Polish Botanical Journal 49(1): 63–66, 2004

MYCENASTRUM CORIUM (FUNGI, AGARICALES) IN POLAND

ANNA KUJAWA, ANNA BUJAKIEWICZ & JERZY KARG

Abstract: The paper reviews the localities of *Mycenastrum corium* (Guers.) Desv. in Poland and presents a new one from the Wielkopolska region.

Key words: gasteromycetoid fungi, macrofungi, *Mycenastrum corium,* agricultural landscape, distribution, Poland

Anna Kujawa & Jerzy Karg, Agricultural and Forest Environment Research Centre, Polish Academy of Sciences, Field Station, Turew, Szkolna 4, PL-64-000 Kościan, Poland, e-mail: annakuja@poczta.onet.pl
Anna Bujakiewicz, Department of Plant Ecology and Environmental Protection, Adam Mickiewicz University, Al. Niepodległości 14, PL-61-713 Poznań, Poland, e-mail: ascom@amu.edu.pl

Mycenastrum corium (Guers.) Desv. (Figs 1 & 2) was initially regarded as a species from *Lycoperdales*, but now it belongs to the order *Agaricales* and is the only representative of the family *Mycenastraceae* (Kirk *et al*. 2001). It is a cosmopolitan, amphizonal, mainly subcontinental and continental species occurring in North and South America, Eurasia, Africa and Australia, with isolated localities far north in the boreal floristic zone as well as in mountain regions of tropical East Africa (Hansen 1962; Homrich & Wright 1973; Kreisel 1973, 1982, 1987, 2001; Lincoff 1981; Rudnicka-Jezierska 1991). Its general distribution on the globe (Kreisel 1982) suggests a connection with sclerophyllous scrub vegetation of Mediterranean type and adjacent subarid temperate grassland. This statement seems confirmed by recent papers including Dimou *et al*. (2002). It is highly probable that it expanded from those centers by anthropogenic media and became synanthropic. It is listed (category V) in the *Red List of Threatened Macrofungi in Poland* (Wojewoda & Ławrynowicz 1992). *Mycenastrum corium* is also threatened in Europe (Ing 1993) and was among the species mapped on this continent (Skirgiełło 1976).

Mycenastrum corium (Guers.) Desvaux

Ann. Sci. Nat., ser. 2, 17: 147. 1842

Lycoperdon corium Guers. in DC., Flore France **2**: 598. 1815

Basidiocarps initially semi-hypogeous, spherical or ovular, solitary or gregarious. A number of detailed macro- and microscopic descriptions of the species have been published (Hansen 1962; Rudnicka-Jezierska 1965, 1991; Homrich & Wright 1973). A detailed description of the microscopic features of the spores and capillitium, employing electron microscopy, was given by Pereau and Heim (1971). The macroscopic and microscopic features of basidiocarps found in new locality in Poland agree entirely with the descriptions in that literature. The species occurs in various soils, mostly on meadows, pastures, manured open fields, open sandy ground, forest margins, broadleaf and coniferous (pine) forests, ruderal sites, especially on old haystacks, silage, in gardens and roadsides (Hansen 1962; Rudnicka-Jezierska 1965, 1991; Homrich & Wright 1973; Groß *et al*. 1980; Kreisel 1973, 1982, 2001; Kriegelsteiner 1991; Hansen & Knudsen 1997). It is xerothermic, mesophilic and even to some extent a eutrophic peat-bog species (Kreisel 1982, 2001).

Since the first record in 1889 in Łąck (Błoński 1890; Rudnicka-Jezierska 1991), *M. corium* has been found in Poland in only a few localities (Skirgiełło 1976; Calonge & Ławrynowicz 1982; Rudnicka-Jezierska 1991 and references therein). Probably some of these localities no longer exist as a result of changed habitat conditions, because

Fig. 1. *Mycenastrum corium* (Guers.) Desv. – young basidiocarp with cracked exoperidium in original locality near Rąbiń. Phot. Anna Kujawa.

most of them were located in areas under high anthropopressure. Old localities of *M. corium* may not exist because of the ephemeral character of the species (Kreisel 1982, 1987).

