

To Poison or to Trap ? The Ecologisation of 'Pest' Control

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On the first of August 1986, a decree was issued in France to regulate the various procedures for hunting and destroying vermin. Article 10 of that decree banned the use of toxic substances, poisons or drugs to inebriate or poison game, except in cases where crops or public health were held to be in danger. In other words, the poisoning of invasive animals such as the coypu or muskrat was authorised when harvests or human health was threatened. The 1986 text was then amended by the more recent decree of the 25th April 2002 which effectively removed the reference to crop protection. This amendment was in its turn reversed on the 8th July 2003 by a new decree that, for a period of three years, again gave the *préfets* (the chief administrative officers representing authority in a *département*) power to authorise the use of chemicals, in complement with other pest control methods and in very 'strict conditions of supervision', to combat the spreading of the coypu and the muskrat.

How should we understand the phrase 'destroying vermin'? Which toxic substances are concerned? In what conditions are they authorised? Such questions (and others), that anyone might ask themselves on encountering the regulatory history briefly outlined above, reveal to what extent the issue of writing and rewriting legal texts is often unclear for non-specialists. Yet, if the problems posed in legal terms remain impenetrable, the real issues involved are often even more difficult to entangle. In this example, the succession of legal amendments relate to the ways in which actions to combat the coypu and the muskrat are regulated. These two wild animal species were imported to Europe respectively from South and North America almost a hundred years ago, where they were bred for fur farming. The failure of the French fur farming business resulted in them returning to the wild state with the result that they are now seen in a highly unfavourable light. Being vegetarians, they raid crops, dig burrows and damage river and canal banks. That is why, in original legislation in 1979, they were simultaneously defined in France as '*gibiers nuisibles*' (harmful game) and as '*organismes ravageurs*' (invasive pests) (Roussel and Mougenot 2003). Two main control methods are currently used to hunt down the coypu and the muskrat; trapping or poisoning them with anticoagulants (causing internal haemorrhages).

The debate, represented by the legislative amendments that have followed the 1985 decree, is one between the relative merits and arguments for, or against, the use of chemical poisons and their replacement by trapping. While, on the face of it, this might

seem a rather minor and prosaic issue, our point in this paper is that it, in fact, reveals a great deal about the paradoxes that underlie human relations to the environment. The issue has spawned a host of contradictory arguments from a wide range of actors. On the one hand, there are those who vigorously support the use of chemical controls to halt the spread of these animals, which has been accelerated in recent years by the mild climate. In some regions, the situation is seen as particularly critical; for example, in the wetlands of western and southern France heavily invaded by coypus or, farther north, where populations of muskrat have expanded rapidly. Furthermore, outlawing chemical methods would bring to an end a major programme of Franco-Belgian research cooperation into 'rational' control methods.

On the other hand, however, scattering poisoned bait in the wild and in water has been strongly criticised. In 2000 alone, over 125 tonnes of poison-coated carrots were distributed in the Charente-Maritime *département*. Naturalist associations in the Doubs and Jura *départements* have recently won several lawsuits by proving that the chemical control of the ground vole¹ has affected other species including protected animals. The issue is clearly a sensitive one and too rapid a condemnation of poison could have the opposite effect to that intended as uncontrolled and illegal poisoning would be likely to increase. It has been debated within the French Parliament and has received significant media coverage in the regional press as well as the French daily *Le Monde*. Several cases have been highlighted by the media. The Audomarois Marsh (around the town of Saint-Omer) was one of these. It is the last area of genuine marsh to be still farmed in France and continues to feed seventy families of market gardeners. These gardeners, the modern heirs of age-old practices, are said to be particularly exposed to damage by muskrats, as they work cramped plots of land criss-crossed by an extensive network of canals.

As stated above, the debate between poison and trapping has resulted in a three-year deferment on the banning of chemicals, which can now be applied under 'very strict conditions of supervision'. Nevertheless, the issue goes far further, and is more complex, than mere pest control. The combat against damage caused by such animals is tightly bound up with the issue of wetland management, since many French wetlands are also managed for agricultural production and tourism. Consequently, the dissemination of chemicals in those areas, whose effects cannot be totally controlled, is hotly contested. A question mark thereby hangs over the shift from poisoning methods towards trapping and how such a change is, or should be, implemented. Another element in the debate is the claim, made for many years by scientists, that alien species present a risk of uniformity by replacing varied indigenous fauna and flora. The coypu and the muskrat, which may be considered as 'invasive species', fall within the remit of such concern, providing an additional justification for reducing their numbers (McNeely 2001; Simberloff 2003). The multitude of issues and rationales surrounding these animals reveals intersecting spaces and groups of actors of variable size and power. Finding a solution for one issue may merely cause another to spring up.

