J. 1998. Opportunities for renewing Sherwood's wildlife. Peterborough: *English Nature Research Reports*, No. 369.
- HEWSTON, G. & SCOTT, C. 2000. Habitat Restoration Project: Sherwood Forest. Final report for the Sherwood trial area. Peterborough: *English Nature Research Reports*, No. 367.
- JEFFERSON, R. 1998. Prime Biodiversity Areas: definition, identification and conservation uses. Peterborough: *English Nature Research Reports*, No. 290.

- KIRBY K.J. 1995. *Rebuilding the English countryside: habitat fragmentation and wildlife corridors as issues in practical conservation*. (English Nature Science No. 10). Peterborough: English Nature.
- LOCAL ISSUES ADVISORY GROUP. 1999. *Local Biodiversity Action Plan Case Studies*. Bristol: Biodiversity Secretariat. (Case study 13).
- MITCHLEY, J., BURCH, F. & LAWSON, C. 1998. Habitat Restoration Project: monitoring guidelines. Peterborough: *English Nature Research Reports*, No. 284.
- MITCHLEY, J., BURCH, F., BUCKLEY, P. & WATT, T. 2000. Habitat Restoration Monitoring Handbook. Peterborough: *English Nature Research Reports*, No. 378.
- SIMONSON, W. & THOMAS, R.C. 1999. *Biodiversity - making the links*. Peterborough: English Nature.
- THOMAS, R.C. & ISAACS, J.P. 1999. A habitat restoration trial in farmland in lowland England. In: M. MAUDSLEY ed. *Heterogeneity in landscape ecology: pattern and scale*. Proceedings of the eighth annual conference of IALE(UK) held at Long Ashton Research Station, Bristol, 7-8 September 1999.
- UK BIODIVERSITY STEERING GROUP. 1995. *Biodiversity: the UK Steering Group report. Vol 1: meeting the Rio challenge*. London: HMSO.
- WHEELER, N. & HORTON, P. 1997. Ouse Valley Link trial area report. Peterborough: *English Nature Research Reports*, No. 373.
- WHEELER, N. 1999. The Habitat Restoration Project - Ouse Valley Link Project. Peterborough: *English Nature Research Reports*, No. 326.
- WILLIAMSON, B & HORTON, P. 1997. Renewing the Alde trial area report. Peterborough: *English Nature Research Reports*, No. 375.
- WILLIAMSON, B. 1999. The Renewing the Alde Project. Peterborough: *English Nature Research Reports*, No. 327.
- WILSON, P. 1999. Field results from Habitat Restoration Project monitoring in the Blackmore Vale trial area. Peterborough: English Nature (Internal Habitat Restoration Project report. Contract No. HAB/CON/013).
- WILSON, J. *et al.* 2000. Contract report on farmland bird modelling and monitoring in Ouse trial area and elsewhere. English Nature contract report KI/98/02.

10. Acknowledgements

A large and complex project spread over four English counties with several staff changes has required the co-operation and support of many different people. This has been provided with unfailing enthusiasm and dedication.

The most important players have been the project officers. My particular thanks go to Meg Davis, Karen Eppey, Gordon Hewston, Cath Scott, Nicky Wheeler and Brenda Williamson whose individual trial area reports and information I have used to compile this report. My thanks also to Phil Horton and James Trueman who have ensured that everything continued to run smoothly 'on the ground'; to Sallie-Anne Bailey, James Isaacs and Peter Wain who have 'sweated over a hot computer', digitised data and calculated, and recalculated, figures for the area of different habitat variables in each trial area; to Jeanette Hall for help in all sorts of different ways and to the conservation officers involved with each trial area; Ian Butterfield, Richard Cottle, Sarah Davis, Dee Stephens, Corinna Woodall; to Keith Kirby for inspiration and to the members of the project board for help and guidance in tricky situations.

Kevin Watts, Cheltenham and Gloucester College kindly provided access to the summaries of his interview transcripts from the Blackmore Vale.

11. Personal communications

Bailey, Dr Sallie-Ann; Research Assistant, Centre for Conservation Biology, Stanford University, California. Former GIS officer on Habitat Restoration Project 1997 to 1999.

Purdey, Karen; GIS officer, Forestry Commission Research Station, Alice Holt Lodge, Wrecclesham, Farnham, Surrey.

Thomas, Dr Chris; Senior Lecturer, Zoology Department, Durham University. Work developed with some of his B.Sc. students.

