UNION INTERNATIONALE POUR LA CONSERVATION DE LA NATURE ET DE SES RESSOURCES
INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES

1110 MORGES, SUISSE (SWITZERLAND) (021) 71 44 01 TELEGRAMMES: UNICORN MORGES



IUCN REVIEW

World Heritage Nomination

1. NAME: Parc National de Plitvicka Jezera
(Lake Plitvice National Park)

2. LOCATION: Croatia, north-western Yugoslavia

3. NOMINATED BY: Branko Lumovac
Secretary General, Yugoslavian Commission
to UNESCO

4. DOCUMENTATION:

i) Nomination form with 8 black and white photographs, plus location map. All documentation not submitted to IUCN.

ii) The documentation was inadequate and was supplemented by documentation in IUCN files as follows:*

a) Plitvice National Park management plan 1971, 87 pp.

b) Plitvice National Park, 25 anniversary book, 260 pp. 44 pp. photos. 1974.

c) Plitvice National Park Book, 439 pp., 1958.

d) Miscellaneous pamphlets.

e) Parks in Yugoslavia, Annual Report, 1978.

* Note: Most of the documentation is in Yugoslavian with English and French summaries.

5. BACKGROUND and SUMMARY DESCRIPTION:

The national park of 20,000 ha. was established in 1949. The area has been settled in one form or another since pre-historic times. Settlers have included, Thracians, Illyrians, Celtic tribes (400 B.C.), Japods, Romans, (for 600 years), Goths, (400 A.D.), Byzantines (600 A.D.), Avars, Croats, (600 A.D.), Turks (1500 A.D.), currently about 1500 people live within the park. (p.7 nomination form and booklet by Bohm and Movcan).

The main features of the park are outstanding natural beauty, and the undisturbed production of travertine (tuff) through chemical and biological action. It is this process which influences the character of the lakes, the many cataracts and the cane systems.

6. EVALUATION

The area has been evaluated against the operational guidelines for the implementation of the World Heritage Convention as amended by the World Heritage Committee at its 2nd meeting.

The Plitvice National Park warrants World Heritage status primarily on the basis of the "undisturbed production of travertine (tuff)" which molds the character of the landscape and hydrologic systems. This process is in accord with criteria 10 (ii), "ongoing processes in the development of communities of plants and animals, land forms and marine and fresh water bodies".

"The tuff and tuff-producing plants are the decisive factors influencing the morphology of the Plitvice lakes.....there are waters, lakes, waterfalls, and woods in other parts of the world too - but the Plitvice lakes are still unique".

Prof. Dr. Ivo Pevalek
quoted in "Plitvice National Park"

Secondary reasons for the inclusion of Plitvice National Park on the World Heritage List relate to criteria 10 (ii)(c) interactions between man and his natural landscape; and 10 (iii) exceptional combinations of natural and cultural elements. e.g. long period of settlements, continuing role in historical evolution of governmental system.

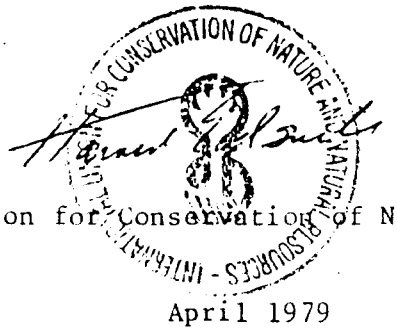
INTEGRITY:

The establishment of the national park and the preparation of a long-term management plan combined with a continuing research programme indicates the Government's long-term commitment to the management of the park.

With an area of 20,000 ha. topographically contained between two mountain massifs the park contains most of the key interrelated and interdependent elements in their natural relationships.

RECOMMENDATION:

Plitvice National Park should be placed on the World Heritage List.




International Union for Conservation of Nature and Natural Resources

April 1979

YUGOSLAVIA

NAME **Plitvice** Lakes National Park

MANAGEMENT CATEGORY V (Protected Landscape)
X (World Heritage Site - Criteria: ii, iii)

BIOGEOGRAPHICAL PROVINCE 2.17.06 (Mediterranean Sclerophyll)

GEOGRAPHICAL LOCATION The park is situated in the Croatian Republic of north-western Yugoslavia, 140km south of Zagreb and 80km from the Adriatic Sea. 44°52'N, 15°36'E

DATE AND HISTORY OF ESTABLISHMENT **Plitvice** Lakes were declared public property by the law of 8 April 1949, and a national park in the Official Journal (Narodne novine) No.29 1949. Accepted as a World Heritage site in 1979.

