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Meadow Vegetation of the Desna Flood Plain, (Ukraine, USSR)

Keywords

Flood plain meadows, Classification, Braun-Blanquet approach, *Molinio-Arrhenatheretea*,
Phragmitetea, USSR

Abstract

SHELYAG-SOSONKO Yu. R., SIPAYLOVA L. M., SOLOMAKHA V. A. et MIRKIN B. M. (1987): Meadow vegetation of the Desna flood plain (Ukraine, USSR). — Folia Geobot. Phytotax., Praha, 22: 113–169. — The meadow vegetation of the Desna river flood plain described by the authors is of great scientific significance as far as the protection of diversified syntaxa of inundation meadows is concerned. These syntaxa are different in their floristic composition.

The largest inundation meadows of the Ukraine are best preserved in the flood plain of the Desna river where the authors have identified and described 18 associations of meadow vegetation attributed to 6 alliances, 2 orders and 2 classes of vegetation. They represent an ecological series ranging from steppe meadow to boggy meadows. The units thus specified are characterized by phytocenologic tables; the specificity and biological productivity of each association concerned being registered.

The peculiar character of inundation meadows requires further more profound ecological and phytocenological studies of meadow communities which the authors propose for the future.

INTRODUCTION

General description of vegetation

The Desna river (Fig. 1) rises in one of the branches of the Central Russian Hills close to Yelnya, Smolensk Region. It is the major tributary of the Dnieper river. The Desna is 1,126 km long occupying an area of 88,900 km². One tenth of the Desna basin is covered by woods (9,300 km²); almost the same area (8,900 km²) is occupied by bogs most of which are now reclaimed and used for growing numerous farm crops.

On its way south, the Desna is joined by two chief tributaries: the Seim from the left bank (717 km) and the Snov from the right (233 km). Other secondary affluents include the Oster (226 km), the Bolva (213 km) and the Sudost (197 km). The total Desna watersystem area consists of 292 rivers, the shortest not exceeding 10 km (See Katalog ričok Ukrayiny 1957).

The general rivercourse orientation is meridional, i.e. from the north to the south with slight changes. The rivercourse is divided into three different parts: the up-stream, the middle course and the down-stream. The up-stream (from the Desna river head to the Bolva river mouth at Bryansk, over 300 km) is fed by numerous minor affluents. The flood plain here is 100–700 m wide. The middle course (city of Bryansk — mouth of the Seim river, 320 km) has much more water due to ten major tributaries. The width of the flood plain within this distance varies from 800 m to 1.5 km. Finally, the down-stream (up to the Desna mouth, Kiev) which is 300 km long and greatly influenced by such rivers as Seim and Snov. The flood plain here has a width of more than 1.5–3 km. The whole territory is a slightly elevated plain rising for about 200 m above sea level and having an easy NE-to-SW gradient with a general fall of 1°.

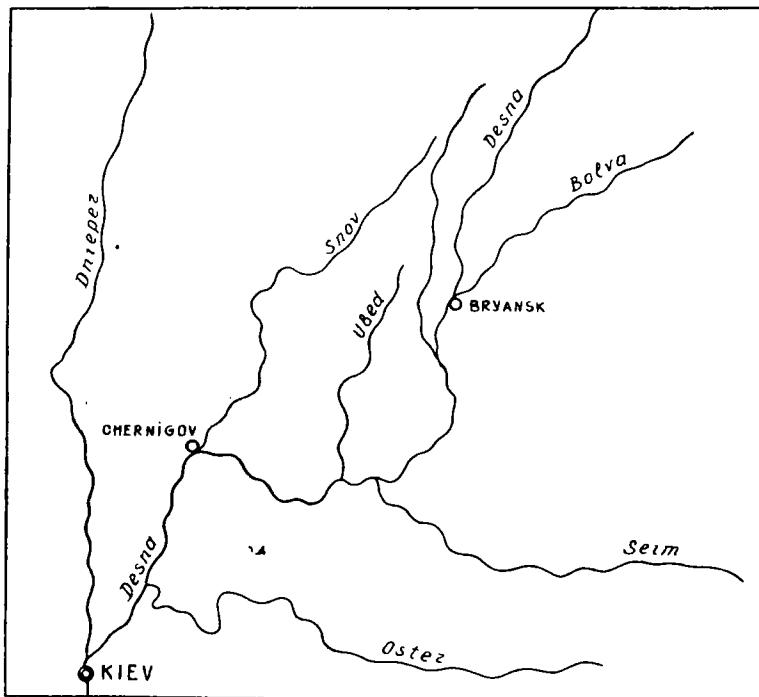


Fig. 1. Schematic map of the Desna flood plain.

The twisting pattern of the Desna is explained by the fact that river segments with direct flow alternate with bends irregularly. This particularly characteristic of the river's down-stream.

The Desna flood plain structure is basically composed of alluvial sedimentations: sandy deposits covered by a thin layer of loamy soil (at the terrace and along the floodplain centre) and sandy loam soil (along the centre and partly at the river bed). The flood plain structure at the river bed along the middle course and down-stream is sandy. It is, however, not manifested along the up-stream profile.

As a whole, the Desna flood plain relief is slightly undulating. It is a plain in the up-stream and gently rolling in the river's lower reaches. Positive relief forms are mainly represented by wide (50–100 m) elevated plateaus (plains) stretching along the river bed and typical for the central part of the flood plain averaging 200–700 m. Higher ridges are infrequent and may have 10–20 m width and 2–3 m height. These are characteristic for the areas adjoining the river bed

which is not wider than 150 m. The terrace or lower part of the flood plain whose width in different segments varies between 100 and 500 m is distinguished by various subsidences with sloping sides. At the mean water level the flood plain is elevated for 1.5–2.5 m and flooded for 15–40 each year. The flood plain is characterized by a great number of old stream channels and lakes growing in number and size from the up-stream to the middle course; as the river proceeds through its lower reaches the number of creases and lakes is reduced. The latter upset the common relief character of the parts of the flood plain so far reviewed.

Meadow vegetation of the Desna flood plain has both theoretical and practical value since, on the one hand, it is a unique community complex of floodplain vegetation surviving on the European territory, and a source of hay and pasture feed for livestock production. Findings on the Desna river floodplain meadow vegetation are included in works by various authors (AFANASIEV 1941; MULYARČUK 1958, SIPAJLOVA 1970, 1977), although these lack particular geobotanic tables to confirm syntaxonomic units defined on the basis of floristic criteria.

Geobotanic tables of the Desna floodplain meadow vegetation were compiled in 1974–1982 by L. M. SIPAJLOVA, laboratory processing of the material obtained was carried out together with other authors. Classification of vegetation was based on floristic criteria according to Braun-Blanquet principles which now are widely applied in the Soviet Union (MIRKIN et ROZENBERG 1978, 1981; MIRKIN et SELJAG-SOSONKO 1979). Altogether, there were 420 relevés used describing meadow vegetation. The tables cover plots of 100 m² each.

Physiographic conditions of the Desna river basin

The Desna river basin is situated in the geomorphological region of the Polessie-Dnieper Lowland dominated by accumulative relief for the most part related to the Dnieper-Donets Basin. Relief formation of this region was chiefly affected by the maximum ice covering the whole territory, although in many places the moraine is scoured (LANKO 1958; MARYNYČ 1963). Geostucturally the basin occupies two regions: the Dnieper-Donets Basin and the Voronezh crystalline rock mass. The investigated territory of the Dnieper-Donets basin is made up of marine, lake and continental deposits. The anthropogenous mantle is of varying thickness (from 10 to 25 m) and represented by submorainic loess-like loams, alluvial sandy and sandy loam sediments, talus and organogenous deposits (RODIONOV 1958). The Voronezh crystalline rock mass in the northeast part of the basin is covered by a superincumbent strata of sedimentary deposits dating back to the Permian, Jurassic, Cretaceous, Paleogene and Antropogenous periods. Cretaceous deposits, i.e. dark grey marls and chalks, crop out mainly along the right-bank slopes of the Desna near the town of Novgorod-Seversky. Scouring paleogenous and cretaceous deposits, the waters of the Desna acquire a smooth light blue colour. The lowest layer of anthropogenous deposits is represented by a moraine referred to the Dnieper (Riss) Glaciation. The moraine has a loess-like habit and lines the slopes of the Desna river valley and some of its tributaries. It crops out in uplands to appear a soil-forming rock. Considerable areas are occupied by aqueo-glacial deposits represented by argillaceous sands and loams as well as alluvial-talus deposits.

Characteristic for the Desna river basin are the following genetic groups of soils: (a) soddy-podzolic; (b) soddy-meadow; (c) boggy soils; (d) peat boggy soils; (e) wood soils.

The soils of the first group extend mainly in watersheds and often alternate with morainic and loess-like loam islands. Soddy-podzolic soils developed in the past and in many cases still developing under the canopy of mixed and pine forests are characterized by acid reaction and low humus content. In the Desna flood plain such soils are found in positive relief elements of the up-stream and the middle course. Middle and down-stream parts of the flood plain are distinguished by soddy soils. They were formed upon modern paleoalluvial and aqueo-glacial deposits mostly of sandy and loam sandy texture. The soil formation process took place under conditions of shallow-water deposits under herbaceous vegetation which resulted in a gleyed soil profile. These are structureless soils with more or less uniform texture (sandy, agrillo-arenaceous, sandy loam). The Desna flood plain is also noted for soddy-gley sandy loam and loamy soils. Weakly-soddy low- and non-humic sands may be encountered in the riparian part of the flood plain.

The Desna river flood plain is dominated as well by meadow soils formed on loess-like rocks with light loamy texture. In the central part of the Desna flood plain they are combined with rather fertile meadow alkaline soils formed under most valuable high-yielding meadow communities.

Alongside soddy and meadow soils, the Desna river valley has swamp soils (peat-boggy soils and peat deposits) formed under direct effect of mire vegetation whose remains turned into a turf layer on the soil surface.

Physicochemical characteristics of the basic soil varieties found in the Desna river flood plain are given in Table 1.

Table 1. Physico-chemical parameters of soils

Soil	Sampling depth cm	Humus, %	Salt extract pH	Hydrolytic acidity	Bases absorbed, total	Absorption volume ±	Ash content %
					mg-equivalent per 100 g/of soil		
Soddy weakly podzolic gley agrillo-arenaceous							
	0—20	1.0	4.6	2.5	2.3	42.1	—
	25—35	0.4	4.9	2.0	1.8	53.5	—
Soddy gley agrillo-arenaceous							
	0—20	2.6	5.1	2.7	9.7	66.2	—
	25—35	0.9	5.4	1.1	4.3	71.6	—
Soddy gley sandy loam							
	0—20	2.7	5.2	2.7	16.1	74.1	—
	25—35	0.7	5.0	1.6	8.9	63.2	—
Soddy gley coarse slit light loamy							
	0—20	3.1	6.1	0.8	36.1	96.3	—
	25—35	1.0	6.0	0.6	29.1	95.4	—
Meadow coarse slit light loamy							
	0—20	3.7	6.3	2.1	20.0	87.9	—
	25—35	1.1	6.1	1.1	17.8	91.0	—
Meadow boggy Peaty bog							
	0—25	3.4	6.5	3.0	21.5	85.9	—
	0—20	6.2	—	—	—	—	49.0
	25—40	6.4	—	—	—	—	36.6
	45—60	6.3	—	—	—	—	20.4
Low moors							
	0—20	6.2	—	—	—	—	35.0
	25—35	5.7	—	—	—	—	20.7
	40—50	6.1	—	—	—	—	17.0

Climatically, the Desna river basin relates to the southwest region of the atlantico-continental area of the moderate belt and is therefore dependent on the Atlantic Ocean (BUČINSKIJ 1963). Compared with other regions of the Polessie situated to the west, the basin's climate is distinguished by greater continentality, less precipitation and much lower relative air humidity. It is explained by greater remoteness from the Atlantic Ocean and the Baltic Sea. Cold seasons here are dominated by a branch of the Siberian anticyclone, travelling around which are huge masses of air cooled over the European continent and distributed mainly over the Desna river basin. The winter is comparatively mild (average air temperature in January is 7—8 °C below zero), summer is warm, sometimes hot (+6 °C in mid-June). The number of non-frosty days totals 150—175. The sum of air temperatures exceeding 10 °C makes up 2,300 °C in the basin's north and 2,580 °C in the south. Hydrothermal coefficient over the warm part of the year amounts to 1.3. Absolute maximum of temperatures is +39 °C. Relative air humidity is 51—53 % on the

average (See Agroklimatičeskij spravočnik 1958). Annual precipitation increases to the northeast of the basin constituting in some areas up to 620–630 mm and lowering towards its south: 550–570 mm. Soil moistening factor is 1.9–2.1. Maximum precipitation is in July (70–80 mm), minimum in February (up to 30 mm). Snow cover remains stable for 110–115 days on the average. Spring frosts cease in late April or early May, while autumn frosts start at the beginning of October.

General description of vegetation

According to the geobotanic zoning of the Ukraine, the Desna river basin lie within the Chernigov-Novgorodseversky East Polessie District of oak-pine and pine forests of the Polessie sub-province of the Eastern European province of the European broad-leaved region. Natural vegetation of the Desna flood plain is represented by meadows, forests, bogs and aquatic-riparian plant communities. Most of the Desna flood plain is occupied by meadow plant communities (about 80%).

Natural forests left in the flood plain are scanty and include communities with prevailing *Alnus glutinosa* (L.) GAERTN.¹⁾ which are formed mainly at the terrace. Besides black alder, the stock of trees includes *Betula pubescens* EHREH. and *Quercus robur* L. The herb layer is dominated by *Carex elongata* L., *C. juncella* (FRIES) TH. FRIES, *C. appropinquata* SCHUM. and many other plants. Certain areas of the flood plain retained small patches of oak forests with prevailing *Quercus robur*. Their shrub layer is dominated by *Corylus avellana* L.; the herb layer by *Aegopodium podagraria* L.

A narrow wavy strip of forests of *Populus nigra* L. runs along the left bank of the Desna. Their herb layer abounds in *Agrostis tenuis* SIBTH., *Aristolochia clematis* L., *Achillea ptarmica* L., *Petasites spurius* (RETZ.) REICHENB. and other plant species.

Shrubs of the flood plain are represented by various communities. Primitive aggregations composed of *Salix acutifolia* WILLD. are mainly present on sandy alluvial soils deposited in the channel zone of the the river while communities of *Salix alba* L. and *S. triandra* L. are distributed over bank slopes and slightly subsided areas with richer soils.

The moors, small in size and situated in the terrace zone of the river flood plain, abound in grassy and grass-mossy (hypnous) communities. These are dominated by sedges (*Carex vesicaria* L., *C. juncella*, *C. limosa* L.), mosses (*Drepanocladus aduncus* (HEDW.) WARNST., *D. vernicosus* (LINDE) WARNST., etc. Shrub cenosis in moors are often of the second-order character stipulated by an anthropogenous factor.

The Desna river flood plain is rich in lakes and oxbow-lakes occupied by communities of *Nymphaea alba* L., *Nuphar lutea* (L.) SMITH, *Trapa natans* L., *Nymphoides peltata* (S. G. GMEL.) O. KUNTZE, *Potamogeton natans* L., *Salvinia natans* L., *Stratiotes aloides* L. All of them are of great scientific value and require protection.

Down-stream terraces of the Desna have soddy and half-soddy sands with *Corynephorus canescens* (L.) BEAUV., *Helichrysum arenarium* (L.) MOENCH, *Sedum acre* L., *Berteroia incana* (L.) DC., *Koeleria glauca* (SPRENG.) DC., *Carex colchica* J. GAY and other plant species.

PRODROMUS OF MEADOW ASSOCIATIONS OF THE DESNA RIVER FLOOD PLAIN

Meadow vegetation of the Desna flood plain is classified according to the classical works by the founder of the floristic doctrine BRAUN-BLANQUET (1921, 1964) and general views on the classification development of meadow vegetation of the USSR postulated by B. M. MIRKIN and YU. R. ŠELJAG-SOSONKO (1974). Developing the classification of meadows of the Ukraine the authors tried to borrow from already available syntaxonomic tables of Central Europe (TÜXEN 1937; KLIKA 1955; OBERDORFER 1957; ELLENBERG 1963; MORAVEC 1965; MATUSZKIEWICZ 1981) however taking into account the specificity of the natural conditions of Eastern Europe associated with a more continental climate which explained juxtaposition of ecological amplitudes

¹⁾ Latin names of plants are cited from S. K. CHEREPANOV "Vascular Plants of the USSR", 1981.

of certain species: *Festuco-Brometea* and *Molinio-Arrhenatheretea*, *Molinio-Arrhenatheretea* and *Phragmitetea*, *Molinietalia* and *Arrhenatheretalia*, etc.

Lately, European phytocenologists (BEDNÁŘ 1975; RESMERITA et RATIOU 1976; BALÁTOVÁ-TULÁČKOVÁ 1977, 1979, 1980; MORAVEC et al. 1983) show a trend towards the revision of syntaxonomic tables within the classes of *Phragmitetea*, *Molinio-Arrhenatheretea*, etc. Generally accepted tables are detailed and new alliances distinguished: *Phalaridion arundinaceae* KOPECKÝ 1961, *Caricion rostratae* BALÁTOVÁ-TULÁČKOVÁ 1963, *Alopecurion pratensis* PASSARGE 1964. This is the result of a more profound syntaxonomic analysis and promotion of ranks of certain associations established earlier. This process is quite reasonable due to the growth of the material volume and discovery of new species combinations. The present authors, however, prefer a more stable and traditional treatment of alliances and orders, since the vast territory of the USSR requires more significant comprehension of higher and medium syntaxonomic units. Otherwise their number will be enormous making the use of classification difficult. Thus the authors have accepted the traditional orders: *Molinietalia*, *Phragmitetalia* and alliances: *Molinion*, *Magnocaricion*. Later, with the growth of the material the volume of these syntaxonomic units will be revised.

