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European information centre for nature conservation



This symbol for the Council of Europe's nature conservation activities also illustrates the Centre's campaign on the conservation of wildlife and natural habitats which was launched in 1979 and which will continue, because of its great success, until the end of the year 1981.

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Front cover: The Lower Valley of the Sauer (France). (Photo D. Chibois)
Back cover: Photo A. Marconato

The basis of all

For about a century man has been setting aside parts of his world, labelling them nature reserves, natural parks, sites of special scientific interest and so forth. These areas are obviously of special value and we protect them from the general evolution that man is bringing about and which all too often results in degradation. There is very little left of the "original creation" and, as we all know, the pace is being stepped up with increasing pressure on what remains of our natural environment. There is a real and justified fear that animal and plant species are becoming extinct, ecosystems lost and, with them, valuable and perhaps vital lessons for man himself. It is not therefore an unreal desire of poets and conservationists and not only a moral obligation, but a hard necessity to keep intact as much as possible of the multitude of species that share the earth with us.

Must we drain large swamps and inundated meadows for agricultural purposes? Should a railway connection cut through possibly irreplaceable wetlands?

Are mountain forests and slopes to be sacrificed for tourism? These are not rhetorical questions but reflect the hard choice placed on our conscience almost every day.

This issue of *Naturopa* looks at these "protected areas" in Europe and makes a plea for understanding the necessity of setting aside such sites. In the end, we shall all benefit from this.

The next and third issue of *Naturopa* for 1981 will examine the legal instruments, especially on international level, for the protection of plant and animal life. H.H.H.



Editorial

(Photo Parc naturel régional de la Corse)

Where are we heading? What is in store for this old Europe of ours? The question is not new. The druids of the Celtic forests no doubt asked themselves the same question when they saw the Roman legions leave the villa and the ager of the Gallo-Roman behind them. The nobles of the Middle Ages quite unconcernedly built their castles on the most prominent sites, destroying one form of harmony but unconsciously creating another, much admired today.

With Colbert it was different; he set out to plan for the future. The royal forests, still in their wild state, had to be administered according to the rules of good management and in taming them he conserved them. In the nineteenth century, forestry experts decided to clear swamps, such as the Landes of Gascony, and combat the erosion of the Mediterranean mountains. Elsewhere other engineers fought doggedly to wrest land from the sea and keep within their banks certain rivers too prone to wander.

Man has thus influenced the natural environment since time immemorial. Has his activity been beneficial or otherwise? It all depends on how one looks at things. Until about a century ago, the effect wrought by man on nature was very gradual and observed a biological rhythm in harmony with a rural civilisation which knew and respected the laws of nature.

Not everything was perfect, of course. Many European species became extinct through man's activity, including the *Prolagus corsicanus*, a rabbit-rat found in Corsica at the beginning of the Christian era and in Sardinia up to the eighteenth century. But in most cases the diversity of environments was maintained, all action remained reversible and new forms of equilibrium just as valuable as the previous ones, or even more so, were established.

This is no longer the case today. The "bulldozer god" has decided otherwise. The tamed power of the machine makes it possible to inflict brutal and irreversible changes on the environment. Hills are gouged out to let motorways through, mountains tunnelled (frequently to the

detriment of the water-table), rivers harnessed. It has even become possible to shift mountains and to win from the sea the area needed for an international airport.

Agriculture, too, has experienced its "industrial revolution". Land units have grown in size to make mechanisation easier and consolidation has meant the disappearance of hedges, the natural habitats of animals once thought to be harmful, but as often as not the farmer's allies. Wetlands have been drained while single-crop agriculture, with the inevitable fertilisers and pesticides, is now practised in numerous regions. "Weeds" have disappeared—no more cornflowers and poppies bloom in the fields of France! Forests themselves have not always managed to stand up to mechanisation. While they remain in most people's eyes the expression of the natural environment, even though they are the work of generations of foresters, they have in some cases become no more than fields of trees, "harvested" every thirty or fifty years.

But all this, it will be said, is to serve the needs of man and promote his well-being, just as factories (big land consumers) exist to provide work and towns to supply housing. That is true—all these things are necessary. So there is an inescapable conflict; compromises must be found. Major schemes must be the subject of impact studies—very thorough ones if

they are to be effective. Intensive farming does not have to inflict on us an ineffably and dreadfully uniform countryside. Towns can preserve nature corridors, enabling wildlife to penetrate right into their heart. Abandoned factories, quarries and dumps can be redeveloped and reclaimed.

Our engineers and technologists would show greater respect for nature in the uses they make of it, if there was a strong political current insisting that they do so.

The way things are going, however, natural environments are all being put at risk.

We cannot accept the future on those terms.

With nature becoming less and less natural and life becoming increasingly artificial, it is vital that we should create a network of protected zones.

In this issue of *Naturopa*, others more competent than ourselves will describe the scientific, educational and cultural aspects of these zones, explain the diversity of the environments in need of protection and discuss the normative regulations and the difficulties of applying them.

We shall simply say, like Robert Hainard, that the problem is first and foremost a philosophical one. We have no right to be the cause of the extinction of further animal or plant species or of the destruction of their habitats.

We believe that man cannot achieve self-fulfilment in an environment totally subjected to his influence and that he has a vital need of the contrasts which nature alone can provide.

So we must resist the steamroller of standardisation with all our might and create nature reserves of all kinds to help us.

François Giacobbi



Why protection?

Derek A. Ratcliffe



To protect species
(*Ardea cinerea*)
(Photo G. Lacoumette)

Practical and ethical considerations

The purpose of conserving important areas for nature is increasingly recognised as a cultural requirement for any civilised society, though there may be sound economic reasons too. The term "cultural" embraces scientific study which advances knowledge for its own sake as a goal of society; educational aims which are concerned with the individual's development, and the appreciation and enjoyment of nature as a rewarding outlet for the mental energies of increasing numbers of people. These categories intergrade and overlap and, together, they add up to a use of resources essential to the nurture of the human mind and spirit, as distinct from the better understood uses which provide mainly for the physical well-being of humanity. Close to the spiritual aspect of purpose, there is also the ethical concept. Humans have a duty to cherish nature without regard to the ways in which they may find it useful, and while this is perhaps quasi-religious in outlook, many people hold such a view with great conviction. The contrary attitude, often used in argument, is that man is merely an agent of evolution, and that habitat destruction and species extinction are natural Darwinian processes. This ignores the fact that human activity is causing a vastly accelerated rate of loss and extinction. This many regard as leading to an irreversible impoverishment of the environment, even in human terms, and one which they are determined to resist. Man's efforts have caused most of the species' extinctions which occurred during historic times, and such are the present and foreseeable tempo and scale of habitat destruction that conservationists estimate a predicted loss of another million species by the end of the century. The onslaught on biotopes such as the tropical moist forests is eradicating large numbers of species before they can even be described.

The world view

The World Conservation Strategy (WCS) has spelt out powerfully the reasons for conserving wild species as a living resource of great economic potential. Numerous pharmaceutical products can

be derived, especially from plants, and strains of wild animals and plants, including fish and trees, may be used to obtain new crop varieties. The endless battle against pest and disease resistance, and the search for ever more desirable properties in crop plants and animals are likely to be somewhat constrained if the wealth of genetic diversity in the natural world becomes increasingly reduced by short-sightedly allowing this to run to waste through preventable losses. This is a utilitarian view of nature, but one accommodated without extra effort within the range of conservation measures, especially those concerning the protection of important areas, which are promoted for other reasons. The WCS has also gone on to develop the ethical view that humanity has a duty to keep open all the evolutionary options for the future—a view which goes beyond the utilitarian to include moral responsibility for the future of the world, as a single and immeasurably complex ecosystem. It has summarised this purpose tersely by stating that "conservation is for people."

Value for research and education

Protected areas are also valuable for research into subjects bearing on the other main objectives of the WCS: to maintain essential ecological processes and life-support systems and to ensure the sustainable utilisation of species and ecosystems. Protected areas provide study areas for work on a range of fundamental processes, such as catchment hydrology, energy-flow and nutrient cycling, animal population dynamics and regulation, and population genetics, which bear upon economic aspects of ecology as an applied science.

Their value for more basic research directed towards the advancement of knowledge is, naturally, extremely wide, since they offer so large a choice of topics on wild flora and fauna, ecological situations and physical phenomena. In remoter and less developed regions the biotopes concerned often approximate to the truly natural, that is uninfluenced by man. By contrast, in more "advanced" European countries they are predominantly semi-natural, retaining their original structure and species but showing some degree of modification through hu-



To preserve the most diversified habitats (Photo D. A. Ratcliffe - NCC)

man intervention. In the latter case, their value to science may be no less great than in the truly natural state. It is the intensive exploitation typical of modern farming and forestry which is increasingly converting semi-natural into artificial biotopes with much more limited nature conservation value.

The biosphere reserves set up under the UNESCO/UNEP "Man and the Biosphere Programme" were conceived as an international network of protected areas to support the objectives later adopted by the WCS. They are selected for their characteristic biomes, their major subdivisions and transition zones which will be maintained under existing (if any) management, to provide bench marks for monitoring and elucidation of ecological processes and both natural and man-made changes, and to allow a wide range of ecological research, training and educational activities. These reserves were envisaged as including both natural areas and landscapes modified in varying degree by human impact, with a view to studying the processes of modification and of recovery.

Many scientific studies in ecology require an experimental approach, and it is often particularly appropriate to conduct such work in protected areas, where there is freedom from constraints on required

management regimes and safeguard from interference with plots, treatments and apparatus. National protected areas contributed significantly to the numerous research projects of the International Biological Programme concerned especially with production ecology and its relation to human welfare.

As well as assisting in training of professional biologists, many of whom pursue careers in the applied sciences, the use of protected areas for teaching ecology and nature study, especially to young people, is important in contributing to a liberal education. It is essential, in coming to terms with and actually improving the human condition, that more and more people understand the problems of conserving renewable resources, of population growth and checks, of limitations on food production and the acquisition of material wealth, and of the need for an ethic founded on a harmonious relationship with the environment. The fundamentals underlying these insights are learned by contact with nature and appropriate instruction in the field as well as indoors. The availability of good teaching areas with a wide variety of geology, physiographic features and soils is also important to the education of earth scientists, whose work is necessary to the proper utilisation of both renewable and non-renewable resources.



Value for the enjoyment of nature

Research and teaching areas may, however, require some restriction on use for other purposes such as aesthetic outlets, so that other protected areas are needed to cater for the whole spectrum of public concern for nature. There may be different requirements affecting the choice of such areas, even within the sector of the public concerned simply with enjoying the countryside.

At the simplest level, the purpose of protected areas is the maintenance of scenic beauty, as identified in the prevailing physical land forms and their gross structural characteristics of vegetation. Scenic values are difficult to categorise other than in highly subjective terms, and in this field it is generally true that "beauty is in the eye of the beholder". It is therefore necessary to ensure the protection of a wide range of country, from truly natural kinds with high wilderness value such as alpine mountain systems, through the various types of landscape owing their character in increasing degree to human intervention, up to the point where habitats totally contrived by man take over. This is not always an easy boundary to define, since zoos and gardens add a great deal to human enjoyment, and the recent creation of urban wildlife refuges is an attempt to bring some contact with nature to interested city dwellers. Areas regarded as having outstandingly important scenic and landscape value will naturally be given priority in selection. The conservation of scenic features depends largely on maintaining the status quo in land use and in preventing the grosser intrusions of human activity in areas where such impact has been slight or absent.

The choice of areas to accommodate interest in nature conservation in the stricter sense—the more detailed attributes of land form, vegetation, flora and fauna—rests on a more readily quantifiable basis. Given an adequate survey capacity, these features can be accurately and systematically described, measured and recorded, to provide an objective data base for evaluating the comparative merits of similar sites. Subjectivity nevertheless enters at the evaluation stage, since the various criteria applied have to reflect the range of human viewpoints involved within the broad spectrum

of public interest in the features themselves. These vary from the more concrete concerns of scientists about the natural world to the simple aesthetic rewards which enrich the lives of the much larger number who know little or nothing of science. Moreover, the aesthetic values attributed to wilderness, and to wildlife more specifically, also come quite close together.