.REA 19,200ha

LAND TENURE Only 3,000ha are privately owned

ALTITUDE 417m-1,280m

PHYSICAL FEATURES **Plitvice** plateau (650-700m) lies between the slopes of Licka Pljesevica (1,640m), Mala Kapela (1,280m) and Medvedjak (884m), and is intersected by the headwaters of the Korana River. The upper end of the Korana Valley overlying the dolomite stratum is larger and holds the upper lakes while the lower lakes occupy a narrow canyon made up of calcium carbonate. The **Plitvice** Lakes basin is a geomorphological formation of biological origin, a karst river basin of limestone and dolomite, with approximately 20 lakes, created by the deposition of calcium carbonate precipitated in water through the agency of moss, algae and aquatic bacteria. This resulted in the building of biodynamic travertine (tufa) barrier dams at about 1cm/year, creating smaller and larger lakes interlinked by cascades and waterfalls, some up to 80m in height. These create strange, characteristic shapes and contain travertine-roofed and vaulted caves. The carbonates date from the Upper Trias, Juras and Cretaceaous Ages and are up to 4,000m thick. Soil types include humus on limestone, rendzines and brown soils on limestone, eliminated and brown eliminated soils on limestone and humus, brown soils and the eliminated soils of sinkholes.

CLIMATE The national park lies on the boundary between a moderately warm rainy forest climate (lower altitude)and a snowy forest climate (higher altitudes). The height of 700m above sea-level or the mean temperature of -3°C in the coldest month has been taken as the boundary line between the two climates.

VEGETATION There are 14,419ha of forest, 4,543ha of meadow and 201ha of lakes. The forest comprises pure stands of beech at lower altitudes and mixed stands of beech and fir at higher levels. The percentage of species

includes 72.8% beech, 22.1% fir, 4.7% spruce and 0.4% pine. The forest can also be classified in terms of underlying strata, namely, dolomite and limestone complexes. The dolomite communities comprise tertiary pine, hornbeam, spruce and beech-fir forests. The limestone communities have a smaller number of forest types but cover a larger areas with communities of spruce and fern, spruce in beech, coppiced hornbeam with sumac, maple and heather.
Hyrdophytic communities of black alder, grey ivy, willow, reeds and bulrush communities. Alpine beech groves grade into fir Abies sp. and beech Fagus sylvatica forests, with juniper Juniperus sp., and in the valleys and on lower slopes patches of sub-Mediterranean vegetation. There are a large mosaic of meadow communities, depending on altitude, geology soils and other ecological factors, in three taxonomic classes: Festuco-Brometea, Nardo-Calunatea, Molinio-Arrhenatheretea i Scheuchzerio-caricatea fuscae. Threatened, endemic and protected plants include Cardamine chelidonia, Cypripedium calceolus, Daphne blagayana, Lilium bulbiferum, L. carniolicum, Primula kitaibeliana, P .wulfeniana, Ruscus hypoglossum and Paeonia mascula.

FAUNA The area is faunistically rich, including European brown bear Ursus arctos, wolf Canis lupus (V), eagle owl Bubo bubo, and capercaillie Tetra urogallus. There are records of 126 species of birds, of which 70 breed.

CULTURAL HERITAGE The area was the cradle of the prehistoric Illarian tribe of Japuds dating from 1,000 BC. The japudic culture was followed by the Romans and from the 8th century AD was occupied by slavs. Archaeological remains include a prehistoric settlement on the site of the current **Plitvice** village, fortifications, Bronze Age tools and ceramics (Frankic, 1990).

LOCAL HUMAN POPULATION The area had 1,100 inhabitants in 1949 and 2,220 in the 1980s, grouped in 18 rural communities of varying sizes. The restoration of some of these is contemplated.

