7. Norfolk Broads ESA

7.1 English Nature

7.1.1 General Issues

EN looks to MAFF and ESAs to deliver the management of habitats such as marshes and fens to restore floodplain biodiversity. Biodiversity can only be restored through a combination of land management (through the ESA management prescriptions) and appropriate standards, drainage, flood defence and water resources. EN noted that washlands are not reflected within the flood defence strategy.

EN maintains close liaison with FRCA and operate a 'no surprises policy'. Both organisations share many of the same objectives and this is the reason that the Fen Tier was introduced in the last review of the ESA.

Neither EN or FRCA have sufficient project officer resources to ensure that the funds of the Broads ESA are being utilised in such a way as to maximise the benefits of the scheme. The changes that EN consider will need to occur within the scheme (better targeting, links to WLMPs and flood defence schemes) will demand further officer time.

7.1.2. Water Level Management Plans

WLMPs are relatively well developed in the Norfolk Broads, probably because it is a National Park. WLMPs are in place for 25% of the area - the ultimate objective is to have the whole area covered. EN view the WLMPs as ensuring water levels are managed for the whole area and not just SSSI designated areas. Water management within the floodplain is closely related to standards of flood defence. Washland areas are being identified by EN with the EA as a strategy of flood defence that also delivers biodiversity gain. However, it is first necessary to make the link between an appropriate agri-environment incentive and a flood defense option.

EN consider the development WLMP as an evolving process. Rather than push for extreme high water levels at an early stage, they are adopting a step-by-step strategy, encouraging water levels to be raised by increments and learning from experience. This way, substantial changes can be made with fewer problems, and the ground can become more moist gradually. The Kings Lynn Consortium of IDBs undertake experimental management trials for 2-3 years, encouraged by the IDB engineer, and this is proving to be successful. There are still some outstanding problems which need to be resolved. Because water availability is a limiting factor in retaining or re-creating wetter grassland or marsh, a number of compartments are never able to consistently meet ESA summer requirements. In clay marshes there is very often a summer water deficit. The main source of water are springs and rainfall. EN considers that these are the best sources of water since they are clean and therefore contribute to a higher quality habitat.

However, if rainfall is low, and there is limited water available from springs, farmers then tap off water from rivers to maintain water levels, in order to stay within the limits set by the management prescriptions. This results in poor quality water being allowed into the site. EN considers that it would be preferable to derogate this in the ESA prescriptions and accept drought conditions in the habitat, rather than letting poor quality water in. Again there needs to be a strong link between Water Level Management Plans and the ESA, where one depends on the other being

implemented effectively. The WLMP should also take into account water quality in rivers and ditches as well as quantity.

7.1.3 Current Trends

SSSIs exist within a matrix of wider countryside, which needs to be managed in a conservation minded way. EN consider that it is useful to have blocks of well managed habitats within the Broads, and use these as a demonstration tool for influencing expansion and improvement of the areas in between them.

One major concern is the fragmentation of habitats within the Broads. It is considered necessary to look at the whole area within the National Park. There is some evidence that wildlife is moving into areas which are being well managed, resulting in patchy concentrations of biodiversity. EN wish to address this 'honey potting' in order to acheive dispersed wildlife across the floodplain, and hence more stable community structure. Because 80% of the area qualifies for SSSI status on the basis of the quality of the ditches alone, there is a need to look wider than just bird populations, which drove the conservation debate and assisted the formation of ESAs in the first place. New agreement holders have to manage ditches sensitively, taking into account the needs of molluscs, which can be easily damaged by insensitive management.

Wet grasslands require extensive grazing in order to achieve a sward structure that gives conservation gains. This approach is different to the agricultural vision for grasslands. This difference needs to be handled carefully in terms of supporting agriculture on the one hand whilst encouraging a more extensive regime on the other. MAFF are being sufficiently flexible about what a grazing sward is, and these conservation needs can be fitted into existing tiers. EN considers that large differences in biodiversity value can be observed even within small blocks of grazing marsh. EN warned that it cannot be assumed that biodiversity is not continuing to decline even under Tier 2. Tier 3 is likely to deliver biodiversity. The most important factor is that water levels need to be raised and a more extensive grazing system established.

One new initiative is the establishment of the Fen Tier at the last review in 1997. EN and other conservation bodies pay for fen restoration, and when the fen is restored, the ESA payments take over to maintain it. However, EN are doubtful whether the payments are sufficiently high to sustain management, as landowners will only do it if the books balance, apart from those whose sole interest is conservation. This has important implications for fens as European Sites. MAFF have responded to EN in this respect, and EN and others are exploring more cost effective ways of managing fens, whilst maintaining some agricultural uses to bring down the agricultural costs involved.

