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Trivial nature has become popular: don't leave it to the conservation authorities alone

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Abstract

In the 1970s a considerable part of the habitats for wildlife in the Danish agricultural landscape disappeared due to rationalization of agricultural production. Since the 1980s this more humble and trivial nature, the "small biotopes", has come into focus, partly because of a successful legislation and a public campaign initiated by the central planning authorities. A profound shift in the farmers attitude towards these small biotopes during the last 10 years can be recognized too, as well as a general increase in public interest on using the countryside for recreation and for nature experiences. For more than half of the Danish counties overall plans for the countryside, including plans for regional dispersal corridors have been set up.

But this potential for a detailed planning and management of an improved protection and multiple use of the agricultural landscape on the regional and local level, is only realised on a very limited scale. One reason can be found in the planning structure, leaving most of the countryside planning to the conservation authorities of the counties. These tend to concentrate on the most important habitats for threatened species. Another problem is the missing incorporation of the local community, especially the farmers, in the planning and management of the countryside. Finally the extensivisation measures of the EU reform are implemented in a way, that most support for active landscape management is restricted to the designated Environmental Sensitive Areas (ESA).

Cooperation of different interests in regional and local planning and management of the agricultural landscape might release the potential substantially.

Key words: small biotopes, nature conservation, countryside planning. Environmentally Sensitive Areas

Background I: The explosive monotonization of the countryside up to the 1980s

Denmark is dominated by intensive agriculture covering two third of the national territory. Only 11 % is covered by forest. As a result, about one third of the total area covered with permanent vegetation suitable for wildlife is situated in the agricultural landscape as so-called small biotopes: Hedges, roadside verges, drainage ditches, small bogs, marl pits, small thickets and game plantations etc. (Agger & Brandt, 1984). The majority of this type of nature is of pure cultural origin, related to the technological and structural agricultural development. Only about one fourth of these small biotopes can be considered to be related to natural conditions, such as bogs, natural lakes or untilled slopes, and even those are highly manipulated to fit into different historical developed purposes within the agricultural use.

This also means, that a considerable part of the structural landscape heterogeneity of traditional Danish agricultural landscapes is culturally conditioned primarily due to the construction of a variety of landscape elements especially in the 19th century. Much wetland was drained, but on the other hand, new elements like hedgerows, marl pits, open drainage ditches, and small plantations were established, and changed the former very open landscape fundamentally (Biotopgruppen, 1986).

Since the 1880s a decrease in number, length and area of most of these types of elements has been observed. The density of all types of linear biotopes has diminished, and among the patch-biotopes, the smaller and the wetter have shown the highest rate of decrease. Only the number of dry patch biotopes, especially small game plantations, has increased. This tendency accelerated in the last part of the period due to rapid technological and structural changes in Danish agriculture (Table 1). The decline in wet as well as in dry linear biotopes was considerable from 1968 to 1981, where only the number of dry patches was still increasing.

In this period very often the biotopes situated within the agricultural holdings disappeared, due to the increase in field size and amalgamation of neighbouring holdings. This was carried out partly due to an extreme monoculture developed these years where especially spring barley often continuously was grown for fodder, covering two third of the total agricultural area. As a result, in 1981 about 80% of the remaining small biotopes were located in the boundaries between the holdings. Spatially, the dynamics of the small biotopes have been even much greater, since these net-figures cover both establishment and removal of biotopes, as well as considerable local and regional variations (Agger & Brandt, 1988).

The combination of monoculture and the removal of small biotopes for en-

largement and regularity of the single fields resulted in an overall tendency in the landscape pattern towards a monotonization, that was observable for everybody.

Table 1. Rate of changes (% per year) of small biotopes in the eastern part of Denmark (average for 5 test sites of total 20 km²). The figures in the first column are comparable with the two following only with reservation since the definition and methodology behind it are different. So, one of the most common types of small biotopes, field divides, are not indicated at the topographical maps, that also for cartographic reasons exclude many small patches. For the field survey small biotopes were defined as "uncultivated areas that are permanently covered with vegetation (or water) and situated within the agricultural areas". Furthermore, a small biotope must be smaller than 2 ha and either larger than 10 m² or longer than 10 m with a width of more than 0.1 m (Agger & Brandt, 1984).