Annex 1. Land use in each trial area

Broad BAP habitat Associated priority BAP habitat	Aide		Ouse		Blackmore Vale		Sherwood	
	Area	%	Area	%	Area	%	Area	%
Broadleaved mixed and yew woodland	846	7.4	365	3	548	5.5	1935	19
Lowland wood pasture and parkland	47	0.4			74	0.7	279	2.7
Other	799	7			474	4.7	1656	16.3
Coniferous woodland	847	8	3	<1	236	2	1666	16
Heath land and acid grassland	716	7	-	-	1	0.01	399	4
Neutral grassland	337	3	3	<1	226	2	63	0.6
Coastal and floodplain grazing marsh	327	3			-	-	3	0.03
Lowland hay meadow and pasture	-	-			226	2	-	-
Other	10	0.1			-	-	60	0.6
Calcareous grassland	3	0.02	6	<1	-	-	1	0.01
Fen, marsh, swamp	60	0.6	3	<1	34	0.3	11	0.1
Reedbed	60	0.6			-	-	11	0.1
Purple moor grass and rush pasture	-	-	-	-	34	0.3	-	-
Other	-	-	-	-	-	-	-	-
Standing open water	35	0.3	189	2	7	0.07	110	1.1
Rivers and streams	242	2	121	1	-	-	28	0.3
Littoral sediment	568	6	-	-	-	-	-	-
Saltmarsh and saline lagoons	161	1.5	-	-	-	-	-	-
Intertidal mud and sand	407	4	-	-	-	-	-	-
Supra littoral sediment	51	0.5	-	-	-	-	-	-
Coastal sand dunes	9	0.1	-	-	-	-	-	-
Coastal vegetated shingle	42	0.4	-	-	-	-	-	-
Supra littoral rock	3	0.02	-	-	-	-	-	-
Inland rock	0.5	0	16	<1	-	-	51	0.5
Improved grassland	1138	10.5	2242	21	6104	61	572	6
Arable and horticulture	3950	36	4718	43	2046	20	4333	43
Built up areas and gardens	39	0.4	67	<1	-	-	c 900	9
Unsurveyed areas (including sea)	2005	18	3148	29	540	5	1037	10
No match between Phase 1 and BAP	3	0.02	17	<1	11	0.1	-	-
Boundary and linear features	313 km		?		1048 km		364 km	

Annex 2. The national overview

1. The Habitat Restoration Project Board

Overall the project was managed by a project board established under the chairmanship of English Nature's Chief Scientist. This met quarterly; initially to approve the Project Initiation Document which set out the aims and objectives and then during the course of the project to ensure that it worked to deliver those objectives and to amend them if necessary. The project manager and her staff were responsible to the project board for the day to day running of the project and the board in turn provided support to the project manager in her work.

The project board maintained a national overview of the work to ensure that the project was steered in a unified direction. The main themes of project board discussion covered overall financial management, unifying the standards set between local projects in their approach to promoting the vision map, policy level relationships with partners, setting criteria for funding practical restoration work, helping the project manager establish the lessons from the individual trials and place these in a national context, set standards for ecological monitoring and receiving assurance that work was progressing to time and within budget.

Individual project board members had contacts with some of the key national partners for the project including MAFF, FRCA, the National Farmers Union, Country Landowners' Association, Environment Agency and the Forestry Commission. Members also had contacts with different sections of the voluntary nature conservation sector. The project was able to make use of these national contacts, particularly at the start of the project, to explain its work and reinforce the message which was promoted locally. This national network of contacts will be used again to promote the lessons which have emerged at the end of the project.

The Ouse trial area was used as a focus for a regional FRCA meeting by English Nature local team staff wishing to discuss the concept of Prime Biodiversity Areas (Jefferson 1998) and improve targeting of Countryside Stewardship. The vision map approach was advocated as a possible way forward in helping FRCA direct Countryside Stewardship payments to areas where the benefit to wildlife would be greatest.

Field meetings were arranged in the trial areas to demonstrate the project's approach in the delivery of BAP in an agricultural landscape to MAFF (in the Ouse trial area) and to the national Biodiversity Secretariat (in the Alde trial area). The project board undertook a field visit to the Sherwood trial area to see the work of the project on the ground and to discuss the successes and failures of the project with landowners and partners. The Alde trial area was also used during an English Nature Lowlands Team meeting as a practical forum for habitat and species specialists to discuss a wide range of landscape ecology and restoration issues.

The project manager and trial areas coordinator were involved in day-to-day discussions and work in all of the trial areas and were therefore able to ensure that common standards were maintained across the four areas and that good practice established in one could be passed on to another. National meetings were held each year to exchange ideas, establish best practice and promote greater understanding between the individual projects. One field meeting of all the staff involved (project officers, conservation officers, central project staff) was held in each of the trial areas in succession and an indoor meeting was held in Peterborough for project staff,

project board members, conservation and specialist staff across English Nature to exchange ideas about the lessons learnt and the best working practices.

