Abstract

Agri-environment schemes have been developed by the member states of the European Union over the last 10 years. Under Regulation 2078/92, the UK has supported English Nature in the implementation of a nature conservation scheme for wet grazing land in southern England. This paper explores the different understandings of nature held by farmers and conservationists who are participating in the Wildlife Enhancement Scheme, by drawing on qualitative research completed between 1993 and 1995. Through the application of actor network theory, the analysis compares the role and identity ascribed to farmers by conservationists with the identity that farmers’ construct of themselves. The former construct farmers as technicians, ignorant of the workings of nature, whereas the farmers see themselves as ‘natural conservationists’. The paper explores how nature is translated differently in the worlds of conservation science and agriculture. In the final part of the paper, discussion focuses on the management of the wetland ditches where these sets of translations come together. It reveals that the rigid, scientific prescriptions for management of the conservation value of the ditches are considerably at odds with the more flexible and sensitive practices of farmers themselves. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Agri-environment schemes; Actor network theory; Wetland conservation; Farmers

1. Introduction

Voluntary agri-environment schemes whereby farmers are compensated for profits foregone in maintaining extensive agricultural practices that support nature conservation have become a significant feature of European agricultural policy in the last 10 years. Responding both to scientific evidence of ecological losses caused by post-war intensification of agriculture and high profile campaigns mounted by non-governmental organizations, Article 19 of the European Union (EU) Environmental Regulations (797/85) allowed member states to implement Environmentally
Sensitive Areas (ESAs) to ensure the conservation of the environment and maintain the countryside (Clark et al., 1997). The UK responded enthusiastically to the ESA scheme and played a major role in drafting the new agri-environment regulation in the MacSharry reforms of the Common Agricultural Policy (CAP 2078/92) (Jones and Clark, 1998). Through 2078/92, the EU committed itself to 50% co-financing of individual member states’ agri-environment schemes (75% in the poorer countries). Reflecting the cultural significance of rural landscapes in the UK (Whitby et al., 1996; Winter, 1996a), by the end of 1994, 4% of the total agricultural land area of England was covered by management agreements under ESAs, the Countryside Stewardship scheme which allows greater public access to land for recreation, and the Wildlife Enhancement Scheme.

In a policy analysis of Regulation 2078/92, Clark et al. (1997) argue that more concessions were made by conservation and environmental interests than by the agricultural industry. The combination of a voluntaristic principle with monetary compensation for managing land extensively has enabled the industry to reassert farmers’ claims to be the natural guardians or ‘stewards’ of nature and the countryside, and at least partly diffused the environmental critique of their practices. Regulation 2078/92 has allowed significant alteration in the legitimizing arguments used by agricultural interests to justify their policy entitlements. However, whilst agricultural policy entitlements may have remained intact, in more subtle ways the autonomy of farmers and their professional identities are being challenged through the introduction of agri-environment schemes. In entering agreements to manage their land for conservation goals, farmers are drawn into a much closer relationship with conservation scientists (Winter, 1996b). These relationships are not unproblematic. Social and cultural research has shown that farmers and conservationists may view the same landscapes or species, but see them quite differently (Newby et al., 1977; MacDonald, 1984; Nassauer, 1988; Carr and Tait, 1990, 1991; McEachern, 1992). McEachern, for example, described how Dales National Park officers ‘often perceived as ‘dreadful’ and ‘ugly’ the parts of the landscape which the farmers most admired; the pastures and fields extending far up the fellsides, destroying diversity and wildlife habitats’ (McEachern, 1992).

Research by Walsh et al. (1996), Wynne (1996) and Wilson (1997) suggests that farmers’ responses to conservation guidance are at variance with the understandings of scientists. Advisors in agri-environment schemes gain authority from relying on scientific models and experiments to define appropriate management practices. Such prescriptions however, involve judgments about the environmental benefits of particular practices and frequently disguise the absence of consensus amongst scientists about precisely what features of nature benefit from given management practices. Differing opinions on the comparative value of particular management practices are commonplace, as reserve and land managers try to adapt the universal knowledge of science to the range of circumstances provided by different localities and institutional contexts.

This paper explores the extent to which farmers and conservationists construct different understandings of nature and the appropriate management regime for wet pastures. The case study concerns a Wildlife Enhancement Scheme (WES) on Pevensey Levels, an internationally significant wetland in East Sussex, UK. Academic and policy debates focus on environmental strategy, and how to persuade farmers, in the absence of coercion, to act in support of the conservation concerns of others (Felton, 1993; Webster and Felton, 1993). The ‘listened to’ voice, when it comes to knowledge, understanding and action, is that of the conservationist; the problem is how to persuade farmers to join an agri-environment scheme, and how to persuade government to release sufficient funds to cover compensation payments. Debates such as these tend to marginalise farmers. In this paper, we argue that actor network theory (Callon, 1986a; Latour, 1987) allows analysts to treat the farmers’ account of the world symmetrically with that of conservationists, rather than taking the conservationists’ account for granted. Through such an analysis, it is possible to show that the success of agri-environment schemes is perhaps more complex and less secure than it might seem.
The paper begins with an introduction to the research project followed by a brief review of actor network theory. Turning to the case study, we discuss the role and identity ascribed to farmers by conservationists, compared with the identity that farmers’ construct of themselves. This is followed by discussion of how nature is translated differently in the worlds of conservation science and agriculture. The focus then narrows to the management of the Pevensey ditches where these sets of translations come together.

