IUCN Publications new scries N°5

Project Mar

The conservation and management
of temperate marshes, bogs
and other wetlands

SECOND VOLUME

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des marécages, tourbières
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List of European and North African Wetlands
of International Importance

Liste des zones humides d'importance internationale
en Europe et dans le Maghreb

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en zone tempérée

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Sponsored by IUCN, ICBP and IWRB

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Sous les auspices de l'UICN, du CIPO et du BIRS

IUCN Publications new scries **N° 5**

International Union for the Conservation of Nature
and Natural Resources
International Council for Bird Preservation
International Wildfowl Research Bureau

PROJECT MAR
for the conservation and management
of temperate wetlands

List of European and North African wetlands of international importance

Union Internationale pour la Conservation de la Nature
et de ses Ressources
Conseil International pour la Préservation des Oiseaux
Bureau International de Recherches sur la Sauvagine

PROJET MAR
pour la conservation et l'aménagement des zones humides tempérées

Liste des zones humides d'importance internationale en Europe et dans le Maghreb

1965

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INTRODUCTION

At the MAR conference, organised jointly by the International Union for Conservation of Nature, the International Council for Bird Preservation and the International Wildfowl Research Bureau, and held in les Saintes-Maries-de-la-Mer, France, from 12th-16th November 1962, the following recommendation was adopted unanimously :

Whereas in temperate regions drainage of wetlands is proceeding at an increasing rate and without reference to their diverse values, the MAR conference on temperate wetlands, called by IUCN, ICBP and IWRB, recommends that IUCN compile a list, in accordance with an internationally agreed classification, of European and North African wetlands of international importance, together with detailed information on these areas ; recommends that the list be placed at the disposal of conservationists and those responsible for development schemes;
and further recommends that this list may be considered as a foundation for an international convention on wetlands.

The present publication is the first step to the fulfilment of this recommendation.

1. *Purpose of the list*

It is hoped that this list will be a major contribution towards the conservation of the more important among Europe's still existing wetlands.

There is ample justification for regarding their conservation as an international problem. Areas of such unique scientific interest have an importance reaching far beyond the limits of the countries themselves, and they can provide opportunities for research which may lead to results of world wide value. They can also provide important stations for migratory birds: a common resource of the countries where they breed, winter or pass over. All these countries should therefore share an adequate part not only of the profit they take from the resource, but also of the responsibilities for its conservation.

International organisations with their limited resources can only act efficiently for the conservation of particular places if they can concentrate on the most important ones, and such a concentration of action is possible only if it can be based on a largely agreed list.

This does not mean, however, that only the wetlands listed here need conservation. There may be strong national and local arguments in favour of the conservation of many wetlands not included in this publication. Some

European countries have already established their own inventories of places in need of protection and, in these cases, the wetlands listed here figure in the national lists. This list must only be accepted as a *minimum* list of *internationally important* areas.

The international organisations propose that in all the sites listed here and which are not yet adequately protected, representative reserves should be established to guarantee the future of the essential habitats and plant and animal populations.

2. *Basic criteria used for classification*

It was decided at the MAR conference that the first list should be based primarily on ornithological data, though a second list, based on all zoological and botanical aspects, should be prepared as soon as sufficient information was available. The use of ornithological data mainly is partly a matter of expediency in that there is already available a considerable amount of information on the ecology of birds in relation to wetlands. A rich and varied bird population including rare or specialised species can be an indication of general ecological value, and has been considered as such with other interests e.g. botanical, hydrological, geological. Also, because of their migrations, birds pose more problems on the international scale than most animals and plants.

The basic criterion was therefore, that those places were listed which are of the highest importance for the conservation of European wetland bird populations at their present level. This seems a somewhat vague criterion and it would be desirable to give it more precision, e.g. in terms of productivity of the habitat for birds or of sizes of populations. However, this was only possible in a few cases for the necessary information is not yet available. Therefore, the best guarantee of the reliability of this list seems to be the extensive consultation of as many experts as possible having the best knowledge of wetlands and their bird populations in their countries. Indeed, about 500 experts over the whole of Europe were approached and many of these consulted others before they sent back their comments. The help of all these experts is most gratefully acknowledged.

In preparing the list, all wetland birds have been considered, but special emphasis has been placed on the ecological requirements of one order, the Anseriformes, mainly because of their obvious importance but also because much information has already been assembled.

The geographical range of the list covers all European countries, except Albania and parts of the USSR from where not enough material was available. Outside Europe, the Maghrebian countries, Morocco, Algeria and Tunisia, were included and, with a preliminary inventory, the Asiatic part of Turkey.

For practical reasons, the number of wetlands listed had to be restricted to about 200 for Europe without the USSR, which means about one per 28,000 sq/km (one per 10,600 sq. miles). To include *all* wetlands in need of protection would have increased the list to a level which would no longer allow efficient action by the international bodies.

There cannot, of course, be complete equivalence in terms of bird population among wetlands listed in one country or in others. Relatively more

places with respect to the size of the country, have been listed in countries with a high percentage of wetlands, as e.g. the Netherlands and Denmark. On the other hand, where only few and minor wetlands remain, some areas of medium size and bird populations have been listed which might not have been considered for a country with more wetlands.

3. *Other problems*

One of the main difficulties has been the isolation of a particular area from its surroundings. There are no hard and fast rules which can be applied by which the limitations of a wetland or wetland complex can be ascertained. The need for protective zones around a preserved area is well known. The problem of how large the whole area should be is made more acute by the behaviour of certain birds. For instance, many geese choose one type of area in which to feed, and a completely different habitat in which to rest. To protect the species, both types of habitat must be preserved. In some areas therefore the surface area given encompasses a very large area, and it is the detailed study which has to follow which will show the limits which have to be given for the establishment of reserves.

It was decided by the IUCN ecological commission that in general, peatlands which have their own rather specialised problems, should not be included in this list, and that they would be considered in a separate list at a later date. However, some peatland complexes are of particular value for wetland birds. Moreover, it has not been possible in many cases to separate peatlands from the wetland complex. In both cases, peatlands have therefore been included where necessary.

The complexity of wetlands in Sweden, Norway, Iceland and Finland is such that it has not been possible to compile a list on the same basis as in other countries. The number of wetlands and their wide distribution make it impossible to pinpoint particular areas as being of greater international importance than other areas. A compromise has been reached in which certain areas of known general or ornithological importance have been listed, although the exclusion of other areas does not necessarily mean that they are not of nearly equal importance and need protection.

Mediterranean countries undoubtedly have sites of extreme importance, but there is a considerable lack of information on the relative values of their wetlands, especially for wintering and migrating birds. Drainage schemes and industrial and urban expansion are progressing at a rapid rate and the situation is quickly changing. It is vital that more information is forthcoming before many of these wetlands are irretrievably lost. Four southern European expeditions organised by IUCN and IWRB and financed by the WWF and the " Basler Stiftung für Biologische Forschung " occurred in the winters of 1962/1963 and 1963/1964. Their purpose was to collect information on the relative values of wetlands in Portugal, Morocco, Greece and Jugoslavia. Of necessity these expeditions were restricted to the winter months and were of short duration, so that there are still many aspects on which there is little or no information.

There has been no information from Albania, and little from Turkey. What recent information there is from Turkey suggests that there are a number of extremely important wetland areas as breeding, wintering and migrating localities.

There are a number of other countries in Europe from which only very insufficient information has been forthcoming, but it is hoped that the production of this list will invoke more interest and elicit more research and knowledge.

The published list, of necessity, contains only part of the information collected on each site, and extra information has been filed at the IWRB headquarters. These files will be enlarged and kept up-to-date, and are always available for consultation. Comments on the list will be welcomed from any interested person.

4. *Form taken*

The form in which the list is presented has been designed to give the maximum amount of information in the shortest possible space.

The lists of sites for each country have been divided into A and B categories : — A sites are those which are considered to be of major importance for the conservation of European wetland bird populations, and B sites are those of still vital importance for migratory birds and requiring conservation, although they do not usually harbour such huge concentrations or such rare species of birds as occur in the A sites.

a) The map references show the degrees and minutes of latitude and longitude, though in many cases, because of the difficulty in accurately defining the limitation of an area, these are given as approximations.

b) The area involved has been usually given in hectares, though again they are sometimes merely approximations. Authorities within the country often differ on the extent of the area involved, maps also differ, and the situation may have changed or be changing, e.g. drainage schemes in progress.

c) The ecological categories, numbered 1 to 8 are those which were accepted by a committee of international experts. They include every kind of shallow marine, coastal or inland wetland between a depth of about 6 m and just wet ground without permanent surface water, not truly waterlogged fens and bogs. Deeper waters are not considered as they are in less danger of being drained. They are as follows :

1. *Coastal Waters*: These are part of the sea. They include :
   a) Intertidal zones (determined by high tide). These occur on the North Sea and the Atlantic-coast-lines.
   b) Shallow zones of tideless Seas. Regions less than 6 m deep in the Baltic, Mediterranean, Black and Caspian Seas.
   Their bottom may be : mud - sand - shingle - rock - artificial.
2. *Shallow coastal lagoons* : These are free water surfaces on sea level and with one or several permanent connections with the sea which are relatively narrow as compared to the size of the lagoon. They include :

a) Salt lagoons (or salty parts of lagoons).

b) Brackish lagoons (or brackish parts of lagoons).

c) Fresh lagoons (or fresh parts of lagoons).

d) Saline exploitations.

3. *Coastal Marshes:* These are permanently or temporarily waterlogged sites covered with emergent vegetation and with some relation to the sea. As it would be quite difficult to draw a natural limit between coastal and inland marshes, it was decided to call all marshes within 10 km of the sea-shore or tidal-water " coastal marshes." They may be : permanent - seasonal; salt - brackish - fresh; covered by tide: regularly - irregularly - not at all.

4. *Shallow inland salt, brackish or alkali water:* These occur chiefly around the Mediterranean and in south-eastern Europe. They may be : salt - brackish - alkali; seasonal - permanent; marsh (with emergent vegetation) - lake (without emergent vegetation).

5. *Shallow static inland fresh-water* : This concerns only true aquatic habitat with or without emergent vegetation. Also canals which are predominantly static. They may be :

   a) permanent:
   - — Situation : upland - lowland; urban - rural
   - — Bottom : mud - sand - shingle - rock
   - — Banks and whole lake (or pond) : natural - artificial (dams, fish-ponds, farm-ponds, some sewage farms etc.)
   - — Productivity : eutrophic - oligotrophic

   b) temporary : regularly flooded (some sewage farms etc.); irregularly flooded (some fish-ponds etc.).

6. *Shallow flowing inland fresh-water* : shallow surfaces in rivers or canals which are more flowing than static (irrigation, drainage etc.). Banks and bottom may be : mud - sand - shingle - rock - artificial.

7. *Inland freshwater mineral-marshes*: These are permanently or temporarily waterlogged sites covered with emergent vegetation and a mineral soil (inorganic, no peat). They may be isolated marshes or marshy belts of deeper lakes. They include :

   a) Swamp (waterlogged during most of vegetation season).

   b) Moist habitat (temporarily waterlogged, generally only moist during most of vegetation season).

   Both subcategories may be specified according to the following criteria : trees - thicket - meadow (reed, sedge, grasses); isolated marshes - belts of lakes; upland - lowland.

8. *Peatland* (tourbiere) (Moore)

   a) Alkaline (calcareous) or neutral fens (Niedermoor).

   b) Acid minerotrophic.

c) Acid, essentially ombrotrophic *bogs* (raised and blanket bogs, Hochmoor).

d) Mixed (in many northern peat complexes).

Obviously many wetlands are composed of more than one of the above ecological categories, and where necessary each category has been included.

d) and ***e)*** A general statement on the area followed by a short description of its ornithological interests. The need for brevity is obvious, and more details can be found in the files at the IWRB or IUCN.

The nomenclature of all birds follows Peterson, Mountfort and Hollom in the *Field Guide to the Birds of Britain and Europe* (1954).

In general place names are the same as those given in the *Times Atlas of the World* (1955, 1956 and 1959).

Abbreviations : c. or ca., circa; ha, hectare; max., maximum; m, metres; prs., pairs; km, kilometres; kg, kilograms.

Acknowledgments

P.J.S. Olney was seconded from the Wildfowl Trust, whilst working under a Nature Conservancy grant, and working facilities were provided by the Station Biologique de la Tour du Valat — acknowledgment and gratitude is paid to these organisations.

The lists for Morocco, Algeria and Tunesia were compiled by J. Blondel.

It is impossible to acknowledge individually all those correspondents who have helped in the compilation of this list. To all we are most grateful.

INTRODUCTION

Au cours de la conférence MAR, organisée conjointement par l'Union Internationale pour la Conservation de la Nature, le Conseil International pour la Préservation des Oiseaux et le Bureau International de Recherches sur la Sauvagine, qui s'est tenue aux Saintes-Maries-de-la-Mer, France, du 12 au 16 novembre 1962, la recommandation suivante fut adoptée à l'unanimité :

Attendu que dans les régions tempérées l'assèchement des zones humides se poursuit à un rythme accéléré, et ceci sans qu'il soit tenu compte des multiples intérêts qu'elles présentent, la Conférence MAR sur les zones humides des pays tempérés, convoquée par l'UICN, le CIPO et le BIRS, recommande que l'UICN établisse, selon une classification adoptée internationalement, une liste des zones humides européennes et nord-africaines d'importance internationale, cette liste comprenant des renseignements détaillés sur ces zones ; elle recommande que cette liste soit mise à la disposition des protecteurs de la nature et des responsables des plans de mise en valeur ;
elle recommande également que cette liste soit considérée comme la base d'une convention internationale sur les zones humides.

La présente publication est un premier pas vers l'accomplissement de cette recommandation.

1. *But de la liste*

Cette liste est destinée à contribuer de façon efficace à la conservation des plus importantes zones humides qui subsistent en Europe.

Il convient de considérer cette conservation comme un problème international. L'importance de ces milieux, d'un intérêt scientifique unique, va certainement au-delà des limites des divers pays. Ces habitats permettent en effet des études dont les résultats peuvent revêtir une valeur mondiale. Ce sont par ailleurs d'importantes stations pour les oiseaux migrateurs, ces derniers étant une ressource commune des pays de nidification, de passage et d'hivernage. En conséquence, tous ces pays devraient partager, dans une commune mesure, non seulement le bénéfice de cette ressource, mais également les responsabilités de sa conservation.

Les organismes internationaux, ne disposant que de moyens limités, ne peuvent agir efficacement pour la conservation de certaines zones que s'il leur est possible de concentrer leur action sur les plus importantes, et la réalisation d'une telle concentration n'est possible que si elle est effectuée d'après une liste adoptée par la plus grande majorité des experts.

Ceci ne saurait évidemment signifier que seules les zones humides de cette liste doivent être conservées. Beaucoup de zones n'y figurant pas sont, pour des raisons locales ou nationales, également dignes d'être conservées. Certains pays européens ont déjà procédé à l'inventaire des zones à conserver de leur territoire et, dans ces cas-là, les zones humides classées dans la présente liste figurent en bonne place dans les inventaires nationaux. Cette liste ne saurait donc présenter autre chose qu'une sélection très restrictive des régions ayant le plus grand intérêt international.

Afin d'assurer l'avenir des habitats caractéristiques, de la flore et de la faune des zones sélectionnées, les organismes internationaux proposent que, dans toute zone ne faisant pas actuellement l'objet d'une protection suffisante, des réserves satisfaisantes soient constituées.

2. *Critères de classification*

Au cours de la Conférence MAR il a été décidé que la première liste à établir se baserait avant tout sur des données Ornithologiques, avant qu'une seconde liste, basée sur tous les aspects zoologiques et botaniques, soit établie dès que l'on disposerait des informations nécessaires. L'utilisation surtout de données Ornithologiques constitue une solution de première urgence car seulement pour les oiseaux d'assez nombreuses données sur leur écologie en relation avec les milieux humides étaient à la disposition des auteurs. Une avifaune riche et variée qui comprend des espèces rares ou spécialisées est souvent l'indication d'une valeur écologique générale et a été considéré comme telle à titre équivalent avec d'autres intérêts d'ordre botanique, hydrologique, géologique, etc. Du fait de leur migration, les oiseaux posent également davantage de problèmes à l'échelon international que la plupart des autres animaux et des plantes.

C'est pourquoi le critère de base pour le choix des régions à inclure dans la liste a été leur importance pour la conservation des populations européennes d'oiseaux des milieux humides à leur niveau actuel. Ce critère à lui seul peut paraître un peu vague et demander des précisions en termes de productivité biologique de l'habitat au profit des oiseaux ou en effectifs des populations aviennes. Cependant, de telles précisions n'ont pu être obtenues que dans un nombre limité de cas, car ces diverses données ne sont pas encore connues. La meilleure garantie, en ce qui concerne la valeur de cette liste, semble être la consultation effectuée d'autant d'experts que possible parmi les mieux qualifiés de leur pays dans le domaine des zones humides et de leurs populations d'oiseaux. En fait, dans l'ensemble des pays européens, près de 500 experts furent consultés, dont plusieurs se mirent en rapport avec d'autres avant de nous faire part de leurs commentaires. Nous sommes fort reconnaissants à tous ces experts d'avoir bien voulu nous prêter leur concours.

Lors de la préparation de cette liste, tous les oiseaux des zones humides ont été pris en considération, mais il a été apporté un soin tout particulier aux besoins écologiques d'un ordre, les Ansériformes, du fait de leur importance évidente, mais également parce que de nombreuses informations ont déjà pu être recueillies à leur sujet.

L'étendue géographique de la liste couvre tous les pays européens, sauf l'Albanie et l'URSS, pour lesquels les informations recueillies n'étaient pas

suffisantes. En dehors de l'Europe, les pays du Maghreb : le Maroc, l'Algérie et la Tunisie ont été inclus et, avec un inventaire provisoire, la partie asiatique de la Turquie.

Pour des raisons de commodité, le nombre des zones humides indiquées a été limité à environ 200 pour les pays européens, hormis la Russie, ce qui correspond environ à une zone pour 28.000 km^2. Cette restriction est susceptible de décevoir certains lecteurs qui ne retrouvent pas ici toutes les zones humides revêtant une importance considérable. Leur mention aurait cependant accru le nombre des zones humides de la liste de telle sorte qu'une action efficace de la part des organismes internationaux aurait été compromise.

D'un pays à l'autre il ne peut évidemment y avoir équivalence complète des effectifs d'oiseaux habitant les zones humides retenues dans la liste. Relativement plus de zones ont été mentionnées — par rapport à la superficie du territoire — pour les pays possédant beaucoup de régions humides, tels que les Pays-Bas et le Danemark. Par contre, pour les pays où seules quelques zones humides d'importance secondaire subsistent, certaines régions de superficie restreinte qui ne retiennent que des populations d'oiseaux moyennes ont été prises en considération, alors que l'on en aurait pas tenu compte ailleurs.

3. *Autres problèmes*

L'une des difficultés principales a été la délimitation des zones. En effet, il n'existe pas de règles fixes permettant de délimiter un marais ou une région marécageuse. Le besoin de zones protectives autour d'une région protégée est bien connu. Le comportement de certains oiseaux rend plus difficile encore la délimitation de la région à protéger. A titre d'exemple, de nombreuses oies choisissent un endroit déterminé pour se nourrir et un habitat totalement différent pour se reposer. Afin de protéger l'espèce, les deux types d'habitats doivent donc être protégés. Ceci explique le fait que la superficie des zones portées sur la liste est généralement assez importante et l'étude détaillée qui sera faite ultérieurement devra indiquer les limites dont il faudra tenir compte pour l'établissement de réserves.

La commission d'écologie de l'UICN a décidé que, d'une manière générale, les tourbières ayant leurs problèmes particuliers ne seraient pas incluses dans cette liste, mais qu'elles feraient l'objet d'une liste séparée qui serait établie ultérieurement. Cependant, certaines régions à tourbières sont d'une valeur particulière pour les oiseaux des zones humides. De plus, dans de nombreux cas, il n'a pas été possible de séparer les tourbières des zones marécageuses. C'est pourquoi elles ont été incluses lorsque c'était nécessaire pour l'une ou l'autre de ces deux raisons.

En ce qui concerne la Finlande, la Suède, la Norvège et l'Islande, la complexité des zones humides est telle qu'il n'a pas été possible d'en établir la liste en se basant sur les mêmes critères que pour les autres pays. Le nombre de ces zones et leur distribution extensive ne permettent pas d'en sélectionner un nombre restreint qui serait d'une importance internationale nettement plus grande que d'autres. Un compromis a été adopté par lequel certaines régions d'importance générale ou Ornithologique bien connue ont été mentionnées, ce

qui ne signifie pas que les régions non indiquées ne revêtent pas une importance internationale et qu'elles ne soient pas dignes de protection.

Les pays méditerranéens possèdent des 2ones de très grande importance, mais on manque encore de renseignements quant aux valeurs relatives, en particulier pour les oiseaux hivernants et migrateurs. Les projets d'assèchement, ainsi que le développement industriel et urbain, progressent rapidement, et la situation se transforme en conséquence. Il est donc d'importance vitale que davantage d'informations puissent être recueillies avant que beaucoup parmi ces zones humides ne soient irrémédiablement perdues. Quatre expéditions organisées par l'UICN et le BIRS et financées par le WWF et la « Basler Stiftung für Biologische Forschung », ont été effectuées au cours des hivers 1962/1963 et 1963/1964. Elles avaient pour but de recueillir des informations sur la valeur relative des milieux humides du Portugal, du Maroc, de la Grèce et de la Yougoslavie. Par nécessité, ces expéditions étaient limitées à la période d'hiver et d'une durée assez courte, ce qui explique qu'il subsiste encore beaucoup de lacunes dans les informations que nous possédons sur certains aspects de la question.

En ce qui concerne l'Albanie, aucune information n'a pu être obtenue. Sur la Turquie, les renseignements sont restés très sommaires. Ils permettent néanmoins d'assurer qu'il existe dans ce pays certaines zones marécageuses d'extrême importance, aussi bien pour la nidification que pour l'hivernage et les migrations.

Pour certains autres pays européens également, les indications obtenues sont peu satisfaisantes, mais l'on espère que la publication de cette liste suscitera des recherches qui combleront les lacunes de nos connaissances.

La liste ne contient qu'une partie des renseignements recueillis sur chaque région, mais une documentation plus complète est conservée dans les dossiers déposés au siège du BIRS. Ces dossiers qui seront complétés et tenus à jour peuvent être consultés à tout moment. Tout commentaire que la liste pourrait susciter sera accueilli avec intérêt.

4. *Présentation*

La liste est présentée de façon à donner le maximum d'informations dans l'espace le plus restreint possible.

Les lieux inventoriés dans cette liste ont été divisés en deux catégories. La catégorie A comprend les régions considérées comme ayant des fonctions essentielles pour la conservation des populations d'oiseaux des zones humides européennes, et la catégorie B réunit des régions d'importance vitale également, mais qui, en général, n'abritent pas de concentrations d'oiseaux aussi importantes ni des espèces aussi rares que celles de la catégorie A.

a) Les coordonnées indiquées pour chaque lieu représentent les degrés et minutes de latitude et de longitude, bien que souvent, en raison de la difficulté à définir exactement les limites d'une région, ces renseignements ne soient qu'approximatifs.

b) La superficie des régions représentées est généralement indiquée en hectares, bien que, là encore, il ne s'agisse dans bien des cas que d'approximations. Les experts ne sont souvent pas d'accord sur les limites, les indications varient également selon les cartes et les régions peuvent être en cours d'évolution, à la suite par exemple de l'exécution de projets de drainage.

c) Les catégories écologiques numérotées de 1 à 8 sont celles qui ont été acceptées par un comité d'experts internationaux. Elles comprennent tous les milieux aquatiques, aussi bien marins que côtiers ou continentaux, pour autant qu'ils soient de faible profondeur; partant de terres temporairement inondées et de tourbières tout juste imbibées, sans surface d'eau permanente, elles vont jusqu'aux lacs et étangs d'une profondeur n'excédant pas 6 m. Les eaux plus profondes ne sont pas considérées car elles ne paraissent pas menacées par des projets de drainage. Il s'agit des catégories suivantes :

1. *Eaux côtières* : Cette catégorie comporte les parties côtières peu profondes de la mer. On peut distinguer :

   a) zones découvertes à marée basse;

   b) zones peu profondes en mer sans marées.

   nature des fonds peut être : vase - sable - galets - rochers.

2. *Lagunes côtières* : Il s'agit ici de surfaces d'eau situées approximativement au niveau de la mer, ayant une ou plusieurs communications avec celle-ci, communications relativement étroites par rapport à la surface de la lagune.

   Elles comprennent :

   a) lagunes salées (ou parties salées de lagunes);

   b) lagunes saumâtres (ou parties saumâtres de lagunes);

   c) lagunes douces (ou parties douces de lagunes);

   d) salins, marais salants.

3. *Marais côtiers* : ceux-ci sont des marais couverts d'eau temporairement ou en permanence, à végétation émergente subissant quelque influence de la mer. Comme il est souvent difficile de distinguer les marais côtiers des marais continentaux, il a été décidé d'appeler « côtiers » tous les marais situés à moins de 10 km des eaux marines à marée haute. Ils peuvent être : permanents - saisonniers; salés - saumâtres - doux; atteints par les marées : régulièrement - irrégulièrement - jamais.

4. *Eaux continentales salées, saumâtres ou alcalines:*

   Comprennent : eaux salées - saumâtres - alcalines ; saisonnières - permanentes ; marais (à végétation émergente) - étangs (sans végétation émergente).

5. *Eaux continentales douces stagnantes, peu profondes:*

Cette catégorie comprend les lacs et étangs à surface d'eau ouverte avec ou sans végétation émergente. Les canaux à eau stagnante doivent également être classés ici. Il peut s'agir :

a) d'eau permanente :
- — situation : montagne - plaine; urbaine - rurale;
- — fond : vase - sable - galets - roches ;
- — origine : naturelle - artificielle (barrages de retenues, pisciculture, mares de fermes, bassins d'épuration, etc.);
- — rives : naturelles - artificielles ;
- — productivité : eutrophe (eau peu transparente, gris-verdâtre) - oligotrophe (eau transparente, bleue).

d'eau temporaire : submersion à intervalles réguliers (qq. bassins d'épuration p. ex.);
submersion à intervalles irréguliers (qq. étangs piscicoles p. ex.).

6. *Eaux continentales douces, courantes, peu profondes :* Surfaces d'eau peu profondes dans les rivières et fleuves. Le fond et les rives peuvent être : vase - sable - galets - roches - artificiels.

7. *Marais continentaux* : Cette catégorie comprend les marais à sol non tourbeux (= inorganique, minéral). Il peut s'agir aussi bien de marais isolés que de ceintures marécageuses autour d'étangs et de lacs. On peut distinguer :

a) Les marais entièrement inondés pendant au moins la plus grande partie de la saison végétative.

b) Les marais inondés temporairement, généralement seulement humides pendant la plus grande partie de la saison végétative. Dans les deux catégories, ils se distinguent par :
le couvert : arbres - bosquets - « prairies » (roseaux, joncs, graminées, etc.) - marais isolés - ceintures de lacs ou d'étangs ;
la situation : en montagne - en plaine.

