THE VEGETATION MAP OF THE NATURE RESERVE AREA OF CSÉVHARASZT IN HUNGARY

by

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Received on 4th December, 1971

The nature reserve area of 105 hectares lies in the Danube – Tisza Interfluve, near Csévharaszt in the neighbourhood of Monor, 40 km south-south-east of Budapest. Typical sand dunes are characteristic of this lowland landscape, as well as remnants of the original forest-steppe vegetation of the one-time Danube-valleys, further culture forests (*Robinia*-forests, poplar fir and black pine) and culture areas.

Since 1960, phytogeographical and ecologic research work has been carried on in this area. This work had been initiated by our Department and later the Scientific Institutes of Forestry in Sopron and Kecskemét, the Department of Zoology of the Research Institute of Plant Protection, the Department of Microbiology of the Eötvös Loránd University, the Department of Climatology of the József Attila University (Szeged) and the Hungarian Institute of Quality Testing joined it. The nature reserve area became one of the Hungarian representative areas of the International Biological Program in 1967. At that time it was then that the Department of Zoology of the National Museum of Natural History and the Department of Zootaxonomy of the Eötvös Loránd University also joined the said research work.

The primary object of these researches was a complete survey of the flora and fauna, they aimed, further, to investigate the natural plant communities of the sandy forest steppe, the soil types, the mutual connections of the latter, the spread in space and succession of plant communities, as well as the microclimatic conditions. At the same time the main types of the zoocenoses connected with the plant communities (as catenarium) and the nutriment chains, respectively, were determined.

Being an IBP-sample area, first of all, the production of natural and cultivated phytocenoses, further the conditions of production (soil-humidity relations, nutriment content – quality of micro- and macroelements, quantity and quality of humus), respectively the study of the annual course of both (production and its conditions) were investigated

in the said territory. In the course of our work, some of the tasks mentioned above could be solved, the examination and elaboration of the data obtained on others are in progress (see references).

In this paper we give a survey map of the investigated area and its environment, and publish, respectively, a detailed vegetation map of the nature reserve area. In this way we provide a basis both for the mentioned and for further investigations.

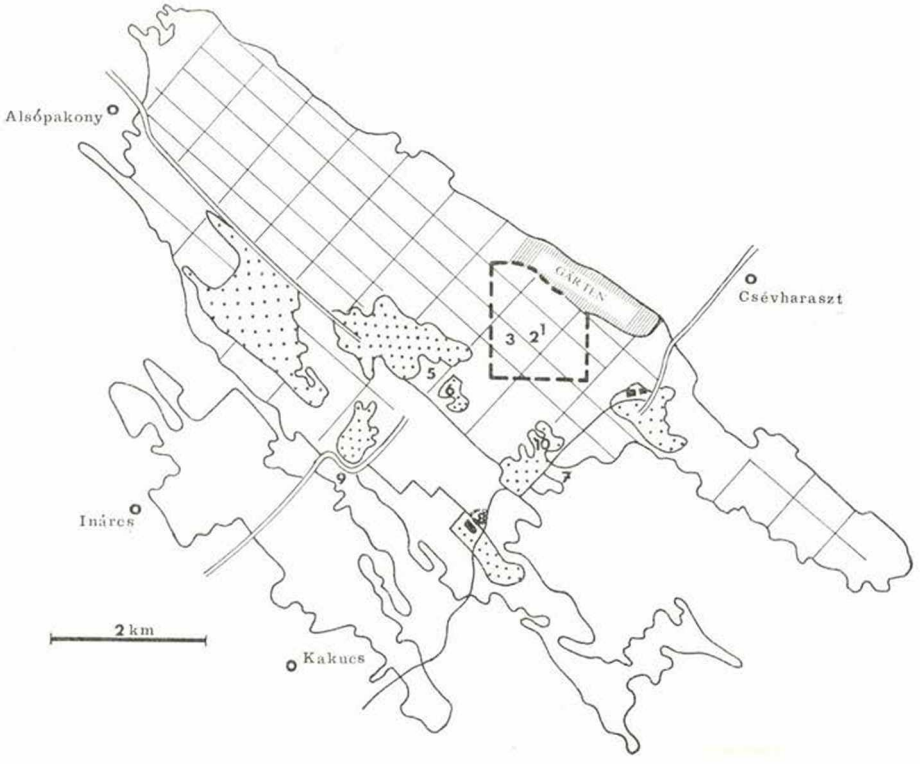

Fig. 1. Survey map of the forest area of Csévharaszt. The thick broken lines mark the border the nature reserve areas, the dots indicate the major forest clearings cut-over areas. The numerals correspond to the investigation and observation areas, respectively, of the IBP program:

