World Heritage 25 COM

Distribution limited

WHC-01/CONF.208/INF.5
Paris, 31 October 2001
Original : English

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

CONVENTION CONCERNING THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE

WORLD HERITAGE COMMITTEE

Twenty-fifth session

Helsinki, Finland
11 - 16 December 2001

Information document : Report of the UNESCO-IUCN Expert Mission to Srebarna Nature Reserve, (Bulgaria), 1-4 October 2001

The Committee may wish to take note of the Report of the UNESCO-IUCN Expert Mission to Srebarna Nature Reserve (Bulgaria), 1-4 October 2001 and the recommendations contained in the section "Executive summary and list of recommendations".

Furthermore, the Committee may wish to note that the main recommendation of the expert mission is "that Srebarna Nature Reserve be removed from the List of World Heritage in Danger".

MISSION REPORT

SREBARNA NATURE RESERVE WORLD HERITAGE SITE,

BULGARIA[1]

1 - 4 OCTOBER 2001

ACKNOWLEDGEMENTS

The World Heritage Centre, UNESCO, organized the Mission on behalf of the World Heritage Committee as requested by the 25th session of the Bureau June 2001. This was done in conjunction with the World Conservation Union–IUCN and the Ramsar Bureau with the Ministry of Environment and Water, Bulgaria (MoEW), Sofia, Bulgaria. The National Nature Protection Bureau (NNPS), MoEW arranged meetings and logistics necessary to complete the objectives of the Mission. The Director of the National Nature Protection Service, Hristo Bojinov, kindly assigned Mr. Valeri Georgiev to accompany the Mission team and serve as interpreter as necessary. Drs. Georgi K. Hiebaum and Tanyo Michev and their colleagues from the Central Laboratory for General Ecology of the Bulgarian Academy of Sciences, provided the inclusive and up-dated monitoring data on the Ecological Conditions in the Ramsar Site 'Srebarna Maintained Nature Reserve' (1990–2001 [to date])". NGO concurrence with specific aspects of the ecological data were provided by Mr. Pavel Simeonov of the "Le Balkan" and Ms. Irina Kostadinova of the Bulgarian Society for Bird Protection (Birdlife Bulgaria).

TABLE OF CONTENTS

[1] Prepared by R.C. Milne, Chief of Mission with assistance from Dr. Tobias Salathe (Ramsar Bureau/IUCN) for the World Heritage Centre, UNESCO, Paris.

EXECUTIVE SUMMARY AND LIST OF RECOMMENDATIONS

Following a serious decline in ecological conditions and World Heritage values, Srebarna Nature Reserve was inscribed on the List of World Heritage in Danger in 1992. Based on the results of the WHC/UNESCO-IUCN-Ramsar Mission in 1998 (WHC-98/CONF 203 INF.6 29/10/98), the 22nd session of the Committee (1998) commended the State Party for progress in ameliorating the site's condition and provided a series of five primary requirements which would necessarily be met over the following three years, if the Committee were to consider removing the property from the List of World Heritage in Danger in 2001.

During the 1-4 October 2001 WHC/UNESCO-IUCN-Ramsar Mission, it was determined by observations, through interviews with key personnel and by a comparative analysis of documents and data provided by the Bulgarian Academy of Sciences that the State Party had essentially met and/or exceeded the site restoration and sustainability conditions required of the State Party by the 22nd session of the Committee for removing the property from the List of World Heritage in Danger.

Further, the Committee is more specifically advised that: (a) Previously deteriorating abiotic and ecological conditions have been mitigated on a sustained basis and in the Spring 2001, the Dalmatian pelican, a key index species listed under World Heritage values had the highest nesting success in historical record (128 nesting pairs - approximately twice that of the early 1990s) with also the highest fledgling success ratio on record (1.13), the pigmy cormorant has been highly successful in nesting in 2001 (over 300 breeding pairs) and the heron colony has fully recovered; (b) A permanent site management staff (5) is in place operating under newly established statutory conservation authority with demonstrated effective enforcement capability; (c) In conjunction with MoEW, the Bulgarian Academy of Sciences (BAS) is implementing an exemplary on-going monitoring programme assisted by NGOs and volunteers; (d) Primary ecological and World Heritage values reviewed in 1998 have been at least partially restored and sustained in the three year interim; (e) An exemplary Srebarna Maintained Reserve Management Plan prepared by the BAS with financial assistance from the Ramsar Bureau is currently being implemented, and subject to final approval under recent Bulgarian Conservation statute, will be officially accepted by the end of this year according to senior MoEW representatives; and (f) Phytoplankton production, zooplankton community, zoobenthos community and the ichthyofauna register increasingly positive changes which have reflected favourably on the avifauna.