8. *Tourbières* : d'après le chimisme du milieu, on distingue :

a) les tourbières alcalines (calcaires) ou neutres (Niedermoor) ;

b) les tourbières acides minérotrophiques ;

c) les tourbières acides, essentiellement ombrotrophiques (Hochmoor) ;

d) les tourbières mixtes.

Il est évident que de nombreux marais sont composés de plusieurs des catégories écologiques ci-dessus, ce dont il a fallu tenir compte lors de l'établissement de la liste.

d) et *e)* Une description générale de la région, suivie d'une brève analyse de son intérêt Ornithologique. Ces renseignements sont évidemment succincts et davantage de détails peuvent être obtenus en consultant les dossiers du BIRS ou de l'UICN.

La nomenclature de tous les oiseaux est faite d'après le *Guide des Oiseaux d'Europe* de Peterson, Mountfort et Hollom (1954).

Les noms de localités sont en général ceux indiqués dans le *Times Atlas of the World* (1955, 1956 et 1959).

Abréviations : c. ou ca., circa; ha, hectare; max., maximum; m, mètres; prs., couples; km, kilomètres, kg, kilogrammes.

Remerciements

P.J.S. Olney fut secondé par le Wildfowl Trust tout en étant boursier de la Nature Conservancy. La Station Biologique de la Tour du Valat lui fournit le matériel et les locaux de travail. Nous sommes reconnaissants à ces organismes que nous remercions bien sincèrement.

Les listes pour le Maroc, l'Algérie et la Tunisie ont été établies par J. Blondel.

Il est impossible de remercier individuellement tous ceux qui ont contribué à la préparation de cette liste. Nous exprimons à tous notre vive gratitude.

ALBANIA

There is insufficient information at the moment on which to base a classification.

ALGÉRIE (voir carte n° 10, page 102)

CATÉGORIE A.

1. *Marais de la Macta*

a) 35° 45'N. 0° 05' W.

b) 3000 à 15.000 ha suivant l'état des eaux.

c) 3. 5. 6.

d) Marais saumâtres séparés de la mer par une ligne de dunes. Abondante flore phanérogamique.

e) Intéressant lieu de reproduction pour : *Podiceps ruficollis, Ardea purpurea, Ardeola ralloides, Nycticorax nycticorax, Anas platyrhynchos, A. angustirostris, Recurvirostra avosetta, Himantopus himantopus.* Les marais sont en outre un excellent lieu de passage pour de nombreux Anatidés, Limicoles et passereaux.
Les passages de *Chlidonias niger* et *Ch. leucopterus* peuvent être spectaculaires. *Phoenicopterus ruber* y est fréquent.

CATÉGORIE B.

1. *Lac Oubeira et lac Mellah*

a) 36° 53' N. 8° 10' E.

b) 2800 ha + 1100 ha.

c) 5. 7. + 2. 3.

d) Ce sont deux zones humides très voisines mais de caractère entièrement différent. Le lac Oubeira n'a aucune communication avec la mer, c'est un marais doux à forte végétation de ceinture alors que le lac Mellah est une lagune salée comportant d'abondants herbiers de *Ruppia.*

e) Ces deux milieux sont d'excellentes zones d'hivernage et de passage pour les Anatidés et Limicoles.

2. *Marais de Fetzara*

a) 36°53'N. 7° 30' E.

b) Superficie variable, max. = 15.000 ha.

c) 5. 7.

d) Ces marais sont les vestiges de l'ancien lac de Fetzara aujourd'hui asséché. Un oued temporaire assure la submersion du marais en hiver.

e) Ayant perdu depuis l'assèchement du lac la majeure partie de leur intérêt, les marais sont probablement encore fréquentés en hiver par de bonnes populations migratrices et hivernantes d'Anatidés, Ardéidés, Limicoles, etc.

3. *Complexe du Chott Hodna*

a) 35° 25' N. 4° 30' E.

b) 110.000 à 120.000 ha.

c) 4.

d) Le Chott n'est inondé qu'en hiver. Les rives marécageuses portent une croûte de sel de 3 à 5 cm. Légère végétation halophile, mais flore phanérogamique représentée, parfois abondamment, autour des sources.

e) Milieu classé en raison de la reproduction déjà constatée de *Phasnicopterusruber.*
Passages probablement abondants de Limicoles et peut-être d'Anatidés comme sur tous les chotts des Hauts Plateaux du Maghreb.

4. *Basse vallée de l'Oued El Kébir*

a) 36° 25' N. 6° 05' E.

b) ?

c) 2. 3.

d) Zone lagunaire dans les derniers km de l'oued.

e) Important lieu de passage pour les Anatidés et Limicoles.

Note : L'inventaire des zones humides d'Algérie est tout à fait incomplet et nécessiterait une révision ultérieure après prospection sur place des différents milieux les plus importants.

AUSTRIA (see maps nrs. 6, 9, pages 98, 101)

CATEGORY A.

1. *Neusiedler See and Seewinkel*

a) 47° 40' - 58' N. 16° 40' - 17° 00' E.

b) Neusiedler See : lake area c. 32,000 ha, open water c. 18,000 ha; Seewinkel : c. 80 alkaline ponds (" Lacken ").

e) 4. 5. 7.

d) One of the most important wetland areas in Central Europe. The Neusiedler See is a shallow freshwater lake with a broad (up to 6 km wide) *Phragmitetum* belt. The alkaline ponds of the Seewinkel have an unparalleled hydrochemical diversity with unique conditions for the flora and fauna. They are however greatly endangered by increasing drainage and urbanisation.

e) 280 bird species recorded. In the reedbelt of the lake big colonies of breeding birds, the most spectacular of which are *Ardea purpurea, Egretta alba* and *Platalea leucorodia.* Around the lake, and especially in the Seewinkel important breeding grounds of Anatidae, Rallidae, Laridae and waders, notably *Anser anser, Anas platyrhynchos, A. querquedula, A. strepera, Aythya nyroca, Charadrius alexandrinus, Limosa limosa, Tringa totanus, Recurvirostra avosetta* (c. 50 prs.) *Burhinus oedicnemus, Larus ridibundus, Sterna hirundo.*

Moulting area for *Anas strepera, A. acuta, A. clypeata, Anser anser* and others, and major autumn and winter quarters for geese (sometimes over 100,000; average peak 30,000 *Anser albifrons,* 10,000 *A. fabalis,* 6,000 *A. anser)* and ducks (average peak 10,000 *Anas platyrhynchos,* 1,250 each : *A. strepera, A. acuta, A. clypeatd).*

2. *Rheindelta in the Bodensee — see also Switzerland*

a) c. 47° 30' N. 9° 35' E.

b) Eastern end of the Bodensee and Rheindelta, c. 7,500 ha.

c) 5. 6. 7.

d) An area of open water and large reed and marsh habitats of considerable ornithological, limnological and botanical interest.

e) Particularly important area for breeding Anatidae (e.g. *Anas strepera, A. querquedula, A. clypeata, Netta rufina),* and one of the most important resting places of waders in the interior of central Europe.

CATEGORY B.

1. *Valley of the River March — see also Czechoslovakia*

a) c. 48° 30' N. 16° 50' E.

b) river length c. 60 km; depth up to 3 m; width c. 40-60 m; + flooded areas.

c) 5. 6. 7.

d) A region of woodlands, marshes and river meadows subject to annual flooding. Similar to parts of Danube, but less disturbed.

e) Breeding birds include *Ciconia Ciconia* and *C. nigra,* Anatidae *(e.g.Anas strepera, A. querquedula, A. clypeata, Aythya ferina* and *Anser anser), Circus pygargus, Falco cherrug, Porzana parva, Locustella fluviatilis, Panurus biarmicus* and *Remiz pendulinus.* Flooded areas of particular importance for migrant Anatidae.

BELGIQUE (voir carte n° 5, page 97)

CATÉGORIE B.

1. *Le Zwin*

a) 51° 21' N. 3° 20' E.

b) Superficie ca. 150 ha.

c) 3.

d) Complexe de marais et d'étangs saumâtres particulièrement bien aménagé, grand intérêt Ornithologique et valeur éducative considérable.

e) Bonne zone de reproduction pour les oiseaux de marais, colonies de Laridés, Anatidés et Limicoles.
Passage et hivernage importants.
Dans l'arrière-pays, plusieurs milliers d'*Anser albifrons* hivernants.

2. *Marais et étangs de Genk*

a) 50° 55' - 51° 00' N. 5° 18' - 30' E.

b) Superficie ca. 400 ha, profondeur max. des étangs 1 m.

e) 5. 7.

d) Complexe de 30 étangs oligotrophes, légèrement acides, et marais d'un grand intérêt botanique et Ornithologique. Aménagement exemplaire d'un milieu semi-naturel.

e) ca. 80 espèces nichent régulièrement, nidification occasionnelle d'*Ardea purpurea, Aythya ferina* et *Cblidonias hybrida.*

BULGARIA (see map nr. 9, page 101)

CATEGORY A.

1. *Lake Srebarna*

a) 44° 00' N. 27° 00' E.

b) area c. 5,000 ha.

c) 5. 7.

d) One of the most important inland lakes in Bulgaria and of particular ornithological interest. Now a National Wildlife Sanctuary.

e) Important area for breeding birds - especially *Pelecanus crispus,* Anatidae *(Anas platyrhynchos, A. strepera, Aythya nyroca),* Ardeidae *(Ardea cinerea, A. purpurea, Egretta garzetta, Ardeola ralloides, Nycticorax nycticorax, Ixobrychus minutus),* Laridae *(Chlidonias niger, C. hybrida, Sterna hirundo), Circus aeruginosus, Remiz pendulinus, Locustella luscinioides).*
Also important for migratory and wintering waterbirds.

2. *Lakes and marshes of Burgas and Pomorie*

a) 42° 30' N. 27° 30' E.

b) area c. 4,300 ha.

c) 2. 3.

d) Important saline and brackish lakes and marshes near the Black Sea coast with ornithological, botanical, limnological and fishing interests. Ornithological interests are lessened by loss of vegetation of the marginal marshes.

e) Breeding birds include *Recurvirostra avosetta* (particularly in marshes near L. Atanosov c. 250-400 in 1960), *Himantopus himantopus* (e.g. 50 prs. L. Atanasov 1960), *Sterna hirundo, Sterna albifrons, Charadrius dubius, C. alexandrinus, Calandrella cinerea.* The main significance of the Burgas lakes now seems to be as a dormitory for non-breeding birds, and for wintering and migratory species. In May and June 1960, the most notable species seen were, *Pelecanus onocrotalus* (up to 700), *Ciconia Ciconia, Egretta garzetta, Larus melanocephalus* (up to 1,000) and *L. minutus* (350-500).

3. *Belene island and ponds*

a) 43° 39' N. 25° 10' E.

b) area c. 4,500 ha +.

c) 5. 7.

d) An area of 3 lakes, reed beds and wet forest of much ornithological interest.

e) Breeding birds include Ardeidae, Anatidae *(Anser anser, Cygnus olor),* Phalacrocoracidae and *Haliaëlus albicilla.*
Gathering area for birds during spring and autumn migrations: Anatidae, *Ciconia nigra* (300-500 each year) and many raptors.

CATEGORY B.

1. *Marshes and lakes of Diavolsko, Arcutino, Alepu*

a) 42° 15' - 20' N. 27° 10' E.

b) area respectively c. 5,000 ha, 1,500 ha, 3,600 ha.

c) 5. 7.

d) Freshwater marshes and lakes near the Black Sea coast.

e) Breeding birds include Ardeidae, Anatidae, Laridae and waders. Important area for migratory birds.

CZECHOSLOVAKIA (see maps nrs. 6, 9, pages 98, 101)

CATEGORY A.

1. *Junctions of rivers Morava (March) and Dyje (Thaya)*

a) 48° 35' - 55' N. 16° 30' - 17° 00' E.

b) area c. 10,000 ha (ca. 1,500 ha of special interest).

c) 5. 6. 7.

d) This area of river, marsh and ponds is of great limnological, botanical and ornithological interest.

Of particular importance are the following : the ponds of " Lednice " (c. 635 ha) and " Pohorelice " (ca. 500 ha) and the marshes, woodlands and river area of Panske jezero (c. 150 ha), Krive jezero (c. 50 ha), Pastvisko (c. 30 ha).

e) Breeding locality for *Podiceps caspicus* (c. 400 prs. P. j.), *Anser anser* (c. 40 prs. P. j., 25 - 40 prs. K. j., 25 prs. L., 20 prs. Po.), *Anas platyrhynchos* (c. 250 prs. P. j., 150 prs. K. j.), *Netta rufina* (c. 50 prs. L., 5 prs. Po.), *Recurvirostra avosetta* (c. 6 prs. L.), *Larus ridibundus* (c. 10,000 prs. P. j.), *Ardea cinerea, A. purpurea, Nyctkorax nyctkorax, Ciconia Ciconia, Limosa limosa,* etc.
Important area during migration for large numbers of ducks (ca. 60,000 in autumn), geese (c. 10,000) and waders.

2. " *Velký a Malý Tisý " ponds*

a) 49° 05' N. 14° 40' E.

b) area c. 706 ha including protective zone.

c) 5. 7.

d) One of the most important reserves in Southern Bohemia of particular ornithological and botanical interest.

e) Breeding birds include *Ardea purpurea* (c. 70 prs.), *Nyctkorax nyctkorax* (c. 50 prs.), *Anser anser* (15 prs.) and irregularly *Egretta alba.*
Important locality for migrating wildfowl.

3. *Slovakian Danube*

a) 47° 40' - 48° 05' N. 17° 10' - 18° 50' E.

b) area c. 150 km × 2 - 15 km.

c) 5. 6. 7.

d) The courses of the southern Slovakian Danube and its tributaries, the Vah and Hron, with their extensive sand (Danube and Vah) and gravel (Vah) beds, still have a number of important marshes and pools, and large parts of the area are still subject to periodical flooding. Considerable ornithological, limnological and botanical interest. Areas of particular ornithological importance, with reserve status planned include the following : " Parízské mociare ", Gbelce (c. 140 ha), " Cilizský mociar ", Cilizská Radvan (40 ha), " Dedinský Ostrov ", Gabcíkovo (c. 35 ha) and " Istragov ", Gabcíkovo (c. 100 ha).

e) Breeding locality for *Phalacrocorax carbo* (c. 65 prs. Is.), *Egretta alba* (1 pr. Is. De), *Ardea purpurea* (c. 50 prs. De., 40 prs. Pa.), many wildfowl species, *Circus aeruginosus, C. pygargus, Porzana parva, Limosa limosa, Panurus biarmicus, Cyanosylvia svecica, Locustella naevia, L. luscinioides* and *Lusciniolamelanopogon.*
Important area for migrating wildfowl - thousands of ducks and geese occur on the sands of the Danube.
The situation is likely to change within the next ten years as a result of progressive drainage.

CATEGORY B.

1. " *Novozámecký* " *pond*

a) 50° 40' N. 14° 35' E.

b) area c. 125 ha.

c) 5. 7.

d) A Northern Bohemian reserve of limnological, botanical and ornithological interest.

e) Nesting locality of *Anser anser* (c. 10 prs.), *Circus pygargus, Porzana parva, Panurus biarmicus, Anthus pratensis.*

2. " *Nádrz pod Vihorlatom ", Midal' ovce*

a) 48° 30' - 50' N. 21° 50' - 22° 15' E.

b) area c. 33,500 ha.

c) 5. 6. 7.

d) Lowlands of the river Laborec in Eastern Slovakia containing many blind river branches, marshland and subject to periodical flooding.

e) Nesting locality of individual *Podiceps griseigena, Ardeola ralloides, Egretta garzetta, Ardea purpurea, Nycticorax nycticorax* and wildfowl species. The floods now provide an important stopping place during spring migration for many geese and cranes.
The situation is likely to change with the completion of the present draining works.

DENMARK (see map nr. 3, page 95)

CATEGORY A.

1. *Ulvedybet and Vejlerne*

Two wetland sites in Northern Jutland, on the north bank of Limfjord, separated by 25 km of less favourable habitat.

A. Ulvedybet

a) 57° 04' N. 9° 34' E.

b) area c. 900 ha.

c) 2. 3.

d) A reserve for wildfowl, mainly marshland and shallow water.

e) Most important habitat for migrating wildfowl especially ducks and geese. *Anas platyrhynchos, A. crecca, A. penelope, Anser anser, Anser fabalis,* etc. will during migrating gather in Ulvedybet in numbers up to 30,000 - 40,000 birds at one time.

B. Vejlerne

a) 57° 04' N. 9° 00' E.

b) area c. 6,000 ha.

c) 2. 3.

d) A reserve area of large wet grazed meadows, marshland and lagoons north-west of Jutland, of great ornithological interest.

e) Breeding locality for very large gull and tern colonies (incl. *Larus minutus, Gelochelidon nilotica, Chlidonias niger),* various Anatidae (e.g. *Anser anser, Anas platyrhynchos, A. clypeatd),* waders, (e.g. *Recurvirostra avosetta, Philomachus pugnax, Limosa limosa* and in some years *Platalea leucorodia), Botaurus stellaris, Circus aeruginosus, Podiceps caspicus.*
Important during migration for thousands of ducks *(Anas platyrhynchos, A. crecca, A. penelope)* and waders (e. g. *Numenius arquata, Limosa* spp.), several hundred *Anser anser.* Important moulting area for *Anser anser* and ducks.

2. *Fjords of Western Jutland*
Coastal strip of 70 km length and 8-15 km width, the most important places being :

A. *Nissum Fjord with Felsted Kog*

a) 56° 20' N. 8° 10' E.

b) area c. 7,000 ha.

c) 2. 3.

d) A shallow fjord surrounded by meadows. Including the reserve Felsted Kog, containing vast reedbeds etc. valuable for wildfowl.

e) Breeding area for *Anas platyrhynchos, A. acuta, A. querquedula, A. clypeata, Limosa limosa, Philomachus pugnax, Recurvirostra avosetta,* etc. Resting habitat for numerous ducks and geese. Main resting place for *Branta bernicla hrota* in Denmark (up to 4,000 individuals) and important resting place for *Anser brachyrhynchus.*

B. *V. Stadil and Stadil Fjord*

a) 56° 08' N. 8° 10' E.

b) area c. 750 - 1,000 ha.

c) 2. 3.

d) Before 1954 one of the best localities for breeding and migrating wildfowl. Now partly reclaimed as agricultural land, the remaining part still being an excellent locality for migrating wildfowl on the West-Jutland migration route.

e) Ten thousands of migrating wildfowl use this habitat, especially *Cygnus cygnus, C. bewickii, Anser brachyrhynchus, Anser anser, Anas platyrhynchos, A. crecca, A. clypeata, A. penelope.*

C. *Tipperne and Klagbanken*

a) 56° 00' N. 8° 15' E.

b) area c. 2,000 ha.

c) 1. 3. 8.

d) Two saltmarsh, low-lying meadow and open water reserves in the southern part of the Ringkøbing Fjord having considerable ornithological interest.

e) Breeding area for Anatidae (e.g. *Anas platyrhynchos),* Laridae (incl. *Sterna sandvicensis, Gelochelidon nilotica)* and waders (e.g. *Limosa limosa, Philomachus pugnax, Recurvirostra avosetta).* An important locality for migrating and wintering ducks, geese and swans—up to 50,000 recorded in one day—incl. *Cygnus cygnus, C. bewickii, Anser brachyrhynchus, A. albifrons, A. anser, Branta bernicla, Anas platyrhynchos, A. crecca, A. clypeata, A. penelope.*

3. *Stavnsfjord*

a) 55° 55' N. 10° 35' E.

b) area c. 1,700 ha.

c) 1.

d) A fjord with numerous small grazed islands on the east coast of the island Samsø, with reserve status, and of ornithological importance.

e) Breeding area for c. 1,000 prs. of *Somateria mollissima,* colonies of gulls (*Larus marinus* c. 50 prs., *L. argentatus* c. 1,200 prs.), terns, waders (*Recurvirostra avosetta* c. 30 prs.) and outside the reserve *Uria grylle.*

4. *Saltbaekvig*

a) 55° 45' N. 11° 10' E.

b) area c. 3,000 ha.

c) 2. 3.

d) An area of coastal lagoons and marshes in the North-west of Seeland, of ornithological interest.

e) Important wader and Anatidae (incl. *Anser anser)* breeding area. Important resting place for migrating birds.

CATEGORY B.

1. *Vadehavet (The Waddensea) — see also Germany*

a) c. 55° 00' N. 8° 30' E.

b) area c. 58,900 ha.

c) 1. 3.

d) Including the reserve region of Jordsand and c. 10,600 ha of the Waddensea, this whole area is particularly important for migrating birds.

e) Habitat for numerous coastal birds and for many thousand migrating and wintering water birds.

2. *Northern Kattegat islands*

a) c. 57° 25' N. 11° 00' E.

b) area c. 12,000 ha.

c) 1. 3.

d) A group of small protected islands Hirsholmene, Nordre Roenner and Knotterne with the coastal areas of the larger island Laesoe, used extensively as breeding areas by many bird species.

e) Breeding birds include *Somateria mollissima,* large colonies of gulls and terns (incl. *Larus marinus, Rissa tridactyla, Gelochelidon nilotica, Sterna sandvicensis),* waders (incl. *Arenaria interpres, Recurvirostra avosetta), Uria grylle* and *Anthus spinoletta.*

3. *Saltholm*

a) 55° 37' N. 12° 45' E.

b) area c. 1,580 ha.

c) 3.

d) An island off Copenhagen with considerable ornithological interest.

e) Breeding locality for Anatidae - incl. large colonies of *Somateria mollissima* - and waders.

Important resting place for migrating birds.

ESPAGNE (voir carte n° 8, page 100)

CATÉGORIE A.

1. *Marismas du Guadalquivir, Huelva/Sevilla*

a) ca. 36° 45' - 37° 15' N. 6° 00' - 55' W.

b) Superficie ca. 250.000 ha.

c) 1. 2. 3. 5. 6.

d) Vaste région presque régulièrement inondée en hiver bien qu'environ les ¾ de la région soient asséchés en été. Nombreux étangs et marais temporaires. Les régions les plus importantes sont : Marismas de Hinojos, Marisma Gallega, Las Nuevas, El Sapillo, Lucio Real et les Marismas de Sanlucar.
L'une des plus importantes zones humides au point de vue zoologique et botanique en Europe.

e) Région de nidification pour de nombreuses espèces — Anatidés (y compris *Anas platyrhynchos, A. angustirostris, Aythya ferma, A. nyroca* et *Oxyura leucocephala),* Rallidés *(Fulica atra,* quelques *F. cristata),* Ardéidés (y compris *Ardeola ibis),* Laridés, Limicoles, *Phoenicopterus ruber,* etc. Région d'hivernage pour un grand nombre d'Anatidés (y compris 4000 - 10.000 *Anser anser,* 100 - 200 *Casarca ferruginea* et de nombreux *Anas penelope, A. crecca, A. acuta, A. clypeata, A. strepera, Aythya ferina), Fulica atra,* Limicoles, etc.

2. *Le delta de l'Ebre, Tarragona*

a) ca. 40° 35' - 50' N. 0° 35' - 55' E.

b) Superficie ca. 64.000 ha.

c) 1. 2. 3. 6.

d) Vaste région de marais, lagunes salées et saumâtres, riziculture, roselières et plaines à *Suaeda/Salicornia.* Les régions les plus importantes sont : La Encanizada, La Tancada, Isla de Buda et Canal Vell.

e) Région de nidification pour *Anas platyrhynchos* ca. 1000 couples, et pour *Ardea purpurea, Netta rufina, Fulica atra, Gallinula chloropus, Larus argentatus, Chlidonias hybrida, Sterna hirundo, Charadrius alexandrinus,* etc.
Importante région d'hivernage et de passage pour plusieurs milliers d'Anatidés et de *Fulica atra.*

3. *Albufera de Valencia, Valencia*

a) ca. 39° 12' - 25' N. 0° 14' - 25' W.

b) Superficie ca. 10.000 ha.

c) 1. 2. 5.

d) Lagunes d'eau douce et saumâtre et inondations artificielles d'intérêt Ornithologique considérable.

e) Région de nidification pour les Anatidés (y compris *Netta rufina* et *Anas platyrhynchos)* et pour *Fulica atra.*
Importante zone d'hivernage et de passage — en particulier pour *Fulica atra* ca. 4000 - 10.000, et pour les Anatidés ca. 10.000 - 30.000.

4. *Lacs en Nouvelle Castille, Toledo/Ciudad Real*

a) ca. 39° 00' - 35' N. 3° 30' - 40' W.

b) Superficie ca. 1000 ha +.

c) 4. 5. 6. 7.

d) Nombreux étangs et lacs d'eau douce et alcalins, comprenant les Laguna de Taray, Lagunas de Villafranca, de Alcazar, de Daimiel y Tablas des Giguela, importantes au point de vue Ornithologique.

e) Importante région de nidification pour les oiseaux : *Netta rufina* (+ 1000 couples), *Ardea purpurea, Glareola pratincola, Anas platyrhynchos* et quelques *Aythya nyroca.*
Quartier d'hiver pour de nombreux Anatidés et *Fulica atra.*

CATÉGORIE B.

1. *Rias Bajas y El Baldayo, Galicia*

a) ca. 42° 15' - 43° 30' N. 8° 10' - 9° 15' W.

b) Superficie ca. 100.500 ha.

c) 1. 2. 3.

d) et *e)* Baies côtières signalées pour leurs importantes populations hivernantes de canards plongeurs (p. ex. *Melanitta nigra)* et de surface (en particulier *Anas platyrhynchos, A. penelope).*

2. *Albufera de Alcudia, Mallorca*

a) ca. 39° 45' - 50' N. 3° 10' - 25' E.

b) Superficie ca. 1500 ha.

c) 2. 3. 5.

d) et *e)* Une lagune côtière et un lac séparés de la mer par une ligne de dunes ; importance particulière pour les canards hivernants et *Fulica atra.*

3. *Cuenca de Gallocanta, Zaragoza/Teruel*

a) ca. 41° 00' N. l° 30' W.

b) Superficie ca. 1500 ha.

c) 4.

d) et *e)* Plusieurs lacs saumâtres et salés comprenant la Laguna de Gallocanta particulièrement importante.
Région importante pour les populations hivernantes de *Fulica atra,* canards plongeurs (*Aythya*) et de surface. Visitée également par des populations de *Netta rufina.*

4. *Fuentepiedra et Lantejuela, Sevilla/Malaga*

a) ca. 37° 05' - 30' N. 4° 45' - 5° 20' W.

b) Superficie ca. 1000 ha.

c) 4.

d) Lagune alcaline entourée de végétation halophile à une altitude de près de 500 m.

e) Espèces nicheuses comprenant *Anas angustirostris, Netta rufina* et *Anas strepera.*
Lieu de repos et parfois, certaines années, lieu de nidification pour *Phoenicopterusruber.*
Quartier d'hiver pour les canards, *Fulica atra* et pour quelques oies.