2. Valuing nature on Pevensey Levels: an introduction to the research

The geographical context for this paper is wet grazing marsh on the coast of southern England between Hastings and Lewes. The Pevensey Levels are one of the largest and least fragmented wet grassland systems in southeast England. Most of the 4000 ha have been designated as a Site of Special Scientific Interest (SSSI), primarily because of the plants and invertebrates associated with the ditches. A number of these species are nationally rare, including the fen raft spider (*Dolomedes plantarius*) for which Pevensey Levels is one of only two sites in Britain, and the Red Data Book species sharp-leaved pondweed (*Potamogeton acutifolius*). The area is also important for its populations of wintering waders, including lapwing (*Vanellus vanellus*) and golden plover (*Pluvialis apricaria*). In addition, the Levels are listed under the Ramsar convention as an internationally important wetland, and are a Special Protection Area under the EC Council Directive (79/409/EEC) on the Conservation of Wild Birds (English Nature, 1990, 1991; Joint Nature Conservation Committee, 1992; Rowland and Burges, 1992; Whitbread and Curson, 1992; Royal Society for the Protection of Birds, 1994). The WES was introduced by English Nature (EN), the public agency charged with the delivery of nature conservation in England, in 1992. Farmers and landowners entering land in the scheme received a payment of £72/ha/year to maintain their existing grazing practices, and to follow a management plan prescribed by English Nature officers to maintain the wetland habitat for its conservation interests.

Our research was carried out in the area soon after the WES had been implemented (1993–1995). The primary purpose of the larger research project was to examine the validity of monetary valuations of nature as measured in contingent valuation (CV) surveys (Burgess et al., 1998; Clark et al., 2000). Different samples of respondents to an experimental CV survey of the WES commissioned by English Nature (Willis et al., 1995), were invited subsequently to participate in semi-structured interviews, focus groups and in-depth discussion groups. Three in-depth discussion groups were held over the life of the project. Two groups were held with respondents to the CV survey and will not concern us here. Material for this paper comes from the in-depth discussion group with nine farmers who held land on the Levels and who had been invited to join the WES during 1992–1993. We draw on participant observation of interactions between farmers, English Nature staff and conservationists; internal meetings of English Nature staff, interviews with staff of English Nature and voluntary conservation groups; and archival research on the development of the WES.

3. The farmers’ in-depth discussion group

We have developed the theory and practice of in-depth discussion groups over a number of projects concerning differences in the meanings, values, knowledges and practices of environmental professionals and lay publics (Burgess et al., 1988a,b, 1991; Harrison and Burgess, 1994). In-depth groups, as their name implies, engage researchers and participants in a relationship lasting several weeks. Over this time, the group members build a trusting relationship in which they are able to share their feelings more easily, and to engage in more intensive debate than is possible within the time frame of a single focus group interview.

Once the group conductor has agreed to a set of topics with participants (usually in the form of a week-by-week set of themes), her role is to moderate rather than to direct the discussions in a
rigid or predetermined way. Thus discussion takes place among group members on the basis of their experiences and understandings of the issues, with each person contributing to the conversation as she or he wishes. The discussions are audio taped and fully transcribed for analysis. The research contract agreed with each individual member guarantees anonymity; in return for their participation, members receive a small payment to cover their expenses. Approximately 3 months after the end of the group, each individual is sent a bound document (the Group Report) which represents our first stage of interpretation of the themes and issues raised in the discussions. They are invited to comment, and these are incorporated into subsequent analysis.

As part of the Pevensey research, semi-structured interviews were conducted with 39 of the 110 farmers who had at least some of their land on the Levels. Nine of the interviewees volunteered to take part in an in-depth discussion group that was held in late 1993. A variety of land ownership and management arrangements were represented by the nine group members, reflecting the diversity encountered in the area as a whole. Landholdings also ranged widely in size (67–800 acres). But members’ farms had two features in common. First, all were family farms; that is, businesses where production is based on family labor and property. Eight of the nine group members were born and bred to farming. A majority of the group had lived and farmed on the Levels for more than two generations. Second, each landholding included some land (20–400 acres) within the Pevensey Levels SSSI. As SSSI landowners, all the group members could have entered designated land into the WES. Six members of the group had joined the WES, although only one had entered all his eligible ground; the other three had decided not to participate. The farmers’ group met for an evening meeting over four consecutive weeks, each meeting lasting 1.5 h. The sequence of discussions addressed the following topics: experiences of farming on the Marsh; the uncertainties of farming in the 1990s; public attitudes toward farmers, the countryside and conservation; and nature conservation in an agricultural context. In the manner of in-depth discussions, many issues were discussed in each session, and unresolved issues were returned to in subsequent meetings.

