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**LIVERWORTS OF THE NATURE RESERVES
IN WIELKOPOLSKA.
3. “DĄBROWA KOŁO BIADEK KROTOSZYŃSKICH”**

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ABSTRACT. A list of liverworts in the reserve “Dąbrowa koło Biadek Krotoszyńskich” is presented. Altogether, eight species were catalogued (*Calypogeia integristipula*, *C. muelleriana*, *Cephalozia bicuspidata*, *Lepidozia reptans*, *Lophocolea bidentata*, *L. heterophylla*, *Ptilidium pulcherrimum* and *Metzgeria furcata*). Their distribution in regard to diversity of forest plant communities in the reserve was shown. The hepatic flora of the “Dąbrowa koło Biadek Krotoszyńskich” reserve is relatively poor. Localization of the reserve (on the edges of a bigger forest complex) together with intensive forestry around and the presence of a wide road along boundary of the reserve decrease humidity of the reserve’s interior, necessary for spore plants, especially epiphytes.

Key words: liverworts, nature reserves, Dąbrowa koło Biadek Krotoszyńskich, Wielkopolska region, Poland

Introduction

The article continues specification of the hepaticoflora in nature reserves in Wielkopolska. Previous works concerned objects “Las Łęgowy w Dolinie Pomianki” (Górski 2006 a) and “Olbina” (Górski 2006 b). This one coincides with the start of a protection plan for the reserve “Dąbrowa koło Biadek Krotoszyńskich” (decree no. 5/2005 of the Wielkopolska Voivod of 13 April 2005) which establishes active protection on the entire area of the reserve, with leaving dead wood on the bottom of the forest, and excluding forestry. The plan may be of benefit for the abundance of liverwort flora in the reserve. Therefore, the floristic data presented in this paper are a “balance of entry” of the protection plan, and will enable estimation of changes in hepaticoflora after 20 years of its functioning.

Field studies were carried out in 2003-2005. Plant nomenclature was applied according to Szweykowski (2006). The map of the species distribution in the reserve was shown on the background of diversity of forest communities. Herbarium materials were deposited in the herbarium of Department of Botany of the August Cieszkowski Agricultural University of Poznań (POZNB).

