Lichens of Protected Areas in Ukraine

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Abstract
Ukraine includes two major mountain areas, the Carpathians and Crimea, as well as three distinct vegetation zones in the remaining lowland areas; Forest, Forest-Steppe and Steppe. The Country has 12 reserves and 4 national parks. A total of 1239 lichens have been recorded for the country. The Steppe zone is the most favoured area, where 205 species are present in protected areas (representing 87.6% of lichens recorded in this zone). In the reserves and national parks of the Carpathian mountains 715 species (79.4%), and in the Crimean reserves 340 species (59.8%) are found. In the reserves and national parks of the Forest zone 171 species (55%) are found while in the reserves of the Forest-Steppe zone only 179 species (37.6%) are found. The conservation status of 29 species of lichens in the Red Data Book of the USSR and the Red Data Book of Ukraine is discussed. Twenty-three of them are known only from mountainous regions of the state and 10 occur in the plain part of the Ukraine.

Keywords: lichens, national parks, reserves, Ukraine

1 Introduction
By 1993 Ukraine had designated 12 natural reserves of which two were biosphere reserves, 4 national nature parks, and 5732 additional sites with some degree of environmental protection. In total these represent 2.14% of the overall territory of Ukraine (SHELYAG-SOSONKO and ZIZIN 1985; Perspektivnya setj zapovednych ob'ektov Ukrainy 1987; YAZENKO et al. 1988). The study of lichens in Ukraine began in the middle of the last century, but data on lichens of Ukraine was not summarized until the preparation of “Flora of the lichens of Ukraine” (OXNER 1956, 1968, 1993), and publication of some regional papers (MAKAREVICH et al. 1982; KOPACHEVSKA 1986); to date there is no published checklist of Ukrainian lichens. According to the authors’ data (recently prepared checklist of lichens of Ukraine – Kondratyuk, Navrotskaya and Solonina, in prep.) there are 1239 species of lichens within Ukraine, and of these 29 species (2.3%) are Red Data Book species. No reserves in Ukraine have been created specially for lichen protection. Although the study of lichens in Ukrainian reserves began in the 1930s, lichens of protected areas are only now being studied in detail.

2 Results and discussion
At the present time only 3 of the 12 reserves have published lichen checklists (MASLOVA 1977 for Polesian Reserve; KONDURATYUK 1983 for Kaniv Reserve; KONDURATYUK 1995 for Reserve Medobory). However unpublished lists of lichens have been prepared for 3 of
the 4 national parks and a further 7 of the reserves. The lichen floras of the recently created Asov-Sivash National Park and Dnieper-Orel and Danube plavny Reserves remain to be explored. Twenty-nine species of Ukrainian lichens are included in Red Data Books; 10 species in the Red Data Book of the USSR (1984), and 27 species in the Red Data Book of Ukraine (1995). Two species (*Pyxine endochrysoides* [Nyl.] Degel. and *Letharia vulpina* [L.] Hue) which were in the Red Data Book of the USSR are omitted in the Red Data Book of Ukraine (Zaverukha 1992). The 29 species included in the Red Data Book have a status of R (rare) or V (vulnerable). All species in the Red Data Books are protected by law. The status of protection may be within a reserve, a national park or a nature monument. However, only national parks and reserves are functionally protected in Ukraine. There are two national parks (Carpathian and Synevyr) and one reserve in the Carpathian mountain region. The lichen flora of the Carpathian Biosphere Reserve contains 450 species (Navrotskaya, unpublished data). In total there are 715 species of lichens (79.4%) in the territories of the reserves and national parks of the Carpathian mountains (Navrotskaya 1979, 1985, 1990; Navrotskaya and Partyka 1990; Navrotskaya *et al.* 1991). There are three reserves in the Crimean mountains region. In the Yalta Mountain Forest Reserve 154 species of lichens belonging to 72 genera (Kopachevska 1962), and in the Karadag State Reserve 78 species of 27 genera (Beznis and Kopachevska 1982) have been recorded. In total, 340 species (59.8%) of the Crimean lichens have been recorded from the reserves (Kondratyuk and Navrotskaya 1994). Lichens of protected territories of the Crimean mountains have not been studied to the same extent, and an inventory of lichen species is very incomplete for most of the reserves (Kondratyuk and Solonina 1990). Lichen species have been recorded in the following reserves (Tab. 1).

The most favourable situation is in the Steppe zone, where 205 species (87.6%) are found in protected areas. There are 171 lichens species (55%) on territories of reserves and

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Table 1. Number of lichen species and genera recorded in selected reserves.
national parks of the Forest zone, and only 179 lichen species (37.6%) known from Forest-Steppe zone reserves (KONDRAIYUK and NAVROTSKAYA 1994). The Red Data Book species Xanthoparmelia camtschadalis (Ach.) Hale, Neofuscelia ryssolea (Ach.) Essl. and Coelocaulon steppeae (Savicz) Barreno et Vazquez are protected in all reserves of the Steppe zone (almost all departments of Ukrainian Steppe Reserve, Askania Nova and Black Sea Reserve). Teloschistes lacunosus (Rupr.) Savicz and Toninia massata (Tuck.) Herre grow only in protected territories of Askania Nova and Black Sea Reserves. Umbilicaria subpolyphylla Oxner is known only in a single location in the Rock Mogily of the Ukrainian Steppe Reserve. The Red Data Book species Aspicilia fruticulosa (Eversm.) Flag., A. hispida Mereschk. and Letharia vulpina are known from several locations of Steppe zones of Ukraine and mountain part of the Crimea, mainly outside of protected areas, and their conservation should be discussed separately.

Acknowledgements
We would like to express our deep thanks to Prof. T. Ahti and Dr B. Coppins for corrections to our English and to Dr C. Scheidegger and Ms P.A. Wolseley for kind assistance with preparation of this paper.

3 References


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