5. *Lacs et étangs du Duero central, Zamora/Palencia*

a) ca. 41° 35' - 42° 12' N. 4° 45' - 5° 58' W.

b) Superficie ca 6500 ha.

c) 4. 5.

d) et *e)* Un nombre de lacs et d'étangs entourés de champs d'importance particulière pour les oies — reste d'une population hivernante d'*Anser anser* (ca. 200) et effectif principal pour la péninsule ibérique d'*Anser fabalis* hivernants. (ca. 2000 - 4000).
Petit nombre de canards hivernants et de *Fulica atra.*

6. *Pantano de Elche, Alicante/Murcia*

a) ca. 37° 39' - 38° 17' N. 0° 27' - 50' W.

b) Superficie ca. 28.000 ha.

c) 2. 3.

d) et *e)* Comprenant les salines de Torrevieja et le « lac salé » de Mar Menor. Pantano de Elche ressemble, à une échelle plus petite, à l'Albufera de Valencia possédant aussi une population nicheuse de *Netta rufina,* etc., mais également quelques *Aythya nyroca.* La valeur de l'ensemble de la région a fortement diminué avec la croissance du tourisme et le développement urbain.

FINLAND (see maps nrs. 3, 7, pages 95, 99)

Because of the extremely complex situation in Finland with its c. 62,000 lakes, numerous islands and irregular coastline, it has not been possible to compile a complete wetland list on the same basis as in other countries. The number of wetlands in Finland is so vast and in consequence the fauna so scattered that there is not enough comparative material available on which to base a list.

The following three localities have, however, been suggested as examples of areas important for the migration of wetland birds.

CATEGORY B.

1. *Bay of Svanvik near Hanko*
   a) 59° 50' N. 23° 15' E.
   b) Shoreline less than 1 km.
   c) 2. 3.
   d) and *e)* An important shallow coastal water especially for migrating swans *Cygnus cygnus.*

2. *Yyteri coast near Port*
   a) 61° 35' N. 21° 45' E.
   b) Shoreline about 10 km.
   c) 2. 3.
   d) et *e)* An area of shallow sandy shore particularly important for migrating swans, ducks and waders.

3. *Liminka coast near Oulu*
   a) 64° 50' N. 25° 20' E.
   b) Shoreline about 15 km.
   c) 1. 2. 3.
   d) and *e)* A large shallow bay important for migrating ducks, geese and waders.

Many coastal bays (e.g. Ruskis near Porvoo and Vanhankaupunginlahti near Helsinki) are also noteworthy for their importance for Anatidae and waders.

The breeding populations of ducks, such as *Somateria mollissima, Melanitta fusca, Mergus serrator, M. merganser,* in the vast archipelago of the Finnish coast are at present comparatively large, and there already exists a dense network of sanctuaries, mainly for those birds. There are, for instance, several areas that are protected by the law of Nature Protection including hundreds of islands and skerries. In addition there are many large areas that are protected by the local game regulations.

The eutrophic lakes, some of which are already protected, though generally more productive per surface unit (ornithologically) than the larger inland water basins, are probably quantitatively less important because of their small

size. Nevertheless, they have a great importance for many breeding species, and indeed some of these species are almost completely dependent on this type of habitat *(Anas querquedula, A. clypeata, Aythya ferina,* etc.). The large dystrophic lakes of Saimaa, Päijänne, etc. may include a considerable breeding population, but it is scattered and poor in species—mainly *Anas platyrhynchos, Mergus* spp., *Bucephala clangula.*

The marsh areas in northern Finland are so vast and the breeding population of Anatidae and waders so scattered that it would probably be difficult to classify any area as being of greater importance than any other. For the time being, there seem to be no species that would be endangered because of the lack of suitable breeding areas.

FRANCE (voir carte n° 5, page 97)

CATÉGORIE A.

1. *Camargue*

a) ca. 43° 20' - 35' N. 4° 15' - 50' E.

b) Superficie ca. 142.500 ha.

c) 2. 3. 4. 5.

d) Environ 650 km^2 d'étangs saumâtres, de sansouire inondable et d'exploitations salinières (250 km^2), environ 250 km^2 de marais d'eau douce et de sansouire haute partiellement inondable, plusieurs centaines de km^2 de rizières.

e) Nicheurs : *Podiceps cristatus* et *P. ruficollis,* Ardéidés *(Ardea purpurea* ca. 1800 couples, *Egretta garzetta* ca. 2000 couples, *Nycticorax nycticorax* ca. 1000 couples et *Ardeola ralloides* ca. 40 couples), *Phoenicopterus ruber* ca. 4000 couples, Anatidés — *Anas platyrhynchos* ca. 1000 couples, plusieurs centaines *A. strepera* et *Netta rufina,* Rallidés — *Fulica atra, Rallus aquaticus, Gallinula chloropus* et *Porzana* spp., Limicoles — *Charadrius alexandrinus* ca. 700 couples, *Recurvirostra avosetta* c. 700 couples, *Himantopus himantopus, Tringa totanus, Glareola pratincola* et *Haematopus ostralegus,* Laridés — *Larus ridibundus* ca. 3000 couples, *L. argentatus* ca. 500 couples, *L. gemi, Sterna hirundo* ca. 2500 couples, *S. albifrons* ca. 350 couples, *S. sandvicensis* ca. 100 couples, *S. dougallii* 1-2 couples, *Chlidonias hybrida* 100 couples, *Gelochelidon nilotica* ca. 300 couples, etc.

Lieu de repos important pour les oiseaux d'eau et de rivage ainsi que pour les passereaux en migration.

Plus de 150.000 Anatidés hivernants — ca. 50.000 *Anas crecca,* 20.000-30.000 *A. platyrhynchos* et *A. penelope,* ca. 10.000 *A. strepera,* et *A. clypeata,* plus de 10.000 *Aythya ferina,* 5000- 10.000 *Aythya fuligula,* ca. 4000 *Netta rufina* et plusieurs milliers *Anas acuta.*

2. *Baie de l'Aiguillon et " marais " du sud de la Vendée*

a) ca. 46° 12' - 28' N. 0° 45' - 1° 25' W.

b) Superficie ca. 100.000 ha.

e) 1. 2. 3. 5.

d) 7000 ha de l'Anse de l'Aiguillon et l'estuaire du Lay, et environ 90.000 ha (catégorie 5) de prairies humides et de canaux régulièrement inondés en hiver et au printemps.

e) Marais importants pour la reproduction de nombreuses espèces, y compris *Anas platyrhynchos, A. crecca, A. querquedula, Vanellus vanellus* ca. 5000 couples, *Tringa totanus* au moins 500 couples, *Limosa limosa, Himantopus himantopus, Cblidonias niger* ca. 50-100 couples, *Circus pygargus, C. aeruginosus* et *Asio flammeus.*

Quartier d'hiver pour ca. 3000 *Tadorna tadorna,* ca. 30.000-35.000 *Anas* spp. (par ordre d'importance : *Anas platyrhynchos, A. crecca, A. acuta, A. penelope),* ca. 100-400 *Branta bernicla,* 100-200 *Anser albifrons,* 10-20 *Anser anser,* plusieurs *A. fabalis,* des dizaines de milliers de *Charadrius apricarius* et *Vanellus vanellus,* ca. 3000-5000 *Charadrius squatarola,* ca. 2000 *Numenius arquata,* ca. 15.000 *Limosa limosa,* plusieurs milliers *Tringa totanus,* plusieurs centaines *T. erythropus,* ca. 30.000 *Calidris canutus,* ca. 30.000 *C. alpina,* ca. 2000 *Haematopus ostralegus,* ca. 3000 *Recurvirostra avosetta* (quartier d'hiver principal en France).

Grands passages de Limicoles, en mars 30.000-50.000 *Limosa limosa* et plusieurs milliers de *Philomachus pugnax.*

3. *Sologne*

a) ca. 47° 20' - 45' N. 1 ° 25' - 2° 30' E.

b) Superficie ca. 375.000 ha ++, y compris ca. 30.000 ha de marais.

c) 5. 6. 7. 8.

d) Plusieurs milliers d'étangs de 1-200 ha, libres ou couverts de végétation, vallées marécageuses, plaines et forêts inondées, landes tourbeuses, sablières, ruisseaux.

e) Nidification de *Vanellus vanellus* ca. 20.000 couples, *Podiceps cristatus, P. caspicus* et *P. ruficollis, Ardea cinerea, A. purpurea, Nycticorax nycticorax, Ixobrychus minutus, Botaurus stellaris, Anas crecca* et *A. clypeata, Aythya ferma, Circus aeruginosus, C. cyaneus* et *C. pygargus, Porzana pusilla, Gallinula chloropus, Rallus aquaticus, Fulica atra* et Limicoles (y compris *Charadrius dubius, Capella gallinago, Numenius arquata, Limosa limosa, Tringa hypoleucos* et *T. totanus, Himantopus himantopus), Chlidonias niger, C. hybrida, Larus ridibundus* ca. 3000 couples, *Asio flammeus,* etc.

Zone importante pour la migration des oies, rapaces, grues, Limicoles et Laridés.

Quartier d'hiver important pour les canards. 25 km^2 de réserve cynégétique à Chambord.

4. *La Brenne*

a) ca. 46° 35' - 47° 00' N. 1° 05' - 35' E.

b) Superficie ca. 100.000 ha, y compris 6000 ha d'étangs.

c) 5. 7. 8.

d) Plateau avec ca. 500 étangs assez oligotrophes (y compris 200 de 10-50 ha, 40 de 50-300 ha) avec fonds sablonneux et entourés de *Phragmites.* Pisciculture importante (100-110 kg/ha/an) 2 plaines de bruyère humides. Intérêt Ornithologique et botanique.

e) Du point de vue Ornithologique comparable à la Sologne, mais nidification relativement plus importante d'*Ardea purpurea* et de rapaces. Lieu de reproduction pour de nombreux *Otis tetrax, Burbinus oedicnemus* et *Oenantbe oenantbe.*

5. *Dombes*

a) ca. 45° 55' - 46° 10' N. 4° 55' - 5° 20' E.

b) Superficie ca. 100.000 ha, dont 11.000 ha d'étangs de 1-250 ha.

c) 5. 6. 7.

d) Exploitation commerciale des étangs par cycle triennal (pêche/céréales). Région comprenant les 10 km^2 des marais d'Echets.

e) Nicheurs : *Podiceps cristatus, P. caspicus* et *P. ruficollis,* Ardéidés (400-500 couples gravement menacés) — *Ardea cinerea* ca. 50 couples, *A. purpurea* ca. 150 couples, *Egretta garzetta* ca. 100 couples, *Nycticorax nycticorax* ca. 150 couples, *Ardeola ralloides, Ixobrychus minutus, Botaurus stellaris,* Anatidés — *Anas platyrhynchos, A. querquedula, A. strepera, A. clypeata, Netta rufina,* Rallidés — *Porzana porzana, Galtinula chloropus, Fulica atra,* Limicoles — *Vanellus vanellus, Numenius arquata, Limosa limosa, Himantopus himantopus,* Laridés — *Larus ridibundus, Cblidonias niger* et *C. hybrida,* rapaces — *Circus pygargus* et *C. aeruginosus, Milvus migrans.*

Important pour les migrations d'Ardéidés, d'Anatidés et de Limicoles. Création, en 1963, de ca. 200 ha de réserve naturelle (97 ha d'étangs).

6. *Basse-Loire, Brière et Lac de Grand-Lieu*

a) ca. 47° 00' - 20' N. 1° 35' - 2° 15' W.

b) Superficie ca. 20.000 ha +.

e) 3. 5. 7. 8.

d) Vaste zone comprenant ca. 8000 ha du Lac de Grand-Lieu, des parties de l'estuaire de la Loire et la région importante de la Brière.

e) Les marais du Lac de Grand-Lieu abritent une des plus vastes héronnières mixtes d'Europe occidentale avec environ 1000 nids *(Ardea cinerea, A. purpurea, Egretta garzetta, Nycticorax nycticorax).*

f) Quartiers d'hiver et lieu de repos importants pour les Anatidés migrateurs, notamment *Aythya ferina.*

7. *Golfe du Morbihan*

a) ca. 47° 30' - 40' N. 2° 40' - 3° 00' W.

b) Superficie ca. 5000 ha.

c) 1. 2.

d) Baie de Sarzeau (25 km^2) et les marais de Noyalo-Séné (10 km^2) : principalement herbiers de *Zostera* et vasières.

e) Lieu de reproduction pour *Tadorna tadorna.*
Quartier d'hiver pour plusieurs milliers de *Branta bernicla* (lieu d'hivernage principal en Europe en dehors des Iles Britanniques), et pour des dizaines de milliers de canards (notamment *Anas penelope, A. platyrhynchos, A. acuta* et *A. crecca).*
Grands passages de Limicoles, zone également visitée par *Ardea cinerea* et *Platalea leucorodia.*

8. *Etangs du Languedoc*

a) ca. 42° 45' - 43° 34' N. 2° 55' - 4° 11' E.

b) Superficie ca. 27.500 ha.

c) *2.* 3.

d) Chaîne d'étangs sur ca. 150 km entre Perpignan et Aigues-Mortes dont le plus grand, l'Etang de Thau, est de 65 km^2. Salinité de l'eau relativement forte, peu de végétation émergente.
Quelques marais à *Salicornia,* entourés de *Scirpus* et *Phragmites.* Etang de Thau : important pour pisciculture, ostréiculture et mytiliculture.

e) Espèces nicheuses comprenant *Egretta garzetta, Recurvirostra avosetta, Himantopus himantopus, Charadrius alexandrinus, Sterna albifrons.*
Quartier d'hiver pour ca. 25.000 *Fulica atra,* ca. 10.000 *Anas penelope* et *Aythya ferina,* ca. 7500 *A. fuligula,* plusieurs milliers d'*Anas platyrhynchos* et *A. crecca.*
Grands passages de *Phoenicopterus ruber* et d'Ardéidés.

CATÉGORIE B.

1. *Complexe des estuaires picards*

a) ca. 50° 08' - 37' N. 1 ° 28' - 45' E.

b) Superficie ca. 55.000 ha.

c) 1.2.3.5.7.

d) Vases, sables et marais salants des estuaires de la Somme, de l'Authie, de la Canche; cordon dunaire au nord de la Somme avec des dépressions marécageuses et ca. 35.000 ha de prairies inondables dans les vallées. Intérêt considérable au point de vue Ornithologique, botanique et hydrobiologique.

e) Chasse de printemps très défavorable à la nidification. Passages importants de *Colymbus arcticus* et *C. stellatus, Ardea cinerea,* Anatidés (notamment *Cygnus cygnus, Branta bernicla, Tadorna tadorna, Anas platyrhynchos, A. crecca, A. querquedula, A. penelope, Melanitta nigra, Mergus* spp.), Laridés, Limicoles, rapaces (p. ex. *Falco peregrinus, Pandion haliaëtus),* etc. Quartiers d'hiver pour de nombreuses espèces — intérêt particulier pour Anatidés, Laridés, et Limicoles, *Plectrophenax nivalis, Eremophila alpestris,* mais menacé par chasse excessive.

2. *Baie de Veys*

a) ca. 49° 18' - 25' N. 1° 00' - 15' W.

b) Superficie ca. 34.000 ha.

c) 1. 3. 5. 8.

d) ca. 40 km^2 de vasières, et ca. 300 km^2 (Dépression de Carentan) de prairies inondées en hiver, roselières et tourbières endommagées.

e) Nicheurs : *Tadorna tadorna* ca. 15 couples, dans la Dépression de Carentan *Anas platyrhynchos, A. crecca, A. clypeata, A. querquedula, Vanellus vanellus, Capella gallinago.*
Vasières visitées par de grands vols de Limicoles de passage — ca. 50.000 *Haematopus ostralegus,* ca. 50.000 *Numenius arquata,* ca. 50.000 *Calidris alpina,* ca. 40.000 *Charadrius hiaticula,* etc.
Quartier d'hiver pour plusieurs centaines de *Branta bernicla* et ca. 100 *Tadorna tadorna,* dans la Dépression de Carentan hivernage d'oies, de cygnes et de canards.

3. *Baie du Mont St. Michel et Marais de Dol*

a) ca. 48° 33' - 47' N. 1 ° 20' - 2° 00' W.

b) Superficie ca. 30.000 ha.

c) 1. 2. 3.

d) Zone intercotidale, vasières marécageuses et les marais de Dol d'intérêt Ornithologique.

e) Excellent lieu pour les passages de Limicoles.
Quartier d'hiver pour les Anatidés (ca. 5000 *Anser albifrons* en 1962/1963 dans les marais de Dol) et les Limicoles.
Probablement zone de mue pour *Tadorna tadorna.*

4. *Embouchure de la Vilaine et Marais de Redon*

a) ca. 47° 23' - 44' N. 1 ° 50' - 2° 30' W.

b) Superficie ca. 11.000 ha.

c) 1. 2. 5. 7.

d) Zones intercotidales, marais salants et zones périodiquement inondées le long des rivières Vilaine, Oust, Arc et Isac — d'intérêt Ornithologique et botanique considérable, mais fortement menacés par des projets de drainage.

e) Zone de reproduction pour *Anas platyrhynchos.* Les marais de Redon sont le lieu d'hivernage de plusieurs centaines d'*Anser albifrons,* importants également pour le nourrissage nocturne d'Anatidés.
Dans le voisinage des marais salants de Guerande et Mesquer (salines pour la plupart abandonnées) riche avifaune et flore halophile très intéressante.

5. *Baie de Bourgneuf et Marais Bretons*

a) ca. 46° 42' - 47° 07' N. 1 ° 49' - 2° 12' W.

b) Superficie ca. 7000 ha de vasières, ca. 43.000 ha de marais.

c) 1. 3.

d) Vasières avec ostréiculture et pêche intensives, et les marais complémentaires de Bouin et Challans.

e) Zone de reproduction pour *Himantopus himantopus.*
Quartier d'hiver pour plusieurs milliers de canards *(Anas penelope, A. platyrhynchos, A. crecca), Branta bernicla,* et pour les Limicoles (notamment *Vanellus vanellus, Numenius arquata, Charadrius squatarola, C. hiaticula, Tringa totanus, Calidris alpina* et *C. canutus).*
Région peu étudiée, mais sans doute fort intéressante et variée, à présent la situation est dégradée par l'ostréiculture.

6. *Marais d'Olonne*

a) ca. 46° 30' - 35' N. l° 47' - 50' W.

b) Superficie ca. 1500 ha.

c) 2. 3.

d) Ancienne lagune côtière protégée par un cordon dunaire et aménagée en salines (actuellement abandonnées) et pour la pisciculture.

e) Zone de reproduction pour les Limicoles — notamment *Recurvirostra avosetta,* seule colonie dans l'ouest de la France, et *Himantopus himantopus.* Zone de pâture pour de nombreux Anatidés et d'autres espèces, par exemple *Ardea, Platalea leucorodia.* Passages importants de Limicoles.

7. *Bassin d'Arcachon*

a) ca. 44° 37' - 48' N. l° 00' - 18' W.

b) Superficie ca. 10.000 ha.

c) 1. 2. 3.

d) Vasières et végétation submergée d'intérêt Ornithologique considérable malgré une forte pression de chasse et les dérangements causés par l'ostréiculture.

e) Hivernage massif de canards et 1000-1500 *Branta bernicla.*

8. *Champagne humide*

a) ca. 48° 25' - 49° 00' N. 4° 30' - 5° 00' E.

b) Superficie ca. 60.000 ha + + .

c) 5. 6. 7.

d) Zone d'étangs entourés de forêts, actuellement en exploitation piscicole mais qui sera considérablement modifiée par la construction de deux réservoirs : 1° inondation d'une grande partie de la forêt du Grand-Orient (205 millions m^3; superficie 2800 ha; profondeur max. 25 m, moyenne 7 m), fin des travaux en 1965; 2° Inondation d'une grande partie de la forêt du Der (350 millions m^3; superficie 4100 ha; profondeur max. 19 m, moyenne 8,5 m), fin des travaux envisagés pour 1969/1970.

e) Zone avec avifaune nicheuse abondante : *Ardea cinerea, A. purpurea, Anas* spp. et rapaces.
Passage et hivernage de nombreuses espèces, notamment canards et oies. Quartier d'hiver principal pour *Anser fabalis* en France.
L'intérêt Ornithologique de cette région changera évidemment avec la construction des réservoirs, et il semble que ce sera au profit des Anatidés en particulier.

9. *Etangs de Lorraine*

a) ca. 48° 44' - 49° 39' N. 5° 47' - 6° 57' E.

b) ca. 22.500 ha.

c) 5. 7.

d) Ils sont nombreux, les plus importants sont ceux de Gondrexange, Réchicourt, Stock, Lindre, Bischwald, Lachaussée, Vargévaux, Ronge, Moulin, Bouligny, Holacourt, Long Etang Mutche, etc. Ces étangs situés dans les cuvettes d'une région de collines, sont artificiels. Certains sont périodiques (mise en culture temporaire), mais la plupart sont permanents. Ce sont presque tous des étangs de pisciculture.

e) Reproduction : *Ardea cinerea, Ixobrychus minutus, Botaurus stellaris, Fulica atra, Anas platyrhyncbos, A. clypeata, A. crecca, A. querquedula, Aythya ferina, Podiceps cristatus, P. ruficollis,* etc. *Circus aeruginosus, C. pygargus* et *C. cyaneus* sont parmi les espèces les plus intéressantes.
Plus qu'un centre de reproduction, ces étangs sont essentiellement un centre de passage et, à un moindre degré, d'hivernage pour les Anatidés, rapaces, Limicoles et Laridés.

10. *Ried d'Alsace*

a) ca. 48°15'N. 7°30'E.

b) Superficie ca. 30.000 ha.

c) 5. 6. 7.

d) Basses plaines humides situées derrière la levée alluviale du Rhin, vastes étendues entrecoupées de bosquets, étangs et rivières oligotrophes.

e) Zone de reproduction de *Vanellus vanellus, Numenius arquata* (plusieurs centaines de nids).
Zone préférée par *Ciconia ciconia, Anas platyrhynchos* et *A. querquedula, Circus pygargus* et *C. cyaneus, Asio flammeus, Crex crex,* etc.
Passage et hivernage d'Anatidés et de Limicoles.

11. *Région de la Bresse avec les plaines inondables de la Saône et du Doubs*

a) ca. 46° 25' - 47° 20' N. 4° 50' - 5° 30' E.

b) Superficie ca. 180.000 ha.

c) 5. 7.

d) Vaste zone d'étangs et prairies régulièrement inondées du Val de Saône, de la Bresse du Nord et de la Bresse Louhanaise. Peut être considérée

comme continuation des Dombes, la flore et la faune en étant voisines mais moins variées.

e) Comparable aux Dombes avec de nombreuses espèces nicheuses et hivernantes.

12. *Plaine du Forez*

a) ca. 45° 07' - 45' N. 4° 00' - 25' E.

b) Superficie ca. 50.000 ha.

c) 5.

d) Zone de sable et de limon avec 10 km^2 d'étangs permanents, actuellement en exploitation piscicole.

e) Du point de vue Ornithologique semblable aux Dombes. Zone de reproduction pour les Ardéidés *(Nycticorax nycticorax,* ca. 150 couples, *Egretta garzetta, Ardea purpurea)* et Anatidés *(Netta rufina).*
Passages d'Ardéidés, Anatidés et Limicoles.

13. *Etang de Biguglia*

a) ca. 42° 34' - 40' N. 9° 27' - 28' E.

b) Superficie ca. 1500 ha.

e) 2. 3.

d) Plaine corse inondée en hiver et au printemps, étangs avec végétation émergente abondante et bons effectifs d'*Emys orbicularis.*

e) Zone de reproduction importante — on y a relevé *Podiceps cristatus, P. caspicus, P. ruficollis, Anas platyrhynchos, A. crecca, A. clypeata, Oxyura leucocephala,* Rallidés, *Circus aeruginosus, Pandion haliaëtus, Haliaëtus albicilla,* etc.
Passage et hivernage d'Ardéidés, Anatidés, Laridés et Limicoles.

Note : Il y a un certain nombre de sites qui, avec des informations supplémentaires, devraient probablement être classés dans la catégorie B, par exemple les zones inondables des fleuves Maine, Allier, Oise, Authie, Canche, Bresle, etc. ; les marais de l'embouchure de la Gironde, de Médoc, de Blaye, de la petite et de la grande Lède; les étangs du Sungan, ceux au Sud d'Epernay, la région de Bouget-Nord, etc.

GERMANY

EASTERN PART (see map nr. 6, page 98)

CATEGORY A.

1. *Mecklenburg coast*

a) ca. 53° 55' - 54° 40' N. 11° 00' - 14° 00' E.

b) Area c. 145,000 ha.

c) 1. 2. 3.

d) An area of shallow coastal waters and lagoons of great ornithological interest. The following localities are particularly noted for the number

of wintering or passage and/or nesting birds: Wismar-Bucht, Dierhagen-Darss-Zingst, the Grabow and Saaler Bodden, Stralsund area, many of the islands and waters of Rügen and Hiddensee, and parts of the Greifswalder Bodden.

A number of reserves, especially amongst the smaller islands, are already established in this area.

e) Breeding locality for many Anatidae (especially *Cygnus olor, Anas* spp., *Aythya nyroca, Mergus serrator),* Laridae *(Sterna* spp., *Larus* spp.) and waders.

Wintering and passage area for many thousand birds—particularly important for Rallidae, Anatidae and waders.

In March 1958 c. 104,000 birds were counted in the area, including *Anas platyrhynchos* c. 6,400, *A. penelope* c. 1,050, *Aythya fuligula* 37,000, *A. marila* 16,500, *Melanitta nigra* c. 4,800, *Bucephala clangula* c. 3,800, *Clangula hyemalis* c. 1,800, *Mergus merganser* c. 820, *Cygnus olor* and *C. cygnus* 4,720 and *Fulica atra* c. 7,100.

2. *Lake district of Müritz*

a) c. 53° 15' - 30' N. 12° 25' - 50' E.

b) area c. 6,600 ha.

c) 5. 6. 7.

d) Area including the reserves of Monchsee S. of Wredenhagen, the Grosser Schwerin peninsula N. of Röbel and the eastern shores of the R. Müritz.

e) Breeding locality for many Anatidae, particularly *Anser anser, Anas* spp. and *Cygnus olor.*

Important area for migrating and wintering birds (e.g. c. 3,000 *Anser anser* October 1960 Kolpin See area).

