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The border area between Poland and Lithuania - a phytogeographic assessment

Algirdas LEKAVIČIUS

The boundaries of plant species and communities do not coincide, as a rule, with the borders of countries. In spite of this fact, the boundaries of middle (such as subprovinces) and particularly small phytogeographical units do not cross the borders of many countries. This was observed while dividing the territory into botanico-geographical units in Lithuania (REGEL 1952, NATKEVICAITĖ-IVANAUSKIENĖ 1969, 1983, LEKAVIČIUS 1975) and in Poland (SZAFAER and ZARZYCKI 1977, MATUSZKIEWICZ 1984), and also in other countries (LAWRENKO and ISACHENKO 1976). Such a practice makes some troubles in determining the exact size and position of phytogeographical (PHTG) units situated next the border of neighbouring states.

Geographically seen, the territory of Lithuania is situated in the province of the East European Lowland. In the same province lies the narrow belt of Northeastern Poland, which is also situated along the borders of Lithuania and Byelorussia. We can presume that the structure of flora and vegetation on both sites of the border of these countries ought to be similar. As a matter of fact, judging by many publications, e.g. MEUSEL et al. (1965), LAWRENKO and ISACHENKO (1976), SZAFAER and ZARZYCKI (1977), NATKEVICAITĖ-IVANAUSKIENĖ (1983) and personal investigations, it is so. Though, there are some differences in subordination and determination of the boundaries when comparing the higher PHTG units, established on the territories mentioned above. For example, MEUSEL et al. (1965) included nearly the whole territory of Lithuania and the large northeastern part of Poland into the northwestern subpro-

vince of the Sarmatian floral province, belonging to the Middle European region. SZAFER and ZARZYCKI (1977) regarded nearly the same territory as the northern sector of the Middle European Geobotanical province, but belonging to the Eurosiberian subregion. In the same Central European PHTG province, NATKEVICAITE-IVANAUSKIENE (1969, 1983) included the Lithuanian (and eventually the Polish) territory, but with different division into geobotanical subprovinces. LAWRENKO and ISACHENKO (1976) included the southern part of the Baltic region into the Baltic Byelorussian subprovince of the North European vegetation province, belonging to the Eurosiberian subregion. But concerning all these cases, there was the common opinion that the vegetation in the border area of Lithuania and Poland belongs to the same geobotanical province and to the same subprovince as well.

Due to this fact, we will try to discuss the lower PHTG units in this united subprovince in its natural boundaries, without regard to the borders of the mentioned countries. The borderland between Lithuania and Poland stretches only about 75 km, but the whole length should be subdivided into three separate PHTG districts. When subdividing the territories into higher PHTG units, the climatic factors are decisive, mainly temperature. The prevalence of lower units depends more on edaphic and orographic conditions.

In the southwest hilly area of Lithuania, one should isolate the separate phytogeographical district. It is notable for interlacement of the various plant species groups, such as submeridional temperate and temperate continental groups (*Trifolium rubens*, *Lathyrus laevigatus*, *Koeleria grandis*), which are observed here to have reached their northwestern distribution border, and the oceanic groups (*Allium ursinum*, *Polygonatum verticillatum*), which have reached here their eastern distribution border. We ought, specially, to take into consideration the multitude of mountainous species (e.g. *Festuca altissima*, *Hordelymus europaeus*, *Orchis mascula* ssp. *signifer*) which are lacking or very rare in the rest of Lithuania.

The predominant natural vegetation of this area is broad-leaved forests (*Tilio-Carpinetum* and its typical variant (SOKOŁOWSKI 1973, MATUSZKIEWICZ 1984). The mixed spruce forests (*Quercu-Piceetum* with *Carex pilosa*) take second place, becoming predominant after clearing the broad-leaved woods. The *Cirsietum rivularis* communities, peculiar to the Central European mountainous areas, are very common in the damp meadows (LEKAVICIUS 1975).

As mentioned above, the edaphic and geomorphological factors are decisive for the structure of flora and vegetation in small PHTG units, like this district

(and others). The described area which occupies the northern part of Suwalkai Hills in the Lithuanian territory, belongs to the region which is called Pojezierze Suwalskie in Poland. This area is about 250-300 m a.s.l., and the moraine hills created a complex structure of geomorphological space with fertile soils on the hillsides and with diluvial depressions. All these factors, together with a contributory microclimate, ensure favourable conditions for broad-leaved woods, high-yielding meadows, and for temperate, submeridional-temperate, oceanic and continental, and mountainous species as well (LEKAVICIUS 1975).

