

## ENGLISH VERSION

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### **Floristic and habitat assessment of phytocenoses of permanent grassland in the area Natura 2000 Dolina Wolicy PLH060058 and their natural and fodder value**

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The assessment of grass communities of natural habitat Natura 2000 Dolina Wolicy PLH060058 was performed in the years 2010–2014. The studies were undertaken due to poor floristic documentation of the area. Based on 340 phytosociological relevés taken using the Braun-Blanquet method, a phytosociological classification was done of uniform patches of meadow vegetation. Additionally, numerical analyses were conducted. The indices of Shannon-Wiener ( $H'$ ), equivalence ( $J$ ), Simpson ( $H$ ), species abundance ( $S$ ) were used in the assessment of species diversity in distinguished phytocenoses. Habitat conditions of the distinguished syntaxons were characterized basing on the reaction and content of selected macro-elements (N, P, K, Ca, Mg) in the soils. The fodder value of the examined phytocenoses was established on the basis of the yields of dry weight, the content of N, P, K, Ca, Mg and Na in dry weight, as well as the calculated equivalence relations  $K : (Ca + Mg)$  and weight relations  $K : Na$ ,  $K : Mg$  and  $Ca : P$ . The utility value was determined on the basis of the sward utility value number (UVN). The samples of plant and soil material were collected for chemical analyses before the harvest of the first sward cutting from the selected representative areas. Analyses were conducted at the Central Laboratory of Agroecology of the University of Life Sciences in Lublin. The values of species diversity estimation in distinguished phytocenoses ( $H'$ ,  $J$ ,  $H$ ,  $S$ ), as well as the results of chemical analyses of the plant and soil material were statistically analyzed applying the SAS 9.2 system from Enterprise Guide and Statistica program. The research showed that natural habitat Natura 2000 Dolina Wolicy PLH060058 is floristically rich. 21 syntaxons in the rank of plant community or association, including 11 phytocenoses from Phragmitetea class and 10 from Molinio-Arrhenatheretea class were distinguished in that area. The distinguished phytocenoses differed from each other in a significant way by the values of species diversity indices ( $H'$ ,  $J$ ,  $H$ ,  $S$ ). The greatest floristic diversity among the phytocenoses of Phragmitetea class ( $H'$ ,  $J$ ,  $H$ ,  $S$ ) was featured of Caricetum appropinquatae community, while the smallest one belonged to Phalaridetum arundinaceae. As far as Molinio-Arrhenatheretea class, the highest values of floristic diversity was characteristic of Cirsietum rivularis association, while the lowest was found for Angelico-Cirsietum oleracei. Phytocenoses of Phragmitetea class were formed on the soils with neutral or alkaline reaction, while those of Molinio-Arrhenatheretea class were generally formed on neutral reaction soils. The analyzed soils were characterized by very low content of available phosphorus, low content of total nitrogen and potassium and generally high content of calcium and differentiated content of magnesium. The highest yields of dry weight were obtained from reed Phragmitetum australis and Alopecuretum pratensis. The lowest yield size was recorded for the sward of Caricetum gracilis and Holcetum lanati communities. The fodder value of the distinguished phytocenoses depended on the content of N, P, K, Ca and Mg in the soil and sward and it was positively correlated with species diversity. The sward of phytocenoses from Molinio-Arrhenatheretea class was featured by a better fodder value than the sward of phytocenoses from Phragmitetea class. The latter relation resulted mainly from the optimal for animals content of nitrogen, calcium and magnesium in the fodder. On the other hand, the content of phosphorus in dry weight of the analyzed phytocenoses sward was insufficient, whereas the content of potassium ranged from insufficient to excessive. Equivalence relations  $K : (Ca + Mg)$  and weight relations  $K : Na$ ,  $K : Mg$  and  $Ca : P$ , calculated on the basis of the content of particular elements in the dry sward weight were generally too broad or too narrow. Yet, less often they oscillated around the optimal values in the aspect of fodder utility. The utility value of the distinguished phytocenoses ranged from poor to very good. The highest utility value was found for the Alopecuretum pratensis phytocenoses, while the worst for the Phragmitetum australis phytocenoses. Results of the studies enriched the floristic documentation of the area Natura 2000 Dolina Wolicy PLH060058, significantly contributing to spatial planning. The changes observed in recent years indicate the necessity of further monitoring the area not only to protect the endangered habitats but also to evaluate their fodder utility.