4. Networks of knowledge and action: an introduction to Actor Network Theory

To hear farmers and conservationists speak of or (in the case of the latter) write about Pevensey is to hear about two rather different places. Conservationists write about the ‘Levels’, ‘wetlands’, ‘lowland wet grassland’. Farmers talk about the ‘Marshes’, ‘lowlands’ and ‘uplands’, ‘rough ground’ and ‘good fattening land’. When they look at the ditches, farmers see sources of water for cattle and sheep and barriers to stop their stock roaming. The ditches contain ‘reed’ and ‘weed’. Entomologists and botanists observe ‘aquatic habitats’ containing a rich assemblage of species; they refer to Odonata and Coleoptera, to Dolomedes, Potamogeto, Hydrocharis, and Lemna. Hardly any Marsh farmers have ever seen a fen raft spider, but they do notice hares, foxes, peewits and swans, and many other creatures as they go about their daily tasks. These tasks — jobs like cutting, topping, ditching and grazing — become ‘management practices’ or ‘regimes’ in conservationist parlance. Conservationists speak of the state of the Levels in terms of a decline in the ‘nature conservation interest’, a wetland with ‘wildlife drying up’. However, for the farmers, the state of the Marsh embodies their livelihood and its nature ‘hasn’t changed a tremendous amount’.

The extent to which these different knowledges, experiences and actions can be brought together in a management scheme depends on the abilities of the different actors to accommodate and make sense of each others’ worlds. From EN’s perspective, the farmers need to be persuaded of the veracity of the scientists’ account and their prescriptions for future management. From the farmers’ perspective, the conservationists need to value more the depth of local experience and knowledge they bring to the scheme. The problem is analogous to that studied by Wynne (1996) when radiation scientists came into association with Cumberland hill farmers in the aftermath of the
Chernobyl disaster. The scientists with expertise acquired at different times and in distant places sought to apply their knowledge in a new local setting; recommending a set of actions to people who had a depth of local experience and knowledge of a different kind. Actor network theory provides a useful analytical approach to cases such as these. ‘There is a confrontation of two incommensurable forms of knowledge. But in actor network theory terms, we can take apart these knowledges and see how they mobilize bundles of actors in their support (…) There is no reason to privilege the knowledge of hill farmers over that of radiation scientists, but one must recognize that they do have relevant knowledge, not a blank slate’ (Myers, 1996). Developed as an analytical approach to understanding science in action, the approach can be extended beyond the production of science to contexts and situations that lie outside of, but intersect with scientific networks (Clark and Lowe, 1992; Murdoch, 1994; Clark and Murdoch, 1997).

Most prominently associated with the work of Callon (1986a,b), Latour (1987, 1993) and Law (1992, 1994), actor network theory is a powerful analytical tool for environmental questions. Its strengths lie in a refusal to accept the traditional dualisms — nature or society; local or global; science or culture; expert or lay knowledge. Rather, it begins from the proposition that relationships between these entities are fundamental to understanding action. Actor network theory asks how, and for what purposes, ‘heterogeneous associations’ — people, things, animals, plants, machines and texts — are brought together in networks that extend across space and through time. ‘Things act in concert with humans; humans act in concert with things. Both classes of entities are associated within actor networks’ (Murdoch, 1997). Both human and non-humans may have the capacity to act within their networks, often with unpredictable results, as Callon’s seminal study of scallops, fishermen and scientists in northwest France demonstrated (Callon, 1986b).

Three principles underpin actor network theory (ANT) (Latour, 1993; Myers, 1996). First, impartiality requires the analyst follow processes to whatever actors are involved in the network. Humans, non-humans, individuals and institutions may all be implicated as actors with power to act. The same analytical concepts are used for society and nature, and ‘all a priori distinctions between natural and social events’ are abandoned (Callon, 1986b). Second, generalized-symmetry requires that both the natural and the social are to be explained together. In other words, the theory ensures that the power and influence of entities in nature and the physical world are fully recognized, rather than remaining hidden or dismissed as in much contemporary social theory (Murdoch, 1997). Third, free association is a principle that asserts that actors can join together across a number of conceptual divisions such as local—global, cultural—natural, or social—technical. The world, as Latour (1993) argued, is composed not of entities which are ‘purely social’ or ‘purely natural’, but of ‘hybrids’ which contain complex associations of social, technological and natural characteristics.

Actor network analysts tend to work through detailed, specific situated case studies because these allow the close observation of the processes of building networks. Actors gain power and interest by translating the interests of other entities into their own and thereby enrolling others in their actor world. The concept of translation recognizes that the content of texts, conversations, objects and so forth is not simply transferred unchanged between actors, but may be transformed as things pass from hand to hand (Latour, 1987). In building its network, the actor translates the other entities, giving each ‘an identity, interests, a role to play, a course of action to follow, and projects to carry out’ (Callon, 1986a). The actor decides their attributes, links them together, and draws up the scenarios in which they take part.