Ecologisation as a concept

What is the status of such controversies, beyond news items and legal debates? In this article, we have chosen to interpret the issue of coypu and muskrat control in France, and the emerging priority given to trapping, as a process of 'ecologisation';

a term we begin by defining before going on to enrich it through the analysis of the trapping or poisoning controversy.

At one level, ecologisation indicates giving greater consideration to nature and the environment. The term emerged from the apparent gap between manifest ecological or environmental disasters and the relatively slow growth in societal awareness of them and their causes. At a more precise level, ecologisation as ‘political ecology’ refers explicitly to the green movement that has been both at the origin of distinct political structures (Latour 1995; Blühdorn 2000) and a force for a renewed consideration of nature and the environment by traditional political parties. In another form, ecologisation as ‘ecological modernisation’ (Spaargaren 1997) can also mean the implementation of innovative techniques and procedures with the aim of integrating the protection of ecosystems and the environment into management systems. Taken as such, ecologisation represents a new form of rationalisation through forecasting and control, leading to greater overall efficiency (Mormont 2003).

This article emerges from a concern to understand social practices for protecting and managing nature and the environment to avert the crises threatening them. We do not, however, adopt a purely socio-political approach and, moreover, reject the purely rational view according to which such practices develop according to linear and self-produced processes (Gore 2001). Rather, we are inspired by notions that are not directly related to environmental issues, notably the concept of ‘interdependence’ proposed by Elias (1970 and 1991; 1969 and 1985) and likewise the concept of ‘assemblage’, imagined by Deleuze and Guattari (1980).

For Elias, interdependence is an interconnection of actions or an interactive process made of alliances and oppositions. It allows description of the way in which human beings are involved in a constant process of adapting to each other in ever-changing worlds. Interdependence is thus a means of conceptualising the way in which past, present and future overlap but in a way that is different from a priori forecasting and a posteriori control. It refers to an unforeseeable process, no one step of which may be seen in isolation. Elias reasoned that an action could not be explained as solely the product of a single agent or group of agents and its interpretation could not be reduced to a single or autonomous rationale. Although he applied the concept to historical periods (for example, the period of the rapid development of European societies at the end of the 18th century), he nonetheless revealed the “lengthening chains of interdependence”, i.e. the multiplication of situations where an increasing number of persons are functionally related to each other in ever broader and broader spaces (Elias, 1990, p. 113). This relates closely to the concept of assemblage proposed by Deleuze and Guattari. For them, a process of assemblage is made of alliances or contagions, but not merely additions. Assemblage refers to a “multiplicity that necessarily changes in nature as it expands its connections” (1990, p. 15), thereby allowing us to explore the co-functioning between social, natural and/or material components.

For our purposes here, the insights of Elias on the one hand, and of Deleuze and Guattari on the other hand, share an emphasis on the dual characteristics of the processes they describe. These are heterogeneous and non-linear. Crucially, these characteristics, rather than being “felt as something strange” (Elias, 1985, p. 218), perfectly describe the object that we are trying to define and understand in this article, the combat against the muskrat and the coypu in France. They indirectly provide us with markers in our

application of the concept of ecologisation but also help us enrich that concept. In fact, if we accept ecologisation as a recomposition of the ties between society, nature and technology (Mormont et al., 2003), then our example reveals more precisely how those ties are sequentially ordered. We suggest, first, that ecologisation is bound up with particular and largely unforeseeable stories; second, that it is neither simple nor natural and, third; that it crystallises in material vehicles for change. These three proposals will form the structure of our text, which will conclude with a reflection on the paradoxical nature of the processes that we are studying.

An unforeseeable story

In Great Britain, at the beginning of the 1980s, the coypu was effectively eradicated through a strategy devised by scientists, assisted by farmers and implemented by professional trappers (Gosling 1989). In Spain, where the animal is not common, any such eradication would be totally unacceptable². By contrast, trapping is actively pursued in Italy where the animal is widespread. Germany is more concerned by the growth of muskrat populations. Despite poisoning campaigns, the species is spreading inexorably and the various local authorities charged with their elimination do little to actively combat their multiplication. In France, the coypu and muskrat were poisoned and trapped for many years without arousing any real contestation until the shift in legislation identified above. The coypu and muskrat are regarded as undesirable in many countries. What interests us, however, are the origins of the various means of control employed against them. In the following section, we suggest that although these means partly derive from planned decisions they are nonetheless fundamentally rooted in specific contexts, the result being that their outcome remains always unforeseeable.