A priceless natural heritage

I do not wish to elaborate on the process of selecting protected areas, but to use these comments on the evaluation process to show the great diversity of human needs which these areas have to serve, and to point to the need for a rationale which will convince politicians that their conservation has an important place in human affairs. This last is especially important at a time when nature conservation is increasingly being regarded as anti-development, anti-progressive and even, in some situations, anti-employment. If its primary device, the setting aside and management of protected areas, is to receive the financial and political support it deserves, in the face of growing conflict with other more powerful interests, both governments and public opinion must be persuaded of its value to society. There has to be greater recognition that each country possesses a priceless and irreplaceable heritage of nature which must be conserved for posterity. The temptation to exploit all environments to the limit for the short-term gain of society as a whole, and often to satisfy the entrepreneurial greed of certain individuals, has to be resisted. The most telling resistance will be an argument based on reason rather than on sentiment, though the power of emotion which many nature conservationists feel should not be underestimated or brushed aside.

"Environmental concern" and "quality of life" are trite phrases which fall easily from the lips of politicians nowadays, but they nevertheless express a recognition of the truth of the old adage that "man does not live by bread alone". It is possible, as I have briefly tried, to point to economic purposes and advantages to which protected areas can contribute, as well as to their contribution to the great goals of science. These benefits are sel-

dom challenged. The more difficult task is to convey the view that these areas help to satisfy another basic human need in providing a medium for enjoyment and fulfilment. Yet since the great advance in so-called living standards is not conspicuously raising the general level of human happiness in the developed countries, this is an appropriate time to point to the value of the world of nature as a recreational resource. Much has been said about the problems which automation and technological advance are creating through the inevitable decrease in employment and consequent increase in leisure time, but there has been little sign of any concerted attempt to channel these surplus spare-time energies in helpful directions. The protection of areas where at least the more responsive part of society could derive mental benefit through contact with nature might be represented as one such attempt. If such use can be developed as an aspect of a recreational and tourist enterprise, then the aesthetic becomes integrated with the economic and perhaps all parties, including the politicians, will be satisfied about the value of protected areas. The game parks and reserves of East Africa have become an important economic asset to countries which could otherwise hardly afford to contemplate nature conservation, and their tourist value may help to ensure the survival of these remnants of the most spectacular animal communities in the world which still remain. Various morals might be drawn from this situation: one is that, sadly, the enjoyment of nature is no longer free but has to be paid for, like everything else. D.A.R.



Nature reserves: objective = survival of species (*Aquila chrysaetos*) (Photo Avesque - Pitch)

Cornerstones for survival Hanno Henke

The ongoing exploitation of nature and natural resources by man leads to the extinction of plant and animal species along with their habitats. It also endangers the landscape's character, diversity and beauty. As a countermovement in society, nature conservation is developing with the following objectives:

- to enhance man's understanding of and increase his relationship with nature as his natural heritage by documenting plant and animal life and landscapes in protected areas; and
- to help secure ecosystem efficiency, as the natural base for man's needs, through a protected area network.

The basic task that has to be undertaken is the setting up of a protected area network. This will secure biological functions and serve as a justification for the fight of plants and animals for their survival and, consequently, for the development of social functions counteracting a one-sided relationship between man and nature. The various protected area categories are actually building blocks for the survival of endangered flora and fauna and, due to the changing conditions in society, fulfil different needs, in a process aimed at comprehensive protection. The biological functions have to be recognised and directed towards the anticipated protected area network. The social functions are

closely related to the biological functions and their interactions have to be made clear in order to influence man's understanding of his role in nature.

A variety of names

In the Council of Europe's member states, protected areas have a variety of names and functions due to different circumstances in their historical development. This often confusing terminology and dissimilarity hinders the development of a protected area network offering the best possibilities for endangered plant and animal life survival. In particular, the



understanding and responsibility for achieving the common goal of nature conservation are little promoted. This could result in the failure to assess progress and also prevent the unification of professional and social movements in society. The organisations working on a supranational level in the field of nature conservation recognised early the necessity to standardise protected area categories as a basis for communication. The Council of Europe's Committee of Ministers already passed in 1973 a resolution on European terminology for protected areas. The International Union for the Conservation of Nature and Natural Resources (IUCN) addressed this problem on the global level in their 1978 publication "Categories, Criteria and Objectives for Protected Areas". With reference to the latter, the Commission of the European Communities presented for discussion their 1980 working document on protected areas classification, which particularly reflects the conditions in its member countries. Based on the Council of Europe's work as a representative overview on protected area categories in western Europe, the developmental status of the biological and social functions of protected areas will be dealt with here.

In the Council of Europe's Committee of Ministers Resolution (73) 30 on the European terminology for protected areas, it is attempted as a first step to reduce the diversity in protected area terminology to their basic functions in order to group them into four representative categories (A, B, C and D) of equal importance. As a second step, the existing protected area types in the member states of the Council of Europe are assigned to the four representative categories in a comparative table. Alphabetical headings have been chosen as a means to prevent granting different values to the four categories so that there is no pressure to assign protected area types to a particular category for prestige reasons.

Factors describing the basic functions of protected areas

— Scientific value

The objects to be protected (plant and animal life and landscapes) are defined according to the demands of the individual natural science disciplines for undisturbed research sites. The rational research findings about plant and animal life and their habitats and the interactions

between them are the main reason for protection and subsequently provide for a better understanding of the relationship between man and nature.

— Traditional human activities

The intensity of land uses practised for centuries remained almost unchanged up to the end of the last century and influenced the natural equilibrium. In man's value system regarding nature, these semi-natural landscapes with their dispersed, small sized natural remnants receive high priority for protection when endangered. Such traditional land uses in protected areas have to be maintained as long as possible or replaced by management techniques. During this transition period the area remains, however, as living space for the people settled there.

— Impacts through human activities

The continuous alteration of nature and landscape by man (for example, by large industrial complexes, transportation systems and power and communication cables), has to be influenced in the planning process by the nature conservation authority in such a way that the survival of plant and animal species in protected areas is assured and the character, diversity and beauty of landscapes maintained. The extension of the nature conservation authority's competency over territory outside protected areas is an essential condition for comprehensive protection.

— Recreational amenities

Besides the scientific use, the recreational use is an essential function of protected areas for enhancement of the relationship between man and nature. Man's emotional contact with nature through his senses has to be limited, however, in such a way as not to affect adversely the protected area.

— Public access

Visitors should, in general, be allowed access to protected areas. However, due to increasing numbers of visitors and their very often contradictory behaviour, with respect to the nature conservation objective, visitor movements have to be directed and in some cases limited.

Categories of protected areas

These basic functions can be assigned to four protected area categories which serve as typical within a wide range of protected area types in the member states

of the Council of Europe. The first two categories require strict protection while the latter two demand less protection.

— Category A

The scientific value for research has priority in this category. Access is restricted to persons conducting scientific studies for which conditions are laid down, and requires a permit issued by the competent authority. The nature conservation objective is to provide for the natural development of the various biotopes (examples: France, integral reserve of a national park; Italy, integral nature reserve; United Kingdom, national nature reserve).

— Category B

Also for this category, the scientific value is of importance. The nature conservation objective is to secure the natural heritage, especially of flora and fauna. Impacts by human activities which interfere with the objective are forbidden. Traditional human activities may be admissible under the condition that they conform to the conservation objective. Visitors have access under strict adherence to the existing regulations (examples: Belgium, managed nature reserve; Federal Republic of Germany, nature reserve; Switzerland, national park).

— Category C

The protection of landscapes for aesthetic and cultural reasons has priority in this category. But the recreational use is subordinate to the nature conservation objective. Traditional human activities can be practised under specific conditions. Impacts by human activities or other land uses can be only tolerated under strict controls (examples: Netherlands, nature reserve; Sweden, natural monument; United Kingdom, national park).

— Category D

This large-scale protected area or planning category primarily provides for recreational use. The suitability for recreation results from the cultural, aesthetic and natural values of a landscape. The development of an area for landscape-oriented recreation along with the conservation of the area's ecological capability requires planning powers by the responsible authority. Traditional human activities and other land uses are allowed as long as they can be harmonised with the objectives of the area. Non-motorised

The last location of *Artemisia laciniata* in Europe is in the east of Austria but has not yet been put under appropriate protection as required by the Berne Convention of the Council of Europe. However, the competent authorities have undertaken to ensure its strict protection in an integrated nature reserve (Photo S. Plank)



public access is generally unrestricted but may in certain instances be directed. Motorised access is limited (examples: Cyprus, national forest park; France, regional nature park; Federal Republic of Germany, nature park).

Biological and social functions

The four representative protected area categories, as a reflection of the situation in 1973, can be interpreted with regard to their biological and social functions in the following way. The biological function is influenced by the polarity between the natural and semi-natural (resulting from human activities) conditions of the area requiring protection. The emphasis therefore leans more towards securing biotopes and landscapes resulting from traditional human activities. The biological function, requiring detailed scientific knowledge, necessary for securing the

survival of plant and animal life is not yet given such importance. However, since the scientific value of protected areas is stressed in the earlier mentioned factors, it can be anticipated that a biologically based protected area network, existing in its own right, will be promoted by the natural sciences in the future.

The social function is characterised by the polarity between the scientific and recreational use of protected areas, which in reality are assigned to different categories, the former in categories A and B and the latter in categories C and D. This physical separation is in general promoted because it minimises conflicts related to use. Its disadvantage is that the social need for nature-oriented inspiration and recreation cannot readily be used as an argument for setting up a biologically based protected area network. Moreover, in many instances different authorities are responsible for these categories thus making difficult the development of an independent protected area administration as the property holder. However, without an effective administrative organ, nature conservation can hardly serve as a social force in harmonising the relationship between man and nature.

From this concise presentation based on the 1973 situation, considerable deficits in area protection with its biological and social functions and, therefore, nature conservation in general can be recognised. The work priorities of the Council of Europe's Committee for the Conservation of Nature and Natural Resources in the years to come will indicate, as a representative overview, what has been undertaken to improve the biological and social functions of protected areas.

A new impulse

In recent years, the Council of Europe has stimulated essential impulses in respect of the biological function of protected areas providing a better chance of survival for plant and animal species and their habitats. With the help of the Convention on the Conservation of European Wildlife and Natural Habitats, Resolution (77) 6 on the Conservation of Rare and Threatened Plants in Europe, the European Network of Biogenetic Reserves and the Vegetation Map of Europe as a basis for a balanced species and protected area system, national activities have been initiated. In addition co-operation on a Euro-

pean level for the conservation of species and their habitats has been upgraded. The Council of Europe's publicity campaigns have helped increase the public's awareness and participation, thereby supporting the social function of protected areas. In many member states, however, the protected area administration at local level has often not been in a position to utilise scientific knowledge, resulting in a deficit in information and implementation.

Often in the past the predominantly underdeveloped protected area administrations have been unable to promote themselves by pointing out and satisfying social needs and thereby becoming a force in society. A co-ordinated interchange between governmental and voluntary nature conservation bodies as well as an engaged public is necessary to overcome this deficiency. Now that the Council of Europe has fostered the protected areas' biological functions it is time for a far-sighted move to help develop the social functions of these areas in the member states. H.H.



Unique willow forest, one of the last areas in Europe still liable to flooding. Shall we know how to preserve it? (Photo G. Lacoumette)

An authentic site

The last alluvial forests of the Rhine

François Steimer

The demographic and economic expansion of recent decades has spelt the disappearance and decline of natural areas. In the face of a host of aggressions, nature protection became established with the task of preserving at all costs the most valuable remaining zones. This quite naturally resulted in the idea of "creating reserves", in connection with which the Rhine and its forests provide a significant example.