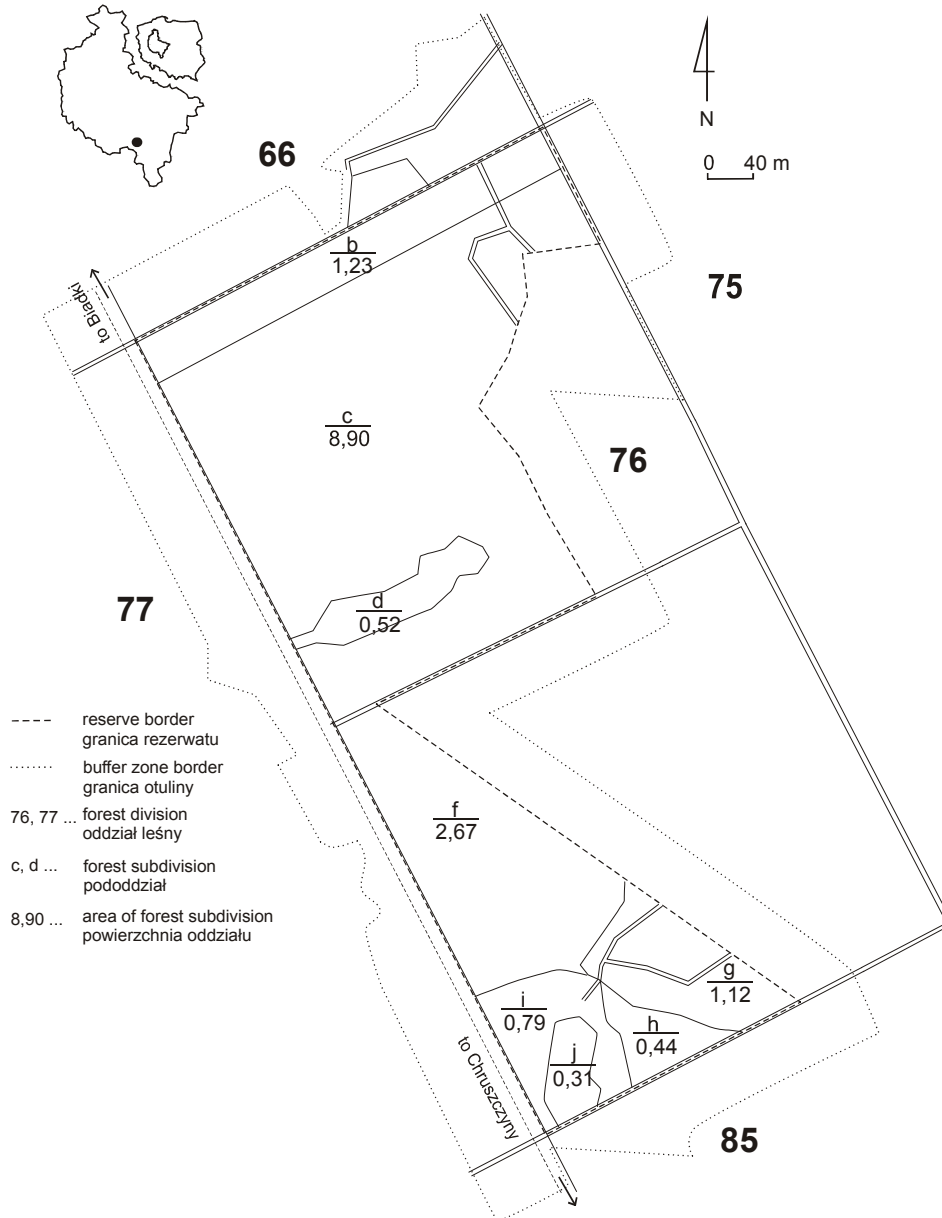


Fig. 1. Survey map of the “Dąbrowa koło Biadek Krotoszyńskich” nature reserve
Ryc. 1. Mapa przeglądowa rezerwatu przyrody „Dąbrowa koło Biadek Krotoszyńskich”

Profile of the reserve

General data

The "Dąbrowa koło Biadek Krotoszyńskich" nature reserve was founded on 26 April 1963 by regulation of Ministry of Forestry and Timber Industry (Monitor Polski No. 41, pos. 202). It protects deciduous forest ecosystems, especially acidophilous oak forests characteristic for southern Wielkopolska. The area covers 16.20 hectares and is entirely the property of the Treasury under management of the State Forests, Forest Inspectorate Krotoszyn. The reserve is located in southern Wielkopolska, Ostrów Wielkopolski County, by route Krotoszyn-Ostrów Wielkopolski near the village of Biadki (Fig. 1). In the geobotanical classification of Poland (**Szafer** 1977), the reserve is situated in the Euro-Siberian Region, Central European Lowland-Upland Province, Baltic Division, Belt of Great Basin Subdivision and Wielkopolsko-Kujawska District.

A list of forest plant communities was previously published by **Borysiak et al.** (1991) and **Brzeg** and **Kasprowicz** (2001). Geobotanical profile of the reserve and a detailed index of vascular plants, mosses and lichens were published by **Klimko et al.** (2004), **Urbański** (2003) and **Karandys** (2003). Faunistic cataloguing has concerned beetles (**Brylewski** 2000) and birds (**Stawowy** 1987).

Geological structure and relief

The relief is flat, with a slight slope to the south, towards the river Barycz. The denivelation is 2.3 m. The highest point is located 130 m above sea level (crossroad of borderlines of units 66, 67, 76, and 77), the lowest point – 127.7 m above seal level – lies in the unit 76 j. On northern, western and southern side, the reserve is surrounded by drainage ditches.

Parent rocks, on which the soils of the reserve were formed, are mainly of Pleistocene origin (Middle Poland glaciation). There is a thin layer of clay, sandy on the top. Moreover, pliocene loam can often be found in soil profiles (Plan urzędzenia lasu... 1998-2007).

Soil and habitat types of the forest

The commonest soil type is pseudogley (units 76 b, c, f, h, and i). The other soil types are podzol soils (unit 76 g) and peat-gley soils – unit 76 d (Plan urzędzenia lasu... 1998-2007).

The following forest habitat types were found in the reserve:

- fresh forest, highly fresh (Lśw2) – units 76 b, c, f, h, i,
- wet forest, highly wet (Lw2) – unit 76 d,
- fresh mixed forest, highly fresh (LMśw2) – unit 76 g,
- swamp – unit 76 j.