When the meadow vegetation of the Desna river flood plain was classified, new communities were found which did not comply with the existing European phytocenologic tables. For instance, the authors could hardly find such syntaxa as *Arrhenatherion elatioris* among the descriptions studied. It suggests that the Desna river flood plain lies beyond the range of this unit. To replace the traditional for the Western Europe alliance of *Arrhenatherion elatioris*, the authors have established a vicarious one, i.e. *Festucion pratensis*. The geographical range of this alliance possibly extends up to the Urals. Diagnostic species of this alliance are *Festuca pratensis*, *F. rubra*, *Phleum pratense*, *Trifolium pratense*. By their nature these are differential species. The authors, however, have combined them into a single group of diagnostic species since the distinction between differential and characteristic species is insignificant as far as meadow vegetation is concerned.

Apparently new and having no similarities in the Central Europe is the *Agrostion vinealis* alliance referring, according to A. P. ŠENNIKOV (1941), to steppe meadows. The establishment of this alliance is explained by the availability of a series of diagnostic species: *Agrostis vinealis*, *Koeleria delavignei*, *Poa angustifolia*, *Dianthus borbasii*, *Stellaria hippocionta*, *Trifolium montanum*.

The diagnostic value of these is emphasized by species of the *Festuco-Brometea* class (*Anthyllis macrocephala*, *Filipendula vulgaris*, *Plantago media*, *Veronica spicata*) and the *Sedo-Scleranthetea* class (*Potentilla argentea*, *Rumex acetosella*, *Sedum acre*, *Veronica verna*).

The *Agrostion vinealis* alliance should be included in a new order which is due to be established following syntaxonomic processing and analysis of the entire material concerning the steppized floodplain meadows of the Ukraine.

The syntaxonomy of the Desna floodplain meadow communities has been developed on the basis of classification tables published earlier by the authors (ŠELJAK-SOSONKO et al. 1980, 1981, 1985; SOLOMACHA 1981; SIPAJLOVA et al. 1982a, b).

The syntaxonomy of the Desna floodplain meadow communities

Class: *Molinio-Arrhenatheretea* R. Tx. 1937

Order: *Arrhenatheretalia* PAWL. 1928

Alliance: *Agrostion vinealis* SIPAYLOVA, MIRKIN, SHELYAG-SOSONKO et V. SOLOMAKHA 1985

Associations:

Festuco valesiacae-Agrostietum vinealis SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Koelerio-Agrostietum vinealis (SIPAYLOVA et al. 1985) SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987

Agrostio vinealis-Calamagrostietum epigeios SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Subass. typicum SHELYAG-SOSONKO, AFANASIEV, V. SOLOMAKHA et al. 1981

Agrostietum vinealis-tenuis SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Euphorbio-Festucetum ovinae SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Alliance: *Festucion pratensis* SIPAYLOVA, MIRKIN, SHELYAG-SOSONKO et V. SOLOMAKHA 1985

Association:

Festucetum pratensis Soó 1938

Alliance: *Cynosurion cristati* Br.-Bl. et R. Tx. 1943

Associations:

Anthoxantho-Agrostietum tenuis SILL. 1933 em. JURKO 1969

Subass. typicum JURKO 1969

Festuco-Cynosuretum cristati R. Tx. ap. BÜK. 1942

Subass. typicum R. Tx. ap. BÜK 1942 *poetosum angustifoliae* subass. nova

Order: *Molinietalia* KOCH 1926

Alliance: *Molinion* KOCH 1926

Associations:

Poo palustris-Alopecuretum pratensis SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Festuco pratensis-Deschampsietum cespitosae SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Deschampsietum cespitosae HORVATIĆ 1930

Subass. typicum HORVATIĆ 1930

Class: *Phragmitetea* R. Tx. et PRSG. 1942

Order: *Phragmitetalia* KOCH 1926

Alliance: *Magnocaricion* KOCH 1926

Associations:

Phalaridetum arundinaceae LIBBERT 1931

Caricetum vulpiniae NOWIŃSKI 1928

Caricetum gracilis (ALMQVIST 1929) R. TX. 1937

Caricetum vesicariae BR.-BL. et DENIS 1926

Caricetum rostratae (DAGYS 1932) BAL.-TUL. 1963

Carici acutae-Glycerietum maximaе SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Alliance: *Sparganio-Glycerion fluitantis* BR.-BL. et SISS. in BOER 1942

Association:

Glycerietum fluitantis WILZEK 1935

General description of syntaxa

Syntaxa within two classes (according to the Braun-Blanquet classification) distinguished in the Desna flood plain represent a rather distinct ecological series which starts with associations of steppemeadows (alliance *Agrostion vinealis*, order *Arrhenatheretalia*, class *Molinio-Arrhenatheretea*) and terminates with the *Glycerietum fluitantis* association (alliance *Sparganio-Glycerion fluitantis*, order *Phragmitetalia*, class *Phragmitetea*).

All units, from association syntaxa to class syntaxa, indicate a moderately vast range of ecological conditions and manifest significant floristic distinctions expressed

by the availability of diagnostic species. Subassociations and variants are distinguished by floristical composition and the dominating facies of a particular species. It is notable that the majority of associations in alliances of the *Phragmitetea* class are distinguished by the authors according to dominants, i.e. they correspond to formations of the meadow vegetation classification by A. P. ŠENNÍKOV (1941). This is quite reasonable since the moistening conditions for the most of communities of this class are stable. Annual and seasonal variations of the floristic composition are insignificant and, besides, the latter is deficient and monotonous. Thus the dominants are the only possible indicator for the classification of such communities. In the *Molinio-Arrhenatheretea* class associations of all alliances are distinguished by several dominants which is explained by the ecological proximity of the communities and a more diversified floristic composition.

MOLINIO-ARRHENATHERETEA R. Tx. 1937

This class combines syntaxa of steppe and true meadows. It is indicated by the availability of a series of species among which the following may be distinguished: *Festuca pratensis*, *F. rubra*, *Poa pratensis*, *Plantago lanceolata*, *Trifolium repens*, *Prunella vulgaris*, *Ranunculus acris*, *Rumex acetosa* and *Centaurea jacea*. The first three species may be treated as diagnostic species of the *Festucion pratensis* alliance

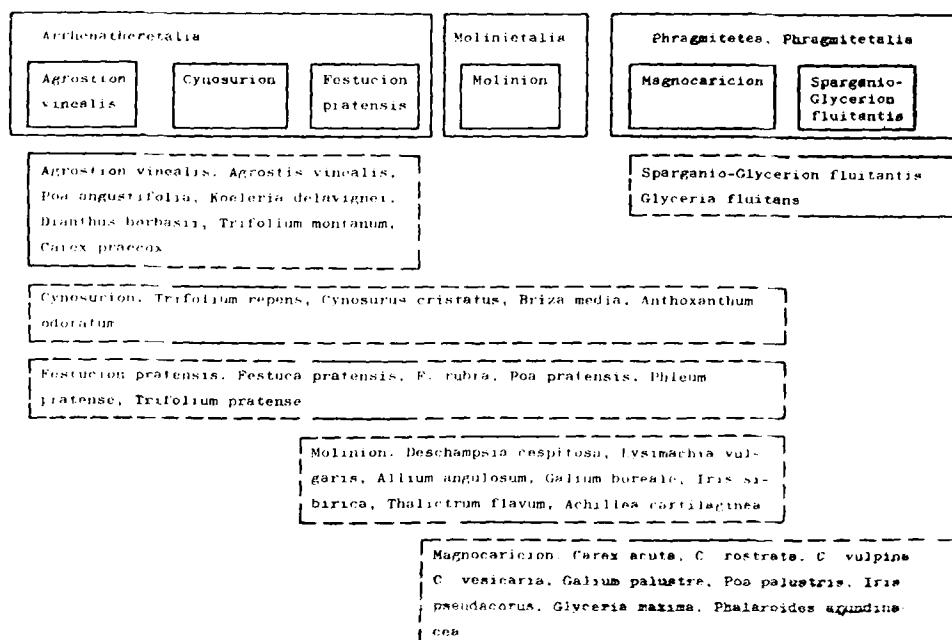


Fig. 2. Diagnostic diagram of meadow vegetation of the Desna flood plain.

Table 2. Diagnostical table of the associations of the Desna river meadow vegetation

Table 2. (Continued 1)

Table 2. (Continued 2)

Association number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<i>Poa angustifolia</i> L.	II	IV	II	III	III	II	III	I	I	I	I	I	I	I	I	I	I	I
<i>Carex praecox</i> SCHREB.	II	IV	V	II	III	II	II	I	I	I	I	I	I	I	I	I	I	I
<i>Dianthus barbatus</i> VANDAS	II	IV	I	III	I	II	I	II	I	I	I	I	I	I	I	I	I	I
<i>Sisyrinchium hippocastana</i> (CZERN.) KLOK.	II	I	IV	I	II	I	II	I	I	I	I	I	I	I	I	I	I	I
<i>Trifolium montanum</i> L.	II	IV	I	II	I	I	II	I	I	I	I	I	I	I	I	I	I	I
D.s. of <i>Festucion pratensis</i>																		
<i>Phleum pratense</i> L.	I	I	II	III	II	III	II	IV	I	II	III	II	I	I	I	I	I	I
<i>Poa pratensis</i> L.	II	IV	I	III	II	IV	III	IV	I	IV	III	IV	I	I	I	I	I	I
<i>Trifolium pratense</i> L.																		
D.s. of <i>Cynosuvarion</i>																		
<i>Bryza media</i> L.																		
<i>Trifolium repens</i> L.																		
D.s. of <i>Arrhenatherion elatioris</i>																		
<i>Campanula patula</i> L.			I				I											
<i>Tragopogon melanantherus</i> KLOK.							III											
<i>Galium pseudomollugo</i> KLOK.							III											
D.s. of Molinietalia																		
<i>Coronaria flacciculis</i> (L.) R. BR.	I	I	I		II		IV	II	III	III	II	I	III			III	I	
<i>Filipendula ulmaria</i> (L.) MAXIM.								III				III	II	I	I			
<i>Lathyrus palustris</i> L.												II	I	I	III			
<i>Equisetum palustre</i> L.												I			V			
D.s. of Molinion																		
<i>Galium boreale</i> L.												III	I					

Table 2. (Continued 3)

Association number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<i>Allium angulosum</i> L.	II	II	IV	I	I	.	i	.	.
<i>Lysimachia vulgaris</i> L.	III	II	IV	I	I	.	i	.	.
<i>Achillea cartilaginea</i> (LEDEB.) BOISS.	1	1	.	.	.	.
<i>Thlaspium flavum</i> L.	1	1	1	1	.	.	.	.
<i>Iris sobrica</i> L.	1	.	.	.	.	.	.	.	.	.	.
<i>Glaadiolus imbricatus</i> L.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Inula salicina</i> L.	1	.	.	.	.	.	.	.	.	.	.	.	.
D.s. of Filipendulo-																		
<i>Pelastion</i>																		
<i>Geranium palustre</i> L.	II	i	.	i	1
<i>Valeriana wolgensis</i> KOZAK.	1	1	.	.	.	.	.	.	.
<i>V. collina</i> WALLR.	1	1	.	.	.	.	.	.	.
<i>V. officinalis</i> L.	1	1	1	1	1	1	1	1	1
<i>Stachys palustris</i> L.	1	1	1	1	1	1	1	1	1
<i>Lythrum salicaria</i> L.	1	1	1	1	1	1	1	1	1
<i>Veronica longifolia</i> L.	1	1	1	1	1	1	1	1	1
D.s. of Calthion																		
<i>Caltha palustris</i> L.	III	1	1	II	III	III	III	III	1
<i>Mrysotis palustris</i> (L.) L.	1	IV	II	IV	V	V	V	IV	IV
<i>Trifolium hybridum</i> L.	1	1	1	1	1	1	1	1	1
D.s. of Phragmitetea,																		
<i>Phragmitetalia</i>																		
<i>Phragmites australis</i> (Cav.)	1	.	.	.	.	.
TRIN. ex STEUD.	II	.	.	.	.	.
<i>Rumex hydrophylloides</i> Huds.	II	i	II	II	II	II
<i>Alisma lanceolatum</i> WTRH.	1	.	.	.	.	.
<i>A. plantago-aquatica</i> L.	II	i	II	II	II	II
<i>Sium latifolium</i> L.	II	i	II	II	II	II
<i>Mentha aquatica</i> L.	II	II	II	II	II	II
<i>Eleocharis palustris</i> (L.)	III	III	III	III	III	III
R. BR.	IV	IV	IV	IV	IV	IV

Table 2 (Continued 4)

Table 2 (Continued 6)

Association number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<i>Agrostis gigantea</i> Roth.	.	II	IV	I	.	III	II	I	IV	.	.	II	III	II	.	I	II	.
<i>Asparagus officinalis</i> L.	.	II	I	.	.	II	I	.	.	.	.	.	.	.	.	.	.	.
<i>Bromopsis inermis</i> (LEYSS.) HOLMB.	.	I	III	.	.	II	I	.	.	.	.	.	.	.	.	.	.	.
<i>Crepis tectorum</i> L.	.	I	II	I	.	II	I	.	.	.	.	.	.	.	.	I	.	.
<i>Hieracium umbellatum</i> L.	.	I	III	I	.	II	III	.	.	.	.	.	.	.	.	.	.	.
<i>Polygonia vulgaris</i> L.	.	I	II	.	.	II	.	.	.	.	.	.	.	.	.	.	.	.
<i>Potentilla impotia</i> WAHLENB.	.	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Psammophiliella muralis</i> (L.) IKONN.	.	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Rumex confertus</i> WILD.	.	II	.	.	.	II	.	.	II	.	.	.	.	.	.	.	.	.
<i>Rumex thlaspiifolius</i> FINGERH.	.	I	II	.	.	II	.	.	I	.	.	.	.	.	.	I	.	.
<i>Elatrigia repens</i> (L.) NEVSKI	.	I	IV	I	.	II	.	.	III	.	.	.	.	.	.	.	.	.
<i>Equisetum arvense</i> L.	.	I	IV	I	.	III	III	.	III	.	.	.	.	.	.	.	.	.
<i>Trifolium elegans</i> SAVI	.	I	III	III	.	III	III	.	III	.	.	.	.	.	.	.	.	.
<i>Inula britannica</i> L.	.	I	II	.	.	I	II	.	II	.	.	.	.	.	.	.	.	.
<i>Glechoma hederacea</i> L.	.	I	II	.	.	II	I	.	II	.	.	.	.	.	.	.	.	.
<i>Equisetum pratense</i> EHRH.	.	I	.	I	.	II	.	.	III	.	.	.	.	.	.	.	.	.
<i>Spargularia rubra</i> (L.) J. et C. PREST.	.	I	.	I	.	III	.	.	II	.	.	.	.	.	.	.	.	.
<i>Juncus compressus</i> JACQ.	I	.	I	.	.	II	.	.	III	.	.	.	.	.	II	III	II	I
<i>Thalictrum lucidum</i> L.	II	.	I	.	.	.	.	.	.	II	II	II	I
<i>Potentilla erecta</i> (L.) RAEUSCH.	II	.	I	.	.	.	.	.	.	IV	I	IV	.
<i>Euphrasia stricta</i> D. WOLFF. ex J.F.L.	I	I	I	I	.	II	III	.	II	.	.	.	.	.	II	II	II	I
<i>Stellaria palustris</i> EHRH.	I	.	II	.	.	.	.	.	.	III	III	III	I
<i>Lythrum virgatum</i> L.	II	.	II	.	.	.	.	.	.	IV	III	IV	III
<i>Gratiola officinalis</i> L.	I	II	.	II	.	.	.	.	.	II	II	II	I
<i>Equisetum palustre</i> L.	II	III	.	II	.	.	.	.	.	III	III	III	I
<i>Juncus atratus</i> KROCK.	III	III	.	II	.	.	.	.	.	II	II	II	I
<i>Carex flava</i> L.	III	III	.	II	.	.	.	.	.	II	II	II	I
<i>Beckmannia eruciformis</i> Host	I	II	.	II	.	.	.	.	.	III	III	III	I
<i>Euphorbia palustris</i> L.	II	II	II	I
<i>Veronica scutellata</i> L.	III	III	III	I

Table 2 (continued 7)

Association number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<i>Betonica officinalis</i> L.	I	.	.	.	.	.	.	.
<i>Angelica sylvestris</i> L.	I	.	.	.	.	.	.	.
<i>Orchis palustris</i> JACQ.	II	.	.	III	I	.	.	.
<i>Carex muricata</i> L.	II	.	.	.	.
<i>Calamagrostis canescens</i> (WEB.) RORH.	I	.	.	II	.	.	.	.
<i>Alopecurus geniculatus</i> L.	I	.	.	II	.	.	.	.
<i>Eleocharis namillata</i> LINDB.	I	.	.	II	.	.	.	.
<i>Ranunculus lingua</i> L.	I	.	.	II	.	.	.	.
<i>Potentilla reptans</i> L.	I	.	.	II	.	.	.	.
<i>Ranunculus flammula</i> L.	I	.	.	II	.	.	.	.
<i>Carex cespitosa</i> L.	I	.	.	II	.	.	.	.
<i>C. elongata</i> L.	I	.	.	II	.	.	.	.
<i>Carex panicea</i> L.	I	.	.	II	.	.	.	.
<i>Vicia tetrasperma</i> (L.) SCHREBER	I	.	.	II	.	.	.	.
<i>Orchis coriophora</i> L.	I	.	.	II	.	.	.	.
<i>Sagina nodosa</i> (L.) FENZL	I	.	.	II	.	.	.	.

whose communities are characterized by optimum phytocenological and ecological amplitude.

