

# THE ENDANGERED EUROPEAN SPECIES *PORONIA PUNCTATA* (XYLARIALES, ASCOMYCOTINA), STILL ALIVE AND WELL IN CROATIA

NEVEN MATOČEC

Ruđer Bošković institute, Bijenička cesta 54, 10000 Zagreb, Croatia  
(e-mail: nmatocec@rudjer.irb.hr)

**Matočec, N.: The endangered European species *Poronia punctata* (Xylariales, Ascomycotina), still alive and well in Croatia. *Nat. Croat.*, Vol. 9, No. 1., 35–40, 2000, Zagreb.**

The endangered rare xylarialean fungus *Poronia punctata* has been found recently in Croatia settling the Mediterranean grassland of the maritime slope of Mt. Biokovo (Dalmatia). In fungi conservation in Europe, this species is included in the high-level concern group – a group that is composed of the most endangered macrofungal species in Europe, having become extinct in many national areas. Therefore, any locality in which the species still occurs should be designated a locality of major biodiversity importance. Ecological observations, a brief description of the collection, as well as notes on conservation perspective of the species are given.

**Key words:** *Poronia punctata*, conservation, ecology, morphology, Croatia

**Matočec, N.: Ugrožena europska vrsta *Poronia punctata* (Xylariales, Ascomycotina), još uvijek živa i zdrava u Hrvatskoj. *Nat. Croat.*, Vol. 9, No. 1., 35–40, 2000, Zagreb.**

Ugrožena i rijetka gljiva *Poronia punctata* iz reda Xylariales nedavno je nađena u Hrvatskoj na sredozemnom travnjaku na primorskim padinama Biokova (Dalmacija). U zaštiti gljiva u Europi ta se gljiva nalazi u skupini visokog stupnja brige – skupini koju čine najugroženije vrste makromiceta Europe koje su u mnogim zemljama Europe izumrle. Zato bi svaki lokalitet na kojem se vrsta još pojavljuje trebalo proglasiti lokalitetom od najveće važnosti za biološku raznolikost. Rad donosi ekološka opažanja, kratki opis nalaza, te bilješke o mogućnosti zaštite vrste.

**Ključne riječi:** *Poronia punctata*, zaštita, ekologija, morfologija, Hrvatska

## INTRODUCTION

The endangered rare xylarialean fungus *Poronia punctata* (L.: Fr.) Fr. has been found recently in Croatia for the first time. Only one locality is so far known, despite present long-term systematic fieldwork. It was carried out with all criteria considered essential to find the species (i.e. habitat, substrate, season, fruitbody

size, etc.). Systematic research was also undertaken during the sixties in Croatia aimed at finding *Poronia punctata*, as a part of the project »Distribution of Macromycetes in Europe«, but resulted without any record of the species in Croatia (Tortić, pers. comm.). However, both of researches mentioned (until 1999) did not include Mediterranean region of Croatia, which is probably a far more favourable area for the species than the hinterland.

The species is not edible and thus clearly not endangered by mushroom hunters. However, it has been established as being extinct in many countries according to ING (1993). In his paper on the Red List of European Macrofungi the species is included in the high-level concern group – the group which comprises the most endangered macrofungal species in Europe. Therefore, any locality in which the species still occurs should be designated as a locality of major biodiversity importance. Since this species was recorded after the passing of protective legislation based on the preliminary Red List of Croatian Endangered Fungi, this rare species is not protected in Croatia at the moment. It should be protected immediately at the next revision of protected Croatian fungi.

## MATERIAL STUDIED<sup>1</sup>

Figs. 1–3., 5.

Stroma substipitate to stipitate with upper part expanded to obconical-discoid head, 2,8–8,5 mm in diam., resting on the substrate surface and lower part tapered, more or less conspicuous and buried in the substrate. Upper surface of the disc somewhat concave, white to greyish-cream, dotted with minute, ca. 0,2 mm in diam. black ostioles of the perithecia. Surface between the ostioles completely smooth. Margin collar-like, creamy-white, extending beyond the disc to ca. 0,2 mm. Outside surface in upper part concolorous but with fine felty structure. Lower surface of the stromatal head dark brown to blackish-brown also with fine felty structure. Medul-

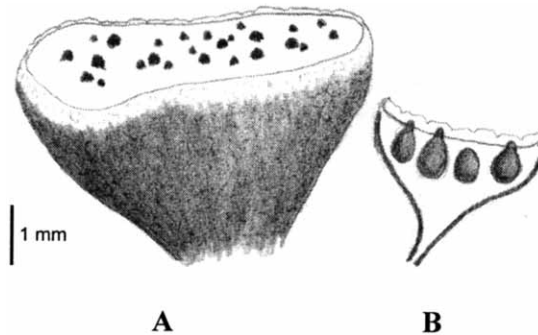


Fig. 1. stromata; A-side view, B-vertical median section

<sup>1</sup> All data concerning the morphology were based on living material.

lar part of the stromatal head white, tough and fleshy. Perithecia more than 10 per mature stroma, situated only beneath the upper surface of the stromatal head, in one level, immersed in the medulla (except the ostioles), with black and shiny content, oviform to pyriform, ca. 0,4–0,5 mm in height and ca. 0,3–0,4 mm in diam.

