Polish Botanical Journal 50(2): 221–224, 2005

PLUTEUS AURANTIORUGOSUS (FUNGI, AGARICALES) IN POLAND

ANDRZEJ SZCZEPKOWKI & ANNA KUJAWA

Abstract. The paper reviews the localities of *Pluteus aurantiorugosus* (Trog) Sacc. in Poland and presents a new one from the Mazovia region.

Key words: agaricoid fungi, *Pluteus aurantiorugosus*, distribution, Poland

Andrzej Szczepkowski, Department of Mycology and Forest Phytopathology, Warsaw Agricultural University, Nowoursynowska 159, PL-02-776 Warsaw, Poland; e-mail: szczepkowski@delta.sggw.waw.pl
Anna Kujawa, Agricultural and Forest Environment Research Centre, Polish Academy of Sciences, Turew Field Station, Szkolna 4, PL-64-000 Kościan, Poland; e-mail: annakuja@poczta.onet.pl

The genus *Pluteus* Fr. is widely distributed in the temperate zone. It belongs to the Pluteaceae family within the order Agaricales. The family comprises about 300 species widely distributed around the world (Kirk *et al*. 2001). These saprotrophs occur mostly in forests, scrubs and parks. Usually they develop on decomposed wood, on sawdust and dead remains of herbaceous plants, but some species grow directly on soil (Kreisel 1987; Vellinga 1990; Skirgiełło 1999).

Pluteus aurantiorugosus (Trog) Sacc. is a relatively rare species occurring in Europe and North America (Vellinga 1990). It has been placed on red lists as a threatened fungus in Poland and some other countries including Denmark (Vesterholt 1998), Germany (Schnittler 1996), the Netherlands (Arnolds 1989), Slovakia (Lizoň & Bacigálová 1998), Sweden (Gärdenfors 2000) and Switzerland (Senn-Irlet *et al.* 1997). It also figures on a proposed red list of European threatened species (Ing 1993). According to records, the usual habitat for the species is the wood of living or dead broad-leaved trees such as *Acer*, *Alnus*, *Fraxinus*, *Populus*, *Quercus* or *Ulmus* growing in floodplain forests, parks, and along roads (Kreisel 1987; Vellinga 1990; Skirgiełło 1999; Škubla 2003).

Pluteus aurantiorugosus is one of the least frequently encountered representatives of the genus in Poland. Among 12 species of the genus regarded as threatened in Poland, it is placed in the highest category of threat, described as vulnerable (V) (Wojewoda & Ławrynowicz 1986, 1992). Wojewoda (2003) proposes assigning category E (endangered) to the species. In the Polish literature there is some controversy about its distribution. According to Wojewoda & Ławrynowicz (1986, 1992) and Wojewoda (2003) the species does occur in Poland, but according to Skirgiełło (1990) it has not yet been recorded in our country.

Pluteus aurantiorugosus (Trog) Sacc. (Fig. 1)

Beibl. Hedwigia **35**(7): 5. 1896. – *Agaricus aurantiorugosus* Trog, Mitt. Naturf. Ges. Bern, **32**: 388. 1857. – *Pluteus leoninus* var. *coccineus* Massee, Brit. Fungi. Fl. **2**: 291. 1893. – *Pluteus caloceps* Atk., Annls mycol. **7**: 373. 1909. – *Pluteus coccineus* (Massee) Lange, Fl. Agar. Dan. **2**: 88. 1937.

The bright scarlet or orange cap clearly distinguishes the species from other representatives of the same genus. Cap convex to plane, sometime umbonate, 1–6 cm in diameter. Cap surface almost smooth, but velvety or roughly veined in central part. Stem up to 7.5 cm high, up to 0.6 cm thick, straight or sabre-like, curved, equal, solid or tubular, and swelled at the base, fibrillose in

Fig. 1. Fruitbodies of *Pluteus aurantiorugosus* (Trog) Sacc. growing in a group on a poplar stump in Skaryszewski Park. Phot. Andrzej Szczepkowski.

texture, yellowish but darker at bottom. Gills ventricose, crowded, initially whitish, later turning salmon pink with white-flocculose margins. Flesh whitish, odorless. Spore-print cinnamon-pink. Stiptipellis with cylindrical, colorless elements. Pileipellis with clavate and sphaeropedunculate elements having yellowish intracellular pigment.

The features mentioned above, as well as other properties of the macroscopic and microscopic structure of the fruitbodies collected in the new locality, were consistent with those given by Vellinga (1990) and Skirgiełło (1999). High quality photographs, together with a description of macroscopic features of the species, are provided by Læssøe & Conte (1997), Škubla (2003) and Hagara *et al.* (2004).

