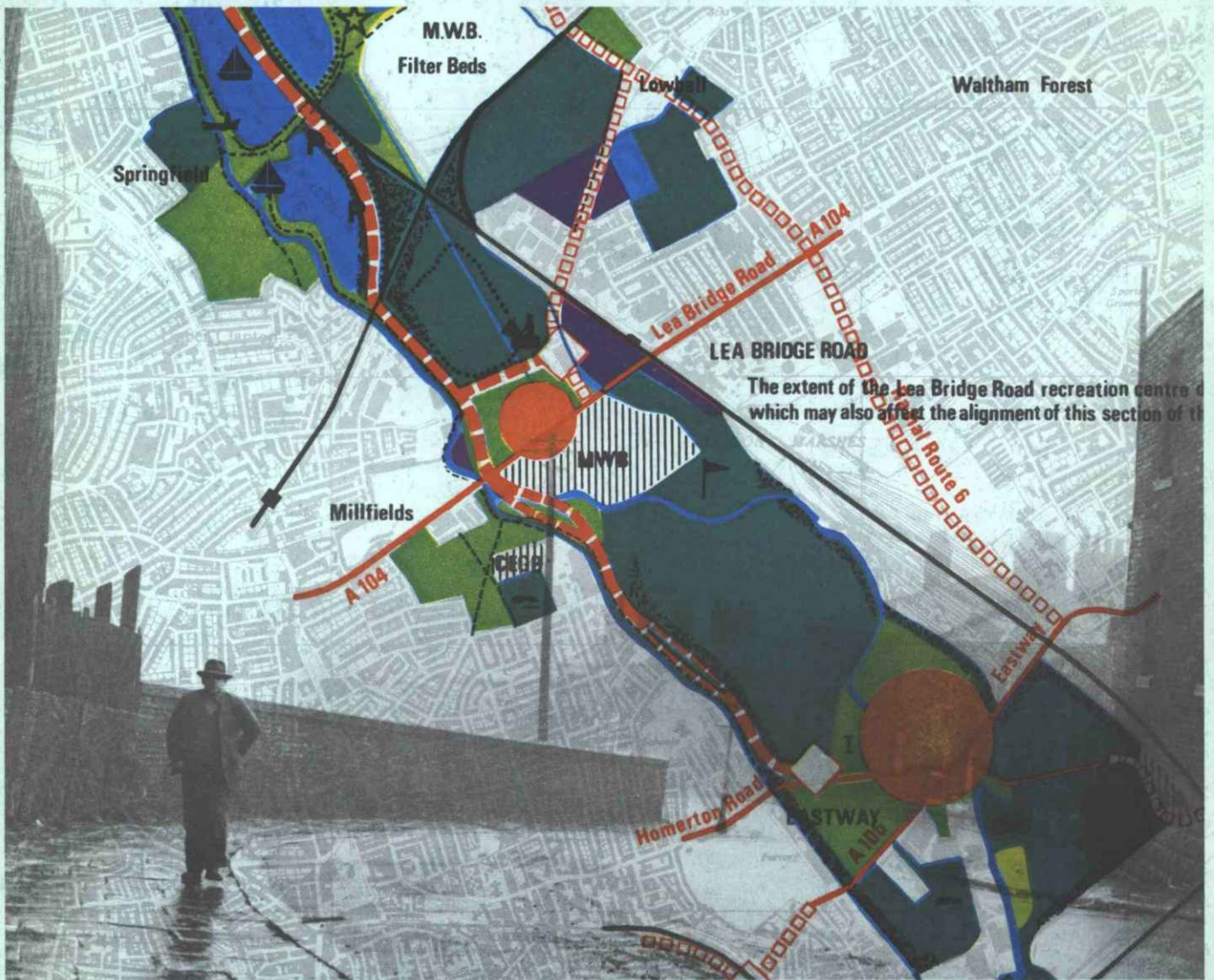


spring 1970

# NATURE IN FOCUS



BULLETIN OF THE EUROPEAN  
INFORMATION CENTRE  
FOR NATURE CONSERVATION

COUNCIL OF EUROPE



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SPRING 1970

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## editorial

The beginning of European Conservation Year seems the right moment to cast a backward glance and, to a certain extent, take stock of the situation.

The need to protect nature and its riches, whether known or unsuspected, was originally a fairly disinterested idea, an ethical concept which could be understood and adopted only by an elite. The idea gained ground, slowly at first, as it became abundantly clear how true it was, in face of the increasing and thoughtless encroachment of modern civilisation. This essentially liberal and altruistic view, in violent contrast with the materialism of our time, led to a dilemma: the conflict between the intransigence of the idealists, confirmed by repeated disillusionment, and the self-interest of the pragmatists, champions of technical progress. When the Committee of Ministers took the extremely praiseworthy decision to include (in the Council of Europe Work Programme) the problems of preserving nature and natural resources, the situation evolved rapidly. The danger of the catastrophes caused by human activity became obvious: specialists in economics, industry, technology and town planning began to take the natural environment into their calculations. The idea of nature conservation became more widespread, but, while becoming more effective, it may have lost in purity what it has gained in persuasive force. That is the present state of affairs. It is therefore important to have a clear idea of the situation and its dangers.

We often speak of planning the environment. This is all very well, but we must still define what that implies and realise where it will

lead. If to plan means to husband our natural resources by preserving as far as possible the surviving natural regions, and sparing the maximum number of woods and forests, alpine grasslands, uncultivated valleys, unspoiled coastlines, unpolluted rivers, lakes and ponds and their shores, then such planning will be a sane, long-term, forward-looking policy. But it must be realised that great sacrifices are involved, in particular the compulsory suspension of speculative encroachments on the natural environment.

If on the contrary the stress is laid exclusively—as tends to happen increasingly in order to convince the indifferent and resist the self-seekers—on the need for man to organise the environment to his own advantage, then this will be a short-sighted policy whose effects will soon be swept aside by the ever swelling wave of population. Given the basic egoism of human nature, it is to be feared that the appeal to common sense which is being prepared for European Conservation Year may in this particular case be turned aside from its goal: to slow down, and then to stop human expansion, which, as it accelerates, destroys our reserves of vital energy, which must remain the very foundation of all civilisation.

E. P. DOTRENS  
Honorary Director of the Museum  
of Natural History, Geneva.  
Former Chairman of the  
European Committee for the  
Conservation of Nature and  
Natural Resources



## THE NEED FOR GREEN SPACE

Population growth is no longer a dominant factor in the temperate countries, the majority of which have more or less succeeded in controlling demographic expansion. Thus in Austria it has taken 140 years to double the population, in Belgium 117 years, and in Great Britain and Italy 100 years. This factor obviously plays quite a different part in the developing countries, since in many Latin-American and Asian countries the population doubles in 20 or 30 years.

In Europe, the intensity of urbanisation is essentially due to the growing desertion of the countryside. The population living in towns of over 100 000 inhabitants has

risen from 2% to 13% over the past 150 years. This is certainly a significant factor. To take an even more concrete example, in France the urban population was barely a quarter of the total in 1846 but had risen to 60% by 1969. There is thus at present an irreversible exodus from the country to the town, the causes of which are well-known and do not need to be studied here. It is enough to remark that the main factors are economic and social.

As we have shown, urban expansion has taken place at an astounding, indeed an excessive, speed. A great deal of building has been carried out with no overall plan,



Publifoto

*Every tree counts. The value of open space in crowded cities may be measured, not in surface area but in the volume of greenery relative to the volume of bricks and concrete, or the total plant biomass relative to the total human biomass.*

*Even small parks can give an air of space and relaxation to a busy city. A tree-lined avenue softens the hard angles of a city street and during the day the green leaves absorb carbon dioxide, refreshing the air with oxygen*

### Urbanisation, a world-wide phenomenon

It is well-known that the urban population is increasing, often at a terrifying rate. In Paris, the population has risen from 1.5 to 7.5 million in the last 80 years, and, to take an example in quite a different area, Nicosia, which had 45 000 inhabitants at the end of the 1930s, had as many as 110 000 in 1969! The process is world-wide, affecting the urban areas of Europe and of the developing countries. The fact can be illustrated by another example: in 1800 there was only one city in the world with a million inhabitants, London; in 1956 there were 82 such cities.