The preservation of Broadland habitats is driven by soil and water levels. In the Halvergate Marshes, about 400 ha is currently in Tier 1 agreements. Many landowners are willing to enter Tier 2, but water supply infrastructure is poorly developed and water resources not always available.

7.1.4 Success of ESAs

The Norfolk Broads ESA has halted and reversed landscape destruction by arable agriculture. It has also slowed down the decline of biodiversity and reversed this trend in some areas that are managed by conservation bodies. The overall conclusion is that the management prescriptions in

each tier need some minor modifications but work well. Their simple approach is a strength. More attention needs to be given to ditch communities and to habitat restoration and recreation in the fens. EN are very much of the view that payments for all tiers should deliver biodiversity rather than Tier 1 fulfilling a purely landscape objective. Some plant species continue to be threatened and these are being propagated with a view to re-introduction when the ESA habitats are sufficiently improved. In addition a suite of rare plants are being restored on part of the flood defence works in Breydon Water and Halvergate. This has conservation benefits but is very labour intensive to achieve.

Farmers need to be very clear about the conservation requirements on their land. Conservation is very prominent for landowners within the Broads. EN consider it is very important to support local farmers and other landowners. In conservation, experience and local knowledge counts for a great deal. Provision of advice is more important than environmental 'topping up' agreements. Very few 'top-up' agreements are put in place as the ESA payments are seen as the mechanism to deliver conservation objectives. The farming community is split between the more 'traditional' farmers whose businesses involve beef fattening and sheep, and more intensive farmers who run arable farms. It is therefore quite difficult to achieve consensus in WLPMs to cater for the different needs.

There are big differences in biodiversity value within grazing marsh areas. In land that is under Tier 2 agreements, it should not be assumed that biodiversity is being sustained. Wildlife gains depends on more wetness and extensive management. Land under Tier 3 is delivering biodiversity returns. Uptake of Tier 3 is predominantly by conservation bodies who manage the land for conservation as the primary priority.

One of the most important contributions that can be made to biodiversity is through increasing the amount of land in the Fen Tier. The Fen Tier includes a number of different habitat types, including reed beds, sedge, fen meadowland, fen and swamps. However, these important habitats for conservation are generally not economic as an agricultural concern.

Tier 2 prescriptions appear to meet land management needs provided that ditches are managed more sensitively and water level requirements met. In grazing marsh, ditch management needs to become more integrated into the management prescriptions. Where Tier 2 aims are not being met, this is often not through the fault of the landowner, but often because the water levels are not high enough. WLMPs and flood defence measures, with some development, may overcome the problem. In some areas, water levels are only met two years in five.

The ESA is measured on the area under agreement (quantity) rather than what it is delivering (quality). With respect to BAP targets, there needs to be a clear objective strategy and monitoring. WLMPs also need to be monitored, as the success of the ESAs for wildlife conservation depends on them delivering sufficiently high water levels.

The ESA is currently a landowner driven scheme, where landowners choose whether or not to enter land into agreements, and if so, what level of agreement. EN considers that there needs to be more discrimination about what land is entered into a scheme and under what tier. There is currently a drive for quantity rather than quality.

7.1.5 Monitoring

There is a research and monitoring strategy, and studies are carried out on a partnership basis. This consortium approach helps secure funds. Ditch surveys will be carried out every 8-10 years, and other habitats will be monitored by other organisations in a similar fashion. Data will be shared, and this will include the SSSI monitoring carried out by EN. EN considers that there needs to be stronger links with other initiatives, for example WLMPs and Local Environment Agency Plans (LEAPs) produced by the EA. In this way problems with water quality and quantity can be identified, especially where it has an effect on flora and fauna in ditches, for example, where brackish water leaks through floodbanks.

EN considers that it is important to look in detail at particular sites, but in the context of wider less intensive surveys. This can then feed into the preparation of more detailed advice, and also feed into the updating of WLMPs. Specific monitoring for BAP species is carried out by relevant conservation bodies, and there may be more co-ordination of monitoring and sharing of information because of the consortium approach taken.

7.1.6 The Future

EN, with conservation partners, have prepared a 'vision' for part of the floodplain, of what they wish to achieve in 30-50 years time, identifying areas where the most conservation gain can be made, and prioritising wildlife and habitat needs. This strategy has been developed using GIS. To take this initiative forward there needs to be more stakeholder involvement in order to consider societal benefits in order to justify the public expenditure involved. Flood defence is also intimately linked to this, and priorities need to be made, in terms of protecting people, property and infrastructure and the environmental benefits of letting areas become flooded. Because of the importance of many habitats, designated SPAs, SACs and Ramsar sites that are of European and International Conservation importance, the conservation hand is strengthened, but decision making will nevertheless be hard to make.