The information about localities presented in the paper came from available literature and from herbaria descriptions. The authors did not verify the identifications of specimens collected in those herbaria.

So far the fungus has been reported from four localities in Poland. Two were in national parks, one in a reserve, and one in an urban area, all found in the 1960s. The first record, from 1962, comes from the Wielki Las reserve in Wielkopolska (Bujakiewicz 1964), and the last one from the Nowa Huta district in Kraków, dated 1967 (Wojewoda 1991, 1996). The present finding from Skaryszewski Park in Warsaw is the first record for almost 40 years.

The new locality of *Pluteus aurantiorugosus* was in a historic park today named after the Polish composer Ignacy Paderewski. The park was established in the early 20th century on waterlogged meadows of Skaryszew village flooded by Vistula waters. Its landscape park features have been successfully preserved. Nineteen fruitbodies were found in October 2004 (all specimens from the 1960s were collected in September). The fruitbodies were growing on a decomposing stump of *Populus* sp., 60 cm tall and 100 cm thick; this is a new host for the Polish population of *P. aurantiorugosus*. The stump with numerous suckers was located in an open spot in the southern part of the park. The fruitbodies grew in small clusters or solitary on the top and side of the stump. Unfortunately the stump was removed, together with its precious fungus, during groundskeeping work in the beginning of 2005.

The distribution of *P. aurantiorugosus* in Poland is mapped in Figure 2. Acronyms of herbaria given in the list of localities follow Holmgren *et al.* (1990) and Mirek *et al.* (1997). The abbreviation

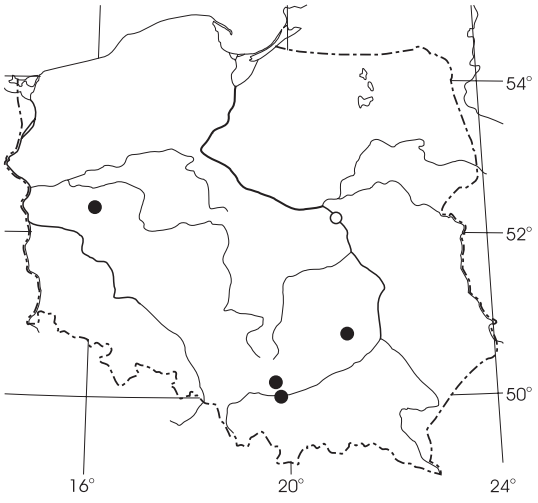

Fig. 2. Distribution of *Pluteus aurantorugosus* (Trog) Sacc. in Poland. ● – previously known localities, ○ – new locality.

WAML stands for the Herbarium of the Department of Mycology and Forest Phytopathology of the Warsaw Agricultural University – SGGW.

LIST OF LOCALITIES. POLAND. Posadowo, Wielki Las Nature Reserve near Nowy Tomyśl (Wielkopolska region), in transition patch between oak-hornbeam forest and elm floodplain forest, on trunk and stump of *Fraxinus excelsior*, Sept. 1962, *leg. A. Bujakiewicz* (POZM) (Bujakiewicz 1964, 1973); Pieskowa Skała (Ojcowski National Park), in plot of *Ficario-Ulmetum campestris*, on stump of *Ulmus*, one fruitbody, Sept. 1964, *leg. W. Wojewoda* (Wojewoda 1974); Kraków – Nowa Huta, Lasek Mogilski forest, in elm-ash floodplain forest *Fraxino-Ulmetum*, on *Ulmus*, Sept. 1967, *leg. W. Wojewoda* (Wojewoda 1991, 1996); Góra Chełmowa Mt. (Świętokrzyski National Park), on decaying stump in beech-fir patch, Sept. 1964, *leg. Z. Domański* (WA) (Lisiewska 1978); Warsaw, Saska Kępa District, Skaryszewski Park, on stump of *Populus* sp. (Fig. 1), 13 October 2004, *leg. A. Szczepkowski, det. A. Kujawa* (WAML).

ACKNOWLEDGEMENTS. We thank Professor Anna Bujakiewicz and Professor Władysław Wojewoda for providing additional information about the localities of *Pluteus aurantiorugosus* published by them previously, Dr. Anna Ronikier for supplementing the bibliographic data, and Dr. Andrzej Chlebicki (Kraków), Grzegorz Fiedorowicz (Olsztyn), Dr. Zofia Flisińska (Lublin), Professor Stefan Friedrich (Szczecin), Professor Wanda Gugnacka-Fiedor (Toruń), Marek Halama (Wrocław), Dr. Izabela Kałucka (Łódź), Professor Maria Lisiewska (Poznań), Dr. Janusz Łuszczyński (Kielce), Magdalena Mancarz (Lublin), Dr. Piotr Mleczko (Kraków), Czesław Narkiewicz (Jelenia Góra), Joanna Nita (Poznań) and Dr. Marcin Piątek (Kraków) for their kind help finding data on the *P. aurantiorugosus* specimens deposited in Polish herbaria. We also thank the anonymous reviewer for useful remarks on the manuscript.