1 = "Nagybucka" (constant sample area with the stands of *Festucetum vaginatae danubiale, Festucetum v.d. fumanetosum, Festucetum v.d. juniperetosum, Festucetum v.d. stipetosum, Festucetum v. d. holoschoenetosum)*; 2 = *Festucetum wagneri* stands (constant sample area); 3 = *Festuco-Quercetum, Junipero-Populetum* stands (constant sample area); 4 = *Convallario-Quercetum, Convallario-Qu. populetosum, Scirpo-Phragmitetum urticetosum* stands, *Betula pendula* stadium, *Carex acutiformis* meadow stand (constant sample areas), *Calamagrosti—Salicetum cinereae* stands; 5 = *Festuco-Quercetum* forest steppe mosaic! 6 = *Astragalo-Festucetum sulcatae* and forest steppe mosaic; 7 = Clump sedges: *Caricetum elatae* stands; 8 = *Convallario-Quercetum carpinetosum* stand, nature reserve area; 9 = *Convallario-Quercetum* old stand; 10 = *Calamagrosti-Salicetum cinereae* and sandy moor grass stands.

Method. The traditional procedure – drawing the boundaries of plant communities in basic maps of the scale of 1 : 10 000, by means of field work – could give only a rough survey, since – owing to lack of time and shortage of working power – we were unable to represent the marked mosaic character of the sandy forest-steppe vegetation in proper detail. Next by means of identifications charakter of the sandy forest-steppe vegetation could not be represented – due to the lack of time and working power – in proper details. After this we prepared a map – by means of identifications on the spot – on the basis of aerial photos* enlargened to 1 : 2000, wich represents the vegetation with proper fineness and great fidelity.

The vegetation map. The map of the nature reserve area, the so-called "Buckás erdő" is of reconstructional character, because it refers in each case beside the determination of present phytocenoses and the marking of their bounderies also to the previous, original plant communities.

The phytocenological units marked on the map are the following:

1. Festuco-Quercetum: composed of hairy oak and sessile oak, the open stands are to be found sporadic, on the top of sand dunes, with a shrub level of *Ligustrum vulgare, Viburnum lantana* and a carpet level consisting of *Poa nemoralis, Geranium sanguineum, Lithospermum purpureo-coeruleum, Scabiosa canescens.* – *2. (Festuco-Quercetum) Robinietum:* more open *Robinia*-forests of the type of *Bromus tectorum, Poa angustifolia*, developed secondarily on the site of the former community, on drier, more elevated surfaces. The one-year grasses being rich in moss-lichen pioneers are mostly attached to these *(Brometum erecti secaletosum).* – *3. Convallario-Quercetum:* closed stands composed, first of all, of peduncular oak (with mixed *Populus tremula* and *P. canescens, Ulmus campestris)*, with a rich shrub level *(Crataegus monogyna, Cornus sanguinea, Corylus avellana, Acer tataricum)* and a carpet level consisting of numerous species *(Convallaria majalis, Polygonatum latifolium, Brachypodium silvaticum, Doronicum hungaricum).* Its stands developed on the higher banks of the one-time river-beds – presumably from the former flood plain groves along the river –, the occurrence of its consociation with hornbeam (see Fig. 1 : 8) also relates to this fact. Today it represents, together with *Festuco-Quercetum*, the climax forest community of the lowland sandy forest steppe – *4. (Convallario-Quercetum) Robinietum urticetosum:* fresher secondary Robinia stands of greater wood-mass production, developed on the site of the former type *(Urtica dioica, Rubus caesius* type). – *5. (Convallario-Quercetum) Robinietum brometosum:* similarly secondary Robinia stands on somewhat more elevated and drier surfaces *(Bromus sterilis* type), developed, in part, on the site of the former *Festuco-Quercetum* stands. – *6. Festucetum vaginatae danubiale:* its stands grow in every exposition but, first of all, on the top of sand dunes. It contains the plant communities of mosses-lichens (mostly

* The original aerial photo was prepared in 1963

Cladonia foliacea, Parmelia pokornyi, Syntrichia ruralis, Tortella inclinata) showing pioneer character as well as perennial herbaceous plants *(Festuca vaginata, Koeleria glauca, Potentilla arenaria)*, and comprises, further, *Fumana*-stands in wind furrows and consolidated, codominating *Stipa sabulosa* grasses (these latter are regarded as the zonal steppe community of sandy forest steppes: cp. S i m o n — F ü l ö p 1966). — *7. Festucetum vaginatae danubiale salicetosum rosmarinifoliae:* its stands are to be found in deeper sites of wind furrows, on humid gleyic soils (closeness of ground water); the mass occurrence of *Salix rosmarinifolia* and *Holoschoenus vulgaris*, the sporadic occurrence of *Solidago virga-aurea* and *Lotus corniculatus*, further the full cushions of *Tortella inclinata* are typical. — *8. Festucetum vaginatae danubiale juniperetosum:* they are, in fact, mosaic complexes of *Juniperus* (see below) and *Festuca vaginata* grass stands and occur on different levels. — *9. Festucetum wagneri:* rather closed xerotherm grasses in placor position. Recurring species: *Stipa capillata; Festuca rupicola* occurs more sparsely. — *10. Junipero-Populetum:* in its stands *Populus alba* and *Berberis vulgaris* are mixed. *Solanum dulcamara* var. *pusztarum* is typical. In the stands growing on calcareous sand — on different levels — the pine-needle litter constitutes a cover of a few cm, on which usually a rich moss-synusium *(Hypnum cupressiforme, Tortella inclinata)* develops. In this characteristic living-space also acido-frequent, in Hungary rather mountainous moss species *(Polytrichum juniperinum, Scleropodium purum, Dicranum scoparium)* are growing. The development of *Junipero-Populetum* took place, first of all, on the sites of former sandy oak forests.