Therefore, it is recommended that:

1. The State Party be commended for its dedicated, determined and successful efforts to improve the Srebarna Nature Reserve World Heritage conditions to better than pre-nomination (1983) levels and values;

2. That emergency funds estimated at USD$ 11,000 be provided for the purchase of a portable electrical generator, and re-installation of existing electrical motors for the rapid control of sluice gates to allow for the maximum flow and retention of rising Danube River water into Srebarna Nature Reserve, and/or allow the rapid closure of the sluice gates in case of emergency conditions, such as an up-stream chemical spill in the Danube River.; and,

3. That Srebarna Nature Reserve be removed from the List of World Heritage in Danger.

1. BACKGROUND TO THE MISSION

1.1 Inscription History: The Srebarna Lake Nature Reserve was inscribed on the World Heritage List in 1983, and following a serious decline in ecological conditions and World Heritage values, inscribed on the List of World Heritage in Danger (1992) and the Ramsar Montreux Record (the Ramsar Register of wetlands in need of priority conservation action) in 1993. A World Heritage Centre Mission including IUCN and Ramsar representatives assessed Srebarna's environmental conditions in October 1998. Based on the Mission's assessment, the 22nd session of the Committee commended the State Party for its remedial actions and strengthened protection of World Heritage values. The Committee suspended further judgement for a three-year interim period to allow further affirmative actions and to determine if the positive results were to be sustained. This three year accommodation period was concluded at the time of this most recent Mission (October 2001).

1.2 World Heritage Criteria and Values: Srebarna Lake Nature Reserve was inscribed on the World Heritage List in 1983. This 602 ha fresh-water site on the flood plain of the Danube River was acknowledged to be of regional and global significance under *criteria iv* of the 1983 Operational Guidelines (e.g. "Geological and physiographic formations and precisely outlined area which are habitats of plant or animal species threatened by extinction, with extraordinary and world value from the point of view of science, nature protection, or natural beauty"). Specific World Heritage bench-mark values considered by the Advisory body (IUCN) and the 16th session of the Committee at the time of inscription were: (a) the importance of the area as breeding grounds for 99 bird species most of which are rare or endangered in the world, regional or national scale including in particular the Dalmatian pelican (*Pelecanus crispus* – 67average breeding pairs) and pygmy cormorant (*Phalacrocorax pygmeus* - average about 20 breeding pairs); (b) use by for migration or wintering (80 species) including use by at least two species (red-breasted goose for wintering and corncrake for nesting) of international importance; (c) an important wetland on the Western Palaearctic migratory bird flyway; and, (d) outstanding (biological) diversity. The nomination per se and IUCN background evaluation documents also noted that: "(a) the hill topography (surrounding Lake Srebarna) provided a unique scenic opportunity to observe birds without disturbing them; (b) the reed community (*Phragmites communis*) occupied two thirds of the lake in which the water lily (*Nymphaea alba*) was found and a number of rare marsh plants in the wetland surrounding the lake; and, (c) that the situation (Srebarna Nature Reserve) was not completely natural and was maintained by water management measures."

An ample and historical accumulation of ornithological and plant records provided a partial baseline inventory which supported the IUCN recommendation for inscription of the Srebarna Nature Reserve on the List of World Heritage. Of particular significance was the area's importance as a nesting site for the Dalmatian pelican, ferruginous duck (*Aythya nyroca*), the pygmy cormorant and corncrake. As noted by IUCN in its evaluation and brought to the Committee's attention, the Srebarna Nature Reserve was not completely natural at the time of its inscription. The lake and marshland were disconnected from the Danube in 1949 by the construction of a dike between the river and the lake precluding regular annual inundation; subsequent water management measures primarily consisting of drainage canals had also been constructed prior to the time of inscription. Engineering efforts in 1979 to mitigate the impact of the dike construction had not proved successful. Gross estimates of reduced Danube in-flow water quantity and disrupted periodicity were available and accepted by the Committee

during the review process prior to inscription, but neither were fully understood, nor adequately interpreted by the Advisory Body at the time. Neither quantitative and qualitative data on ground water seepage and surface runoff within the Srebarna Lake drainage, nor an analysis of the complex and inter-related ecological and biochemical processes which would have provided a more comprehensive baseline on which ongoing natural and anthropogenic changes could be assessed were addressed in the nomination evaluation or in the inscription process.