Mechanical means and chemical means: flashback to two different worlds

France, the subject of our study³, is a country where the coypu and the muskrat were simultaneously and differentially classified in two distinct worlds, namely hunting (or trapping to be more precise) and agriculture⁴. In 1979, on account of the damage that they caused, the coypu and the muskrat were formally defined as 'vermin' and private citizens were authorised to hunt and destroy them. Likened to 'chicken thieving' animals', the coypu and the muskrat could be trapped. They could also be poisoned as 'invasive pests', just like the many small-sized species swarming the fields and damaging crops. More precisely, the 1979 Act also stated that 'Groups of Defence against the Enemies of Crops' (*Groupements de Défense contre les Ennemis des Cultures*)⁵ could use anticoagulant poisons where poisoned baits had to be placed on the water (on rafts), making them, in principle, inaccessible for other animals. Authorisation for those actions is renewed from year to year by the *préfet* of each department.

Previous research (Roussel and Mougenot 2002) enabled us to distinguish these two specifically rural activities, hunting/trapping and crop protection, even though they were likely to bring together the same people. These two activities also represent two types of intervention with nature; two 'worlds' which we propose to distinguish further. Trapping is a 'minor form of hunting' (Micoud, 1990), devoid of any collective organisation, as opposed to hunting which is learned with a friend or relative, gives

rise to festive meetings at which hunters relate their exploits and which is structured into a myriad of local groups. By contrast, trapping has always been a solitary and even confidential activity. From the Middle Ages, trapping took place on the edge of forests and fields, but it was also at the margins of legality and collective action. Traditionally, the people who engaged in trapping did so for a whole variety of reasons, from poaching game and trapping for fur to controlling crop damage or protecting livestock or game. There is additionally the thrill of capturing a wild animal (Hell 1997) or quite simply the pleasure of communion with nature.

The aforementioned Groups of Defence against the Enemies of Crops are trade associations which hold a monopoly over the distribution and application of reputedly toxic chemicals for the purpose of controlling invasive and crop-damaging pests (including certain caterpillars, the ground vole, chestnut blight, etc.). These Groups are overseen by the regional departments of the Ministry of Agriculture. They form a world that has been specialising in controlling plant and livestock diseases for over fifty years for the purpose of increasing agricultural yield and efficiency.

So, in terms of the variable definition of the coypu and the muskrat, we have two highly different worlds. On the one hand, a solitary activity, on the other, a collective organisation. On the one hand, practices that concern an entire territory, on the other, the pursuit of professional farming interests. Trapping is a hobby, even if, in the past, it might have provided a sometimes substantial income to the persons involved. In the agricultural world, pest control is done by employees as part of their job, sometimes with the help of farmers. Those two worlds are also opposed when it comes to the techniques used. Trappers use various types of traps to get rid of vermin and set their traps throughout the year whereas farmers use poison over a period of a few weeks during a so-called 'collective pest control campaign'. Finally, the goals are also different. For trappers, and also more generally for hunters, no species must entirely disappear. They endeavour to keep animal populations under control. Farmers, however, see things differently, their aim being the total eradication of the animals concerned. In short, trapping and farming are two worlds which differ considerably in their organisational methods, the techniques that they employ and the ways in which they see nature and interact with it.

Challenges to these two worlds: changes and shifts

Each of these two worlds has its own history, firmly rooted in rural traditions. We discover, however, that they are also both threatened by recent objections and protests. The trapping of animals considered as 'vermin' has come under pressure from naturalists and animal protection bodies (Micoud 1993). Traps are held to cause unnecessary suffering to the captured animals and the justification of trapping as rational fauna management is contested, as is the degree to which trappers are effectively trained. Since 1984, much stricter legislation has been introduced in an attempt to respond to these various concerns. Some of the actions of farming groups have also come in for criticism, in particular the use of poisoned baits. Questions raised include whether the products are really harmless to human beings, to other animal species or to water quality, the conditions of their manufacture and their handling and the possibility of their replacement by other safer chemical compounds. Clearly, poisoning has consequences for wildlife, including many protected species. In the absence of reliable scientific

evidence (Mougenot, 2004), there is no clear response leaving, as a result, an undeniable state of latent anxiety.