2. Publicity and promotion

Nationally, the project manager and her staff promoted the work of the project through a range of national fora. These were different from the opportunities which were open to individual local projects. A national set of publicity boards were produced which summarised the work of the project and were used both locally and nationally to promote the work. Local projects tailored these to their own requirements.

The project manager took the opportunity to attend national conferences and meetings to promote the project to agricultural and forestry policy makers and to those involved in developing a landscape-scale nature conservation agenda. Meetings at which the project was presented included the annual English Nature Species Recovery Meeting (on two occasions), the British Ecological Society, International Association of Landscape Ecology (Thomas and Isaacs 1999), ECOPLAN (a landscape ecology discussion group funded by the Economic and Social Research Council), and the Society for Ecological Restoration (Groningen, The Netherlands).

3. Staffing

The project was run by the project manager with support from a scientific officer between 1996 and 1998, a trial areas manager/co-ordinator from 1998-2000 and a GIS project officer from 1997 to 2000. English Nature conservation officers in Suffolk, Buckinghamshire, Dorset and Nottinghamshire helped oversee the project locally. The staffing of the project changed several times between 1995 and 2000 reflecting changing roles and responsibilities within English Nature. Fortunately, project officers remained consistent throughout the duration of individual trials. Although handovers were as smooth as possible, there was sometimes a brief hiatus between staff and a slight change in emphasis particularly from one project manager to another. The staff involved are summarised below.

Staffing of Habitat Restoration Project and composition of the project board

Project Manager	Phil Horton, December 1995-February 1998 Rachel Thomas, March 1998-March 2000
Trial Areas Manager/Co-ordinator	Phil Horton, March 1998-October 1998 James Trueman, November 1998-February 2000
Scientific Support	Jeanette Hall, July 1996-March 1999
GIS project officer	Sallie-Ann Bailey, summer 1997-September 1998 James Isaacs, September 1998-November 1999 Peter Wain, December 1999-March 2000

Conservation Officers

Alde, Suffolk	Richard Cottle, April 1996-spring 1998 Helen Smith, spring 1998-autumn 1998 Richard Rafe, autumn 1998-March 1999
Ouse, Buckinghamshire	Corinna Woodall, April 1996-autumn 1997 Sarah Davies, autumn 1997-July 1999 Corinna Woodall, July 1999-March 2000
Blackmore Vale, Dorset	Dee Stephens, April 1997-March 2000
Sherwood, Nottinghamshire	Ian Butterfield, April 1997-March 2000

Project officers

Alde, Suffolk	Brenda Williamson, 1996-March 1999
Ouse, Buckinghamshire	Nicky Wheeler, 1996-September 1999 Meg Davis, September 1999-March 2000
Blackmore Vale, Dorset	Karen Eppey, 1997- March 2000
Sherwood, Nottinghamshire	Gordon Hewston, 1997- March 2000

Composition of the Habitat Restoration Project Board, 1995-2000

Dr Keith Duff, Chief Scientist (Chair)
Dr Kevin Charman, General Manager, 1995-1999
David Henshilwood, General Manager, 1999-2000
Dr Keith Kirby, Project Manager for former Habitat Fragmentation Group, 1995-1998
Gerry Hamersley, Senior Agricultural Policy Officer, 1998-2000
Jim Dixon, Senior Agricultural Policy Officer, 1999-2000
Leo Batten, External Relations Manager, 1995-1998
Dr Richard Wright, Team Manager Lowlands Team
Dr Richard Rafe, Team Manger, Suffolk Local Team

Annex 3. Overall costs of the Habitat Restoration Project, excluding staff time

Project	Alde 96-99	Ouse 96-99	Blackmore Vale 97-00	Sherwood 97-00	All trial areas 96-00	Total 96-00
EN contribution to project officer cost and overheads	£47748 *	£30620	£37972	£37500		£158840 *
Partner contribution to project officer costs and overheads	Overheads only	£30000	Match funding	Match funding		
Practical management work	£5338	£15470 **	£3150	£9628		£33586
Phase 1 survey	* Included in support costs	£6743	£12926	£8060		£27729 *
GIS hardware					£5500	£5500
GIS digitising			£8519	£3231		£11750
Scientific officers support costs					£9380	£9380
Publicity	£5778	£2660	£2529	£1500	£9420	£21887
Landwise plans	£5723	£910		£672		£7305
Monitoring					£56695	£56695
GIS support costs					£64750	£64750
Total English Nature contribution	£64587	£56403	£65096	£60591	£145,745	£397,422

* Includes cost of carrying out Phase 1 survey also contracted through Suffolk Wildlife Trust

** Includes contribution from Milton Keynes Parks Trust