The Rhine, a natural force whose grandeur has inspired humanity in so many ways, once formed a landscape of dense forests around its majestic bed and its numerous inextricably interlocking arms. The twentieth century naturalist can but confirm this pattern, at least when con-

templating the remaining vestiges of extant Rhine sites. The history of the banks of the Rhine is simply a long description of the destruction of the river and its forests. Over the years, the Rhine forest suffered mutilation through a series of gigantic development plans and the appearance of gravel pits, industrial plant, roads, and so on... Thus of the original ribbon of 100 000 hectares covering 2 to 6 kilometres on either side of the river, 40 000 were left in Alsace in 1945. Today, only 7 000 hectares remain unscathed and there is virtually no patch that has not been developed in some way. So the area which may be said to have the characteristic appearance of Rhine forest has been whittled away to some 2 500 hec-

tares. Yet the river forests of the Rhine, together with those of the Danube, are among the most lush and beautiful in Europe. It is a pity that no one really cared about these forests until they were on the point of disappearing.

Protecting what is left

A plan for the protection of the Rhine forest, which nature protection associations had been urging for over fifteen years, was adopted by the authorities in 1977 and was borne in mind when the various land usage plans and outline development plans for the Rhine river area were being worked out. Various proposals for protection ensued: the listing and classification of sites, the creation of protected forests and, above all, of nature reserves. The idea of creating an official nature reserve was revised in the outline law of 10 July 1976 on nature protection, the aim being more effective protection of valuable but threatened natural zones. The implementing decree of 1977 states the procedure to be observed in the following order:

— preliminary detailed research on the

project from the scientific, technical and land ownership points of view;

— examination of the project by the Minister responsible for nature conservation after securing the opinion of the Standing Committee of the National Nature Conservation Council;

— local administrative survey, under the responsibility of the Prefect, including a public inquiry, consultation of administrative departments, organisations and groups concerned in the project;

— final preparation of the project by the conservation directorate of the Ministry of the Environment in co-operation with the other ministries concerned;

— lastly, publication of the decree constituting the reserve after obtaining the opinion of the National Nature Conservation Council and, possibly, the State Council, where the owners' consent is not forthcoming.

Procedure of this kind can be very lengthy owing to the difficulties frequently encountered—disagreement of land owners; opposition from certain categories of users of the natural area concerned, such as hunters, farmers and local authorities;

development plans incompatible with the aims sought in constituting the nature reserve; financial problems connected with the compensation of those entitled because of the existence of easements, etc.

The same decree sets out the new concept of a voluntary nature reserve enabling private land-owners to request the Minister responsible for conservation to declare that a part of their property, of particular ecological interest, has the status of a nature reserve. This kind of reserve closely resembles the previous one but the procedure has the advantage of being far more flexible and rapid because the owners agree to the arrangement beforehand. However, such status is granted only for a six-year period, although there is the possibility of tacit renewal.

Several nature reserves have been included in the plan for the protection of the Rhine forest. Enjoying priority are the only two forest areas on the Rhine still liable to flooding and therefore still authentic—the Rhinau island and, especially, owing to its large surface area, the Lower Valley of the Sauer in north-east Alsace.

One of the remaining vestiges of traditional Rhineland life: the Lower Valley of the Sauer

The present flood plain of the Sauer-Rhine rivers is bordered in the west by the steep slope of the low-lying fluvio-glacial terrace on which stand the villages of Seltz and Munchhausen. This natural site is truly outstanding and was included in the inventory of picturesque sites of the Bas-Rhin *département* as early as March 1973. The area, remarkably unspoiled from the ecological point of view, reflects the riches of a practically intact Rhine site as characterised by innumerable forestry strata, flood meadows and countless river branches. This enables fauna and flora to evolve in virtually optimal ecological conditions. During the campaign launched by the Council of Europe in 1976 for the protection of wetlands, the Seltz-Munchhausen Rhine site was recognised as having international importance. It is in fact a link in the chain of European wetlands serving as a vital stopping-point for migratory birds and an essential biotope for a specific community of flora and fauna; it must remain so.

The interpenetration of fresh water, swamp and land environments in the vast delta zone of the Sauer-Rhine confluence



Waters full of fish shelter many great-crested grebes (Photo G. Lacoumette)

produces interdependent groups well known for their high degree of biological productivity. Thus, on coming to this environment, the uninitiated are struck by the apparent disorder in the rich array of vegetation, not unlike a jungle throbbing with animal and plant life.

Generally speaking, there is still a striking degree of harmony between man and nature in this one remaining authentic Rhine site. For instance, willow trees which were formerly pollarded were used to reinforce banks and dykes after their branches had been woven together into fascines. They were pollarded every nine years and at the same time provided firewood. With age they become hollow and provide nesting places for mallard ducks and pole-cats. In winter, the same hollow willows provide much appreciated shelter, for instance for a dozen long-eared owls frequently observed huddled together. But the conservation of willows is not easy as they do not regenerate naturally. The normal outcome will be the death of the trees through old age unless they are pollarded and replaced. Thus it is clear that the harmony between man and nature, a deep-seated characteristic of the Lower Valley of the Sauer, could well be disrupted unless the right steps are taken. Two huge gravel pits and uncontrolled visits have already greatly undermined its value as a natural site. In addition, the insidious idea of making standard use of the site has gained ground. Lastly, and above all, since the special importance of this site lies in its continuing exposure to flooding, full account should be taken of the effects of the harnessing of the Rhine. The ultimate problem could be the impossibility of going back on decisions that have been taken. In fact, high water occurs in the periods most favourable to the reproduction processes of fresh water flora and fauna and thus determines the entire biological balance.

For that reason, a firm statute is urgently

required so that the Lower Valley of the Sauer can be protected. For this purpose, local representatives have prepared an application, in close co-operation with the administrative authorities, for its classification as a nature reserve. The application has been submitted and approved by the Prefect's office and by the Standing Committee of the National Nature Conservation Council; the public inquiry is still to come and should open this year. By means of information and publicity, the local association of Friends of the Sauer Delta is striving to turn the inquiry into a genuine plebiscite, as every member of the public should be keen and proud to preserve nature most fittingly. Any conception of conservation of the natural environment which fails to allow for prior education and publicity is doomed. Nature conservation associations have an essential role to play here and must approach the public and local representatives in a spirit of mutual co-operation and understanding.

It is also important to make it clear that serious nature conservation does not necessarily mean creating a "no-man's-land". There can be no question of trying to impose a dangerous level of immobility on a natural site; only the more serious threats need to be countered. It is to be hoped if this is done, the Lower Valley of the Sauer together with the entire Rhine shore area, will become a haven of peace and quiet where nature's treasures can be enjoyed by all, and particularly by the villages and people making the effort required for nature protection, still an uphill task.

"To know where you are going is all very well, but you need to show that you are really going there"
(Emile Zola)

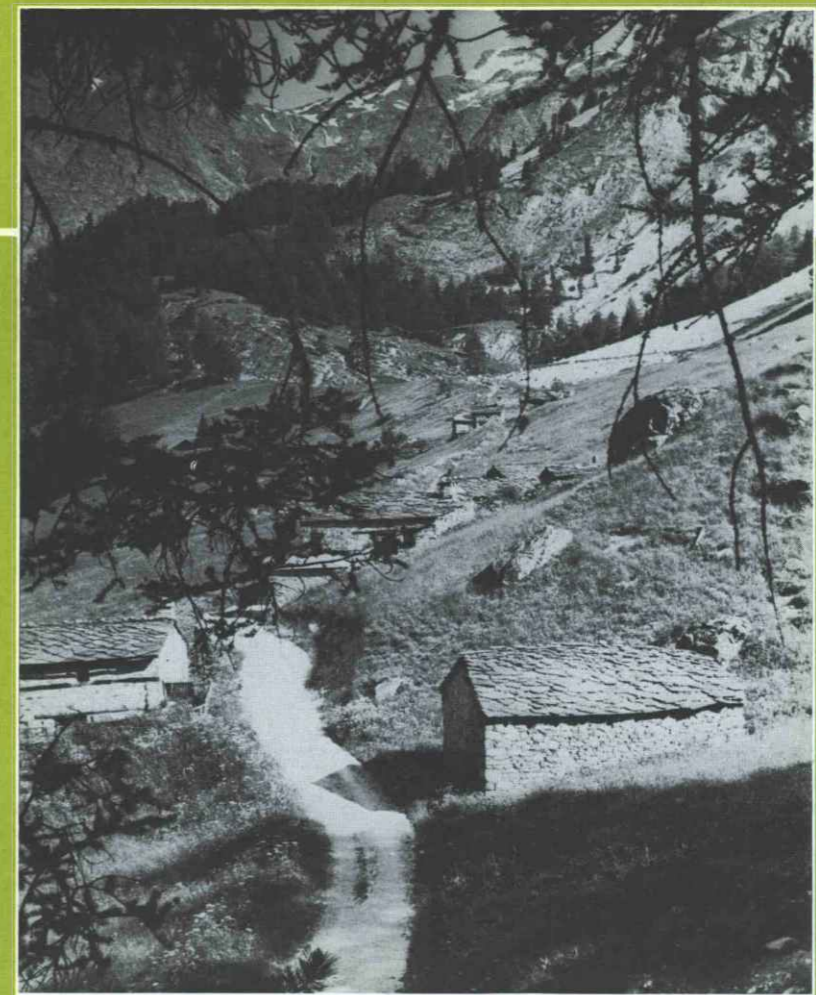
France has highly complex but very comprehensive legislation on nature conservation. But the laws are only as good as

their application and the energy behind them. The essential thing now is not to produce texts but to apply them—a very difficult task as nature conservation law is in advance of people's mentalities. In this it differs from most other systems of law in France which, normally, go together with and follow evolution in the majority's ideas and beliefs. Lastly, we must constantly remember that the concept of nature conservation is a product of urban civilisation and therefore not familiar to rural society, in the very environment where most nature reserve projects are situated.

It does seem that representatives, whose role is fundamental, will not undertake action unless assisted. Before action can be taken, there must be someone to negotiate on the basis of a written document, such as the Rhine Forest Protection Plan, and to accompany representatives in their attempts to establish concrete proposals for the protection of a natural site. However exciting this task may seem, it requires time, credibility and constant, repeated involvement—in rural areas, confidence is not gained on the first visit. Although such work is enriching in human terms it is lengthy, difficult and often discouraging, but none the less vital. Protection of the remaining Rhine forests has become an absolute necessity, remembering that so many have already been dangerously undermined or destroyed outright.

Time is passing, anxiety and uncertainty remain...
F.S.

*A problem for parks:
the inclusion or not of
villages within their
boundaries*
(Photo Binois - Pitch)



Administration

Francesco Framarin

The administrative organisation of protected areas naturally varies according to the type of area and the country in which they are located. While this article will refer mainly to the situation in Italy, this is not a serious limitation, firstly, because the problems are qualitatively the same in all European countries and secondly, because the situation in Italy is fairly varied. The Italian Parliament is currently studying numerous proposals for an outline law on national parks, nature parks and nature reserves, which will cover not only existing parks but also those it is hoped will be created in the future.

Leaving aside the areas protected by individuals, a distinction should be made between national parks and nature parks administered by bodies under the authority of the state, that is, by local government (regions, provinces, communes). Although the subject has given cause for discussion on many occasions and still does so today, I think it can be said that, in practice at least, there is no substantial difference between the objectives and natural and organisational characteristics

of the national parks and those of the local parks. The aims in both cases are:

- to protect one or more areas from degradation on account of their natural wealth or beauty;
- to receive and entertain visitors;
- to conserve and increase, by appropriate development of points *a* and *b*, the capital and revenue from the land's resources for the—mainly economic—benefit of the local or neighbouring population.

