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CONVENTION ON WETLANDS OF INTERNATIONAL  
IMPORTANCE ESPECIALLY AS WATERFOWL  
HABITAT (RAMSAR, 1971)

CONVENTION RELATIVE AUX ZONES HUMIDES  
D'IMPORTANCE INTERNATIONALE  
PARTICULIEREMENT COMME HABITATS  
DES OISEAUX D'EAU (RAMSAR, 1971)

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## RAMSAR CONVENTION MONITORING PROCEDURE

### REPORT NO.4: LAKE HORNborgA, SWEDEN

#### General Introduction

1. Each Contracting Party to the Ramsar Convention ("Convention on Wetlands of International Importance especially as Waterfowl Habitat" Ramsar, 1971) "shall designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance" (Article 2.1 of the Convention). The Contracting Parties "shall designate at least one wetland to be included in the List" (Article 2.4) and "shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List" (Article 3.1). Furthermore, each Contracting Party "shall arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the list has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference. Information on such changes shall be passed without delay to the organization or government responsible for continuing bureau duties" (Article 3.2).
2. These are the principal stipulations of the Convention concerning wetlands included in the Ramsar List. Successive meetings of the Conference of the Contracting Parties (held in 1980 at Cagliari, Italy, in 1984 at Groningen, Netherlands and in 1987 at Regina, Canada) have devoted special attention to the conservation of listed wetlands and to the best ways of avoiding 'change in ecological character'.
3. Conference Document C.3.6 of the Regina meeting ("Review of national reports submitted by Contracting Parties and Review of implementation of the Convention since the second meeting in Groningen, Netherlands in May 1984") included a section (paragraphs 66 to 107) entitled "Changes in the ecological character of listed wetlands". This section recalls that it is "essential that, after a wetland has been designated for the List, its conservation status should be maintained", and that "the concept of preventing 'change in the ecological character' is fundamental to the Ramsar Convention". Paragraphs 74 to 107 then review the various wetlands on the List where such changes have occurred, are occurring, or are likely to occur.

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4. During the discussion of these paragraphs, several delegates emphasized the importance of avoiding changes of this kind in listed wetlands and the Conference approved a Recommendation (C.3.9) on this matter. The Recommendation (text attached to the present document) urges Contracting Parties to take swift and effective action to prevent any further degradation of sites and to restore, as far as possible the value of degraded sites; the Recommendation requests Contracting Parties in whose territory are located the sites identified in Conference Document C.3.6 as having incurred or being threatened by damage, to report to the Convention Bureau the actions undertaken to safeguard these sites.
5. At the fourth Meeting of the Ramsar Convention Standing Committee, the members (Pakistan, Canada, Chile, Netherlands, Poland, Switzerland, Tunisia and USA) and observers (United Kingdom, IUCN, IWRB and WWF) considered the best way of promoting the implementation of Recommendation C.3.9. A "Monitoring Procedure" (the text of which is attached to the present document) was adopted by the Standing Committee as a procedure to monitor Ramsar sites, and has been used since February 1988 by the Convention Bureau.

Hornborga - general

6. Sweden became a Contracting Party to the Ramsar Convention on 5 December 1974, when its representative at Unesco signed without reservation as to ratification. Lake Hornborga was one of the 20 Swedish wetlands designated for the Ramsar List on that occasion. It covers an area of 6350 hectares. At the beginning of the nineteenth century the Lake covered more than 30 square kilometres and had a maximum depth of about three metres. Between 1803 and 1933, the lake level has been lowered five times in an attempt to increase arable land. As a result inflowing water was led more or less directly to the outlet, and in summertime, large areas were totally devoid of water. Virtually the whole lake bottom was colonized by emergent macrophytes, mainly reed, while the southern parts were invaded by willow and birch. Water was found in the lake only during spring flooding and in the drainage canals. Furthermore, because of the gradual sinking of the surrounding organic soil, farmers faced increasing problems in using their new arable land. The degradation of the lake ecosystem has continued, and because of continuing sedimentation and the lack of natural rejuvenating agencies (eg waves and ice movements), the lake is likely to become completely overgrown. The lake had always been known as a bird lake, with large numbers of migrant and breeding swans, geese and ducks. As the quality of the lake deteriorated, so did its attractiveness to birds: during flooding large numbers of birds still use the lake, but breeding birds have decreased.