On 3 July 2000, Jerzy Karg found two closed and dried basidiocarps of *M. corium* at a new locality near Rąbiń village (about 60 km S of Poznań) in the General Dezydery Chłapowski Landscape Park. The basidiocarps were determined by Anna Kujawa and revised by Anna Bujakiewicz. The site was located at the margin of a mid-field clump of trees in a place where dirt, manure and straw were stored. The place was overgrown by grasses, mainly *Elymus repens* (L.) Gould and *Lolium perenne* L., as well as *Bromus tectorum* L., *Lolium multiflorum* Lam., *Poa pratensis* L. and *P. annua* L. There was a notable percentage of weeds: *Anthemis arvensis* L., *Anchusa arvensis* (L.) M. Bieb., *Centaurea cyanus* L., *Convolvulus arvensis* L., *Geranium pusillum* L., *Papaver rhoeas* L. and *Viola arvensis* Murray. Nitrophilous perennials included *Artemisia vulgaris* L. and *Urtica dioica* L. A small admixture of *Secale cereale* L. was recorded, which was cultivated close by. Between April and November in 2001–2002, Anna Kujawa found several other basidiocarps at different developmental stages. In May 2003, only seven old basidiocarps were found, but no fresh one was recorded. In April 2004, nine last-year's basidiocarps were found. They had grow under a pile of straw. Early spring vegetational cover was low, and basidiocarps that had developed in the previous year were easily visible. The carpophore was cracked and split. This locality does not seem to be endangered despite the human activity nearby. The documentation of the locality (dried fruitbodies and photos) is deposited in the Field Station of the Agricultural and Forest Environment Research Centre of the Polish Academy of Sciences in Turew and in KRAM-F. The new locality is only the third one recorded in the last 20 years.

The distribution of *M. corium* in Poland is mapped in Fig. 3. Acronyms of herbaria given in the list of localities follow Holmgren *et al*. (1990) and Mirek *et al*. (1997).

LIST OF LOCALITIES. POLAND. Ośno Lubuskie near Jezioro Czyste lake, on grassy shore, 30 Sept. 1976, *leg. W. Rudnicka-Jezierska* (WA; Rudnicka-Jezierska 1991); Ośno Lubuskie, close to cemetery, Aug. 1978, *leg. W. Rudnicka-Jezierska* (WA; Rudnicka-Jezierska

Fig. 2. *Mycenastrum corium* (Guers.) Desv. – mature basidiocarp (dried, from collection) with split endoperidium. Phot. Anna Kujawa.

1991); Łagów (former Gorzów province), forest margin, 18 Sept. 1982; *leg. B. Ginko* (WA; Rudnicka-Jezierska 1991); Rąbiń village in General Dezydery Chłapowski Landscape Park (about 60 km S of Poznań), 3 July 2000, *leg. J. Karg* (Field Station of the Agricultural and Forest Environment Research Centre, Polish Academy of Sciences, Turew, KRAM-F); Poznań, yard near farm buildings, 1936 (Teodorowicz 1939); Toruń, on roadside under poplars and *Lycium* sp., 23 Sep. 1951, *leg. W. & J. Zabłocki* (WA; Rudnicka-Jezierska 1991); Toruń, on roadside near Barbarka under poplars, 31 Aug. 1952, *leg. W. & J. Zabłocki* (WA; Rudnicka-Jezierska 1991); Toruń, Dybowski Castle, 6 Jul. 1955, *leg. J. Berndt & J. Zabłocki* (WA; Rudnicka-Jezierska 1991); Toruń, 28 Sep. 1958, *leg. J. Zabłocki* (WA; Rudnicka-Jezierska 1991); Łódź, Zoological Garden, among grasses, 4 June 1974, *leg. L. Makowska* (LOD; Calonge & Ławrynowicz 1982); Puszcza Kampinoska forest, Nowa Dąbrowa, yard of abandoned cottage, sunny and dry site, 5 Sept. 1995, *leg. B. Sadowska* (Sadowska, personal communication); Skorocice near Busko Zdrój, pasture in steppe reserve, 28 May 1968, *leg. W. Wojewoda* (KRAM-F; Wojewoda 2003); Wierzbica by Zalew Zegrzyński, pasture surrounding artificial lake, 19 Jun. 1972, *leg. M. Ławrynowicz* (LOD; Calonge & Ławrynowicz 1982); Warsaw, Saska Kępa, estate, Jun.1964, *leg. H. Rembertowicz-Szymborska* (Rudnicka-Jezierska 1965, 1991; Skirgiełło 1976; Calonge & Ławrynowicz 1982); Warsaw, meadow near "Foundry Warszawa", Sept. 1973, *leg. Z. Domański* (WA; Rudnicka-Jezierska 1991; Domański 1997); Puławy, Wronów forest district, embankment by ditch, mixed forest, 1 Apr. 1950, *leg. H. Stasiak* (Skirgiełło 1976; Calonge & Ławrynowicz 1982); Grajewo near Augustów, drained and dried peat bog called Kuwasy, 6 Sept. 1953, *leg. B. Gumińska* (KRA-F; Skirgiełło 1976; Calonge & Ławrynowicz 1982); Zwierzyniec near Zamość, *Pino-Quercetum*, in grass, Aug. 1978, *leg. Z. Domański* (WA; Rudnicka-Jezierska 1991; Domański 1997); Zwierzyniec, on dam located in Echo Fish Farm ponds, Apr. 1997, *leg. P. Marczakowski* (RPNH).