There may occasionally be conflicts between these three objectives which almost always co-exist in all types of park in practically all countries, even if less importance is sometimes attached to the third objective in particular cases.

In my opinion, the main differences between national and local parks are therefore due to the different emphasis put on the three objectives and, in particular, to the emphasis on the third objective as compared with the first two. Moreover, concerning local parks, in the second objective, which is to receive and entertain

visitors, leisure activities not closely linked to nature (fishing and other sports) can also be more strongly emphasised with regard to what is done or what should be done in national parks.

Ownership of the land

After that introduction, we can go straight into the subject of the administrative organisation of the protected areas, beginning with the obvious comment that this organisation depends in particular on the principles and aims which the law sets out to observe and establish as objectives for the various areas. For instance, Engadine, the Swiss national park, has the exclusive aim of protecting the natural environment and, having been perfectly organised for that purpose since its establishment, it has a very simple and effective administrative structure. The Italian and French alpine national parks, on the other hand, which were assigned additional aims by the law establishing them, have a much more complex and over-elaborate administrative structure and life. For the



sake of clarity, I shall say straight away that the heart of the problem is the availability of the parkland. In the Swiss national park, the land, all common land, was from the outset in 1914 rented on a very long lease by the park authorities. These decided, and still decide, on the cessation of any exploitation, particularly of farming, forestry and herding as well as on the exploitation of the park for town planning purposes. In the Italian Gran Paradiso national park established in 1922 though, the authorities did not or could not apply a similar policy, even though the park's only theoretical aim was "to protect the area's fauna, flora, special geological formations and beauty". It is hard to say whether the authorities did not wish to apply such a policy because the site included vast areas developed by man, particularly round the villages, or whether they did not know how to apply it because the Italian park was practically four times as large as the Swiss park. It also contained forests in better condition and many tracts of land belonging to private individuals, and was therefore much more expensive than the Swiss park. It is true that the Swiss national park is located among mountains which are perhaps less spectacular and beautiful than those in the Italian Gran Paradiso park. But the forests are ecologically richer (the Gran Paradiso forests are no longer used for forestry in the areas around 2 000 metres above sea level and in a few other areas where access is difficult.). The density of ibex and chamois is also higher in the Italian than in the Swiss park; but so is the density of cattle and sheep, with all the protection problems that entails, in particular those raised by requests for new roads to the alpine pastures.

Inclusion of villages

After the problem of parkland ownership, which, incidentally, in the case of the European parks and in particular the recently created French alpine national parks (Vanoise, Ecrins and Mercantour) is usually solved not by the state acquiring all the land but by the communes and

private individuals renting—generally on a free and voluntary basis—a few of the most interesting parts from the natural point of view, the other major problem facing the nature parks, both national and local, is that of the possible inclusion of villages and small hamlets within their boundaries. The problem has a considerable bearing on the administrative organisation of the park because, if such settlements are included, town planning problems also arise—usually highly complex ones involving great responsibility, particularly economic responsibility, and raising political difficulties. Here again, there are pros and cons and once again we can take the Engadine and Gran Paradiso parks as extreme cases (the three French alpine parks have followed the example of the Engadine park in that they have aimed to exclude all the villages and their surroundings at the risk of making the parks like fjords: not compact and therefore not ecological). There are no villages in the Swiss park: there were no advantages to be gained by including them and they were incompatible with the type of close protection envisaged. Advantages: simplicity and great scientific strictness in management. Disadvantages: the park is ecologically small, a little incomplete (all the winter habitats of the stags are located outside the park) and its shape is not as good as it could be from an ecological point of view. The Gran Paradiso park, on the other hand, includes a few small valley villages in a way which is historically controversial for some. Advantages: the park is large, compact and ecologically more complete and protects not only nature but also a range of man-made sites and milieux which have become badly damaged or disappeared outside the park. Disadvantages: technical and political management of relations with the indigenous population is very difficult as the latter tend to refuse to take on that management on a joint basis.

Administrative structure

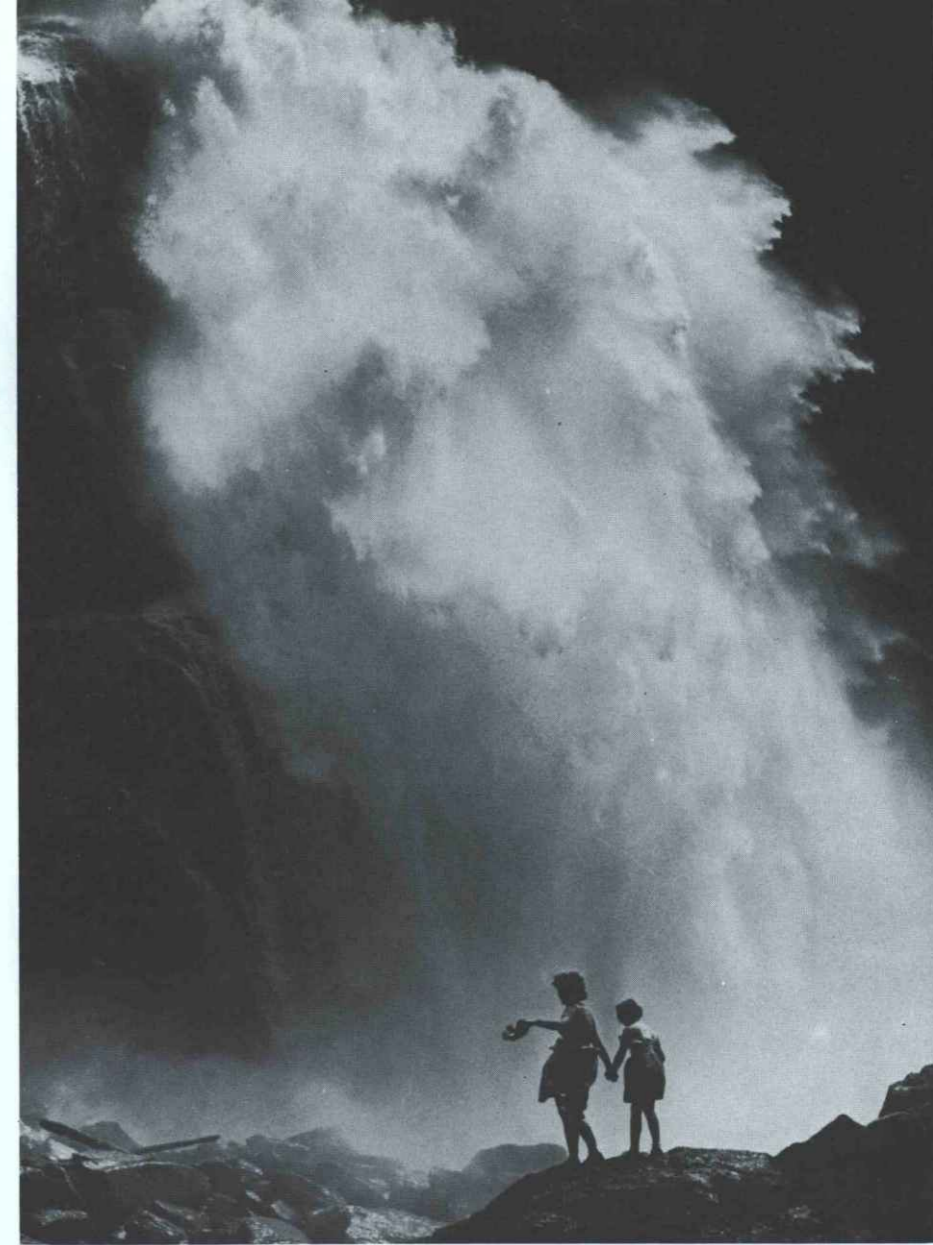
The last technico-political problem I should like to mention in relation to the parks concerns the structure or the type

of body itself. In theory, the administrative structure of a management organisation could be as follows: a major management or "political" body (which decides on expenditure), a scientific consultative body, a technical and scientific executive body (which carries out the decisions regarding protection of the environment, reception of visitors and collaboration with the indigenous population). In fact, the functions of the three bodies mentioned above inevitably overlap a little and it is not unusual for the second of them to be missing or to be included in the others. Local authorities clearly demand maximum representation on the three types of body, especially on the first type. It is also clear to see why conservationists are opposed to excessive representation of those authorities: essentially, and particularly in the light of historical experience, they fear and denounce the concessions made to local interests with a view to exploitation of the natural environment for non-natural purposes. The scientific component is generally fairly weak in park management, often to the detriment of that management (especially in Italy).

The type of body or institution set up depends on whether governmental, local, scientific and conservationist representatives are included in it. This topic too is being widely debated in Italy at the present time in connection with the "outline law". Conservationists and scientists favour a special agency ("park agency") responsible solely for management of the park or reserve and obviously with appropriate resources and financial means. The indigenous inhabitants tend to prefer an association of the local authorities responsible for the area covered by the park or the direct concession of park management to those local authorities if the area concerned is small. At all events, they prefer to see the park or reserve included in the area they manage and not as a resource or item of cultural property around which to plan and construct the area's development. Clearly, the argument is more political than technical and can only be touched upon briefly here.

F.F.

The European Diploma of the Council of Europe has contributed to the safeguarding of the Krimml falls in Austria
(Photo Landesverkehrsamt Salzburg)



No progress report...

Peter Baum

This is not a progress report. Progress reports are deceptive, they can give false impressions and even deliberately look at reality through rose-tinted spectacles. We shall leave it to others to paint pretty pictures. It is our aim to discuss the general situation of nature reserves and national parks and bring to light any distinctly positive or negative trends. This article is not based on the contents of official reports—printed matter can cover a multitude of sins—but is the fruit of personal experience built up over ten years of contact with European award-winning areas, biogenetic reserves and other European protected zones through long conversations of an open, friendly and, frequently, confidential nature with the people who are responsible for the same areas and who identify with them.

Biological profusion

The diversity of wild plants, wild animals and natural environments, their potential, their representative function and their re-

lative stability are all the fruit of an evolution spanning thousands of years. They are the guarantee of our environment, our natural resources and the biological system of survival. Thus biological production plant, as we may call it, caters broadly for the self-purification of wastes and poisons, while at the same time it produces foodstuffs, regulates water systems, provides vital raw materials and performs both a medical preventive function and an aesthetic role. We are talking about a biological profusion whose production capacity and value exceed those of heavy technological industry by millions. We could manage without the majority of industrial products but not without these services performed by nature.

Nature in need of recreation

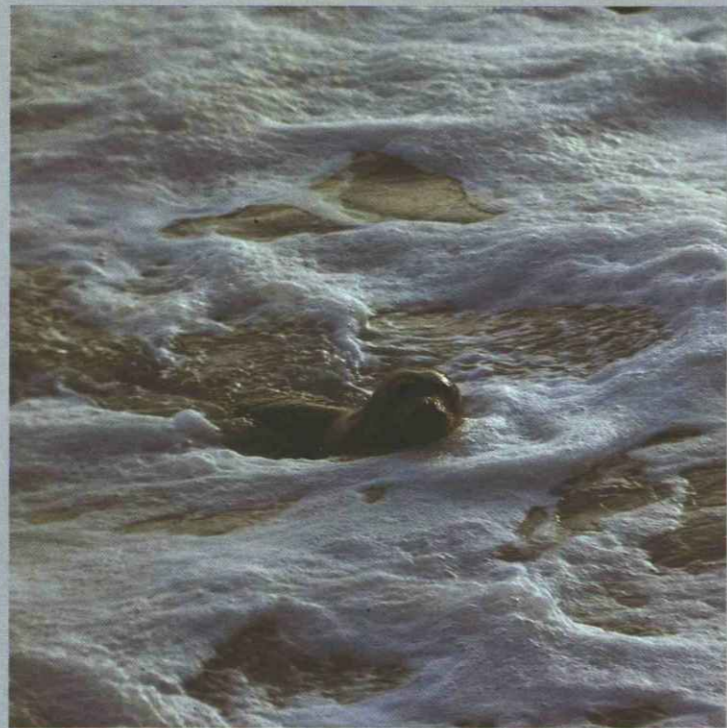
Since the beginnings there have always been changes in our environment. Plant and animal species have died out and

entire ecosystems have disappeared as a result of natural catastrophes, though these were few and far between and spread over extremely long periods. Subsequently nature was given time to readapt to environmental circumstances. New species and ecosystems arose. Biological balance was restored. Now man has replaced catastrophes and is interfering with the ecological network at a rate which, for nature, is "unnatural" leaving no time for readaptation to changed situations. The result is that certain components in the production plant have received a severe blow and are unable to cope with massive deposits of harmful substances. It is impossible for new components and systems to evolve. Nature has been exhausted through excessive stress and strain and considerable investment is needed to restore equilibrium. Nature needs rest and recreation more than humans. Protected zones with relatively strict protection status constitute nature's prime rest centres, where she is no longer plagued by humans and their multifarious destructive doings. Meanwhile our natural ecosystems have shrunk to become islands in a spoiled ocean.