In general syntaxa of the *Molinio-Arrhenatheretea* class have a marked floristic distinction from syntaxa of the *Phragmitetea* class for both groups are characterized by a small number of common species (*Alopecurus pratensis*, *Trifolium repens*, *Potentilla anserina*, *Ranunculus repens*, etc.). In most of them the ecological optimum falls on of the two classes. In the Desna flood plain the meadow vegetation of the class under consideration is represented by the following two orders.

Figure 2 and Table 2 show reference patterns of the difference between alliances and associations of the Desna floodplain meadow vegetation. Table 2 gives a general specificity consisting in the fact that for 3 out of 5 associations of the *Agrostion vinealis* alliance the authors have accepted a combination with the capacity of reference species made up by a reference species of the *Agrostion vinealis* alliance and another species, namely, *Festuca valesiaca* for the first association, *Calamagrostis epigeios* for the third association and *Agrostis tenuis* for the fourth.

Arrhenatheretalia Pawl. 1928

This order includes communities of steppe and true meadows and is characterized by availability of a number of diagnostic species (*Taraxacum officinale*, *Leucanthemum vulgare*, *Lotus corniculatus*, *Rhinanthus serotinus*, *Dactylis glomerata*). The order consists of three alliances whose communities differ in moistening and grazing activity. The most dry ecotops are typical for the *Agrostion vinealis* alliance while the moistest for *Festucion pratensis*. Floristic composition of the *Agrostion vinealis* alliance communities include steppe meadows, typical true meadows are notable for that of the *Festucion pratensis* alliance, communities of the *Cynosurion* alliance are related to true, slightly psychrophytized meadows and communities.

Agrostion vinealis Sipaylova, Mirkin, Shelyag-Sosonko et V. Solomakha 1985

The *Agrostion vinealis* alliance combines mainly communities of steppe meadows formed on elevated areas of the floodplain relief (on tops of ridges) with soddy arenaceous soils. Syntaxa of this alliance alongside with diagnostic species of the *Arrhenatheretalia* order and *Molinio-Arrhenatheretea* class include a group of species identifying this alliance (*Agrostis vinealis*, *Koeleria delavignei*, *Poa angustifolia*, *Stellaria hippoictona*, *Dianthus barbasi*, *Carex praecox*), while the first three species out of this series are, as a rule, the dominants. In communities, *Agrostis vinealis* and *Koeleria delavignei* are usually found together and without any other dominants they form the *Koelerio-Agrostietum vinealis* association. The cenocoecological amplitude of *Agrostis vinealis* is rather wide enabling this species, together with typical communities of steppe meadows (ass. *Agrostietum vinealis*), to form xerophytized communities of floodplain pastures (ass. *Festuco valesiacae-Agrostietum vinealis*) communities on arenaceous soils (ass. *Agrostio vinealis-Calamagrostietum epigeios*) and

Table 3. *Festucco valesiacae-Agrostietum vinealis* SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

	1	2	3	4	5	6	7*	8	9	10	Const.
Number of relevé							100				
Area analysed (m ²)	80	90	80	80	85	75	80	70	75	70	
Total cover (%)	21	30	24	12	19	12	20	14	15	16	
Number of species											
D. s. of association											
<i>Festuca valesiaca</i> GAUDIN	5	4	5	4	4	5	5	5	5	4	V
<i>Agrostis vinealis</i> SCHREB.	3	2	2	3	2	2	3	1	1	3	V
D. s. of <i>Agrostion vinealis</i>											
<i>Koeleria delavignei</i> CZERN. ex DOMIN	.	11	2	.	1	.	1	.	1	.	III
<i>Dianthus barbasi</i> VANDAS	+	.	.	+	.	.	.	+	.	.	II
<i>Trifolium montanum</i> L.	+	+	.	+	.	.	.	.	.	.	II
<i>Carex praecox</i> SCHREB.	.	+	.	.	+	.	+	.	.	.	II
<i>Stellaria hippoiontina</i> (CZERN.) KLOK.	.	+	.	+	+	.	.	.	.	.	II
<i>Poa angustifolia</i> L.	.	.	1	.	.	.	1	.	1	.	II
D. s. of <i>Festucion pratensis</i>											
<i>Trifolium pratense</i> L.	.	.	+	.	+	.	+	.	.	+	II
<i>Festuca rubra</i> L.	.	.	.	.	.	+	.	+	+	+	II
<i>F. pratensis</i> Huds.	.	.	.	.	.	.	.	+	+	.	I
<i>Poa pratensis</i> L.	.	+	.	.	.	.	.	.	+	.	I
D. s. of <i>Arrhenatheretalia</i>											
<i>Lotus corniculatus</i> L.	2	.	+	2	+	.	+	.	+	+	IV
<i>Leucanthemum vulgare</i> LAM.	+	.	+	+	.	.	+	+	.	+	III
<i>Taraxacum officinale</i> WIGG.	+	+	.	.	.	.	.	.	.	.	I
<i>Carex leporina</i> L.	.	.	.	.	+	.	.	.	+	.	I
D. s. of <i>Molinio-Arrhenatheretea</i>											
<i>Achillea millefolium</i> L.	1	2	+	+	+	+	1	+	+	+	V
<i>Plantago lanceolata</i> L.	+	.	.	.	2	1	.	+	1	+	III
<i>Prunella vulgaris</i> L.	+	.	+	.	+	.	+	+	.	.	III
<i>Rumex acetosa</i> L.	1	2	.	1	.	.	.	.	.	.	II
<i>Ranunculus acris</i> L.	.	+	.	.	.	.	.	.	+	.	I
<i>Cerastium holosteoides</i> FRIES	.	+	+	.	.	.	.	.	.	.	I
D. s. of <i>Festuco-Brometea</i>											
<i>Filipendula vulgaris</i> MOENCH	+	.	.	+	.	.	+	.	.	.	II
<i>Plantago media</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>Poa bulbosa</i> L.	.	+	+	.	.	.	.	.	.	.	I
<i>Veronica spicata</i> L.	.	.	+	+	.	.	.	.	.	.	I
D. s. of <i>Sedo-Scleranthetea</i>											
<i>Rumex acetosella</i> L.	+	+	+	.	+	+	+	+	+	+	V
<i>Potentilla argentea</i> L.	2	2	.	2	1	1	.	.	.	.	III
<i>Sedum acre</i> L.	.	.	+	.	.	+	.	.	.	.	I
<i>Scleranthus annuus</i> L.	.	.	.	.	.	.	.	+	+	.	I
<i>Dianthus deltoides</i> L.	.	.	+	.	+	.	.	.	.	.	I
D. s. of <i>Plantaginetea majoris</i>											
<i>Plantago major</i> L.	.	+	+	.	+	.	+	.	+	+	III
D. s. of <i>Agropyro-Rumicion crispi</i>											
<i>Potentilla anserina</i> L.	.	+	.	.	.	.	.	.	+	.	I
<i>Carex hirta</i> L.	.	+	.	.	.	.	.	.	+	.	I

* indicates the type relevé of the association

Table 3. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
<i>Rumex crispus</i> L.	.	+	+	I
Other species											
<i>Artemisia vulgaris</i> L.	+	+	.	.	+	+	+	+	.	.	III
<i>Herniaria polygama</i> J. GAY	+	.	+	.	.	.	+	.	.	.	II
<i>Festuca ovina</i> L.	.	+	+	+	.	.	+	.	.	.	II
<i>Ranunculus polyanthemos</i> L.	.	+	.	.	+	I
<i>Euphorbia virgulosa</i> KLOK.	.	.	+	+	.	.	I
<i>Stellaria graminea</i> L.	+	.	.	.	+	.	I

Species present in only one relevé: *Euphorbia cyparissias* L. (1.+), *Euphrasia stricta* WOLFF. ex J. F. ZEHM. (2.+), *Hieracium umbellatum* L. (9.+), *Juncus compressus* JACQ. (7.+), *Medicago lupulina* L. (2.+), *Polygala vulgaris* L. (1.+), *Psammophiliella muralis* (L.) IKONN. (3.+), *Rumex thyrsiflorus* FINGERH. (8.+), *Trifolium campestre* SCHREB. (10.+), *T. repens* L. (5.+).

The relevés No. 1–10 are made by L. M. SIPAJLOVA in the flood plain of Desna river, June 1–30, 1974–1982.

communities of natural postsylvan and psychrophytized meadows (ass. *Agrostietum vinealis-tenuis* and *Euphorbio-Festucetum ovinae*).

The nomenclature type of the *Agrostion vinealis* alliance is as. *Koelerio-Agrostietum vinealis*.

Tables 3–8 contain concrete geobotanic relevés of communities of this alliance. Given below is the characteristic of established syntaxa.

Festuco valesiacae-Agrostietum vinealis SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova, hoc loco

Table 3

This association is found very rarely in the Desna flood plain. Its communities have been formed under intensive grazing conditions on the territory of natural meadows and mixed herbaceous follows dominated by *Agrostis vinealis*. They are related to the upper parts of ridges and elevations in the central and river valley zones of the flood plain being typical basically for the downstream of the river. The soils beneath them are meadow and soddy and severely loamy; ground water is found at a depth of more than two metres. The communities are characterized by low species richness (12–30 species) and moderate coverage (70–90%). The association composition is dominated by *Festuca valesiaca* and *Agrostis vinealis* with significant participation of species related to the *Agrostion vinealis* alliance.

A great number of species of *Festucion pratensis* and *Molinio-Arrhenatheretea* testifies to the fact that these communities emerged not long ago in place of natural meadows. At present these may be treated as a finite link in the development of the *Koelerio-Agrostietum vinealis* association. Further expansion of this association's communities range may occur following more intensive grazing in floodplain meadows,

Table 4. *Koelerio-Agrostietum vinealis* (SIPAYLOVA et al. 1985) SHELYAG-SOSONKO, SIPAYLOVA, V. SOLAMAKHA et MIRKIN 1987

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
Area analysed (m ²)	100										
Total cover (%)	95	95	90	90	90	95	95	90	95	95	
Number of species	25	29	21	32	24	24	20	29	24	26	
D. s. of association											
<i>Agrostis vinealis</i> SCHREB.	4	3	4	3	3	3	4	3	3	5	V
D. s. of <i>Agrostion vinealis</i>											
<i>Koeleria delavignei</i> CZERN. ex DOMIN	2	1	+	+	1	1	1	+	.	1	IV
<i>Carex praecox</i> SCHREB.	+	1	+	.	.	2	1	+	1	2	IV
<i>Poa angustifolia</i> L.	1	1	+	1	+	1	+	+	.	.	IV
<i>Dianthus barbasi</i> VANDAS	.	+	.	.	2	1	+	1	1	1	IV
<i>Stellaria hippocionia</i> (CZERN.) KLOK.	.	.	.	.	.	1	.	.	1	.	I
<i>Trifolium montanum</i> L.	+	+	+	.	+	1	+	.	+	+	IV
D. s. of <i>Festucion pratensis</i>											
<i>Festuca rubra</i> L.	+	.	+	+	1	.	+	.	+	+	IV
<i>Trifolium pratense</i> L.	1	1	+	.	+	1	1	+	1	1	IV
<i>F. pratensis</i> Huds.	.	+	.	.	.	+	+	.	.	+	II
<i>Poa pratensis</i> L.	.	.	+	+	.	.	.	.	.	.	I
<i>Phleum pratense</i> L.	.	.	.	+	+	.	.	.	.	.	I
D. s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	+	.	.	+	+	+	+	+	2	1	IV
D. s. of <i>Arrhenatheretalia</i>											
<i>Lotus corniculatus</i> L.	+	1	1	.	1	1	.	+	+	+	IV
<i>Rhinanthus alectorolophus</i> (SCOP.) POLL.	+	1	1	.	1	.	.	.	.	.	II
<i>Leucanthemum vulgare</i> LAM.	.	.	.	.	1	.	+	.	.	+	II
<i>Taraxacum officinale</i> WIGG.	.	.	.	+	.	.	.	+	.	.	I
<i>Carex leporina</i> L.	.	.	.	.	.	+	.	.	+	.	I
D. s. of <i>Molinietalia</i>											
<i>Coronaria flos-cuculi</i> (L.) R. BR.	1	1	1	.	.	+	+	+	.	.	III
<i>Deschampsia cespitosa</i> (L.) BEAUV.	.	.	.	.	.	+	+	.	.	.	I
D.s. of <i>Molinion</i>											
<i>Galium boreale</i> L.	.	+	.	.	.	.	.	.	+	.	I
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Achillea millefolium</i> L.	1	1	.	+	1	1	.	+	+	1	IV
<i>Plantago lanceolata</i> L.	.	1	1	.	1	.	1	+	1	1	IV
<i>Ranunculus acris</i> L.	.	+	+	+	.	.	1	+	+	1	IV
<i>Rumex acetosa</i> L.	+	1	.	.	.	1	.	+	+	.	III
<i>Alopecurus pratensis</i> L.	.	1	+	+	.	+	.	+	2	.	III
<i>Prunella vulgaris</i> L.	.	1	+	+	1	.	.	.	.	.	II
<i>Centaurea jacea</i> L.	.	.	.	.	+	.	.	.	+	+	II
<i>Vicia cracca</i> L.	+	.	.	.	+	.	.	.	.	.	I
D.s. of <i>Festuco-Brometea</i>											
<i>Plantago media</i> L.	+	.	.	.	.	+	+	+	.	.	II
<i>Filipendula vulgaris</i> MOENCH.	+	+	+	.	1	.	.	2	.	.	II
<i>Anthyllis macrocephala</i> WEND.	.	.	.	.	.	+	.	+	.	.	I
D.s. of <i>Sedo-Scleranthea</i>											
<i>Potentilla argentea</i> L.	1	.	.	1	.	.	.	+	+	.	II

Table 4 (Continued 1)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
<i>Rumex acetosella</i> L.	1	.	.	1	.	.	.	.	1	+	II
<i>Veronica verna</i> L.	+	.	.	.	.	.	+	.	.	.	I
<i>Sedum acre</i> L.	.	+	.	.	.	.	.	+	.	.	I
D.s. of <i>Armerion elongatae</i>											
<i>Galium verum</i> L.	+	+	.	.	+	.	.	1	.	1	III
<i>Dianthus deltoides</i> L.	.	+	+	+	.	.	.	.	+	+	III
<i>Herniaria glabra</i> L.	.	.	.	+	.	.	.	+	.	.	I
<i>Knautia arvensis</i> (L.) COULT.	.	.	.	+	.	+	.	.	.	.	I
D.s. of <i>Agropyro-Rumicion crispae</i>											
<i>Carex hirta</i> L.	1	.	1	.	.	+	+	1	.	1	III
<i>Potentilla anserina</i> L.	.	.	.	+	.	.	.	.	+	.	II
<i>Ranunculus repens</i> L.	.	.	+	+	.	.	+	.	.	.	II
Other species											
<i>Rumex thrysiflorus</i> FINGERH.	+	+	.	.	+	.	.	.	+	.	II
<i>Rumex confertus</i> WILLD.	.	+	.	+	.	.	.	+	.	.	II
<i>Medicago lupulina</i> L.	.	+	.	+	+	.	.	.	+	.	II
<i>Hieracium pilosella</i> L.	.	.	+	+	+	.	.	.	.	.	II
<i>Agrostis gigantea</i> ROTH	.	.	.	.	.	1	.	+	+	.	II
<i>Asparagus officinalis</i> L.	.	.	.	.	.	1	.	+	+	.	II
<i>Ranunculus polyanthemos</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>Crepis tectorum</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>Stellaria graminea</i> L.	.	+	+	.	.	.	.	.	.	.	I
<i>Psammophiliella muralis</i> (L.) IKONN.	.	+	.	+	.	.	.	.	.	.	II
<i>Potentilla impolita</i> WAHLENB.	.	+	.	+	.	.	.	.	.	.	I
<i>Bromopsis inermis</i> (LEYSS.) HOLUB	.	+	.	+	.	.	.	.	.	+	I
<i>Euphorbia cyparissias</i> L.	.	.	.	+	.	.	.	+	.	.	I
<i>Hieracium umbellatum</i> L.	.	.	.	.	+	.	.	.	+	.	I
<i>Polygonum vulgaris</i> L.	.	.	.	.	+	.	.	.	+	.	I
<i>Medicago falcata</i> L.	.	.	.	.	.	+	.	+	.	.	I

Species present in only one relevé: *Agrostis tenuis* SIBTH. (10.+), *Convolvulus arvensis* L. (4.+), *Elytrigia repens* (L.) NEVSKI (8.+), *Equisetum arvense* L. (4.+), *Eryngium planum* L. (1.+), *Euphrasia stricta* D. WOLFF ex J. F. LEHM. (10.+), *Herniaria polygama* J. GAY (8.+), *Leontodon autumnalis* L. (4.+), *Linaria vulgaris* WILL. (4.+), *Rhinanthus minor* L. (3.+), *Sagina nodosa* (L.) FENZL (1.+), *Spergularia rubra* (L.) J. et C. PRESL (4.+), *Thymus ovatus* WILL (4.+), *Trifolium elegans* SAVI (6.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of Desna river, June 1–30, 1974–1982.

which is very undesirable. Biological productivity of the association under consideration is rather low and amounts to 1.0–1.4 metric tons per hectare of medium quality hay.