Animal suffering, water quality, the protection of habitats and endangered species have all recently appeared as new challenges and their impact upon the worlds of trapping and pest control is complex, provoking puzzlement and self-interrogation. Increasingly, these traditional actors are subjected to processes of normalisation and pressure to reorganise and although these changes are differentially affecting the distinct worlds of trapping and farming, both nonetheless share a number of common features. The changes within the trapping community are particularly apparent. Having been a discreet and solitary practice for centuries, trapping is now being structured into formal departmental associations. Trappers want to be recognised as nature managers, fulfilling a public service role. Nowadays, they express themselves publicly (especially on the Web), emphasising the fact that the coypu and the muskrat are both harmful and invasive, and propose skilled and environment-friendly methods to combat them. Farmer groups are also adapting to new societal demands by taking recent environmental concerns into account. They propose greater traceability in the use of chemical poisons but also the supervision of trapping, an entirely role new for them. In doing so, they claim to be reducing the risk of the spread of leptospirosis, a disease which is also attributed to the coypu and the muskrat. In certain French regions, farmers' groups coordinate the integrated pest management of crops and operations to recover agricultural waste, issues that provide them with new arenas of participation as well as new opportunities to make the most of their technical and social skills in counselling and assisting farmers. Today, trappers and farmers are far more mindful of their public image than before. Pressure from within, but above all from outside, has led them to develop more regulated and safety-conscious approaches and, thereby, protect their group identity.

As trappers move towards more collective forms of organisation, farmer groups seek to introduce mechanical methods alongside the chemical processes that were formerly constitutive of their legitimacy and their reputation. Of course, such changes do not necessarily build consensus; they can, on occasion, provoke tension and dissent. Crucially though, trappers and farmers are increasingly being brought together as their roles and actions converge. Hence our belief that the current priority being given to trapping is not the sole result of any planned action but is also, and indeed as much, the result of responses to often unrelated criticisms themselves arising from a reconfiguration of actors and organisations. As they progress, farmers and trappers are joined by other players who have also become interested in the spread of the coypu and the muskrat in recent years. These include municipal development boards, Regional Nature Reserves, hunting and fishing federations, and so on. The story therefore continues, nourished by collective decisions but also by unforeseen new episodes, in which new alliances or new constraints spring up, themselves affecting each and everyone actor in the story.

A recomposition which is neither simple nor natural

There is no longer anything new in asserting that nature is not, nor ever has been, separate from society. We have given up believing in that 'great divide', to employ Latour's (1991) lasting phrase. In other words, history has always been the product of an inextricable mixture of natural and human phenomena. Ecologisation, understood in

its most general meaning as a more respectful way to give due consideration to nature and environment, does not depart from that rule. Ecologisation is a way of adding and combining human, natural or technical components to the management of nature and the environment. In those continually developing processes, an increasing number of components keeps emerging (Collet, 2003) making such processes ever more complex. They are increasingly heterogeneous without being any more 'natural' than they were before. Our second contention is therefore this; that ecologisation processes are neither more simple nor more natural. We are going to illustrate this by examining the practices of the various new structures specifically created in France to combat the coypu and the muskrat. Though they are new, these structures nonetheless retain a number of features of the previous groupings of farmers and trappers. Yet, they have become new frameworks for collectively organised trapping, a real innovation in itself.

The new control structures

The new innovative pest control structures that have emerged to deal with the coypu and muskrat populations in France have done so more or less spontaneously, developing out of multiple arrangements deeply rooted in particular local circumstances. They might be classified according to three categories. In the first, the priority has been the creation of a new type of professional activity whose objective is nature management and the control of invasive plant or animal species. Such structures are commonly set up by local authorities, drawing upon technically skilled actors with the necessary finesse and expertise.

A second new category of organisation has developed around the growing linkage in France of environmental management tasks to the combatting of long-term unemployment. Pest control is becoming one of a series of environmental domains where long-term unemployed men and women are 'reinserted' back into society through public service employment contracts, usually organised by specific bodies and organisations. Here the more 'professional' concern for pest control has not been marginalised, it simply becomes a means of achieving the primary need to 'occupy' people seeking reintegration. In Western France, it has often been local political leaders who, in controlling local budgets, have given priority to these forms. They argue that if a troublesome animal has to be held in check, why not take advantage of this to give work to the unemployed ?

The third new organisational form is rather different from the first two. It involves coordinating volunteer groups to set traps alongside what is the fast diminishing number of lone trappers. The volunteer members of such groups superimpose their identity as territorial actors onto that of being interventionist pest controllers. The membership of these volunteer groups is drawn from a broad set of local actors – hunters, fishermen, farmers and especially to retired folk – united in their sense of belonging to a local area, its nature, its wildlife, its landscape and its its people. These loose associations of trappers appeal to all who are keen to 'take a morning walk in the marshes'. Nevertheless, although membership is ostensibly open to all, we observe that a large proportion of these voluntary trapper associations in fact derive from former agricultural groups, keen to re-invest and re-value their supervisory roles as rural land managers.

This new plurality of actors, established around the growing priority being given to trapping, is nevertheless leading to the emergence of new divisions and tensions.