This phenomenon, occurring everywhere on a substantial scale, has two main causes: the general increase in the population; and the migration from the countryside to the towns, which is helped by the increasing mobility of the individual.

*Man in harmony with nature. Bellapais Abbey near Kyrenia where the town has evolved over the centuries as an integral part of the landscape*



Cyprusmuseum

leading to often irreparable mistakes: whole areas being built piecemeal and parks and woodland being destroyed.

Does man lead a better life in these great conurbations? Is he happier in them? Is he healthier? Does he find greater satisfaction? We shall refrain from answering each of these questions individually. But it is significant that all are agreed that a number of problems such as air pollution, noise and lack of space, now need urgently solving.

Urbanisation is thus far from being an unmixed blessing. The city-dweller is paying more and more dearly for what he gains in comfort and convenience. We shall now look briefly at the problems mentioned above.

**Air pollution.** All town-dwellers are only too familiar with this problem. Unfortunately they end up by becoming almost accustomed to it, regarding the polluted air they breathe in the city as normal and the fresh, pure air of a pine forest as abnormal. Are we aware of the many factors, which admittedly may not appear sensational, that day after day erode our health?

Just in case we are not, here are two examples. The number of microbes per cubic metre is 12 on the Ballon d'Alsace, a mountain in the Vosges, 88 000 in the Champs-Élysées in Paris and 4 000 000 in a Paris department store! The conclusion, I think, is self-evident.

Motor-vehicles discharge millions of cubic metres of carbon monoxide, as well as a substantial amount of cancer-producing carbides. These are often 100 times more con-

centrated in the town than in the country. This again is food for thought!

We could go on citing spectacular figures almost indefinitely. An interesting study in Paris has calculated that 47% of the air pollution there is caused by exhaust from motor vehicles, 33% by domestic heating, and 20% by industry.

These factors have immediate consequences: an increase in lung cancer, chronic bronchitis, and other respiratory diseases. Unfortunately it has been found that there are also more long-term effects. Thus, as a result of all forms of combustion, the proportion of carbon dioxide in the air is increasing by 0.2% every year. The process is a slow one but, because it affects the absorption of radiation from the sun, is in danger of causing the world's atmosphere to become substantially hotter, which would lead to considerable climatic changes.

Dust is another very important factor in pollution. A big power station can discharge 50 metric tons of dust into the atmosphere every day. This dust eventually settles on the ground, or enters people's lungs. In some towns, dozens of tons of dust settle on a single square kilometre every year. The particles also mix or combine with other substances suspended in the air sometimes forming smog, which has often been so deadly in London. It is hardly surprising that all this pollution is harmful to health.

**Noise.** This growing scourge has a direct effect on our behaviour: it increases irritability and changes our psychological reactions generally. Although it is still difficult to

make any quantitative study of the effects of noise, it should be noted that complaints about noise are growing from day to day.

All these assaults of modern life have direct repercussions on our physical and mental health. The number of heart attacks is steadily increasing, as is the incidence of psychological disorders, which may be as high as 25% in big industrial and urban areas.

All these factors are scarcely conducive to optimism. And yet man has the means to fight these things which are slowly ruining his environment, this increasingly unbearable noise, this feeling of suffocation, both physical and mental. Among the many remedies which should be envisaged — simultaneously — are stricter regulations on industrial fumes, more efficient filters for motor vehicles (filters have been found that reduce the carbon monoxide content from 2.1% to 0.3%), and more effective silencers for motorcycles and scooters. There is also a remedy which we shall now examine in greater detail—the extension of open spaces.

### The purpose of open spaces

In Europe, trees have always been to a greater or lesser extent associated with houses; and when there were no trees, there were hedges, lawns and flower-beds. Some big towns have parks of very ancient origin, which have been preserved for ornamental reasons. Such parks were also intended to provide quiet and restful surroundings for people tired by the noise and many other irritants of town life. This is why these large open spaces were often partly enclosed and covered with



notices to prevent people climbing trees, walking on the grass, playing ball, riding bicycles, or otherwise disturbing the peace.

As a result of the changes in urban society, after the war public gardens gradually came to serve another purpose: recreation, instead of relaxation, for children as well as adults. They are now mainly open to the public, and the authorities lay them out in such a way as to encourage as many people as possible to make use of them. The purpose of the park today is an increasingly social one. An interesting survey on this subject has recently been carried out in Amsterdam. People living near a number of different parks were asked how often they went to them. The replies showed that, whatever the area, the results were the same: 60-70% went to the park occasionally and 30-35% at least once a week. This means that open spaces are now playing a decisive part in the town-dweller's everyday life.

The role of open spaces is very important in a number of ways, but is sometimes difficult to assess accurately in quantitative terms.

Plants, by means of the chlorophyll in their leaves, play an important part in the regeneration of the air. They absorb some of the carbon dioxide which accumulates in urban areas and give off oxygen, which is one of our vital needs. The extent of these exchanges of gases, due to photosynthesis, is often underestimated. A hundred-year-old beech *Fagus* in one hour absorbs 2350 grams of carbon dioxide, that is the volume of carbon dioxide given off by 10 single-family houses. During the same period the tree gives off 1710 grams of oxygen. Plants thus

have a very important effect on the composition of city air.

A tree, like any other living thing, constantly gives off water: it does so by transpiration. This, too, is a very important factor. A birch *Betula* gives off an average of 300 litres of water as vapour each day, and a beech sometimes 500 litres. This process of evaporation, and an upward air current, takes with it the dust and other particles suspended in the air, which are then blown away by the wind.

Trees also help to absorb noise and cut down wind force by the density of their foliage, at least when they are fairly large. One more detail is the restful effect of the colour green on the nervous system by means of a process of regeneration in the retina.

Finally, open spaces play a part in the conservation, and even the increase, of fauna. It is true that many surveys of nesting birds have shown that the number of species living in towns is smaller than in the woods. The same studies indicate, however, that the density of these birds is much higher in towns than in the country, even leaving aside the house sparrow *Passer domesticus*, which is in fact dependent on man.

Birds are not the only vertebrates to have adapted to man. There are also certain mammals, particularly the squirrel *Sciurus vulgaris*, not to mention the rat *Rattus rattus* and other rodents. It is often surprising to find how much a completely built-up area can still be a home for nocturnal animals such as the barn-owl *Tyto alba* and the tawny owl *Strix aluco* which completely escape the notice of the man-in-the-street. I myself shall never forget

the sight of two martens *Martes foina* chasing each other along the tram lines at two in the morning in the middle of Lausanne.

There is thus a fair amount of animal life in our towns, even in the very small parks which may be completely surrounded by buildings. It is obvious that the greater the open space, and the richer in different species of plant, the greater will be the variety of animals found there. Some big parks on the edges of large towns even contain large mammals—red deer *Cervus elaphus*, roe-deer *Capreolus capreolus* and fallow deer *Dama dama*—in either partial or total liberty.

### Planning and amenities

Before we discuss the planning of open spaces, we should attempt to classify them. I should like to say right away that it is wrong to try to assess total open space in a built-up area solely in terms of the surface area of parks. To form a really true picture we should include all trees bordering avenues and boulevards and all cemeteries and private gardens (both lawns and clumps of trees) however small they may be. The total plant growth is in itself significant.

We shall, however, deal here only with parks.

Breman proposes four main groups:

*Local neighbourhood parks* which, as the name suggests, are used by the residents of the immediate neighbourhood and have an average area of 1 hectare.

*District parks*, which are frequented by a greater number of the population and whose area is generally between 5 and 10 hectares.



8

In the heart of London, the lake in St. Jame's Park is a famous bird sanctuary, popular with both the birds and the people who come to feed them. There is often a greater concentration of common species (pigeons *Columba*, mallard *Anas platyrhynchos*, and black-headed gulls *Larus ridibundus*) in the city parks than in the countryside but here there are also a few Canada geese *Branta canadensis*, pochard *Aythya ferina*, tufted duck *A. fuligula* and one black swan *Cygnus* introduced from Australia

Table 1—Relative populations of birds in town and country

	Author	Place	No. of species	Density per 10 hectares
country	Williamson	Berkshire, G.B.	26	110
	Ferry	Citeaux, Saône, France	42	68
	Ribaut & Chessex	Bois de Chênes, Nyon, Switzerland	65	75
town	Ribaut & Chessex	Lausanne cemetery Switzerland	18	178
	Hortigue	Sports ground, Dijon, France	20	85
	Ferry	Parc Darcy, Dijon, France	14	350

*Town (or area) parks*, which cater for all the inhabitants of a small town, or of a whole area of a large town; covering between 50 and 100 hectares.