The ESA will play an important role in putting management regimes in place for the habitats that sustain BAP species. However, the BAP species are so diffuse that site by site derogations are not possible, as this would make overall management very complex. Small scale improvements to management prescriptions across the ESA would improve overall habitat quality and reduce the need for more specific management. This has yet to be achieved.

EN suggested a number of possible options for improving uptake of higher tiers in the ESA. It was strongly considered that Tier 1, although slowing down the loss of land to arable agriculture, did not deliver biodiversity gain, although it did improve the landscape. There was a case, perhaps for added incentives for arable reversion, for example, by reducing further the subsidies for arable crops within the ESA. EN consider that the optimum basic tier for biodiversity and landscape would be Tier 2, but that in the foreseeable future, it would not be acceptable to remove Tier 1, as this could affect the area under agreement. Many landowners, rather than going into Tier 2, may reconsider and use the land for other purposes, for example arable, unless there are appropriate incentives not to do so. However, it is also important to gain wetter land to enable the expansion and increase in quality of biodiversity rich habitats. There is certainly a need to ensure that ditch management is more closely integrated into the Grazing Marsh Tier. Overall, EN consider that more office resources need to be put into improving the overall quality of the habitats within the ESA, and less into simple expansion of the area under agreement. There needs

to be more discrimination about what land is entered into the scheme and under what tier. A trade-off between uptake for better biodiversity gain is necessary now that the ESA is well established.

There is a need to approach the issue from the point of view of what conservation in the area needs against what landowners are prepared to accept. EN stressed the importance of sustaining the rural infrastructure and economy, since they understand the local environment. There are two separate schools of thought in the farming community; some farmers farm more traditionally, fattening beef or sheep, whereas others are more intensive, and more likely to undertake intensive arable or grassland regimes. Sea level rise may trigger changes in land management. It is therefore crucial to gain the right balance of incentives, prescriptions and guidance for farmers to contribute to conservation whilst at the same time sustaining the rural economy and fabric.

Since the key to higher biodiversity in the Broads is water level management and extensive management regimes, EN consider that FRCA should take a harder line in the future with landowners who fail to meet the minimum water levels. This needs to be balanced with how much water is available to landowners via the WLMP, and also with the quality of the water, since landowners should not be forced into siphoning off water from poor quality sources. If sufficient water is, or can be, made available via improvements to the present IDB system, then landowners should be expected to achieve the minimum levels. Some consideration may need to be given to re-setting the minimum levels in the prescriptions, since minimum water levels are often interpreted as the target by the landowners, leaving no margins for drier climatic conditions.

7.2 Farming and Rural Conservation Agency

7.2.1 General Issues

FRCA work closely with a large number of organisations including EN, the Broads Authority, Countryside Agency, NFU, Country Landowners Association (CLA), Internal Drainage Boards (IDBs), RSPB, Norfolk and Suffolk Wildlife Trusts, District and County Councils. There is wide consultation with all of these organisations when a review is carried out. The last review of the Broads ESA was in 1997. When payment reviews are carried out every two years the CLA, NFU and other farmers representatives are consulted.

There appears to be a balance between the three aims of the ESA, and FRCA have experienced little serious conflict. There is a strong bias in favour of breeding waders, but there is now a stronger emphasis on the conservation and enhancement of communities, including invertebrates. This has been influenced by the Habitat Action Plans.

There appears to be a presumption against trees in favour of open spaces. Old poplar plantations have been removed and overall, the wooded area is smaller. Trees have been removed for wading birds in Suffolk, and there was a certain amount of public reaction against this.

The Norfolk Broads contains many SSSIs, each of which have EN Site Management Statements (SMS). In the cases where the SSSIs are within the ESA, the wording of the prescriptions are being harmonised to make things as simple as possible for the landowner. Harmonisation also ensures consistency in management.

The last review of the ESA resulted in conservation supplements to Tiers 2 and 3 and the introduction of the Fen Tier Management Plan. The Fen Tier will contribute to the meeting of the BAP costed habitat target for reedbeds and fen. The Fen Tier is extremely important for biodiversity, but there has been a slow uptake by landowners who are not conservation orientated organisations. This has been addressed by EN who pay for the capital costs of restoring fens and then the ESA payments take over to fund the maintenance of the fen at a particular standard. This is encouraging other landowners into this tier. It was noted that the conservation landowners, such as the Norfolk Wildlife Trust, may carry out enhancement works for fens and reedbeds anyway, irrespective of the ESAs. In this respect the ESA could be viewed as contributing to the cost of management, and thereby allowing conservation funds to be spent on projects outside the ESA.