The same geomorphological and edaphic conditions are thought to prevail in the whole Suwalkai Hills region, the greater part of it lying in Poland. That is corroborated by predomination of *Tilio-Carpinetum* as native woods in this region (MATUSZKIEWICZ 1984).

SZAFER and ZARZYCKI (1977) determined in the Suwalkai Hills and neighbourhood the Suwalkai PHTG unit (okreg) of Suwalsko-Augustowska geobotanical land (kraina). The southern and western boundaries of the Suwalskai unit in Poland coincide with the southern and southeastern boundaries of some boreal species (SZAFER and ZARZYCKI 1977). The northern boundary of the district is thought to be in Lithuania, coinciding with the northern and northwestern border of a number of temperate and temperate-submeridional plant species (*Lathyrus laevigatus*, *Trifolium rubens*, *Thesium ebracteatum*, *Koeleria grandis*).

Further to the East, adjacent to this area, which can be named Suwalkai phytogeographical district, stretches a narrow belt of the Middle Lithuanian lowland. It is about 100 m (150-180 m a.s.l.) lower and separates the Suwalkai Hills from the Dzūku Hills in Lithuania. Further to the South in the territory of Poland, it becomes the Augustowski plain. The flora and vegetation in this region have transitional features, typical between two neighbouring districts. In an analysis of the botanical data, the absence of some oceanic (*Polygonatum verticillatum*) and montane (*Hordelymus europaeus*, *Festuca altissima*) species and the increase in the continental species (*Prunella grandiflora*, *Neottianthe cucullata*), which reach their western border here, become apparent. Instead of broad-leaved and mixed spruce woods, the forests are predominantly pine-woods with *Quercus robur* and in some places with *Quercus petraea*. This area in Poland is determined by SZAFER and ZARZYCKI (1977) as the Augustowski geobotanical unit (okreg). But as we can judge from publications (SZAFER and ZARZYCKI 1977, MATUSZKIEWICZ 1984), the natural vegetation varies enough in this unit. In the forests, beside other communities,

Vaccinio myrtilli-Pinetum, *Calamagrosti arundinaceae-Piceetum*, *Quercu-Pinetum* were predominant, and even *Peucedano-Pinetum* in southeastern part as well. In such a case, it is rather difficult to integrate this area into a united PHTG district on both sides of the border. It requires further and more detailed investigations, especially phytocoenological. The more so in the southeastern part of Lithuania, where there is a very well isolated PHTG district of thermophilous subcontinental pine-woods. The border of this district coincides with the southeastern sandy plain, extending into Poland and Byelorussia.

The flora of this area (NATKEVICAITĖ-IVANAUSKIENĖ 1983) shows a great increase of temperate continental species. Beside the species mentioned above, *Tragopogon gorskianus*, *Silene lithuanica* and *Armeria maritima* ssp. *elongata* grow here, too. The infertile sandy soil and the continental dunes are decisive for subcontinental pine-woods (*Cladonio-Pinetum* and *Vaccinio vitis-idaeae-Pinetum*) dominating in the whole district. Similar communities can be noted in the southern part of the Augustowski geobotanical unit (MATUSZKIEWICZ 1984). Consequently we should integrate this whole area into a united phytogeographical district occupying almost equal space in Lithuania and in Poland.

SUMMARY

The territory of southern Lithuania and northeastern Poland belongs to the same geobotanical province and subprovince. Proceeding from this, it is possible to divide this subprovince into lower phytogeographical units without regarding its administrative delimitation. All along the border of both mentioned countries, one can determine three phytogeographical districts from the west onward: 1) the phytogeographical district of the Suwalki Hills, characterized by broad-leaved (*Tilio-Carpinetum*) woods, interlaced with oceanic and continental plant species, as well as montane species; 2) the transitional district of the Augustowski-Lazdijai plain, characterized by the absence of some montane species and by wide replacement of spruce by pine in the broad-leaved woods; and 3) the district of the South Lithuanian sandy plain with subcontinental thermophilous pine-woods (*Cladonio-Pinetum* and *Vaccinio vitis-idaeae-Pinetum*) and continental temperate plant species.

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