1.3 Examination of the State of Conservation by the World Heritage Committee and its Bureau: Provided with negative reports from the natural heritage Advisory Body IUCN, the 21st session of Committee (1997) authorized a combined World Heritage Centre/IUCN/Ramsar Bureau Mission to Srebarna Lake Nature Reserve inscribed on the List of World Heritage in Danger (1992) to examine the alleged deteriorating ecological conditions and declining World Heritage values. The 1998 Mission found scientific evidence and data contradictory to previous reporting and determined that the State Party's restorative efforts in the mid-1990s were increasingly successful. An exhaustive examination of the on-site situation and historical data collection was summarized for the Committee in the Mission Report provided to the 22nd session of the Committee together with Bulgarian Academy of Sciences data gathered by the Mission. The Committee and the Advisory Body accepted and the Committee acted upon the Mission Report Summary Recommendations including commending the State Party for its affirmative and successful mitigation efforts. The Committee however, withheld further judgement with respect to removing Srebarna from the List of World Heritage in Danger until additional sustainability could be demonstrated, a site management plan could be developed and implemented, and strengthened conservation legislation could be enacted. The 22nd session of the Committee indicated to the State Party that if such measures were taken and rehabilitation and restorative efforts could be sustained through October 2001, the Committee would further consider removing Srebarna Nature Reserve from the List of World Heritage in Danger.

Additional consideration was given to a review of the Srebarna State of Conservation during the 25th session of the Bureau June 2001 which once again commended the State Party for preparation of a draft site management plan, invited the State Party's consideration of the draft management plan recommendations including closer collaboration with Romania, and further encouraged the execution of the anticipated World Heritage Centre/IUCN/Ramsar Mission in 2001 to assist the 25th session of the Committee's determination with regard to removing Srebarna from the List of World Heritage in Danger in December 2001.

1.4 Justification of the Mission: In consideration of the WHC/IUCN/Ramsar Bureau Assessment Mission performed in October 1998, the 22nd session of the World Heritage Committee decided to retain Srebarna Nature Reserve on the List of World Heritage in Danger for an additional three years (until October 2001), at which time, further consideration would be given to the ecological conditions of the site, the management of the resources in accordance with World Heritage values under 1983 Convention *criteria iv* as specified in the Srebarna nomination and related supporting data.

Specifically the 22nd session of the Committee (1998):

1. Commended the State Party for its extra-ordinary progress in restoring pre-1983, or better conditions to the site;

2. Encouraged the State Party to accelerate their interdisciplinary management planning and threat mitigation efforts and continue to pursue their intensive monitoring to assure continued ecological restoration so that the area may be removed from the List of World Heritage In Danger at such time as it can be demonstrated that such recovery appears sustainable;

3. Encouraged the State Party to seek necessary cooperation with Romania to assure that the feeding areas and flyways for the Srebarna breeding Dalmatian pelican population offer safe haven, and based on the terms of the Convention (Article 6.3) seek to establish a more favourable hydraulic regime of the Danube River;

4. Encouraged the State Party to actively participate in regional and international scientific, and management exchanges to further benefit the management of all the Danube River wetland resources;

5. Encouraged the State Party to explore the ways and means to collaborate with other States Parties sharing resident and migratory bird species and populations to collectively consider the merits of a "serial-like" or composite transboundary "Danube Wetland World Heritage Site" to link and embrace all suitable and qualified areas which collectively represent a globally significant and outstanding natural and cultural resource;

6. Advised the State Party that the Committee would consider removing Srebarna from the List of World Heritage In Danger upon the passage of pending Draft Protected Areas Act (No. 802-01-16) or substantively similar conservation legislation, the satisfactory and timely completion of the Srebarna Management Plan with the establishment of an effective resource management regime and buffer –zone management compatible with restoring and maintaining World Heritage values, and the provision of data to support indices of sustained World Heritage value recovery through the year 2000.