7.2.2 Water Level Management Plans

FRCA have made an input into the preparation of WLMPs. However, it is considered that the WLMPs do not go far enough in the delivery of what is required for the wetter tiers. Firstly, it is difficult to secure agreement about drainage requirements within an area where land owners are using the land in different ways and have different requirements. Securing wetter tiers depends on the water being available, and this requires being able to hold the water up in some areas by penning, whilst allowing adjacent areas to drain. The FRCA view is that improvements clearly need to be made, but there appears to be a reluctance for the relevant authorities to spend money on the implementation of more complex WLMPs.

7.2.3 Farmer Uptake

It was confirmed that most decisions by landowners to enter into agreements are economically driven. The only exceptions are the landowners who manage the land primarily for conservation. Older landowners who have farmed more traditionally tend to be conservation minded and keen to retain and use the land for less intensive grazing. Uptake depends on a number of external factors, including CAP, beef prices and local restrictions. For example, within the Broads, there is a restriction on the use of pesticides within 5m of a watercourse. There are also established Nitrogen Vulnerable Zones (NVZs) which require the implementation of Good Agricultural Practice to minimise nitrate fertilizer inputs. These can assist in the uptake of buffer zone agreements if a payment can compensate for this. Falling grain prices may encourage reversion from arable use into pasture. However, it was commented that there are fewer cattle, so grazing tends to be extensive, limited by quotas. It was expected that this would result in under-grazing but this did not occur. The market price for beef is now improving, so this trend may encourage further arable reversion.

It was also stated that it was important that there should be sufficient payment rates to act as an incentive for uptake. Payments are based on income foregone, so they may drop as farm incomes drop. This could result in farmers either changing practices, opting for the most profitable practices, or could encourage uptake into higher tiers for higher payment rates. At the last payment review there was a reduction in payments for Tier 1, based on income foregone calculations. A noticable uptake in Tier 2 agreements has been observed. Tier 2 is considered better value for money in terms of conservation. The ESA budget is unlikely to change, and recent changes in payments under CAP are likely to be channelled into stewardship schemes. One major advantage of the ESA scheme is the 10 year agreement period which gives landowners some stability and provides a baseline for forward planning.

There are currently 1,087 agreement holders. Under the care and maintenance programme, a third of the agreement holders are visited each year. This provides an opportunity to encourage landowners to take up higher tiers or supplements, and to obtain feedback on how well the scheme is working. These visits are not compliance visits, but they are a good way to identify opportunities for conservation plans or capital works.

7.2.4 Monitoring

Monitoring of the ESA has been carried out by ADAS in the same way as for other ESAs. Additional studies have been carried out, such as for ditches. Monitoring to date tends to be more quantitative, with a review of the area under different tiers of agreement. However, there is relatively little money or staff time available to be put into obtaining data on the quality of the environment within the ESA, in terms of diversity and abundance of species.

FRCA acknowledged that it is important to look in detail at particular sites, within a wider survey. Monitoring strategies certainly need to be drawn up which can then feed into the development of further advice on particular management for wildlife conservation. It can also effectively feed into the development of WLMPs, and identify where resources need to be allocated to reverse declining biodiversity trends. In the Broads ESA there is a consortium approach to the issue as a whole, and individual bodies are prepared to work within a partnership. This is working very effectively and different bodies are managing small demonstration plots for landowners and other stakeholders to visit and be informed of new management developments.

The ADAS reports commissioned by MAFF feed into the review process. FRCA commented that it was difficult to interpret monitoring data, since methodologies used are different, often in different climatic conditions, which have a great influence on wetland population structure. Because of the lack of consistency and the 'snapshot' approach to many studies it is very difficult to extrapolate. For example, a survey of breeding snipe showed that populations had declined, but this was likely to be as a result of drought conditions rather than a failure of the ESA prescriptions. Nevertheless, these surveys do provide useful information for ESA management, because they identify issues which officers need to be aware of, even if the cause and effect relationship between species abundance cannot be linked to the performance of the ESA prescriptions.

For example, one issue of concern is the 'honey potting' of species into small areas of high habitat quality, where there is migration of species from other sites. There is a need to improve habitat quality in between these areas and the ESA has the potential to enable this. FRCA consider that it is important to have good data to convince policy colleagues of the extent of declines or the need for improvements, in order to secure the release of more money if payment rates are likely to influence uptake of the appropriate tiers.

7.2.5 The Future

The ESA budget is unlikely to change. Recent changes to the CAP through Agenda 2000 will result in more money going into Countryside Stewardship. The objectives of the ESAs have not altered, although management prescriptions have been improved in the light of experience. The new Fen Tier will need to be managed and landowners will be encouraged to participate where this is appropriate. The major challenge in this respect will be encouraging landowners other than conservation organisations to enter agreements in this tier.