REFERENCES

ARNOLDS E. 1989. A preliminary Red Data List of Macrofungi in the Netherlands. *Persoonia* **14**: 77–125.

BUJAKIEWICZ A. 1964. Higher fungi collected in the ash-elm forest near Pniewy (in the western part of great-Poland). *Zeszyty Naukowe Uniwersytetu im. Adama Mickiewicza, Biologia* **5**: 137–148 (in Polish with English summary).

BUJAKIEWICZ A. 1973. Higher fungi in the alluvial and alder forests of Wielkopolska province. *Prace Komis. Biol*. **35**(6): 3–91 (in Polish with English summary).

GÄRDENFORS U. (ed.) 2000. Rödlistade arter i Sverige – The 2000 Red List of Swedish Species. ArtDatabanken, SLU Uppsala.

HAGARA L., ANTONÍN V. & BAIER J. 2004. Houby. 6 ed. Aventinum, Praha.

HOLMGREN P. K., HOLMGREN N. H. & BARNETT L. C. 1990. Index herbariorum. Part 1. The Herbaria of the World. *Renum Veg*. **120**: 1–693.

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 P. M., CANNON P. F., DAVID J. C. & STALPERS J. C. 2001. Ainsworth & Bisby's. Dictionary of the Fungi. 9 ed. CAB International, Biddles Ltd, UK.

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

LÆSSØE T. & CONTE A. 1997. Grzyby. Wielka Księga. Wiedza i Życie, Warszawa.

LISIEWSKA M. 1978. Macromycetes in the forest associations of the Świętokrzyski National Park. *Acta Mycol.* **14**(1, 2): 163–191 (in Polish with English summary).

LIZOŇ P. & BACIGÁLOVÁ K. 1998. Huby. In: K. MARHOLD & F. HINDAK (eds), *Checklist of non-vascular plants of Slovakia*, pp. 101–227. VEDA, Bratislava.

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

SCHNITTLER M. 1996. Zu den Roten Listen der Pilze Deutschlands. *Schriftenreihe Vegetationsk.* **28**: 369–376.

SENN-IRLET B., BIERI C. & HERZIG R. 1997. Provisorische Rote Liste der gefährdeten Höheren Pilze der Schweiz. *Mycol. Helvetica* **9**(2): 81–110.

SKIRGIEŁŁO A. 1999. Podstawczaki (*Basidiomycetes*), Łuskowcowate (*Pluteaceae*). In: A. SKIRGIEŁŁO (ed.), *Flora Polski*. *Grzyby* (*Mycota*) **27**. Instytut Botaniki im. W. Szafera, Polska Akademia Nauk, Kraków.

ŠKUBLA P. 2003. Nový atlas húb. Príroda, Bratislava.

VELLINGA E. C. 1990. *Pluteaceae*. In: C. BAS, T. W. KUYPER, M. E. NOODELOOS & E. C. VELLINGA, *Flora agaricina neerlandica* **2**: 31–64. Balkema/Rotterdam/Brookfield.

VESTERHOLT J. (ed.) 1998. Danish Red List of Fungi 2001-edition. Conservation committee, Danish Mycological Society. [http://www.mycosoc.dk].

WOJEWODA W. 1974. Macromycetes of the Ojców National Park. I. The flora. *Acta Mycol*. **10**(2): 181–265 (in Polish with English summary).

WOJEWODA W. 1991. Changes in macrofungial flora of Cracow (S. Poland). In: K. ZARZYCKI, E. LANDOLT & J. J. WÓJCICKI (eds), *Contribution to the knowledge of*

flora and vegetation of Poland. Veröff. Geobot. Inst. ETH, Stiftung Rübel, Zürich **106**: 150–161.

WOJEWODA W. 1996. Fungi of Cracow during the years 1883–1994 with particular interest in macrofungi. *Studia Ośrodka Dokumentacji Fizjograficznej PAN* **24**: 75–111 (in Polish with English summary).

WOJEWODA W. 2003. Checklist of Polish Larger Basidiomycetes. W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków.

WOJEWODA W. & ŁAWRYNOWICZ M. 1986. Red list of threatened macrofungi in Poland. In: K. ZARZYCKI, W. WOJEWODA & Z. HEINRICH (eds), *List of threatened plants in Poland*. 1 ed., pp. 45–82. W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków.

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.

Received 15 July 2005