The Committee also suggested to the State Party the advantages of involving local community and NGO representation in the management planning process and in the formulation of specific cooperative actions which may be required in the management of the buffer zone and adjacent Lake Srebarna drainage area. Further, the State Party was encouraged to consider the value of acquiring additional scientific data and information including ethno-historical and paleo-botanical analysis of lake sediments prior to dredging activity, complete aerial photographic records for management planning and restoration purposes and the development of a Srebarna Action Plan establishing management and environmental education/interpretation priorities and requirements to supplement the Srebarna Management Plan as outlined. (Further information on buffer-zone enhancement and community participation to be found in Chapter III of the 1998 Mission Report WHC-98/CONF 203 INF.6 29/10/98)

Considering the inter-relatedness and select mutually supportive objectives of the World Heritage Convention, Ramsar, the Bonn and Biodiversity Conservation

Conventions and the Biosphere Reserve programme of MAB, the Committee encouraged the State Party to continue and strengthen participation in these Conventions and programmes.

The Bureau of the World Heritage Committee, 25th session June 2001 further considered conditons at the Srebarna Nature Reserve and suggestions made by the Ramsar Bureau to the Bulgarian authorities and urged a Centre/Ramsar/IUCN mission to the site in 2001. In accordance with the wish of the 24th session of the Committee (Cairns 2000), the Bureau recommended that the mission :

Review the sustainability of the rehabilitation efforts undertaken ; and determine whether the 25th session of the Committee should consider removing Srebarna from the List of World Heritage in Danger.

The 25th session of the Bureau June 2001 additionally suggested that the proposed Mission to Srebarna study issues such as: « plans and processes for the preparation of a project to establish a bilateral Ramsar site with Romania to promote transboundary co-operation ; long-term water management regimes ; links and water-flows between the Danube and Srebarna ; specific management needs in the short-to-medium term, including technical and financial support from external sources ; and indicators for the systematic monitoring of the state of conservation of the site. » In accordance with the interest of the 24th session of the Committee (Cairns, 2000), the 25th session of the Bureau also recommended that the Srebarna Mission review the sustainability of the rehabilitation efforts undertaken; and determine whether the 25th session of the Committee should consider removing Srebarna Nature Reserve from the List of World Heritage in Danger. (See Annex for Mission Terms of Reference and related documents)

2. NATIONAL POLICY FOR THE PRESERVATION AND MANAGEMENT OF THE WORLD HERITAGE PROPERTY

2.1 Protected Area Legislation: Conservation legislation was undergoing significant revision during the World Heritage Centre/IUCN/Ramsar Mission in 1998. An analysis of the statutory revisions for conservation in Bulgaria (Protected Areas Act No. 802-01-16) is provided in detail in WHC-98/CONF 203INF6 29/10/98. In summary, the statutory framework for conservation in Bulgaria is viewed as having been strengthened and harmonized with international standards including IUCN categories and relevant EU Directives. Although not directly conforming to IUCN categories, the conservation legislation constructively allowed for the classification of the Srebarna Nature Reserve as a “Maintained” Reserve. As incorporated into the draft Srebarna Management Plan, this new classification would allow for constructive management interventions such as to reduce the excess reed (*Phragmites*) beds, bottom sediments and other measures which may be necessary to maintain World Heritage values and pre-nomination conditions.

2.2 Institutional Framework and Management Structure: Current legislation provides a clear management and staffing framework for the Srebarna Nature Reserve. Currently the National Nature Protection Service (NNPS), Ministry of Environment and Water is the responsible management authority for Srebarna. Management direction is provided through the well-equipped MoEW Regional Inspectorate located

in Ruse; one staff member of the Regional Inspectorate under the administration of Regional Director Todor Moskov is assigned responsibilities for biodiversity. The Bulgarian Academy of Sciences additionally provides on-going monitoring and data gathering services for the Management of Srebarna Nature Reserve. At this time, no Reserve staff on-site are assigned the responsibility for site "presentation" under the terms of the Convention. This function in part is inadequately addressed at the Biosphere Reserve Museum adjacent to the Reserve Headquarters and Laboratory and under the direction of the Regional government. Three uniformed armed guards are employed by MoEW to provide law enforcement within the Reserve. Since the employment of the guards, poachers have been apprehended and their equipment confiscated. Additional radio equipment could enhance enforcement efficiency and effectiveness.