Koelerio-Agrostietum vinealis (SIPAYLOVA et al. 1985) nomen novum

Syn.: *Agrostietum vinealis* V. SOLOMAKHA ex SIPAYLOVA, MIRKIN, SHELYAK-SOSONKO et V. SOLOMAKHA 1985 non *Agrostietum coarctatae* KOBENDZA 1930

Table 4

Table 5. *Agrostio vinealis-Calamagrostietum epigeios* SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Variant	<i>Carex praecox</i>										<i>Elytrigia repens</i>	
	1	2	3	4*	5	6	7	8	9	10	Const.	
Number of relevé												
Area analysed (m ²)											100	
Total cover (±)	80	95	95	95	90	95	90	95	95	95	90	
Number of species	13	22	24	27	24	26	35	36	39	24		
D.s. of association												
<i>Calamagrostis epigeios</i> (L.) ROTH	4	4	5	4	4	3	3	3	3	3	V	
<i>Agrostis vinealis</i> SCHREB.	2	3	1	1	3	3	2	2	2	2	V	
D.s. of variant												
<i>Elytrigia repens</i> (L.) NEVSKI	.	+	.	+	.	1	2	1	+	2	III	
<i>Carex praecox</i> SCHREB.	3	2	1	2	1	+	.	+	+	+	IV	
D.s. of <i>Agrostion vinealis</i>												
<i>Stellaria hippocionia</i> (CZERN.) KLOK.	+	+	+	+	+	.	+	+	.	.	IV	
<i>Poa angustifolia</i> L.	.	.	.	.	1	1	.	2	2	.	II	
<i>Trifolium montanum</i> L.	.	+	.	.	+	.	.	.	.	.	I	
<i>Koeleria delavignei</i> CZERN. ex DOMIN	.	.	1	.	2	.	.	.	.	.	I	
<i>Dianthus barbatus</i> VANDAS	.	.	.	+	+	.	.	.	.	.	I	
D.s. of <i>Festucion pratensis</i>												
<i>Festuca pratensis</i> Huds.	.	1	+	+	+	1	1	+	.	+	IV	
<i>F. rubra</i> L.	1	.	+	1	+	.	.	.	1	+	III	
<i>Poa pratensis</i> L.	.	1	.	2	.	+	.	+	.	+	III	
<i>Phleum pratense</i> L.	.	.	.	.	+	+	.	+	+	.	II	
D.s. of <i>Cynosurion</i>												
<i>Trifolium repens</i> L.	+	+	1	.	+	+	+	+	1	+	V	
D.s. of <i>Arrhenatherion elatioris</i>												
<i>Campanula patula</i> L.	.	.	.	.	.	+	.	+	.	.	I	
D.s. of <i>Arrhenatheretalia</i>												
<i>Lotus corniculatus</i> L.	.	.	.	2	1	.	+	.	1	+	III	
<i>Taraxacum officinale</i> WIGG.	.	.	.	1	.	.	.	+	+	.	II	
<i>Rhinanthus alectorolophus</i> (SCOP.) POLL.	.	.	.	.	.	.	+	.	+	.	I	
<i>Carex leporina</i> L.	.	.	.	.	.	.	+	+	.	.	I	
D.s. of <i>Molinio-Arrhenatheretea</i>												
<i>Prunella vulgaris</i> L.	.	+	1	+	+	+	+	+	+	+	V	
<i>Plantago lanceolata</i> L.	.	+	1	+	+	.	+	+	+	+	IV	
<i>Centaurea jacea</i> L.	.	.	+	+	.	+	+	+	+	+	IV	
<i>Ranunculus acris</i> L.	+	+	+	+	+	.	+	.	.	.	III	
<i>Alopecurus pratensis</i> L.	.	+	1	.	+	1	.	1	.	1	III	
<i>Achillea millefolium</i> L.	.	.	1	1	+	.	1	+	+	.	III	
<i>Vicia cracca</i> L.	.	.	+	+	.	.	+	+	+	.	II	
<i>Rumex acetosa</i> L.	.	.	.	.	.	+	+	+	+	.	fII	
D.s. of <i>Molinietalia</i>												
<i>Deschampsia cespitosa</i> (L.) BEAUV.	.	.	.	.	.	+	+	.	.	+	II	
<i>Coronaria flos-cuculi</i> (L.) R. BR.	.	.	.	.	.	+	+	+	+	.	II	
D.s. of <i>Calthion</i>												
<i>Trifolium hybridum</i> L.	.	+	.	.	.	.	.	+	.	.	I	

Table 5. (Continued)

Number of relevé	1	2	3	4*	5	6	7	8	9	10	Const.
D.s. of Festuco-Brometea											
<i>Filipendula vulgaris</i> MOENCH	.	+	.	+	.	.	.	+	.	.	II
<i>Artemisia vulgaris</i> L.	+	+	.	.	I
<i>Veronica spicata</i> L.	+	.	.	.	+	.	I
<i>Plantago media</i> L.	+	+	.	.	I
D.s. of Sedo-Scleranthetea											
<i>Rumex acetosella</i> L.	.	+	+	+	+	+	+	+	+	+	V
<i>Potentilla argentea</i> L.	+	+	.	.	+	.	1	+	+	.	III
<i>Sedum acre</i> L.	.	.	.	+	.	.	.	+	.	.	I
<i>Hieracium pilosella</i> L.	+	+	.	.	.	I
D.s. of Armerion elongatae											
<i>Galium verum</i> L.	.	.	.	+	.	.	.	+	.	.	I
<i>Herniaria glabra</i> L.	+	.	+	.	.	I
D.s. of Plantaginea majoris, <i>Plantaginetalia majoris</i>											
<i>Plantago major</i> L.	+	+	.	.	I
D.s. of Agropyro-Rumicion crispi											
<i>Rumex crispus</i> L.	.	+	+	.	.	+	.	.	+	+	III
<i>Potentilla anserina</i> L.	.	.	.	+	+	+	+	.	+	+	III
<i>Carex hirta</i> L.	+	.	+	+	1	.	II
<i>Ranunculus repens</i> L.	+	+	.	+	+	II
Other species											
<i>Equisetum arvense</i> L.	+	+	+	+	.	+	+	.	+	+	IV
<i>Agrostis gigantea</i> ROTH	.	.	1	1	.	+	1	1	+	1	IV
<i>Rumex thrysiflorus</i> FINGERH.	+	+	+	2	1	.	III
<i>Crepis tectorum</i> L.	.	+	+	+	.	.	+	+	+	.	III
<i>Trifolium elegans</i> SAVI	.	+	+	.	+	.	+	+	+	.	III
<i>Medicago lupulina</i> L.	.	.	.	+	+	.	+	.	.	.	II
<i>Inula britannica</i> L.	+	.	+	+	+	II
<i>Asparagus officinalis</i> L.	.	.	.	+	.	.	.	+	.	.	I
<i>Agrostis tenuis</i> SIBTH.	+	.	.	+	.	.	I
<i>Glechoma hederacea</i> L.	+	.	.	.	+	.	I
<i>Equisetum pratense</i> EHRH.	+	+	.	.	.	I

Species present in only one relevé: *Euphrasia stricta* D. WOLFF ex J. F. LEHM. (1.+), *Galium boreale* L. (1.+), *Hieracium umbellatum* L. (9.+), *Leontodon autumnalis* L. (9.+), *Linaria vulgaris* MILL. (6.+), *Lythrum virgatum* L. (3.+), *Potentilla erecta* (L.) RÄUSCHEL (7.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of Desna river, June 1–30, 1974–1982.

This association is very common for the Desna river flood plain. Its communities are formed preferably in the middle course and the down-stream. They are related to the middle parts of gently sloping hillsides of mid-high ridges and elevated plains. The soils under them are soddy and weakly gley, silty sand loamy and sand loamy; ground water is found at a depth of 1.7–2.0 m. The communities are characterized by a high species richness (20–32) and high coverage (90–95 %). The association

is dominated by *Agrostis vinealis*, *Koeleria delavignei*, *Poa angustifolia*, with significant participation of *Molinio-Arrhenatheretea* species (*Achillea millefolium*, *Alopecurus pratensis*, *Festuca rubra*, *Ranunculus acris*, etc.). Since the trend of the meadow vegetation xerophytization is obvious, the communities of the *Koelerio-Agrostietum vinealis* association gradually dominate and replace those below by profile in natural meadows. In future the area expansion of the association is expected; its communities being rather resistant under conditions of the Ukrainian Polessie. Biologic productivity of the communities under consideration of the *Koelerio-Agrostietum vinealis* association is low and equals 1.0—1.8 metric tons per hectare of medium-quality hay (SIPAJLOVA et al. 1987).

Agrostio vinealis-Calamagrostietum epigeios SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987

Table 5

This association is not widely spread in the Desna flood plain. Its communities are developed mainly in the river valley zone of the flood plain in the middle course and the down-stream covering the mid-slopes of low ridges and even interridge lows. They reside over soddy shallow and weakly gley agrillo-arenaceous soils and sandy loam soils; ground water is found at a depth of 1.5—1.7 m. These communities achieve the climax of their development in the years when the river overflows and alluvial sands deposit in the river valey zone of the flood plain. The communities are characterized by a high species richness (13—39) and good coverage (80—100 %). The communities are dominated by *Agrostis vinealis*, *Calamagrostis epigeios*, *Elytrigia repens*, *Carex praecox*, with significant participation of the *Molinio-Arrhenatheretea* species (*Festuca pratensis*, *Prunella vulgaris*, *F. rubra*, *Plantago lanceolata*, etc.) and *Sedo-Scleranthetea* species (*Rumex acetosella*, *Potentilla argentea*). This association is formed by two variants. The first variant — *Carex praecox* — characterizes alluvially rich substrata with weakened soddy process and alternating moistening. The second one — *Elytrigia repens* — forms communities which concentrate in the river valley zone of the flood plain on richer soils, compared with the first variant, which are slightly arenaceous. Under favourable condition the communities of the given association may somewhat enlarge its areal. The biological productivity of these communities is not very high and varies between 2.0—3.0 metric tons per hectare of hay of medium and good quality.

Agrostietum vinealis-tenuis SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Table 6

This association is encountered rather infrequently in the Desna river flood plain. Its communities are developed mostly in the central and sometimes in river valley zones of the plain in the middle course and down-stream. These are related to highly soddy and rarely flooded plain areas. Beneath such communities soddy podzolic and soddy weakly gleyed sandy loam soils are formed; ground water is available at

Table 6. *Agrostietum vinealis-tenuis* SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

	1	2	3	4	5	6	7	8*	9	10	Const.
Number of relevé											
Area analysed (m ²)					100						
Total cover (%)	95	95	90	90	95	95	95	95	90	90	
Number of species	21	34	46	22	36	26	29	22	16	17	
D.s. of association											
<i>Agrostis vinealis</i> SCHREB.	4	3	3	4	4	4	4	4	4	4	V
<i>A. tenuis</i> SIBTH.	3	4	4	3	3	3	3	4	4	4	V
D.s. of <i>Agrostion vinealis</i>											
<i>Koeleria delavignei</i> CZERN. ex DOMIN	1	+	2	2	.	+	1	+	1	1	V
<i>Poa angustifolia</i> L.	.	.	+	.	1	1	1	+	.	.	III
<i>Dianthus barbasi</i> VANDAS	.	1	+	.	.	.	+	+	+	.	III
<i>Carex praecox</i> SCHREB.	.	.	+	+	+	.	.	+	.	.	II
<i>Trifolium montanum</i> L.	.	.	+	.	+	.	+	+	.	.	II
D.s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	1	+	+	+	1	+	+	.	.	+	IV
<i>Anthoxanthum odoratum</i> L.	.	1	1	+	.	.	+	+	.	.	III
<i>Briza media</i> L.	.	.	+	.	.	.	+	.	.	.	I
D.s. of <i>Festucion pratensis</i>											
<i>Festuca rubra</i> L.	2	2	1	2	1	+	+	1	+	+	V
<i>F. pratensis</i> Huds.	1	.	+	+	1	.	+	+	+	+	IV
<i>Trifolium pratense</i> L.	1	.	+	+	.	+	+	+	.	.	III
<i>Phleum pratense</i> L.	.	.	+	+	+	.	+	+	.	.	III
<i>Poa pratensis</i> L.	.	.	.	.	+	+	.	.	+	.	II
D.s. of <i>Arrhenatheretalia</i>											
<i>Lotus corniculatus</i> L.	1	.	1	+	+	1	+	.	+	+	IV
<i>Leucanthemum vulgare</i> LAM.	.	+	+	.	+	.	+	.	.	.	II
<i>Carex leporina</i> L.	.	+	.	.	+	.	.	.	.	.	I
<i>Taraxacum officinale</i> WIGG.	.	+	+	.	.	.	.	.	.	.	I
D.s. of <i>Molinietalia</i>											
<i>Coronaria fls-cuculi</i> (L.) R. BR.	.	1	.	+	1	+	.	.	.	.	II
<i>Deschampsia cespitosa</i> (L.) BEAUV.	.	.	+	.	1	+	.	.	.	.	II
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Achillea millefolium</i> L.	1	1	+	+	1	+	+	+	+	+	V
<i>Cerastium holosteoides</i> FRIES.	+	+	+	+	.	.	+	+	+	+	IV
<i>Plantago lanceolata</i> L.	1	1	+	+	.	+	+	.	+	+	IV
<i>Prunella vulgaris</i> L.	.	+	1	+	+	1	1	.	+	+	IV
<i>Rumex acetosa</i> L.	+	.	+	.	.	.	.	.	.	.	I
<i>Ranunculus acris</i> L.	.	.	+	.	.	.	+	.	.	.	I
<i>Centaurea jacea</i> L.	.	.	+	.	.	.	+	.	.	.	I
D.s. of <i>Festuco-Brometea</i>											
<i>Filipendula vulgaris</i> MOENCH.	1	+	2	+	+	1	+	.	.	+	IV
<i>Plantago media</i> L.	.	.	2	1	+	.	.	+	.	.	II
<i>Veronica epigaea</i> L.	+	.	+	.	.	.	.	.	.	.	I
D.s. of <i>Sedo-Sclerantheeta</i>											
<i>Potentilla argentea</i> L.	+	1	1	1	+	+	+	1	+	1	V
<i>Rumex acetosella</i> L.	+	+	+	.	.	+	+	+	+	+	IV
<i>Sedum acre</i> L.	+	1	.	.	+	.	+	.	.	.	II
<i>Hieracium pilosella</i> L.	.	.	.	.	+	+	.	.	.	.	I

Table 6. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
<i>Jasione montana</i> L.	+	.	+	.	.	.	I
<i>Veronica verna</i> L.	.	.	+	.	.	+	+	.	.	.	I
D.s. of <i>Armerion elongatae</i>											
<i>Galium verum</i> L.	.	.	+	1	+	.	.	.	+	+	III
<i>Herniaria glabra</i> L.	+	+	I
D.s. of <i>Plantaginetea majoris</i>											
<i>Plantaginetaia majoris</i>											
<i>Plantago major</i> L.	+	+	+	.	+	+	+	+	.	+	IV
D.s. of <i>Agropyro-Rumicion crispae</i>											
<i>Carex hirta</i> L.	.	1	+	.	+	.	1	+	.	.	III
<i>Ranunculus repens</i> L.	.	+	.	.	+	.	+	+	.	.	II
<i>Potentilla anserina</i> L.	.	1	.	.	+	.	+	.	.	.	II
<i>Rumex crispus</i> L.	.	+	.	.	.	+	I
<i>Leontodon autumnalis</i> L.	.	+	.	.	+	I
Other species											
<i>Trifolium elegans</i> SAVI	.	+	1	+	.	.	.	+	+	.	III
<i>Glechoma hederacea</i> L.	.	.	.	+	+	I
<i>Stellaria graminea</i> L.	+	+	+	.	+	II
<i>Polygala vulgaris</i> L.	.	+	+	I
<i>Medicago lupulina</i> L.	.	+	.	.	.	+	I
<i>Agrostis gigantea</i> ROTH	.	.	+	.	+	I
<i>Equisetum arvense</i> L.	.	.	+	.	+	I
<i>Spergularia rubra</i> (L.) J. et C. PR.	.	.	+	.	.	+	I
<i>Hieracium umbellatum</i> L.	.	.	.	+	+	I

Species present in only one relevé: *Calamagrostis epigeios* (L.) ROTH (3.+), *Crepis tectorum* L. (2.+), *Elytrigia repens* (L.) NEVSKI (5.+), *Euphrasia stricta* D. WOLFF ex J. F. LEHM. (2.+), *Galium pseudoboreale* Klok. (5.+), *Inula britannica* L. (3.+), *Juncus compressus* JACQ. (3.+), *Linaria vulgaris* MILL. (2.+), *Orchis coriophora* L. (3.+), *Ranunculus polyanthemos* L. (5.+), *Rhinanthus minor* L. (3.+), *Rumex confertus* WILLD. (1.+), *Sagina nodosa* (L.) FENZL (2.+).

The relevés No. 1–10 are made by L. M. SIPAJLOVA in the flood plain of Desna river, June 1–30, 1974–1982.

a depth of 1.5–1.7 m, sometimes 2 m. Species concentration in the communities is rather high (16–46) and projection coverage is fair (90–95 %). The association communities are dominated by *Agrostis tenuis* and *A. vinealis* with considerable involvement of *Molinio-Arrhenatheretea* species (*Festuca rubra*, *F. pratensis*, *Plantago lanceolata*, *Prunella vulgaris*) and the *Sedo-Scleranthetea* species (*Potentilla argentea*, *Rumex acetosella*). With intensification of exposure to the anthropogenic factor the communities of this association transfer into the *Euphorbio-Festucetum ovinae* association. The biological productivity of herbages of the association under consideration is not high and totals 1.6–2.0 metric tons per hectare of hay.