Thus we can establish certain strong arguments on behalf of nature protection in



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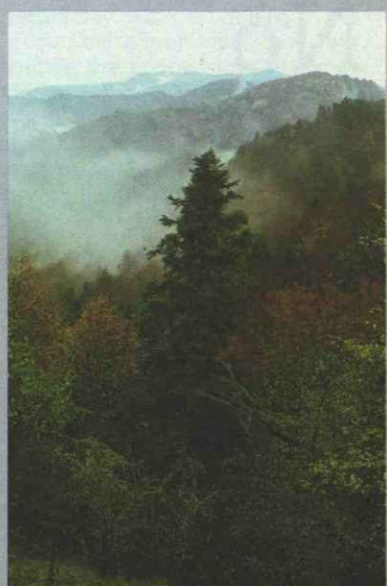


*to preserve
intact landscapes
with all their species*

5



3



4



6

general and, in particular, the protection of ecosystems and nature reserves. As we are living in a technological, materialistic society it should be said that quite apart from the ecological need—sufficient in itself to justify purposeful protection of the ecosystem—strong economic arguments can be put forward concerning, for example, the future highly important use of plants as a genetic basis in agriculture and forestry.

The point is to preserve these islands and fortify them against damage and pollution from outside. An essential, decisive move in that direction is to set up a network of well-protected areas, that is generally speaking, nature reserves. Their purpose must be quite specifically the protection and preservation of plants, vegetation, animals and their habitats. Opportunism and compromise must be excluded. Ecosystems do not respect frontiers, so the plan must be hammered out internationally into a well thought-out and purposeful programme.

We have our backs to the wall and are daily losing valuable living space while nature is littered with the corpses of ruined landscapes.

The situation of nature reserves

At the beginning and in the middle of the 1970s, it did seem that more favourable times had arrived for our nature reserves and national parks. There was a hopeful mood among persons responsible for such areas. Hope and confidence grew. But cold reality made itself felt at the end of the 1970s, since when anxiety has spread.

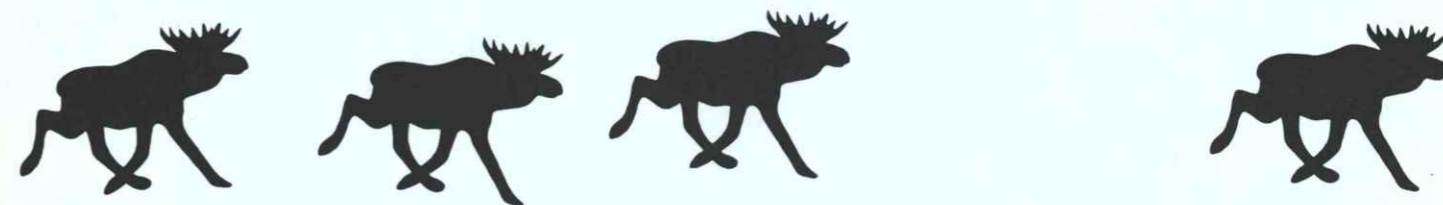
Some of the zones put forward as nature reserves appear today to have little con-



(Photo G. Vienne and F. Bel - Pitch)

nection with genuine nature conservation. The authorities should recognise this fact and draw the necessary conclusions. A good many flabbergasting things are done in nature reserves. Trunk roads or main roads pass through and forests are used for intensive timber production, planted for the most part with fast-growing species ill-adapted or alien to the environment. Maintenance plans may include treatment with insecticides and herbicides. Bore-holes are drilled for drinking water and thus the water table may sink considerably and a valuable wetland be destroyed. Oil prospecting is even carried out in nature reserves. In the hunting season, thousands upon thousands of sea birds are pointlessly shot down in neighbouring zones as soon as they leave the protected environment. When administrators complain about the hunting they have been known to be seriously injured by shooting. For similar reasons administrative buildings in the protection area have been burnt down. Chip stalls

and souvenir shops are to be found in nature reserves. At the same time there may be no money for the urgent purchase of a telescope. In other nature reserves bridle paths and forest tracks are most generously laid out. But only very few have the resources to produce information booklets. Knowledge of flora, vegetation, fauna and biotopes is frequently inadequate. Resources for research are frozen, reduced and cancelled, or non-existent. Nature reserve boundaries only rarely meet ecological requirements. At the same time there is an urgent need to create new nature reserves so as to rescue ecological assets and put them under protection. Too many have degenerated and disappeared for ever. In some countries there is still no serious plan for the creation of nature reserves—they confer no political prestige. Other countries' efforts are unco-ordinated and muddled. What is the sense of converting a former gravel pit, used first as a bathing pool, into a nature reserve and then tip-



ping sludge into the water and on the banks, whose poisonous effects should be familiar at least to nature protection authorities? At the same time there is no question of setting up ecological conditions in the lake to suit birds, amphibians, reptiles and vegetation.

Of course there are numerous positive examples and in some countries—all too few—there has for decades been a deliberate policy to establish a network of nature reserves. Such networks do exist. They are administered and looked after by ecologically trained staff responsible only for the nature reserve. Visits are either prohibited or strictly limited and in most cases are subject to the issuing of a special pass. Frequently, only part of the zone can be visited and on strictly prescribed paths. Guided tours are organised in order to inform and educate visitors. Private organisations are also actively concerned with the maintenance of nature reserves. For instance, they keep a 24-hour watch during the birds' nesting period. Others collect large sums to administer with their own staff the bird sanctuaries which they have bought or rented. Other examples could be provided though they are difficult to find and constitute exceptions.

Let it be said yet again that a balanced and closely knit system of nature reserves is the precondition of any effective eco-

system protection. It is vital to provide these zones with strict protection status so as to lighten the burden placed on nature and give her a chance to achieve "recreation" and regenerate.

The situation of national parks

As nature reserves are generally smaller and more numerous than national parks and do not fall within the same administrative structures, their situation must be dealt with separately. National parks are, as a rule, looked upon as objects of prestige in the countries concerned and given corresponding treatment. But what is the use of national park administrations regularly showing foreign delegations round and using their park as a shop front when funds are lacking to renew the blankets used by tourists in the park hostels? At the same time they are criticised at high level for concentrating on nature protection and not adapting the zone better to utilitarian requirements.

An important place should be found in European nature parks for the protection of species and biotopes as these can generally be taken as representative of species in the surrounding country. The concept of nature protection has in fact been realised more purposefully and effectively in some nature parks than in others.

Several species of small carnivores are now regressing in Europe (*Putorius putorius*) (Drawing P. Déom)



While most nature reserves are tolerated and accepted by the people from round about, the feeling against nature parks among the surrounding population is growing steadily. It is very doubtful whether some of the nature parks founded in recent decades could be successfully founded today. Nature parks are looked upon increasingly as a sort of tumour. Slogans such as "nature parks must go", "nature parks belong to us" and worse have been more and more frequently voiced and written up. In addition it may be that the park administration obtains insufficient support from on high. The desperate struggle to achieve adequate protection is on occasion made even more difficult. Temporary contracts of scientific staff are not renewed, salaries are paid irregularly and park wardens posts removed. Whereas only a few years ago, sufficient resources were being provided for the establishment of infrastructures and in some cases money was pushed onto the parks, it is now impossible to maintain the same infrastructures. Parks are being urged to co-operate more closely with the tourist trade on a big scale and become self-financing. That is where the end is in sight.

It is of course an excellent thing for nature parks to be founded in order to save one or more species of animal close to extinction. But when it becomes clear that scientific preparation has been inadequate, that a large part of the habitat of the species in question does not fall within the area of the park and that a forest track has been built straight through the biotope of the species, official statements regarding effort and success in the field of nature protection are to be taken with a large pinch of salt. Neither can we have much indulgence for the authorities' inertia when a sensible ecological plan to divide the nature park into three zones awaits approval year in year out or when nothing is done against unauthorised camping grounds and week-end houses in the central part of the nature park.

Intensive timber production in beautiful and unique nature park forests will lead to other serious problems in the foreseeable future. The use of rivers and lakes for energy production and as drinking water reservoirs for new gigantic skiing centres or for the irrigation of agricultural land constitutes a major threat to national parks. The ecological consequences can be horrendous. There are examples enough. It has become a sort of disease to

Illustrations pp. 16-17

- 1 *Ursus arctos* (Photo Binois-Pitch)
- 2 *Monachus monachus* (Photo Binois-Pitch)
- 3 *Wetland in the Camargue* (Photo Parc naturel de Camargue)
- 4 *National Park of the Seven Lakes, Turkey* (Photo T. Gürpınar)
- 5 *Aquila chrysaetos* (Photo Jacques Six)
- 6 *Haematopus ostralegus* (Photo Jan van de Kam)



visit the national parks of America, Canada and Africa in order to look for models of care and administration for our own national parks. This can mean the planning of a nature trail, on American lines, for a stupendous sum of money, to be used only by a few hundred visitors per year, while at the same time, despite all warnings, it is not thought necessary at official level to organise a 24-hour watch over a near-extinct species of bird in nesting time in the same national park. Here we must say clearly that Europe has nature parks of unique beauty with excellently trained staff utterly devoted to the maintenance of their areas, who solve difficult problems by managing on a shoe-string and by demonstrating their own rational models for the care and administration of nature zones. Their methods are tailor-made for European situations. The conditions of nature parks in other countries can be transferred to our regions only up to a certain point. The money used for such trips could be put to better use by arranging exchanges of staff within our own national parks.

Access to nature also for the handicapped: this must be foreseen before any construction, as for example here at Lodge Hide, United Kingdom (Photo RSPB)



Biogenetic reserves

We should be deluding ourselves, deceiving the reader and guilty of the worst opportunism if we were to claim that the international situation in this sector of nature conservation were any more satisfactory. That does not mean putting our heads in the sand. Quite the contrary. We have our backs to the wall and we should try to do something to improve the situation. The Council of Europe is doing just that, firstly by means of the European network of biogenetic reserves. The aims are in line with those set out in this article—to preserve a representative cross-section of typical, rare and threatened environments together with their flora, vegetation and fauna, give them adequate protection and combine them within one European system, so they can be administered and cared for on ecological principles.

For that purpose we are first conducting a survey of a particular ecosystem in Europe (heath, moor, lowland forest, etc.). Then a list of areas essential for the preservation of the ecosystem will be established. These may be areas which already enjoy official protection status as nature reserves or something similar or zones which first have to be placed under protection. Then governments are being asked to propose these reserves for inclusion in the overall network. They will be included in accordance with particular ecological criteria. They can be excluded if they no longer meet requirements. Naturally, reserves not on the lists or included with other ecosystems can be accepted if they meet the criteria. Most of the hundred or so zones referred to already come within the last group. This is a beginning albeit a modest one, considering the thousands of threatened islands.