Translation is thus about attempting to gain rights of representation, to speak for others and to impose particular definitions and roles on them. To achieve success, other actors’ worlds must be colonized. Actors become powerful through their abilities to enroll others in a network and to extend their network over greater distances. Building networks depends on actors’ capacities to direct the movement of intermedi-
aries such as texts, technologies, materials and money. The achievement of action-at-a-distance is as much dependent on mobilizing such resources as it is on persuading other actors to become enrolled. But success does depend on what these other actors do: whether they conform, and continue to conform, to their allotted roles. Actor network theory makes it possible to explain how actors ‘define their respective identities, their mutual margins of manoeuvre and the range of choices which are open to them’ (Callon, 1986b). In the following sections, we use this analytical approach to gain a better understanding of the WES as it was applied to the Pevensey Levels. We consider some aspects of the actor-world of EN’s conservationists, and the way that it translates farmers and nature, contrasting this with the Pevensey farmers’ own versions of their identity, and of nature.

5. The actor-worlds of the wildlife enhancement scheme

5.1. English Nature’s actor world

Agri-environment schemes provide farmers with an income to compensate for profits forgone through farming in environmentally sensitive ways. In this way, farmers are positioned as land managers and stewards of natural resources. The WES aimed to maintain and improve the wildlife interest on selected SSSIs. The scheme was developed by English Nature for two principle reasons. First, the institution needed to develop a more flexible alternative to statutory compensation for landowners in return for not carrying out potentially damaging operations on SSSIs. Second, conservation scientists in EN were concerned about the increasing deterioration of SSSIs either through lack of adequate management, or mismanagement. The issue of payment remained at the forefront of discussions, as the aims and mechanisms of the WES were thrashed out at English Nature’s headquarters in Peterborough, agreed with the Department of the Environment in London, in accordance with the EU 2078/92 Regulation. A single rate of payment, the same for every landowner on a site, for carrying out stipulated operations, promised to be simpler and more efficient than individually negotiated arrangement which under previous schemes had often left landowners effectively being paid for doing nothing. Four sites were included in the initial WES, which was to run for 3 years. Farmers in Pevensey who chose to join were paid for agreeing to specific management guidelines concerning grazing patterns, ditch maintenance, ditch water levels, pasture management and the use of agricultural chemicals.

The WES (before it was implemented) was constituted by the definition and association of entitles by the EN actor-world. Farmers were formally allocated the role of managers of SSSI land while EN appropriated the roles of expert conservationist and paymaster. As a manager, the farmer’s identity was rudimentary. Farmers were incarnated as technicians whose interests were financial and who would respond to cash incentives for implementing prescriptions. As technicians, all they possessed were skills: farmers were simply people who knew how to do things. They would be familiar with the proper techniques — stock and pasture management, ditch water level control, clearing ditches and so on — involved in managing the Levels in the ‘traditional’ way, i.e. ‘keeping water levels relatively high for summer grazing’ (English Nature, 1991), and so would be capable of implementing management prescriptions. Otherwise, farmers were enrolled as ignorant agents. EN possessed the knowledge. Already characterized as those whose (unknowing) actions (or lack of them) had led or might lead to a deterioration of wildlife interest, farmers had to be told what to do. It was EN who were interested in the wildlife, and as experts they possessed the scientific knowledge (theoretical and applied) that revealed what to do to maintain and improve the wildlife value of the Levels. This relationship EN construed as a partnership.

The strategy embodied in this translation was one of simple bargaining, backed up by some seduction. The farmers, after all, are indispensable to EN because they control the key resource, the land. But farmers (reasonably enough) were not anticipated to respond if they were simply con-
fronted with EN’s solution to the conservation problems on SSSIs, i.e. farmers had to change what they do. Rather, EN would render itself indispensable to farmers by using the resource that it controlled (money), and by representing the relationship as reciprocal (‘your skills for our knowledge’) rather than authoritarian. Nonetheless, there were worries that this carefully designed enrollment into EN’s world might be rejected wholesale. The Pevensey scheme was launched at a public meeting of farmers and other interested persons (all of whom had already been sent information about the Pevensey WES) in December, 1991. In the event, although a couple of farmers spoke out against joining or at least for holding out for more money, the response was generally positive. By 1994 a majority of those eligible had entered at least some of their land in the scheme. On this criterion, the WES could be counted a success. Farmers had entered the EN actor-world. But they were simultaneously outside of it (and outside of the ‘long’ networks of science). The fact of majority participation denied the extent to which farmers, reduced to a few attributes in EN’s translation, defined themselves differently. Actor-worlds discursively simplify entities. But actors themselves hold identities, interests and beliefs drawn from participation in a multiplicity of networks which enable them to construe their worlds and act differently.