2.3 International treaties and Programmes: The Srebarna Nature Reserve is a designated a Ramsar Wetland Site of International Importance (1983), and as ecological conditions deteriorated in the early 1990s, the site was listed on the Ramsar Montreux Record (1992). Additionally, the site was designated a Biosphere Reserve and inscribed on the List of World Heritage (1983) and inscribed on the List of World Heritage in Danger (1992).

International co-operation has been encouraged particularly with adjacent Romania for collaborative management and protection efforts on select migratory species sharing nesting and feeding areas. Further international collaboration on the management of avifauna and habitat on a Danube regional basis has been encouraged by the World Heritage Committee and the Ramsar Bureau, and is anticipated through regional agreements and on-going technical and management discussions.

3. IDENTIFICATION AND ASSESSMENT OF ISSUES

3.1 Management. The Ministry of Environment and Water (MoEW), National Nature Protection Service (NNPS) is the management authority for Srebarna Maintained Nature Reserve. The Site manager and new staff are under the supervision of the Regional Inspectorate of the Ministry of Environment and Water located in Ruse. Uniformed and armed guards provide a significantly increased and effective on-site protection and enforcement staff. As a result, a number of poachers have been recently apprehended and their equipment confiscated. Considering the small size of the site, the size of the enforcement unit is considered adequate. The Reserve staff positions do not currently include personnel for the "presentation" or education; this function is handled in part by the nearby Biosphere Reserve Museum under the direction of non-MoEW regional and local Silistra officials; this is not particularly effective and does not address the requirements of World Heritage Site "presentation" under the terms of the Convention.

The Bulgarian Academy of Sciences Central Laboratory of General Ecology assisted by NGOs and volunteers continues to gather data and to provide monitoring and data interpretation services for the nature reserve. With a small grant from Ramsar, the Academy recently completed a draft Management Plan for the site which is considered by Ramsar to be an outstanding and exemplary model wetland management plan with potential application to other sites in Europe. For this reason, the Ramsar Bureau has placed the entire plan on its Internet Website [http://www.Ramsar.org/

wurc_mgtplan_bulgaria1c.htm]. MoEW has noted minor, but necessary changes to the present plan are required for it to conform to the recent Bulgarian Conservation Law. These minor changes will be completed and the plan officially accepted before the end of December 2001, according to senior MoEW officials. In the interim, the site management staff and BAS continue to implement the Management Plan with assistance from NGOs, volunteers and near by communities.

Additional collaboration and support is provided to the Srebarna Nature Reserve and the Regional Inspectorate of MoEW by the Regional Governor and other elected officials from near by communities including Srebarna and Silistra.

3.2 Factors Previously Affecting the Property. During the period between 1985 and 1990, the adverse effects of a protracted regional draught on the Balkan peninsula and the cumulative effects of historical and recent regional and international anthropogenic influences reached more readily observable proportions in Lake Srebarna. The combination of the latter causal agents with regulation of annual Danube flood crests by the Romanian Iron Gates control structure, the previous elimination (1979) of local traditional land-use practices (reed harvest and burning), the lack of adequate buffer-zone management with introduction of more modern agricultural practices (chemical fertilizers and insecticides) and increased domestic animal populations into the surrounding arable drainage accelerated the decline of World Heritage values. Both ground water seepage and surface runoff into Lake Srebarna had been reduced by wells and tributary control structures. Among the cumulative net adverse results documented in ongoing lake monitoring studies by the Bulgarian Academy of Science were increased levels of dissolved nitrogen and phosphate, decreased dissolved oxygen levels, increased sedimentation and turbidity, a decreased water column and lake volume, initially increased primary productivity and a subsequent simplification in the structure of phytoplankton populations, an accelerated transition from lake to marsh (hyper-eutrophication), the decline of biodiversity (particularly fish species), diminished utilization of the area by rare and threatened resident and migratory bird species, and reduced nesting success ratios of key breeding bird species determined to be of World Heritage significance. Without the periodic fluctuation in water level and a flushing action by Danube flooding, previously floating reed beds ("kotchky") coalesced and stabilized leaving nesting colonies more vulnerable to disturbance and predation .