*Wooded parks*, which are used by the inhabitants of a large town or a whole region. The surface area of parks of this type may vary between 200 and 1000 hectares.

Let us take a closer look at these types.



### Local neighbourhood parks

These parks are as a rule entirely the work of man; they may be called artificial. They are very costly to lay out and maintain. Benches are their special feature and may be very numerous indeed. For instance, the parks in the Kremlin moats have a bench every three metres. A small park of this type often has a playground for young children, including sand pit, roundabout and slide.

### District parks

These parks have practically the same function as the previous kind, but there is much more variety in their lay-out. Groups of trees take on more importance and alternate with lawns and flower beds. The same amenities are there, together with sports grounds, adventure play-grounds and skating rinks. Visits by schoolchildren are, or should be, arranged to parks of this type to give the children a practical introduction to nature study, but this is not yet a very common practice in most European countries.

We should note that all too often in both these types of park very young trees are to be found, simply because it is easier to replace a dead tree with a sapling than with a maturer tree. But older trees are what are needed, even if this does raise technical problems.

### Town parks

This is the multipurpose park. Its large area means that various facilities are possible such as restaurants, picnic areas, mini-golf, tennis, kiosks,



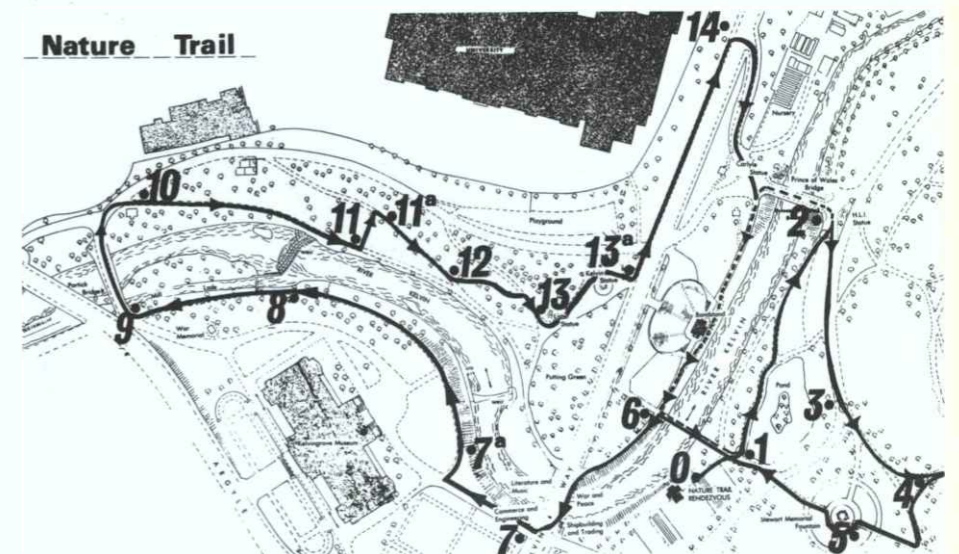
*Nature in a city. The richly wooded Kelvingrove Park in the middle of Glasgow includes a nature trail laid out by the City's forward-looking Parks Department. There, children, who may rarely see the countryside, can explore and discover nature for themselves*

open-air theatres and *nature trails*. The latter are of special interest and are most widespread in the United Kingdom. The aim is to make use of the natural features of the park in order to introduce the visitor to problems concerning nature and nature conservation and to teach him some elementary ecology.

Such schemes should be introduced on a far wider scale. One example is the sentier Jean-Jacques Rousseau on Mont Pilat, in France; but in many countries this kind of thing, though very instructive, is still unknown. Nature trail models are available at the European Information Centre for Nature Conservation.

### Wooded parks

These parks, which are in many cases natural forests, include areas of widely differing types. The greater part may be intended for quiet walks, while other zones provide facilities for active recreation. For example, the Lee Valley Park, which is part of Greater London, will have an area of 4000 hectares (10 000 acres) when completed and will accommodate one million people! Given the vast area available the planners have been able to provide for, in addition to nature reserves and other quiet open areas, golf courses, miniature golf, sports stadia, a car racing centre, racing tracks for motor cycles and bicycles, a dog racing track, caravan and chalet sites, camping grounds, a riding school, indoor and outdoor swimming pools, fishing facilities, canoeing, motor-boating and play-grounds. A cultural centre, a number of museums and an information centre are planned as well.



*Plan of the Kelvingrove Park nature trail, Glasgow. The numbers indicate points of interest on the trail which are described in a trail booklet*

Phoenix Park, on the outskirts of Dublin, is also equipped in a wide variety of ways, in particular for sports activities. Its 160 hectares have 15 Irish football and hurling pitches, three Camogaiocht pitches, 28 association football pitches, three cricket fields, a polo field, a cross country course and a pony riding centre. There are also motor-cycle, go-kart and bicycle racing tracks and an open-air amphitheatre.

An interesting scheme for the laying out of wooded parks was introduced in Switzerland two years ago. A life assurance company decided to set up tracks on the outskirts of large towns to enable town-dwellers to regain contact with nature and to make up for their lack of physical exercise. The tracks in question are about 2 or 3 km long and consist of 20 stages. At each stage the individual carries out a number of exercises, with or without

equipment provided on the spot. The whole course requires an effort equivalent to a gymnastics lesson and takes place in the open air. These Vita tracks, as they are called, are becoming more and more popular and anybody can do the course at any time he chooses.

This is obviously a very interesting idea. One of the most striking things about it is the close co-operation between the local authorities and organisations which make the wooded areas available and the private company which pays for the installations.

To conclude this brief survey of the various possibilities, especially in large parks, it should be said that some conservationists will perhaps have misgivings about setting up motor cycle tracks (or any similar amenities) within a park.



Personally, I think such schemes are justified provided that the park is big enough to include nature reserves, which might even be closed to the public, and, most important, extensive areas for the physical and mental relaxation of town dwellers in search of peace and quiet, fresh air and nature—the songs of birds and the scents of flowers.

We cannot deal with the extremely complex problem of traffic, but one thing is certain—strict regulations must be made for it and properly enforced.

### Present and future schemes

The biological and, above all, the social function of open spaces is given more and more prominence in town planning. In many cases the tendency is to establish a green belt around existing built-up areas and then to create new towns outside the green belt. This policy, which is set forth in the United Kingdom Abercrombie plan, is applied in the case of London (see Green Belts on page 14). It is a technique which is used in many different cases. A spectacular example is in the area, which consists of sandy wastes, around the Soviet town of Voronezh. A green ring to curtail wind erosion has been created by the town's workers and at present covers 5811 hectares. It includes plantations of pines each established in accordance with the local environment. Undergrowth is gradually developing and as a result wildlife is becoming more numerous and varied.

Every town council has a plan for development and expansion; but rather than talk generally I should

like to take the particular example of the city of Luxembourg. In an important report, provisionally approved by the municipal council on 17 April 1967, P. Vago, the author of the project, defined the role of open spaces as follows: "The extent and quality of its open spaces... are one of the features of Luxembourg that must be safeguarded and improved. Thus most of the fine planted areas... are under strict protection which the general public interest, requirements of health and even economic considerations (the tourist trade) amply justify..." He divided the city as follows:

#### I. *within the built-up area* (a) residential zones

central sectors  
sectors with high population density  
sectors with low population density  
protected sectors and monuments  
— old town  
— park  
— other protected sectors

#### (b) industrial zones

#### (c) deferred development zones

#### II. *outside the built-up area:* the rural zone

#### III. *throughout the municipal area:* zones where no building is allowed

*Within the built-up area* we shall devote our attention to the protected park sector. The author defines this sector and goes on to describe means of protection, for instance by private agreement. Residential sites are subject to building regulations: those parts of plots which are not built on are to be laid out as lawns, parks or gardens. What has already been planted, especially tall trees, is to be preserved whenever possible.