3. *North-western Meckenburg lakes*

a) c. 53° 25' - 52' N. 11° 25' - 12° 22' E.

b) area c. 10,000 ha.

c) 5. 6. 7.

d) A large area including a number of reserves—Die Döpe, the Lewitz fish ponds and surrounding habitats, Krakower Obersee S. of Krakow, the lakes of the Warnow, the Rühner See W. of Biitzow, and parts of the Schwerin See.

e) Important nesting area for many Anatidae incl. *Cygnus olor, Anser anser, Anas platyrhynchos, Aythya fuligula, Netta rufina* and *Mergus merganser.*

Wintering and migrating area for many birds—incl. *Cygnus cygnus.*

CATEGORY B.

1. *Tollense See area*

a) c. 53° 25' - 33' N. 13° 10' - 15' E.

b) area c. 1,500 ha.

c) 5. 7.

d) Lakes and marshes incl. reserves of Nonnenhof, and Grosser Serrahn- and Schweingarten-See SW of Carpin.

e) Breeding area for Anatidae—*Cygnus o/or, Anser anser, Anas platyrhynchos,* etc.
Resting place on spring migration for many *Anas* and *Aythya* spp. Wintering area for *Cygnus cygnus.*

2. *Ponds of Niederspree*

a) c. 51° 25' N. 14° 50' E.

b) area c. 875 ha +.

c) 5. 7.

d) A number of protected lakes with broad reed zones, E. of Rietschen and ornithologically the richest and most interesting area of the whole Oberlausitz.

e) Breeding species include *Grus grus* (at least 5 prs.), *Anser anser* (numerous), *Bucephala clangula* (several prs.), *Ciconia nigra* (1-2 prs.), *Larus ridibundus* (colony of c. 2,500 prs.), *Chlidonias niger* (several prs.).

3. *Lakes and ponds N. of Görlitz*

a) c. 51° 10' - 25' N. 14° 00' - 15° 00' E.

b) area c. 1,000 ha.

c) 5. 7. 8.

d) *A* number of lakes, ponds and small marshes N. of Kamenz, Bautzen and Görlitz, of particular ornithological interest. Considerable changes have taken place with opencast coal mining and lowering of ground water table.

e) Breeding locality for many species including *Grus grus, Anser anser,* many duck species, *Ciconia nigra, Botaurus stellaris* and in general area *Haliaëtus albicilla, Coracias garrulus* and *Upupa epops.*

WESTERN PART (see map nr. 6, page 98)

CATEGORY A.

1. *Wattenmeer - Schleswig-Holstein, Hamburg and Niedersachsen*

a) c. 53° 20' - 55° 00' N. 6° 40' - 9° 00' E.

b) 325,400 ha (c. 59,743 ha protected).

c) 1. 2. 3.

d) Complex coastal wetland of great ornithological interest, incl. north of the Elbe estuary the reserves Uthorn, Wattenmeer east of the island of Sylt, Rantumbecken, Amrum-Odde, Hamburger Hallig, Noorderoog, Siideroog, Sudfall, Karolinenkoog, Trischen, Nessand, Pagensand, south of the Elbe estuary Scharhorn, Grosser Knechtsand, and west of the Weser estuary Mellum, Jadebusen, Oldeoog, Wangeroog (4),

Langeoog, Norderney-Südstrandpolder, Juist-Bill, Memmert, Lütje Hörn, Borkum (2).

e) Breeding area for many Anatidae (e. g. *Anas platyrhynchos, Tadorna tadorna),* Laridae *(Sterna sandvicensis* - Norderoog c. 2,000 prs., *S. hirundo, S. paradisaea, Larus argentatus, L. fuscus graellsii, L. canus, L. ridibundus)* and waders (esp. *Haematopus ostralegus, Recurvirostra avosetta, Charadrius alexandrinus).*

Wintering and feeding area during migration for many thousand Anatidae *(Anas platyrhynchos, A. crecca, A. penelope, A. acuta, Somateria mollissima, Tadorna tadorna, Branta leucopsis, B. bernicla, Anser anser, A. albifrons, A. brachyrhynchus, Cygnus bewickii),* Laridae and waders. The Knechtsand area alternating with the mudflats north of the Elbe estuary (esp. Trischen) are the greatest European moulting area for *Tadorna tadorna* from July to September c. 200,000.

2. *Dümmersee - Niedersachsen*

a) 52° 31' N. 8° 20' E.

b) area c. 1,600 ha (500 ha protected).

c) 5. 7. 8.

d) A shallow, eutrophic lake, partly protected, with extensive reedbeds and probably the most important inland bird sanctuary in N. W. Germany.

e) Nesting locality for many Anatidae (e. g. *Anas platyrhynchos* c. 100 prs., *A. crecca* c. 15 prs., *A. querquedula* c. 15 prs., *A. strepera* c. 15 prs., *A. acuta* c. 4 prs., *A. clypeata* c. 20 prs., *Aythya ferina* c. 10 prs.), *Ixobrychus minutus, Botaurus stellaris, Circus aeruginosus, Chlidonias niger, Philomachus pugnax, Limosa limosa* and *Numenius arquata.* Important migration and wintering area for Anatidae - 30 species recorded.

3. *Ismaninger Teichgebiet - Bavaria*

a) 48° 13' N. 11° 45' E.

b) area c. 900 ha.

c) 5. 6. 7.

d) Privately owned and protected, artificially dammed lake (power impoundments), fish ponds and sewage farm situated in a former swamp near Munich, of great ornithological interest.

e) Particularly rich in nesting species, e. g. *Podiceps cristatus* c. 50 prs., *Podiceps caspicus* c. 150 prs., *Anas platyrhynchos* c. 100 prs., *A. strepera* c. 50 prs., *A. clypeata* c. 50 prs., *Aythya fuligula* c. 32 prs., *A. ferina* c. 140 prs., *Netta rufina* c. 4 prs., *Fulica atra* c. 450 prs., *Larus ridibundus* c. 500 prs.

Important moult area for Anatidae and as a wintering and migrating area for Ardeidae, Anatidae (e. g. mx. *Anas platyrhynchos* c. 6,000, *A. crecca* c. 2,500, *A. querquedula* c. 400, *A. strepera* c. 530, *A. clypeata* c. 630, *A. acuta* c. 100, *Netta rufina* c. 300, *Aythya fuligula* c. 5,000, *A. ferina* c. 11,200, *A. nyroca* c. 60, *Mergus albellus* c. 100, *M. merganser* c. 415), *Fulica atra* c. 3,100, Laridae and many waders.

4. *Federsee - Wiirttemberg*

a) 48° 05' N. 9° 39' E.

b) area c. 1,410 ha protected, c. 136 ha of open waters.

c) 5. 6. 8.

d) A shallow freshwater lake with extensive beds of aquatic vegetation, ornithologically very important.

e) Breeding species include *Ardea cinerea, Anas platyrhynchos, A. clypeata, A. querquedula, Circus aeruginosus, Botaurus stellaris, Capella gallinago, Numenius arquata* c. 10 prs., *Sterna hirundo* c. 10-12 prs., *Larus ridibundus* c, 450 prs., *Porzana parva.* Wintering and migration area for many birds.

5. *Untersee* - Baden/*'Württemberg — see also Switzerland*

a) 47° 40' - 44' N. 8° 52' - 9° 10' E.

b) area c. 6,300 ha, c. 488 ha protected.

c) 5. 6. 7.

d) Lake with fairly shallow banks and large beds of submerged vegetation, reedbeds and marshes.

e) Important breeding area for *Podiceps cristatus* c. 200 prs., *P. caspicus* c. 50 prs., Anatidae (*Netta rufina* c. 20 prs.), *Larus ridibundus* c. 100 prs., *Sterna hirundo* c. 50 prs.
Most important inland area for migrating and wintering waterbirds in Germany, e. g. m. *Ardea cinerea* 200, *Anas platyrhynchus* 10,000, *A. clypeata* 480, *A. crecca* 8,000, *A. acuta* 650, *A. strepera* 1,000, *Netta rufina* 8,000, *Aythya jerina* 19,000, *A. fuligula* 6,000, *Fulica atra* 20,000.

CATEGORY B.

1. *Lower Inn between Simbach and Passau - Bavaria/Austria*

a) 48° 16' - 35' N. 13° 00' - 25' E.

b) c. 55 km length.

c) 6. 7.

d) River meadows and several dammed areas of the river Inn.

e) Important area for nesting Anatidae (e. g. *Anas strepera, A. acuta, Aythya ferina* and *A. fuligula)* and for migrating and wintering Ardeidae, Anatidae, waders etc.

2. *Möhnetalsperre - Nordrhein-Westfalen*

a) 51° 29' N. 8° 03' E.

b) area c. 1,056 ha.

c) 5. 6.

d) An artificially dammed lake.

e) Wintering area for several thousand Anatidae.

3. *Isar lakes near Mossbug and Landshut - Bavaria*

a) 48° 27' N. 11° 57' -12° 10' E.

b) area c. 425 ha.

e) 5. 6.

d) Several artificially dammed lakes.

e) Especially important for several thousand migrating and wintering Anatidae.

4. *Chumsee - Bavaria*

a) 47°55'N. 12° 20' E.

b) area whole lake c. 85 km^2, most interesting part formed by 570 ha around month of Tiroler Achen.

c) 5. 6. 7.

d) Mainly the shallow south shores of the lake with its reedbeds, marshes and a small river delta.

e) Important area for breeding Anatidae, Rallidae and Larolimicolae (including *Charadrius dubius, Numemius arquata, Capella gallinago, Tringa totanus* and *Sterna hirundo).*

5. " *Gildehauser Venn " near Bentheim - Niedersachsen*

a) 52° 20' N. 7° 10' E.

b) area c. 175 ha completely protected.

c) 5. 6. 8.

d) Natural moor, with number of ponds and one of the few remaining wildfowl refuges in the lower Ems region.

e) Important area for many birds, esp. *Capella gallinago, Numenius arquata, Limosa limosa.*

GREAT BRITAIN (see map nr. 4, page 96)

Abbreviations:

NNR : National Nature Reserve
PNNR : Proposed National Nature Reserve
PNWR : Proposed National Wildfowl Refuge
LNR : Local Nature Reserve
SSSI: Site of Special Scientific Interest
SSSI.A : As above only of much greater importance than an ordinary SSSI.

CATEGORY A.

1. *Lock Leven, Kinross* (NNR)

a) 56° 11' - 13' N. 3° 20' - 25' W.

b) area c. 1,400 ha av. depth 4,5 m.

c) 5.

d) A permanent lowland natural lake with prolific submerged vegetation (esp. Characeae) and considered to be the most important inland water area for breeding and wintering wildfowl in Scotland.

e) Breeding locality for Anatidae, including *Anas strepera* (c. 15 prs.) and *Aythya fuligula* (c. 300 prs.)
Wintering and resting area for numerous species - Anatidae include *Cygnus cygnus* mx. 600, *Anser brachyrhynchus* mx. 12,000, *Anser anser* mx. 3,000, *Anas platy rhynchos, A. crecca, A. penelope, Aythya ferina* and *A. fuligula,* each sp. mx. 1,000.

2. *The Broads, Norfolk*

a) 52° 35' - 46' N. 1° 25' - 39' E.

b) area c. 5,000 ha.

c) 2. 8.

d) Including the following sites of open water, unreclaimed fen and peatland : Barton Broad (SSSI); Bure Marshes (NNR), Hickling Broad (NNR), Horsey Mere (SSSI), Surlingham and Rockland Broads (PNNR), Sutton Broad (SSSI), Ranworth Marshes (SSSI). Rich fauna and flora and unique habitat series.

e) Breeding locality for *Podiceps cristatus,* Anatidae (e.g. *Anas platyrhynchos, A. crecca, A. clypeata, A. strepera, A. querquedula,* feral *Branta canadensis* and *Anser anser),* waders, *Botaurus stellaris, Panurus biarmicus,* etc.
Wintering and passage area for many Anatidae and important spring passage area for waders (incl. *Philomachus pugnax, Limosa limosa, Tringa erythropus)* and Laridae (incl. *Chlidonias niger).*

3. *Coastal Broads, Suffolk and Essex marshes*

a) 51° 32' - 52° 24' N. 0° 50' - 1° 43' E.

b) area c. 22,000 ha.

c) 1. 2. 3. 8.

d) Extensive area of sand and mudflats, salt, brackish and freshwater marshes, lagoons and extensive reed beds, all with considerable ornithological interest.
Sites include : Benacre Broad (SSSI), Easton and Covehithe Broads, (SSSI), Havergate Island (part of NNR), Horsey Island and Hamford Water saltings (SSSI), Minsmere Level (SSSI.A.), Tillingham Marshes (SSSI), Walberswick Marshes and Blythe Estuary (PNNR), Thorpeness Fen and Mere (SSSI), the sands of Wakering and Foulness, the Dengie Flats and the Blackwater estuary.

e) Breeding birds of the area include many Anatidae, *Recurvirostra avosetta, Botaurus stellaris, Circus aeruginosus, Panurus biarmicus.* Wintering and migrating area for many species, with exceptionally as many as 15,000 ducks being recorded in the Havergate area. The Essex coast is noted for the wintering concentration of *Branta b. bernicla* - mx. 10,300 1960-61, mx. 8,800 1963-64.

4. *North Norfolk marshes*

a) 52° 58' - 59' N. 0° 40' - 1 ° 05' E.

b) area c. 1,000 ha.

c) 3.

d) The most closely studied saltmarshes in Britain and of potential importance (with other south-eastern sites) in view of the latest losses through reclamation of the comparable Dutch marshes.
Sites include : Blakeney Point (SSSI.A.), Cley and Salthouse Marshes (SSSI), Scolt Head (NNR), Wells Marshes (SSSI).

e) Valuable breeding locality for Anatidae - particularly *Anas platyrhynchos* c. 300 prs., *A. clypeatd, A. strepera, A. crecca, A. querquedula* and *Tadorna tadorna,* for *Ardea cinerea,* waders - *Haematopus ostralegus, Tringa totanus, Vanellus vanellus, Charadrius hiaticula,* Laridae - *Larus ridibundus, Sterna hirundo, S. macrura, S. albifrons, S. sandvicensis* and for *Botaurus stellaris, Panurus biarmicus, Asio flammeus.*
Wintering and migration area for many Anatidae, esp. *Anas penelope, Branta bernicla, Tadorna tadorna,* and waders - *Haematopus ostralegus, Charadrius squatarola, C. apricarius, Calidris canutus, C. alpina, Crocethia alba.*

5. *Abberton Reservoir, Essex* (SSSI)

a) 51° 49' - 51' N. 0° 49' - 54' E.

b) area c. 500 ha.

c) 5.

d) A permanent, lowland artificial reservoir with rich aquatic and marsh flora, and ornithologically one of the most important wetland areas in England - particularly for Anatidae.

e) Pronounced autumn passage of Anatidae - mx. recorded in recent years *Anas crecca* c. 12,200, *A. penelope* c. 5,300, *A. platyrhynchos* c. 4,000, *A. clypeata* c. 1,400, *A. acuta* c. 450, *Aythya ferina* c. 3,870. At least 300 *Cygnus olor* during most autumn and summer moult seasons.

6. *The Solway Firth*

a) 54° 40' - 55° 08' N. 3° 03' - 4° 59' W.

b) area c. 12,750 ha.

c) 1. 3. 5. 6. 7.

d) Large area including various habitat types, of particular importance for wintering Anatidae. Places of note are Rockcliffe, Caerlaverock (NNR), and the estuaries of the Nith and Lochar, Castle Loch (LNR), Mersehead sands and Southwick merse, the Dee from Stroan Loch to the Bridge of Dee (PNNR), Wigtown Bay, the lochs at Lochinch, and Luce Bay.

e) Wintering area for many Anatidae, especially *Anser anser* c. 10,000, *A. brachyrhynchus* up to 15,000, *A. albifrons flavirostris* c. 500, *Branta leucopsis* up to 2,800, *Anas penelope* c. 5,000 - 10,000, *A. acuta* c. 1,000 and several thousand *Melanitta n. nigra* and *Aythya marila.*

1. *Northumberland Coast*

a) 55° 36' - 41' N. 1° 44' - 52' W.

b) area c. 2,932 ha.

e) 1.

d) An area comprising the tidal basin of Lindisfarne and the sheltered inlet of Budle Bay (NNR), with extensive *Zostera* and *Enteromorpha* beds.

e) Important wintering locality for Anatidae; up to 10,000 birds recorded. Particularly important area for *Anas penelope* mx. 8,000, *Branta bernicla* mx. 2,000 (mainly *B. b. hrota*), *Cygnus olor* mx. 500, *C. cygnus* mx. 450. Area including Farne Islands important for breeding *Somateria mollissima* and terns and for wintering *Melanitta n. nigra.*

8. *The Wash and East Anglian Fens*

a) 52° 19' - 53° 10' N. 0° 15' W. - 0° 30' E.

b) area c. 5,323 ha + 75 km of coast.

e) 1. 3. 7. 8.

d) Extensive area of saltmarsh, intertidal sands, regularly flooded river meadows and fens, including the Wash (part LNR), the Ouse and Nene Washes (part SSSI) and Wicken Fen (SSSI.A.).

e) Breeding area for many species, particularly Anatidae (incl. *Anas clypeata, A. acuta* and *A. querquedula)* and waders. Important wintering area for ducks, geese, swans and waders. In the Wash area c. 20,000 ducks and c. 5,000-6,000 geese, and on the Ouse and Nene Washes mx. in recent years have been *Cygnus bewickii* c. 670, *Anas platyrhynchos* c. 3,400, *A. crecca* c. 3,300, *A. penelope* c. 19,000, *A. clypeata* c. 500, *A. acuta* c. 5,000 and *Aythya ferina* c. 2,000. January census (1957,58 and 61), gave average nos. of waders - *Calidris canutus* c. 79,000, *C. alpina* c. 33,000, *Haematopus ostralegus* c. 8,400, *Numenius arquata* c. 8,300, *Tringa totanus* c. 5,600, *Charadrius apricarius* c. 4,700, *Limosa lapponica* c. 2,300, *Charadrius squatarola* c. 1,700.

CATEGORY B.

1. *Bristol Channel and Severn estuary*

a) 51° 01' - 40' N. 2° 25' - 4° 15' W.

b) area c. 12,840 ha.

c) 1. 3. 5. 7.

d) An extensive area of diverse habitats particularly important as wintering and breeding localities for Anatidae.
Sites of importance are the Burry esturary (PNWR - PNNR), Bridgwater Bay (NNR), the Somerset reservoirs - Chew Valley, Blagdon and Cheddar, the Somerset Levels particularly Wetmoor, and the New Grounds (SSSI).

e) Breeding area for many species and especially Anatidae, e.g. *Anas platyrhynchos, A. clypeata, Aythya fuligula.*
Important wintering area for Anatidae - *Anser albifrons* (up to 5,000 New Grounds, the main locality in Britain), *Anas platyrhynchos, A. penelope, A. crecca, A. clypeata, A. acuta* and on the reservoirs, *Aythya ferina* and *A. fuligula.*
Bridgwater Bay is the only known moulting ground for *Tadorna tadorna* in Britain, with mx. of c. 3,400 in September.

2. *Dorset coastal lagoons and marshes*

a) 50° 35' - 43' N. 1° 58' - 2° 36' W.

b) area c. 2,930 ha.

c) 1. 2. 3.

d) Mainly coastal lagoons and saltmarshes, of ornithological, zoological and botanical interest; sites include Abbotsbury and the Fleet (part SSSI), Radipole Lake (Sanctuary) and Poole Harbour (part NNR).

e) Abbotsbury is noted for the colonial nesting and large resident populations of *Cygnus olor* c. 600.
Important wintering area for Anatidae and waders.

3. *Humber Estuary*

a) 53° 41' - 55' N. 0° 10' - 56' W.

b) area c. 1,773 ha.

c) 1. 5. 7.

d) Ornithologically interesting, particularly the Humber Wildfowl Refuge and estuary and the periodically flooded Derwent Valley and the 230 ha. freshwater Hornsea Mere (SSSI).

e) Breeding area for many Anatidae, especially *Anas platyrhyncbos, A. clypeata, Aythya ferina* and *A. fuligula.*
Important wintering area for Anatidae, particularly the regularly flooded grassland of the Derwent Valley which can hold several thousand ducks. The Humber Wildfowl Refuge and estuary area is one of the most important autumn gathering grounds for *Anser brachyrhynchus* (up to 10,000) in Britain, and also supports large duck and wader populations.

4. *Firth of Toy, Eden Estuary and Lochs in Strath Earn*

a) 56° 21' - 28' N. 2° 49' - 3° 52' W.

b) area c. 5,000 ha.

c) 1. 3. 5.

d) Composite area, including Tentsmuir Point (NNR), and Morton Lochs (NNR).

e) Large numbers of ducks and geese, particularly *Anser brachyrhynchus, A. anser, Anas platyrhynchos, A. penelope, A. clypeata,* and at the mouth of the Tay, *Somateria mollissima, Melanitta nigra, M. fusca, Clangula hyemalis* and *Bucephala clangula.*

5. *South Uist*

a) 57° 19' - 23' N. 7° 18' - 23' W.

b) area c. 8,498 ha.

c) 1. 2. 3.

d) Lochs Druidibeg (NNR) and Bee are the areas of interest.

e) The area includes one of the last breeding strongholds of the native *Anser anser,* and is an important wintering area for *Anser albifrons flavirostris, Branta leucopsis* and *Cygnus cygnus.*

6. *North Cheshire estuaries and meres*

a) 53° 13' - 23' N. 2° 22' - 3° 15' W.

b) area c. 11,210 ha.

c) 1. 3. 5.

d) The extensive intertidal mud and sandflats and marshes of the Dee (part SSSI and part sanctuary) and Mersey estuaries c. 11,050 ha. and the freshwater meres of Rostherne (NNR) and Tatton c. 162 ha.

e) Important wildfowl and wader feeding and roosting grounds on the marshes, mud and sandflats. The two meres are particularly important for wintering duck (e.g. *Anas platyrhynchos* mx. 4,000, *A. crecca* mx. 3,200) though probably mainly used as a roost area.

7. *Eastern Aberdeenshire*

a) 57° 19' - 38' N. l° 52' - 2° 00' W.

b) area c. 1,200 ha.

c) 1. 3. 5.

d) This area of estuary, marshland and lochs includes the Loch of Strathbeg, the Ythan estuary and the Sands of Forvie (NNR).

e) Strathbeg attracts many wintering and breeding Anatidae species, but is particularly noted for the large numbers of wintering *Anas platyrhynchos* mx. 8,000, and the autumn gathering of *Cygnus olor* mx. 270 and *Cygnus cygnus* mx. 630.
The Ythan estuary and adjoining coast is noted for its *Somateria mollissima* flocks, and large breeding populations, c. 800 prs.

8. *North Kent marshes and estuaries*

a) 51° 18' - 29' N. 0° 28' - 1° 11' E.

b) area c. 2,900 ha.

c) 1. 3. 7.

d) Predominantly an estuarine region of low-lying reclaimed marshes, saltings and tidal shallows with large mudflats, including the Swale, the Thames and Medway estuaries. Area also includes the c. 200 ha. lagoons of Stodmarsh (PNNR) formed by coal-mining subsidence.

e) Important wintering area for ducks, geese and waders and as a breeding ground for ducks.

GREECE (see map nr. 9, page 101)

CATEGORY A.

1. *Evros Delta*

a) 40° 43' - 51' N. 26° 05' - 20' E.

b) area c. 3,000 ha +.

c) 1. 2. 3. 6. 7.

d) The delta though now partly drained and converted to agriculture still has at least 3,000 ha. of wetland on the Greek side, and considerable wetland areas on the Turkish side.

e) Important area for breeding species, including *Plegadis falcinellus,* Ardeidae, Anatidae, Laridae, waders (noted for *Hoplopterus spinosus*) and raptors. Outstanding area for wintering raptors and Anatidae - esp. *Anser anser* and *A. albifrons,* and for small but regular numbers of *Anser fabalis, A. erythropus* and *Branta ruficollis.*

2. *Lake Voiviis (Lake Karla)*

a) 39° 27' - 35' N. 22° 45' - 55' E.

b) Considerable variation throughout the year - probably now generally less than 5,000 ha, even in winter.

c) 5. 7.

d) Formerly largest lake in Greece but water area now much reduced by drainage, in February 1964 less than 5,000 ha.

e) The number and species of birds breeding in this area is unknown, but is probably small.
A very important wintering and migratory area for many species, but future uncertain. In February 1964 an estimated 430,000 duck and coot were seen on the lake - incl. in order of abundance : *Anas penelope, Fulica atra, Anas acuta, A. crecca, A. clypeata* and *A. platyrhynchos.*

3. *Gulf of Arta*

a) 38° 52' - 39° 06' N. 20° 44' - 21° 09' E.

b) area c. 40,000 ha.

c) 1. 2. 3.

d) Extensive area of lagoons, shallow coastal waters and salt-brackish marshes.

e) Important breeding area for Anatidae and Laridae.
Very important wintering and migratory area for Anatidae, Laridae, waders, *Fulica atra* and *Phalacrocorax pygmaeus.*
In February 1964 over 120,000 birds seen in this area.

4. *Porto Lago and Lake Bourou*

a) 40° 56' - 41° 07' N. 25° 02' - 12' E.

b) area c. 12,000 ha.

c) 1. 2. 3.

d) area of coastal waters, lagoons and marshes with intensive fishing industry.

e) Breeding area for some of the same species as Evros Delta.
Important area for wintering and migratory species.
In February 1964 c. 38,000 ducks (incl. 13,000 *Anas clypeatd*) and 10,000 *Fulica atra* seen in this area.

CATEGORY B.

1. *Mesolonghion lagoons and Lake Aitolikon*

a) 38° 17' - 30' N. 21° 11' - 32' E.

b) area c. 20,000 ha.

c) 1. 2. 3.

d) Acheloos mouth and Lake Aitolikon, with large area of lagoons, islets and shallow sea.

e) Important area for the breeding of *Sterna albifrons, S. hirundo, Gelochelidon nilotica, Glareola pratincola, Himantopus himantopus, Charadrius alexandrinus, Calandrella brachydactyla* and *Motacilla flava.*
Feeding and roosting area for large numbers of Anatidae and waders on spring and probably autumn migration, and for wintering species.
In February 1964 25,000 ducks and coots seen in this area.