There is also a need to target existing arable areas to encourage reversion to pasture. In practice it is difficult for farmers to get out of arable rotations, and if they have no livestock this will necessitate a significant change in business. A significant area has been subject to arable reversion (1,500ha) and this has been driven by falling cereal margins. Change in ownership may also be a driving force for uptake of ESAs; some arable farmers may sell up and move their operations to higher land, leaving the lowlands to new landowners who have different business plans.

FRCA stressed the need to keep the ESA scheme simple. There is a trend towards making it more complicated and individually prescriptive, with more categories for payment. This makes the scheme more complex to manage. However, FRCA acknowledged that whilst Tier 1 had an emphasis on landscape, there is scope for improvements for conservation. Tier 1 is an important introductory tier, being relatively simple, and is a good base for further work. Improvements to Tier 2 could include 'either-or' options depending on whether or not the marshes are clay or peat, where different strategies need to be applied, or the conservation priorities for the area. FRCA also stressed that they themselves cannot deliver the BAP targets. Delivery of these targets depends on landowner uptake.

8. Summary of Interviews

8.1 Level of EN/FRCA Liaison

Firstly, there is a difference between the level of liaison between EN and FRCA in different ESAs. This is likely to be a reflection of the different pressures and priorities faced by each local team. In the Somerset Levels and Moors ESA, joint visits are undertaken and there is regular weekly or even daily contact. In the Broads ESA there is weekly or monthly contact within a large consortium, which includes officers of the Broads Authority. In the remaining floodplain ESAs, there is little regular contact. EN and other conservation bodies are fully consulted by FRCA during the five yearly review process. EN appear to be consulted in matters relating to SSSIs, conservation plans and Wildlife Enhancement Schemes (which EN is responsible for). However, it appears that EN are unable to provide FRCA with a detailed lead on ecological and conservation issues in many cases. It was noted that in the Test and Avon River Valleys ESAs, there are 47 SSSIs, including the rivers themselves. Land is under significant pressure and EN spends considerable time protecting SSSIs from development, and highlighted that time for positive management was a luxury. FRCA has indicated that further detailed input would be welcome, but EN's resources are not sufficient to enable this.

8.2 Landowner Uptake of Agreements

It should be stressed that FRCA are implementing a voluntary scheme. Whilst the rules for implementation of the ESA scheme are set out in an EC Regulation, uptake by individual landowners is entirely voluntary. Successful uptake depends on a number of factors, including FRCA interaction with landowners to promote the scheme and financial incentives in terms of payments for each tier of the scheme. Trends in land use and farming economics also influence uptake. Another major factor which came to light in the interviews was the perception and understanding of the ESA scheme by landowners. If a scheme is complicated and burdensome, then uptake is likely to be limited. One of the strengths of the ESA scheme is that it is simple and that agreements last for 10 years, so a landowner can plan for a foreseeable future and there is limited scope for alterations to the scheme.

There are other issues which affect landowner uptake of agreements. The major issue is farm economics, and all EN and FRCA officers agreed that this was the primary driving force behind most landowner's decisions. There are cases where landowners are conservation bodies, including RSPB and wildlife trusts. They will manage the farm for conservation within budgetary constraints. ESA funding, therefore, can enhance the management on site above that strictly required by the prescriptions. It also allows other work both within and outside the ESA area. In most other cases, landowners may be farmers or the land may be let to farmers. In the Test and Avon Valleys, one major economic influence is fishing rights, and the income generated from these is significantly higher than ESA payments. In these cases, riparian habitats and adjacent fields may not be managed for conservation at all. It was noted that in all floodplain ESAs, it is difficult to secure buffer strip agreements, as these are more difficult for landowners to implement. The conservation importance of buffer strips in providing invertebrate habitats and in assisting in the reduction of fertilizer and pesticide inputs into water is important, and this is reflected in the payments. Nevertheless, it is difficult to achieve, as landowners are reluctant to enter into an agreement for relatively small strips of land.

There is a finite amount of available funding for each ESA, but applications for entry into the ESA scheme have not been refused because of lack of money. There is scope for considering how the payment structure for different tiers may be altered in order to optimise uptake in tiers to achieve biodiversity gains. However, this needs to be linked to a strategy to target the needs of each region in terms of wildlife and habitats. Payments are set according to income foregone. Whilst this offers a landowner a stable 10-year income which can be taken into account when planning land use, if farm incomes drop, then so may the payment. This may encourage a switch to a different land use if the pressure is high enough. This will depend on the landowner; for some, it will encourage a move to enter more land into a higher tier, for others a switch to arable agriculture is possible, if the business is already partly arable. A certain degree of inertia has been observed; farmers will not change the nature of their business readily, and the easiest options are usually adopted. Often, the most significant trigger is a change of ownership, where a new landowner has new ideas and may enter or withdraw land under ESA agreements in a short space of time. EN wish to encourage a move away from compensation and towards payment positive works. This is more likely to achieve biodiversity returns in the long term.