7. This situation has been brought to the attention of several international conferences on wetlands, notably the MAR Conference in 1962, where a paper by Dr P O Swanberg showed that drainage operations had never produced the promised profits. Papers at Noordwijk (1966), Leningrad (1968), Ramsar (1971) gave details of plans for restoration of the lake and at Heiligenhafen (1974) a paper by Prof S Björk reported on a pilot project which demonstrated the possibility of restoring the lake by destroying reed roots and raising water-levels. This publicity given to the investigations and restoration plans meant that Hornborga became a symbol for the possibility of wetland restoration - however technically difficult or financially onerous - throughout Europe. After its designation for the Ramsar List (on the opening day of the Heilighafen Conference) it was therefore natural that it should be widely publicized at meetings of the Conference of the Contracting Parties. The Cagliari Proceedings (1980) included a Technical Paper on Lake Hornborga which indicated that the Swedish Parliament had in 1977 approved a plan for total restoration of the lake, costing 13 million US dollars involving an increase in water levels and building of retaining embankments. The Swedish national report to Groningen (1984) indicated that the plans were still going ahead, but with a rise in water-level of 80 cms rather than 130 cms.
8. Hornborga was not one of the Ramsar sites mentioned in Regina Document C.3.6 as having incurred or being threatened by ecological damage. Members of the Swedish delegation at Regina however indicated informally to the conference secretariat that the Hornborga restoration plan was going ahead (though more slowly than originally planned) and that the Swedish authorities would be willing to arrange or site visits to demonstrate the current situation. "WWF News" of September/October 1987 carried a letter from Prof K Curry-Lindahl that Hornborga should be included in the list of threatened wetlands and that the Swedish Government and the Swedish National Environmental Protection Board (NEPB) was currently destroying Hornborga. Prof Curry-Lindahl sent a letter on those lines to the Ramsar Bureau in January 1988.

#### Current situation

From 22-24 August 1988 NEPB organized a visit to Hornborga to demonstrate to representatives of international organizations and to Swedish NGOs the current state of work and future plans at Hornborga. The bodies represented were the Ramsar Bureau, IUCN, IWRB, WWF, the Swedish Ornithological Society. Since I had visited Hornborga in 1975 and 1980, and had attended several of the international conferences where the restoration plan had been discussed, I had some previous knowledge of the area. During our stay we heard a series of presentations about recent developments and future plans, and spent a day in an amphibious vehicle driving through and around the lake. While our stay was too brief for a detailed investigation of the site and documentation, we obtained an excellent overall impression of the present situation and planned future developments.

10. The restoration plan. The original restoration plan developed by Prof Sven Björk and his colleagues of the Limnological Institute in the University of Lund essentially involved destruction of the mat of reed roots (by rotovation and removal), building of embankments at the outlet and at certain low-lying points around the circumference of the lake, and then raising the mean June water level by about 1.50 metres. Recreation of deeper water would in itself, so it was calculated, be sufficient to prevent further invasion of reed; it was however realized that from the outset that the reed invasion had gone so far that the original lake of 30 sq km could never be reestablished in its entirety; what could be created in place of the reed monoculture was an area of about 11 sq kms of open water, with a mosaic of pools among the reeds. This was essentially the plan approved in 1977 by the Swedish Parliament.
11. Some revisions have been proposed to the 1977 plan, in the light of more detailed investigations, further field experience and (presumably) the costs involved. It should be emphasized however that the revised plan maintains the concepts of the original plan.
12. Since 1977, further work has been carried out on reed control. The original plan envisaged a series of cuttings - on the ice in winter, under the water in spring and on the dried out lake-bed in summer - followed by rotovation. Experience has shown that the same result can be achieved more simply and cheaply by summer burning and rotovation, or by direct rotovation. (Even burning without rotovation produces a significant improvement, though it does not remove the accumulated rooting material and leaves a risk of regeneration). Much progress has already been made here, and there are significantly larger areas of cleared reed, which are already being used by a variety of migrant waterfowl notably ducks, waders and cranes.
13. The 1977 plan envisaged a rise in water level of 1.50 metres, with construction of about 25 km of embankments to prevent flooding of agricultural land. Quite apart from the cost of maintaining such embankments, their weight on a soft substratum would have caused significant problems of subsidence. The revised plan therefore involves construction of a limited length of embankment at the outlet point and a rise in water level of 0.85 metres. This means that at the Southeastern and northern edges, embankments need not be built; not only will costs at the building and maintenance stage be reduced, but shallow shoreline meadows, excellent for waterfowl will be recreated. This will involve development of an appropriate hay-harvesting and grazing régime, as well as compensation to land-owners.
14. Another major development since my last visit is the increase in facilities for promoting education and public awareness. The Hornborga area has always been known for its spring concentration of migrating cranes. These used to be attracted by waste potatoes from a distillery; now the distillery has been closed, potato crops are subsidized to attract cranes and the camera-carrying tourists who follow them. The crane is altogether becoming the symbol of the area