5.2. The farmers’ actor-world

Enrollment in the scheme did not necessarily mean that farmers accepted the conservation ethic, as discussions among the farmers’ group revealed. Members recognized that grant payments did not adequately reflect true market rates, but were an acknowledgment by government and the EU that nature cannot be conserved without paying for it. Some farmers said they had declined to respond to the WES because the money was not enough where dairy or arable enterprises were concerned (just as EN had expected). A majority (from the evidence of the farm survey) seemed to have joined primarily for the extra cash. To this extent, the Pevensey farmers conformed to their translation. But it was only a partial enrollment. Individuals’ local experiences and long-term perspectives on the fortunes of marshland farming meant that farmers viewed with some suspicion the prescribed and inflexible formulae for managing land when it was entered into the WES. Group members contested the implication that somehow WES payments would be sufficient to maintain a way of life they valued so highly. As one of them put it — ‘if it was just a matter of economics we wouldn’t be here’. As family farmers, group members felt strongly that they had invested too much to accept that their livelihoods and those of their successors could be prescribed and appropriated by conservationists in such a way. Some farmers resisted being enticed by the partnership for this reason. As one said: ‘I think it’s going to be the short end of the stick with people telling everyone else what to do and I’m not going to join unless I’m forced to’.

It was clear from the discussions of the group that the strength of individuals’ identity as farmers enabled some resistance to enrollment in EN’s actor world. First and foremost, farmers saw themselves as food producers. This is their primary role in society; it is what they know how to do. Although the work is arduous and the financial rewards unreliable, producing food gives pleasure and satisfaction (see also McEachern, 1992). Indeed, what makes them committed farmers (or men who ‘ought to be committed’ as one member of the group remarked, not entirely joking) was that they had not realized their capital value and invested it more profitably elsewhere. At the same time, farmers operate in an unpredictable world where production is constrained by complex and sometimes unfathomable rules, short-term considerations dominate policy ‘and the goal posts keep moving’. The WES, being initially guaranteed for only 3 years, was fitted into this context. It was not just a matter of money, but also of timescale. As one said: ‘It gives you more of a philistine attitude because you think well, it might only last three years, I’ll have that money while it’s there which doesn’t give you the right feeling about the scheme’.

Although EN had cast them as managers of SSSI land, this was not a role that Pevensey farmers entertained in their discourse. Rather, the
farmers constructed their role in relation to the state of the Marsh, and its wildlife, in a different way. They knew that farmers worked with the grain of nature and it was obvious to the members of the group that their customary farming practices (coupled with nature’s resilience) must have allowed wildlife to flourish. Through their discussions, the Pevensey farmers constructed themselves not just as land managers but as ‘survivors’ — ingenious, inventive and independent individuals capable of surviving the ups-and-downs of a boom-and-bust agricultural economy. This was a heroic narrative of responding to calls to produce high yields when they were asked, while also being able to overcome the adversities of unpredictable nature — both in terms of the vagaries of its elements and the behavior of its creatures. The Marshland farmers took pride in being active survivors in what is ‘an old-fashioned farming area really — still pretty natural compared to a lot of parts of England’, and on land that varies spatially from ‘probably the nearest to grade 1 land in Sussex to some of the worst land in Sussex’. Farming on the Marshes for several members of the group meant making a living within ‘what the land will let you’ If the land is pushed too far ‘it will find you out’. Elemental nature — the weather, the soils, the water regime — is an integral part of their productive life and cannot to be taken for granted.

The group members also argued that external influences such as road construction, new housing, tourism, air pollution and sewage discharges have had a far more potent effect on the Marsh than their own actions. Relatively little land has been converted to arable production, despite the incentives that were offered under the CAP. Some members of the group were vehement that this was something a Marsh farmer just did not do. It was a moral imperative. No matter what the economic circumstances, the Marsh should not be ploughed. Much pasture remains for the wildlife that rely on it and in any case, the arable has its place in the mosaic of habitats: ‘golden plover wouldn’t be there in such numbers if it wasn’t for a bit of arable’. The state of the grazing land varies too, from unused ‘wilderness’ to ‘rough’ to ‘neat and tidy’. Rough land might be an anathema to farmers’ sense of their professional identity and expertise, but it is good for wildlife. That not all Marsh farmers are ‘good’ farmers in this sense (see Gasson, 1973), helps to get the ecological balance right.

As one group member argued: ‘Conservation can’t be all one thing. It’s got to be a mixture. And all the time you’ve got somebody who does his job badly and let’s his lot go rough, and somebody who is tidy, you have a balance’.

In these ways, Pevensey farmers could sustain an image of themselves as ‘natural conservationists’ — natural in the sense that what they have achieved has come about without premeditated effort. The fact that the wildlife is there shows, as one group member put it ‘how in tune we are with nature’. It also proves that what they have always done is the right thing, for wildlife. This point was put strongly by one member of the group, and carried great weight with them all: ‘If we had done anything wrong in the past, there would be no SSSI. It wouldn’t be worth conserving, would it?’ For the most part, the WES prescriptions for specific management practices validated this identity. Those farmers who joined the scheme barely needed to change their farming policy, if at all. For example, many had used little if any fertilizer; ditch cleaning had always been an autumn or winter job; and stocking rates remained much the same. Haymaking now had to be put back from the latter part of June until July, but this had once been common practice anyway.