There may also be a case for considering extending borders of some ESAs in order to achieve uptake in narrower valleys. There are examples, particularly in the Test and Avon Valleys, where only part of a field or piece of land is within the ESA. It is considered by some landowners not worthwhile entering small pieces of their land into agreements, but if it were possible to enter a larger area, they would consider changing management practices. Some ESAs include whole farms, where the landscape allows this. Narrow river valleys will only include parts of farms, and there appears to be reluctance to extend the ESAs to encourage uptake. However, if this were to encourage uptake, it may be possible to join up areas under agreement to provide more continuous habitats. Thus, ESAs in narrow river valleys would make a significant positive contribution to meeting conservation targets.

8.3 Water Level Management Plans

Payment rates are not the only factor affecting take up of ESA agreements. Landowners are only likely to enter the tiers for wet grassland if there is sufficient water available in the area. For example, water levels are governed by the Internal Drainage Boards in the Somerset Levels, Broads and Suffolk Rivers (in consultation with the Environment Agency), and thus a landowner does not always have control over water levels in ditches. If landowners or ESA project officers consider that they are unlikely to meet the higher water levels set in the prescriptions, they are less likely to agree to enter land into agreements.

The effectiveness of WLMPs is crucial in this respect. Developing plans involves negotiation with different landowners in a particular block of land who may have different needs. For example, there are likely to be conflicts between the water requirements for arable farmers who require drained land and neighbouring farmers who wish to hold a higher water table. There is likely to be scope for relatively simple engineering solutions to this so long as needs are identified. One approach, such as that used in the Broads, is to have trial periods implementing higher water levels, and assessing whether there were any problems for landowners. EN have adopted the strategy of encouraging incremental increases in water levels, rather than pushing for levels that are considered necessary in one review of the plan. In this way, landowners and other relevant bodies become accustomed to higher water levels.

The development of WLMPs for conservation are more advanced in the Broads than in other areas, although the Somerset Levels and Moors WLMPs seem to be delivering sufficiently high water levels to enable 16.3% of the land under agreement to be wet grass land (compared to 3.5% in the Broads). However, in practice the 'wetness' refers to the minimum ditch water depths (12 inches in Tier 2 and 6 inches in Tiers 1 and 1A), not the wetness of the fields themselves. It is not just a question of water levels *per se* being maintained. It is also necessary to ensure that the water in the wet grassland is of adequate quality to benefit wildlife. There will be drought years and if management prescriptions stipulate particular water levels, landowners may obtain water from ditches and rivers which is of lower quality than that from rainfall and springs. If there are saline conditions or diffuse pollution (depending on the area), this will affect vegetation and associated wildlife. There clearly needs to be an improved strategy for water use. Currently, there appears to be too much pumping in winter and a lack of water in summer. Water conservation measures are therefore needed, which require more investment in water management infrastructure by MAFF flood defence, WLMPs or ESA conservation plans. If ESAs are to contribute more to meeting BAP targets and increasing overall wildlife diversity and abundance, then it is necessary to have more land in the wet grassland tiers. This therefore requires that WLMPs are an integral part of ESA planning, taking into account not only water quantity but also quality. A clear policy needs to be developed to increase the role of WLMPs in delivering flood plain biodiversity.

8.4 Prescription Setting and Reviews

Targeting particular areas for optimum conservation returns has been carried out within some ESAs. In the Broads and the Upper Thames Tributaries ESAs, GIS has been used to facilitate this. In the Broads, it is difficult to target specifically because of the area of the ESA and the large number of agreement holders. However, the system and the information exchange between FRCA and other organisations will enable this to take place gradually. In the Upper Thames Tributaries there are fewer agreement holders, and a demonstration of the GIS system revealed how a core area of conservation importance had been improved by targeting landowners of particular fields to enter land into higher tiers, and extend the habitat bit by bit. This was further enhanced by FRCA drafting management prescriptions to meet a particular target, such as the habitat required for breeding waders. This was carried out with RSPB as well as the farmer, to ensure that a workable management regime could be implemented which allowed sufficient flexibility for the farmer to farm the land under most conditions.

In the site that the consultants visited with FRCA in the Thames Upper Tributaries, a significant habitat gain had been achieved in only two years by securing an agreement with a landowner whose field was adjacent to a well established SSSI. In only two years, bullrushes and other wetland plants are colonising the flooded areas, and the area of continuous habitat for breeding waders has been extended considerably. Indeed, the land was bought by the RSPB because they considered it of prime conservation importance for birds in this area. This approach was successfully pioneered in the Test and Avon Valleys, but on a larger scale it proved more difficult for the FRCA officers to achieve. The site specific approach, although more management intensive, is a more effective way of ensuring that a habitat of conservation importance can be gained under ESA agreements. However, insufficient project officer time is available at present for the approach to be widespread.