In February 1981, the list of areas to be designated as heathland reserves was presented to the governments. According to the list a minimum of over sixty reserves must be contemplated in order to preserve this type of ecosystem and cater more or less adequately for its wide diversity of type; in western Europe it has shrunk drastically at the same time as threats have increased. Half of these areas are unprotected and will disappear and die in the foreseeable future unless appropriate measures are taken immediately by the authorities responsible. The list of heathlands is a test of prospects for a European network.

European Diploma

While biogenetic reserves were started up in 1976, the European Diploma originated in 1965. It has been awarded to nineteen areas in twelve countries. Areas of European importance on account of the nature protection, cultural or recreational value may receive the award. Following an inspection it is awarded for a period of five years, renewable subsequently. Generally, specific requirements are attached to the award document. If they are not observed the diploma can be withdrawn.

Originally a political idea lay behind the award of a European Diploma, while nature conservation considerations were generally underestimated or misappreciated through lack of experience and ignorance of ecology. But in recent years, we have endeavoured to bring the protection of species and ecosystems more to the fore and to increase requirements for the award so as to raise the general standard of the diploma. P.B.



Lüneburg Heath (Photo G. Helm)

A priceless heritage

Alfred Toepfer

The German-Austrians and Germans present at the inaugural meeting of the Nature Conservation Parks Association (*Verein Naturschutzpark* (VNP)) in Munich in October 1909 decided to buy up three large natural areas in the Alps, northern Germany and the lower mountainous area of Germany in order to protect them for future generations.

The foundations of the Lüneburg Heath and Hohen Tauern nature parks were laid before the First World War, which sadly halted the remarkable and pioneering work accomplished. During the period 1920-22, legislation was enacted concerning the Lüneburg Heath, covering 20 000 hectares. The VNP hoped to ac-

quire between 6 000 and 7 000 hectares in both parks, which meant practically all the marshlands and heathlands of the Lüneburg Heath. It had already achieved half this goal not long after the end of the war.

The German Lüneburg Heath and the Austrian Hohen Tauern

An area of 1 800 hectares on the Lüneburg Heath is used as a tank range, but the VNP carefully maintains and protects the remaining 3 500 hectares, including 500 hectares of wetlands and marshlands. Maintenance is ensured

chiefly by means of sheep grazing: there are thirteen flocks of sheep, totalling 5 000 ewes and as many lambs (nine of the flocks belong to the VNP itself, since sheep-farming on the Lüneburg Heath is no longer commercially profitable in most cases). The VNP also provides protection against encroachment by trees (birch and conifer seeds carried by the wind) as well as against fire and pollution and the adverse effects of tourism, horse-riding and motor traffic. Until 1850, the area contained only about 500 hectares of woodland, compared with the present 11 000 hectares, which are mainly publicly owned. Most of the trees are conifers, but in places these are gradually being re-



placed by oaks and beeches. The VNP is setting an example in its own forests, which cover 1 000 hectares.

The rapid increase in the number of visitors, resulting from the development of motor transport, increased leisure time and a general improvement in living standards, called for measures to be taken without delay; large car parks have been provided, as well as an extensive network of paths for walkers, cyclists and horse-riders. Motor traffic has been restricted to two thoroughfares. Horse-drawn carriages have been provided for handicapped people and those to whom walking does not appeal. There are at present between 100 and 120 such carriages, which are very popular with tourists. Four visitor information centres have been established and there are several educational trails.

The area is rich in historic buildings of various kinds, with a large number of mediaeval farms, most of which have been designated historic monuments. The VNP alone owns more than 130 such buildings, all of which it has restored and is now maintaining.

A North-German nature conservation institute is being set up on land belonging to the VNP and is generally regarded as the crowning achievement of the VNP's work. The institute, which will be fully operational from the beginning of next year, will run a number of European courses every year.

Management of the "Alpine Park" in the Austrian Hohen Tauern involves somewhat fewer problems, even though large-scale land consolidation was needed after the building of various roads and electric power stations. The park is intended to form part of a large Austrian alpine national park, a project for which the VNP and the Austrian Alpine Club have been campaigning for more than ten years. The relevant agreements were signed several years ago by the three Austrian provinces concerned, but so far their implementation has unfortunately met with a certain amount of local opposition.

Conservation and upkeep

Today the VNP owns more than 6 000 hectares in the Austrian Alpine Park and more than 7 000 hectares on the Lüneburg Heath. Its main concerns are: to conserve and maintain the primeval countryside; to extend the area of heathland wherever this appears desirable, necessary and possible; to conserve or, where appropriate, reconstitute the former marshlands and wetlands; to maintain the large network of footpaths and cycling paths; and to conserve and maintain the many buildings and monuments as well as the car parks and various other facilities. Regular cleaning of the area poses considerable problems. Two

thousand litter bins have been provided and a special cleaning service set up.

The sudden and considerable increase in the number of visitors to the vulnerable Lüneburg Heath park led the VNP to hold its 1956 annual general meeting in the federal capital of Bonn. As part of a major public campaign, a national parks programme was presented to the Federal Government by means of talks, films and maps. The programme called for the creation of between twenty and twenty-five nature parks in the Federal Republic of Germany. This aim was felt by many to be utopian, and yet today the Federal Republic has more than sixty-three nature parks, covering 19% of its total area. The VNP has given every encouragement to this trend by trying to arouse public interest and financing much of the work required. Obviously there was at first some local opposition, but recognition of the importance of these projects was not slow in coming, thanks to the support of the federal and *Land* governments, the initiatives of certain local authorities and the enthusiastic, selfless, sensible and determined action of many people.

Nature parks need large, unspoilt tracts of beautiful countryside where the influx of visitors can be controlled. Visitors are generally subject to the rules for the protection of the countryside, and to some extent to the stricter rules of nature conservation.

A European movement

At the end of the 1960s, France still lagged far behind in the sphere of nature conservation, but today she has some thirty nature and national parks. Publicity work is the responsibility of the Paris-based *Fédération des Parcs Naturels de France*, with its highly qualified staff. In the Federal Republic of Germany, this task has been handled by the *Verband Deutscher Naturparke* since 1963.

Ever since 1959, the VNP has regularly invited nature conservationists from Western and Eastern Europe to its annual general meetings. At the 1973 annual general meeting in Saarbrücken, it was decided to create a Federation of European Nature and National Parks, with headquarters at Basle, as a channel for pooling experience, developing publicity work and so on. General meetings have so far been held in Yugoslavia, Hungary, Great Britain, France and Italy.

The growing environmental awareness, the European movement in favour of nature conservation and the creation of nature and national parks are a normal reaction to the far-reaching changes which characterise present-day society and the increasing pace of technical development. The countryside has frequently been ravaged by unscrupulous and thoughtless construction of industrial

plant, housing estates, railways, roads, bridges, pipelines. The water of our rivers and lakes has lost its limpidity, the air has been polluted and in many places wholesome silence has been ousted by noise. The necessary and salutary about-turn in public opinion needs and deserves firm and energetic support from the authorities and from the population in general.

Wide tracts of beautiful countryside, free from noise, are an eternal source of physical and mental health, both healing and inspiring; it is our duty to preserve them for our children and grandchildren. A.T.

Inform and orientate

Robert F. Schloeth

The Swiss National Park was officially founded in 1914, though parts of it already existed in 1909. It is intended as an integral nature reserve, in which nature is wholly protected from all forms of human influence and interference other than what is entailed in running the reserve, and all the animal and plant life is left to pursue its own free, natural development.

The natural world of the park is no different from that of the area immediately surrounding it: all the animal and plant communities are the same. Consequently, the park does not fit the description either of a botanical garden or of a zoo: it is a strictly protected part of Switzerland's natural alpine environment, bearing the name of "National Park".

Geography

The Swiss National Park covers an area of 168.7 km². It lies in the sub-alpine and alpine stages of the Lower Engadine Dolomites. Thus it is a mountain reserve,

starting at an altitude of 1 500 metres above sea level and reaching 3 174 metres at its highest point, Piz Pisoc. With the exception of one private hotel, Il Fuorn, the park is totally uninhabited. Forestry, grazing, hunting and fishing have all been abandoned. An international highway crosses the National Park over a distance of 12 km. It is part of the Ofenpass road, running from Zernez to Müstair and then on to Merano and Bolzano.

Finding one's way about

There are ten different access points from which the park can be visited using the official paths. Visitors are not allowed to roam freely, and failure to keep to the paths can incur fines. The ten different access points require a direction-finding system which has to rely on personal initiative on the part of the visitors in acquainting themselves with the regulations before mistakes occur. The park management therefore has a responsibility to arrange things in such a way, by means of

conspicuous and readily comprehensible noticeboards, that people can find their way automatically and that no false expectations are aroused—particularly as, along the Ofenpass road for example, it is not possible to install entrance gates where cars would be obliged to stop and where every visitor could be channelled and pointed in the right direction. So there must be effective ways of motivating all the visitors to find their own way correctly and independently.

Direction-finding aids within the Park

1. Zernez National Park lodge

The Zernez National Park information and visitors' centre has existed since 1968 in the lodge at the Ofenbergstrasse village exit. It has a counter manned by trained staff providing free information. There is also a permanent exhibition which affords an introduction to the National Park and its purpose, an audiovisual montage and film shows. In addition, maps and National Park literature, plus WWF pictures and gifts and items produced by the Swiss Nature Conservation Federation are on sale. We estimate that about one-third of all visitors call at the lodge to obtain information—at least superficial, but in most cases very detailed information—about the walks the park has to offer and the regulations to be observed. There is also a small information kiosk in

(Photo R. F. Schloeth)



Inform and orientate

the middle of the park near Il Fuorn. There are no plans at the present time to install further information points of this kind.

2. Entrance signs

At every park entrance along the Ofenbergstrasse, there are large boards bearing the legend *Parc Naziunal* (Romansh!), legible from a great distance. They measure some 3.5 x 2 metres and are of a design that is compatible with the land-

scape. The aim is to ensure that all car drivers realise at a glance, in good time, that they are now inside the park, or leaving it, as the case may be.

3. Parking areas

Nine parking areas have been laid out inside the reserve along the Ofenbergstrasse. All of them are situated at exits from the official paths. At the other park entrances there are car-parks, most of them with buffer zones on the park fringe. The numbered parking areas along the Ofenbergstrasse and the distances to the nearest official car-park are shown in advance by P-signs. In order to prevent parking along the roadside between the parking areas, all possible stopping-places have been blocked off by means of obstructions adapted to the natural sur-

roundings (boulders, shrubs, trees, etc.). Drivers stopping elsewhere than in the parking areas provided would not be informed of the regulations applicable to visitors and would infringe them as a result (by wandering away from the paths, lighting fires, camping in unauthorised places, etc.).

4. Direction-finding boards

Our earlier notice-boards proved to have the following disadvantages: the public is no longer used to reading lengthy texts; the boards were too small and not sufficiently eye-catching; some parts of the text were misinterpreted. These older types of notice were so unsuccessful that new and more modern methods had to be sought in order to make the situation clear to all. At all National Park entrances and car-parks there are now coloured boards on large frames, two square metres in area, telling visitors about the aims of the National Park, the regulations they must observe and the local walks they can take. The most important sections of the regulations are explained pictorially in an eye-catching way, using modern graphics and symbols. Textual matter is kept as brief as possible and is in three languages.

5. Official paths

An official network of paths covering some 80 km, clearly marked by red-white-red signs, has been laid out throughout the Park. Visitors may not leave these paths for any reason whatever. There are signboards at all starting-points and junctions showing directions, destinations and walking times. These were worked out in conjunction with the Graubünden Rambling Association and correspond to Swiss standards.

6. Official rest areas

At important points and viewing places there are marked rest areas, the limits of

which are shown symbolically by yellow posts. Visitors must not go beyond these limits, as they provide enough room for the intended purpose. There are no litter bins in any of the rest areas. A sign asks visitors to take their litter away with them—an educational and practical measure which has proved on the whole successful.