Asci hyaline walled, long-fusiform, broadest at the middle part, with obtuse inoperculate apex, base tapered but pleurorhynchous, 8-spored,  $124\text{--}163 \times 18,7\text{--}24,0 \mu\text{m}$ ,

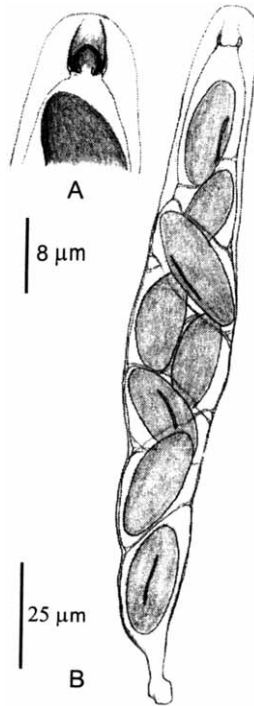


Fig. 2. asci; A-ascal apex in Melzer reagent, dead; B-ascus in tap water medium, living state

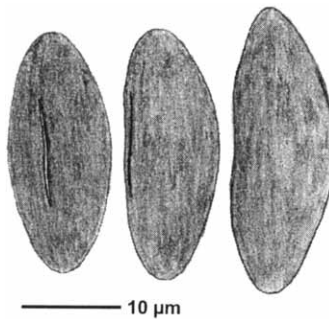


Fig. 3. Ascospores, in tap water medium, living state

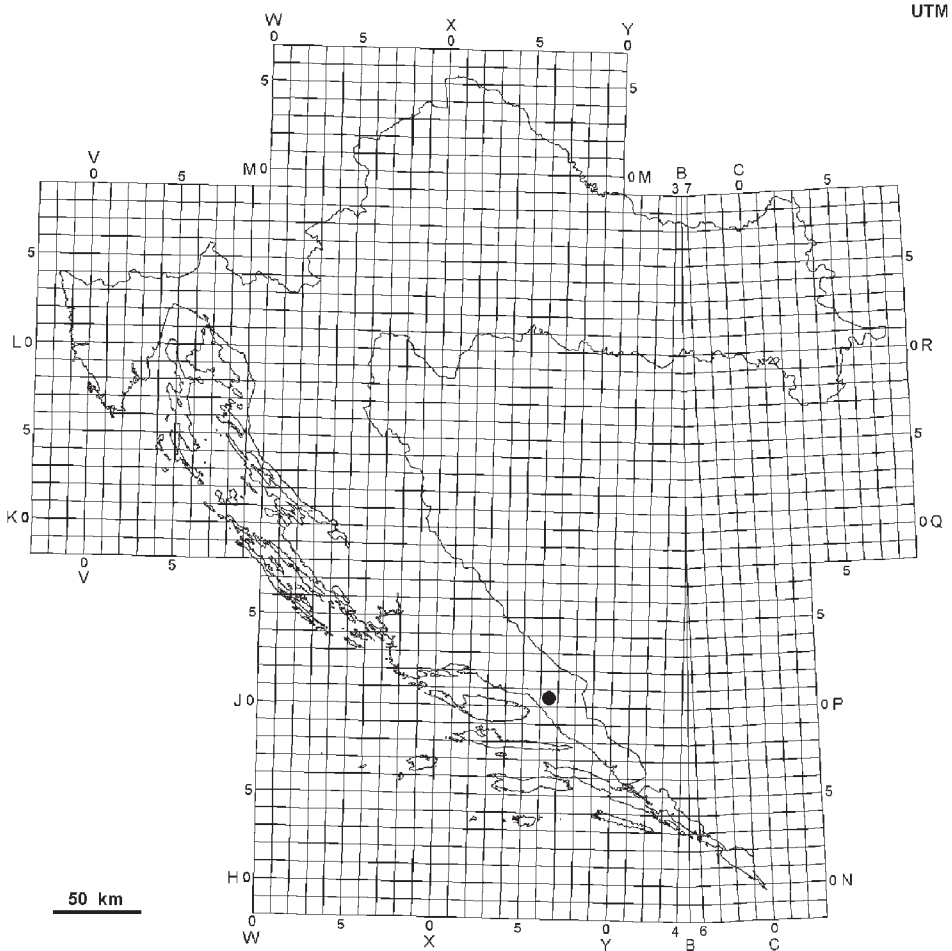


Fig. 4. Collecting site of the *Poronia punctata* (Mt. Biokovo, Dalmatia, Croatia)

filled with uniseriate to partly biseriate arranged ascospores. Apex with thickened wall and strongly amyloid complex apparatus, 6,5–11,7  $\mu\text{m}$  thick. Ascospores 22,5–26,8  $\times$  9,7–10,8  $\mu\text{m}$ , inequilateral, ellipsoid-fusiform with dark brown to black smooth surface and unilateral-longitudinal germ slit 11,2–14,0  $\mu\text{m}$  long situated on the flat side. Ascospores while situated in asci with hyaline gelatinous coat, which soon disappears after their discharge from asci.