8.5 Monitoring

To date, ESA monitoring has been carried out for MAFF by ADAS. It is not clear whether this monitoring regime will continue. Future monitoring needs to be given serious consideration. The reports that ADAS prepared give a thorough overview in terms of landscape, vegetation and breeding waders, but cannot be used with any confidence to determine the contribution of ESAs to meeting BAP targets. Biological features can change due to a number of factors apart from land management. For example, the data on breeding waders would suggest that for most ESAs, the management prescriptions in place were failing to have any positive effect on breeding wader populations. It is likely that wader populations were affected more by climatic variations; flooding can encourage higher populations, whereas droughts will discourage them. The surveys only represent snapshots, and as with all biological monitoring programmes, species recovery tends to take a considerable period of time; often there is a time lag before an increase in population is observed, as other important species in the food chain recover first. Interpretation of results is further compounded by years when droughts occur, resulting in naturally low water levels. Apart from the monitoring of the status of SSSIs, no formal BAP monitoring is carried out by the EN officers interviewed, nor by FRCA. Datasets are available for the Somerset Levels and the Broads ESAs and these have been used to influence reviews. EN also has information on the status of the SSSIs within and outside ESAs. More research is required to identify causal factors for changing biological conditions.

The aim of this study is to review the effectiveness of ESAs in terms of contributing to stemming wildlife declines and meeting BAP targets and wildlife objectives. This has in practice been difficult to do, in the main due to the paucity of available data. One major issue which was identified was the lack of communication with respect to floodplain BAP targets. Both EN and MAFF are charged with the responsibility of implementing many of the BAP targets. EN also looks to FRCA to assist with meeting targets through the agreements that are made with landowners in the ESA. Together, they both work to enhance habitat area and quality, and thereby improve the conditions for particular species. FRCA stresses that although they are responsible for implementing the ESA scheme, they cannot be responsible for ensuring BAP targets are met in the ESAs because the scheme is voluntary. Farmers and other landowners can only be encouraged to enter land into agreements. Experience has shown that the higher the tier, the more difficult this is, because of the extra demands of the prescriptions. There is, perhaps a case, for putting the BAP in a statutory framework, as suggested recently by the House of Lords Select Committee on the European Communities.

It was clear from the interviews that FRCA and some EN staff are unaware of the status of BAP habitats and species with respect to local targets. No specific BAP monitoring is carried out within the ESAs for the purpose of reviewing the performance of the ESA. Separate studies have been carried out, for example, surveys of breeding waders and vegetation have been carried out by ADAS for MAFF, and stand alone surveys have been carried out by EN in the Broads on dyke and ditch flora. In the Broads, EN is working to establish a framework for monitoring on a consortium basis, with a view to sharing information for mutual benefits. Other areas are not quite as advanced in this respect, and this may be a reflection of the low priority given to this by a number of statutory bodies working in the region.

It is not clear to what extent local BAPs reflect national BAP targets and how the network of steering groups for each Action Plan interact with the bodies charged with responsibility for implementing them (see Annex 4). The link between the local BAP steering groups and the

officers responsible for ESAs appears weak, and may disappear in a network of different responsibilities that each local EN officer has. If ESAs are to contribute more effectively to meeting BAP targets, FRCA officers need to know what is required in order to target resources (for example, gaining more land under higher tiers), and concentrating on the most important areas to secure more continuous habitats.

There is clearly a need to address how monitoring should be carried out within ESAs to assess how they are contributing to BAP targets. If monitoring is already carried out by specialist groups, particularly volunteers who are conserving particular species or species groups, this needs to be fed in more effectively into the ESA review process, rather than working in isolation. This would certainly make monitoring more cost effective if studies could benefit more than one scheme or policy initiative. Consideration also needs to be given to the identification of a series of indicator species for each ESA. This may not address specific BAP species, but would assist in gaining an understanding of the overall habitat quality within the ESA. Bats have been suggested as a useful indicator, particularly because many species exist within floodplains. The choice of an indicator species depends on how easy it is to monitor, and what it tells conservationists about habitat quality in terms of abundance of other species, such as insects and other invertebrates. EN already monitor SSSI condition, and this could be used as an indicator of ESA performance. However, if SSSIs are managed as separate entities, and not within the ESA agreements, it may be difficult to separate out particular factors which influence the overall trends observed.