*Within the rural zone* the forest sectors include outstanding landscapes and woods which are to be preserved. There may not be any building, any change in appearance or any deforestation which is not in conformity with the requirements of nature protection and landscape conservation.

*In zones where building is forbidden* (open spaces, parks, gardens and their extensions) building, rebuilding and conversions are absolutely forbidden except in the case of light structures put up in the interests of the tourist trade.

The example of the city of Luxembourg shows how difficult it is to lay down clear and well-defined guidelines while at the same time making it possible for the executive departments to be flexible in their application of the principles laid down. Unfortunately such flexibility sometimes leaves the door wide open to abuse and the general interest is neglected to the advantage of economic, political and personal interests. It should be noted that owing to the various pressures to which they are subject local authorities often find it very difficult to apply what in theory is the ideal solution, which in any case is not easy to find.

Whereas attempts to plan large cities often raise practically insoluble problems, things get easier as one's scale reduces. In Copenhagen we may note the very interesting scheme for the southwest of the city, the Køge Bay area; a general plan was approved in 1968 and the commencement of the main works fixed for 1970. The northern part of the area is earmarked for clearance to provide extensive recreation zones



Klaus Rohmeyer

"How can we compare one hectare of lawn and three small birch trees with one hectare of parkland with deciduous woods and thick undergrowth?" The introduction of a little green space fails to offset the overpowering nature of this block of flats

for the urban population. The coast here will be developed in such a way as to preserve as far as possible the main parts not yet built on—which are relatively few and far between—and so bring out its special character. This seems quite natural if one considers the particularly suitable configuration of that part of the coast with its low sandy islands and dykes. Between the dykes and the coast there is a stretch of shallow water, a sort of lagoon, with large seaweed deposits.

A completely different example which illustrates the opportunist approach to these problems is the Grosse Schanze public park in Berne, Switzerland.

In the heart of the federal capital a former bastion was converted

into a public walk in the 19th century. The rebuilding of the railway station between 1962 and 1965 made it possible to effect considerable changes in the area and to create an extremely convenient and popular neighbourhood park. The total area is 2.4 hectares and the terrace garden laid out partly on the station roof occupies 1.1 hectares. The best possible use was made of the available space and this green oasis for relaxation in the midst of increasing hubbub is naturally very popular.

Town planning comes up against a number of special problems; I should like to mention that of historic remains. The example of the Parc de la Citadelle in Strasbourg is typical in this respect. In the 17th

century Vauban fortified Strasbourg at a number of points including a formidable citadel with five bastions, three of which have disappeared. There are various other remains in the neighbourhood, which has been laid out in such a way as to preserve, indeed to enhance, what is left of the citadel. The public park which surrounds it has very varied features: large clumps of trees, walks, playgrounds for the very young and for bigger children, etc. The whole covers about 13 hectares, so it is an important district park. It in fact forms part of an entirely new district of very interesting design, which raises some quite new problems. The plan for this (the "projet Esplanade") was drawn up in 1957 and covers 74 hectares, 30% of which is earmarked for open spaces.



In 1967 2542 flats had been allocated in buildings of between 10 and 20 storeys, which dwarf the surrounding trees, even though these latter are not all young saplings.

Medium and large-size parks thus play an essential role in the planning of areas of this type, for they alone can restore, if only partially, some balance between nature and habitations, a balance which is indispensable to man. Let it not be thought that I am against vertical development; quite the contrary, I personally am convinced that it is the only means of preventing housing from biting too deeply into our natural environment. But I do think that the planning of open spaces depends directly on a whole number of factors, one of which is population density. It is no longer enough simply to compare the acreage of open spaces with that of built-up areas; the volume of vegetation must be compared with the volume of housing. The recommendations of the Reith Commission in the United Kingdom endorse this to some extent, for they advocate 4 hectares of recreation space for every 1000 inhabitants. It may be noted in passing that this is rarely achieved, for the proportion is only 2.8 at Crawley, 2.1 at Cumbernauld and 0.8 at Harlow, although each of these new towns is surrounded by open countryside.

Legislation is obviously decisive in all matters of the preservation and extension of open spaces, as we have already seen in respect of the city of Luxembourg. We may also mention the example of Germany in this respect. A Nature Conservation Act (*Reichsnaturschutzgesetz*)



*New life for dead lands. Disorderly development is increasing the area of derelict land every year. Electricity generating stations produce large and ugly tips. The grey wasteland (above) has been converted into green playing fields by spreading pulverised fuel ash and covering with topsoil*



Crown/MHLG

Crown/MHLG

was passed on 26 June 1935, supplemented on 18 March 1936 by an Order. Although these cover rural areas only, the three cities of West Berlin, Bremen and Hamburg decided after the war to apply them to urban areas as well. Their example was followed by other conurbations and so it became possible to give very effective protection not just to open areas that are threatened but also to hills, ponds or other especially characteristic features. Table 2 gives an idea of what has been achieved.

With the constant increase in the number of threats to natural environment, new legislation is introduced. The most interesting that I know of has been adopted by the City of Frankfurt to protect arable land. When any excavation or levelling work is being carried out, the top 20 cm of earth has to be considered separately from the earth below. The upper layer cannot be used for filling purposes; it must either remain on or be returned to, the surface or, if this is impossible because of building, it must be taken elsewhere, for instance to a new public park that is being made.

### Zoological gardens and other special forms of open space

Zoological gardens may cover very large areas and their abundant vegetation contributes to the balance needed in every city as described above. Zoos everywhere are well attended: the London and Tokyo Zoos have more than half a million visitors every year.

Zoos are therefore interesting from many points of view. They help educate the public, children in particular. With the variety of species on view, the child can satisfy his innate attraction towards living things, and the words and definitions learned in the classroom suddenly take on a new meaning. This is especially true for schoolchildren in towns who see fewer and fewer animals, domestic or wild. Some zoos now even include cows and chickens.

Zoological gardens have an increasingly important role to play in preserving species on the point of extinction, especially mammals,

most of which breed in captivity. Examples of animals likely to become extinct in their wild state very soon are Przewalski's horse and the giant panda; and in the near future we may have to include several cats...

Lastly, zoos are veritable laboratories, where mutations and the transmission of hereditary characteristics and certain aspects of animal behaviour can be studied.

While the future is becoming doubtful for an increasing number of species, this is not the case with zoos, which are developing fast. They are rapidly growing in number, especially private zoos, despite very considerable financial problems. Examples of the sort of small zoo run as a family business which is rapidly expanding are the *Terre rouge* zoo, at La Flèche in France, the Norfolk Wildlife Park in England, and the *La Garenne* European zoo at Le Vaud, Nyon, in Switzerland.

Table 2—Protected landscapes and nature reserves in six large German cities

City	Total area (sq km)	Inhabitants	Area (in hectares) of		Total number of	
			Protected landscapes	Nature reserves	Protected landscapes	Nature reserves
Hamburg . . . . .	837	1,827,000	12,240 (15%)	1,827	5	?
West Berlin . . . . .	480	2,151,000	9,558 (20%)	233	17	1,371
Bremen . . . . .	404	754,000	16,550 (41%)	9	3	24
Munich . . . . .	311	1,260,000	5,077 (17%)	—	—	43
Essen . . . . .	189	702,300	6,002 (32%)	27	1	84
Hanover . . . . .	135	524,500	799 (6%)	—	—	10