		Topo- graphical maps	Field survey 1981 extended back- wards by air photo interpretation	
		1884-1974	1954-68	1968-81
		(91 years)	(14 years)	(13 years)
Wet line biotopes	Length	-0.4	-0.5	-1.0
Wet patch biotopes	Number	-0.8	-0.9	-2.2
Dry line biotopes	Length	-0.4	-0.6	-1.0
Dry patch biotopes	Number	+1.9	+0.5	+1.7

Background II: Reaction - change in conservation policy and increasing public concern

This development happened in a period of rapid urbanization and a substantial increase in income paired with a shortening of the working week and increase in leisure time. At the same time, there was an explosion in the stock of private cars, giving rise to an expansion of the accessibility of the countryside for recreational purposes.

This gave rise to a tense conflict in Denmark concerning conservation strategy: the rapid economic growth increased the pressure on land use at all levels: Should the answer be to give priority to nature parks, that includes the most important nature interests, or should it be to press for improvements at a general

level, trying to keep as much nature as possible, also the more trivial ones in the intensively used agricultural areas? Should it be a segregation or an integration model? (Cook and Van Lier, 1994). Indeed, the last strategy won. There are no nature parks in Denmark, but it exists - beside the normal nature conservation areas (with a total area in 1989 of 184 600 ha) - a still more refined system of mild general protections, that is restrictions on the free land use - without economic compensation - that makes it illegal to alter certain types of nature without permission from the county authorities (Table 2).

Table 2 shows how this general protection has developed. From being originally protection for cultural heritage of barrows from the bronze and iron ages, the list has been enlarged to more and more nature types, especially after the 1970s. In addition, the minimum size of landscape elements regulated by the law has also been lowered considerably. Especially the new Nature Protection Act from 1992 has been focusing on the importance of the small biotopes like stone- and earth dikes, small bogs, heaths, meadows and pastures down to a quarter of a hectare, and small ponds even down to 100 m². In the regional planning this tendency was already seen in the beginning of the 1980s, where the ministry of environment in connection with the approval of the regional plans asked the counties to make recommendations expressing the wish to secure the remaining small biotopes in the open land. Up through the 1980s small biotopes have become a vernacular concept in Danish environmental debate, and their importance is generally accepted in the society¹.

Result: General stabilization and growing awareness

In the beginning, the widespread interest in the small biotopes among the general public was met with suspicion by the farmers organization. They were traditionally the strongest, well-organized and efficient economic lobby within the Danish society. They were in a good position due to a very fundamental planning law from 1970, dividing Denmark into 3 zones (urban, rural and summer cottage zones) keeping the rural zone basically for agricultural purposes. Although of course main conservation interests in the rural zone have been taken into account, this law and its philosophy has been applied very strict-

¹ So, the monotonization of the landscape was included in the environmental problems, investigated for their public concern by Gallup questionnaires during the 1980s: In 1986, however, only 5 % of the population judged it as one of the 3 most serious environmental problems.

ly by the authorities at all levels up to the last years to the benefit of the more narrow agricultural interests. But it can be noted that with the exception of the -bufferzones along watercourses, there has been very little objections from the farmers organizations concerning the new general protections rules. And among the farmers the new trends had a tremendous influence, that obviously has affected the strategy of many farmers.

The reduction in number of small biotopes since the end of the 1960s has diminished again during the 1980s, even with a tendency towards a net increase in Eastern Jutland (Table 3). To some degree these figures cover a certain diversion into extensivation and intensivation areas (Brandt & Agger, 1988), but even in the intensively used areas the rate of removal has generally declined considerably (Brandt et al, 1996).