Although established structures, such as the agricultural bodies who are well organised at the municipal level, seek to maintain their traditionally dominant role in organised pest management, and thereby hold on to their formerly exclusive rights to use toxic substances to get rid of coypu and muskrat, their hegemony is threatened by the emergence of the new structures identified above. Asserting their right to intervene in pest control too, the volunteer trappers seek legitimation of their role at the same time as other, more scientific, bodies are eager to assert their own professional status in this domain. While the costs of establishing a new set of professional actors in pest control might favour the volunteer groups, we maintain that these divisions and tensions relate to fundamentally different conceptions of territory and attachment to it. On the one hand, we identify a conception of territory in whose management, technical and scientific criteria are given priority. On the other hand, the decision to bring together volunteer trappers reveals an alternative attachment to territory, to its history, to its inhabitants who know each other, to their existing practices and their established ways of intervening on their own ground. In other words, the choice of whether to set up a group of professionals or a group of local volunteers reveals a confrontation between representations of nature managed in an 'expert' way and nature managed 'amongst ourselves'.

The challenges of coexistence and continuation in time

Building a network of collective pest control actions, deciding where and how to act, necessitates the holding together of a large number of very different components, including both human and non-human actors, and often requires a great deal of effort (Latour, 1984). It is a complex alchemy which involves generating interest and concern, setting priorities, mobilising actors and ensuring its long-term effectiveness. The behaviour of the coypu and muskrat, their feeding strategies (which vary according to the seasons) and their movements, are the basic parameters of a rational trapping strategy that defines the best times and places to intervene. However, other requirements or other constraints emerge alongside them. Local politicians like to see their electorate's complaints addressed as a priority. Volunteer trappers need to be motivated and are often reluctant to participate when the weather is harsh. As for the professional trappers, they have to keep to regular working hours. When there are too many tourists, it is no longer advisable to place traps. This suite of actions and considerations needs to meet the twin challenges of what Deleuze and Guattari (1982) call 'coexistence' and 'succession'. Coexistence involves assembling an ever growing number of increasingly heterogeneous components, including relationships to nature, to animals and to places, ways of organising, working, finding sources of funding and so on. Succession implies that all these various components need to be secured in time, while coping with different constraints. Since everyone is differently concerned by the problem, they can also claim to define what is to be done and how it is to be done.

Objects as mediators of change

Ecologisation is an ongoing and unfinished process that is forever drawing in new elements and components. Multiple recompositions stem from the fact that the chosen solutions frequently generate new and unexpected problems. In the example

investigated here, the broad shift from poisoning to trapping as an accepted form of pest control brings with it the critical issue of knowing how to trap.

Trapping is a practice that has interested anthropologists for a long time (e.g., Mauss 1989). Each type of trap effectively creates a specific set of ties linking the trapper, the mechanical system (spring, gate, etc.), the animal and the little piece of territory concerned (traps are set along runways, at burrow entrances, near the animals' feeding grounds, under the water, etc.). These ties not only define the success or otherwise of the trapping but also define the relationship between human and nature, of which, in the field of trapping, there is considerable spatial and historic variability. From our point of view, however, the trap represents what Deleuze and Guattari (1980) refer to as a 'transitional component'. The trap can hold together the heterogeneous components of the ecologisation process or can, on the contrary, threaten the continuation or development of that process.

The current growth of trapping in France has prompted, not only the emergence of new organisational forms but also the development of new and different trapping methods to combat the coypu and the muskrat. Yet we should not interpret these technical choices as mere implementation details and this, indeed, is the sense of our third proposal. Understanding the process of ecologisation, we argue, also means understanding the role of these material objects that are equally instrumental in shaping change. Hence, in western and southern France, colonised primarily by the coypu, there is a growing consensus over the use of the 'cage trap'. In northern France, where the muskrat abounds, arguments favour a far greater technological diversity in the means of trapping.

Technical consensus around the cage trap

In western France, the cage trap was initially promoted by scientists who shared a strong interest in nature management. The technical mechanism includes one or two spring-loaded doors. The animal is drawn inside the cage by bait and sets off itself the mechanism that imprisons it. The trapper then has the possibility of releasing the unharmed animal, which makes the device attractive for scientific study and allows for wrongly caged animal species to be released. As one might expect, the cage trap attracts substantially less criticism than the other non-lethal cages such as snares or jaw traps⁶ for the lower levels of stress that it causes. This is a point that is increasingly being made in its favour. The 'cage trap' is also considered an effective means of control as it is held to have been largely responsible for the successful eradication of the coypu in Great Britain⁷. For these various reasons, the scientists' preferred method is being widely adopted in the new pest control programmes.