To summarize, as actors, farmers sustain versions of their identities and interests that are more complex and more ambivalent than the simplifications of the EN actor-world. Income is not everything and some cannot be bought. They are food producers who are also stewards — but of the Marsh, not of SSSI land. They want to be ‘good’ farmers, but they also recognize the requirements of wildlife. They can also call upon an intricate set of understandings of their local environment in responding to the WES; in particular, they tend to be knowledgeable rather than ignorant agents.

For conservation scientists in their professional guise, nature is comprised of habitats and ecosystems, and of species, populations and communities. It is translated in lists, counts, measurements, categories, and evaluations, in ecological theories and in hypotheses derived from carefully observed natural histories. Important attributes of nature for EN include diversity, naturalness, rarity, fragility and typicality (Nature Conservancy Council, 1989). This scientific knowledge of nature is the guide to its manipulation for the universal products of science can be expertly brought to bear on any local arena. And nature needs this manipulation. For the most part, it must be controlled in order to conserve and enhance habitats, and to promote particular species wherever they occur (Wood, 1993; Andrews and Rebane, 1994; Crofts and Jefferson, 1994; Harrison et al., 1998).

For Marsh farmers in the group, on the other hand, knowledge of nature was primarily local. The extent to which they noticed nature was variable. Many of them were especially familiar with animals and birds found on their own patch; a few were more proficient naturalists (see Hole, 1998). They also perceived nature in action, as a dynamic force rather than a static thing. They saw blackthorn growing up on ditch banks, their seeds spread by birds. They watched reeds and other vegetation rapidly recolonise newly cleaned ditches. They saw an abundance of voles and expected owls to follow. Their observations showed them that the sorts and numbers of species found on their land change from year to year. Land left unfarmed reverted to scrub; as one species declined another took over its space. To the farmers in the group, population cycles and succession (ecological terms they did not use) were everyday processes. This local knowledge is characteristically rooted in the particular, in the Marsh and in their experience of farming. But in their discourse, it was also interwoven with other knowledges of nature; in particular the idea that, left alone, nature achieves a balance. This reflects what Pickett et al. (1992) call the classical paradigm of ecology. The belief that ecosystems maintain themselves in equilibrium is translated into lay understanding as the balance of nature. Left alone (that is, not explicitly managed), nature takes its course. This is a translation that fits comfortably with farmers’ conceptions of their role as natural conservationists.

The natural entities of the Marsh that were important to conservationists were all but invisible to many farmers. Their experiences were of hares and foxes, of hawks, cuckoos, swans, chicks, cormorants and lapwings, of dragonflies and butterflies. While many of the farmers knew that the ditches held rare plants and animals in general, the snails and beetles, the pondweeds, and even the flowering plants were not familiar species. Most could name the fen raft spider — and some farmers in the group expressed pride in having it on their land — but they did not know it. ‘We’ve only been told they’re there but nobody’s seen them and they’re not allowed to see them. I walk the marsh every day and I don’t see them.’ But the conservation scientists did have this knowledge, however. The argument progressed: ‘all this conservation is all right, but who does it benefit? All it benefits really is these few scientists who know where these spiders are and what they look like’.

In this case, as in a previous instance of a fierce battle over the fate of wet grasslands in east London, we find local people contesting the ‘secret knowledge’ (and power) of conservationists who have no claim to local knowledge but a (universal) scientific expertise (see Burgess et al., 1991). But farmers are in a more powerful position than ordinary members of the public for they are armoured by their own expert knowledge and experience. The farmers defined themselves as knowers of nature, in contrast to EN who cast them as ignorant. Thus, we have a situation in which both parties define themselves as knowledgeable. But they translate nature, and represent wildlife and conservation, rather differently. For the most part, the WES could accommodate this difference. Farmers could be ‘natural conservationists’ in their own account, and ignorant agents in EN’s version. They could be publicly aligned with EN, yet see themselves differently. However, in the case of the ditch maintenance cycle, which is critical to the functioning of Marsh in all
respects, the WES was less able to validate both versions of the farmers’ identity.

7. Contesting water and ditch management practices

The farmers’ group identified several factors that were important to maintaining their farming practices. Perhaps the most important was regulation of the water level across the Marsh. Some land lies below sea level and can remain flooded for several months in the winter. A pumped drainage system managed by the Environment Agency covers two-thirds of Pevensey Levels. Everyone on the Marsh depends on the regulation of the water levels, but the precise location of a farm within the Marsh brings advantages and disadvantages. Being on the edge of the Marsh was seen to be an advantage because, as one farmer explained: ‘that’s where all the water’s coming onto the marsh from springs and all these little streams. If you’re round the edge your water is supplied. If you’re stuck out in the middle where it’s got to come through two or three properties before it gets to you, you’re in a different situation aren’t you?’ Given these localized circumstances, satisfying each farmer’s needs simultaneously was an impossibility. But the farmers worried about the inflexibility which they felt characterized the control of water levels. Padlocked sluices and pumps, which come on automatically when the water in the low level ditches falls sufficiently, meant that any spatial or temporal flexibility to the system was highly constrained. Moreover, managing water levels ‘by the calendar’ meant that water engineers took little account of farmers’ needs or the circumstances of the weather.