2. *Axios, Aliakmon, Loudhias mouths and Lake Alyki*

a) 40° 22' - 38' N. 22° 34' - 52' E.

b) area c. 15,000 ha.

c) 1. 2. 3.

d) Partly drained but still has number of lagoon areas and an extensive zone of saltmarshes and shallow sea, with some winter flooding in the cultivated areas. The salines of Lake Alyki have been included in the general area.

e) Breeding species of the Axios and Aliakmon include *Anas querquedula, Tadorna tadorna, Sterna hirundo, S. albifrons, S. sandvicensis, Gelochelidon nilotica, Glareola pratincola, Vanellus vanellus, Haematopus ostralegus, Charadrius dubius, C. alexandrinus, Himantopus himantopus, Remiz pendulinus, Cettia cetti,* div. Sylviidae, *Oenanthe hispanica, Calandrella brachydactyla, Motacilla flava feldegg, Porzana porzana, Anthus campestris* etc.
Important wintering and migratory area for many species.
In February 1964 some 50,000 birds seen in this area, incl. *Anas platyrhynchos, A. crecca, A. penelope, A. acuta, A. clypeata, Aythya ferina, A. fuligula, Tadorna tadorna* and *Fulica atra.*

3. *Lake Kerkinitis and parts of the Strymon valley*

a) 41° 09' - 14' N. 23° 04' - 17' E.

b) area c. 5,000 ha.

c) 5. 6. 7.

d) Natural lake with some damming.

e) Breeding potential unknown.
Important wintering area for Anatidae (esp. *Anas platyrhynchos,* 30,500 in Feb. 1964), Laridae and waders.
May still be important feeding and roosting area for *Anser* spp.

A number of wetlands should perhaps be included in the above list when more information is available, e.g. Lake Stymphalos (southern most breeding place of *Circus aeruginosus, Ixobrychus minutus, Netta rufina* ?), Lake Castoria, Lake Trikhonis, Lake Volvi and Lake Koroneia, the R. Strymon mouth.

HUNGARY (see maps nrs. 6, 9, pages 98, 101)

CATEGORY A.

1. *Lake Balaton, incl. Kisbalaton*

a) 46° 40' N. 17° 15' E. (Kisbalaton)

b) area c. 60,000 ha.

c) 5. 7.

d) Among the former bays of Lake Balaton the area of Kisbalaton is now separated and forms an extensive *Phragmites* bed of c. 1,400 ha, the major part of which is a nature reserve.

e) Kisbalaton is noted for its colonies of breeding birds, particularly the Ardeidae. (e.g. 1964 - breeding pairs : *Egretta alba 1, E. garzetta* 9, *Ardea cinerea* 62, *A. purpurea* 54, *Ardeola ralloides* 4, *Nycticorax nycticorax* 23), *Platalea leucorodia* 70 prs. 1964, *Phalacrocorax carbo* 84 prs. 1964. Breeding species of the area also include many Anatidae (e.g. *Anas platyrhjnchos, A. strepera, A. querquedula, A. clypeata, A. acuta, Aythya ferina, A. nyroca).*
On migration large concentrations of duck occur on the lake, particularly *Bucephala clangula* and *Aythya fuligula.*

2. *Alkaline lakes in the Danube - Tisza plain*

a) c. 46° 00' - 47° 30' N. 19° 00' - 20° 00' E.

b) area (0,1 to 14,5 km^2) and depth depend primarily on rainfall.

c) 4.

d) Unique habitats of great biological interest, but subject to considerable change with the fish-culture industry.
The reserve of Szeged-Feherto which used to have much ornithological interest has been changed with the creation of fish ponds and the following remarks may now be out of date.

e) Breeding area for Anatidae (incl. *Anser anser, Aythya nyroca* and in the past *Oxyura leucocephala),* Laridae and waders. Important resting place for many thousand waders, incl. *Numenius arquata, N. phaeopus, Calidris*

alpina, C. temminckii, C. minuta and *Philomachus pugnax.* Wintering area for hundreds of Anatidae, incl. *Anser albifrons* and *A. fabalis.*

3. *Floodplains, lakes and marshes of Puszta Hortobagy*
   a) c. 47° 15' - 48° 00' N. 20° 45' - 21° 45' E.
   b) area c. 450,000 ha.
   c) 5. 7.
   d) An area of steppes with some marshes and ponds, though much of it is now broken up.
   e) Important breeding area for Anatidae (e.g. *Anser anser, Anas platyrhynchos, A. querquedula, A. strepera*) and waders (e.g. *Limosa limosa, Vanellus vanellus, Glareola pratincola*).
   Noted for migrating and wintering birds, esp. Anatidae and waders.

4. *Fertö (Lake of Neusiedl) — see Austria*

CATEGORY B.

1. *Sasér reserve*
   a) 46° 25' N. 20° 10' E.
   b) area c. 60 ha.
   c) 7.
   d) A small island of the river Tisza with marsh meadows and *Populus-Salix* woods. Whole area flooded in winter and spring.
   e) Important breeding locality for Ardeidae (e.g. *Egretta garzetta* c. 60-70 prs., *Nycticorax nycticorax* c. 100-150 prs., *Ardeola ralloides* c. 30 prs., *Ardea cinerea* c. 30 prs.), raptors, incl. occasionally *Haliaëtus albicilla,* and for Anatidae (e.g. *Anas platyrhynchos* and *A. strepera);* in the last few years in every summer *Ardeola ibis* and exceptionally *Phalacrocorax pygmaeus.*
   Important area for migrating species.

2. *Lake of Velence*
   a) 47° 11' N. 18° 35' E.
   b) area c. 3,000 ha, of which c. 600 nature reserve.
   c) 5.
   d) A large lake with extensive *Phragmites* beds.
   e) Important area for breeding species. Ardeidae colonies (incl. *Ardea purpurea* and *Egretta alba*), *Platalea leucorodia* c. 60 prs., *Anser anser, Aythya nyroca, Lusciniola melanopogon, Locustella luscinioides, Panurus biarmicus, Porzana parva, Luscinia svecica.*

ICELAND (see map nr. 4, page 96)

It has not been possible to draw up a list of the most important ornithological wetlands in Iceland for the necessary information is not yet known, and as so much of Iceland is covered by wetlands it would be difficult to pinpoint any particular area.

One area, the Thjorsarver oasis at the southeastern corner of the Hofsjokull icecap in the central highlands of Iceland, has however already been proposed as a nature reserve. This area contains the largest known beeding colony of *Anser brachyrhynchus* c. 2,000 prs., and c. 15,000 - 20,000 prior to their autumn migration, i. e. 30-40 % of the world's population.

Another area, lake Myvatn, is one of the most important breeding localities for ducks in the whole Palearctic.

IRELAND (see map nr. 4, page 96)

CATEGORY A.

1. *North and South Slobs and Harbour, Co. Wexford*

   a) 52° 15' - 30' N. 6° 15' - 35' W.

   b) area c. 3,035 ha.

   c) 1. 3. 6.

   d) An area of shallow waters, saltmarsh and reclaimed land now used for grazing and tillage.

   e) Important wintering ground for Anatidae (particularly *Anser albifrons flavirostris* c. 4,500, *Branta bernicla* c. 1,000 and *Aythya marila* c. 3,000 January peak, also *Branta leucopsis, Cygnus olor, C. cygnus, Anas penelope, A. crecca, A. platyrhynchos, Aythya fuligula* and *Fulica atra*.)
   Important area for passage and wintering waders, e.g. *Limosa limosa* c. 1,500 November, *Calidris alpina* and *C. canutus.*

2. *Inishkea islands, Co. Mayo*

   a) 54° 08' N. 10° 11' W.

   b) area c. 380 ha +.

   c) 3.

   d) Two islands (c. 380 ha) and eleven smaller islands. North island which has a small brackish lake, is almost entirely covered with a *Plantago* sward. The South island has about l/3rd *Plantago* cover.

   e) Islands are the main wintering locality of *Branta leucopsis* (c. 2,500 March 1962, over 50 % of the Irish population) for which *Plantago* sward provides grass grazing. Small numbers of *Anser albifrons flavirostris.*
   Passage area for waders, particularly in early spring, e.g. *Pluvialis apricaria* c. 1,500 April, *Arenaria interpres* c. 400 March, *Calidris maritima* c. 175 March.

3. *Tralee Bay and Castlemaine Harbour, Co. Kerry.*

   a) 52° 05' - 18' N. 9° 45' - 10° 00' W.

   b) area c. 1,500 ha.

   c) 1. 3.

   d) Coastal waters and marshes of ornithological interest.

   e) Principal wintering area of *Branta bernicla hrota* - up to 4,000. Important area for *Anas penelope* and waders.

CATEGORY B.

1. *Bull island, Dublin Bay*

   a) 53° 20' N. 6° 05' W.

   b) area c. 1,404 ha.

   c) 1. 2. 3.

   d) An area of coastal waters, lagoons and saltmarshes, now a sanctuary with complete protection for all birds.

   e) Mud frequented by migratory Anatidae including *Branta bernicla* c. 250, waders and sea birds.

2. *Shannon and Fergus tidal estuaries, Co. Clare and Limerick*

   a) 52° 34' - 49' N. 8° 46' - 9° 42' W.

   b) area c. 3,000 ha.

   c) 1. 3.

   d) Area of coastal waters and saltmarsh of ornithological interest.

   e) Wintering and passage area for Anatidae (esp. *Cygnus olor, Anser anser, Branta bernicla, A. penelope*) and waders (*Pluvialis apricaria* and *Numenius arquata*).

3. *Kilcools coastal marshes, Co. Wicklaw*

   a) 52° 59' - 53° 09' N. 6° 03' - 04' W.

   b) area c. 600 ha.

   c) 1. 3.

   d) A narrow coastal strip, approx. 12 km long of importance for wintering birds.

   e) Wintering area of many Anatidae (incl. *Cygnus cygnus, Anser anser, Anas platyrhynchos, A. crecca* and *A. penelope*) and waders (e.g. *Vanellus vanellus, Pluvialis apricaria*).

4. *Rahasane Turlough, Co. Galway*

   a) 53° 15' N. 8° 40' W.

   b) area c. 120 ha.

   c) 7.

   d) Flood land of the River Dunkellin, west of Craughwell.

   e) Important wintering area for Anatidae (*Cygnus cygnus* c. 100-150, *C. bewickii* up to 300, *Anser albifrons flavirostris* c. 200, *Anas crecca* and *A. penelope* - several thousand, *A. acuta* c. 100 - 200, *A. platyrhynchos, A. clypeata, Aythya ferina* and *A. fuligula* - several hundred) and many waders.

5. *Lough Swilly, Co. Donegal*

   a) 55° 05' N. 7° 30' W.

   b) area c. 750 ha.

c) 2. 3. 5.

d) Mainly the southern end of Lough Swilly and Inch island, incl. two small brackish/freshwater lakes.

e) Particularly important for wintering swans - *Cygnus cygnus* (c. 150) and *C. bewickii.*

NORTHERN IRELAND (see map nr. 4, page 96)

CATEGORY A.

1. *Lough Neagh and L. Beg*

a) c. 54° 30' - 50' N. 6° 15' - 35' W.

b) area L. Neagh c. 39,800 ha, L. Beg c. 715 ha.

c) 5. 7.

d) and *e)* L. Neagh : there are no really satisfactory estimates of wintering or breeding numbers. Particularly important breeding area for *Podiceps cristatus* and *Aythya fuligula* (up to 500 prs. ?) Extremely important wintering area for ducks and swans. Two recent estimates : Feb. 1959 c. 10,300 *A. fuligula* and c. 1,900 *Bucephala clangula,* Jan. 1960 c. 21,800 *A. fuligula* and c. 2,800 *B. clangula.* Most winters up to c. 500 *Cygnus cygnus* and from 0-300 *C. bewickii.*

L. Beg : breeding locality for *A. fuligula,* (39 prs. in 1958). Important wintering area - mx. c. 3,550 *A. fuligula,* c. 500 - 1,000 *A. ferina* (and increasing), c. 450 *B. clangula,* c. 200 - 350 *C. cygnus,* up to 50 *C. bewickii,* c. 1,500 - 2,500 *Anas platyrhynchos* in August but fewer later on.

CATEGORY B.

1. *Strangford Lough and Downpatrick Marshes*

a) c. 54° 25' - 35' N. 5° 30' - 40' W.

b) area c. 18,720 ha.

c) 2. 3. 7.

d) and *e)* Breeding area for terns, e.g. *Sterna sandvicensis* and *S. hirundo.* Wintering area for c. 2,500 - 3,500 *Branta bernicla,* c. 10,000 - 12,000 *Anas penelope,* and 1-100 *Cygnus cygnus.* Downpatrick marshes hold up to 300 *Anser anser* (decreasing) and 150 - 250 *A. albifrons* (increasing).

2. *Lough Erne*

a) c. 54° 20' - 32' N. 7° 25' - 8° 00' W.

b) area c. 10,350 ha.

c) 5. 6. 7.

d) and *e)* The Upper Lough particularly contains amaze of wooded islands and is an important breeding area for many species. The only regular breeding area for *Melanitta nigra* in Ireland (c. 50 prs. in 1954). Up to 250 *Cygnus cygnus* in winter.

3. *Lough Foyle*

a) c. 55° 05' - 12' N. 7° 00' - 25' W.

b) c. 19 km of south shore is important.

c) *2.* 3.

d) and *e)* Wintering area for c. 250 - 350 *Cygnus cygnus,* c. 300 *Anser anser,* c. 500 - 1,200 *Branta bernicla* (increased recently), c. 5,000 - 8,000 *Anas penelope,* c. 400 - 1,000 *A. acuta,* and 1,000 - 3,000 *A. platyrhynchos.*

ITALY (see map nr. 9, page 101)

CATEGORY A.

1. *Venetian lagoons*

a) 45° 13' - 34' N. 12° 10' - 40' E.

b) area c. 58,600 ha.

e) 1. 2. 3.

d) This arc shaped lagoon formed by the Laguna di Venezia, the Valle Altanea and the Laguna di Caorle is mostly composed of a complex of shallow basins intersected by long and sometimes deep canals. Approx. l/5th of the area is reserved for hunting and there is an active fishing industry. The whole area is of great scientific interest.

e) Important breeding area for many species and exceptionally important wintering and resting area for Anatidae, Rallidae and waders. Records have included *Pluvialis apricarius, Tringa erythropus, T. stagnatilis, T. nebularia, Calidris minuta, C. teminckii, Limicola falcinellus.* In the severe winter of 1962/63 counts for parts of the Venezia-Padova area included in December c. 4,480 *Anas platyrhynchos,* c. 9,970 *A. penelope,* c. 2,860 *A. acuta,* c. 4,100 *A. crecca,* c. 6,000 *Aythya ferina,* 1,900 *A. fuligula,* 25,000 *Fulica atra* and in March c. 4,300 *A. querquedula.* The total population of wintering Anatidae may exceed 100,000.

2. *Valli in the province of Rovigo, between the Adige, Po di Goro and Gnocca*

a) 44° 47' - 45° 04' N. 12° 13' - 30' E.

b) area 17,000 ha.

c) 1. 2. 3. 4. 5.

d) Valli similar to those of the Venetian lagoons, located to the left and to the right of the main arm of the Po river.

e) The species of Anatidae are the same as in the Venetian lagoons but their total number is lower.

3. *Valli in the Ferrara Province and valli di Comacchio*

a) 44° 32' - 47' N. 11° 55' - 12° 20' E.

b) area 35,000 ha.

c) 1. 2. 3. 4. 5.

d) Boundaries north : Po di Goro and Po della Gnocca rivers; south : Reno river and part of the Ferrara province. Valli similar to the preceding, but the concentration of salt is very changeable owing to the inflow of freshwater. In these groups of valleys is included the Great Comacchio valle, with salt concentration of 46 ‰.

e) In the valli of the province of Ferrara there are the same species of Anatidae and waders as in the Venetian lagoons. In Comacchio there are important breeding colonies of *Recurvirostra avosetta, Himantopus himantopus, Glareola pratincola.*
Wintering and resting area for many thousand Anatidae, Rallidae, Laridae and waders, particularly *Aythya ferina* (ca. 30,200, March 1963). *A. fuligula* and *Anas platyrhynchos, A. penelope* and *Fulica atra* (c. 33,550, December 1963).

4. *Lower part of the Candelaro, Foggia*

a) c. 41° 35' N. 15° 55' E.

b) area c. 150 km^2.

c) 2. 3. 5. 6. 7.

d) Complex area of marsh and temporarily flooded salt steppes most of which has been or will be reclaimed. Area includes the salinas of Margherita di Savoia and the 1,100 ha. Daunia estate of floodwater (c. 550 ha) and wheatfields.

e) Important wintering area for many thousand Anatidae and Rallidae, particularly the salinas and Daunia estate — up to c. 15,000 surface feeding duck: *Anas platyrhynchos, A. crecca, A. penelope, A. acuta,* and up to c. 4,700 geese, mostly *Anser albifrons* and a few *A. fabalis,* i. e. the most important locality for geese in Italy.

5. *Pools and lagoons of Oristano, Cagliari*

a) 39° 13' N. 9° 05' E.

b) area c. 11,000 ha + 2,300 ha freshwater.

c) 2. 3. 6.

d) Most important ornithological wetland area in Sardinia.

e) Probably interesting breeding locality.
Important for migrating and wintering birds, particularly Anatidae and Rallidae, e.g. *Anas platyrhynchos, A. acuta, A. crecca, A. strepera, A. penelope, A. querqmdula* (March), *Aythya ferina, A. fuligula* and *Fulica atra.*

CATEGORY B.

1. *Lagoons in the Province of Grosseto*

a) 42° 19' - 26' N. 10° 50' - 11° 12' E.

b) area c. 6,540 ha.

c) 2. 3. 6.

d) Lagoons of Orbetello and Burano.

e) Important wintering ground for Anatidae and for large flocks of *Anas querqmdula* in March.

2. *Lakes Lesina and Varano*

a) 41° 50' - 53' N. 15° 17' - 50' E.

b) area c. 11,000 ha.

c) 2.

d) Two saltwater lakes at the foot of Monte Gargano, deep, but with shallow edges in places.

e) Wintering area for Anatidae and Rallidae, particularly *Aythya ferina, A. fuligula* and *Fulica atra.*

JUGOSLAVIA (see map nr. 9, page 101)

CATEGORY A.

1. *Kopacki rit, S. R. Croatia-Baranja*

a) c. 45° 35' N. 18° 50' E.

b) area c. 135 ha (lake), c. 2,300 ha (ponds).

c) 5. 6. 7. 8.

d) Complex of ponds, marshy meadows, reedbeds, peatland and submerged forests between the Danube and Drava. One of the richest ornithological reserves in Jugoslavia.

e) Important breeding area for Podicipidae, Phalacrocoracidae, Ardeidae (incl. *Egretta alba*), Anatidae (incl. *Anser anser*) and Rallidae. Some 270 species recorded and tens of thousands of individuals.

2. *Vojvodina wetlands, S. R. Serbia-Vojvodina*

a) c. 45° 00' - 30' N. 20° 00' - 30' E.

b) area c. 5,000 ha.

c) 4. 5. 6. 7.

d) Many shallow lakes, ponds, marshes and submerged plains and forests in meanders of the Danube, Tisza and Begej. Water areas from 10-500 ha. Some of the most important and protected ponds are Carska bara (10,5 ha), Mala bara (60 ha), Veliki rit (500 ha), Vojtina mlaka, Crna bara near Backi Monostor, Tiganica.

e) Important breeding grounds for Ardeidae, Plataleidae, Rallidae, Anatidae, Laridae, Podicipidae and refuges for some rare species, e.g. *Ciconia nigra, Haliaëtus albicilla, Egretta alba, Plegadisfalcinellus.*

3. *Obedska bara, S. R. Serbia-Srem*

a) c. 44° 40' N. 20° 00' E.

b) area c. 700 ha.

c) 5. 6. 7. 8.

d) Complex of ponds, marshes, reedbeds, peatland and submerged forests in dry branch of the Sava. Main ponds are Cvorca, Nedozrela bara, Stekina bara, Rogoznica.

e) Richest ornithological reserve in Jugoslavia particular important as a breeding area for Ardeidae, Phalacrocoracidae, Plataleidae, Podicipidae, Rallidae, Anatidae.
A number of rare species have been recorded, e.g. *Ciconia nigra, Haliaëlus albicilla, Plegadis falcinellus, Ardeola ibis.*

4. *Skadarsko jezero, S. R. Montenegro (part Albania)*

a) 42° 07' - 25' N. 19° 00 - 30' E.

b) area c. 40,000 ha.

c) 5. 6. 7.

d) Lake with extensive reedbeds and seasonally flooded areas.

e) Breeding area for many species, incl. Anatidae and c. 25 prs. *Pelecanus onocrotalus.*
Important wintering and passage area for Anatidae (e.g. up to 10,000 *Anser albifrons* and many thousand *Anas* and *Aythya* spp. — particularly *platyrhynchos, crecca, clypeata, fuligula, ferina, nyroca*), Podicipidae, Phalacrocoracidae, Ardeidae, Rallidae, Laridae and waders.

5. *Dojransko Jezero, S. R. Macedonia (part Greece)*

a) c. 41° 11' N. 22° 44' E.

b) area c. 4,200 ha.

c) 5.

d) Eutrophic shallow lake with reedbeds. Intensive fishing industry, with unique methods of herding fish into catching areas using birds (*Podiceps, Mergus* etc.).

e) Breeding species : *Egretta alba, Pekcanus onocrotalus, Cygnus olor, Oxyura leucocephala* and *Ardea purpurea.* Important winter quarters for large numbers of migratory aquatic birds, e.g. Anatidae, Podicipidae, Colymbidae, Phalacrocoracidae, Rallidae, Ardeidae, Pelecanidae etc.

CATEGORY B.

1. *Donjeneretvljanska blatja, S. R. Bosna and Hercegavina*

a) c. 43° 00' N. 17° 45' E.

b) area c. 16,300 ha.

c) 3. 4. 5. 6. 8.

d) Ponds, marshes, peatland, sandbanks, submerged plains and forests in the lower valley of the Neretva, but reclamation schemes are advanced and few areas of wetland will be left. A hunting reserve in the Hutovo Blato area (c. 7,000 ha) has been established and will be preserved.

e) Breeding area and important wintering quarters for many species, particularly *Anas* spp. Few geese *(Anser fabalis).*

2. *Lake Ludas, S. R. Vojvodina*

a) c. 46° N. 19° E.

b) area c. 200 ha.

c) 4. 5.

d) Shallow lake with large reedbeds, between the Danube and Tisza.

e) Breeding ground for Rallidae, Podicipidae, Laridae, Ardeidae and Anatidae (incl. *Oxyura leucocephala*).
Wintering area for many species.

3. *Katlanovskó blato, S. R. Macedonia*

a) 41° 54' N. 21° 40' E.

b) area c. 600 ha.

c) 5. 7. 8.

d) Ponds, marshes, peatlands and submerged plains in the valley of the river Vardar. To be drained in the near future.

e) Important winter quarters for migratory birds.

MAROC (voir carte n° 10, page 102)

CATEGORY A.

1. *Puerto Cansado*

a) 28° 00' N. 12° 25' W.

b) 5000 ha.

c) 1. 2. 3.

d) Lagune salée en communication avec la mer, de 25 km de long sur 1 à 3 km de large. La lagune est soumise sur sa plus grande partie au régime des marées. Grande importance hydrobiologique et Ornithologique.

e) Il n'y a pas d'hivernage d'Anatidés à Puerto Cansado, mais des centaines de milliers de Limicoles *(Haematapus ostralegus, Squatarola squatarola, Charadrius hiaticula, C. alexandrinus, Numenius arquata, N. tenuirostris, Limosa lapponica, Tringa totanus, Crocethia alba, Calidris canutus, C. minuta, C. alpina* etc.). *Phoenicopterus ruber* y niche probablement et il est possible qu'il y ait beaucoup de canards aux passages.
Hivernage également de rapaces *(Pandion), Platalea* et Laridés.

2. *Merja zerga*

a) 34° 50' N. 6° 20' W.

b) 3000 ha.

c) 1. 2. 3.

d) Lagunes salées peu profondes séparées de la mer par des dunes, mais communiquant largement avec elle par un chenal au nord. Végétation palustre abondante sur les bords et nombreux herbiers de *Ruppia.* Très grande richesse hydrobiologique et milieu très poissonneux.

e) Hivernage de 30.000 à 50.000 canards (*Anas crecca, A. acuta, A. clypeata, A. penelope, A. angustirostris, A. platyrhynchos, Tadorna tadornd*) et plusieurs centaines de milliers de Limicoles (surtout *Vanellus vanellus, Squatarola squatarola, Pluvialis apricarius, Charadrius biaticula, Limosa limosa, Tringa totanus, Calidris alpina, Recurvirostra avosetta* etc.). Milieu certainement très important comme lieu de passage pour les canards, Limicoles, Laridés, rapaces etc.

CATÉGORIE B.

1. *Embouchure de la Moulouya*

a) 35° 20' N. 2° 20' W.

b) Quelques kilomètres carrés.

c) 2. 3.

d) Lagunes et marais côtiers parmi les plus intéressants de la côte méditerranéenne du Maroc. Les marais sont séparés de la mer par une ligne de dunes. Milieu d'un très grand intérêt botanique et Ornithologique.

e) Très grande escale pour les migrateurs : Ardéidés, *Platalea leucorodia, Phoenicopterus ruber, Tadorna tadorna, Casarca ferruginea,* Anatidés, Rallidés, Limicoles et Passereaux.

2. *Lagune d'Oualidia*

a) 32° 50' N. 9° 00' W.

b) ca. 1000 ha.

c) 2. 3.

d) Cette lagune est l'extrémité sud d'un ensemble qui longe la côte depuis 9 km au sud du Cap Blanc jusqu'à la ville d'Oualidia. Peu profondes, leur largeur ne dépasse pas 500 à 600 m, et elles sont séparées de la mer par des cordons dunaires et des digues rocheuses. On y trouve de vastes sansouires à Salicornes. En quelques points, l'ostréiculture y est pratiquée.

e) Hivernage faible d'Anatidés (l'hivernage d'*Anas angustirostris* y est prouvé) mais des milliers de Limicoles, notamment *Squatarola, Charadrius hiaticula, Numenius arquata, Tringa totanus, Calidris minuta,* et *Himantopus himantopus* y hivernent.
Quelques colonies nicheuses de cette dernière espèce.

3. *Bas Bou-Regregg*

a) 34° 00' N. 6° 45' W.

b) Quelques kilomètres carrés.

c) 2. 3. 6.

d) Les 15 derniers km de l'oued sont caractérisés par une sansouire basse d'où émergent quelques îlots boisés.

c) Lieu de passage d'Anatidés et de Limicoles mais surtout célèbre par ses colonies (les plus belles du Maroc) d'*Ardeola ibis* auxquelles se mêlent quelques couples d'*Egretta garzetta* et de *Nycticorax nycticorax.*

4. *Lagune de Mehdia*

a) 34° 15' N. 6° 40' W.

b) 150 à 200 ha.

c) 3.

d) Marais côtiers étroits et relativement peu profonds. Ils sont entourés de forêts, intense végétation palustre.

e) Bonne zone de passage pour les Anatidés, Limicoles, Rallidés etc., mais médiocre pour l'hivernage des canards. *Podiceps cristatus, Atlas platyrhynchos, Fulica cristata* et *Himantopus himantopus* y nichent.