The following more specific reasons for this development can be given:

- Due to a technologically conditioned reintroduction of winter barley and changing prices within the EU the monoculture of spring barley has been replaced by a more divers crop pattern. Especially a widespread cultivation of rape has added a necessary renewal of a systematic rotation of crops. Thereby the internal division of holdings into several fields has somewhat stabilized the biotope pattern. This has special importance in areas dominated by small holdings.
- Another main cause for biotope restoration and maintenance is the increased importance of hunting interests which leads to better maintenance of the existing habitats, planting of cover for pheasants and digging of ponds for mallards.
- A third thing to mention is the large scale renewal of hedgerows mainly in the western part of the country on the poorer soils. Especially old worn out hedgerows consisting of a single row of white spruce *Picea glauca* or *Sorbus intermedia* have been replaced by hedges consisting of three to six rows of a mixture of broadleaved species of trees and bushes. Some 700 km of hedgerows are planted per year, more than a third of these being in six rows². Oak, elm, ash and alder will in the long run be the dominant elements in these new hedges
- The growing focus on small biotopes has added a growing recognition among farmers of the benefits he can have of a balanced and multiple use of the land, not only to be managed as a mere medium for intensive agricultural production. The importance of this change in attitude should not be

² Personal communication with John Norrie, Research Center for Forest and Landscape, Hørsholm

underestimated, since it can just be seen as a normalization of the farmers relation to his landscape after a (historically short) period of a more or less ideologically based simplification of the spatial organization of land use to a question of machine time consumption by the field work.

- The agricultural surplus production, and the budget problems within the EU, paired with the rapid growing pressure on the agriculture to be responsible for its contribution to the environmental, especially water quality problems, limits the prospects for a more intensive agricultural production in many areas, thus dampening investments in a more intensive agricultural land-use.

Table 2. The developoment of general protection : restrictions on the free land use - without economic compensation - that makes it illegal to alter the given types and sizes of nature without permission from the county authorities. According to the Nature Conservation Act (1937, 1972, 1978, 1984 § 43) and the Nature Protection Act (1992 §§ 3,4 and 12) (Min. size in m²)

	1937	1972	1978	1984	1992
Barrows	all	all	all	all	all + 2 m buffer zones
Other archaeological sites					most types + 2 m buffer zones
Water courses		> 1.5m	> 1.5 m + specially selected	> 1.5 m + specially selected	high priority + 2m buffer zones
Lakes and ponds		all natural lakes	> 1000 m ²	> 500 m ²	> 100 m ²
Bogs			> 5000 m ²	> 5000 m ²	> 2 500 m ²
Heaths				> 50000 m ²	> 2 500 m ²
Salt meadows				> 30000 m ²	> 2 500 m ²
Fresh meadows					> 2 500 m ²
Pastures					> 2 500 m ²
Stone and earth dikes					all on topographical maps (provisionally) + 2m buffer zones

Table 3. Table showing the development of small biotopes in Denmark in 1981-91. Only with reservation these figures are comparable with table 2, since they are purely based on field work, giving a more detailed and ecological strict registration. The 5 test sites mentioned in table 2 are a part of the 13 test areas in Eastern Denmark (for further details, see Brandt et al, 1994)

DEVELOPMENT OF SMALL BIOTOPES IN DENMARK 1981 - 1991*		1981-86 (% per year)	1986-91 (% per year)	Wet line biotopes	Wet patch biotopes
13 TEST SITES IN EASTERN DENMARK (52 km ²)	Wet line biotopes	-0.1	-1.1	Drainage ditch, Canal, Brook.	Wet Marl pit, Other wet pit, Artificial pond.
	Wet patch biotopes	-1.8	-0.8		
	Dry line biotopes	-0.1	+0.2	River	Bog, Natural lake, Village pond
	Dry patch biotopes	+0.9	+2.0		
10 TEST SITES IN EASTERN JUTLAND (40 km ²)	Wet line biotopes		+3.2		Alder swamp, Rain water basin
	Wet patch biotopes		+2.4		
	Dry line biotopes		0.0	Dry line biotopes	Dry patch biotopes
	Dry patch biotopes		+4.7		
25 TEST SITES IN DENMARK** (100 km ²)	Wet line biotopes		+0.3	Road verge, Field divide, Hedgerow, Slope	Dry pit, Barrow, Plantation, Natural thicket
	Wet patch biotopes		+0.3		
	Dry line biotopes		0.0	Railway dike, Tree row, Stone wall, Footpath	Solitary tree, Ruderal area, High power mast
	Dry patch biotopes		+2.6		

* Indicated as % annual change in average for all test sites; the line biotopes in % of length; the patch biotopes in % of number.