Farmers in the WES encountered particular problems in regulating the water levels in their ditches, as one spelled out. ‘In the general rules they say that you should keep the water at a constant level, a foot below the field level or two feet below the field level, but you’ve got no control over the water whatsoever. The River Boards control the water level...they let you have some when they think you can have some.’ These management prescriptions and decisions laid down by ‘people in offices’ with scant regard for what the weather did, whose land was under water or who needed water, were seen to be dismissive of the wealth of knowledge and practical experience farmers had of the Marshes, and to favor a system designed to suit some predetermined goal the farmers were not party to. Realization that, to achieve their long-term aims, conservationists would want the water levels maintained at a high level throughout the year provoked a heated discussion. As one group member put it ‘farmers on the Marsh would be in big trouble if they (conservation groups) owned 50%, because they would be able to dictate everything that happened on the Marsh’. Already, there were signs that the water levels were being maintained at a higher level than had been the case in the past. Farmers linked this rise both to the implementation of the WES and to the entry of other conservation groups such as the Sussex Wildlife Trust and the RSPB into the land market of the Marsh. Each conservation group was thought to be ‘doing their own bit of conservation’, manipulating the drainage system to satisfy their own needs rather than those of their farming neighbors. This action caused farmers to question whether their own livelihoods would survive. Conservationists seemed unwilling to recognize the need to manage the Marsh as a whole. If water levels were maintained at a high level to satisfy conservationists’ goals, the farmers speculated that flooded land would drive land prices down, allow yet more conservation groups to purchase land and thereby drive more farmers out of business. Conservation was indeed a powerful actor in this account.

8. The ditches: intersection

Devising management prescriptions was the task of local English Nature staff, although the finished guidelines were agreed to with specialists at headquarters. The natural entities had already been alligned in various texts which related the wildlife of ditches and the effects of various management regimes. Ditch communities are not uni-
form. Many variables affect the wildlife found, not just in a particular ditch, but in a particular stretch of ditch. These include its physical features, water quality, and the frequency and intensity of management (Newbold et al., 1989). Ditches are difficult to categorize according to their vegetation, and research into the flora found in a sample of Pevensey ditches led to a classification of ditch types which essentially reflected the sequence of ditch ages (‘age’ being the time elapsed since the ditch was last cleaned) (Glading, 1986).

These universally valid understandings (‘universal’ in the sense that they had been created from investigations into carefully chosen local ditches, but could be reconstituted as applicable to any ditch on Pevensey) were then translated in the precise ditch management prescriptions. The aim of maintaining and improving wildlife interest had to be expressed in measurable objectives and clearly specified methods. Regarding the ditches, one thing that farmers had to be told was how often to clean them out. The products of ecological science said that cleaning out ditches on a rotational basis over a cycle of 6–10 years would produce a range of different plant and animal communities (Newbold et al., 1989). At the same time, prescriptions had to be simple, applicable without modification to any landowner’s ditch, and related to the 3-year period over which the management agreements would initially run. These requirements not only reflected EN’s ascription of farmers as ignorant agents. They also indicate how the WES (as an entity) was associated with other entities in the EN actor-world, including central government and the need for formal bureaucratic evaluation of money spent on agri-environment schemes (see Hodge and McNally, 1998).

Farmers joining the WES found they were required to agree ‘to carry out a staged, 6-year cycle of ditch cleaning and re-profiling so as to maintain a constant community of species within your Scheme area’ (English Nature, 1991). The aim of maintaining and improving wildlife interest had been translated as the objective of achieving an unchanging assemblage of species overall. The complex relationship between ditch type, ditch community and ditch management had been translated into ensuring that ditches on each piece of land entered into the WES encompassed a range of ages up to about 6 years.

This prescription, however, was at odds with what many farmers had been used to doing. In particular, a majority found they were being asked to clean their ditches more frequently than their normal routine, although the timing varied considerably from farmer to farmer (Table 1). In the group discussions, the members expressed how difficult it was to be exact, for ditches were things to clean out ‘whenever they need doing’. This judgment involved a complex of intersecting considerations, including how well the ditch was functioning (ditches provide water for stock and act as wet fences as well as being the means of drainage); the urgency of other farming tasks; the cost; the time of year; the availability of a contractor if one is used; what length of ditch needs doing; and which ditch it was. Ditches in different parts of the Marsh differed naturally in how soon they became overgrown and silted up, and hence in how often cleaning might be required. This was related to aspects such as the depth and width of the ditch; water quality (sewage discharges encourage growth of weed); and the type of vegetation. Some ditches choked up after a few years while others remained clear for decades.