Euphorbio-Festucetum ovinae SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987, ass. nova

Table 7

Table 7. *Euphorbio-Festucetum ovinae* SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987, ass. nova

Number of relevé	1	2	3	4	5	6*	7	8	9	10	Const.
Area analysed (m ²)	100										
Total cover (%)	95	85	95	95	85	85	90	90	85	85	
Number of species	27	26	27	27	23	24	22	18	20	21	
D.s. of association											
<i>Festuca ovina</i> L.	4	5	5	5	4	4	5	5	4	5	V
<i>Euphorbia cyparissias</i> L.	2	.	2	1	2	+	1	1	4	.	IV
<i>E. seguierana</i> NECK.	.	1	+	2	.	1	.	1	.	1	III
D.s. of <i>Agrostion vinealis</i>											
<i>Agrostis vinealis</i> SCHREB.	1	1	2	1	+	1	1	+	+	+	V
<i>Poa angustifolia</i> L.	+	1	+	+	.	1	+	.	+	+	III
D.s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	1	1	1	1	2	+	+	1	+	+	V
<i>Anthoxanthum odoratum</i> L.	.	1	+	.	1	+	.	1	+	+	III
D.s. of <i>Festucion pratensis</i>											
<i>Festuca rubra</i> L.	+	+	+	1	2	+	1	+	+	+	V
<i>Poa pratensis</i> L.	.	.	.	+	1	1	+	.	.	.	II
<i>Trifolium pratense</i> L.	1	.	+	.	.	+	+	1	+	+	II
D.s. of <i>Arrhenatheratalia</i>											
<i>Taraxacum officinale</i> WIGG.	1	+	1	1	+	+	+	+	+	1	V
<i>Lotus corniculatus</i> L.	1	1	+	1	+	.	.	1	+	+	IV
<i>Bromus mollis</i> L.	+	.	1	.	+	.	+	.	.	.	II
<i>Leucanthemum vulgare</i> LAM.	.	.	.	.	+	+	.	.	.	.	I
D.s. of <i>Molinietalia</i>											
<i>Deschampsia cespitosa</i> (L.) BEAUV.	1	2	+	1	1	1	+	1	1	+	V
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Achillea millefolium</i> L.	1	1	1	1	+	1	1	+	+	1	V
<i>Prunella vulgaris</i> L.	1	1	1	1	+	.	1	+	.	+	IV
<i>Plantago lanceolata</i> L.	1	.	+	1	1	+	.	.	1	.	III
<i>Ranunculus acris</i> L.	1	1	.	+	.	+	+	.	.	+	III
D.s. of <i>Festuco-Brometea</i>											
<i>Filipendula vulgaris</i> MOENCH	.	1	+	+	.	+	.	.	+	+	III
D.s. of <i>Sedo-Scleranthetea</i>											
<i>Potentilla argentea</i> L.	+	+	1	+	.	1	+	.	+	+	IV
<i>Rumex acetosella</i> L.	1	1	+	1	.	1	1	.	1	1	IV
<i>Sedum acre</i> L.	+	+	+	+	.	+	.	.	.	+	III
<i>Hieracium pilosella</i> L.	+	+	.	+	1	.	.	+	+	.	III
D.s. of <i>Armerion elongatae</i>											
<i>Herniaria glabra</i> L.	+	+	1	+	.	.	+	+	.	.	III
<i>Dianthus deltoides</i> L.	1	+	.	1	.	1	+	1	+	.	II

Table 7. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
<i>D.s. of Plantaginetea majoris, Plantaginetaea majoris</i>											
<i>Plantago major</i> L.	+	+	+	+	1	+	+	1	+	+	V
<i>D.s. of Agropyro-Rumicion crispi</i>											
<i>Rumex crispus</i> L.	+	.	.	+	.	1	+	.	+	.	III
<i>Potentilla anserina</i> L.	.	.	+	1	.	+	1	.	.	.	II
<i>Carex hirta</i> L.	.	.	.	.	+	.	+	.	.	.	I
Other species											
<i>Agrostis tenuis</i> SIBTH.	1	+	+	1	+	.	+	.	1	+	IV
<i>Medicago lupulina</i> L.	2	1	1	1	+	.	1	+	+	.	IV
<i>Spergularia rubra</i> (L.) J. et C. PR.	+	+	+	+	+	.	.	.	+	.	III
<i>Hieracium umbellatum</i> L.	.	+	.	.	+	+	.	.	.	.	II

Species present in only one relevé: *Centaurium erythraea* RAFN. (6.+), *Crepis tectorum* L. (5.+), *Equisetum pratense* Ehrh. (2.+), *Luzula multiflora* (RETZ.) ZEJ. (3.+), *Verbascum lychnitis* L. (1.+).

The relevés No. 1–10 were made by L. M. SIPAYLOVA in the flood plain of Desna river, June 1–30, 1974–1982.

A rare case with the Desna flood plain. Its communities evolve on territories of true meadows depleted because of severe grazing and ploughing for agricultural cultivation. The communities are related mainly to elevated areas of the central and valley zone of the flood plain and are found chiefly over the middle course of the river. Such habitats are characterized by soddy weakly podzolic sandy soils not suitable for other meadow communities. Ground water lies at a depth of 1.5–1.7 m. Species richness is moderate (18–27 species) and coverage is rather high (85–95 %). The communities of association are dominated by the cold-dry ecology representatives: psychophytes and psychromesophytes (*Festuca ovina*, *Agrostis tenuis*, etc.) with active participation of the *Molinio-Arrhenatheretea* species (*Achillea millefolium*, *Prunella vulgaris*, *Plantago lanceolata*, *Taraxacum officinale*). The present association may be treated as a transition from steppe meadows (*Prata stepposa*) to rough meadow communities (*Prata frigidisicca*). The biological productivity of herbages of this association is rather low and does not exceed 1.2–1.4 metric tons of low-quality hay per hectare. Grassland improvement and rational utilization may contribute to the transition of these communities to the *Festucetum pratensis* association.

Festucion pratensis SIPAYLOVA, MIRKIN, SHELYAG-SOSONKO et V. SOLOMAKHA 1985

The *Festucion pratensis* alliance includes communities of natural inundation meadows. As mentioned above, the typical species of the characteristic combination of *Molinio-Arrhenatheretea* (*Festuca pratensis*, *F. rubra*, *Poa pratensis*, etc.) were used as diagnostic species by which one association has been distinguished (*Festucetum pratensis*) to appear as a typical meadow mesophilous community.

Table 8. *Festucetum pratensis* Soó 1938

Variant	typica				<i>Bromopsis inermis</i>				<i>Dactylis glomerata</i>			
	1	2	3	4	5	6	7	8	9	10	11	12
Number of relevé												
Area analysed (m ²)								100				
Total cover (%)	95	95	95	95	90	90	95	95	90	95	95	90
Number of species	27	21	22	17	37	35	26	31	28	33	31	27
D.s. of association												
<i>Festuca pratensis</i> Huds.	5	5	5	5	4	4	4	4	4	5	4	4
D.s. of variant												
<i>Bromopsis inermis</i> (Leys.) Holub	.	.	.	.	3	4	3	2	.	.	.	.
<i>Dactylis glomerata</i> L.	.	.	.	.	.	.	.	.	4	2	3	3
<i>Agrostis tenuis</i> Sibth.	.	.	.	.	.	.	.	.	+	+	1	+
D.s. of <i>Festucion pratensis</i>												
<i>Festuca rubra</i> L.	2	+	+	1	+	+	+	+	1	1	+	+
<i>Poa pratensis</i> L.	1	+	1	2	+	1	+	+	+	+	+	+
<i>Phleum pratense</i> L.	.	.	+	.	1	1	+	+	.	.	.	.
<i>Trifolium pratense</i> L.	1	+	+	1	.	+	+	.	1	+	+	+
D.s. of <i>Cynosurion</i>												
<i>Trifolium repens</i> L.	+	+	+	+	1	+	1	+	+	+	+	+
<i>Briza media</i> L.	.	.	+	.	.	.	.	.	+	+	+	+
D.s. of <i>Agrostion vinealis</i>												
<i>Dianthus barbassii</i> Vandas	+	.	+	.	+	.	.	+	+	+	.	.
<i>Carex praecox</i> Schreb.	.	.	.	.	+	+	.	.	+	+	+	+
<i>Koeleria delavignei</i> Czern. ex DOMIN.	.	+	.	.	1	1	+	.	.	.	.	.
<i>Agrostis vinealis</i> Schreb.	.	.	+	.	+	+	+	.	.	.	.	.
<i>Trifolium montanum</i> L.	.	.	.	.	+	.	+	.	.	.	.	I
D.s. of <i>Arrhenatherion elatioris</i>												
<i>Tragopogon melanatherus</i> Klok.	.	.	.	.	.	+	1	.	2	1	+	+
D.s. of <i>Arrhenatheretalia</i>												
<i>Lotus corniculatus</i> L.	+	+	.	+	.	+	+	+	+	+	+	+
<i>Rhinanthus serotinus</i> (Schoenb.) Oborny	+	.	1	.	.	1	1	1	+	+	+	+
<i>Leucanthemum vulgare</i> Lam.	+	.	+	.	+	+	.	+	.	.	.	.
<i>Taraxacum officinale</i> Wigg.	+	+	.	+	+	.	.	.	.	.	.	.
D.s. of <i>Molinion</i>												
<i>Allium angulosum</i> L.	+	.	.	.	+	+	.	.	+	.	.	.
D.s. of <i>Molinietalia</i>												
<i>Coronaria flos-cuculi</i> (L.) R. Br.	.	.	.	.	+	.	.	.	+	+	+	II
<i>Deschampsia cespitosa</i> (L.) Beauv.	+	+	+	1	.	.	.	.	+	+	+	III
D.s. of <i>Molinio-Arrhenatheretea</i>												
<i>Alopecurus pratensis</i> L.	+	.	.	+	+	+	+	+	+	+	+	IV
<i>Plantago lanceolata</i> L.	1	+	+	1	1	+	+	+	.	+	+	V
<i>Achillea millefolium</i> L.	1	+	+	+	1	.	.	+	1	+	+	V
<i>Prunella vulgaris</i> L.	1	1	+	1	+	+	.	+	.	+	.	IV
<i>Centaurea jacea</i> L.	+	.	+	.	+	+	.	+	+	+	.	IV

Table 8. (continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	11	12	Const.
<i>Cerastium holosteoides</i> FRIES	+	.	.	+	+	+	.	+	+	+	+	+	IV
<i>Rumex acetosa</i> L.	.	1	+	+	.	+	+	+	+	+	+	+	V
<i>Ranunculus acris</i> L.	+	.	+	+	+	.	+	III
<i>Vicia cracca</i> L.	+	.	+	+	+	+	+	+	III
D.s. of <i>Festuco-Brometea</i>													
<i>Filipendula vulgaris</i> MOENCH	+	+	+	II
D.s. of <i>Sedo-Scleranthetea</i>													
<i>Rumex acetosella</i> L.	.	+	+	+	+	+	II
<i>Potentilla argentea</i> L.	+	.	+	+	.	+	.	.	II
D.s. of <i>Armerion elongatae</i>													
<i>Galium verum</i> L.	+	+	+	+	II
D.s. of <i>Plantaginetea majoris</i>													
<i>Carex hirta</i> L.	+	.	.	.	+	+	+	+	+	+	+	+	IV
<i>Potentilla anserina</i> L.	+	+	.	.	+	+	+	+	.	+	+	+	IV
<i>Plantago major</i> L.	.	+	.	.	+	+	.	.	+	+	+	.	III
<i>Banunculus repens</i> L.	+	.	.	.	+	I
<i>Burnus crispus</i> L.	.	.	+	+	I
Other species													
<i>Trifolium elegans</i> SAVI	.	+	.	.	+	+	+	+	+	+	+	+	IV
<i>Agrostis gigantea</i> ROTH	.	.	.	+	+	.	+	+	+	+	+	+	IV
<i>Euphorbia virgulosa</i> KLOK.	+	.	.	.	+	+	.	+	+	+	.	+	III
<i>Medicago lupulina</i> L.	+	.	+	+	+	+	.	+	III
<i>Stellaria graminea</i> L.	..	+	+	.	.	+	.	+	.	+	+	+	III
<i>Elytrigia repens</i> (L.) NEVSKI	1	+	.	+	+	+	+	2	III
<i>Glechoma hederacea</i> L.	+	.	+	.	+	II
<i>Juncus compressus</i> JATQ.	.	+	.	.	+	+	+	II
<i>Thalictrum lucidum</i> L.	.	+	+	+	.	+	II
<i>Crepis tectorum</i> L.	+	.	.	.	+	.	+	.	II
<i>Calamagrostis epigeios</i> (L.) ROTH	+	+	+	II
<i>Bromus mollis</i> L.	+	+	I

Species present in only one relevé: *Polygala vulgaris* L. (1.+), *Inula britannica* L. (5.+), *Gratiola officinalis* L. (5.+).

The relevés No. 1–10 are made by L. M. SIPAJLOVA in the flood of the Desna river, June 1–30, 1974–1982.

Festucetum pratensis Soó 1938

Table 8

This association is the most common one found in the Desna river flood plain occupying vast areas. Its communities develop mainly in the central and river valley zones where they are found on plain areas; sometimes separate groups of them are formed on the lower terrace zone of the flood plain. The soil cover is dominated by soddy gley loamy and meadow soils; ground water is available at a depth of 1.2–1.5 m,

sometimes at 2 m. The communities are characterized by a high species richness (17–35) and high coverage (90–95 %). The association communities are dominated by the species of the *Festucion pratensis* alliance (*Festuca pratensis*, *F. rubra*, *Poa pratensis*, *Trifolium pratense*). It should also be emphasized that within the association composition a certain role is played by representatives of the *Agrostion vinealis* alliance (*Koeleria delavignei*, *Agrostis vinealis*, *Dianthus barbasi*) which is explained on the one hand by the general trend of the meadow vegetation evolution and, on the other hand, by the anthropogenic factor. The present association is represented by the typicum subassociation. According to the availability of diagnostic species in it the latter is divided into a number of distinct variants: (1) typica combining typical communities distributed over soddy gley loamy soils; (2) *Bromopsis inermis* combining communities with *Bromopsis inermis* as dominant and found in the valley zone of the river flood plain over the soils with a lighter mechanic texture; (3) *Dactylis glomerata* combining typical valley groups with dominating *Dactylis glomerata* characterized by a considerable amount of blanket sand. With correct meadow management the areas occupied by this association may expand. The biological productivity of this association's herbage is rather high and varies between 3.5–5.0 metric tons of high-quality hay per hectare.

Cynosurion cristati Br.—BL. et R. Tx. 1943

The *Cynosurion* alliance includes communities of true postsylvan meadows spreading over podzolized soils. It is identified by such species as *Agrostis tenuis*, *Anthoxanthum odoratum*, *Cynosurus cristatus*, *Briza media*. These communities are also subject to xerophytization. In the Desna river flood plain this alliance is represented by two associations: *Anthoxantho-Agrostietum tenuis* and *Festuco-Cynosuretum cristati*. Their geobotanical characteristic is given in Tables 9—10.

Anthoxantho-Agrostietum tenuis SILL. 1933 em. JURKO 1969

Table 9

This association is a rare phenomenon in the Desna flood plain. Its communities occupy small areas in the central, sometimes valley, zone of the flood plain in the middle course and the up-stream of the river. They are related to soddy soils which do not depend on alluvial processes. The soil cover is dominated by soddy-gley sandy loam and soddy podzolized soils; ground water is found at the depth of 1.2–1.5 m. The communities are characterized by a moderate species richness (14–34) and a high projection coverage (90–95 %). The association is dominated by *Anthoxanthum odoratum* and *Agrostis tenuis* with significant participation of the *Molinio-Arrhenatheretea* species (*Festuca pratensis*, *Prunella vulgaris*, *Rumex acetosa*, *Achillea millefolium*, etc.). The present association includes only one subassociation typicum spread over elevated areas of the flood plain which appears in two variants: (1) typica combining groups with soddy podzolized sandy loam soils and weakened or no alluvial process; (2) *Briza media* combining the communities of the soddy and

Table 9. *Anthoxantho-Agrostietum tenuis* SILL. 1933 em. JURKO 1969 typicum

Variant	typica					Briza media					Const.
	1	2	3	4	5	6	7	8	9	10	
Number of relevé						100					
Area analysed (m ²)	95	95	90	95	95	90	90	95	90	90	
Total cover (%)	31	18	21	25	16	34	27	29	28	29	
Number of species											
D.s. of association											
<i>Anthoxanthum odoratum</i> L.	4	4	4	2	4	4	4	4	5	4	V
<i>Agrostis tenuis</i> SIBTH.	1	2	1	2	3	+	1	1	+	+	V
D.s. of variant											
<i>Briza media</i> L.	+	.	.	.	.	3	3	4	3	4	III
<i>Medicago lupulina</i> L.	.	.	.	.	.	2	2	2	2	+	III
D.s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	+	+	+	1	.	+	+	+	+	1	V
<i>Cynosurus cristatus</i> L.	1	.	.	1	+	1	.	+	.	.	III
D.s. of <i>Agrostion vinealis</i>											
<i>Agrostis vinealis</i> SCHREB.	+	.	.	.	.	+	+	.	.	+	II
<i>Stellaria hippocionta</i> (CZERN.) KLOK.	+	+	+	.	.	.	.	.	.	.	II
<i>Carex praecox</i> SCHREB.	+	.	.	.	+	.	.	.	.	+	II
<i>Dianthus barbassii</i> VANDAS	+	.	.	.	.	.	.	.	.	+	I
<i>Koeleria delavignei</i> CZERN. ex DOMIN	.	.	.	.	2	.	+	.	.	.	I
D.s. of <i>Festucion pratensis</i>											
<i>Festuca pratensis</i> Huds.	1	2	2	1	2	2	1	1	1	3	V
<i>F. rubra</i> L.	3	.	.	4	4	1	.	.	.	2	III
<i>Trifolium pratense</i> L.	+	+	1	.	1	+	.	.	.	.	III
<i>Phleum pratense</i> L.	.	.	+	1	.	1	1	1	1	.	III
<i>Poa pratensis</i> L.	.	.	.	3	.	.	.	.	.	+	I
D.s. of <i>Arrhenatherion elatioris</i>											
<i>Galium pseudomollugo</i> KLOK.	.	.	.	.	.	1	+	1	+	+	III
<i>Campanula patula</i> L.	.	.	.	+	+	.	.	.	.	.	I
D.s. of <i>Arrhenatheretalia</i>											
<i>Lotus corniculatus</i> L.	1	+	1	+	.	2	1	+	2	1	V
<i>Leucanthemum vulgare</i> LAM.	+	1	+	.	.	1	2	+	1	.	IV
<i>Rhinanthus alectorolophus</i> (SCOP.) POLL.	+	.	.	+	.	+	+	+	+	.	III
<i>Bromus mollis</i> L.	.	.	+	.	+	+	.	.	.	.	II
<i>Carex leporina</i> L.	.	.	.	.	+	.	+	.	.	.	I
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Prunella vulgaris</i> L.	+	1	1	+	.	2	1	1	2	1	V
<i>Achillea millefolium</i> L.	+	.	.	+	+	1	+	+	+	+	IV
<i>Cerastium holosteoides</i> FRIES	+	.	.	1	.	+	1	+	1	+	IV
<i>Rumex acetosa</i> L.	.	+	+	+	.	+	+	+	+	.	IV
<i>Centaurea jacea</i> L.	.	1	+	.	.	+	+	+	+	+	III
<i>Plantago lanceolata</i> L.	+	.	.	+	.	.	.	.	.	.	I
D.s. of <i>Festuco-Brometea</i>											
<i>Filipendula vulgaris</i> MOENCH	+	2	+	.	1	2	+	+	2	1	V
<i>Plantago media</i> L.	+	.	.	2	1	+	1	1	+	+	IV
<i>Veronica spicata</i> L.	.	.	+	.	+	.	.	.	.	.	I