** Including 2 test sites on Bornholm in the Baltic Sea

Problems for the realization of the present possibilities

The stabilization of the small biotope pattern and the many positive trends that can be related to it constitute a tremendous opportunity for the benefit of both nature and man. It makes it realistic to keep the small biotopes for habitats and dispersal purposes despite their general status as trivial nature, and even to

incorporate the small biotopes as a part of the backbone for setting up regional and local ecological networks for a multipurpose land use at the countryside.

For regional planning and management, the most important tool for incorporating the small biotopes in an integrated countryside planning is without doubt the detailed biotope-surveys that followed the sharpening of the general protection rules. This work has been a task of the county authorities both after the revisions of the Nature Conservation Act in 1984 and after the passing of the Nature Protection Act in 1992. The last Act made it necessary to extend the staff in all counties due to the now more detailed and complicated survey: This can only to a minor degree rely at topographical maps as an entrance to the registration, due to the small minimum size (100 m² for ponds), and incorporation of commons (dry pastures), generally included in the agricultural land on the maps. The survey (in Denmark named the §-3-registration) will be finished May 1995, and is supposed to comprehend about 1400 km² additional general protected area, dispersed into some 200 000 localities (Skov- og Naturstyrelsen, 1992).

One of the perspectives in this survey is to establish a backbone for the setting up of regional (and local) networks of different types of landscape corridors. This has been a declared wish from the central planning authorities since the beginning of the 1980s. In 1983 the central conservation authorities in the Danish Ministry of Environment developed planning guidelines for the counties putting emphasis to the planning of dispersal and other types of corridors as central parts of a new countryside planning, integrating conservation better into the regional plans. But only about half of the counties in fact put such plans into the planning maps. And only a tiny part of these planning maps has ever been realized (Brandt, 1995).

One reason for this can be found in the planning structure, leaving most of the countryside planning to the conservation authorities of the counties. These tend to concentrate on the most important habitats for threatened species. Even when they recognize the importance of 'trivial nature' as habitats for wildlife, and as dispersal corridors or stepping stones in general, they will seldom give it priority, unless it can form a part of a strategy for the protection of specific threatened species.

From a traditional conservationist point of view this is rather logical, and facing a limited budget such a priority seems unavoidable. But by this attitude the realization of the potential for setting up regional and local ecological networks for wildlife, recreation and landscape amenities coordinated with a more ecological sound agricultural practice is restricted unnecessarily.

So, the extensive §-3 registration has surprisingly given rise to a widespread dissatisfaction in the responsible nature conservation departments of the counties. Especially the incorporation of clear cultural elements such as stone-

and earth dikes conserved not only as habitats for wildlife but also for historical reasons, has been severely criticized, instead of seeing it as welcomed opportunity for an integrated planning (Andersen, 1994a). The same goes for the somewhat complicated rules for the incorporation of semicultures, like fresh meadows and permanent pastures, overlapping traditional agricultural areas (Andersen, 1994b).

This has partly been explained by lack of manpower for nature management: So, in the county of Western Zealand, it has been estimated, that although about 40 % of the areas under nature protection need conservational care, only 10% of this area has been managed during the 10 years from 1982 to 1992. The acreage under the milder general conservation rules is all in all at the same order of magnitude, of which about one third needs care, but only 4% of this area has been treated during the same period. But should it be the main task for the conservation authorities to do the practical habitat management of all these areas? Shouldn't they concentrate more on mobilizing the hidden human resources among land owners and users interested in the preservation of our cultural landscapes?

This touches upon another, but related problem in the planning structure, namely the missing formalized incorporation of the local community in the planning and management of the countryside. The zoning legislation has given rise to a principal division of labour between the municipalities, taking care of the planning in the urban zone, and the counties being responsible for the countryside planning. But it is very difficult for the county authorities to make integrated planning of the countryside at the local level without support (and pressure!) from the local communities.