Informed by IUCN in 1991 of the Srebarna situation, and recognizing the rapid accumulation of deteriorating ecological indices and diminishing World Heritage values, and in consultation with the Bulgarian authorities, and after consideration of removing Srebarna from the World Heritage List and while awaiting the results of further studies, the 16th session of the World Heritage Committee (1992) inscribed Srebarna on the List of World Heritage In Danger. The Committee accepted the State Party's indication that it was undertaking efforts to mitigate the adverse impacts on Srebarna through additional assessment, data analysis, monitoring, the provision additional water by canal construction between the Danube and Srebarna Lake and ecosystem restoration. Subsequently, Srebarna Nature Reserve was additionally placed on the Montreux Record (register of sites in need of priority conservation action) of the Ramsar Convention in 1993.

Conservation status reports from the Bulgarian authorities were provided to the Committee in 1994 and 1995. During its Nineteenth session (1995), the Committee

examined a substantive state of conservation report from the Bulgarian authorities. The report indicated that the successful completion of re-connecting the Danube River and Srebarna Lake for the first time since 1949 had been achieved with bilateral assistance (USAID) and was operational with control structures (1995); a permanent Reserve Administration had been established (1994)and intensive monitoring studies were ongoing. Upon advice from IUCN and based on encouraging Ramsar Secretariat mission findings, the Committee then requested a further substantive conservation status report from the State Party for consideration in 1998, and retained Srebarna on the In Danger List. In 1996, the Committee examined a monitoring report prepared by the Ramsar Secretariat indicating that the new canal and water control structure were operational allowing water into Srebarna Lake and that the Dalmatian pelican nesting colony was increasingly successful. Through a 35,000SF allocation from the Ramsar Small Grants Fund (1997), the development of a management plan for Srebarna Nature Reserve was initiated by the Bulgarian authorities (Srebarna Management Plan Outline Attached). Further conservation status reports were examined by the Committee in 1997, and by the Bureau in June 1998. As had been requested by the Committee, the State Party submitted a substantive and timely "Threat Mitigation Status Report 1992-1998" signed by the Minister of the Environment and Water.

4. ASSESSMENT OF THE STATE OF CONSERVATION OF THE SITE

The Bulgarian Academy of Sciences Central Laboratory of General Ecology provided the data and information on which the following summary conclusions have been made.[2]

4.1 Hydrology: The continued successful operation of the Danube connecting canal and sluice gates installed with the assistance of bilateral aid from the United States in 1992 has steadily increased the water volume in Lake Srebarna. This resulted in an increasingly positive condition affecting all other ecological parameters and World Heritage values. Between 1998 and 1999, the lake water level increased from 11.91m to 13.73m. The height of the water column changed from 1.10m to 2.9m at a prescribed measuring point increasing lake size from between 2.334sqkm to 7.1sqkm with a correlating reduction of *Phragrmites* reed beds which was clearly visible during the mission. The resulting increased open-water provided increased nesting protection and access to food supply for key fish-feeding bird species.

4.2 Nitrogen and Phosphorous Conditions: One of the main problems with the hyper-eutrophication of Lake Srebarna was the influx of nutrients (nitrogen, phosphorous and soil sediments) from crop fields on the surrounding catchment area and drainage slopes. An abandoned vineyard to the west of the lake appears to be a source of high erosion and subsequent accretion of bottom sediments. Continued stabilization of surrounding slopes would be advantageous. However, it is estimated there has been a five-fold decrease in the hyper-enriching levels of nitrogen and phosphorous since the 1998 Danube River flushing.

4.3 Water Quality: It is noted that at present Lake Srebarna exhibits a decrease in mineralization and a recovery of the biocarbonate water status existing before the 1983 World Heritage List inscription. Of critical importance it is noted that there was no recent depletion of oxygen concentrations related to eutrophication in the water column and primary productivity is within normal and expected limits. The lake exhibits and anticipated water quality characteristics for a body of water at the current

[2] Interviews and « Ecological Conditions in the Ramsar Site Srebarna Maintained Reserve (1990-2001) prepared by Drs. Georgi Hiebaum and Tanyo Michev, Central Laboratory for General Ecology, Bulgarian Academy of Sciences, Sofia, Bulgaria, 2001 » ; Hand delivered document presented to Mission, 4 October 2001.

normal stage of trophic progression. There is no reason for concern from pollution from heavy metals (Cu, Pb, Cd, Fe etc) or pesticides and PCBs.

4.4 Phytoplankton: Less satisfactory sampling and monitoring of phytoplankton has taken place in the interim period of 1998-2001. Data available from the period of 1997-1998 reflects a reduction of species and concentration perhaps as a direct result of Danube River flushing, but also could indicate an unstable and/or Lake condition decline. Further phytoplankton sampling and evaluations are required.