7. Nature trail

As part of our nature appreciation and nature conservation education programme, an existing path has been widened to make a nature trail. Texts and pictures on more than fifty boards explain to the visitor local details of the natural environment or answer questions of a general kind. An accompanying booklet in five languages is available in the National Park lodge. The intention is to teach visitors unobtrusively to observe and appreciate nature more effectively.

8. The Cluozza log cabin

Three hours' walk from Zernez, the big log cabin of Cluozza stands in a delightful lateral valley of the Spöl. It offers board and lodging at reasonable prices for about eighty people. From here it is possible to climb Piz Quattervals (3 164m), and two paths lead to other parts of the park. The building belongs to the park and is managed by a tenant; it is normally open from 15 June until early October (depending on snow conditions).

Other measures

1. Park wardens

Our wardens are not simply guards. Part of their training is to advise the visitors, explain the natural features of the park to them, guide them along particular paths and give brief lectures. So they are not merely there to show visitors the game animals, but to interpret the whole natural scene in direct contact with the people who come to see it.

2. Guided walks

When time permits, the park wardens are available to accompany groups, rambler's clubs and school classes free of charge. The associated tourist organisations in the region of the park also arrange daily visits under the leadership of their own personnel, and announced in a printed programme. The participants pay a fee to the tourist organisation concerned.

3. Literature

Plenty of literature is available about the National Park, from the simple, cheap, popular rambler's guide to the large illustrated book, in three languages. There are also books about the historical background to the park, scientific research, naturalist activities and nature conservation. A series of eighty publications entitled *Ergebnisse der wissenschaftlichen*



Erforschung des Schweizerischen Nationalparks (Findings of scientific research in the Swiss National Park) is also obtainable. Finally, there are special maps of the entire area on every possible scale. Give-away brochures about the National Park are not envisaged.

4. Help for journalists

The management of the Swiss National Park is very willing to help in connection with serious articles and reporting, to ensure that the aims of the park are made clear and a realistic picture of the situation is presented. In this way the park authorities can sometimes prevent public misconceptions from being reinforced or inadequate information from reaching the public. Excessive or ill-informed propaganda must be prevented wherever possible, as the park is already saturated with some 250 000 visitors.

Effectiveness: short-term and long-term

The effectiveness of the measures we take can be gauged from the following indicators: the reaction of the public and the media; the number of infringements against existing park regulations; damage caused by the public to the protected natural environment; disturbance to animal and plant communities. The public's response to, and understanding of, our arrangements and rules, some of which place considerable restrictions on freedom of personal movement, are uniformly good. Despite the growth in the number of visitors, increased surveillance and greater alertness on the part of the staff have ensured a steady fall over the seasons in the number of infringements. Apart from erosion damage in the rest areas (which are so to speak sacrificed) and along some paths, damage to the natural environment is slight.

The original aim of maintaining the Swiss National Park as an integral reserve—despite its grand name—is to be pursued consistently. All the measures and arrangements made to enable the park to be visited properly and instructively are uniformly designed to protect the park from excessive or even harmful human pressures. The great and active interest of people today in the world of nature must be fitted as harmlessly as possible into the free development of nature which is our objective. That goal has been attained in spite of a huge—tenfold—increase in the number of visitors over the last twenty years. It has meant, for example, not laying out new paths, not enlarging the car-parks or adding new ones, and not relaxing the strict regulations to cope with the rising pressure of visitors. Thus the Swiss National Park has set its face against tourist development in a quantitative sense. It has however adapted well to the steep rise in nature-tourism in a qualitative way.

Encouraged by its success to date, the park will continue along its chosen route and do its utmost to preserve nature unspoilt, for the benefit not only of the present generation but also of generations to come.

R.F.S.



To inform means to educate, and thus to protect (Photo R. F. Schloeth)

Establishment of protected areas

Mario F. Broggi

It is generally accepted that establishing nature reserves is a good way to conserve endangered plant and animal species and their habitats and to preserve the variety, individuality and beauty of native wildlife. This makes the designation of nature reserves a major concern of those engaged in nature and countryside protection. It should also mean that all activities likely to destroy, damage or alter the natural environment should be banned in reserves.

This is all very well in theory, but things work out rather differently in practice. For example, if a country designates ten per cent of its total area as protected land, it certainly sounds impressive, but closer inspection of individual cases may well reveal a monocultural conifer plantation in a protected tract of carr, or large-scale recreational facilities within a reserve. There is also a certain confusion in the concepts; and nature protection does not necessarily mean the same thing in one country as in another. In densely populated countries with intensive land use, it is rare for more than one per cent of national territory to be set aside primarily for nature conservation. Even within these reserves, small as they often are, nature conservation is forced to make concessions. The regulations on what is allowed or forbidden in a particular nature reserve are in most cases the fruit of compromise between the needs of nature protection and those of the users, generally agriculture and forestry interests. They frequently contain the ominous proviso that "normal" agriculture and forestry are allowed, and thus, may in fact be totally at variance with the conservation provisions.

Moreover, many people look on nature reserves as recreational areas, expecting them to represent a better quality of nature. For these reasons the protection of nature reserves involves a never-ending battle with interests seeking material benefits. In spite of many disappointments and setbacks, committed conservationists everywhere continue to work for the creation of more nature reserves.

The need to establish the basic principles of nature protection

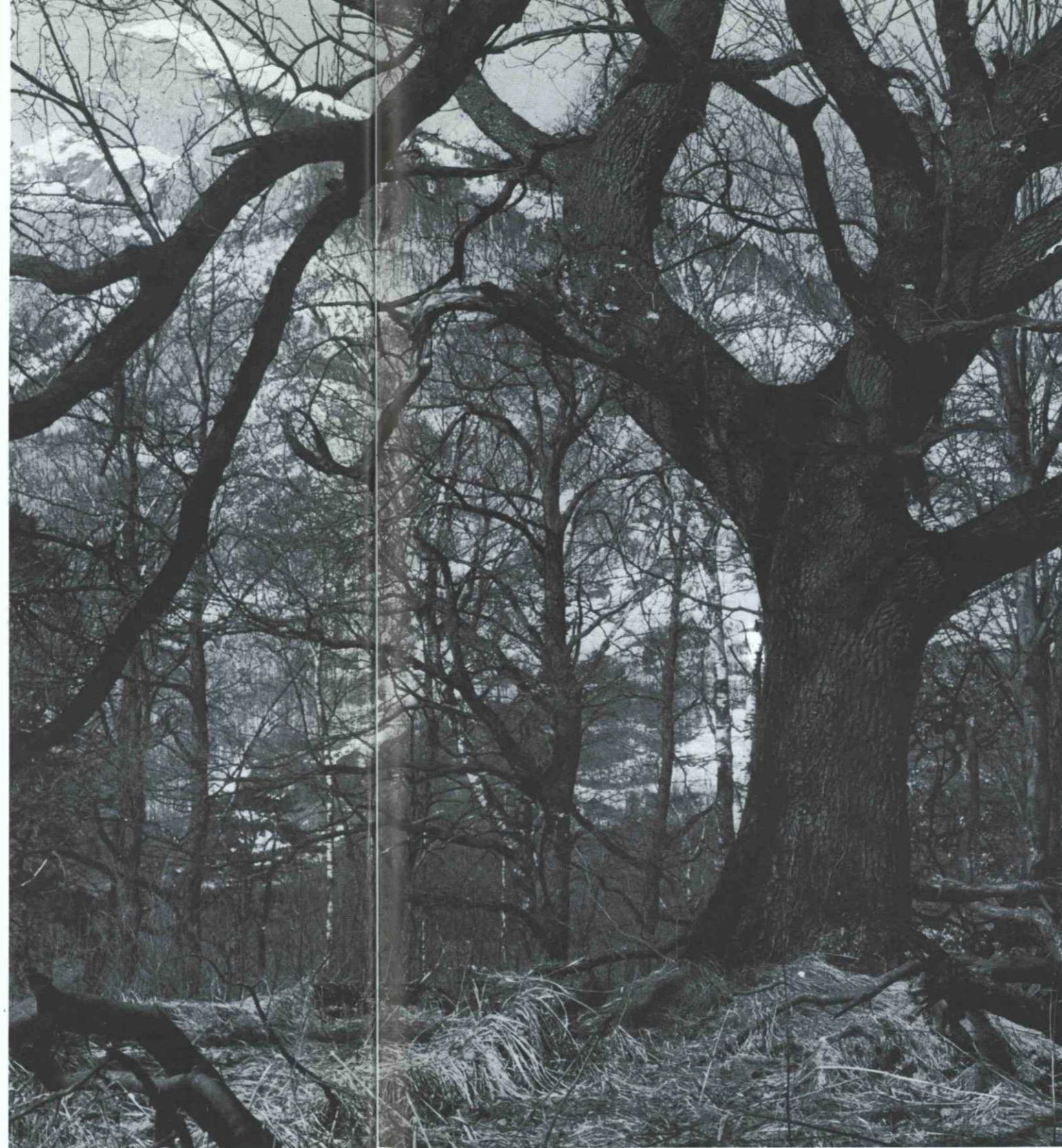
As a rule there is no systematic approach based on objective criteria when it comes to deciding which areas of a country will be turned into nature reserves. Instead the decision is often swayed by subjective considerations, such as recognition of the significance of wetlands (often coupled with a failure to recognise the importance of dry grassland communities), or by the particular applicant's skill in argument.

Nor, as far as a given country or region is concerned, is it known how many reserves of what kind are needed so as to preserve what is representative, unique or endangered in our natural environment. A great deal of basic work still has to be done on this in all countries. Important sources of information here would be landscape surveys as well as nationwide counts of bird and plant species. Further information about rare and endangered plant and animal species and their occurrence within a particular area is to be found in the Red Data Lists. Unfortunately we are hopelessly uninformed about what minimum area a species needs to survive, or what its living space requirements are. A European grid, of the kind aimed at by the Council of Europe with its biogenetic network, could well help us to carry out the most urgent tasks on an empirical basis.

Site protection as land use

Nature protection can claim to represent a form of land use. This is true not only of the small "islands" of protected countryside but of the whole landscape, whether settled or not. The degree of protection may vary, as outlined below:

1. First of all, the entire landscape is worth protecting. We must make an effort to preserve not only the few rich "Sunday-best" landscapes but also the ordinary workaday landscape. In other words, nature conservation must be integrated into any thinking about land use, becoming



(Photo H. Wenzel)

- ing "integrated" nature conservation in accordance with the principle that any given area may perform a number of land use functions at the same time.

2. Nature protection takes priority in small areas whose protected status does not exclude other forms of land use and which occur mainly as legally protected areas classified as nature parks and areas of outstanding natural beauty, and in many places also in nature reserves. They are in fact "partially protected reserves".

3. When special considerations, such as concern to maintain a very fragile ecosystem or to prevent outside interference so that an area can be used for scientific

research, lead to nature conservation being singled out as the only form of land use, other forms of land use are automatically excluded and the result is a "totally protected reserve".

While most European countries traditionally accept the need for nature reserves, there is still virtually no awareness of the importance of protecting the whole of the landscape, including the economically exploited landscape. Nature conservation ought to be taken into consideration as one aspect of multiple land use, whatever the economic activity concerned, and this should find expression in all laws affecting planning and the en-

vironment. Practical consequences would include assessment of the environmental compatibility of such schemes as the routing of highways or the consideration of water engineering projects, restoring an area's natural vegetation after industrial exploitation, and so on. Since only a small proportion of endangered plant and animal populations live within protected areas, it is of prime importance that nature conservation be considered as an integral aspect of land use over the whole of the country.