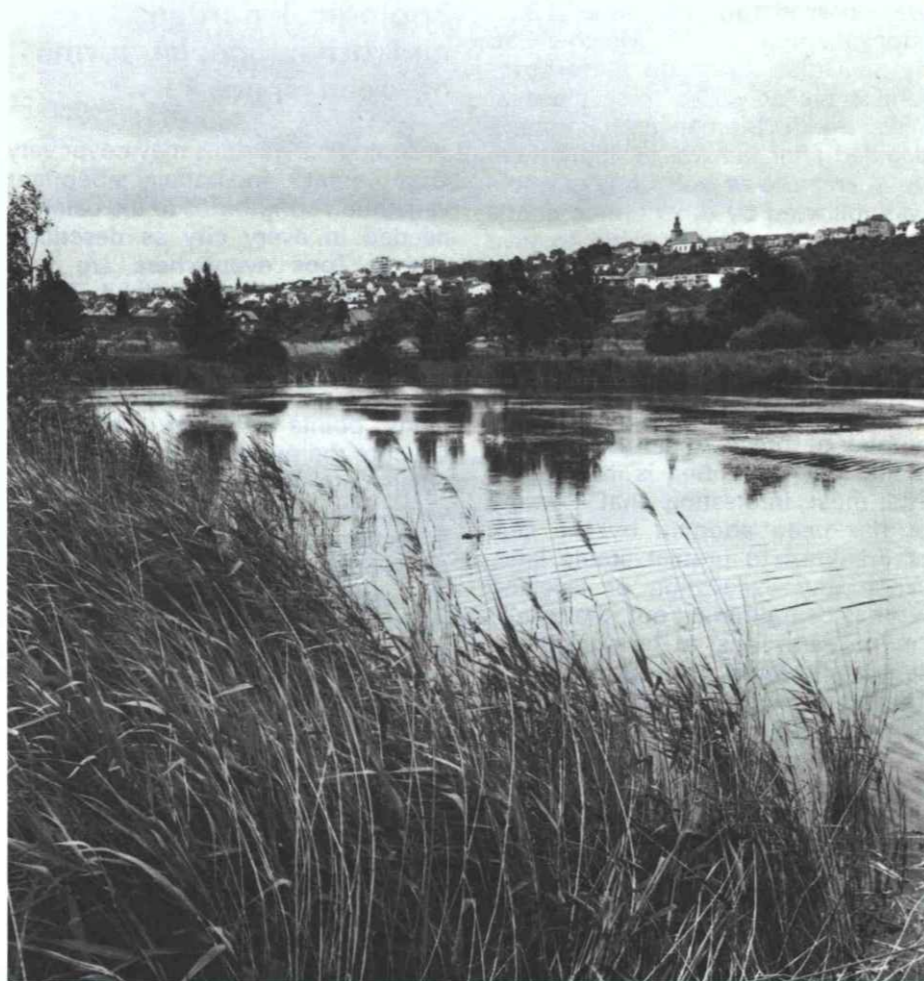
## Botanical gardens

These have a long history, for that of Salerno, in Italy, dates from 1309 and that of Leipzig, in the GDR, from 1542. They vary considerably in size: in the Federal Republic of Germany the smallest cover about 1 hectare or even less, whereas that of Berlin-Dahlem covers 42 hectares. The great majority are attached to university institutes which are able to undertake studies in the fields of systematics, morphology, geobotany and ecology; genetic studies are particularly in vogue at present.

Botanical gardens are thus field laboratories and can provide large numbers of important specimens for laboratory work.

This explains why the general public has long overlooked their existence. At present, however, numbers of researchers are developing attitudes that are leading to an opening-up policy. Participation is a current word in science too. Biologists are making greater efforts to come out of their isolation and associate the public with their studies. Everywhere we see a growing desire to instruct and be instructed.

Thus botanical gardens have become more accessible to the public and in many cases the institutes responsible for them have taken the initiative. In Dresden, for instance, lectures, guided tours and exhibitions have been held regularly and have met with considerable success. As scientific research is costing more and more and it is the tax-payer who ultimately foots the bill it is quite natural that he should be kept informed of spending. At the botanical



*Within the borders of the city of Frankfurt is "Enkheimer Ried", a well-known bird sanctuary which is the home of several rare species. The German Nature Conservation Act, passed as early as 1935, has enabled many German cities to establish nature reserves or protect open landscape within or near their borders*

garden in Edinburgh, for example, future buildings are to cost well over £200,000 sterling.

## Arboreta

These are large botanical parks, generally situated outside towns. Their chief characteristic is that they are collections of trees and shrubs, generally specimens foreign to the country. The trees may be grouped systematically or by bio-geographical regions. True arboreta are still fairly rare.

In offering educational facilities and "lungs" to the city they have the same functions as botanical gardens, and should therefore be given every encouragement.

## Cemeteries

The importance of cemeteries in this context varies considerably according to how much vegetation they contain.

## Conclusions

Urbanisation is in full swing. In a large number of towns new districts are appearing and new towns are springing up in every country. Depopulation of the countryside continues; it is forecast that by 1975, 80% of the French people will live in urban areas and by 1980 90% of the population of the United States will be town-dwellers.

One of the most important problems which this situation raises is how to use and allocate land within a town. An increasing proportion of the available space is being used for communications and parking areas (which account for 40% of the area of Los Angeles, for instance) while at the same time there is an increasingly urgent need

to develop open spaces. So what is to be done? We might imagine that it is enough to create parks on the outskirts of towns, since almost everyone has a car, or else to make it easier to build secondary residences—which are very much in vogue at present and provide ample evidence of man's need of a counter-weight to life in the office and flat. But these are not satisfactory solutions since all our experience shows that man needs to have nature within easy reach of his main place of residence; it forms part of his habitat (to borrow a term from the ecologists) whose composition it influences in many ways, as we have seen.

Thus the creation or preservation of open spaces must be given very high priority in all town planning. What standards should be applied? In Paris there is one square metre of open space per inhabitant, in Rome 9 square metres, in London 10 square metres and in Washington 50 square metres. The generally accepted average is 10 square metres per person, or 1 hectare per thousand inhabitants. But how can we compare one hectare of lawn and three small birch trees with one hectare of parkland with deciduous woods and thick undergrowth? Do the two areas have the same regenerating effect on the air and on men? The answer is obvious. That is why it is no longer enough to compare surface areas; we must introduce the concept of plant biomass for comparison with the human biomass, the number of inhabitants. This new approach is more than ever necessary with the increasing diversity of present-day building; the problem of open spaces

is particularly acute in districts containing tall blocks of flats. Moreover we must distinguish between the more expensive residential buildings and blocks of low-rent flats: the latter contain more children so the surrounding open spaces must be larger and differently laid out. The town planner clearly has some difficult problems.

Can nature conservationists do anything in this field? Can they actively contribute to the creation of parks and other open spaces?

Certainly they can, and European Conservation Year is a unique opportunity to find better solutions to this problem, for the action taken in many cities is, unfortunately, unsatisfactory. The important thing in this field, as in so many others, is to arouse and inform public opinion in such a way as to convince it of the need to make over large urban areas to vegetation. The authorities and big property interests are more likely to agree to make the necessary short-term financial sacrifices required by the new outlook if they are under pressure from the public, for in the last resort it is the citizens themselves who must pay.

Jean-Pierre Ribaut

*The author thanks the National Agencies of Cyprus, Denmark, the Federal Republic of Germany, Ireland, Luxembourg, Switzerland and the United Kingdom for their help in preparing this article.*

*Interesting documents were also supplied by the City of Strasbourg, the Town Planning Office of the Canton of Vaud and F. G. Breman, Director of Parks, Amsterdam*

*The following works and reviews are among the principle sources of reference:*

J. Dorst: *Avant que nature meure*  
P. Merlin: *Les villes nouvelles*  
Fédération internationale des Ingénieurs municipaux (3<sup>e</sup> congrès)  
Le Courrier de la Nature  
La Revue forestière française  
Garten und Landschaft  
Forêt-Loisirs et Equipements de Plein-Air





Barnaby

## GREEN BELTS IN THE UNITED KINGDOM

*Where the street is a playground and  
no green thing grows*

For many years planners and local authorities in the United Kingdom have realised that open countryside around the larger towns must be preserved for the benefit of both the countryman and the townsman. Several attempts were made by various authorities to keep green areas intact, even where there was great pressure for urban development from all sides.

In 1955 the Minister of Housing and Local Government drew the attention of local planning authorities to the importance of checking the unrestricted sprawl of built-up areas and of safeguarding the surrounding countryside against further encroachment. He recommended planning authorities to consider the formal designation of clearly defined "green belts" around the areas concerned. These could check the further growth of a large built-up area, prevent neighbouring towns from merging into one another, or preserve the special character of a town.

The green belt was to be kept open and undeveloped, and there was to be a clear presumption against any new building, and against any new employment which might create additional building, within its area. Permission to build in a green belt would only be granted when the building was needed for purposes appropriate to a green belt, for example, farming, or where there was some other very special reason for it. In established villages, building to fill gaps might well be permissible but it was not to be assumed that any building would be allowed adjoining houses that already existed. Uses of land which did not interfere with its open character were also to be permissible, for example, recreation fields, burial grounds and certain mineral workings.