Table 9. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
D.s. of Sedo-Scleranthea											
<i>Rumex acetosella</i> L.	+	.	.	1	+	+	+	+	+	.	IV
<i>Potentilla argentea</i> L.	+	+	1	1	.	.	.	.	.	+	III
<i>Jasione montana</i> L.	.	+	+	I
D.s. of Plantaginetea majoris,											
<i>Plantaginetalia majoris</i>											
<i>Lysimachia nummularia</i> L.	.	.	+	.	.	+	+	+	+	.	III
D.s. of Agropyro-Rumicion crispi											
<i>Carex hirta</i> L.	+	.	.	2	.	.	+	+	+	+	III
<i>Ranunculus repens</i> L.	+	+	+	+	II
<i>Leontodon autumnalis</i> L.	+	+	I
<i>Rumex crispus</i> L.	.	+	+	I
Other species											
<i>Polygala vulgaris</i> L.	+	+	.	+	+	1	III
<i>Equisetum arvense</i> L.	.	.	.	+	+	1	+	1	1	.	III
<i>Agrostis gigantea</i> ROTH	+	1	.	1	1	.	II
<i>Trifolium elegans</i> SAVI	+	.	.	1	.	+	.	.	.	.	II
<i>Rumex confertus</i> WILLD.	+	+	+	+	.	II
<i>Potentilla erecta</i> (L.) RAEUSCH.	.	+	+	I

Species present in only one relevé: *Coronaria flos-cuculi* (L.) R. BR. (2.+), *Calamagrostis epigeios* (L.) ROTH (6.+), *Crepis tectorum* L. (4.+), *Equisetum pratense* L. (1.+), *Euphorbia virgultosa* KLOK. (10.+), *Glechoma hederacea* L. (10.+), *Hieracium pilosella* L. (4.+), *Stellaria graminea* L. (4.+), *Taraxacum officinale* Wigg. (10.+), *Trifolium montanum* L. (1.+).

The relevés No. 1–10 are made by L. M. SIPAJLOVA in the flood plain of Desna river, June 1–30, 1974–1982.

more moistened and intensively utilized sandy loam soils. Over the recent years a certain expansion is observed of the areas occupied by communities of the present association. Biological productivity of herbages is 20–35 metric tons of medium-quality hay per hectare.

Festuco-Cynosuretum cristati R. Tx. ap. Bük. 1942.

Table 10

As in Table 9, this association is not common for the Desna river flood plain except the river middle course and up-stream. Its communities are developed on the boundary between the central and the valley zones of the flood plain and are related to the top and medium parts of the slopes of low ridges and elevated plains. They grow over soddy, soddy-podzolic gley sandy loam soils; the ground water is available at a depth of 1.0–1.5 m. The communities have a moderate species richness (17–31) and a high coverage (80–95 %). The communities of the association are dominated by

Table 10. *Festuco-Cynosuretum cristati* R. Tx. ap BÜK. 1942

Subassociation	typicum a)					poetosum b) angustifoliae					Const.
	1	2	3	4	5	6	7	8	9	10	
Number of relevé											
Area analysed (m ²)						100					
Total cover (%)	90	95	95	95	95	90	90	90	80	85	
Number of species	17	20	23	21	24	31	27	28	26	25	a) b)
D.s. of association											
<i>Cynosurus cristatus</i> L.	5	5	5	5	4	5	4	5	4	4	V V
<i>Festuca pratensis</i> Huds.	2	2	1	1	+	1	2	1	2	1	V V
<i>F. rubra</i> L.	.	+	+	+	3	1	2	1	1	3	IV V
D.s. of subassociation <i>poetosum angustifoliae</i>											
<i>Poa angustifolia</i> L.	.	.	.	.	.	1	1	+	1	1	.
<i>Trifolium degans</i> SAVI	.	.	.	.	.	1	+	+	+	+	.
<i>Dianthus deltoides</i> L.	.	.	.	.	.	+	+	+	+	+	IV
<i>D. borbasii</i> VANDAS	.	.	.	.	.	+	+	+	+	+	IV
D.s. of <i>Cynosurion cristati</i>											
<i>Anthoxanthum odoratum</i> L.	2	+	1	+	+	2	1	.	1	.	V III
<i>Trifolium repens</i> L.	.	.	.	.	+	+	.	+	+	+	I IV
<i>Briza media</i> L.	.	.	.	.	.	1	+	.	.	.	III
D.s. of <i>Agrostion vinealis</i>											
<i>Koeleria delavignei</i> CZERN. ex DOMIN	1	+	+	1	1	.	+	+	+	+	V IV
<i>Agrostis vinealis</i> SCHREB.	+	.	.	.	.	+	+	.	+	+	II III
<i>Carex praecox</i> SCHREB.	.	.	.	.	+	.	.	.	+	.	I I
D.s. of <i>Festucion pratensis</i>											
<i>Trifolium pratense</i> L.	+	+	+	+	+	+	+	+	+	+	V V
<i>Phleum pratense</i> L.	+	1	+	+	+	+	.	.	.	.	V I
<i>Poa pratensis</i> L.	.	.	.	+	.	+	.	+	+	.	I III
D.s. of <i>Arrhenatheretalia</i>											
<i>Lotus corniculatus</i> L.	+	+	+	+	+	+	+	+	+	+	V V
<i>Carex leporina</i> L.	+	+	+	.	+	.	.	.	.	.	IV .
<i>Rhinanthus electrorolophus</i> (SCOP.) POLL.	.	1	+	+	.	.	.	+	.	.	III I
<i>Taraxacum officinale</i> WIGG.	.	.	.	+	.	+	+	+	.	+	I IV
D.s. of <i>Molinietalia</i>											
<i>Coronaria flos-cuculi</i> (L.) R. BR.	1	1	+	+	+	+	+	1	+	+	V V
<i>Deschampsia cespitosa</i> (L.) BEAUV.	.	+	.	.	.	+	.	.	.	.	I I
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Plantago lanceolata</i> L.	1	2	1	1	+	+	1	+	1	1	V V
<i>Achillea millefolium</i> L.	.	+	+	+	.	+	+	+	+	+	III V
<i>Alopecurus pratensis</i> L.	+	+	+	.	.	.	.	.	.	.	III .
<i>Rumex acetosa</i> L.	+	+	+	.	+	+	.	.	.	.	IV I
<i>Cerastium holosteoides</i> FRIES	.	+	+	.	+	+	.	.	.	.	III I
<i>Prunella vulgaris</i> L.	.	.	1	1	.	1	+	+	.	+	II IV
<i>Centaurea jacea</i> L.	.	.	.	.	.	+	.	+	.	.	II
D.s. of <i>Festuco-Brometea</i>											
<i>Filipendula vulgaris</i> MOENCH.	.	.	.	1	+	.	+	+	+	II III	
<i>Plantago media</i> L.	.	.	.	.	+	.	+	.	.	I I	

Table 10. (Continued 1)

Number of relevé	1	2	3	4	5	6	7	8	9	10	a)	b)
<i>D.s. of Sedo-Scleranthetea</i>												
<i>Potentilla argentea</i> L.	.	.	.	.	+	1	+	+	+	+	I	V
<i>Hieracium pilosella</i> L.	.	.	.	.	1	.	+	.	.	.	I	I
<i>D.s. of Armerion elongatae</i>												
<i>Galium verum</i> L.	.	.	.	.	+	.	.	+	+	+	I	III
<i>Herniaria glabra</i> L.	.	.	.	.	+	.	.	+	.	.	I	I
<i>D.s. of Plantaginetea majoris</i>												
<i>Ranunculus repens</i> L.	1	+	+	+	.	+	+	+	+	+	IV	V
<i>Carex hirta</i> L.	.	.	.	+	.	.	+	+	+	+	I	IV
Other species												
<i>Medicago lupulina</i> L.	+	+	+	.	+	+	+	+	+	+	IV	V
<i>Equisetum arvense</i> L.	+	+	+	+	.	+	.	+	.	+	IV	III
<i>Ranunculus polyanthemos</i> L.	.	.	+	+	.	.	+	+	+	.	II	III
<i>Agrostis gigantea</i> ROTH	.	.	+	.	+	.	.	.	.	.	II	I
<i>Euphrasia stricta</i> D. WOLFF ex J.F.Z.	.	.	+	+	.	+	.	.	.	+	II	II
<i>Glechoma hederacea</i> L.	.	.	.	.	.	.	+	+	.	.	II	

Species present in only one relevé: *Crepis tectorum* L. (5.+), *Galium pseudomollugo* KLOK. (1.+), *Juncus atratus* KROCK. (6.+), *Orchis coriophora* L. (6.+), *Potentilla erecta* (L.) RAETUSCH. (6.+), *Ranunculus acris* L. (6.+), *Rumex acetosa* L. (6.+).

The relevés No. 1–10 are made by L. M. SIPAJLOVA in the flood plain of Desna river, June 1–30, 1974–1982.

four species: *Cynosurus cristatus*, *Festuca pratensis*, *F. rubra*, *Anthoxanthum odoratum* and also the species of the *Festucion pratensis* and *Agrostion vinealis* alliances which have no high coverage but, on the one hand, prove the connection of these communities with the true meadows and, on the other hand, with the steppe meadows. The association includes two subassociations: (1) typicum combining the typical communities with the soddy-podzolic gley sandy loam soils; (2) *poetosum angustifoliae* combining cenoses with similar soils but with drier ecotopes. Further expansion of this association's areal is doubtful. The biological productivity of the herbage varies between 1.8 and 2.4 metric tons of medium-quality hay per hectare.

The nomenclature type of the subassociation *poetosum angustifoliae* is the relevé No. 10 by L. M. SIPAJLOVA (June 12, 1980) in the central part of the Desna flood plain near the town of Korop (Korop rayon, Chernigov district).

Molinietalia KOCH 1926

Molinion KOCH 1926

The *Molinion* alliance includes communities of moist and wet meadows formed on level and somewhat lowered areas of the flood plain characterized by soddy and meadow gley and peatboggy soils. Syntaxa of the alliance, alongside with charac-

Table 11. *Poo palustris-Alopecuretum pratensis* SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

	1*	2	3	4	5	6	7	8	9	10	Const.
Number of relevé											
Area analysed (m ²)					100						
Total cover (%)					100						
Number of species	22	38	35	11	18	22	26	26	12	12	
D.s. of association											
<i>Poa palustris</i> L.	2	2	3	4	3	4	4	4	5	4	V
<i>Alopecurus pratensis</i> L.	5	5	4	4	4	3	2	3	2	2	V
D.s. of Molinion											
<i>Allium angulosum</i> L.	+	+	.	.	.	+	+	.	.	.	II
<i>Galium boreale</i> L.	+	.	+	.	2	.	1	+	.	.	III
<i>Lysimachia vulgaris</i> L.	+	+	+	.	.	+	+	.	.	.	III
D.s. of Filipendulo-Petasition											
<i>Valeriana wolgensis</i> KOZAK	.	+	+	.	.	.	.	.	.	.	I
<i>V. collina</i> WALLR.	.	.	.	.	+	.	+	.	.	.	I
D.s. of Calthion											
<i>Myosotis palustris</i> (L.) L.	.	+	+	.	.	+	+	.	1	III	
<i>Caltha palustris</i> L.	.	+	.	.	.	+	.	.	.	.	I
D.s. of Molinetalia											
<i>Lathyrus palustris</i> L.	+	.	.	.	.	+	1	1	.	+	III
<i>Deschampsia cespitosa</i> (L.) BEAUV.	+	+	.	.	.	.	+	.	.	.	II
<i>Coronaria flos-cuculi</i> (L.) R. BR.	.	+	+	.	.	+	.	.	.	.	II
<i>Scutellaria hastifolia</i> L.	.	.	+	.	.	+	.	.	.	.	I
D.s. of Cynosurion											
<i>Trifolium repens</i> L.	+	.	+	+	.	+	1	2	1	+	IV
D.s. of Festucion pratensis											
<i>Festuca pratensis</i> Huds.	1	2	1	2	2	1	+	+	1	+	V
<i>Poa pratensis</i> L.	1	1	1	1	+	2	1	+	+	+	V
<i>Trifolium pratense</i> L.	.	.	.	.	1	.	+	.	.	.	I
D.s. of Arrhenatheretalia											
<i>Lotus corniculatus</i> L.	1	+	.	.	.	.	.	.	.	.	I
<i>Carex leporina</i> L.	.	+	.	.	+	.	.	.	.	.	I
D.s. of Molinio-Arrhenatheretea											
<i>Vicia cracca</i> L.	+	+	.	+	2	1	1	1	+	.	II
<i>Centaurea jacea</i> L.	+	+	+	+	.	.	.	+	.	.	III
<i>Ranunculus acris</i> L.	+	.	+	.	+	.	+	+	.	.	III
<i>Lathyrus pratensis</i> L.	·	+	+	.	.	+	+	.	.	+	III
<i>Prunella vulgaris</i> L.	·	+	.	.	.	+	.	.	.	+	II
<i>Sympythium officinale</i> L.	·	+	+	.	.	.	.	.	.	+	II
<i>Plantago lanceolata</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>Achillea millefolium</i> L.	+	.	+	.	.	.	.	.	.	.	I
D.s. of Phragmitetea											
<i>Alisma lanceolatum</i> WITTH.	.	+	+	.	.	+	.	+	.	.	II
D.s. of Magnocaricion											
<i>Carex vulpina</i> L.	1	+	+	.	.	+	+	+	+	+	IV
<i>Galium palustre</i> L.	.	+	+	.	.	+	+	+	+	+	III
<i>Phalaroides arundinacea</i> (L.) RAUSCH.	.	+	+	.	+	.	+	.	.	.	II

Table 11. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
D.s. of <i>Sparganio-Glycerion fluitantis</i>											
<i>Glyceria fluitans</i> (L.) R. BR.	.	.	+	.	.	+	I
D.s. of <i>Plantaginetea majoris</i>,											
<i>Plantaginetaea majoris</i>											
<i>Lysimachia nummularia</i> L.	.	+	+	.	.	+	+	.	+	.	III
<i>Agrostis stolonifera</i> L.	+	.	.	+	.	.	+	.	.	.	II
D.s. of <i>Agropyro-Rumicion crispis</i>											
<i>Ranunculus repens</i> L.	+	+	+	.	+	2	+	1	.	.	IV
<i>Carex hirta</i> L.	.	1	+	.	+	+	.	+	.	.	III
<i>Potentilla anserina</i> L.	.	+	+	.	.	1	1	1	.	.	III
Other species											
<i>Agrostis gigantea</i> ROEM.	+	.	+	.	1	+	+	+	+	.	IV
<i>Thalictrum lucidum</i> L.	+	+	+	.	.	+	+	.	.	.	III
<i>Stellaria palustris</i> EHRH.	.	+	+	.	.	+	.	1	+	.	III
<i>Gratiola officinalis</i> L.	+	+	+	1	.	.	II
<i>Equisetum palustre</i> L.	.	+	.	+	+	II
<i>Glechoma hederacea</i> L.	.	+	+	+	.	.	II
<i>Inula britannica</i> L.	.	+	+	+	.	.	II
<i>Elytrigia repens</i> (L.) NEVSKII	.	+	.	.	1	.	.	.	.	+	II
<i>Lythrum virgatum</i> L.	.	+	+	I
<i>Stellaria graminea</i> L.	.	+	+	.	.	.	I

Species present in only one relevé: *Carex disticha* Huds. (2.+), *Cerastium holosteoides* FRIES (3.+), *Eleocharis mamillata* LINDB. fil. (7.+), *E. palustris* (L.) ROEM. et SCHULT. (3.+), *Equisetum pratense* L. (4.+), *Filipendula ulmaria* (L.) MAXIM. (5.+), *Poa trivialis* L. (5.+), *Rorippa anceps* (WAHLENB.) REICHENB. (2.+), *Rumex acetosa* L. (3.+), *R. crispus* L. (8.+), *R. thysiflorus* FINGERH. (7.+), *Vicia tetrasperma* (L.) SCHREB. (4.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of the Desna river, June 1–30, 1974–1982.

istic species of *Molinio-Arrhenatheretea*, contain a number of *Phragmitetea* species (*Carex vulpina*, *Galium palustre*, *Phalaroides arundinacea*, *Glyceria maxima*, etc.). In the Desna river flood plain the alliance is represented by three associations: *Poo palustris-Alopecuretum pratensis*, *Festuco pratensis-Deschampsietum cespitosae* and *Deschampsietum cespitosae*. Geobotanic characteristic of these communities is given in Tabs. 11–13.