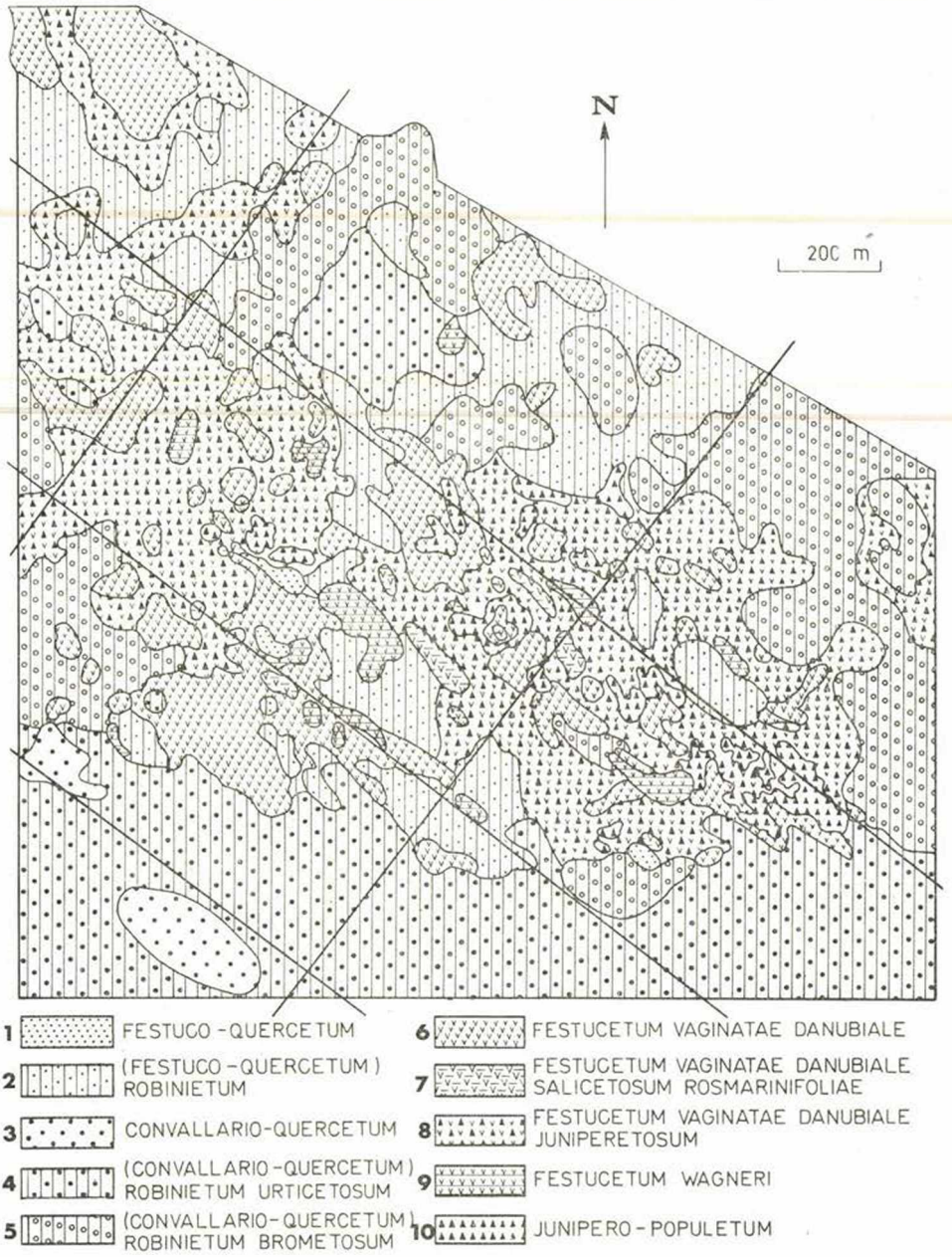

Fig. 2. Vegetation map of the extensive nature reserve area shown in Fig. 1. bordered by broken lines: the so-called „Buckás erdő". The so-called "reconstructional map" prepared by relying on an aerial photo (S i m o n, T. – D r a s k o v i t s, R.) shows the borders of the present stands (= communities), and refers, respectively, to the former original conditions. The straight lines are routes (alleys) to be compared with those in Fig. 1.

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