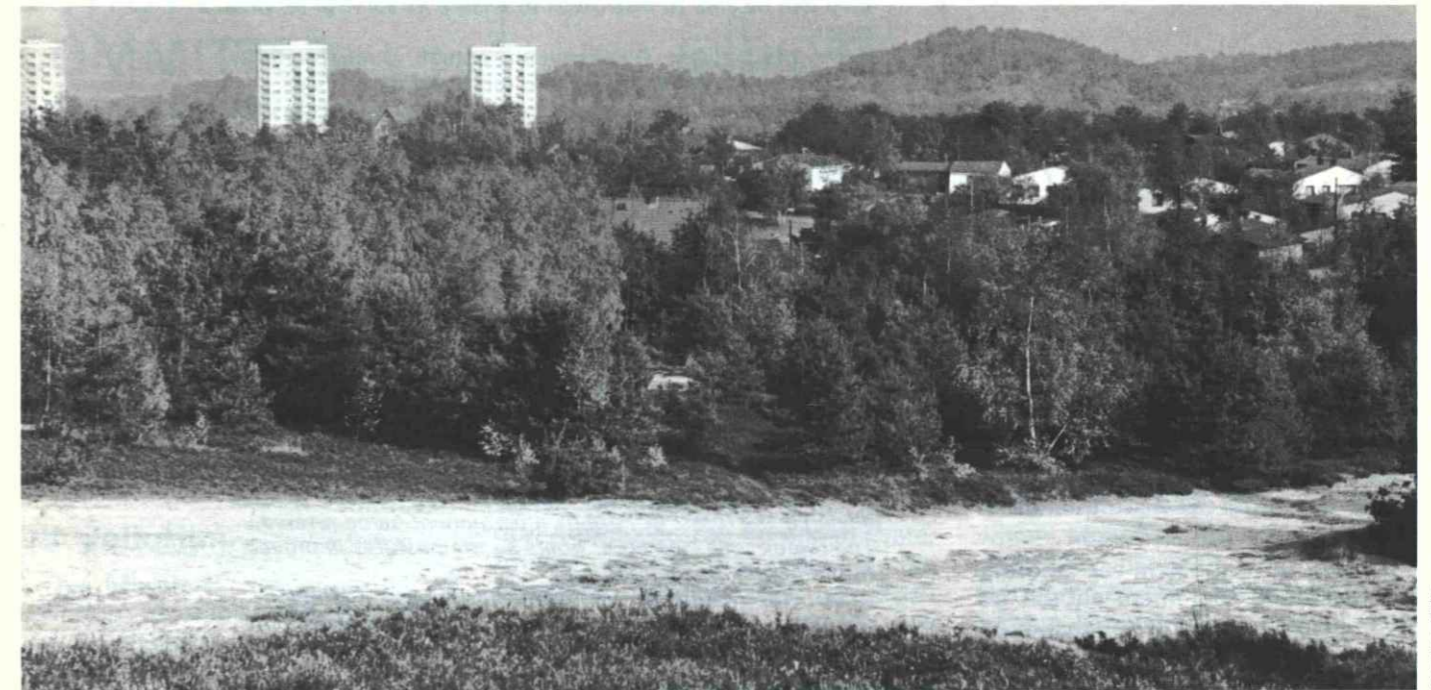
Thus was established in the United Kingdom the formal green belt concept and local authorities immediately began to consider which parts of their area should be designated as green belts. A green belt

could only be established, however, if the proposal was approved by the Minister and the procedure for achieving this approval included many safeguards for individuals or other interested parties. Consequently, the procedure was slow and somewhat cumbersome.

Up to 31 December 1968, only seven green belts covering some 1270 square miles, had been formally approved by the Minister but some of these were very small in area. A further fifteen green belt proposals involving 4450 square miles had also then been made, and these were at various stages of the required procedure.

Undoubtedly the most important green belt in the United Kingdom is the metropolitan green belt around London; and it shows both the advantages and the main problems of such a concept. There has been and is now in the prosperous and rapidly developing Southeast area of England, and particularly round Greater London, a shortage of sites

*Many children brought up in the cities of the industrial revolution may pass their whole lives and hardly ever see a green field. In the modern city of Hamburg, however, the "Fischbeker Heide" nature reserve touches the built-up area, well within reach of public transport.*



Gunther Helm

for the building of new houses. In 1964 the Government of the day re-affirmed their belief, however, that the metropolitan green belt should remain a permanent feature and agreed not only to maintain but to consider important additions to it. Relying on the co-operation of local planning authorities in the Southeast of England, the Government had decided that enough housing land could be provided within range of London without use of the green belt. The approved metropolitan green belt at present covers 846 square miles but the adjoining local planning authorities are proposing extensions to increase it to nearly 2000 square miles. Its eventual size will depend on recent and continuing discussions between the London and adjoining local planning authorities and the Government on the availability of housing land.

It is important to note when a green belt is proposed the green belt policy is, in practice, applied at once, even before it is finally approved by the Ministers. This is be-

cause of the time-consuming procedure necessarily involved in formal Ministerial approval. It was accepted that local planning authorities should deal with proposed green belt areas as though the formal order was in operation, and successive Ministers of Housing and Local Government have given general support to local authorities in this practice.

In addition to the green belt policy, around London and other large urban centres, there have also been parallel policies in the United Kingdom for the preservation and creation of open green areas within towns, and for the creation of National Parks and Nature Reserves in the rural areas of the country.

Suitable sites for housing and other development within a reasonable distance of large urban centres are always in short supply so there is, of course, great pressure on the Government and planning authorities to release more land for housing development. The pressures on green belts and adjoining areas have in-

creased in recent years. There is often room for genuine argument as to the interpretation of the policy in the case of specific sites and in these more detailed matters the results of appeals from decisions of local planning authorities to the Government vary. The general concept of green belts is, however, firmly established as can be seen in a recent Government development control policy document:

"There are special restrictions on development in the green belts which have been established around London and several other large urban areas. The purpose of these green belts is to check the further spread of the urban areas they surround and prevent neighbouring towns from merging together, and at the same time to keep stretches of unspoilt country within easy reach of town dwellers. Inside the green belts as defined in the development plans, permission will not be given except in very special circumstances for the construction of new buildings or for the change of



*One of the few remaining strong-holds of the mouflon, practically the only truly wild sheep of Europe, is to be studied by a scientific expert, sent by the European Committee. The Cypriot authorities hope that, with a greater knowledge of the behaviour and needs of the mouflon, they will be able to take steps to ensure its survival on their island.*

*Today the mouflon, Ovis orientalis ophion, is found wild in Cyprus only in small numbers in the forest of Paphos. It once existed in all the wooded mountains, and recently discovered mosaics show that it was already known in the Greco-Roman period. Coursing the mouflon with cheetahs was a popular sport in the Middle Ages. At the end of the last century, however, the number of animals decreased considerably and the survivors took refuge in the southern mountains. They were still fairly numerous, but the growth of the human population, the import of modern firearms, the construction of roads opening up previously inaccessible regions, contributed to reducing their number considerably. In 1937 the mouflon colony at Paphos was estimated to contain only 15 individuals. Goatherds, with firearms and a perfect knowledge of the mouflon's habits, had killed them in large numbers, while their goats competed with the mouflon for the scant grazing.*

*In 1938 the authorities amended the game law and in 1939 declared the forest of Paphos a permanent game reserve. The region was cleared of goats so the pastures improved to the benefit of the mouflon.*

*About 100 individuals now live in the reserve. Eighteen animals—eight male and 10 female—are being raised in captivity for breeding. They are also an attraction for visitors which helps develop public support in favour of preserving the species. The Government of Cyprus, which in 1967 signed the IUCN document on accepting full responsibility for the protection of wildlife threatened by extinction, intends to continue these efforts to educate the public. It is planned to make similar expert advice available to Turkey where the same problem exists.*



Ministry of Agriculture Forestry Department

use of existing buildings for purposes other than agriculture, recreation, or other uses appropriate to a rural area. Special care will be taken to prevent breaches of the inner edge of the green belt, which marks the outer limit of the urban area."