4.5 Zooplankton: In contrast to the phytoplankton sampling, the zooplankton monitoring has intensified since the last Mission. Data shows anticipated seasonal curves typical for this type of lake and state of condition. It is noted that several key Genera and species of zooplankton are found only in reduced numbers, or are missing from the samples. Additional population fluctuations have resulted from significant additions of Danube River water as was expected. Further, this may reflect the influence of predatory fish and fish-eating birds.

4.6 Macrozoobenthos: As a result of continuing investigations through 1999, 34 out of 74 species were newly recorded. A greater diversity and quantity of species are located in the shoreline zone of the lake. Data evaluation appears to indicate a more stable lake condition than before 1994-5. Since that time, it would appear that the lake bottom invertebrate fauna communities are recovering expected seasonal species diversity.

4.7 Fish: During investigations between 1998 and 2001, 22 species of fish were found in Lake Srebarna; all were representative of Danube River fauna. Six species of these fish are protected under the Bern Convention and may require more special management considerations. With the exception of the Asp (*Aspius aspius*), populations of rare or endangered fish are considered stable. Of the species found in the lake, 13 are potentially subject to commercial and/or sport fishing although these populations may be low and unstable.

4.8 Avifauna: Breeding populations are fully recovered from the collapse in the early 1990s. As previously noted, the population of Dalmatian Pelican breeding pairs at 128 is now the highest on record (significantly above 1983 levels and verified by the NGO publication "Le Balkan"), over 300 pairs of the pigmy cormorants nested in the lake in 2001 and the heron colony has fully recovered. Additionally it is noted that both the Dalmatian Pelicans and pigmy cormorants fed predominantly in Lake Srebarna and did not feed in Romanian lakes as on previous occasions.

4.9 Ecological Characteristics of Lake Srebarna: The construction of dikes between the Danube River and Lake Srebarna in the late 1940s precluded the natural perpetuation of the seasonal ebb and flow of river flood waters into the lake resulting in a condition of accelerated eutrophication. Ecological conditions in Lake Srebarna deteriorated through the early 1990s when in response to the inscription of Srebarna Nature Reserve on the List of World Heritage in Danger (1992), the construction of sluice gates made it possible to regulate, capture and retain Danube flood waters in Lake Srebarna. Since that time, ecological conditions have gradually improved to equal or exceed on a sustained basis those basic conditions existing at the time of World Heritage nomination in 1983. However, additional vegetative changes in the catchment area surrounding Lake Srebarna will require on-going monitoring. With the abandonment of the vineyard and reduction of agricultural use within the lake drainage, non-native species (including *Pinus nigra*, Poplar, Black Locust, Common Gloxinia and *Eleagnus angustifolia*) have intruded into the landscape and may require management attention in the future. The possible removal of accumulated bottom sediments in the lake is a remaining management issue not yet satisfactorily resolved.

5. CONCLUSIONS AND RECOMMENDATIONS

In conclusion and based on Mission observations and interpretation of the information and data provided the Mission, it appears that there is a stable and sustained trend towards improvement of World Heritage values and key ecological indices; a continuation of the monitoring programme will be necessary to guide the incipient and ongoing implementation of the Srebarna Management Plan. A reasonable effort should be continued to collaborate to a greater extent with neighbouring countries and in particular Romania to strengthen World Heritage and Ramsar regional conservation efforts for the Danube Delta and flood plains.

It is concluded that the State Party has demonstrated the determination, legislative framework, scientific and management capacity and public support to achieve and maintain the World Heritage values at the levels, or exceeding the levels determined at the time of site inscription on the World Heritage List in 1983.

Therefore, it is recommended that:

1. **The State Party be commended for its dedicated, determined and successful efforts to improve the Srebarna Nature Reserve World Heritage conditions to better than the 1983 and pre-nomination levels and values;**

2. **That emergency funds estimated at USD $11,000 be provided to the Srebarna management authority for the purchase of a portable electrical generator, and re-installation of existing electrical motors for the rapid control of sluice gates to allow for the maximum flow and retention of rising Danube River water into Srebarna Nature Reserve, and/or allow the essential rapid response closure of the sluice gates in case of emergency conditions, such as an up-stream toxic chemical spill in the Danube River.; and,**