8.6 Biodiversity Targets in ESAs

Overall, it has been difficult to assess how each floodplain has contributed to the different species and habitat action plans. An analysis of the national and local BAPs, Natural Area Profiles and ESA objectives reveals that there is little translation of targets and objectives from national to local mechanisms (see Annex 4). It is clear that, although national targets have been set for certain species and habitats, and Natural Area Profiles set directional long term objectives, there is no developed vision of what the countryside should look like and the wildlife that it should sustain. This is reflected in the lack of monitoring which appears to be carried out. Monitoring of individual species and SSSIs is carried out but there does not appear to be a clear mechanism by which this is fed into the ESA scheme to assess its contribution.

There is, in all ESAs, an emphasis on quantity, and although a large area is under Tier 1 agreements to retain it as pasture, it still has limited wildlife conservation value. EN would, therefore, wish to strive for a push towards improving overall biodiversity quality within ESAs. This can be achieved by, firstly, concentrating resources on persuading landowners to enter land into higher tiers, and secondly, changing management prescriptions in such a way that biodiversity benefits can be realised. Both depend on landowner acceptance, economics, and project officer time to promote the scheme.

Draft Species and Habitat Action Plan Assessment Forms have been compiled by the organisations who are responsible for implementing them. These contribute to the first round of BAP reporting (1995 - 2000). It is clear that progress has been made for each of the habitat targets. Action has mainly been targeted at designated sites and performance is better than in the wider countryside. There is concern about this because there is some further intensification of farming in the areas in between SSSIs to compensate for the lower productivity in the designated areas. This results

in fragmented wildlife populations and a general decline of the conservation interest in the floodplains as a whole.

Agri-environment schemes form the major component of protection of coastal and floodplain grazing marsh. According to EN, 720ha of coastal and floodplain grazing marsh has been restored by government agencies and NGOs since 1995. There are 11,426ha under ESA agreements, but it should not be assumed that all the land under these agreements will be in a favourable condition to meet the BAP definition of this habitat. Wildlife on some SSSIs in these areas is reported to continue to decline.

There continues to be serious concern about meeting targets for reedbed restoration. Whilst a considerable amount of reedbed has been rehabilitated (762ha) and 264ha of 20ha or more blocks of reedbed created, there are insufficient areas of land available for further creation. Until another 1000ha of land which is currently farmed becomes available to create new reedbeds, the targets are unlikely to be achieved.

There remains a culture of the primary role of the ESA being to preserve landscape. The ESA scheme has certainly reversed a trend of ploughing up areas of the countryside which have been traditionally pastoral. The ESA scheme was timely as it contributed to slowing down the conversion of land for arable use, especially in a climate of strong incentives for farmers to do so under the Common Agricultural Policy. However, the preservation of the 'green and pleasant land' now needs to move one step further and address continuing biodiversity declines and targets for habitat creation. Whilst reference is made to ecological quality in the early ESA objectives, wildlife conservation has only gained greater prominence in management prescriptions after the five yearly reviews have taken place. The UK BAP was published seven years after the ESA scheme was started, so FRCA officers are now addressing more concerns in reviews after many agreements were already made with landowners, especially since it has been assumed that their existing scheme will deliver many habitat targets.

In the 'Making Biodiversity Happen' consultation paper which was issued by DETR last year, it was clearly stated that the contribution to biodiversity needs to be made by agriculture as a whole. From the point of view of conservation of habitats, the ESA scheme has benefits because it is implemented in a continuous designated area. Therefore, it has the potential to achieve certain habitat action plan targets if a sufficient number of sites within the ESA are secured under higher tier agreements. If sufficient agreements are secured within an area, this helps achieve continuous habitat improvement, and an avoidance of 'honey potting' where fragments of high quality habitat are separated. This depends upon voluntary uptake into higher tiers, but can be hard to achieve. Another option is an alternative strategy to purchase land in order to secure biodiversity returns.

In contrast, the Countryside Stewardship Scheme works in an opposite way because individual applications from any area (outside an ESA) can be made and decisions will be made on whether or not to accept them on a case by case basis. While being a relatively complex process compared to ESAs, involving more officer time, it is clear that this high degree of targeting and flexibility can represent excellent value for money. However, this approach can also lead to high quality fragments of land being created and separated from other key areas, unless it is carried out within the context of an overall strategy or vision for a floodplain.

ESAs are considered critical in achieving HAP targets in the floodplains. However, the current approach is somewhat piecemeal, with no clear co-ordination between the setting of management

prescriptions, development of WLMPs, targeting of areas to secure agreements under higher tiers and there is a distinct lack of a link between the national BAP, local BAPs and ESA objectives and targets. The successful Silver Meadows Conference, held in March 1999, has started a process of discussion between government departments on the future integrated use of wetlands which needs to be progressed.