Clearly in one form or another it is accepted that there should be green belts or open and undeveloped areas around all towns, both for the benefit of the inhabitants of those towns and of the country as a whole. Although they may vary in detail from time to time this policy and its implementation are now fully accepted and in operation throughout the United Kingdom.

A. C. HETHERINGTON  
M.B.E.

County Councils Association,  
Eaton House  
66 A. Eaton Square  
London Westminster S.W.1

## EUROPEAN COMMITTEE FOR THE CONSERVATION OF NATURE



The drastic effects of oil pollution on wild life and the importance of nature conservation in regional planning were the subject of two resolutions adopted by the Committee of Ministers last October.

### Oil pollution

The Ministers' resolution on oil pollution recommended immediate and intensified research into its effects on marine plants and animals; the adoption of measures to safeguard marine life; and the study of ways to combat disasters quickly. The resolution asked that the Inter-Governmental Maritime Consultative Organisation should be informed of research results and current experiments on ways of preventing or dealing with accidental oil spillage and again emphasised the possible harmful effects of oil clearance on marine life.

### Regional planning

The Ministers were convinced that nature and the natural environment must be a fundamental factor in the development of civilisation, and it must therefore be managed wisely as an irreplaceable heritage. They made special reference to the European Conference of Ministers responsible for regional planning and asked that nature conservation be given proper priority in regional planning. This implies that nature conservation is just as important as any other interest. Areas which are part of the national heritage because of their natural, cultural and historic qualities should be delimited to ensure their future protection and management. These could then be permanent elements in regional plans.

### European Water Charter

"A new cry of alarm has drawn our attention to an impending danger". Such were the words with which Mr Kuhlewind from Düsseldorf introduced the European Water Charter to the Assembly of the European Confederation of Agriculture, held on 30 June-4 July 1969, at Helsinki.

"This Charter may be considered as a "pioneer" document deserving the praise and support of agriculture and forestry" said Mr Kuhlewind.

"The European Water Charter will prove fully effective if it paves the way to a common European policy in hydrobiology" said Mr. Kuhlewind. "The aims of the Water Charter demand not only wide understanding within Europe but also intensified research, training and publicity. Many pressing tasks cannot be dealt with solely on a national basis. The research and training programme should be founded on co-operation at all levels, allowing students, administrators and practical workers to be exchanged. Harmonisation of the European economy should be preceded by harmonisation of its hydrology. In order to ensure a dynamic hydrological policy, the European Water Charter requires constant and thorough development. To this end, the establishment of European unity in the sphere of biology, including the hydrological system, is a burning issue in the politics of our continent."

(Extracted from the CEA Information Bulletin, Vol. XVII, No 3, July/August/September 1969.)

### New Conservation Centre —Epping Forest (U.K.)

On a summer weekend thousands of Londoners seek the cool shade and peaceful glades of Epping Forest which stretches like green fingers deep into the great conurbation of Northern London. This ancient forest, once a Royal hunting reserve, now has so many visitors that the very life of its trees is threatened as the soil above their roots is packed hard by trampling feet. As part of its task of maintaining the forest as a public open space, the Corporation of London is building a new Conservation Centre at High Beech in Epping Forest. The Centre will be staffed by a warden and four resident teachers whose task will be to make the public more aware of the need for conserving the natural structure of the forest which is held in trust for them.

The Centre will be run by the Field Studies Council (which has 26 years of experience in running Field Studies Centres in England and Wales, of which it now has 9) together with the already existing Forest Museum nearby, which will be developed as a public visitor centre and base for nature trails. The new Conservation Centre itself will have three teaching laboratories (one specially designed for use by young children) a lecture theatre, library and a research laboratory. There will also be some space for visiting research workers, a permanent exhibition on local conservation problems and an information desk. The Centre is planned to take 100 children a day and will be available at weekends for use by amateur naturalists and during



## short notes

the school holidays it will run special courses.

The Centre's first warden, Mr. Paul Moxey, has already been appointed and it is planned to open in autumn this year as a permanent contribution by the Corporation of London to European Conservation Year.

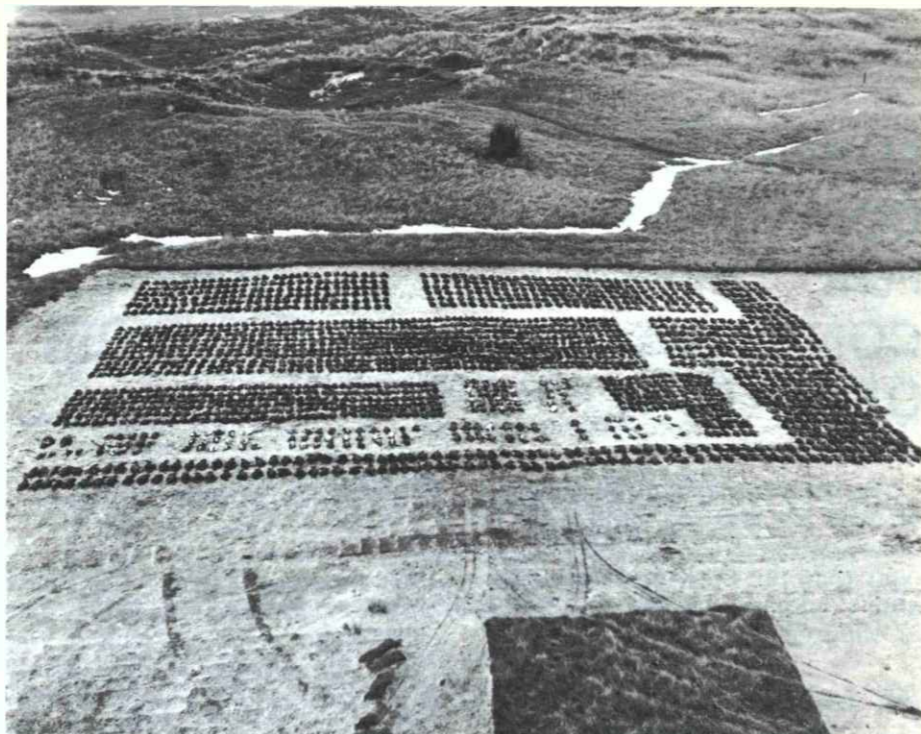
(Field Studies Council, 9 Devereux Court, Strand, London, W.C. 2, England.)

### Message in the Seine

"The growing number of incidents of pollution in Europe, in the sea and rivers, is evidence of a worsening situation—so much so that we can speak of a state of emergency." With these words the Secretary General of the Council of Europe concluded a ceremony in Paris which has been performed throughout the world but never before in a European capital.

At Paris, Quai de la Concorde, on 25 September 1969, an Operation "Message in the Seine" was carried out, in the context of World Operation "Message in the Sea".

During the ceremony, Mr. Bernard Falay, Secretary of State at the Ministry of Industrial Development and Scientific Research, Mr. Georges Housiaux, President of the Assembly of W.E.U. and Chairman of the Organising Committee for the launching of the European Water Charter, and Mr. Lujo Tončić-Sorinj, Secretary General of the Council of Europe, immersed the first messages in the Seine. The naval dredge DAHLIA then proceeded to drop the first batch of messages.



*Seabird deaths continue. In one week last winter 9000 eiderducks and 8000 velvet scoters died from oil pollution on Dutch beaches. A small sample is here laid out in groups of species with some of the thousands of guillemots, razorbills and puffins that also died. Similar reports continue to reach us from other countries. The picture is dramatic evidence in support of the Ministers' call to governments (mentioned on page 17) to pay attention to the effect of oil pollution on wildlife*

G. J. de Haan



*Picnic site. A few well-chosen facilities ensure that visitors go where they are welcome and do not invade forest nurseries or strict nature reserves*

Countryside Commission

# 1970 european CONSERVATION year

### Bird-Snaring

171 000 signatures were collected by a 15 year-old Brussels student, Regis Gysemberg, for a petition condemning the practice of bird netting. As part of an "SOS Nature—Operation Noah's Ark" project he presented his petition to Mr. Charles Héger, the Belgian Minister of Agriculture, on 1 October, the very day that the netting season opened. Thanks to this initiative, the young man is well in the running for the last lap of "Operation Noah's Ark". A European Jury will meet at the Council of Europe headquarters in Strasbourg to choose those young protectors of nature who have made the greatest contribution to the international operation.