3. **That Srebarna Nature Reserve be removed from the List of World Heritage in Danger.**

6 ANNEX

6.1 Terms of reference

Following the request by the 24th session of the World Heritage Committee (Cairns, December 2001), an invitation was received by the Government of Bulgaria for a UNESCO/IUCN mission to assess the current state of conservation of Srebarna Nature Reserve. In order to comply with the request:

- Meet with the responsible officials (Ministry for the Environment, site managers etc.) to discuss the current socio-economic, political and institutional context.
- Address organisational, statutory and policy factors with the responsible representatives for site management.
- Assess the status of conservation of the area with particular focus on the water management, waterfowl populations and site management capability with officials in Sofia and on-site.

1. Assess the status of the area with particular focus on the wetland values for which the site has been inscribed on the World Heritage List (annual sedimentation, water influence, development of the number of water and passerine bird population)
2. Review the on-site management capability;
3. Identify any impact and damages caused by agricultural and residential use of surrounding areas;
4. Evaluate the impact of implemented activities to re-establish the ecosystem and estimation of future activities and strategies regarding the recovery of the ecosystem's balance for the period 1998-2001;
5. Review relevant legislative, organisational, administrative and management framework regulating the site and environs in particular following the change of government (and Ministries) in 2001;
6. Review the implementation of the 1998 action plan which addressed priority needs to assist the State Party to restore and rehabilitate the site and develop an update if necessary;
7. Review the international status of the site as World Heritage Site (1983), World Heritage Site in Danger (1992), UNESCO Biosphere Reserve (1977), Ramsar Site (1975) and Ramsar-Montreux List (1993) in comparison to the findings of the 1998 mission;
8. Consider any requirements to elaborate and/or revise the management plan for the area in order to improve the management capability and effectiveness;
9. Prepare a summary report to the World Heritage Committee considering Operational Guidelines paragraphs 82 – 89, 77 – 88 and 46 – 56 and taking into account the conclusions of the previous mission to the site and submit the report to the World Heritage Centre in electronic form (not exceeding 10 pages).
10. Prepare an executive summary outlining the main results with regard to the question as to whether or not the site needs to be retained on the List of World Heritage in Danger;

6.2 Itinerary and programme

(as submitted in the letter Ref. WHC/74/505.2/MR/MLC dated 13 September 2001 from Mr. Bojinov , Ministry of Environment and Water, Bulgaria)

Day 1	Arrival and accommodation of the guests – responsible Mr. Hristo Bojinov
Day 2	Trip to town of Ruse. Visit to RIOSV Ruse (Regional Inspectorate of Environment and Water) – responsible Mr Todor Moskov
Day 3	Visit to Srebarna Reserve
Day 4	Meeting with the leaders of the Ministry of Environment and Water

Participants :

Leaders of MoEW
National Nature Protection Service
RIOSV Ruse (Regional Inspectorate of Environment and Water)
Srebarna reserve management body
Central Laboratory of General Ecology, Bulgarian Academy of Science
Representatives from Romania

6.3 List of contacts

Institutions
Ministry of the Environment and Waters (MoEW), Silistra Province, Srebarna Municipality
Academy of Sciences, Central Laboratory of General Ecology
Bulgarian Society for Bird Protection (Birdlife Bulgaria).

Responsible people met:
Krasimir Dukov Deputy Minister, MoEW
Christo Bojinov, Director of the National Nature Protection Service (NNPS) in the Ministry of the Environment and Waters (MoEW),
Valery Georgiev, focal point of NNPS/MoEW
Todor Moskov, Director of the regional institute of the MoEW,
Svetlana Ivanova. biodiversity inspector,
Petko Dobrev, Province Governor,
Director of the Nature Reserve
Michael Michailov, state inspector of the NNPS,
Dr Taniu Michev, Central Laboratory of General Ecology

Prof. Georgi Hiebaum Le Balkan NGO
Dr Michev, Pavel Simeonov of Le Balkan NGO
Irina Kostadinova of the BSBP-BirdLife Bulgaria.

6.4 Composition of mission team

Mr. Robert Milne, head of mission; USA, former staff of the US National Park Service, Washington and former Chairperson of the World Heritage Committee, representing the UNESCO World Heritage Centre;
Mr. Tobias Salathe, representing IUCN and the Ramsar Bureau, Regional Coordinator for Europe - Convention on Wetlands (Ramsar, 1971).