However, it is not an ideal trap and our interviews with trappers reveal a number of concerns over the way it is used. Although they do not require great skill⁸, cage traps do demand a certain 'state of mind'. They raise a number of practical problems. More fundamentally, the widespread adoption of this type of trap is radically changing the practice of trapping. While the cage trap is highly effective in catching the animals, the live coypu must then be killed, something few actors like to talk about. How do the trappers deal with this?⁹ Most stun the animal with a hard blow to the back of the neck after taking it out of the trap. This two-step operation might

be deemed inhumane, especially if the coypu is transferred to a sack within which it is clubbed blindly. Nonetheless, this solution avoids the risk of the trapper being bitten for if attacked the coypu tends to defend itself. Other trappers prefer to use lead shot. This means that they must comply with legislation for carrying firearms. Moreover, carrying a rifle anywhere in the countryside outside hunting periods is strongly forbidden, even if the gun is holstered. In some groups, captured animals are drowned while in the cage, another way of avoiding being bitten if the trapper does not want to take the risk of stunning the animal and does not carry a firearm. This practice is also considered cruel and, in principle, is banned. There appears to be no ideal solution for killing a live animal. From this point of view, it was much simpler to use lethal traps or to spread poisoned baits on waterways, secure in the knowledge that the bodies of poisoned animals were practically never found ¹⁰.

The cage trap is considered to be 'selective', but it is actually the trapper who is selective, since it is the trapper who decides on the fate of the caught animal. The cage technique thereby requires an ethical engagement on the part of the trapper who needs to be familiar with the various laws, is keen to release protected species, kills the animal without suffering and recovers the body cleanly. The advent of the cage trap has meant that ethics and law have made an even deeper foray into the woods and countryside. Trappers must prove that they are trustworthy. Hence the importance of local networks which act as self-monitoring groups in control programmes. Keeping watch over every trapper is obviously impossible so establishing a collective, group engagement becomes a vital factor. That collective engagement has proved particularly difficult to establish, however, when groups of trappers are composed of people from social reintegration schemes. Given that reintegration is partly dependent upon establishing a new occupational framework, trapping, an essentially solitary activity that involves killing animals, is arguably ill-suited to their particular situation or requirements. In this way, assessments of the effectiveness of trapping as a pest control, environmental management and nature protection activity need to be offset against assessments of their value when the well being of the people doing the trapping are taken into account.

A further complication for volunteer trappers is the management of the equipment which may amount to a stock of several hundred cages (around two thousand for some *départements*). How can these volunteers ensure that the cages will be in the right place at the right time? This is more than a logistical question of counting and locating traps, which are worth some 30 euros a piece. Some of them leave the circuit because they are used for personal ends. Others are stolen or destroyed by people opposed to trapping. The management of cages is therefore also linked to the way in which pest control campaigns are perceived, organised and coordinated by trappers. It can also become a pretext to bring trappers together, encourage them to continue their actions and, at the same time, remind them of the regulations governing the way they practise their activities.

The coypu has a rather 'good-natured' temperament. It is easily trapped in the dozens or hundreds of cages that are set out in lines along the streams and canals of western France. However, it is exacting work for the heavy and bulky objects are difficult to carry, especially since some of the sites are hard to reach. Every morning, the trapper has to check the catches and move the cages either to where the animals are thought to be or in response to complaints from the locals. The animals have to be killed and finally

transported to freezers, from which they will be shipped to the centres for collecting and disposing of the corpses of livestock and pets. In some professional structures, the trappers continue to work in pairs, for safety reasons. Where available funds permit, they are equipped with quad vehicles making their job appear less demanding and more professional. Yet these new conditions change the practice of trapping once again. Some local people see the professional trappers as forming a new trade or, to be more accurate, a trade like any other but with specific tools ensuring its effectiveness and identity. Others, however, see them merely as intruders onto private land. They would prefer the work of a local trapper, one who is known as a person, discreet in their job and 'traditional' in their relationship with nature.

Capturing coypus today seems to us to have little in common with traditional trapping. For those that undertake it, it no longer provides the 'thrill' of hunting, combining a mixture of feelings of closeness to and distance from the animal, which typifies fox hunting, for example. The trapper's *savoir-faire* and solitary relationship with both animal and nature are fading away to be replaced by a collective practice regulated by technical or legislative principles. Since the cage is not regarded as being a 'good' trap, its growing use is leading to dissatisfaction amongst a number of trappers with the result that they are abandoning the practice altogether, yielding their place to a new generation that demands recognition for their status as environmental managers – yet another meaning being allocated to the practice of trapping. Thus, what consensus there is around trapping is a fragile one, prone to being denounced as much by trappers as by the general public.