### Picnic Sites

The Countryside Commission of the United Kingdom has recently published a 20-page, illustrated booklet on picnic sites. This work contains much practical advice on the management of these sites, such as location, car parking, sanitary installations, various services, equipment, signs, litter and nature trails. The booklet is essentially a practical guide for those responsible for the management of such sites, with diagrams, excellent illustrations, a list of useful addresses and a bibliography.

(Can be obtained from Her Majesty's Stationery Office, London, price 6s 6d.)

### Nature conservation fleet

In the Netherlands a brochure written and edited by experts specially to attract attention to threats to the natural environment will be widely distributed, with the collaboration of booksellers, during the week 10-16 May, which will be devoted to nature conservation.

A film on the wintering areas of wild geese will have its première (in November). Various measures to conserve these regions are, moreover, being studied, as is the protection of field birds and birds of prey.

During one week-end all newspapers will carry an illustrated supplement devoted to nature conservation.

Throughout the summer, a nature conservation fleet will tour the Netherlands, organising various events at each stop.

A considerable effort will be made in nursery, primary and secondary schools: special lessons will be given, and a record of bird songs will be distributed as well as 300 000 coloured pictures of different species of birds. A sum of 300 000 fl. was officially allocated for educational and propaganda activities.

### Nature on a railway train

The National Committee of the Federal Republic of Germany has drawn up a very full programme of events.

The German Nature Conservation Conference will be held in Berlin from 25 to 30 May 1970. This city has already seen, from 30 January to 8 February, "International Green Week", during which the Federal Ministry of Agriculture organised a special exhibition illustrating pressures on the countryside. The International Forest and Timber Technical Fair will be held at Munich from 6 to 14 June, when an exhibition on man and his environment, taking the Greater Munich area as an example, will be arranged.

Various ceremonies, meetings and exhibitions have been organised in the Länder. Important events are:

- the creation by the *Verein Naturschutzpark e.V.* of a prize for landscape conservation, which was awarded for the first time at the European Conservation Conference in Strasbourg in February;
- a European youth camp demonstration by the German Youth Association for Nature Conservation;
- a Keep Germany's Countryside Clean campaign by the *Deutsche Naturschutzring*;
- an exhibition train of the German Federal Railways;
- the organisation of a "Tree Day";

Most significantly, it is intended to re-draft legislation concerned with the protection, preservation and controlled use of the countryside and to create German-Belgian and German-Dutch nature reserves.



# 1970 european CONSERVATION year

## New National park

The Icelandic National Council for the Protection of Nature, responsible for preparing ECY activities, is helped by several private organisations: the Icelandic Natural History Association, the Icelandic Forestry Association, the Icelandic Tourist Association, the Federal Youth Organisation, the Soil Conservation Service.

Among activities planned or in preparation, are:

- the adoption of new conservation legislation;
- the creation of a new national park;
- the organisation of a Conservation Day in schools and of a Conservation Week at national level, with wide publicity given by the press, radio and television;
- foundation of public nature conservation societies and of a national union of such societies;
- organisation of public lectures by a well-known conservationist;
- film shows, issue of postage stamps, and poster displays in shop windows, travel agencies, airline offices, hotels;
- wide publicity, in co-operation with the Scout Movement, youth and women's associations, trade unions and other bodies;
- wide distribution of a calendar devoted to nature conservation, produced by the Icelandic Steamship Company.

## Man's place in nature

The official opening of ECY 1970 will take place at the Villa Falconieri (Frascati) in the spring.

Many events are planned by the Organising and Co-ordinating Committee and some have been completed:

- the production of documentary films on nature conservation, to be distributed by provincial audio-visual centres, school film libraries and the Provincial Inspection Board;
- the production of a teaching film in colour Man's place in Nature, which has been distributed to 3,000 schools;
- the organisation of a drawing competition;
- the publication of some books, the first of which deals with Man's place in Nature;
- the organisation of competitions in schools, with prizes totalling more than 2 million lire;
- the organisation of a nature conservation congress at the 1970 Verona Fair.

Moreover, the different administrations and interested bodies are helping in the organisation of certain projects such as: a travelling photographic exhibition, the creation of a prize for the XIX International Festival of Mountain and Exploration Films (Trent, September 1970), and school outings in national parks.

Press, radio and television coverage is expected for these events and special articles and programmes will be devoted to them.

## Turkish postage stamps

European Conservation Year will be inaugurated officially during the third week of March 1970. The aim of the various events planned is to create an awareness in Turkey of the broad problems of environmental conservation, to create wide support for the necessary actions, and define guidelines for the conservation of the environment.

On the third Monday in March, the Year will open with a national congress, under the patronage of the President of Turkey. Many ministers, high officials, representatives of the universities and interested bodies will take part.

Parallel regional congresses will be held under the chairmanship of the provincial governors.

The Ministries of Agriculture, the Interior and National Education will co-operate with the Army in three festivals to be held during Turkish Nature Conservation Week.

Three sets of postage-stamps will be issued:

- natural sites—Antalya resort town;
- plants—*Liquidambar orientalis*;
- animals.

Booklets, posters, films, exhibitions are also in preparation, together with a practical handbook on carrying-out the programme for the Year.

Moreover, the Ministry of National Education will endeavour to introduce nature conservation courses in school curricula.

## NATIONAL AGENCIES OF THE CENTRE

**AUSTRIA**  
Wirkl. Hofrat Dipl. Ing.  
H. HANSELY  
Chef der Abteilung  
Landesplanung und  
Naturschutz  
KLAGENFURT

**BELGIUM**  
Service des Réserves  
naturelles domaniales et  
de la Conservation de la Nature  
auprès de l'Administration  
des Eaux et Forêts  
Ministère de l'Agriculture  
32 Boulevard Bishoffsheim  
BRUXELLES 1

**CYPRUS**  
Ministry of Foreign Affairs  
For the attention of the  
Director of the  
Department of Forests  
Ministry of Agriculture  
and Natural Resources  
NICOSIA

**DENMARK**  
Statens naturfrednings-og  
Landskabskonsulent  
Nyropsgade 22  
COPENHAGEN V

**FEDERAL REPUBLIC OF GERMANY**  
Bundesanstalt für Vegetationskunde  
Naturschutz und Landschaftspflege  
Heerstrasse 110  
D53 BONN-BAD GODESBERG 1

**FRANCE**  
Mr. COUTROT  
Chef Département de  
Protection de la Nature  
CERAFER  
Ministère de l'Agriculture  
B.P. 114  
SAINT-MARTIN-D'HÈRES - 38

**ICELAND**  
Mr. B. KJARAN  
Chairman of the Icelandic  
National Council for the  
Protection of Nature  
Hafnarstraeti 5  
REYKJAVIK

**IRELAND**  
Forestry Division  
Department of Lands  
22 Upper Merrion St.  
DUBLIN 2

**ITALY**  
Bureau des Rapports internationaux  
Ministère de l'Agriculture  
ROME

**LUXEMBOURG**  
Conseil supérieur de la Nature  
Direction des Eaux et Forêts  
26 rue Philippe II  
LUXEMBOURG

**MALTA**  
Director of Agriculture  
Department of Agriculture  
93 Archbishop Street  
VALLETTA

**NETHERLANDS**  
Mr. J. J. Zweeres  
Voorlichtingscentrum  
voor Natuurbescherming  
Herengracht 540  
AMSTERDAM

**NORWAY**  
The Administration for Outdoor  
Life and Nature Conservation  
Ministry of Labour and  
Municipal Affairs  
Kommunaldepartementbat  
OSLO DEP

**SWEDEN**  
The National Environment  
Protection Board  
Smidesvägen 5  
Fack  
171 20 SOLNA 1

**SWITZERLAND**  
Ligue suisse pour la  
Protection de la Nature  
Wartenbergstrasse 22  
CH-4052 BALE

**TURKEY**  
Mr. Z. BAYER  
Head of National Parks Department  
Turkish Forest Service  
Tarim Bakanligi  
Orman Genel Mudürlüğü  
ANKARA

**UNITED KINGDOM**  
The Secretary  
The Countryside Commission  
1 Cambridge Gate  
Regent's Park  
LONDON, N.W. 1.