Vegetation

The dominant vegetation type were phytocoenoses of acidophilous hornbeam-oak forest *Aulacomnio androgyni-Quercetum roboris* Brzeg et Kasprowicz in Brzeg et al. 2000, covering the area of 11.57 hectares. Other forest ecosystems were patches of reed grass oak forest *Calamagrostio arundinaceae-Quercetum petraeae* (Hartmann 1934) Scamoni et Passarge 1959 em. Brzeg, Kasprowicz et Krotoska 1989, distinguished to *C.-Q. typicum* and *C.-Q. molinietosum caeruleae* – (total 2.35 hectares), acid lowland beech forest *Deschampsio flexuosae-Fagetum* Schröder 1938 (0.44 hectare), alder forest *Carici elongatae-Alnetum* W. Koch 1926 ex R. Tx. 1931 (0.31 hectare), *Carici elongatae-Quercetum* Sokołowski 1972 (0.43 hectare), and *Betula pendula-Alnus glutinosa* (0.79 hectare). Non-forest vegetation consisted of willow thickets of *Salicetum cinereae* Kobendza 1939 (with sphagnum moss), sedge rushes *Caricetum ripariae* Soó 1928, and small terophyte communities of the class *Bidentetea tripartiti* R. Tx., Lohm. et Prsg 1950 (see Klimko et al. 2004).

Results

Liverwort flora

Eight liverwort species were found on the area of the “Dąbrowa koło Biadek Krotoszyńskich” nature reserve. Most frequent were liverworts of ground habitats, mostly slopes of ditches that run through the reserve or along its northern border. Frequently recorded species of this group were *Cephalozia bicuspidata* and *Calypogeia muelleriana*. The former was also noted on packed soil of paths. It is worth noting that epixylic and epiphytic flora was sparse. Among epixyles, only *Lepidozia reptans* had several localities, almost half of them on the ground. Typical epiphytes were represented only by *Metzgeria furcata* in one locality. The trunks of live trees in their lower part are slightly overgrown by phorophytes, mainly *Hypnum cupressiforme*.

List of taxa

Abbreviations:

A-Q – *Aulacomnio androgyni-Quercetum roboris*

C-Qm – *Calamagrostio arundinaceae-Quercetum molinietosum*

C-Qt – *Calamagrostio arundinaceae-Quercetum typicum*

C-A – *Carici elongatae-Alnetum*

D-F – *Deschampsio flexuosae-Fagetum*

Calypogeia integristipula Steph. – 76 f (vertical slope of digged pit, *A-Q*),

Calypogeia muelleriana (Schiffn.) Müll. Frib. – 76 b (on soil, *C-Qt*), 76 f (on soil, *A-Q*), 76 g (on soil, *C-Qm*), 76 j (lump of soil and roots, *C-A*),

Cephalozia bicuspidata (L.) Dumort. – 76 b (on packed soil of path, *C-Qt*), 76 f (on soil, *A-Q*), 76 g (on soil, *C-Qm*),

- Lepidozia reptans* (L.) Dumort. – 76 c (on soil, dug up soil profile), 76 d (rotting stump, willow thickets with *Sphagnum* mosses), 76 f (rotting stump, A-Q), 76 g (on soil, C-Qm), 76 h (on soil, D-F),
- Lophocolea bidentata* (L.) Dumort. – 76 f (forest bed, thickets with *Frangula alnus*),
- Lophocolea heterophylla* (Schrad.) Dumort. – common in whole area of the reserve, on live and dead wood, on soil,
- Metzgeria furcata* (L.) Dumort. – 76 c (on oak bark, A-Q),
- Ptilidium pulcherrimum* (Weber) Vain. – 76 f (on bark of *Betula pendula*, A-Q), 76 g (on stump, C-Qm).

Concluding remarks

The hepatic flora of the "Dąbrowa koło Biadek Krotoszyńskich" reserve is relatively poor at the moment. Localization of the reserve (on the edges of a bigger forest complex) together with intensive forestry around and the presence of a wide road along boundary of the reserve decreases the humidity of the reserve's interior, necessary for spore plants, especially epiphytes (Kłama 2003, 2004, Górski and Urbański 2005). The lack of habitats for epixylic liverworts is another factor that diminishes this group of plants. Pines and oaks present in the forest stand of the reserve may in future generate microhabitats favourable for liverworts.