ACKNOWLEDGEMENTS. We thank Dr. Irena Hołownia (Toruń), Dr. Barbara Sadowska (Warsaw), Dr. Małgorzata Stasińska (Szczecin), Dr. Wanda Stojanowska (Wrocław), Dr. Andrzej Chlebicki (Kraków), Piotr Grzegorzek (Chrzanów), Dr. Tadeusz B. Hadaś (Bytom), Professor Tadeusz Kowalski (Kraków), Dr. Janusz Łuszczyński (Kielce), Dr. Piotr Mleczko (Kraków) and Professor Tomasz Załuski (Toruń) for their kind help in gathering information on herbarium specimens of *Mycenastrum corium* in Poland, Dr. Krzysztof Kujawa for technical assistance in preparing the manuscript, Professor Maria Ławrynowicz (Łódź) for valuable comments on the first version of the text and references, Paweł Marczakowski (Zwierzyniec) for making specimens available, and to the anonymous reviewer for useful remarks on the manuscript.

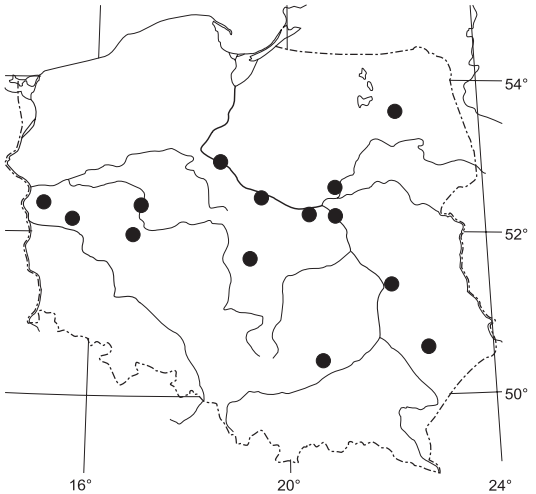

Fig. 3. Distribution of *Mycenastrum corium* (Guers.) Desv. in Poland.

REFERENCES

BŁOŃSKI F. 1890. Wyniki poszukiwań florystycznych skrytokwiatowych dokonanych w ciągu lata r. 1889 w obrębie 5-ciu powiatów Królestwa Polskiego. *Pamiętn. Fizjogr*. **10**: 129–190.

CALONGE F. D. & ŁAWRYNOWICZ M. 1986. A contribution to the chorology of some Gasteromycetes in Poland. *Acta Mycol*. **18**(1982): 161–170.

DESVAUX A. N. 1842. Sur le genre *Mycenastrum* du groupe des Lycoperdées. *Ann. Sci. Nat., 2 ser*. **17**: 143–147.

DIMOU D. M., ZERVAKIS G. I. & POLEMIS E. 2002. Mycodiversity studies in selected ecosystems of Greece: I. Macrofungi from the southernmost fagus forest in the Balkans (Oxya Mountain, Central Greece). *Mycotaxon* **82**: 177–205.

DOMAŃSKI Z. 1997. Nowe stanowiska rzadkich i interesujących grzybów w Polsce. Nakład własny, Warszawa.

GROß G., RUNGE A. & WINTERHOFF W. 1980. Bauchpilze (Gasteromycetes s.l.) in der Bundesrepublik Deutschland und Westberlin. *Beih. Z. Mykol*. **2**: 79.