Technical diversity and legal imbroglio

In northern France, which has been colonised by the muskrat, the possibility of halting chemical means of pest control has also generated a major polemic. As in the rest of France, teams of volunteer or professional trappers were set up as a matter of emergency. However, that is where the similarities end, for in the north operating methods and technical choices are very different. The cage is held to be ineffectual in combating the muskrat. Traps are only considered suitable in winter when the muskrat no longer has anything to eat and is more easily caught. In this case, the 'bodygripper' or 'Conibear' trap is mainly used. This trap is composed of two square metal frames, set by one or two springs that shut as the animal passes. It is a lethal trap and is difficult to set. It requires good trapping skills and familiarity with the habits of the hunted species in order to avoid capturing other animals. It is effective when placed under water or on rafts level with the entrances to muskrat burrows. This necessitates the trapper entering the water in all weathers. As a result, much emphasis is placed on the trappers' skills, physical abilities and braveness. In addition to the 'Conibear trap', other traps include creels, barrels, rafts supporting 'collective traps' and so on. Their diversity is explained by the search for high yields over different seasons and over a highly variable terrain (ponds, ditches of variable width, etc.).

The variety of traps bears witness to successive generations of farmers experimenting with different methods of eradicating the muskrat. Yet it has given rise today to a veritable legal imbroglio. Some traps are banned for ethical reasons (animal suffering) yet are sometimes still used on account of their known effectiveness. Testing new models, moreover, is now

banned since they do not belong to the categories of legally approved traps.

In the wake of this technical diversity and the ensuing legal confusion, we discover that, in the north, the aim is not to promote a trap that is good for every situation or for everyone. The technical options and the legal implications are much more intricate than in the west or south of France. What becomes important is that the various traps (including lethal traps) are legally approved and allow for the presence, or absence, of protected species. In these parts of France, the trap must be chosen in relation to the lists of protected species for the territories concerned. Of particular importance are the initiatives of Regional Nature Reserve managers. They endeavour to combine the local trappers' technical ingenuity with the legal conditions governing trapping while, at the same time, aiming to promote the locally defined natural and cultural heritage of the Reserve area. The effective management of pest control ultimately depends upon collective action based upon relations of trust established between the Reserve managers and the trappers.

Technical choices and means of communication

The role of these traps in the new intervention structures for the control of coypu and the muskrat populations highlights what has been a largely unexpected encounter between the world of trappers and that of scientists and/or naturalists. Following the work of Mélard (2004) and Gomart and Hennion (1999), we suggest that this encounter is following one of two alternative trajectories. On the one hand, the cage is the favoured trapping method in the west and south of France. The cage in question is a rudimentary, non-lethal trap and for that reason is also preferred as a tool for scientific study. It has emerged as 'standard' practice, favoured by nature protectors and, as a result, has been largely imposed on the trappers. Nevertheless major problems of coordination and implementation have resulted, raising new sets of questions. Giving priority to a trapping practice that has been largely developed in a scientific context to save and study threatened species conflicts with its adaptation as an activity, or a trade, which is centred on the killing of animals once they have been caught.

On the other hand, in the north, a second unforeseeable encounter between naturalists and trappers has taken place leading to the development of more locally specific, 'tailor-made' trapping solutions. The need to rethink the various trap types, guided by concern to abide by the law and a sense of giving due consideration to specific local environmental contexts has prompted negotiated solutions and a collective learning process that unites naturalists, trappers and wetland farmers.

The choice of techniques is indeed a crucial one but our research reveals additional and unsuspected qualities in the objects concerned. Each type of trap represents a specific technique for capturing and/or killing animals but is also a vector of change and a means of communication between people who need to come to agreement on a certain type of relationship to nature. The different choices that are ultimately made stimulate adjustments in different contexts, interests and worlds. By themselves, the tools paint an incomplete picture. They presume the intervention of naturalists interested in trapping or agricultural technicians motivated as much as by profitable farming as by the organisational aspects of their work. In other words, they operate as nodes in networks of players not only capable of connecting different worlds but also eager to do so.

Conclusion: back to ecologisation

To poison or to trap: this paper has explored the shift from chemical to mechanical control methods of reducing the spread of two species of rodents. In France, priority has recently been given to trapping, evidence of a change in the policy objectives towards greater environmental management and nature protection. This has meant limiting and restricting the spreading of chemicals in the wild and protecting species threatened with extinction more effectively. Has the emergence of these concerns been entirely the result of a planned and intentional policy shift ? We do not think so. Rather, we see in this the consequence of an inevitable lengthening of chains of interdependence bringing together formerly separated spaces and actors and creating new assemblages between human beings and nature.