- as shown through tourist literature, café and supermarket names and general interest in cranes. Even more important, a magnificent visitor centre overlooking the lake has been constructed at Fågeludden ("bird peninsula"); this incorporates an observation tower (which will give even better views when the water level rises), a splendid museum and lecture-theatre, shop and cafeteria, and board-walk over the reeds and water to the lake edge. It has apparently been criticized for its cost, but must be regarded as a significant investment for the whole region.

15. One of the long-term problems at Hornborga has always been the large number of land-owners. In recent years NEPB has spent much time and energy in contacting landowners, explaining the plans, and in acquiring land. So far some 1600 hectares have been obtained - most unfortunately in the southwestern part of the original lake area where the invasion of reed, willow and birch has been most severe.
16. On the basis of the visit in August 1988 it seemed to the international representatives that the current NEPB plan, far from destroying Hornborga, remained extremely close to the original conception and introduced only minor modifications and improvements. This point of view was strongly supported by representatives of Swedish NGOs. The vehemence with which the contrary view has been put is therefore surprising; on the morning of our visit local newspapers received a series of letters from mainly German limnologists, protesting against the revised plans, and this created considerable interest in our visit by local media. The tone of this criticism does not seem likely to facilitate dispassionate discussion and execution of the project.
17. A number of legal steps still need to be taken before NEPB's revised plan can be put fully into operation. Since the original plan was approved by the Swedish Parliament, the revision will need parliamentary discussion and approval. A parliamentary commission will visit the lake and report back in late 1988; it is conceivable that Parliament could uphold the old plan. The revised plan will then have to be put to the Water Count and to the Swedish Government before implementation can begin. Even at the most optimistic estimate, it seems unlikely that the restoration can be completed before 1993.

#### Recommendations

##### 18(a)

Hornborga has come to be regarded, not only in Sweden, but throughout Europe and at international level, as a unique project, symbolizing a change in environmental thinking. There are few other projects on this scale involving abandonment of agricultural drainage for restoration of near-natural conditions. It is crucial therefore that the plan should go ahead; the continuing dispute over the details of the plan seems ill-advised, since NEPB's current proposals remain so close to the original conception.

- (b) Because of the continental and global significance of the restoration plan, it is important that a detailed record be kept of the work done. In the first place, it would seem desirable to present a more detailed plan of the work to be carried out, and its effects; we were given little precise detail of the waterfowl expected as breeding species or on migration after restoration. In the second place, it is crucial for future reference that detailed monitoring be carried out as the restoration proceeds. Some research funds are available, but data collection needs to be carried out in a systematic way, with participation of a number of specialists (the current disputes between specialists do not of course facilitate scientific objectivity).
- (c) On the basis of the data gathered, scientific and technical exchanges should be developed through workshops on monitoring and management. These would be of relevance to other Swedish Ramsar sites such as Tåkern, Kuismaren and Getterön, to similar sites in northern and western Europe, and to other sites like Daimiel in Spain, at first sight dissimilar, but where major restoration programmes are being carried out and where the basic monitoring methods might be compared and established.
- (d) With its large number of visitors each year, the visitor centre at Fågeludden is having a major impact in terms of environmental education and public awareness. The very appropriate and original building and the highly original exhibition should however be better known at educational displays and visitors centres in other Ramsar sites. Sites which immediately spring to mind are Ichkeul in Tunisia (where IWRB is developing a visitor centre) and UK sites such the Upper Severn or Martinmere in UK (where the Wildfowl Trust has highly developed visitor displays), or at some of the UK sites managed by the RSPB.

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