5. *Lacs du Moyen Atlas*

a) ca. 33° 35' N. 5° 05' W. - Région d'Azrou.

b) 500 à 800 ha en 5 collections d'eau.

c) 5. 7.

d) Complexe de 36 lacs de montagne dont nous proposons la classification de 5 d'entre eux (Aaoua, Hachlaff, Tifounassine, Sidi Ali, Affenourir). Lacs permanents mésotrophes encombrés généralement d'une abondante végétation émergée et immergée. Grande importance hydrobiologique et piscicole (truites).

e) Hivernage de plusieurs milliers de canards (*Anas platyrhynchos, A. penelope, A. crecca, A. acuta, A. clypeata*). Milieux très intéressants pour la reproduction abondante de plusieurs espèces, notamment *Fulica cristata* et*Casarcaferruginea.*

NETHERLANDS (see map nr. 5, page 97)

CATEGORY A.

1. *Waddensea*

a) 52° 55' - 53° 35' N. 4° 45' - 7° 10' E.

b) area c. 280,000 ha.

c) 1. 2. 3.

d) An area of shallow coastal sea (270,000 ha), coastal lagoons (1,250 ha) and coastal marshes (9,000 ha) of great ornithological importance with also hydrobiological and botanical interests. *Phoca vitulina* occurs in this area in numbers varying from 1,000 to 1,500. The most important ornithological sites include the Dollard mudflats, the Lauwerssea area, the Noorderleeg area, Balgzand area near Den Helder, Eendrachtschorren east of Texel, Vliehors and Posthuiswad on Vlieland, the Boschplaat area on Terschelling and the island of Griend in the centre.

e) Numerous breeding and migrating birds in this area, e.g. c. 50,000 *Somateria mollissima,* 10,000 *Tadorna tadorna* and c. 60,000 *Sterna sandvicensis.* Without doubt one of the most important feeding areas for migrating and wintering birds in western Europe, particularly noted for large numbers of Anatidae, Laridae and waders.

2. *IJsselmeer and its border lakes*

a) 52° 15' - 53° 05' N. 5° 00' - 50' E.

b) area c. 231,000 ha.

c) 4. 5. 7.

d) A shallow, oligohalinic (part of the Zuiderzee until 1932) inland water with the border lakes of Amstelmeer, Ketelmeer and Veluwemeer, of considerable ornithological, botanical and hydrobiological interest.

e) In autumn, winter and spring hundreds of thousands of waterbirds (mainly duck) visit the area, staying for short periods, passing on migration or staying for months in mild winters. Thousands of *Cygnus o/or, C. bewickii, Anser anser, A. albifrons, A. bracbyrhynchus* and tens of thousands of *Anas platyrhynchos; A. acuta, A. crecca, A. penelope, A. querquedula A. clypeata, Aythya ferina, A. fuligula, A. marila* and *Bucephala clangula.* Thousands of wintering *Fulica atra* and many other species *(Ardea cinerea, Botaurus stellaris,* waders, gulls, terns etc.).
Breeding locality for *Panurus biarmicus.*

3. *Delta area*

a) 51° 25' - 55' N. 3° 45' - 4° 45 E.

b) area c. 75,000 ha.

c) 1. 2. 3.

d) The area includes the coastal tidal waters (c. 72,500 ha) and the localities of Haringvliet and Hollands Diep, Grevelingen, Krammer and Volkerak and the Oosterschelde. The tidal waters will be isolated from the North sea with the completion of the Delta Works, and the waters will become brackish and fresh, but will be of great zoological and botanical interest.

e) Breeding locality for many birds, particularly important for *Tadorna tadorna, Recurvirostra avosetta, Charadrius hiaticula, C. alexandrinus, Sterna hirundo, S. sandvicensis, S. albifrons and S. macrura.*
In autumn, winter and spring, feeding area for many *Colymbus* and *Podiceps* spp. and for many thousands of Anatidae and waders, sometimes thousands of swans (*Cygnus olor, C. bewickii, C. cygnus*), tens of thousands of geese (*Anser anser, A. albifrons, A. fabalis, Branta leucopsis*) and even larger numbers of duck (mostly *Anas platyrhynchos, A. clypeata, A. crecca, A. acuta,* and *A. penelope*).

4. *Westerschelde*

a) 51° 20' - 30' N. 3° 30' - 4° 00' E.

b) area c. 44,800 ha.

c) 1. 3.

d) The coastal waters (c. 39,000 ha) and coastal marshes (c. 5,800 ha) of the Westerschelde are the only parts of the Delta which will remain in open communication with the North sea, and are therefore of special scientific importance—botanically and zoologically.

e) Large flocks of Anatidae and waders live along the shores and on the sandbanks and mudflats—thousands are present throughout the year. In the western part of the Westerschelde area there is a moulting ground for *Tadorna tadorna.*

5. *A. Complexes of broads, marshes, reedlands and other wetlands in N. W. Overijssel and S. W. Friesland*

a) 52° 35' - 55' N. 5° 45' - 6° 05' E.

b) area c. 15,000 ha.

c) 5. 7.

d) Very rich shallow static inland freshwater in an area from Tjeukemeer to the " Schinkelland " near Zwartsluis. The biotic communities characteristic of these habitat types have a development in this area which is probably optimal and unique in western Europe.

e) Important areas for breeding birds, particularly *Ardea purpurea, Phalacrocorax carbo, Anas platyrhynchos, A. querquedula, A. clypeata, Cygnus olor, Chlidonias niger.*

B. Wet cultivated grasslands in several provinces which are of special interest for large flocks of migrating and wintering geese. The most important are in

1. *Friesland* - Bantpolder, Anjumer Kolken, river Boorne near Beetsterzwaag, "Boezemlanden" near Alkmarijp and Joure, Makkumerwaard, Workumerwaard, Sondeler Leyen, Grote Brekken. (c. 52° 50' - 53° 25' N. 5° 20' - 6° 55' E, c. 8,000-10,000 ha.)

2. *Noord-Brabant* - Haagse Beemden and other areas between Breda and Willemstad (c. 51 ° 35' - 40' N. 4° 30' - 45' E, several thousand ha.)

3. *Zeeland* - " De Poel " near Goes, " De Putting " near Kloosterzande and " Groot Eiland " near Hulst (c. 51° 15' - 30' N. 3° 50' - 4° 00' E, c. 4,000 ha.)

CATEGORY B.

1. *A. Zwanenwater near Callantsoog*

a) 52° 48' N. 4° 40' E.

b) area c. 150 ha.

e) 2.

B. De Muy on Texel

a) 53°08'N. 4°46'E.

b) area c. 50 ha.

c) 2.

C. Breede Water and Quackjeswater on the island Voorne, S. Holland

a) 52° 15' N. 5° 07' E.

b) area c. 40 ha.

c) 2.

These small shallow oligohalinic coastal dune lakes are of great interest botanically and zoologically. They are noted also for the breeding colonies of *Platalea leucorodia* and *Ardea cinerea,* and as breeding localities for *Anas* spp. and other marshbirds.
Also noted as important resting areas for migrating waterbirds.

2. *Alkmaardermeer and Waterland*

a) 52° 25' - 33' N. 4° 45' - 55' E.

b) area c. 5,000 ha.

c) 4. 5.

d) Complex of oligohalinic lakes (1,250 ha), ponds, ditches, reedlands and marshy grasslands in the province of N. Holland.

e) Important as a breeding area for wading birds, such as *Vanellus vanellus, Limosa limosa, Philomachus pugnax, Tringa totanus,* and as feeding area for *Platalea leucorodia.*

3. *Oostelijke Vechtplassen area*

a) 52°15'N. 5°07'E.

b) area c. 10,000 ha.

c) 4. 5.

d) Shallow static inland freshwater mostly originating from peat diggings, partially in the province of N. Holland and partially in province of Utrecht, of considerable botanical and zoological interest. Important sites are the Naardermeer nature reserve, Ankeveense Plassen, Kortenhoefse Plassen and Wijde Blik, Loenerveense Plas e.a. and Loodsdrechtse Plassen, Tienhovensche Plassen and Maarsseveense Plassen.

e) Important breeding areas for *Platalea leucorodia, Ardea purpurea, Botaurus stellaris, Ixobrychus minutus, Phalacrocorax carbo, Cblidonias niger* and many other species.

4. *Large lakes in the province of South Holland*

a) 52° 02' - 16' N. 4° 32' - 55' E.

b) area c. 4,200 ha.

c) 4. 5.

d) Shallow static inland, oligohalinic waters of particular importance as watersport areas, but also of interest for their botanical and zoological aspects. Four complexes are particularly noteworthy :

1. Westeinder Plassen, Braassermermeer, Plassen van Langeraar and Kagerplassen.

2. Vinkeveense Plassen and Botshol.
3. Nieuwkoopse Plassen.
4. Reeuwijkse Plassen.

e) Breeding areas for many waterbirds, e.g. *Ardea purpurea,* locally *Netta rufina.*

5. *Broads and shallow lakes in Friesland*

a) 52° 50' - 53° 10' N. 5° 25' - 6° 05' E.
b) area c. 26,000 ha.
c) 4.
d) Slightly brackish and oligohalinic shallow static waters, of biological interest because of their rich fauna and flora.
e) Breeding area for many waterbirds.

NORWAY (see map nr. 3, page 95)

The complexity of the wetland situation in Norway is such that it has not been possible to compile a complete list of internationally important sites using the same criteria as were employed in selecting sites in other European countries.

It is thought, however, that the following list includes the most important ornithological areas.

CATEGORY A.

1. *Smöla Island and western parts of Hitra*

a) 63° 20' - 36' N. 7° 45' - 8° 45' E.
b) area c. 20,000 ha +.
c) 8.
d) Largely coastal peatland localities, in the counties of More and Romsdal and Sör-Tröndelag, of considerable ornithological interest.
e) Important breeding area for many wetland bird species and important for migrating species.

2. *Regions of Steigen and Hamaröy etc.*

a) 67° 50' - 68° 05' N. 15° 00' - 40' E.
b) area c. 6,250 ha.
c) 1. 5.
d) An area mainly of coastal waters on the eastern banks of Vestfjorden of ornithological interest.
e) Very important breeding and migration area for shore birds.

3. *Bavtajokka - Gorzzejokka - Anarjokka area*

a) 68° 40' - 69° 50' N. 24° 20' - 25° 30' E.

b) area c. 25,000 ha.
c) 8.
d) Extensive peatland areas in Kautokeino and Karasjok, Finnmark.
e) Breeding area for *Cygnus cygnus,* geese and ducks.

4. *Orrevatn with surroundings on Jären, Rogaland*

a) 58° 44' - 46' N. 5° 31' - 35' E.
b) area c. 1,500 ha.
c) 5.
d) Eutrophic to mesotrophic inland freshwaters, and 5 km coastline of particular ornithological interest.
e) Important resting area for migrating waders and ducks. Wintering area for ducks and swans.

CATEGORY B.

1. *1*) *Area around Varangerfjord* and *2. Pasvikdalen south of Kirkenes*

a) 69° 00' - 70° 20' N. 28° 30' - 31° 00' E.
b) area c. 19,300 ha.
c) 3. 5. 7. 8.
d) A large area including a number of different biotopes of ornithological interest.
e) Important breeding grounds for ducks, geese and waders.

2. *1*) *Fokstumyrene - Hjerkinn on Dovrefjell, Oppland* and

2) Atnasjömvren in Sollia, Hedmark

a) 61° 55' - 62° 13' N. 9° 10' - 10° 50' E.
b) area c. 2,000 ha.
c) 5. 8.
d) An area including the protected c. 900 ha of Fokstumyrene.
e) Important breeding grounds for ducks and waders, and for *Circus cyaneus* and *Grus grus,*

3. *Velfjord region, Nordland*

a) 65° 15'-30' N. 12° 10' - 40' E.
b) area c. 1,000 ha.
c) 1. 8.
d) Coastal waters and peatland.
e) Important breeding grounds for ducks, geese and waders.

POLAND (see map nr. 6, page 98)

CATEGORY A.

1. *Masurian Lakes*

a) c. 53° 15' - 54° 20' N. 19° 00' - 23° 00' E.

b) The whole complex includes 4,129 lakes of c. 115,280 ha of which the largest waters are Sniardwy (10,600 ha) and Mamry (10,400 ha).

c) 5.

d) Many different types ranging from shallow lakes with a dense vegetation to deep lakes with a rather poor one. Often surrounded by forest.

e) Breeding area for numerous *Phalacrocorax carbo, Ardea cinerea, Botaurus stellaris, Ciconia nigra, Cygnus o/or, Anser anser, Anas* spp., *Haliaëlus albicilla, Pandion haliaetus,* etc.
The most interesting sites in this area are :
Karas Lake, 689 ha included in the ornithological reserve of 915 ha.
Gaudy Lake, 319 ha - ornithological reserve.
Lukniany Lake, 623 ha - ornithological reserve. c. 1,000 prs. *C. o/or,* the greatest concentration in Europe.
Oswin Lake, 1,000 ha - ornithological reserve.
Pogubie Wielkie Lake, 800 ha - including island reserve.
Kruklin Lake, 200 ha - colony of c. 10,000 prs. *Larus ridibundus.*
Ilgi Lake, 90 ha - reserve.
Mamry Lake - several islands in lake c. 200 ha. ornithological reserves.

2. *Druzno Lake*

a) c. 54° 10' N. 19° 30' E.

b) area c. 2,343 ha.

c) 5. 6. 8.

d) A shallow lake with dense vegetation, now an ornithological reserve.

e) Breeding birds include *Nycticorax nycticorax, Anser anser* and many other Anatidae, *Panurus biarmicus, Carpodacus erythrinus.* Wintering and migration area for many Anatidae.

3. *Fish ponds near Milicz*

a) c. 51° 30' N. 17° 05' E.

b) area c. 7,980 ha including 5,302 ha reserves.

c) 5. 6.

d) A complex of fourteen large fishponds created in the XIVth century. Many lakes with dense vegetation.

e) Breeding species include *Anser anser* c. 200 prs., *Ciconia nigra, Ardea purpurea* (only pr. in Poland), *Botaurus stellaris* and many Anatidae.
Wintering and migration area for many hundred *Anser anser, A. albifrons* and a few *A. fabalis,* and for many thousands ducks.

4. *Wetland areas near Biebrza river and Augustowski canal*

a) c. 53° 25' - 45' N. 22° 30' - 35' E.

b) area c. 50,000 ha.

c) 5. 7. 8.

d) A vast uninhabited area of wet meadows, shallow overgrown waters, and peatlands. Breeding area for *Alces alces* and *Castor fiber.*

e) Breeding area for many Anatidae, many birds of prey, *Ardea cinerea, Botaurus stellaris, Lyrurus tetrix, Numenius arquata, Philomachus pugnax, Remiz pendulinus.*

5. *Ptasi Raj, on the Vistula mouth*

a) c. 54° 20' N. 18° 50' E.

b) area c. 200 ha.

c) 3. 5.

d) Reserve area of two densely overgrown lakes.

e) Important breeding area; species include many Anatidae and Laridae, *Tringa glareola, Charadrius dubius, Philomachus pugnax, Panurus biarmicus, Locustella fluviatilis* and *L. luscinioides.*

6. *Leba and Garno Lakes*

a) c. 54° 45' N. 17° 30' E.

b) area c. 4,000 ha.

c) 3.

d) Shallow overgrown lakes, separated from the Baltic by a narrow strip of land.

e) Breeding area for *Grus grus, Anser anser, Cygnus olor* and many other Anatidae.
Important resting area for birds migrating along the Baltic coast.

CATEGORY B.

1. *Liwia Luza Lake*

a) c. 54° 05' N. 15° 05' E.

b) area c. 220 ha.

e) 3.

d) A partly overgrown shallow (1.5 m) lake.

e) Breeding birds include *Cygnus olor* and other Anatidae.

2. *Lubiatowskie Lake*

a) c. 54° 10' N. 16° 15' E.

b) area c. 370 ha.

c) 4. 5. 7.

d) A shallow (1 m) densely overgrown lake.

e) Breeding species include *Cygnus olor* and other Anatidae.

3. *Zegrze Lake*

a) c. 52° 30' N. 21° 05' E.

b) area c. 3,000 ha.

c) 5.

d) An artificial lake created in 1962 on the Bug and Narw rivers. Partly surrounded by swamplands.

e) Great importance for migrating wildfowl. Area not well known.

4. *Imielty Lug Lake and marshes*

a) c. 50° 40' N. 22° 15' E.

b) area c. 165 ha.

c) 5. 8.

d) *A* wild and uninhabited complex of peat marshes and shallow lakes surrounded by vast forests : Lasy Janowskie.

e) Breeding area for *Grus grus, Ciconia nigra,* Anatidae, *Lyrurus tetrix, Tringa totanus, T. ochropus, Porzana parva.* Migrating area for many Anatidae and waders.

5. *Goczalkowice reservoir*

a) 49° 55' N. 18° 55' E.

b) area c. 3,000 ha.

c) 5.

d) A reservoir formed in 1955/56 by damming the Vistula river near the Morawska Gate—the main pass between the Carpathians and the Sudetas and extremely important for migrating water birds.

e) Breeding locality for more than 20 species including : *Nycticorax nycticorax, Podideps cristatus,* Anatidae (*Anas platyrhynchos, A. querquedula, A. strepera, A. clypeata, Aythya fuligula* and *A. ferina*), and Laridae (*Larus ridibundus* c. 1,000 prs., *Sterna hirundo*). Migrating birds include several thousands ducks (mainly *Anas platyrhynchos*), *Ardea cinerea, Phalacrocorax carbo, Colymbus arcticus* and several wader species.

6. *Fish ponds near Zator*

a) 50° 00' N. 19° 23' E.

b) area c. 500 ha.

c) 5. 7.

d) c. 35 km west of Krakow, a complex of fish ponds in the Upper Wista (Vistula) valley.

e) Breeding locality for Anatidae (particularly *Anas platyrhynchos* and *A. clypeata*), Laridae (particularly *Larus ridibundus, Chlidonias niger*), *Limosa limosa* and in the neighbourhood *Ardea cinerea.* Migrating birds include *Phalacrocorax carbo, Tringa erythropus, T. nebularia* and *Cyanosylvia svecica.*

7. *'Lezczak' reserve near Racibonz*

a) c. 50° 05' N. 18° 10' E.

b) area c. 272 ha.

c) 5. 7.

d) Fish ponds known from the XIVth century, near the Odra river and Morawska gate.

e) Most interesting breeding birds are - *Podiceps griseigena, Botaurus stellaris, Anas clypeatd, Larus ridibundus* (c. 2,000 prs.), *Remiz pendulinus.* Migrating birds include *Phalacrocorax carbo, Anas acuta, Pandion haliaëtus, Ciconia nigra* and *Milvus milvus.*

8. *Lake Miedwie*

a) 53° 15' N. 14° 52' E.

b) 3,677 ha.

c) 5. 6. 8.

d) Largest lake in North-Western Poland; shallow banks overgrown with aquatic vegetation, marshes on the southern edge.

e) Many waterbirds breed here and concentrate on migration.

9. *Upper sector of river Warta from 52° N until the town of Kok and surrounding marshes*

a) 52° 00' - 10' N. 18° 40' E.

b) ca. 2,500 ha.

c) 6. 8.

d) Many marshes on the river, on the edge of the dry regions of Lodz and Kielce.

e) Breeding place for many aquatic birds. Migration birds concentrate here, especially geese.

PORTUGAL (voir carte n° 8, page 100)

CATÉGORIE A.

1. *Estuaire et vallée du Tejo*

a) 38° 40' - 55' N. 8° 55' - 9° 05' W.

b) Zone intercotidale au-dessus de Lisbonne-Cacilhas, ca. 26.800 ha, dont presque la moitié est découverte à marée basse. Marais salants ca. 2800 ha. Rizières ca. 21.330 ha (données des années 1950-1954; depuis changements probables). Comprend les marais importants de Boquilobo, à Golega.

c) 1. 2. 3. 5. 6. 7.

d) Très grand estuaire, vallée alluviale récente, largement inondée en hiver, à l'est zone très peu profonde. Polders, riziculture intensive sur de vastes régions, marais etc.
Grand intérêt botanique et Ornithologique. Modifications importantes dues à l'industrialisation et à d'autres activités humaines.

e) Héronnière importante à Paul do Boquilobo (= Bunhal) près Golega, avec ca. 4000 couples en 1964 (2500 - 3000 *Ardeola ibis,* 900-1150 *Egretta garzetta,* 150-200 *Nycticorax nycticorax,* 3-5+*Ardeola ralloides* et nombreux *Ardea purpurea).* Autres nicheurs de la région : *Ciconia ciconia* (ca. 1000 couples), *Botaurus stellaris, Anas platyrhynchos,* (autres canards ?), *Fulica atra* (?), *Recurvirostra avosetta* (encore présent ?), *Himantopus himantopus, Glareola pratincola, Circus aeruginosus,* etc. Présence au moins occasionnelle d'*Elanus caeruleus.*
Grand nombre d'oiseaux migrateurs, surtout Laridés, Limicoles (3000-5000 *Recurvirostra avosetta* en décembre 1963, des centaines de *Limosa* spp., *Tringa totanus, Calidris, Numenius, Gallinago*), Ardéidés, parfois *Phoenicopterusruber.*
Apparemment la plus grande concentration de canards hivernants du pays, plusieurs dizaines de milliers d'*Anas platyrhynchos, A. penelope, A. clypeata, A. crecca, Aythya ferina* etc. en décembre 1963. Informations peu nombreuses.

2. *Estuaire du Sado*

a) 38° 22' - 34' N. 8° 30' - 50' W.

b) Zone intercotidale en aval d'Alcacer ca. 9000 ha. Salines ca. 1680 ha; marais salants ca. 5875 ha; rizières ca. 7435 ha.

c) 1. 2. 3. 4. 5. 6.

d) Grand estuaire avec végétation halophile, trois grands et plusieurs petits lacs de barrage (irrigation etc.) dans le bassin, petits marais alcalins, marais salants, riziculture etc. Grand intérêt botanique et Ornithologique, pêche et importante ostréiculture.

e) Espèces nicheuses comprenant ca. 400 couples de *Ciconia ciconia* (1958-1959), *Larus argentatus, Sterna* spp., *Haematopus ostralegus* — mais peu de documents disponibles.
Quartier d'hiver pour des centaines d'*Egretta garzetta* et *Ardeola ibis,* de temps à autre *Phoenicopterus ruber* et de nombreux Limicoles hivernants et migrateurs, en décembre 1963 principalement *Tringa totanus, Recurvirostra avosetta, Numenius arquata, Limosa* spp., *Charadrius* spp. etc. Relativement peu de canards en décembre 1963.

CATÉGORIE B.

1. *Ria d'Aveiro*

a) 40° 30' - 51° N. 8° 30' - 45' W.

b) Superficie totale inondée par les marées, marais d'eau douce et salée, rizières et polders, salines : ca. 16.500 ha.

c) 1. 2. 3. 5. 6.

d) Vaste lagune et système de canalisation compliqué, importants herbiers de *Juncus* et *Zostera* (la récolte annuelle de *Zostera* pour des buts agricoles est estimée à ca. 150.000 tonnes). De grande importance pour les oiseaux d'eau et leur reproduction (tout au moins autrefois), mais la valeur Ornithologique de la région est fortement réduite par une surpopulation, pression de chasse, navigation, pollution etc.

e) Zone de nidification pour ca. 50 couples de *Ciconia ciconia, Anas platyrhynchos, Charadrius dubius, C. alexandrinus;* colonie d'Aigrettes (tout au moins autrefois) dans des pinèdes sur la côte. Nombreuses *Capella gallinago.* Quartiers d'hiver pour les Anatidés (notamment *Aythya fuligula,* ca. 1500-2000 en décembre 1963, *Anas crecca, A. clypeata,* rarement *Anser anser*) et les Limicoles.

2. *Faro*

a) 36° 58' - 37° 03' N. 7° 46' - 8° 02' W.

b)

c) 1. 3. 4. 5.

d) Dunes étroites protégeant les marais salants, larges vasières etc.

e) Oiseaux nicheurs *Anas platyrhynchos* (quelques-uns) et probablement d'autres espèces dans la zone d'eau douce. De grande importance pour les espèces de passage, surtout les Limicoles. Au point de vue faunistique presque inexploré.

N. B. Cette liste ne contient que le nombre minimum des zones humides importantes au Portugal et avec plus d'informations, d'autres endroits (p. ex. la lagune de Santo Andre, la lagune d'Obidos, les cours inférieurs du Rio Mondego, l'embouchure du Rio Guadiana, la lagune d'Albufeira, la lagune de Quiarros, les champs du Mondega) pourraient être inclus, bien que cette liste ne mentionne que les sites supposés d'importance internationale.

ROUMANIE (voir carte n° 9, page 101)

CATÉGORIE A.

1. *Le delta du Danube*

a) 44° 25' - 45° 28' N. 28° 45' - 29° 40' E.

b) Superficie ca. 435.000 ha.

c) 2. 3. 5. 6. 7.

d) Vaste région de lacs d'eau douce, canaux de jonction, îles et larges bancs de *Phragmites.* La région comprend les deux lacs salés de Razelm et de Sinoe.
Il existe déjà deux réserves naturelles et dix plus petits refuges d'environ 40.000 ha.

e) Région particulièrement importante pour la nidification, surtout pour *Plegadis falcinellus, Pelecanus onocrotalus* et *P. crispus.*
Autres espèces nicheuses : *Ciconia ciconia, Phalacrocorax carbo, P. pygmaeus, Platalea leucorodia,* de nombreux Ardéidés (y compris *Egretta alba, E.*

garzetta, Nycticorax nycticorax, Ardeola ralloides, Ardea purpurea, A. cinerea, Ixobrychus minutus et *Botaums stellaris*), Anatidés (*Anas platyrhynchos, A. querquedula, A. strepera, A. clypeata, Aythya ferma, A, nyroca, Netta rufina, Tadorna tadorna,* quelques *Casarca ferruginea, Anser anser* et localement *Cygnus olor*), Podicipidés (*Podiceps cristatus, P. nigricollis, P. ruficollis, P. griseigena),* Laridés (*Chlidonias niger, C. leucopterus, C. hybrida, Sterna hirundo, Gelochelidon nilotica, Hydroprogne caspia, Larus argentatus, L. ridibundus, L. genei, L. melanocephalus*), Limicoles (*Recurvirostra avosetta, Himantopus himantopus, Burhinus oedicnemus, Glareola pratincola, Tringa totanus* etc.), Rapaces (moins qu'auparavant). Passages et hivernages importants, particulièrement d'oies, de canards et de Limicoles.

CATÉGORIE B.