References

- Borysiak J., Brzeg A., Kasprówicz M. (1991): Wstępna waloryzacja przyrodnicza projektowanego obszaru chronionego krajobrazu „Dąbrowy Krotoszyńskie”. Typescript. Wojewódzki Konserwator Przyrody, Kalisz.
- Brylewski P. (2000): Obserwacje nad występowaniem chrząszczy (*Coleoptera*) w Rezerwacie Dąbrowa koło Biadek Krotoszyńskich. Typescript. Katedra Entomologii Leśnej AR, Poznań.
- Brzeg A., Kasprówicz M. (2001): Dąbrowy Wielkopolski ze szczególnym uwzględnieniem „Płyty Krotoszyńskiej”. In: Szata roślinna Wielkopolski i Pojezierza Południowopomorskiego. Ed. M. Wojterska. Przewodnik sesji terenowych 52. Zjazdu PTB, 24-28 września 2001, Poznań: 177-192.
- Górski P. (2006 a): Liverworts of the nature reserve in Wielkopolska region. 1. "Las Łęgowy w Dolinie Pomianki". Roczn. AR Pozn. 378, Bot.-Stec. 10: 87-96.
- Górski P. (2006 b): Liverworts of the nature reserve in Wielkopolska region. 2. "Olbina". Roczn. AR Pozn. 378, Bot.-Stec. 10: 97-102.
- Górski P., Urbański P. (2005): Ochrona mszaków. In: Ochrona przyrody w lasach. Part 2. Ochrona szaty roślinnej. Ed. D. Gwiazdowicz. Polskie Towarzystwo Leśne, Poznań: 35-47.
- Karandys Sz. (2003): Porosty (*Lichenes*) rezerwatu „Dąbrowa koło Biadek Krotoszyńskich” w południowej Wielkopolsce. Typescript. Katedra Botaniki AR, Poznań.
- Kłama H. (2003): Wątrobowce. In: Różnorodność biologiczna Polski. Drugi polski raport – 10 lat po Rio. Eds R. Andrzejewski, A. Weigle. Narodowa Fundacja Ochrony Środowiska, Warszawa: 49-58.
- Kłama H. (2004): Zagrożenia i ochrona wątrobowców w Polsce. In: Materiały z XI Konferencji „Zapobieganie zanieczyszczeniu środowiska”. Ed. J. Suschka. Zesz. Nauk. ATH 14, Inż. Włók. Ochr. Środ. 5: 62-80.

- Klimko M., Górski P., Czarna A.** (2004): Rośliny naczyniowe rezerwatu przyrody „Dąbrowa koło Biadek Krotoszyńskich”. *Rocz. AR Pozn.* 363, Bot. 7: 85-93.
- Plan urządzenia lasu Nadleśnictwa Krotoszyn na okres od 01.01.1998 do 31.12.2007 r. Typescript.
- Stawowy R.** (1987): Badania ilościowe w dąbrowach w różnych klasach wieku w nadleśnictwie Krotoszyn (południowa Wielkopolska). Typescript. Zakład Biologii i Ekologii Ptaków UAM, Poznań.
- Szafer W.** (1977): Szata roślinna Polski. Vol. 2. PWN, Warszawa.
- Szweykowski J.** (2006): An annotated checklist of Polish liverworts and hornworts. Biodiversity of Poland. Vol. 4. W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków.
- Urbański P.** (2003): Mchy rezerwatu „Dąbrowa koło Biadek Krotoszyńskich” w południowej Wielkopolsce. Typescript. Katedra Botaniki AR, Poznań.

WĄTROBOWCE REZERWATÓW PRZYRODY WIELKOPOLSKI. 3. „DĄBROWA KOŁO BIADEK KROTOSZYŃSKICH”

S t r e s z c z e n i e

Rezerwat przyrody „Dąbrowa koło Biadek Krotoszyńskich” został utworzony w 1963 roku dla ochrony ekosystemów lasów liściastych, w tym szczególnie acidofilnych dąbrów charakterystycznych dla południowej Wielkopolski. Panującym typem roślinności leśnej rezerwatu są fitocenozы acidofilnego lasu grabowo-dębowego *Aulacomnio androgyni-Quercetum roboris*. Na badanym terenie stwierdzono występowanie ośmiu gatunków wątrobowców (*Calypogeia integristipula*, *C. muelleriana*, *Cephalozia bicuspidata*, *Lepidozia reptans*, *Lophocolea bidentata*, *L. heterophylla*, *Ptilidium pulcherrimum* i *Metzgeria furcata*). Najwięcej notowań zgromadzono dla gatunków siedlisk naziemnych, tj. *Cephalozia bicuspidata* oraz *Calypogeia muelleriana*. Na podkreślenie zasługuje szczególnie uboga flora epiksyliczna i epifityczna. Wynika to zarówno z braku zasobów martwego drewna na dnie lasu, jak i niewielkiej wilgotności wnętrza ekosystemów leśnych obiektu.

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