VISITORS AND VISITOR FACILITIES Tourists numbered 800,000 in the mid-1980s, of which two-thirds are foreign, largely German, with peak numbers in July and August. The revenue obtained from visitor fees (US$9.00) and general income from tourism amounted to some US$2.5 million in 1986. Before the war, there were 750 beds in two locations, increasing to twice that number in the 1950s and 1960s. No tourist facilities are now permitted within the national park. There is a system of internal roads and circular paths, and water transport is provided by electrically-powered boats. Visitors can hire boats, bicycles and horse carriages, with day fishing permits for the River Gacka also available. There are conference facilities, restaurants and camping sites. Interpretation of the park, through printed materials and lectures, is seen as a managment priority.

SCIENTIFIC RESEARCH AND FACILITIES There has been extensive research on travertine formation, age and structure, and forest structure. Park staff work in collaboration with a number of national universities and a permanent research station has been established, together with extensive meteorological and climatological measuring points. Hydrometeorological

data have been collected for 20 years, chemical analysis of rainfall for 10 years and air pollution monitoring since 1982. Hydrology, soil and phenology are monitored within the park. Specific research is taking place in biochemical analysis of travertine formations, water quality (for human consumption), limnology and palaeolimnology, microbiology and soil erosion, ecology of the brown bear and plant community structures. There are five meteorological and hydrometeorological monitoring stations.

CONSERVATION MANAGEMENT Pedestrian traffic has been restricted to wooden pathways built a little above the ground. The first General Development Plan of the Park was adopted by the Assembly of the local commune in 1970. A new draft management plan, prepared and approved in July 1986, specifies that some three-quarters of the park is open to prescribed forestry operations and agriculture. Felling is not intensive (approximately 30% of annual timber increment, rising in exceptional circumstances to 50%) and remained so until
mechanisation of the forestry sector was introduced. Even so, felling is restricted to landscaping work and brings in little income. At present, tourism is the main stay of the national park's economy, and plans exist to restructure the woodlands. Within the park 1,200ha of forest are strictly protected, with plans to increase this to 3,000ha, to include the lakes and waterfalls. Special zones have been identified for strict protection of flora and fauna. Although hunting is forbidden, nearby mountain forests are managed as hunting areas. The tourism industry became the responsibility of the national park authority, which banned vehicles from a large part of the park and erected new facilities, architecturally-styled in the local tradition, outside the boundary. The park manages large-scale food production from the agricultural lands around the villages which, in turn, supply the hotels.

MANAGEMENT PROBLEMS The core zone protecting the watershed is disturbance-free, with traditional farming taking place in the "pre-park" zone. Accessibility of the park to the general public is a potential threat. Pressure from tourism increased with the construction of access roads, although this is now controlled by limiting entry to two points. A transit road in the north-west of the park is still heavily used (by 10,000 vehicles in high season). There is at present no evidence of ecological damage due to atmospheric pollutants, principally because the park is distant from emission sources.

STAFF A total of 146 staff is directly involved in park management, comprising 66 within the Department of Nature and 80 in National Park Tourism. In addition, there are 100 staff charged with maintaining park facilities (D. Krga, pers. comm., 1990).

BUDGET The park is self-supporting with a gross income of US$2.5 million per year, in addition to which the State provides US$150,000 for research.

LOCAL ADMINISTRATION Nacionalni Park **Plitvice**, 48231 Plitvicka Jezera

REFERENCES

Frankic, A. (1990). **Plitvice** Lakes National Park. Report submitted to the

IUCN conference on the Management of Protected Areas and National Parks under the Impact and Threat of Atmospheric Emissions. Krkonose National Park, Czechslovakia. 6 pp.

Movcan, J. (undated). **Plitvice**. Nacionalni Park Plitvicka Jezera, Unesco.

Movcan, J. (1974). Plitvicka Jezera covjek i priroda. Nacionalni Park Plitvicka Jezera.

Movcan, J. (1983). Development and Economics in **Plitvice** National Park. European Bulletin. Nature and National Parks 21: 79-80.

Movcan, J. (1985). **Plitvice** Lakes National Park the World National Heritage
Nacionalni Park Plitvicka Jezera, Spektar, Zagreb.

Movcan, J. (1987). Vorstandsmitglied Nationalpark Plitvicer Seen. Unpublished
paper presented at the General Assembly of the European Federation for Nature and National Parks.

DATE May 1988, reviewed May 1990
0282V