1. *Sat chinez, région de Banat*

   a) 45° 51' - 55' N. 21° 02' - 64' E.

   b) Superficie ca. 1000 ha.

   c) 7.

   d) Marais et plaines inondables des rivières Timis et Begheiu, autour des anciens étangs et lacs qui existaient encore dans la plaine de Banat, au XVIII^{e} siècle.
   Végétation environnante : saules, roseaux, petits bois de chênes. Il y a une petite réserve Ornithologique de 40 ha.

   e) Oiseaux nicheurs : *Podiceps caspicus, P. ruficollis, Ardea purpurea, Egretta garzetta, Ardeola ralloides, Nycticorax nycticorax, Ixobrychus minutus, Ciconia ciconia, Anser anser* (très rare), *Anas platyrhynchos, Aythya nyroca, Circus aeruginosus, Vanellus vanellus, Chlidonias leucopterus, Larus ridibundus* (exceptionnellement), *Remiz pendulinus, Locustella luscinioides, Cyanosylvia svecica, Acrocephalus scirpaceus, A. palustris, A. schoenobaenus.*

2. *Nedeia - Bistret, région d'Oltenia*

   a) 43° 47' - 53' N. 23° 27' - 50' E.

   b) Superficie ca. 35.000 ha.

   c) 7.

   d) Plaine inondable du Danube (lacs, petites dunes), maigre végétation autour des mares.

   e) Agglomération de Limicoles cherchant ici leur nourriture : *Pelecanus, Egretta garzetta, Platalea leucorodia,* Anatidés, quelques *Tadorna tadorna, Himantopus himantopus* et *Recurvirostra avosetta.*
   Dans les îlots du Danube, avec des forêts inondables (saules) nichent des Ardéidés et *Haliaëtus albicilla.* Sur le sable, colonies de Laridés et Charadriidés.

3. *Giurgiu - Oltenita, région de Bucarest*

   a) 43° 57' - 44° 08' N. 26° 02' - 38' E.

   b) Superficie ca. 55.000 ha.

c) 7.

d) Zone inondable du Danube autour du lac Graeca (10.000 ha) : étangs, petits lacs, canaux et marais; jonchaies souvent submergées, bois de saules et de peupliers.

e) Oiseaux nicheurs : *Ciconia ciconia, Ixobrychus minutas, Podiceps cristatus, P. caspicus, Chlidonias hybrida, Gallinula chloropus, Fulica atra* et *Circus aeruginosus* en abondance. *Ardea purpurea, Ardeola ralloides, Ardea cinerea, Egretta garzetta, Nycticorax nycticorax, Anas querquedula, Chlidonias niger, Rallus aquaticus, Porzana porzana, P. parva, Asio otus, A. flammeus* et *Strix aluco* fréquents. *Anser anser, Anas strepera, Pbalacrocorax pygmaeus, Podiceps ruficollis, Alcedo atthis, Falco vespertinus, F. cherrug. danubialis, Aquila clanga, A. pomarina* et *Haliaëtus albicilla* rares. Au passage : *Anser albifrons, Branta ruficollis, Anas crecca* (très fréquent), *Bucephala clangula, Aythya fuligula, Oxyura leucocephala, Mergus albellus, Buteo buteo, B. lagopus.* On a signalé à l'époque de la reproduction des oiseaux rares comme *Tringa erythropus,* et à l'époque du passage *Platalea leucorodia, Pelecanus onocrotalus, Larus minutus, Haematopus ostralegus.*

4. *Otomani, région de Crisana*

a) 47° 17' - 35' N. 21° 57' - 22° 30' E.

b) Superficie ca. 10.000 ha.

c) 7.

d) Région de marais (vallée de l'Erul) en cours de disparition à cause du drainage, entourée de terrains agricoles.

e) Nicheurs : *Podiceps cristatus, P. griseigena, P. ruficollis, Ardea cinerea, A. purpurea, Ardeola ralloides, Ixobrychus minutus, Nycticorax nycticorax, Botaurus stellaris, Ciconia ciconia, Anser anser, Anas platyrhynchos, A. querquedula, Aythya nyroca, Rallus aquaticus, Crex crex, Porzana parva, P. porzana, Gallinula chloropus, Fulica atra, Vanellus vanellus, Capella gallinago, Larus ridibundus, Chlidonias niger.*

Au passage : *Colymbus arcticus, Egretta alba, E. garzetta, Platalea leucorodia, Anser albifrons, A. fabalis, Anas acuta, A. penelope, Aythya ferina, Bucephala clangula, Numenius arquata, Tringa erythropus, Philomachus pugnax, Recurvirostra avosetta, Chlidonias leucopterus, Sterna hirundo.*

SWEDEN (see map nr. 3, page 95)

Due to the great number of wetlands and marshes of Sweden, the selection of important sites has followed criteria different from those used for other European countries. Only a reduced number of sites belonging to Category A has been listed, while some other sites corresponding to the criteria for category A and all sites for category B have been excluded.

CATEGORY A.

1. *Flommen-Skanör-Höllviken-Foteviken-Klagsbamn, Skåne*

a) 55° 25 - 34' N. 12° 55' E.

b) c. 1,000 ha (excluding shallow water).

c) 1. 2. 3.

d) and *e)* Of botanical and zoological interest, being the most typical area of salt marsh in Sweden. Rich avifauna, including, e.g. *Recurvirostra avosetta, Charadrius alexandrinus.*

2. *Getterön, Holland*

a) 57° 08' N. 12° 14' E.

b) 640 ha (incl, shallow water).

c) 1. 2. 3.

d) and *e)* Important area for breeding and feeding of birds and as a resting locality for migratory birds. Examples of nesting species : *Tadorna tadorna, Recurvirostra avosetta, Limosa limosa, Pbilomachus pugnax* and *Asio flammens.*

3. *Södviken, Öland*

a) 57° 02' N. 16° 55' E.

b) c. 800 ha (incl. shallow water).

c) 1. 2. 3.

d) and *e)* Of botanical and zoological interest. Important area for breeding and feeding of birds and as a resting area for migratory birds. Examples of nesting species : *Tadorna tadorna, Recurvirostra avosetta, Charadrius alexandrinus, Philomachus pugnax, Limosa limosa* and *Sterna albifrons.*

4. *Hammarsjön and Håslövs angar, Skåne*

a) 55°59'N. 14°12'E.

b) c. 3,500 ha (about half is shallow water).

c) 5. 7.

d) and *e)* Important area for breeding birds. Examples of nesting species : *Anas acura, A. querquedula, Porzana porzana, Crex crex, Limosa limosa, Philomachus pugnax.*

5. *Kävsjön and Store Mosse, Småland*

a) 57° 18' N. 13° 57' E.

b) c. 10,500 ha (the greater part bog).

c) 5. 7. 8.

d) and *e)* This area represents a northern type of country on a southern latitude, in which the botanical and zoological elements from various biogeographical regions are concentrated. Of botanical and zoological interest.

Important area for breeding and feeding of birds and as a resting area for migratory birds. Examples of nesting species : *Anas acuta, A. penelope, A. querquedula, Bucephala clangula, Grus grus, Calidris alpina, Perzana porzana, Colymbus stellatus, Podiceps griseigena* and *Asio flammeus.*

6. *Hornborgasjön, Västergötland*

a) 58° 19' N. 13° 33' E.

b) c. 4,100 ha (willow carr, reedswamp and some open water).

c) 5.7.

d) and *e)* Of botanical and zoological interest. Important area for breeding and feeding of birds as well as for resting of migratory birds. Also important as habitat for fish. Examples of nesting birds : *Circus cyaneus, C. aeruginosus* and *Anas acuta.*

7. *Tåkern, Ostergötland*

a) 58° 21' N. 14° 49' E.

b) c. 5,000 ha shallow water, some 1,000 ha marshes.

c) 5. 7.

d) and *e)* Important area for breeding and feeding of birds and as a resting locality for migratory birds. Examples of nesting species : *Circus aeruginosus, Anas querquedula, Podiceps auritus, P. griseigena, Porzana porzana, Botaurus stellaris* and *Calidris alpina.*

8. *Kvismaren, Närke*

a) 59° 10' N. 15° 23' E.

b) c. 740 ha (marsh and fen, derived from a drained lake).

c) 5. 7. 8.

d) and *e)* Important area for breeding and feeding of birds and as a resting area for migratory birds. Examples of nesting species : *Circus cyaneus, C. aeruginosus, Asio flammeus, Limosa limosa* and *Porzana porzana.*

9. *Hjälstaviken, Uppland*

a) 59° 40' N. 17° 23' E.

b) c. 220 ha (reedswamp and shallow water).

c) 5. 7.

d) and *e)* Of botanical and zoological interest. Important area for breeding and feeding of birds and for resting of migratory birds. Examples of nesting species : *Botaurus stellaris, Porzana porzana, Podiceps auritus.*

10. *Ånnsjön, Jämtland*

a) 63° 16' N. 12° 33' E.

b) c. 10,000 ha (of which more than half is shallow water, lagoons, marsh, fen and bog, the rest deeper waters).

c) 5. 7. 8.

d) and *e)* Of geological, botanical and zoological interest. An imposing inland delta. Important area for breeding and feeding of birds and for resting of migratory birds. Examples of nesting species : *Circus cyaneus, Anas penelope, A. acuta, Aythya marila, Melanitta nigra, M. fusca, Colymbus arcticus, C. stellatus, Numenius arquata, N. phaeopus, Phalaropus lobatus, Calidris temminckii, Philomacbus pugnax, Limicola falcinellus, Tringa nebularia* and *Grus grus.*

11. *Gammelstadsviken, Norrbotten*

a) 65° 38' N. 22° 00' E.

b) c. 390 ha (part of a river estuary).

c) 5. 6. 7.

d) and *e)* Important area for breeding and feeding of birds and as a locality for resting of migratory birds. Examples of nesting species : *Anas querquedula, A. clypeatd, Aythya ferina, Larus minutus* and *Podiceps griseigena,* which are rare species on this northern latitude.

12. *Ahasjon, Lappland*

a) 65° 49' N. 15° 05' E.

b) c. 500 ha (shallow water, marsh and fen).

c) 5. 7. 8.

d) A fine example of inland delta, of botanical and also zoological interest.

13. *Tärnasjön, Lappland*

a) 65° 52' - 66° 04' N. 15° 29' E.

b) c. 5,900 ha (of which about half is shallow water, lagoons, marsh, fen and mixed mire, the rest deeper waters).

c) 5. 7. 8.

d) and *e)* Of botanical and zoological interest. Three beautiful Subalpine lakes with a delta, many lagoons and large archipelagoes. Important area for breeding and feeding of birds and for resting of migratory birds. Examples of nesting species : *Anas penelope, A. acuta, Aythya marila, Melanitta fusca, M. nigra,* and *Anser erythropus.* Also valuable fishing.

14. *Tjalmejaure, Lappland*

a) 66° 15' N. 16° 11' E.

b) c. 1,700 ha, the greater part open water.

c) 5. 7. 8.

d) and *e)* Important alpine area for breeding and feeding of birds as well as for resting of migratory birds. Examples of nesting species : Subarctic ducks and waders including *Clangula hyemalis, Anser erythropus* and *Gallinago media.*

15. *Laidaure, Lappland*

a) 67° 07' N. 17° 45' E.

b) c. 3,000 ha, of which 1/3rd is deltaland.

c) 5. 6. 7. 8.

d) and *e)* Fine example of Subalpine delta, *Anser erythropus* and many other Anatidae and Waders.

16. *Sjaunja, Lappland*

a) 67° 05' - 27' N. 19° 45' - 20° 10' E.

b) c. 40,000 ha, chiefly peatland (fen and mixed mire) but also many shallow lakes.

c) 5. 7. 8.

d) and *e)* Largest peatland in Sweden. Of botanical and zoological interest. Important area for breeding and feeding of birds and for resting of migratory birds. Examples of nesting species : most ducks and waders belonging to peatland and lakes of the taiga, incl. *Cygnus cygnus* and *Limicola fakinellus.*

17. *Taavavuoma, Lappland*

a) 68° 30' N. 20° 45' E.

b) c. 6,500 ha, chiefly peatland but also shallow lakes.

c) 5. 8.

d) and *e)* Arctic and Sub-arctic peatland and lakes with a high concentration avian species. Of botanical and zoological interest. Important area for breeding and feeding of birds and for the resting of migratory birds. Nesting species include most arctic and subarctic species occurring in Scandinavia.

SWITZERLAND (see maps nrs. 5, 6, 9, pages 97, 98, 101)

CATEGORY A.

1. *S. E. banks of Neuenburger See*

a) 46° 55' N. 6° 58' E.

b) 40 km of shore with marshes and reedbeds with an average width of 500 m.

c) 5. 7.

d) Ornithologically the important areas are shallow shores, marshes and reedbeds.

e) Nesting area for Ardeidae (incl. *Ardea purpurea*), Anatidae, Rallidae, waders etc.
Migrating and wintering area for many Anatidae and waders.

2. *Rheindelta, Vorarlberg province — see Austria*

3. *Untersee — see Germany*

4. *Klingnauer reservoir*

a) 47° 34' N. 8° 15' E.

b) area c. 170 ha.

c) 5.

d) Hydroelectric impoundment.

e) Important wintering quarter for c. 8,000 ducks (esp. *Aythya ferina, A. fuligula* and *Anas crecca*).
Rich in migrating waders.

CATEGORY B.

1. *Verzasca and Tessin mouths in Lago Maggiore*

a) 46° 10' N. 8° 52' E.

b) area c. 150 ha.

c) 5. 6. 7.

d) An area of dry river beds, marshes, reedbeds and wet rorest, of considerable ornithological interest.

e) Important localities for breeding and migrating birds.

2. *Les Grangettes*

a) 46° 23' N. 6° 52' E.

b) area c. 675 ha.

c) 5. 6. 7.

d) An area of reedbeds and marshes where the Rhone enters the Lake of Geneva.

e) Important migrating and wintering area for Anatidae, waders etc.

3. *Kaltbrunner Ried*

a) 47° 12' N. 8° 59' E.

b) area c. 150 ha.

e) 5. 6. 7.

d) Marshes and wet areas in the alluvial plain between the Ziirichsee and Walensee.

e) Breeding locality of *Larus ridibundus* - c. 600 prs., *Podiceps caspicus,* dabbling ducks, crakes and rails, *Vanellus vanellus.* In spring rich in migrating waders.

TUNISIE (voir carte n° 10, page 102)

CATÉGORIE A.

1. *Bahiret el Biban*

a) 33° 17' N. 11° 14' E.

b) 30.000 ha.

c) 2.

d) Zone lagunaire peu profonde et en communication avec la mer. Milieu de tout premier ordre sur le plan Ornithologique et probablement hydrobiologique. Quelques îlots sont particulièrement riches en oiseaux nicheurs.

e) Espèces nicheuses : *Hydroprogne caspia, Gelochelidon nilotica, Larus genei* sont parmi les plus remarquables. Enormes bandes de migrateurs et hivernants, notamment *Phalacrocorax, Ciconia ciconia,* milliers d'Anatidés, rapaces, Rallidés, Limicoles etc.

2. *Lac Kelbia*

a) 35° 51' N. 10° 13' E.

b) 13.000 ha.

c) 5.

d) Une des seules collections d'eau douce de Tunisie qui ne s'assèche pratiquement jamais. Milieu eutrophe à forte végétation émergente.

e) Espèces nicheuses : parmi les espèces les plus intéressantes il convient de citer : *Ardeola ralloides, Tadorna tadorna, Oxyura leucocephala, Porphyrio porphyrio, Himantopus himantopus.* Lieu de concentration de milliers de migrateurs et hivernants : *Phoenicopterus,* Anatidés, rapaces, Limicoles, Rallidés, passeraux.

3. *Lac Ichkeul*

a) 37° 13' N. 9° 38' E.

b) 12.000 ha.

c) 5.

d) L'un des milieux humides les plus intéressants du Maghreb. C'est un lac eutrophe entouré de végétation palustre. Grande importance hydrobiologique, Ornithologique et peut-être aussi mammalogique (bien que les Buffles de l'Ichkeul n'existent plus).

e) Avifaune particulièrement abondante et intéressante. Nicheurs : Podicipitidés, Ardéidés, Anatidés (en particulier *Anas angustirostris* et *Oxyura leucocephala*), Rallidés et, dans les alentours, *Falco eleonorae.* Nombreux Anatidés et Limicoles hivernants et de passage (parfois bandes importantes d'*Anser anser*).

CATÉGORIE B.

1. *Ilots circumdjerbiens et zone intertidale environnante*

a) 33° 43' N. 10° 46' E.

b) Ilots : 3500-4000 ha; zone intertidale : 6000-8000 ha.

e) 1. 2.

d) Milieu lagunaire salé à forte végétation halophile comportant de vastes grèves.

e) Avifaune nicheuse comprenant entre autres espèces : *Hydroprogne caspia, Gelochelidon nilotica, Sterna sandvicensis, Larus genei, Burhinus oedicnemus, Caprimulgus aegyptius,* etc. Milieu très riche en migrateurs et hivernage d'espèces intéressantes comme, par ex., *Egretta alba.*

2. *Complexe des îles Kneiss*

a) 34° 22' N. 10° 16' E.

b) ca. 700 ha pour les îlots, et 2500 à 3000 ha pour les lagunes.

e) 1. 2.

d) Milieux lagunaires à fonds exclusivement vaseux largement découverts à marée basse. Végétation halophile de Salicornes et *Limoniastrum.*

e) Nidification d'*Egretta garzetta, Tringa totanus, Larus genei, Sterna hirundo, S. albifrons* etc.
Passage et hivernage de nombreux Ardéidés, *Ciconia ciconia, Platalea leucorodia, Plegadis falcinellus, Phoenicopterus ruber,* milliers d'Anatidés et Limicoles (y compris *Nummius tenuirostris*), Laridés, passeraux.

3. *Complexe du Segui*

a) ca. 34° 12' N. 9° 48' E.

b) Sebkret En Nouai - 11.000 ha; Sebkret Sidi Mansour - 3000 ha; Garaet Fedjej - 300 ha; Garaet Zougrata - 400 ha; Garaet Hadjeri - 100 ha.

c) 4. (Sebkra), 5. (Garaa).

d) Sebkra : milieux saumâtres comportant plus ou moins de végétation halophile de Salicornes ainsi que des *Carex, Tamaris,* etc.
Garaa : cuvettes se remplissant d'eau douce de l'automne au printemps. Importance hydrobiologique probablement assez grande.

e) Lors des années favorables, les Garaa comportent une faune nicheuse intéressante : *Phoenicopterus ruber, Podiceps cristatus, Anas platjrhynchos, A. angustirostris, A. acuta, Oxyura leucocephala, Himantopus himantopus, Recurvirostra avosetta, Glareola pratincola. Phoenicopterus ruber* niche sur la Sebkret Sidi Mansour.
Centres importants de migration et d'hivernage pour les Anatidés et Limicoles.

4. *Chott Djerid*

a) 33° 40' N. 8° 19' E.

b) 700.000 ha.

c) 4.

d) Milieu saumâtre sujet à de grandes variations de niveau d'eau. Substrat argileux et gypseux.

e) Intéressant pour la reproduction de *Phoenicopterus ruber* (3000 en 1960). *Casarca ferruginea* y niche peut-être. Episodiquement riche en Limicoles de passage.

5. *Lac de Tunis*

a) 37° 10' N. 9° 51' E.

b) 4500 ha.

e) 1.

d) Lac salé ouvert sur la mer mais encombré par les *Ulva* et Annélides *Mercurella enigmatica* dont les tubes calcaires prolifèrent en masse. L'îlot de Chikli est particulièrement intéressant.

e) Sur l'îlot nichent *Egretta garzetta, Anas platjrhynchos,* peut-être *Oxyura leucocephala,* mais l'ensemble est fréquenté aux passages et en hiver par des milliers d'oiseaux: *Phalacrocorax carbo* (ca. 1000 hivernants), Ardéidés, *Ciconia, Phoenicopterus, Cygnus,* Anatidés et parfois *Anser anser,* rapaces *(Pandion),* et très nombreux Laro-Limicoles.
Gravement menacé par un projet d'aménagement entrepris par la ville de Tunis.

TURKEY (see map nr. 9, page 101)

The information on the wetlands of Turkey is insufficient to compile a comparative list of sites of international importance. What information there is suggests there are a number of areas of extreme ornithological importance both as wintering and breeding localities.

The following sites clearly must rate Category A Status.

1. Lake Manyas and Lake Apolyont
2. Lake Aksehir
3. Lake Burdur
4. Lake Amik
5. Lake Tuz
6. Lake Eber
7. Yilanly island in Lake Beysehir
8. Lake Gala

More detailed information is urgently required for the above sites and for other wetlands in Turkey.

U.S.S.R. - EUROPEAN PART (see map nr. 7, page 99)

If a list should be compiled for the European part of the U.S.S.R. following the same criteria as those used for other European countries it would include about 200 sites. Our Russian correspondents were not in a position to perform such a colossal work, but sent information on some selected wetlands of unequal importance, which however must all clearly rate Category A Status.

1. *The Volga delta, Astrakhan region*

   a) c. 45° 30' - 46° 30' N. 47° 05' - 49° 30' E.

   b) area c. 1,000,000 ha.

   c) 1. 5. 6.

   d) A network of shallow water-courses, saltless bays which have been cut off from the sea and shallow canals. Large areas are covered by *Vallisneria spiralis* L., *Trapa natans* L., *Salvinia natans* All. and *Nelumbium caspicum* Tisch. There is a reserve of 73,630 ha in three parts.

   e) Important breeding area for *Phalacrocorax carbo, Pelecanus onocrotalus, P. crispus, Ardea cinerea, A. purpurea, Egretta alba, E. garzetta, Ardeola ralloides, A. ibis, Nycticorax nycticorax; Plegadis falcinellus, Cygnus olor, Anser anser, Tadorna tadorna, Casarca ferruginea, Aythya nyroca, Hydropogne caspia, Gelochelidon nilotica, Haliaëtus albicilla* etc. Strong passage of *Cygnus cygnus,* all surface feeding ducks and *Aythya fuligula,* decreasing numbers of passing *Anser albifons* and *A. erythropus.*

2. *The bay of Kirov, Azerbaydzhan S. S. R.*

   a) c. 39° 00' - 15' N. 48° 50' - 49° 10' E.

b) area c. 160,000 ha, with the Kyzyl-Agach Reserve as the most interesting area.

c) 1. 2. 3.

d) An area of marshland, large reedbeds and shallow river arms with a large reserve of 93,000 ha.

e) The Kyzyl-Agach Reserve is a winter-quarter for several millions of waterfowl. Counted in 1958-59: 3,894,000 surface feeding ducks, 850,000 diving ducks, 1,700 *Cygnus spp.,* 2,090,000 *Fulica atra* and 2,630 *Pboenicopterus ruber.* Counted in 1959-60: 2,944,000 surface feeding ducks, 423,000 diving ducks, 7,000 *Anser* spp. and 11,000 *Brantaruficollis,* 10,150 *Cygnus* spp., 1,606,000 *Fulica atra* and 2,500 *Phoenicopterus ruber.* Habitat for *Porphyrio porphyrio poliocephalus* and *Francolinus francolinus.*

3. *Rybinsk reservoir, Vologda and Iaroslav regions*

a) c. 58° 00' - 59° 10' N. 37° 30 - 38° 50' E.

b) area c. 455,000 ha of open water.

c) 5. 6.

d) Constructed in 1941. The sides are covered with Pine woods and moss marshes. Patches of dead submerged forest remain in places. There is a reserve of 168,000 ha.

e) Important area for nesting and migrating waterbirds : ducks, geese and large heron colonies.
Large numbers of *Tetrao urogallus* are found on the edges of the reservoir.

4. *Kandalaksha bay, Mourmansk region*

a) c. 65° 50' - 67° 10' N. 32° 30' - 34° 00' E.

b) area c. 20,300 ha + + .

c) 1.

d) The northern part of the gulf of Kandalaksha and the White sea. Many small rocky islands partly covered with Pine forests, and marshes with *Betula nana* L., *Ledun palustre* L. and *Rubus chamaerorus* L. There is a reserve of 20,300 ha including 53 small islands and the surrounding sea.

e) Breeding area for *Somateria mollissima* and *Larus argentatus.*

5. *Matsalu Bay, Estonia S. S. R.*

a) c. 58° 40' - 50' N. 23° 30' - 58' E.

b) area c. 60,000 ha.

c) 1. 3. 5.

d) Mainly fresh-brackish water, rich in vegetation. Including a National Park and ornithological reserve of c. 11,000 ha.

e) Important breeding area for many marsh and waterbirds - 90 ssp. recorded, incl. Anatidae (e.g. *Anser anser, Anas platyrhynchos, A. acuta, A. clypeata, Aythya ferina, A. fuligula, Melanitta fusca, Somateria mollissima*), Laridae (e.g. *Larus canus, L. minutus, L. ridibundus*), Rallidae, waders, etc.

Large concentrations during migrating seasons, and particularly important spring resting and feeding place for *Cygnus cygnus* (up to 40,000-50,000 in one day) and *C. bewickii.*

6. *Engure Lake, Latvia S. S. R.*

   a) 57° 09' - 20' N. 23° 00 - 10' E.

   b) area c. 4,400 ha.

   c) 5. 7.

   d) Eutrophic coastal lake with islands and rich fauna and flora. Hydrobiologically and ornithologically well explored. Reserve of 1,340 ha since 1957.

   e) Important breeding area for many (c. 60) species, Anatidae (incl. *Cygnus olor* c. 10-12 prs., *Anas platyrhynchos* c. 300-400 prs., *Aythya ferina* c. 300 prs., *A. fuligula* c. 150 prs.), Laridae (incl. *Larus ridibundus* c. 4,200 prs. 1962), *Fulica atra* c. 1,000 prs., waders, etc.

7. *Flood plains of the middle course of the Oka, Riazan region*

   a) c. 54° 45' - 55' N. 36° 50' - 37° 15' E.

   b) area c. 22,900 ha + + .

   c) 5. 6. 7.

   d) Extensive area with many lakes and marshes, and spring-flooded meadows. On the lower part of the Pra, a tributary of the Oka, there is a reserve of c. 22,900 ha.

   e) Breeding locality for many waterbirds. Large concentrations during autumn and spring migration.

8. *Lake Zhouvintas and marshes, Lithuania S. S. R.*

   a) c. 54° 22' N. 23° 30' E.

   b) area c. 3,000 ha.

   c) 5. 7. 8.

   d) Shallow lake with *Scirpus, Typha, Nymphaea,* surrounded by acid marshes and plains. Reserve of 3,160 ha.

   e) Particularly important for breeding birds including *Cygnus olor* and ducks, and in the marshes *Grus grus.*

9. *Western part of the Saarema Island, Estonia S. S. R.*

   a) c. 58° 30' N. 22° 35' E.

   b) area c. 1,600 ha.

   c) 1. 2. 3. 5.

   d) An area of wooded meadows, spring fens, coastal marshes and a relic coastal lake (" Linnulaht "), of botanical (endemic flora) and ornithological interest. At least 2 reserves present.