Poo palustris-Alopecuretum pratensis SHELYAK-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987, ass. nova hoc loco.

Table 11

This association is widely spread in the Desna river flood plain. Its communities evolve chiefly on lower level areas in the central and valley zones and are characteristic for the up-stream, middle course and the low-stream. They reside on meadow-

gley and meadow-boggy loamy soils; ground water stays at the depth of 0.5—0.7 m, sometimes down to 1 m. The communities have relatively low species richness (11—38) at the optimum (100 %) coverage. The communities of the association are

Table 12. *Festuco pratensis-Deschampsietum cespitosae* SHELYAG-SOSONKO, SIPAYLOVA, V. SOLOMAKHA et MIRKIN 1987

	1*	2	3	4	5	6	7	8	9	10	Const.
	100										
Number of relevé	1*	2	3	4	5	6	7	8	9	10	Const.
Area analysed (m ²)	95	90	95	90	95	95	95	90	95	85	
Total cover (%)	18	16	18	23	15	13	10	14	14	13	
Number of species											
D.s. of association											
<i>Deschampsia cespitosa</i> (L.) BEAUV.	5	5	4	5	5	5	5	4	5	5	V
<i>Festuca pratensis</i> Huds.	3	2	3	3	3	3	2	5	2	3	V
D.s. of Molinion											
<i>Allium angulosum</i> L.	+	.	.	.	+	.	.	.	+	.	II
<i>Galium boreale</i> L.	.	+	.	+	.	.	.	.	.	.	I
D.s. of Molinietalia											
<i>Coronaria flos-cuculi</i> (L.) R. Br.	+	.	+	+	.	+	+	.	+	.	III
D.s. of Cynosurion											
<i>Trifolium repens</i> L.	1	2	+	1	1	.	.	1	+	+	IV
D.s. of Festucion pratensis											
<i>Trifolium pratense</i> L.	1	+	1	+	+	.	+	+	+	1	V
<i>Festuca rubra</i> L.	+	.	+	+	+	+	.	.	+	+	IV
<i>Phleum pratense</i> L.	+	+	.	+	+	.	.	.	.	.	II
<i>Poa pratensis</i> L.	.	.	+	+	+	.	+	+	+	.	II
D.s. of Arrhenatheretalia											
<i>Taraxacum officinale</i> WIGG.	+	.	.	.	.	+	.	+	.	+	II
<i>Lotus corniculatus</i> L.	.	+	.	+	.	•	.	.	.	.	I
D.s. of Molinio-Arrhenatheretea											
<i>Ranunculus acris</i> L.	+	+	+	+	+	.	+	+	+	+	V
<i>Centaurea jacea</i> L.	+	+	+	+	+	+	.	+	.	+	IV
<i>Alopecurus pratensis</i> L.	1	.	+	+	.	+	.	.	+	+	III
<i>Achillea millefolium</i> L.	.	+	+	+	+	.	•	+	.	+	III
<i>Prunella vulgaris</i> L.	+	.	+	+	.	+	.	.	.	.	II
D.s. of Plantaginea majoris											
<i>Carex hirta</i> L.	+	+	+	+	+	+	+	+	+	+	V
<i>Potentilla anserina</i> L.	1	1	+	+	+	+	1	+	+	+	V
<i>Ranunculus repens</i> L.	+	+	1	2	1	+	+	1	1	1	V
Other species											
<i>Carex nigra</i> (L.) REICHARD	1	+	.	+	+	+	.	.	+	.	III
<i>Rumex thyrsiflorus</i> FINGERH.	.	+	+	+	.	.	+	.	.	.	II
<i>Medicago lupulina</i> L.	.	+	+	.	•	+	.	+	.	.	II
<i>Juncus atratus</i> KROCK.	.	.	+	+	.	.	+	+	.	.	II

Species present in only one relevé: *Agrostis gigantea* ROTH (4.+), *Carex panicea* L. (1.+), *Glechoma hederacea* L. (3.+), *Plantago media* L. (4.+).

The relevés No 1—10 are made by L. M. SIPAYLOVA in the flood plain of Desna river, June 1—30, 1974—1982.

dominated by *Poa palustris* and *Alopecurus pratensis* making up a nucleus, as well as by *Molinio-Arrhenatheretea* species (*Festuca pratensis*, *Poa pratensis*, *Plantago lanceolata*, *Centaurea jacea*, etc.) proving the connection between the communities of the association under consideration and true meadows. Nevertheless, the presence of the *Phragmitetea* species (*Carex vulpina*, *Galium palustre*, etc.) testifies to the fact that the given association occupies the boundary between two classes. The communities of the association have manifested a certain stability, over recent years, although further expansion of their geographical range is not expected. The biological productivity of grass stands of the association under consideration is rather high, amounting to 4.0–6.0 metric tons of high-quality hay per hectare. These communities are valuable enough for society to protect them and their seed stock.

Festuco pratensis-Deschampsietum cespitosae SHELYAG-SOSONKO, SIPAYLOVA, V. SOLUMAKHA et MIRKIN 1985

Table 12

This association is rather common in the Desna river plain occupying vast territories in some areas. Its communities are chiefly of the river terrace and the central zones of the flood plain characteristic for all three segments of the river length. These are related to the slightly lowered plain areas. The emergence of this association in the Desna flood plain is connected with the anthropogenic factor, especially with grazing intensity resulting in trampling of the ground, worsening of aeration and changes of the water regime. The soil cover is dominated by soddy-gley loamy soils; ground water is 0.8–1.2 m deep. The communities are characterized by a relatively low richness of species (10–23) with a rather high (85–95 %) coverage. The association's communities are dominated by *Deschampsia cespitosa*, a firm-bunch grass, eutrophic hydromesophytic oxyomesophyte with pronounced eurytopic character and *Festuca pratensis*. Participation of *Molinio-Arrhenatheretea* and *Arrhenatheretalia* species underlines the connection between communities of this association and the *Festucetum pratensis* association. Due to its anthropogenic origin the association is expected to expand its areal in future. The biological productivity of the association's herbages varies between 1.4 and 3.0 metric tons of low-quality hay per ha.

Deschampsietum cespitosae HORVATIĆ 1930

Table 13

This association is not widespread in the Desna flood plain and occupies minor territories. Its communities are formed chiefly in the terrace zone of the flood plain and they are characteristic for the up-stream and the middle course of the river. The soil cover is dominated by peaty and peat-boggy soils with stagnant moistening and ground waters lying at a depth of 0.6–0.8 m. The communities have a low species concentration (13–20) with a high coverage (85–95 %).

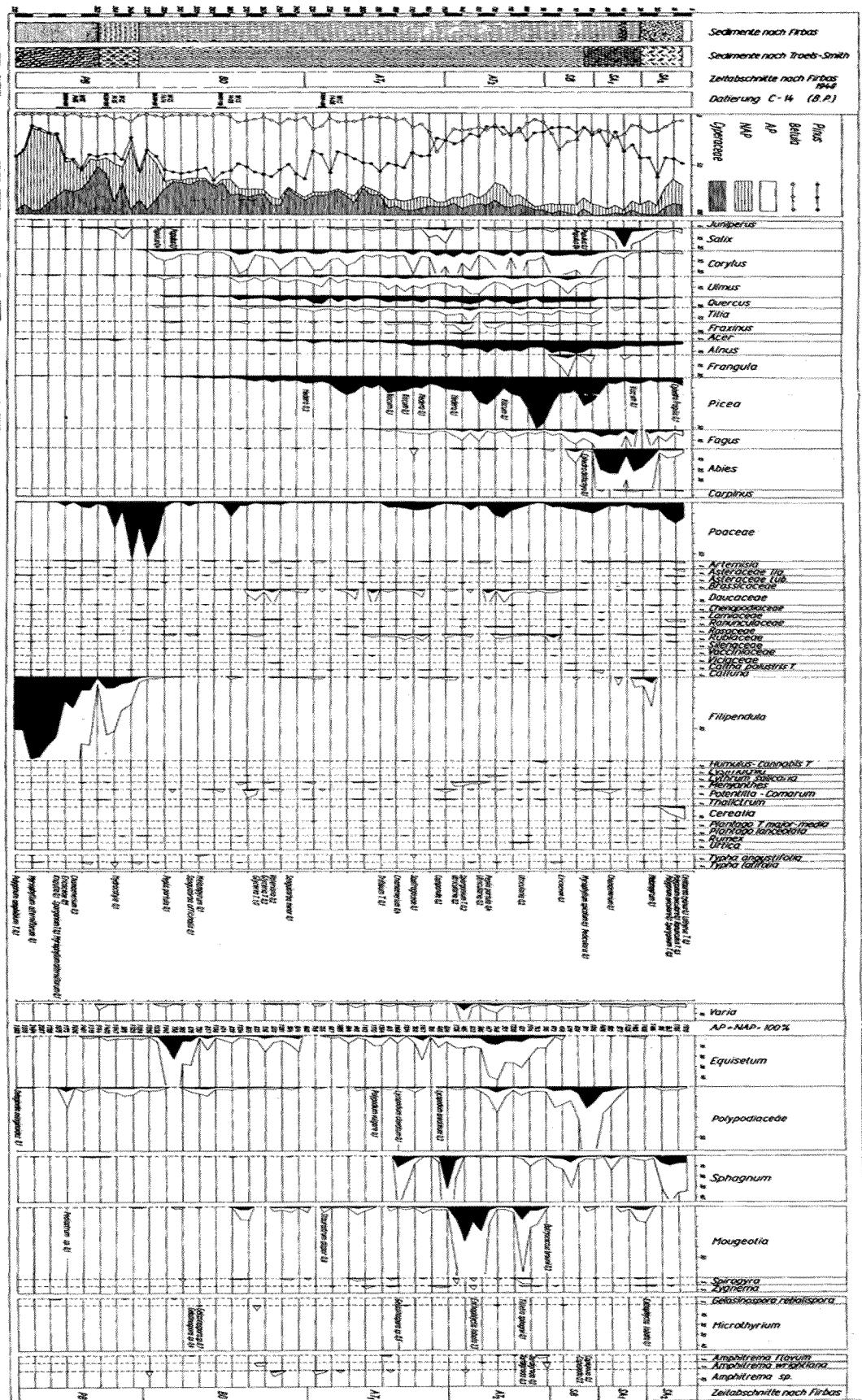


Tabelle 3. Grosssestanalyse des Sediments des Morellouky (profil JC-15-A)

Zeitabschnitt nach Fries Grossstufe/Tiefe cm	SA 2					SA 1					AT 2					AT 1					80					98									
	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
Betula sp. div.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Betula verrucosa Ehrh. vel.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Picea abies (Lam.) Link	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pinus sp. div.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Salix sp. div.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Holzkohle	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tilia palustris L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex cf. elata Bell. ap. All.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex cf. fusca All.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex chordorrhiza Ehrh.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex cf. lasiocarpa Ehrh.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex pseudocyperus L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex rostrata Schkuhr. vel.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vesicaria L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex T. silvatica Huds.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex sp. div.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex sp. div.	Münzel	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cicuta virosa L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comarum palustre L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dauaceae	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Equisetum sp. div.	Wurzelstock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hedysarum trifoliatum L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hemianthus trifoliatum L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedicularis palustris (L.) Hoffm.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phragmites communis Trin.	Zellgewebe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae	Zellgewebe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potentilla sp. div.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ranunculus sp. div.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhynchospora alba Vahl.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spartanium cf. minutum L.	Same	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coenococcum geophilum	sclerotium	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coloptera	Rest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Erklärungen: Number bedeutet Zahl der Funde, + vereinzeltes Vorkommen, ++ häufiges Vorkommen

— 1-й этаж дома № 10 по ул. Симонова в Краснодаре, где в 1943 г. супружеская чета Григорьевых (жена — Екатерина Григорьевна) жила в квартире № 100.

Table 13. *Deschampsietum cespitosae* HORVATIĆ 1930

Variant	typica					<i>Agrostis canina</i>					Const.
	1	2	3	4	5	6	7	8	9	10	
Number of relevē						100					
Area analysed (m ²)	95	95	90	85	90	90	95	90	85	85	
Total cover (%)	20	20	17	14	17	17	17	13	13	13	
Number of species											
D.s. of association											
<i>Deschampsia cespitosa</i> (L.) BEAUV.	4	5	5	5	5	4	4	4	3	4	V
<i>Carex nigra</i> (L.) REICHARD	2	1	+	1	+	1	1	+	1	2	V
D.s. of variant											
<i>Agrostis canina</i> L.	.	.	.	.	.	4	3	3	4	3	III
<i>Carex flava</i> L.	.	.	.	.	.	+	+	+	+	+	III
<i>Juncus atratus</i> KROCK.	.	.	.	.	.	+	+	+	+	+	III
D.s. of Molinion											
<i>Lysimachia vulgaris</i> L.	+	.	+	.	+	.	.	.	.	.	II
<i>Achillea cartilaginea</i> (LEDEB.) BOISS.	.	.	.	.	.	+	.	.	.	+	I
D.s. of Calthion											
<i>Myosotis palustris</i> (L.) L.	+	+	1	+	+	.	.	.	.	.	III
<i>Caltha palustris</i> L.	.	+	.	.	.	+	.	.	.	.	I
D.s. of Molinetalia											
<i>Coronaria fls-cuculi</i> (L.) R. BR.	+	+	+	+	+	+	+	+	+	.	IV
D.s. of Cynosurion											
<i>Trifolium repens</i> L.	1	1	+	+	1	+	.	+	.	+	IV
D.s. of Festucion pratensis											
<i>Festuca pratensis</i> HUDES.	+	+	1	+	+	.	.	+	+	+	IV
<i>Trifolium pratense</i> L.	.	.	.	.	.	+	+	.	.	.	I
<i>Poa pratensis</i> L.	.	+	+	.	.	+	.	.	.	.	II
D.s. of Molinio-Arrhenatheretea											
<i>Ranunculus acris</i> L.	+	1	+	+	1	.	.	.	.	.	III
<i>Cerastium holosteoides</i> FRIES	+	+	+	+	+	.	.	.	+	.	III
<i>Centaura jacea</i> L.	.	.	.	.	+	+	.	.	.	.	I
<i>Lathyrus pratensis</i> L.	.	.	.	.	.	+	+	+	+	.	I
D.s. of Magnocaricion											
<i>Poa palustris</i> L.	1	1	+	+	+	+	+	+	.	.	IV
<i>Carex acuta</i> L.	+	+	+	.	.	+	+	.	.	+	III
<i>Galium palustre</i> L.	+	+	+	.	.	+	+	.	.	+	III
<i>Phalaroides arundinacea</i> (L.) RAUSCH.	.	.	.	.	.	..	.	..	+	+	I
D.s. of Plantaginetea majoris,											
<i>Plantagineta majoris</i>											
<i>Lysimachia nummularia</i> L.	+	+	.	.	.	..	..	..	..	..	III
<i>Agrostis stolonifera</i> L.	+	.	.	+	+	.	.	.	.	.	II
D.s. of Rumicion crispī											
<i>Ranunculus repens</i> L.	2	1	1	+	1	+	+	+	+	+	V
<i>Potentilla anserina</i> L.	+	+	1	+	+	+	+	+	+	+	V
<i>Carex hirta</i> L.	+	+	+	+	+	+	.	.	.	.	III

Table 13. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
Other species											
<i>Beckmannia eruciformis</i> Host	+	+	.	+	II
<i>Medicago lupulina</i> L.	+	+	+	.	.	.	II

Species present in only one: *Agrostis gigantea* ROTH (2.+), *Calamagrostis canescens* (WEB.) ROTH (7.+), *Carex panicea* L. (5.+), *C. rostrata* STOKES (3.+), *C. vulpina* L. (6.+), *Galium aparine* L. (1.+), *Potentilla reptans* L. (5.+), *Rumex acetosa* L. (7.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of the Desna river, June 1–30, 1974–1982.

The association includes two variants: *Carex nigra* and *Agrostis canina*. The first variant combines communities whose herbage is dominated by *Carex nigra* formed on the lowered areas of the terrace with soddy peat-boggy dried soils. The second variant combines groups dominated by *Agrostis canina* evolving on the lowered plains of the central and terrace zones of the flood plain which are characteristic for the wet ecotopes of peaty and peat-boggy soils. Further expansion of territories occupied by the communities of this association is unlikely. The biological productivity of herbage of this association is low and constitutes 1.4–2.0 metric tons of low-quality hay per hectare on the average.

PHRAGMITETEA R. Tx. et PRSG. 1942

Phragmitetalia KOCH 1926

This order unites the syntaxa of boggy and peaty meadows and is indicated by the availability of species among which the most significant are the following species of the *Magnocaricion* alliance: *Carex acuta*, *C. vesicaria*, *C. vulpina*, *C. rostrata*, *Galium palustre*, etc.). The first species may be treated as a diagnostic species not only of the *Magnocaricion* alliance, but also of the respective associations. On the whole, the syntaxa of the *Phragmitetea* class and *Phragmitetalia* order are markedly different from the syntaxa of the *Molinio-Arrhenatheretea* class, while retaining certain common species (*Potentilla anserina*, *Ranunculus repens*, *Alopecurus pratensis*, etc.).

Meadow vegetation of the order under consideration is represented in the Desna flood plain by the *Magnocaricion* alliance.