The demand for nature conservation to be given priority in certain areas

This is one of the most important demands of nature conservation. Areas in which nature protection takes precedence over other uses are already firmly enshrined in the regional planning strategies of several European countries, such as the Netherlands and Denmark. The functions of such areas are laid down before any decision is taken as to the land use within them, making them tools of national planning policy rather than of practical land use planning. Adequate data and information are essential if such areas are to form part of a coherent national ecological strategy. Within protected areas, the prime concern should be to preserve the biotope and in all cases the other possible uses should be clearly defined. If it is a question of protecting a volcanic landscape for its geomorphological importance, then it is sufficient to ban levelling and trenching; but a moorland will require more far-reaching restrictions. When conflicts of interest threaten such areas, the deciding factor should be nature conservation, while the standard process of striking a balance between conflicting interests would continue to apply elsewhere. Areas of outstanding natural beauty, which constitute the largest category of protected area, generally correspond to this concept in that nature conservation is the priority form of land use. Other forms of land use



Without appropriate care and maintenance measures, the objectives of nature reserves cannot be achieved (Photo M. F. Broggi)

are nevertheless permitted in many nature reserves, which are therefore only "partially protected sites". Frequently this represents a compromise between what is really needed and what is actually feasible, given that such areas are often in private hands. Once the area has been declared a protected site, new land uses are generally forbidden and the previous existing use continues as a permanent status quo, unless the nature protection authority acquires the land through purchase or on long lease, or redeems the existing profits or easements affecting the use of the land. It follows that most nature reserves are not in fact "fully protected sites".

The need for private initiatives

Nature conservation may be undertaken by the state or by private interests, though the latter's scope is limited to matters covered by private law. Private associations may buy up or lease property on the open market, or establish easements. Private nature conservation may serve the aims of research, education or public information. In most countries nature conservation would be unthinkable without the powerful support of the private associations and nature reserves owned by private associations and societies constitute a welcome additional contribution. A topical example in Switzerland would be the countrywide *pro natura helvetica* fund-raising campaigns which bring in millions of Swiss francs to buy and manage reserves. This kind of non-governmental nature conservation can succeed only when large numbers of nature lovers

become contributing members of the societies, thereby helping to finance protected areas.

Reserve management

All protected sites, that is, all sites where a particular situation is to be preserved or where further development of plant and animal life is to take place, need management. Management tasks include ensuring conformity with legal requirements, setting up signs, providing documentation about the area, making finance available, guarding endangered animals or plants if necessary, public relations and visitors' services, publications, inclusion in educational programmes and research in the area, as well as preparing site conservation and development programmes and putting them into practice.

Unfortunately it has to be admitted that very rarely do such management programmes exist. Yet they are not just the expression of a pious wish, but an absolute must for all nature reserves. The administrative and public relations aspects are feasible everywhere, and supervision and planning are urgently needed.

Indeed, however heretical it may sound, it would be worth considering whether funds available for nature conservation would not be better spent in management of existing reserves before any thought is given to setting up new ones, partly because today many reserves are quite unable to cope with what is required of them for lack of upkeep.

Above and beyond the need for individual reserves to be properly managed, it is also

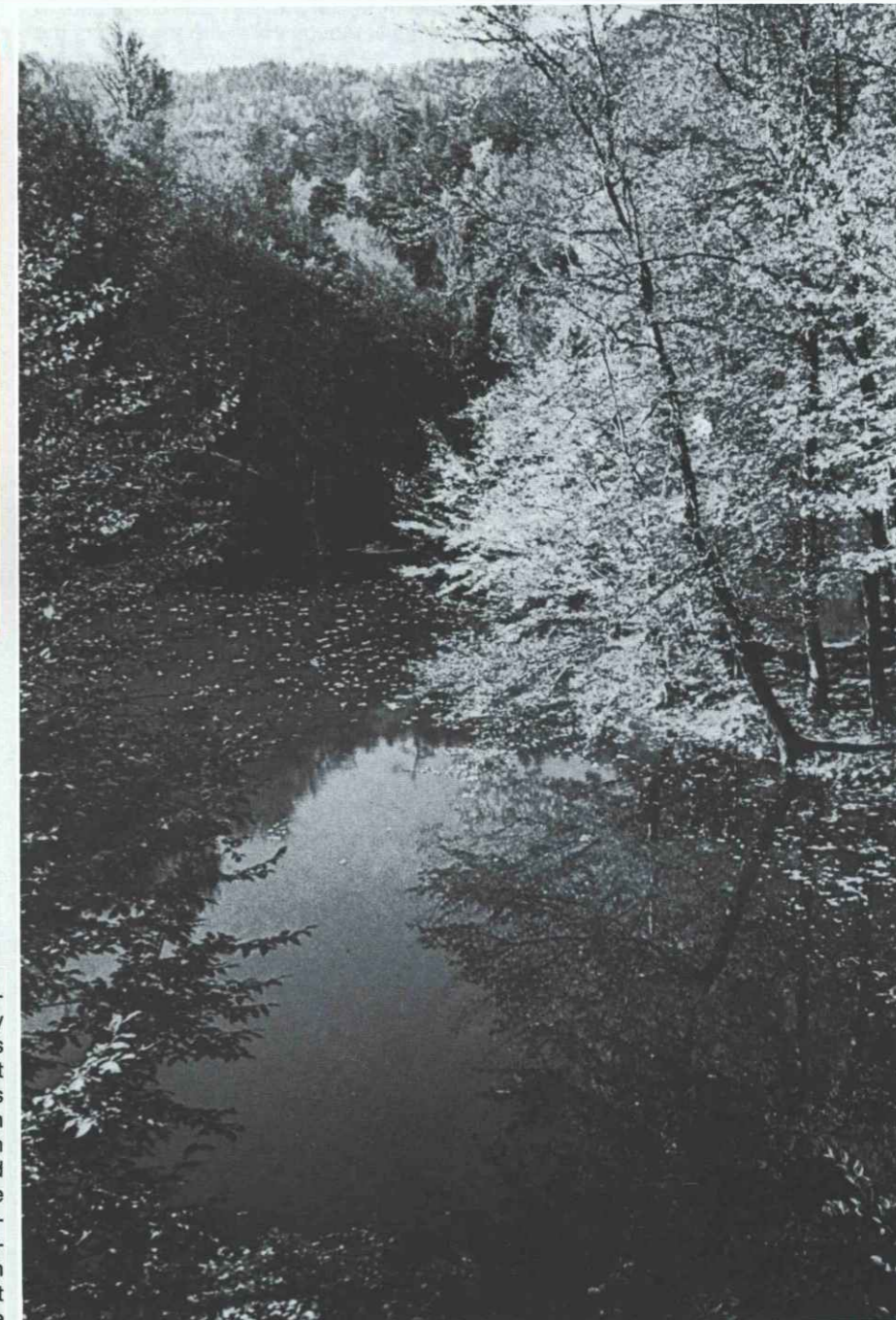
necessary, as we have already seen, for existing reserves to be integrated into an authentic nature conservation strategy which will determine the selection of further reserves, in accordance with surveys, in order to preserve the full range of biotopes. Individual countries could make a start now on examining the contribution of their existing reserves to the protection of regional ecological systems. Nature conservation research must take a far greater interest in this question.

Conclusions

Even though today we are tolerably well-informed about the lives of the other creatures which inhabit our environment, we still know frighteningly little about the interrelated systems in the natural world. One of the goals of nature conservation is to set up a supra-national network of nature reserves to include all representative and endangered ecological systems. At the same time no-one whose activities affect the landscape in any way should allow themselves to forget that the entire landscape is worthy of protection and therefore that all alterations to the landscape should be assessed as regards their environmental compatibility. There should be a closer look at the objectives and present state of existing reserves, as areas where nature conservation is the priority concern. The importance of reserves stands or falls with the way they are managed and looked after. The existing structure should be re-examined with a view to supplementing it as necessary. The Council of Europe with its twenty-one member states has an important part to play in planning and co-ordinating nature reserve policy in Europe. M.F.B.

The Seven Lakes

Tansu Gürpınar



(Photo T. Gürpınar)

The "national parks system" as an instrument for nature conservation is relatively new in Turkey. The first national park was established in 1956, but within the past twenty-five years, sixteen national parks have been established and more than thirty sites are being planned. Apart from the national parks, there are also around the country a certain number of wildlife reserves, protected forests and biogenetic reserves. There is a strong and growing awareness of nature conservation in Turkey and its implementation will benefit not only this country but also the whole biosphere.

One of Turkey's most attractive parks

The Seven Lakes National Park is situated in the western Black Sea region, where the forests, growing on rolling hills divided by deep valleys, look like green oceans stretching far away. All the year round, streams and brooks flow cool and clear at the bottom of these valleys. With a total surface of 2 019 hectares, the Seven Lakes area was granted the status of a national park in 1965. Although outside the national park all the forestland is natural and well protected, special attention has been given to the preservation of

all living species since its establishment. Access to the park is possible by a road leading from the town of Bolu.

The forests are exploited around the national park but trees are cut by a selective method which allows natural regeneration. Therefore, both the landscape and the natural composition of the forest remain unchanged. This, of course, is a positive contribution to the ecological balance of the national park.

The main reasons for establishing the Seven Lakes National Park are its natural resources and its beauty. The seven lakes scattered through forests of different

types of trees add to the charm of the park. The lakes originated from depressions at the bottom of a deep valley as a result of landslides. The lakes are at different altitudes between 870 and 740 m and are interconnected both above and below the ground. Since they originated from depressions, they are quite deep and are also renowned for trout.

Plant and animal species

The forest surrounding the lakes is comprised mainly of beech, oak, elm, alder and black pine. Sycamore trees are found



The park comprises many varieties of mushrooms (*Coprinus picaceus*) (Photo T. Gürpınar)

down along streams and limes can be seen on slopes. In the upper regions the composition of the forest changes and tall shimmering poplars, yews, Scots pines and firs replace the other species.

The most widespread type of tree in the national park is the beech. A well-grown beech forest is quite different from others, with the high column-like trunks extending towards the sky and trees spread apart at considerable distances. Branching on the trunks at lower levels is almost non-existent. The top branches overlap, thus giving the impression of a ribbed vault, but there is a feeling of space on the ground. It has even been suggested that beech forests were a source of inspiration for Gothic architecture in northern Europe where they are very common.

The national park shelters different species of deer, bears, wolves, jackals, wild cats, wild boars, otters and badgers. It is not easy to observe them as they prowl mostly at night. Birdwatchers, on the other hand, can see a variety of birds in autumn: dippers that feed on aquatic life, wood-pigeons that pick up acorns, chaffinches that hop on roadsides and

song-thrushes are the main characters in the tableau of bird life with the calls of the eagle-owl and long-eared owl echoing through the valley.

The national park attracts visitors mainly from metropolitan areas such as Ankara and Istanbul and from small towns in the vicinity, especially in summer. Several hundred visitors come at the weekend and on holidays, but this figure drops sharply on weekdays. There are a few bungalows and camping grounds for visitors who wish to spend the night in the park.

The primary organic production of the forest is very high, therefore decomposition is very active. Those trees that die become a source of shelter and food for the young, with intensive growth of bacteria, fungi and mushrooms. Animals that fight do not aim at each other's destruction, but at fulfilling their evolutionary task. Even the relationship between the largest and the smallest units is of vital importance.

The tree stretching towards the sky owes its gigantic trunk to the careful nursing it received when it was a mere seed. When fully grown, the tree is in its turn a protector, with its wide umbrella shielding the sun's harsh rays, rain and hailstorms, thus giving millions of species a chance of survival.

The national park is also a paradise for mushrooms. They can be seen in every season but winter; however, in September and October they become an integral part of the woods. Decaying trunks of fallen trees are their favourite places. But they are also common in the ground thickets of fir and beech trees. An attentive visitor can spot about fifty different species during a long walk through the woods and this figure can be doubled by careful-observation by a naturalist.

The national park is efficiently preserved and its biogenetic character is evident. Studies are proceeding towards a request for the award of the European Diploma of the Council of Europe to the Seven Lakes National Park of Turkey which would certainly put a crown on this splendid area.

T.G.

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Muscardinus avellanarius (Photo G. Lacoumette)

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