HANSEN L. 1962. A Danish Find of *Mycenastrum corium* with Notes on its Anatomy. *Bot. Tidssk*. **58**: 204–212.

HANSEN L. & KNUDSEN H. (eds) 1997. Nordic Macromycetes, 3. Heterobasidioid, Aphyllophoroid and Gasteromycetoid Basidiomycetes. Nordsvamp-Copenhagen.

HOLMGREN P. K., HOLMGREN N. H. & BARNETT L. C. (eds) 1990. Index herbariorum. Part 1: The herbaria of the world, ed. 8. *Regnum Veg*. **120**: 1–693.

HOMRICH M. H. & WRIGHT J. E. 1973. South American Gasteromycetes. The genera *Gastropila*, *Lanopila* and *Mycenastrum*. *Mycologia* **65**: 779–794.

ING B. 1993. Towards a Red List of Endangered European Macrofungi. In: D. N. PEGLER, L. BODDY, B. ING & P. M. KIRK (eds), *Fungi of Europe: investigation, recording and conservation*, pp. 231–237. Royal Botanic Gardens, Kew.

KIRK M. P., CANNON P. F., DAVID J. C. & STALPERS J. A. (eds) 2001. Ainsworth and Bisby's dictionary of fungi. 9 ed. CAB International, Wallingford.

KREISEL H. 1973. Die Lycoperdaceae der Deutschen Demokratischen Republik. Nachträge 1962–1971. *Biblioth. Mycol*. **36**: 1–18.

KREISEL H. 1982. Das Vorkommen von *Mycenastrum corium* in DDR. *Gleditschia* **9**: 257–269.

KREISEL H. 1987. Pilzflora der Deutschen Demokratischen Republik. Basidiomycetes (Gallert-, Hut- und Bauchpilze). G. Fischer Verlag, Jena.

KREISEL H. 2001. Checklist of the gasteral and secotioid Basidiomycetes of Europe, Africa and the Middle East. *Österr. Z. Pilzk*. **10**: 213–313.

KRIEGLSTEINER G. J. 1991. Verbreitungsatlas der Großpilze Deutschlands (West). Band 1: Ständerpilze. Teil A: Nichtblätterpilze. E. Ulmer GmbH & Co, Stuttgart.

LINCOFF G. H. 1981. The Audubon Society Field Guide to North American Mushrooms. Alfred A. Knopf, New York.

MIREK Z., MUSIAŁ L. & WÓJCICKI J. J. 1997. Polish herbaria. *Polish Bot. Stud. Guidebook Series* **18**: 1–116.

PERREAU J. & HEIM R. 1971. A propos des *Mycenastrum* représentés ou décrits par N. Patouillard. *Rev. Mycol*. 36(2): 81–95.

RUDNICKA-JEZIERSKA W. 1965. *Mycenastrum corium* (Guers. in DC.) Desv. in Poland. *Acta Mycol*. **1**: 27–30 (in Polish with English summary).

RUDNICKA-JEZIERSKA W. 1991. Purchawkowe (Lycoperdales), Tęgoskórowe (Sclerodermatales), Pałeczkowate (Tulostomatales), Gniazdnicowe (Nidulariales), Sromotnikowe (Phallales) Osiakowe (Podaxales). In: A. SKIRGIEŁŁO (ed.), *Rośliny zarodnikowe Polski i ziem ościennych. Grzyby* (*Mycota*) 23. *Podstawczaki* (*Basidiomycetes*). Instytut Botaniki, Polska Akademia Nauk, Kraków.

SKIRGIEŁŁO A. 1976. Matériaux à la connaissance de la distribution géographique des champignons supérieurs en Europe. V. *Acta Mycol*. **12**(2): 155–189.

TEODOROWICZ F. 1939. Nowe dla flory polskiej podrzędy, rodziny rodzaje i gatunki wnętrzniaków (Gasteromycetes). *Kosmos* **64**(1): 83–107.

WOJEWODA W. & ŁAWRYNOWICZ M. 1992. Red list of threatened macrofungi in Poland. In: K. ZARZYCKI, W. WOJEWODA & Z. HEINRICH (eds), *List of threatened plants in Poland. 2 ed.*, pp. 27–56. W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków.

WOJEWODA W. 2003. Checklist of Polish larger Basidiomycetes. Biodiversity of Poland. W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków.

Received 28 April 2004