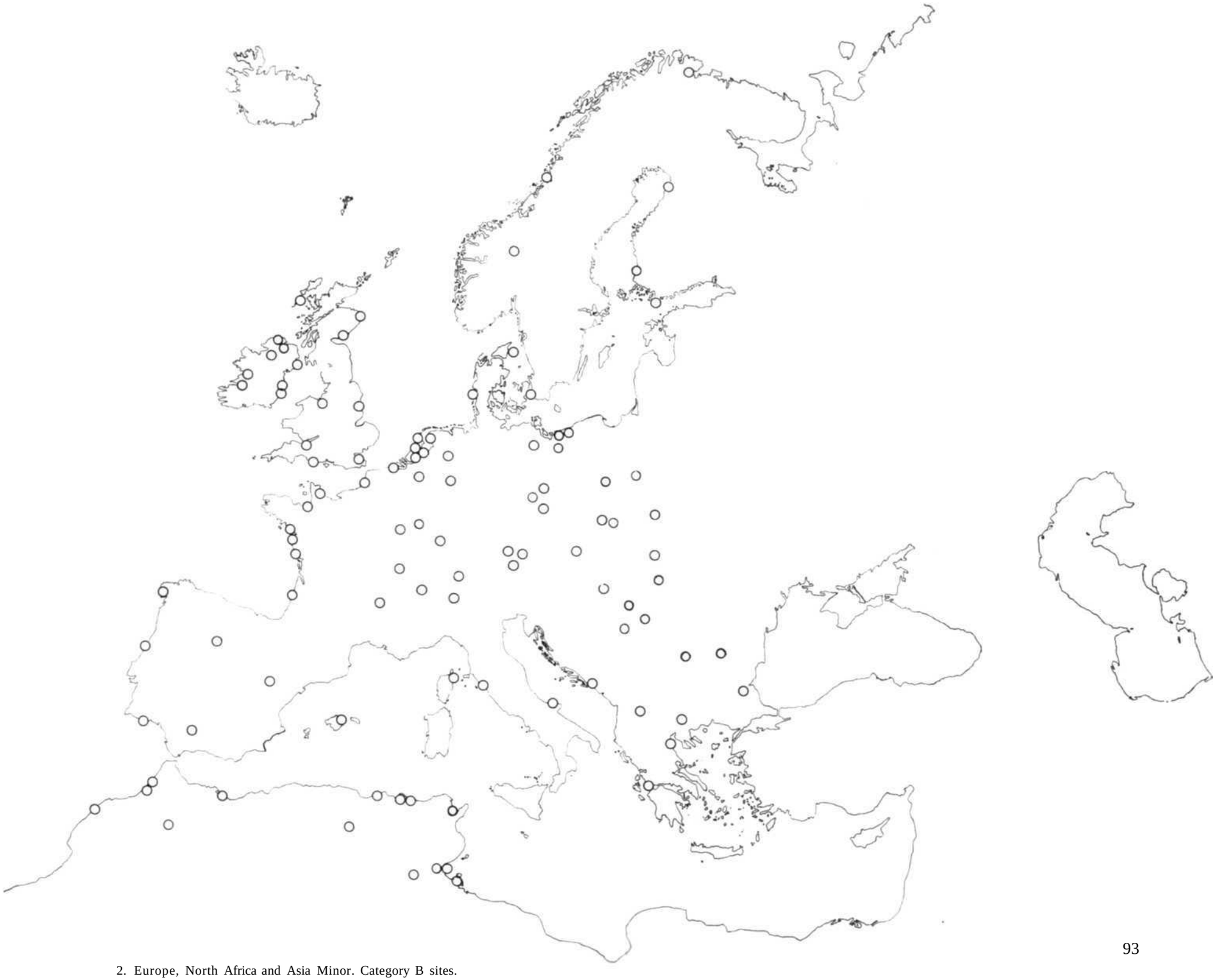
   e) Important locality for breeding birds (incl. *Somateria mollissima)* and for great passage migration.

MAPS - CARTES

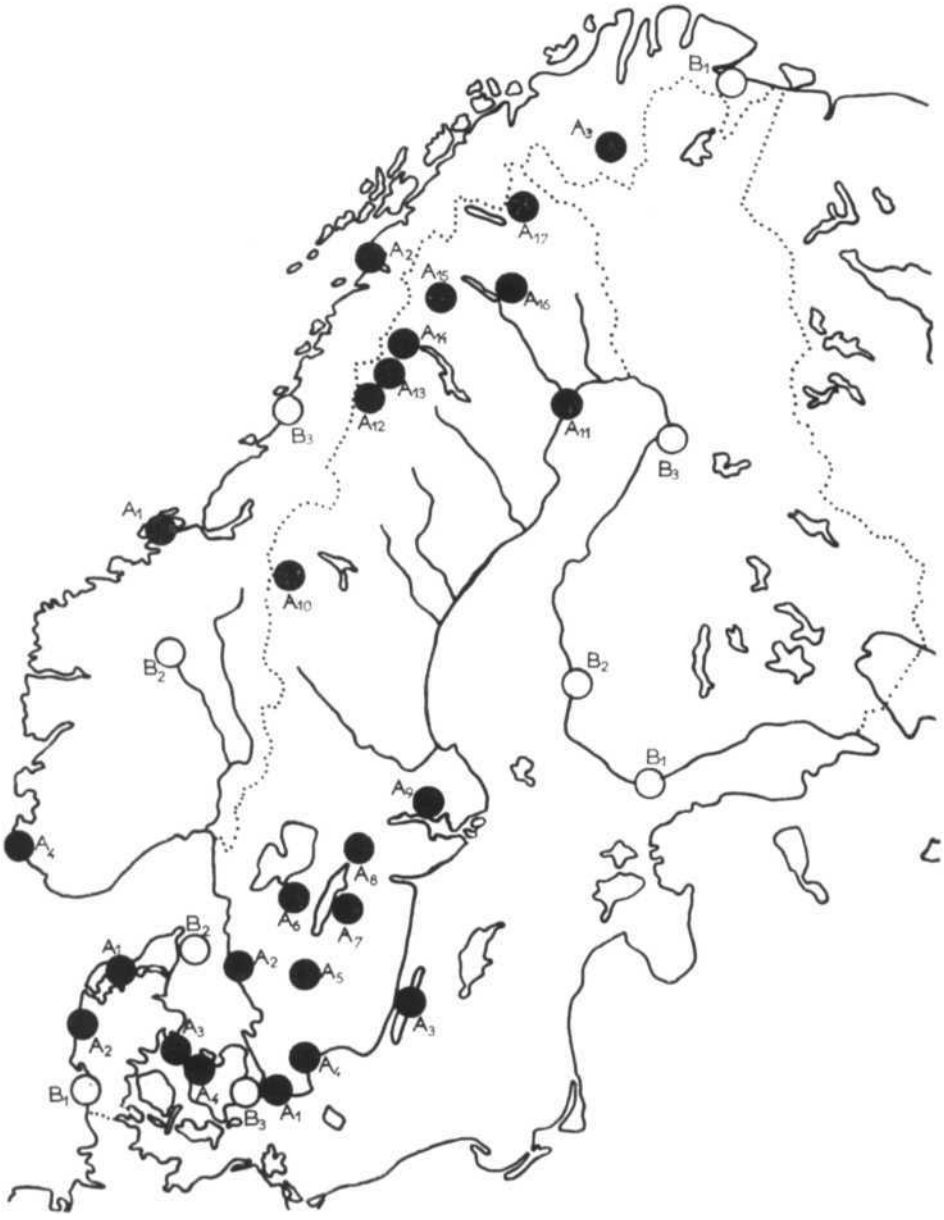
The numbets indicated on the maps refer to the number of the sites as given in the text of the corresponding countries.

Les numéros indiqués sur les cartes sont ceux qui figurent, pour les mêmes zones classées, dans les textes des pays concernés.

1. Europe, North Africa and Asia Minor. Category A sites.
Europe, Afrique du Nord et Asie Mineure. Sites classes en Categorie A.

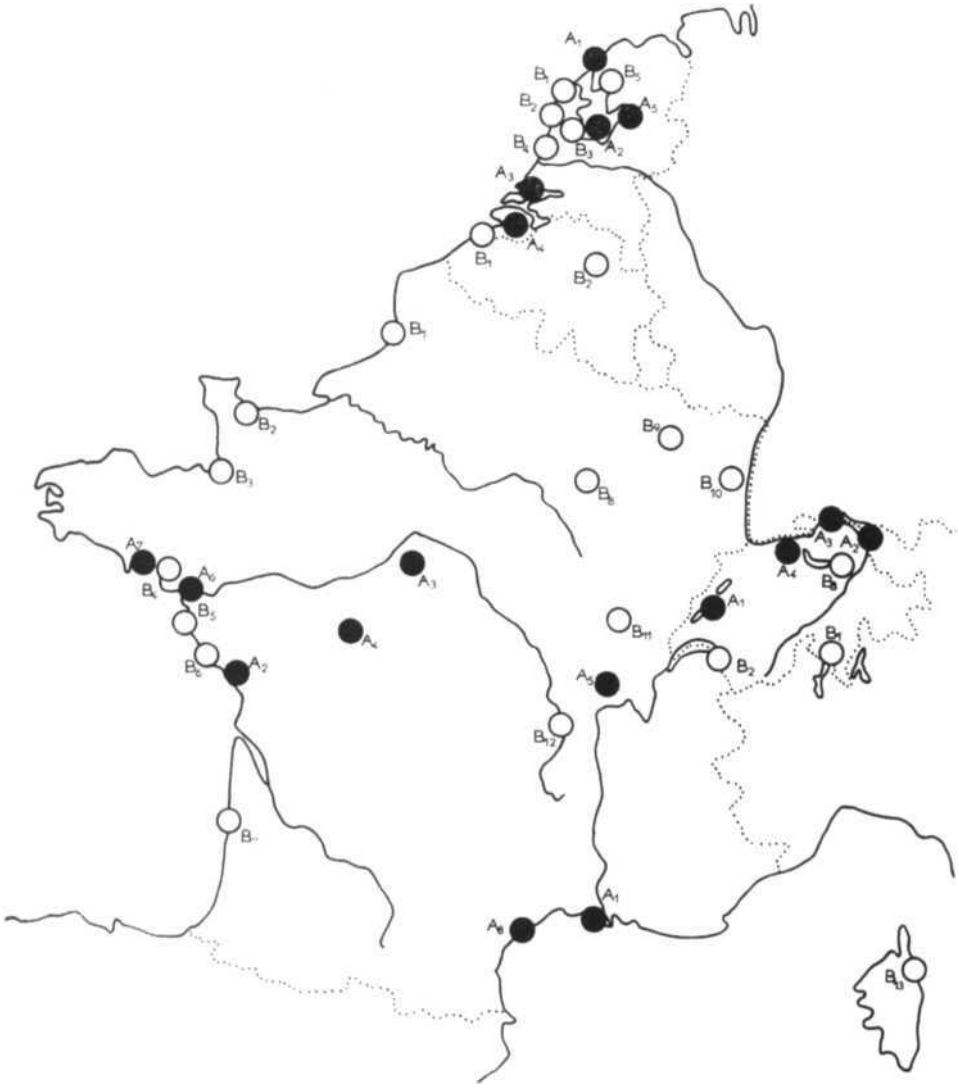


2. Europe, North Africa and Asia Minor. Category B sites.
Europe, Afrique du Nord et Asie Mineure. Sites classés en Catégorie B.

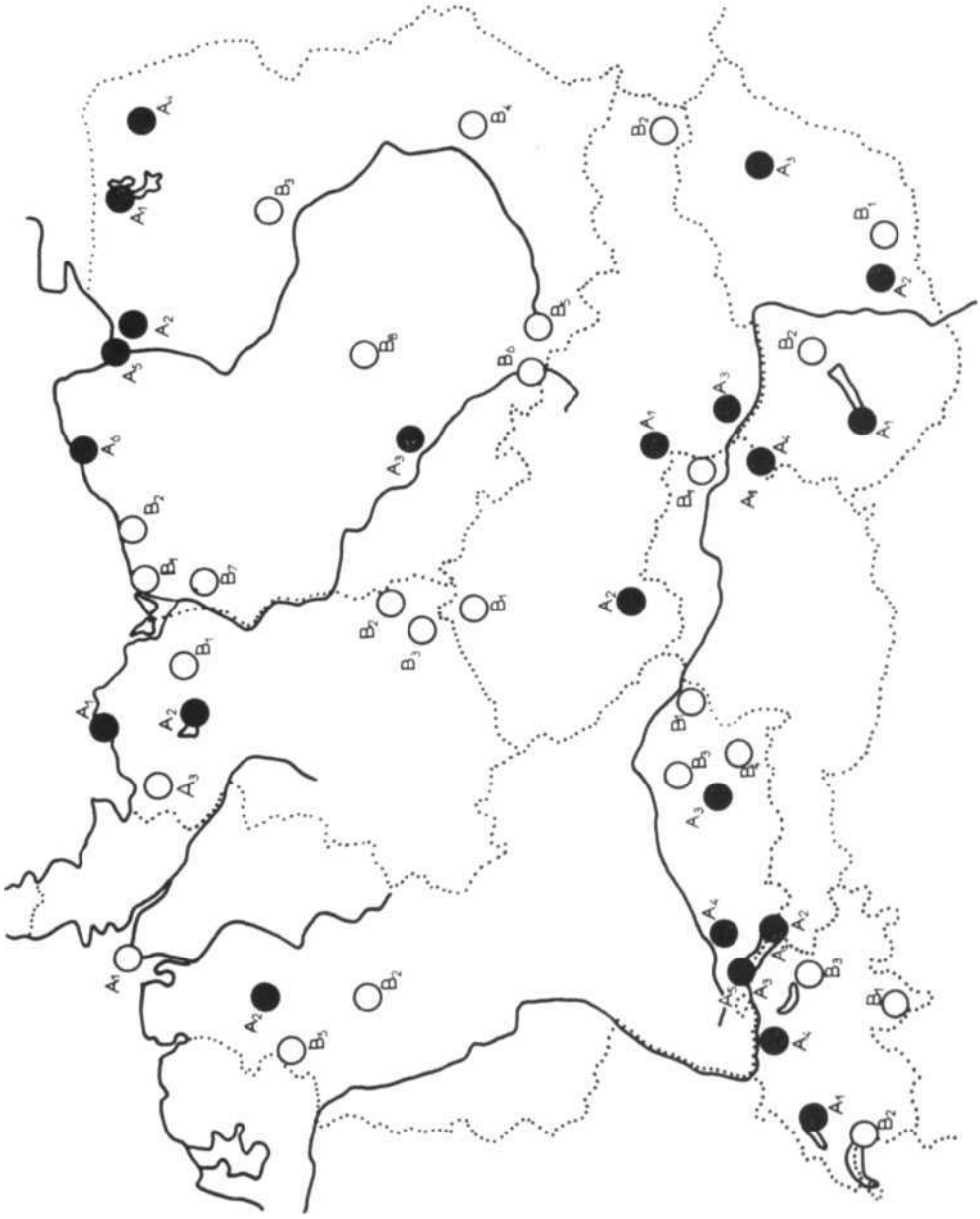


3. Denmark, Norway, Sweden, Finland. All classified sites.
Danemark, Norvège, Suède, Finlande. Toutes les zones classées.

4. Great Britain, Ireland, Iceland.
Grande-Brctagne, Irlande, Islande.

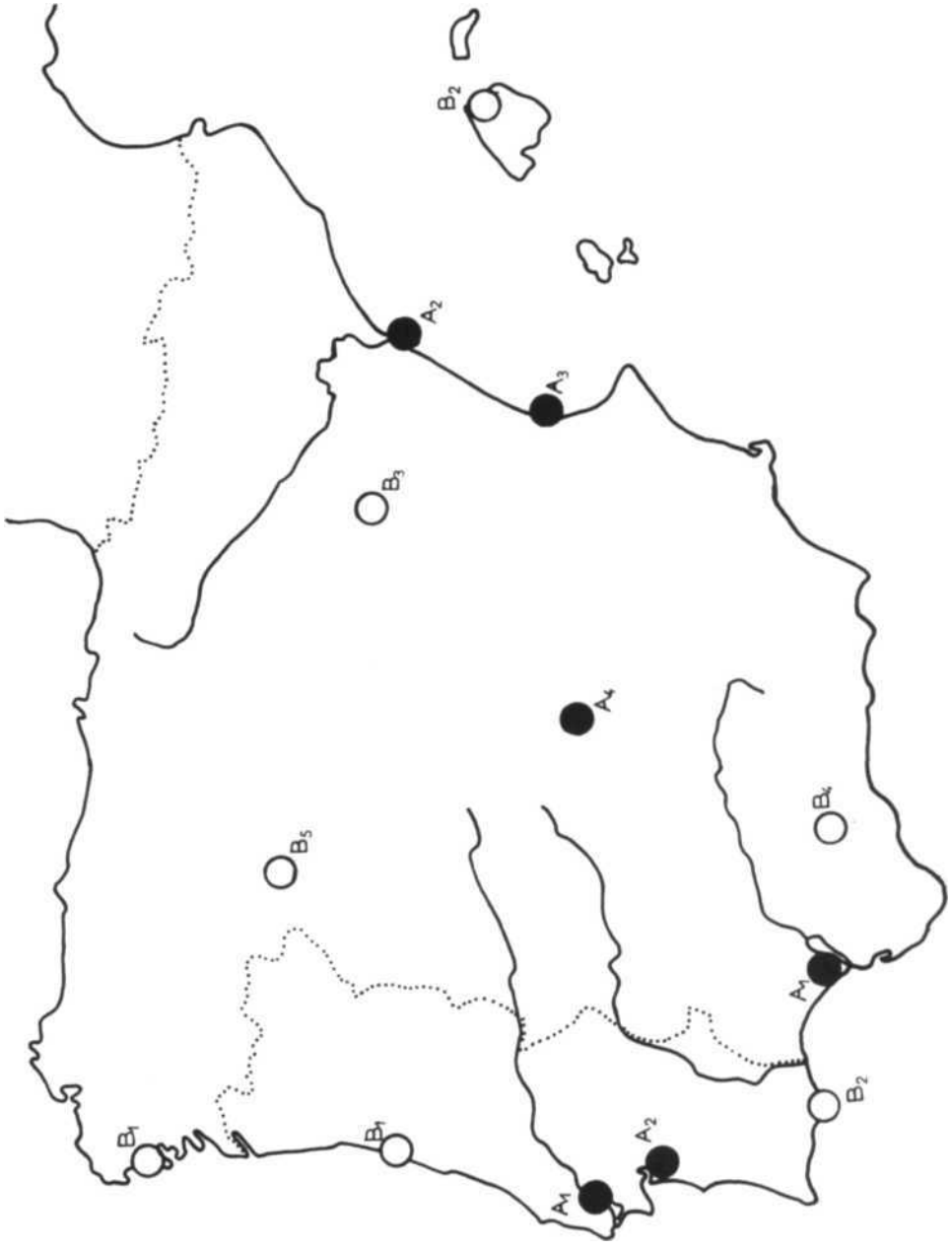


5. Netherlands, Belgium, France, Switzerland.
Pays-Bas, Belgique, France, Suisse.

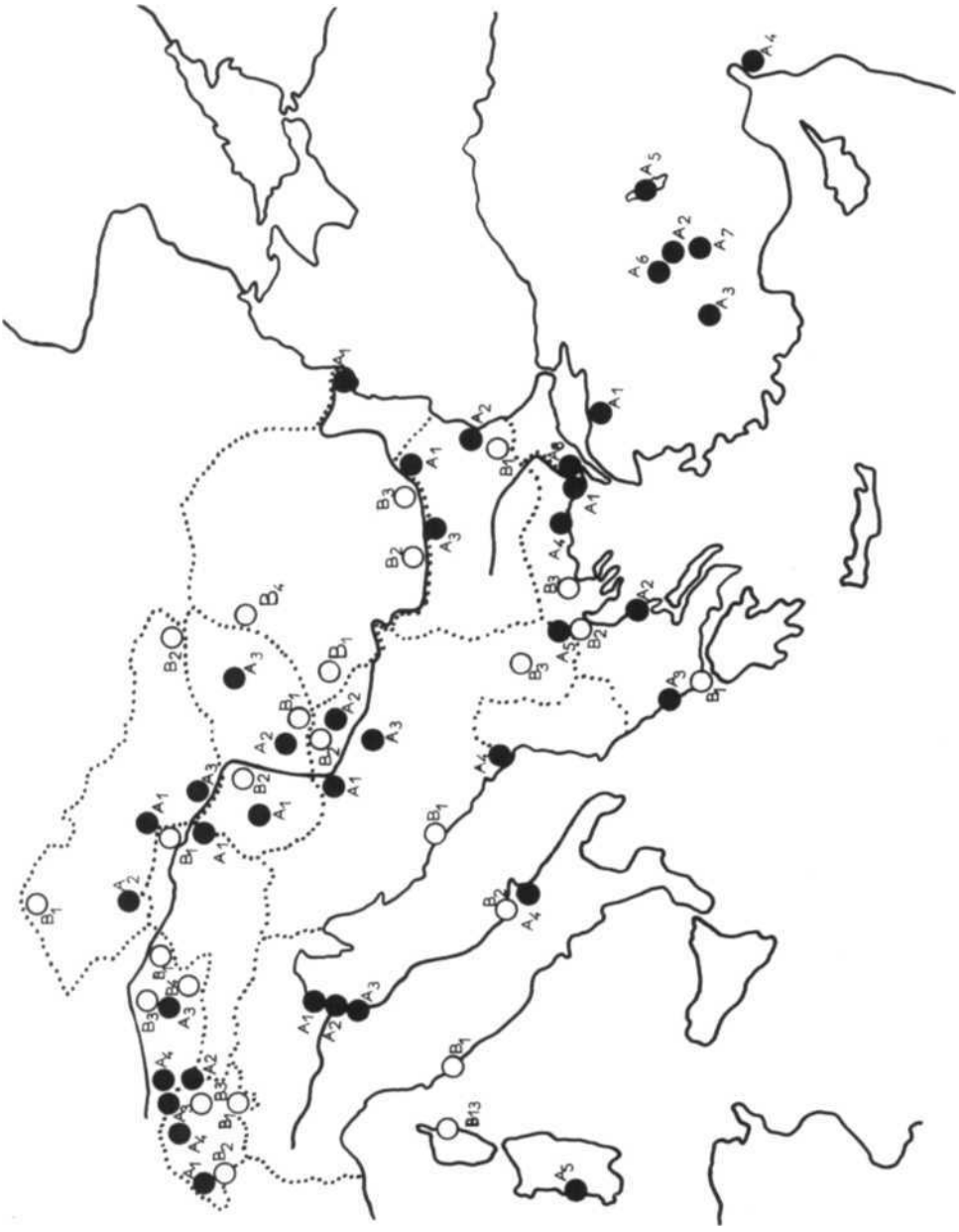


6. Germany (eastern and western part), Poland, Czechoslovakia, Switzerland, Austria, Hungary.
   Allemagnc (partie est et ouest), Pologne, Tchecoslovaquie, Suisse, Autriche, Hongrie.

7. U.S.S.R., Finland.
U.R.S.S., Finlande.

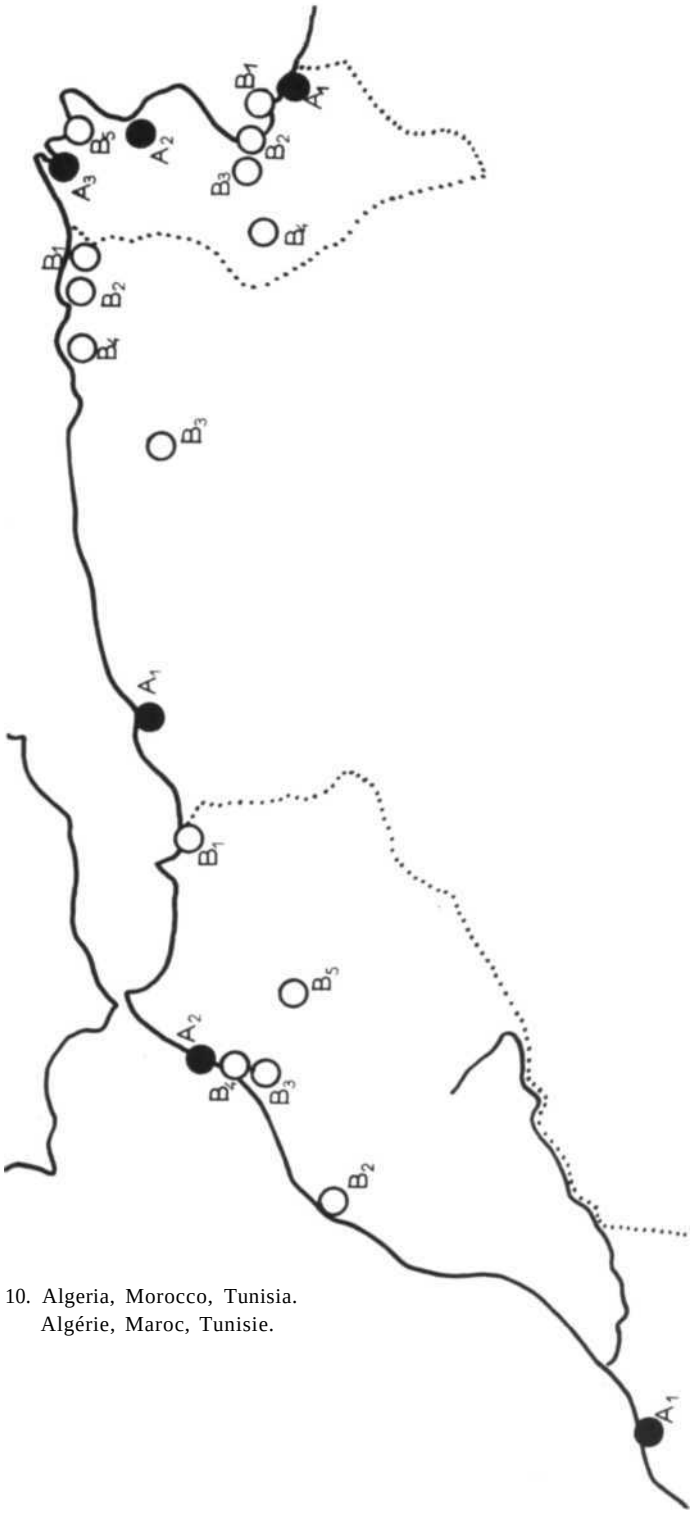


8. Spain, Portugal.
Espagne, Portugal.



9. Switzerland, Austria, Czechoslovakia, Hungary, Rumania, Bulgaria, Jugoslavia, Italy, Greece, Turkey.

   Suisse, Autriche, Tchécoslovaquie, Hongrie, Roumanie, Bulgarie, Yougoslavie, Italie, Grèce, Turquie.



10. Algeria, Morocco, Tunisia.
Algérie, Maroc, Tunisie.

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SUR LES PRESSES DE
L'IMPRIMERIE PAUL ATTINGER S.A.
A NEUCHATEL
LE 15 AVRIL 1965

IMPRIMÉ EN SUISSE

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