During the recent years a substantial financial support from the state has been given to nature restoration projects, partly allocated through the counties. A good deal of very fine and integrated projects has been realized (especially on restoration of lakes on former reclaimed land, establishment of near-urban recreational forests and for support of rangers for Nature schools or other types of local nature recreational activities) (Danish National Forest and Nature Agency, 1992). But still, it has been single spots, not influencing the general trends for the development of the countryside.

For the general improvement of the ecological value and the recreational use of the intensively used countryside the most important issue will be the mobilization of farmers for the setting up and realization of local plans. Here the introduction of incentives, developed on the principle of linkage between the agricultural use of the land and the related biotopes, like the 'ecopoint' system in Lower Austria (Mayrhofer & Schawerda, 1991), might fill out a gap. Although the economic incentives for the farmers should not be underestimated, the most important perspective in such arrangements seems in the present

situation to be the possible stimulation of the growing awareness of the farmers of their role as landscape managers and the establishment of a frame for such a stimulation, that can support a coordinated effort from farmers and other local inhabitants at the landscape level. Such a stimulation has no high priority by the Danish conservation authorities: Even a personal written information on the §-3-registrations made by the authorities within the single farmers property has been rejected as a too expensive task.

A third reason for the missing realization of the potential for 'trivial nature' relates to the EU agricultural reform itself. Although the principal change from a production-based support to area-based support should back up a general extensivisation to the benefit of nature also in the intensively used agricultural areas, the accompanying extensivisation measures are primarily realized within the designated ESA-areas (in Denmark called 'Special sensitive agricultural areas - SFL). This part of the reform (as well as the former designation of ESA-areas from 1990-94) is somewhat in contradiction to the philosophy behind the general protection, because it tends towards a concentration of the extensivification measures leaving the rest of the countryside for a further intensification. Also concerning the question of compensation, a conflict is clear. The majority of ESA-agreements made in Denmark in 1990 has been to maintain permanent pastures from being cultivated (Primdahl & Hansen, 1993): A part of these areas are now under general protection, and there will in consequence of that be no compensation in the future. But since almost no permanent pastures has been put under rotation for many years, the risk seems little and in favour of the general protection (Johansen & Hinge-Christensen, 1995).

The designation of ESA has been influenced very much by traditional conservation thinking in the counties. In 1990, 542 ESA was designated in Denmark with a total area of 106 857 ha, but with substantial differences in the size and in the involvement of the agricultural sector (Primdahl & Hansen, - 1993). As a result, the coverage with agreements within the areas varied from 11 to 35 %, with an average of 19, compared to the planned goal of 25 % (Hansen & Primdahl, 1991). Although other factors (such as landscape type) influence these figures, they indicate the somewhat one-sided attitude of conservation authorities of the counties.

In fact, the ESA-measure can function as a supplement to the general protection, e.g. as a supplement, helping to fill out the gaps in planned regional and local corridors related to the integrated planning (by total area, the ESA and the §-3-areas are of the same order of magnitude). But instead of that, we can see a tendency towards a new division of labour and land between agriculture and conservation, leaving the most marginal agricultural areas for traditional conservation, by high costs, in return for a new agricultural zoning totally free

for conservation or other type of interference.

Although the surveys after the 1984-revision of the general protection-rules was ready for the purpose at the time of the designation of ESA in 1990-91, the designation has in no case been coordinated with the overall plans for regional landscape corridors. In connection with the new designation of ESA in 1994 only one county has used this opportunity to realize their plans for ecological corridors.

Conclusion

With the development of the general protection policy paired with the good prospects for the incorporation of farmers in the future landscape management we are in principle in a good position for a future improvement of the planning and management of the countryside. But traditional conservationalist way of thinking, missing organizational measures for the mobilization of the local community in landscape planning and management, and a somewhat old-fashioned conservation strategy dominating the environmental aspects of the EU agricultural policy, are factors, that at least up to now have kept the realization of this potential on a very modest level. A better frame for local participation and cooperation in landscape planning and management seems to be one of the most urgent tasks to break the deadlock.

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