The two worlds of farming and trapping, formally secure in their traditions and their *savoir-faire*, have become caught up in a fierce debate that threatens their very existence. Spatially specific and distinct circumstances are employed by groups of actors to develop a generic critique, often to the bewilderment of local actors. The east of France is such a case, where an abnormal mortality rate among threatened species has been caused by chemical campaigns to combat the ground vole. It is also the case of Brittany, where water pollution caused by intensive livestock breeding has become a major issue. Agricultural practices dating back to the Middle Ages engage with a collective organisation derived from post-War agricultural modernisation. Two periods, two completely different types of practices are thus assembled with the aim of contributing to the protection of the environment and threatened species. The new concerns that can be discerned in the priority given to trapping are not simply gradual developments or successive additions. They are alliances and crossovers between separate worlds that we never had any reason to believe would meet.

The lengthening of the chains of interdependence that connect them to one another results in a change in the nature of the problems encountered, problems which can no longer be treated according to conventional prerogatives, nor by the conventional compartmentalisation of techniques and skills. In the example presented here, a cage is no longer simply a means to trap animals, it is also a tool of communication. The agricultural consultant is no longer mobilised solely to give individualised technical advice but may become the organiser of new types of collective action. The lengthening of the chains of interdependence also means alliances with other groups of players who bring not only their resources and capacities but also their constraints. In the process of ecologisation that we are investigating, the list of components grows continually longer yet without offering definitive solutions, for new issues continue to emerge and become entangled.

While we might assume that the processes of ecologisation are guided by unifying or integrative principles, working towards the construction of a common and sustainable world, we might also interpret them as the expression of new divisions or new separations, just as numerous as those before. To understand the relations that are developing between the actors implicated in the control of the muskrat and coypu populations, we need to get beyond the accepted positions of common groupings (farmers, trappers, naturalists, local politicians and so on). Their interactions develop along a much greater number of local and specialised divides than we might have thought at the outset and are founded on practical choices as much as on principles that are allegedly guided by science or ethics. The choice of the techniques to control these

invasive animals should comply with legal requirements, dovetail with the trappers' motivations and organisational structure and conform to a certain definition of animal welfare (or in this case, humane death) More generally, that choice must be socially acceptable. However, such a choice also reflects perceptions of territory, including the specific features of those territories and their rules of collective management. In simple terms, the practical implementation of pest control actions forces the players to query the technical, organisational and legal dimensions but also to interrogate their own identity and ties with nature. The new environmental concerns are neither 'simple' nor 'natural' but are constantly redefining themselves by 'circulating' amongst and in between their different components (van de Graaf et al, 1999).

Finally, we should like to end with a paradox. The need both for increasingly generalised and increasingly comprehensive regulations arises from the lengthening of the chains of interdependence. Yet, unless they are to be totally ineffectual, such regulations cannot be universally applied to a single area, be it national or even supranational, and for a single point in time. The legal imbroglio with which we opened this article, arose from that very contradiction. How, then, will it be possible to think out a comprehensive, cohesive and ecological strategy (Foucault, 1994, II), given that its construction will require a whole gamut of local and specific adjustments?

Notes

- ¹ The ground vole is a species of indigenous rodent whose cyclical proliferation can cause serious financial losses for farmers, especially in the uplands.
- ² In Spain, there is also refusal to combat the wolf, whereas in France, its presence is highly controversial.
- ³ This research is based on documentary research and on 70 qualitative interviews conducted in the Marais Poitevin, in Camargue, in Brittany, in the Pays de Loire and in northern France.
- ⁴ The decree concerned is dated 24 April 1979 (Rural Code, new Book II, derived from Book III, on nature protection and the decree dated 12 July 1979 (Rural Code, Book II, on plants and animals).
- ⁵ These associations, recognised by the rural code, were recently renamed *Groupes de Défense contre les Organismes Nuisibles* (Defensive Groupings against Pests), but this new name remains unused.
- ⁶ The jaw trap was banned in France in 1994, but it is still frequently used according to what some of our interviewees say.
- ⁷ Even so, we must add that this was made possible by a team of professional trappers who were motivated by powerful financial incentives and were additionally helped by a harsher climate that greatly weakened the coypu populations (Gosling, 1989).
- ⁸ At the present time, in France, cage traps form a separate category, of which the legal conditions of application are more flexible. The trapper is not required to fulfil an approval procedure, but only has to fill in a declaration at the town hall.
- ⁹ The coypu has a fairly large size. Its average weight is between 6 and 7 kg, whereas the muskrat weighs about 1 kg.
- ¹⁰ This remark further fuels the suspicions hanging over poisoning methods. Some people affirm that if the dead bodies are not found, it is because the animals take refuge in their burrows to die there. Other people suppose that it is because those dead bodies are immediately eaten by other animals. When in doubt, that second hypothesis can only strengthen arguments in favour of trapping.

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