<table>
<thead>
<tr>
<th>Length of cycle (farmer estimate)</th>
<th>Respondents in WES (20)</th>
<th>Respondents not in WES (16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less then 6 years</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>About 6 years</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>7–10 years</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Couldn’t say: whenever they need doing</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Not applicable</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

* (Source: questionnaire survey with Pevensey Levels farmers, 1993) In interviews, farmers were not explicitly asked for their views on the 6 year cycle but some commented spontaneously. The group discussed the ditch cleaning cycle at some length.
A number of the farmers were explicitly skeptical that a 6-year cycle would work. The very local specificity of ditches belied hard and fast rules; and the SSSI designation seemed to validate past practices in sustaining the wildlife in them. Prior to the introduction of the WES, individual farmers had decided when to clean out their ditches. Most were accustomed to doing so less frequently than 6 years and few followed a regular cycle. The group were sure that English Nature’s instruction to clean out ditches on a 6-year cycle was likely to ‘muck up the ditches’. Individual farmers knew from experience that ditches in different parts of the Marsh clogged up more quickly than others, and how often they needed attention. Such local specificity belied rigid rules of ditch maintenance. And even if EN rules specified that clearing was only to be done ‘one side at a time’, experience told the group members that on some dykes ‘you’ve got to take the lot or none at all’. Confronting expert knowledge with their own direct experience led the farmers to conclude that frequent cleaning might even put nature at risk. If it gave too little time between operations for plants and animals to recolonise — ‘there won’t be any spiders or anything else!’

The expertise, universalizing prescriptions and practices of professional nature conservationists were very much at odds with the farmers’ intense, contextual, specific knowledge and experience of the land. Familiar with the wild plants, and especially the birds and animals found on their own patch of land, and through seeing nature in action, farmers resented being regarded merely as technicians. As one of the farmers put it: ‘There’s some idea that we don’t understand the nature conservation even though we’re there on the farm and we see it all around us’. Moreover, they felt the written agreement of the WES suggested that farmers were incompetent technicians who could not be trusted without supervision to deliver conservation by exercising their own judgment about how and when the tasks they had always practiced should be done. This skepticism was directly based on intimate experience of the natural world. But although their knowledge was local rather than scientific, farmers also could make predictions about what would happen to natural entities; they could propose the disappearance of the spiders where the WES is implemented. Thus, as knowledgeable agents, their knowledge should count. As one group member said: ‘They want us to clean the dykes out when they’re not worth cleaning out. These conservationists, they want to look to the farmers a bit more because we’re the best conservationists they’ve got. We’ve had more experience of the land than all these professors and that will ever know how to have’.

In practice, local EN staff are able to exercise some flexibility, so the ditch cleaning cycle may not be enforced so rigorously. Equally, neither does ambivalence seem to have precluded farmers acquiescing to this prescription. In the end it is EN’s problem and for the ditcher, business is business. How the flora and fauna will behave is another matter for they, too, are actors in the network. Their ostensibly well-known characteristics may yet become more complex with an innovative management regime.

9. Conclusion

The development and implementation of agri-environment schemes funded by the EU and national governments have arguably transformed farmers into ‘active stewards, following management guidelines over much larger swathes of the European agricultural landscape’ (Jones and Clark, 1998). In this case study, we have shown how farmers have, at least to some extent, resisted their translation. A growing number of studies have shown that advice based on science alone will not necessarily be accepted as ‘correct’ by farmers or the public (see Carr and Tait, 1990, 1991; Irwin, 1995; Clark and Murdoch, 1997). Drawing on their place-specific understandings of nature, farmers and other local people often contest the appropriateness of management prescriptions offered by conservation scientists. When combined with a more pervasive sense of public mistrust of scientific institutions, commercial interests and government, there is clear need for closer examination of how conservation goals are to be set and delivered (Adams, 1996; Harrison et al., 1998). Whilst agri-environment schemes, espe-
cially for vulnerable habitats such as wetlands, are to be welcomed, their success is not guaranteed when institutions who promote these schemes value them as a means of ‘transferring technology’ rather than as an emancipatory process capable of contributing to wider conservation goals (Winter, 1996a).

The relationist approach of actor network theory we have presented here enables an account of the differences between the farmer version and the conservationist version of how to manage wetlands that does not privilege the one over the other (conservationists are right and farmers are wrong). Nor does it give them unequal status for both are equally likely to be true. Neither farmers nor conservationists know best. EN’s approach does not admit farmers’ different understandings, nor recognize their multiple identities. Although farmers have entered the WES, they have not been converted. Rather, the role designed for them has proved flexible enough to accommodate their own account of their identity, of the wildlife of the Marsh, and of their role in sustaining it, and to accommodate any ambivalence that taking part in the WES provokes. EN appeals to ‘traditional’ management which it translates in the WES as regular and uniform practice. But the tradition of farmers is that there has been no ‘tradition’; each farmer has maintained his ditches differently. Each ditch is unique, a product of its social and natural history. Never, it seems, has treatment been standard and universal. In this sense, each application of the WES prescriptions is an experiment. Nature in general, and wetlands in particular, might be better aided if scientific conservation were to concede more ground to local knowledge and local specificity. And if farmers were to give more recognition to the invisible wildlife that shares their space, but is not part and parcel of their everyday lives.

Acknowledgements

This paper derives from research funded by the Economic and Social Research Council (Award no. R00023443 1). It was supported by English Nature, the public agency charged with the delivery of nature conservation in England.

References