Specimen examined: N.M. 4216 (private fungarium Matočec), Vrutak Spring, Mt. Biokovo, 470 m a.s.l., 8. April 1999, leg. S. Gottstein & R. Ozimec

The collection site is situated above the village of Bast, 470 m above the sea level, near Vrutak Spring, on the maritime lower slope of Mt. Biokovo (Dalmatia), see Fig. 4. The habitat can be described as Mediterranean karstic rockfield grassland. About

30 stromata were found in April, predominantly juvenile, distributed on large mass of horse or mule dung. Stromata were totally exposed to insolation without any vegetation cover, which can provide a shade to them. According to PUHARIĆ (1990), the collection site is situated inside the area of the Biokovo Nature Park.

## NOTES

*Poronia punctata* is one of the several species of this genus with discoid stroma growing on dung. This species can grow only on the dung of the cow, horse, donkey, or mule and according to FRIES (1823) also on elephant dung. So far, the known distribution data on the species suggest that optimal habitats are grasslands in the vicinity of the sea, although species has been occasionally collected even in the inland areas. There is another closely related species likely to be confused with the mentioned species: *Poronia erici* Lohmeyer & Benkert, which is more common in some European countries than *P. punctata*. It is also distributed mostly in coastal districts of Europe (LOHMEYER & BENKERT, 1988; LOHMEYER, 1994). However, smaller stromata, larger ascospores, and different habitat (dung of the rabbit, goat, sheep and various marsupials) distinguish *P. erici* from *P. punctata*. It has not yet been ascertained why *P. punctata* has declined, but the recession of the species is fairly well documented (REID, 1986; WHALLEY & DICKSON, 1986; LOHMEYER & BENKERT, 1988; ARNOLDS & DE VRIES, 1993; LOHMEYER, 1994; ARNOLDS *et al.*, 1995). In Croatia, and perhaps elsewhere in Europe (cfr. WHALLEY & DICKSON, 1986), the species could be endangered for one particular reason. During the sixties, stockbreeding went through major changes. Traditional nomadic stockbreeding has been replaced with intensive stockbreeding in most provinces. The animals are kept indoors, so grazing in open pastures stopped. Those pastures, which are the only potential habitats of the species, were left without a suitable substrate. Only in remote areas in Croatia, unsuitable for intensive stockbreeding, do the animals still graze on open pastureland. The locality containing the find being described here is regularly grazed by mules and horses. We can expect even more localities with this species in Croatia, because traditional stockbreeding (especially the donkey) is still alive in Dalmatia and on the Adriatic islands. These areas have still been imperfectly mycologically investigated. With the retention of this way of stock-breeding and the protection of horse and donkey populations in the Mediterranean zone of Croatia, the species could be saved over a relatively large area.

## ACKNOWLEDGEMENTS

I thank Sanja Gottstein and Roman Ozimec for providing the collection of this rare species, Milica Tortić for valuable information on her research in Croatia as a part of the project »Distribution of Macromycetes in Europe«, and Željko Gottstein for information on stock-breeding in Croatia.

*Received September 20, 1999*

## REFERENCES

- ARNOLDS, E. & B. DE VRIES, 1993: Conservation of fungi in Europe. In: PEGLER, D. N., L. BODDY, B. ING & P. M. KIRK (eds.) *Fungi of Europe: investigation, recording and conservation*, 211–230. The Royal Botanic Gardens, Kew.
- ARNOLDS, E., T. W. KUYPER & M. E. NOORDELOOS (red.), 1995: *Overzicht van de paddestoelen in Nederland*. Nederlandse Mycologische Vereniging, Wijster.
- FRIES, E., 1823: *Systema Mycologicum* 2. Uppsala.
- ING, B., 1993: Towards a red list of endangered European macrofungi. In: PEGLER, D. N., L. BODDY, B. ING & P. M. KIRK (eds.) *Fungi of Europe: investigation, recording and conservation*. The Royal Botanic Gardens, Kew.
- LOHMEYER, T. R., 1994: New European and Australian records of *Poronia erici* Lohmeyer and Benkert, and a fairy tale concerning their possible relationship. *Mycologist* **8**, 16–20
- LOHMEYER, T. R. & D. BENKERT, 1988: *Poronia erici* – eine neue Art der Xylariales (Ascomycetes). *Z. Mycol.* **54**(1), 93–102.
- PUHARIĆ, I., 1990: Biokovo – planina i planinarstvo. Planinarsko društvo »Biokovo«, Makarska.
- REID, D. A., 1986: A collection of *P. punctata* from Surrey. *Bull. Brit. Myc. Soc.* **20**(1), 58–59:
- WHALLEY, A. J. S. & G. C. DICKSON, 1986: *Poronia punctata*, a declining species? *Bull. Brit. Myc. Soc.* **20**(1), 54–57.



Fig. 5. Stromata of the *Poronia punctata*. Photo: N. Matočec.