Magnocaricion KOCH 1926

The *Magnocaricion* alliance combines the communities of the peat and boggy meadows formed on the lowered terrace areas of the flood plain with the meadow gley, peaty and peat-boggy gley soils. The syntaxa of *Magnocaricion* are distinguished

Table 14. *Phalaridetum arundinaceae* LIBBERT 1931

	1	2	3	4	5	6	7	8	9	10	Const.
	100										
	100										
Number of relevé											
Area analysed (m ²)	29	29	32	16	19	27	17	15	33	29	
Total cover (%)											
Number of species											
D.s. of association											
<i>Phalaroides arundinacea</i> (L.) RAUSCH.	5	4	4	5	5	4	5	5	4	4	V
D.s. of <i>Magnocaricion</i>											
<i>Carex vulpina</i> L.	1	1	2	2	+	1	1	+	1	2	V
<i>Galium palustre</i> L.	1	1	+	+	.	+	+	.	+	+	IV
<i>Poa palustris</i> L.	.	2	1	.	2	2	.	.	2	.	III
<i>C. acuta</i> L.	1	.	.	.	1	2	.	.	+	.	II
<i>Scutellaria galericulata</i> L.	+	+	.	+	.	.	.	.	.	.	II
D.s. of <i>Phragmition</i>											
<i>Batumus umbellatus</i> L.	.	.	.	+	.	+	.	.	.	+	II
<i>Oenanthe aquatica</i> (L.) POIR.	+	.	.	.	+	.	.	.	.	.	I
D.s. of <i>Spargano-Glycerion fluitantis</i>											
<i>Veronica anagallis-aquatica</i> L.	+	.	.	.	.	.	.	.	.	+	I
<i>Glyceria fluitans</i> (L.) R. BR.	+	.	.	.	1	.	.	.	.	.	I
D.s. of <i>Phragmitetea, Phragmitetalia</i>											
<i>Glyceria maxima</i> (C. HARTM.) HOLMB.	1	2	.	2	2	.	.	+	.	.	III
<i>Eleocharis palustris</i> (L.) R. BR.	1	+	.	1	+	+	.	.	.	+	III
<i>Alisma plantago-aquatica</i> L.	+	+	.	1	+	.	.	.	.	.	II
<i>Sium latigolium</i> L.	.	+	.	.	+	.	.	.	.	.	I
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Sympyton officinale</i> L.	+	+	+	1	+	+	+	+	+	+	V
<i>Alopecurus pratensis</i> L.	1	2	2	1	+	1	2	+	+	1	V
<i>Vicia cracca</i> L.	.	1	+	.	.	.	1	1	+	+	III
<i>Ranunculus acris</i> L.	+	+	.	.	.	.	.	+	.	.	II
<i>Poa trivialis</i> L.	.	.	+	.	.	.	.	+	.	.	I
D.s. of <i>Festucion pratensis</i>											
<i>Trifolium pratense</i> L.	.	.	+	.	.	.	.	.	+	+	II
<i>Festuca pratensis</i> Huds.	+	.	+	.	.	.	.	.	.	.	I
D.s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	.	1	2	.	.	.	.	.	1	+	II
D.s. of <i>Molinietalia</i>											
<i>Coronaria flos-cuculi</i> (L.) R. BR.	+	.	1	.	.	.	+	+	+	+	III
<i>Filipendula ulmaria</i> (L.) MAXIM.	.	.	1	.	.	+	+	.	1	+	III
<i>Lathyrus palustris</i> L.	.	.	1	.	.	+	.	.	1	+	II
<i>Equisetum palustre</i> L.	.	.	.	.	.	+	+	+	.	+	II
<i>Scutellaria hastifolia</i> L.	.	.	.	.	.	2	.	.	+	.	II
<i>Deschampsia cespitosa</i> (L.) BEAUV.	.	.	.	.	.	.	.	+	+	.	I
D.s. of <i>Molinion</i>											
<i>Allium angulosum</i> L.	+	+	+	+	.	+	.	.	+	+	IV
<i>Lysimachia vulgaris</i> L.	.	+	1	.	.	+	+	+	+	+	IV
<i>Thalictrum flavum</i> L.	.	.	+	.	.	.	.	+	.	.	I
<i>Achillea cartilaginea</i> (LEDEB.) BOISS.	.	.	+	.	.	.	.	+	.	.	I

Table 14. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
D.s. of Calthion											
<i>Myosotis palustris</i> (L.) L.	+	1	1	.	+	1	.	.	+	+	IV
<i>Caltha palustris</i> L.	.	.	.	.	+	.	+	.	.	.	I
D.s. of Filipendulo-Petasition											
<i>Valeriana officinalis</i> L.	.	+	+	.	.	+	.	.	+	.	II
D.s. of Plantaginetea majoris, Plantaginetalia majoris											
<i>Lysimachia nummularia</i> L.	1	+	1	1	.	1	1	+	+	1	V
<i>Agrostis stolonifera</i> L.	.	.	.	.	+	.	2	.	+	+	II
D.s. of Agropyro-Rumicion crispae											
<i>Ranunculus repens</i> L.	1	1	1	1	1	2	1	1	+	+	V
<i>Carex hirta</i> L.	+	.	+	.	.	.	1	.	+	+	III
<i>Rumex crispus</i> L.	.	+	+	.	.	+	.	.	+	.	II
<i>Potentilla anserina</i> L.	.	.	.	.	.	.	.	+	.	+	I
D.s. of Bidentetea tripartiti, Bidentetalia tripartiti											
<i>Rorippa palustris</i> (L.) BESS.	+	+	.	1	1	.	.	.	.	+	III
Other species											
<i>Gratiola officinalis</i> L.	1	+	+	1	+	+	.	.	+	+	IV
<i>Beckmannia eruciformis</i> HOST	2	.	.	.	1	1	.	.	+	.	II
<i>Stellaria palustris</i> RETZ.	+	+	.	.	.	+	.	.	+	.	II
<i>Agrostis gigantea</i> ROTH	+	.	+	.	.	.	+	.	+	.	II
<i>Juncus atratus</i> KROCK.	1	1	.	.	+	.	.	.	.	.	II
<i>Euphorbia palustris</i> L.	.	+	+	1	.	.	.	.	+	.	II
<i>Thalictrum lucidum</i> L.	.	+	1	.	.	+	.	.	+	.	II
<i>Lythrum virgatum</i> L.	.	.	+	.	.	+	.	.	+	+	II
<i>Veronica scutellata</i> L.	.	.	+	.	.	+	.	.	+	.	II
<i>Betonica officinalis</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>Galium pseudomollugo</i> KLOK.	.	.	+	+	.	.	.	.	.	.	I
<i>Angelica sylvestris</i> L.	.	.	+	.	.	.	.	+	.	.	I

Species present in only one relevé: *Alopecurus geniculatus* L. (9.+), *Carex leporina* L. (2.+), *C. vesicaria* L. (1.+), *Galium aparine* L. (8.+), *Mentha arvensis* L. (2.+), *Ranunculus flammula* L. (6.+), *Rorippa sylvestris* (L.) BESS. (7.+), *Rumex confertus* WILLD. (1.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of the Desna river, June 1–30, 1974–1982.

by the highest representativity of diagnostic groups of each association included in the association alliance: *Phalaridetum arundinaceae*, *Caricetum vulpinae*, *Caricetum gracilis*, *Caricetum vesicariae*, *Caricetum rostratae* and *Carici acutae-Glycerietum maximae*. Their characteristics are listed in Tables 14–19.

Phalaridetum arundinaceae LIBBERT 1931

Table 14

This association is rather common in the Desna flood plain though it occupies small areas. Communities of this association are located for the most part in the

Table 15. *Caricetum vulpinae* Nowiński 1928

	1	2	3	4	5 100	6	7	8	9	10	Const.
Number of relevé											
Area analysed (m ²)											
Total cover (%)											
Number of species	13	14	27	17	16 100	15	14	14	9	9	
D.s. of association											
<i>Carex vulpina</i> L.	4	5	4	5	4	5	4	4	5	4	V
D.s. of <i>Magnocaricion</i>											
<i>C. acuta</i> L.	2	1	1	+	1	+	+	2	+	1	V
<i>Poa palustris</i> L.	1	1	.	1	+	+	1	+	.	+	IV
<i>Phalaroides arundinacea</i> (L.) RAUSCH.	.	.	+	.	1	+	.	+	.	+	II
<i>Galium palustre</i> L.	.	.	.	.	.	.	.	+	+	+	I
D.s. of <i>Sparganio-Glycerion fluitantis</i>											
<i>Glyceria fluitans</i> (L.) R. BR.	+	.	+	1	.	+	.	.	.	.	II
D.s. of <i>Phragmitetea, Phragmitetalia</i>											
<i>G. maxima</i> (C. HARTM.) HOLMB.	1	1	.	1	+	+	+	1	+	.	IV
<i>Alisma plantago-aquatica</i> L.	.	+	+	+	.	+	+	+	.	+	II
<i>Mentha aquatica</i> L.	.	+	+	+	.	+	+	+	.	+	II
<i>Eleocharis palustris</i> (L.) R. BR.	.	.	+	.	+	+	+	+	.	+	II
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Alopecurus pratensis</i> L.	2	2	1	2	2	1	+	1	1	+	V
<i>Vicia cracca</i> L.	1	+	1	.	+	+	+	+	+	+	IV
<i>Rumex acetosa</i> L.	.	+	.	+	.	+	+	+	.	+	II
<i>Ranunculus acris</i> L.	.	.	.	+	+	.	+	.	+	.	I
<i>Centaurea jacea</i> L.	.	.	.	+	+	.	+	+	.	+	I
<i>Ceratium holosteoides</i> FRIES	.	+	+	.	+	.	+	+	.	+	II
D.s. of <i>Festucion pratensis</i>											
<i>Festuca pratensis</i> Huds.	.	.	.	+	+	.	+	+	.	+	II
D.s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	.	1	1	+	.	+	.	.	.	.	II
D.s. of <i>Molinietalia</i>											
<i>Filipendula ulmaria</i> (L.) MAXIM.	.	.	+	.	+	.	+	.	.	.	II
<i>Scutellaria hastifolia</i> L.	.	.	+	+	.	+	+	.	.	.	II
<i>Equisetum palustre</i> L.	.	.	.	1	1	+	.	.	.	.	II
<i>Deschampsia cespitosa</i> (L.) BEAUV.	.	.	+	.	+	.	+	.	.	.	I
<i>Coronaria flos-cuculi</i> (L.) R. BR.	.	.	.	+	+	.	+	.	.	.	I
<i>Lathyrus palustris</i> L.	.	.	.	+	.	+	+	.	.	.	I
D.s. of <i>Molinion</i>											
<i>Galium boreale</i> L.	.	+	.	.	+	+	.	+	.	.	II
<i>Achillea cartilaginea</i> (LEDEB.) BOISS.	.	+	+	.	.	+	.	+	.	.	I
<i>Allium angulosum</i> L.	.	+	+	.	.	+	.	+	.	.	I
D.s. of <i>Filipendulo-Petasition</i>											
<i>Stachys palustris</i> L.	+	+	+	+	.	+	+	.	+	+	IV
<i>Geranium palustre</i> L.	+	.	+	.	+	.	+	.	+	.	II
D.s. of <i>Calthion</i>											
<i>Caltha palustris</i> L.	.	.	+	.	+	.	+	.	+	.	II
<i>Myosotis palustris</i> (L.) L.	.	.	.	+	+	.	+	+	+	.	II

Table 15. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
D.s. of <i>Plantaginetea majoris</i> , <i>Plantaginetalia majoris</i>											
<i>Lysimachia nummularia</i> L.	1	1	.	1	+	+	.	.	.	+	III
<i>Agrostis stolonifera</i> L.	1	.	+	.	+	.	+	.	.	.	II
D.s. of <i>Agropyro-Rumicion crispi</i>											
<i>Ranunculus repens</i> L.	.	1	1	1	.	+	.	+	+	.	III
<i>Carex hirta</i> L.	.	+	+	.	.	+	.	+	.	.	II
<i>Potentilla anserina</i> L.	.	.	.	.	+	.	.	+	.	.	I
Other species											
<i>Agrostis gigantea</i> ROTH	1	1	+	.	+	.	.	+	+	.	III
<i>Beckmannia eruciformis</i> HOST	.	1	2	.	+	+	.	+	+	.	III
<i>Juncus atratus</i> KROCK.	.	1	+	+	.	.	+	.	.	.	II
<i>Carex nigra</i> (L.) REICHARD	.	+	1	.	+	.	.	+	.	.	II
<i>Stellaria palustris</i> RETZ.	.	.	+	.	+	+	.	.	.	+	II

Species present in only one relevé: *Gratiola officinalis* L. (5.+), *Innula britannica* L. (3.+), *Mentha arvensis* L. (1.+), *Myosotis caespitosa* K. F. SCHULTZ (5.+), *Rumex confertus* WILLD. (2.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of the Desna river, June 1–30, 1974–1982.

central zone of the flood plain and cover the narrow hollows periodically flooded and enveloped by a layer of the fertile silt deposition. Beneath them lie meadow-boggy gley and soddy-gley loamy soils; at a depth of 0.1–0.3 m ground water may be found. In dried areas this depth is 0.8 m. The communities are notable for a moderate species concentration (16–33) and optimum coverage (100 %). The composition of the association is dominated by *Phalaroides arundinacea* and species of the *Magnocaricion* alliance (*Carex vulpina*, *C. acuta*). The biological productivity of herbages of this association is high and amounts to 4.5–5.0 metric tons of high-quality hay per hectare.

Caricetum vulpinae NOWIŃSKI 1928

Table 15

This association is found very frequently in the Desna flood plain without occupying large areas. Its communities concentrate in shallow and narrow hollows and lowered plains in the terrace and central zones of the river flood plain along the entire length of the river valley. Lying below them are meadow-boggy gley-loamy soils followed by ground waters which occur at a depth of 0.6–0.8 m the beginning of the summer season. The communities are characterized by a low richness of species (10–27) and a high coverage (100 %). The association's communities are dominated by *Carex vulpina*, *C. acuta* and *Poa palustris* being the basic floristic nucleus. Participa-

Table 16. *Caricetum gracilis* (ALMQVIST 1929) R. Tx. 1937

	1	2	3	4	5 100	6 100	7	8	9	10	Const.
Number of relevé											
Area analysed (m ²)											
Total cover (%)											
Number of species	24	31	20	18	20	20	23	26	29	28	
D.s. of association											
<i>Carex acuta</i> L.	5	5	5	4	5	4	4	4	5	4	V
D.s. of <i>Magnocaricion</i>											
<i>C. vulpina</i> L.	1	1	2	.	.	2	2	2	2	1	IV
<i>Poa palustris</i> L.	+	+	+	+	.	+	2	+	+	2	IV
<i>Galium palustre</i> L.	+	1	.	1	+	.	2	1	.	1	IV
<i>C. vesicaria</i> L.	.	.	.	.	.	2	1	2	+	1	III
<i>Phalaroides arundinacea</i> (L.) RAUSCH.	.	+	.	.	.	2	.	.	.	2	II
<i>Iris pseudacorus</i> L.	.	.	.	.	.	.	.	+	.	+	I
<i>C. disticha</i> HUDD.	.	+	.	.	.	+	.	.	.	.	I
D.s. of <i>Phragmition</i>											
<i>Oenanthe aquatica</i> (L.) POIR.	.	+	.	.	+	.	.	.	.	.	I
<i>Equisetum fluviatile</i> L.	.	+	.	.	+	.	.	.	.	.	I
<i>Butomus umbellatus</i> L.	.	+	.	.	.	.	.	+	.	.	I
D.s. of <i>Phragmitetea</i> , <i>Phragmitetalia</i>											
<i>Phragmites australis</i> (CAV.) TRIN. ex STEUD.	.	.	+	.	.	.	.	.	.	.	I
<i>Mentha aquatica</i> L.	.	.	+	.	.	+	1	.	+	+	III
<i>Aliaria plantago-aquatica</i> L.	.	.	.	+	+	.	.	.	.	.	I
<i>Rumex hydrolapathum</i> HUDD.	.	.	.	.	.	.	+	.	.	+	I
<i>Glyceria maxima</i> (C. HARTM.) HOLMB.	.	.	.	.	.	.	+	.	.	+	I
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Alopecurus pratensis</i> L.	.	+	.	1	+	.	2	+	+	+	IV
<i>Ceratium holosteoides</i> FRIES	+	+	1	.	.	.	.	+	1	.	III
<i>Vicia cracca</i> L.	.	.	.	.	.	.	+	+	+	+	II
<i>Ranunculus acris</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>Lathyrus pratensis</i> L.	+	.	.	.	.	.	.	.	+	.	I
<i>Centaurea jacea</i> L.	.	.	+	.	.	.	.	.	+	.	I
<i>Prunella vulgaris</i> L.	.	.	+	.	.	.	.	+	.	+	I
D.s. of <i>Festucion pratensis</i>											
<i>Festuca pratensis</i> HUDD.	.	.	+	.	+	+	.	1	+	1	III
D.s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	+	.	.	.	+	+	.	+	+	.	III
D.s. of <i>Molinietalia</i>											
<i>Coronaria flos-cuculi</i> (L.) R. BR.	+	+	+	.	+	.	.	+	+	+	IV
<i>Lathyrus palustris</i> L.	+	+	.	+	+	+	+	+	+	+	IV
<i>Equisetum palustre</i> L.	.	.	.	+	.	1	+	.	.	.	II
<i>Deschampsia cespitosa</i> (L.) BEAUV.	+	+	.	.	.	.	.	.	.	.	I
<i>Filipendula ulmaria</i> (L.) MAXIM.	.	.	.	+	.	.	.	+	.	.	I
D.s. of <i>Molinion</i>											
<i>Achillea cartilaginea</i> (LEDEB.) BOISS.	.	.	.	.	+	.	+	.	.	.	I
<i>Sympodium officinale</i> L.	.	.	+	.	+	.	+	.	+	+	III
<i>Allium angulosum</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>Lysimachia vulgaris</i> L.	.	+	.	.	.	.	.	.	+	.	I

Table 16 (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
<i>D.s. of Filipendulo-Petasition</i>											
<i>Valeriana wolgensis</i> KOZAK.	.	.	+	.	.	.	.	.	+	.	I
<i>D.s. of Calthion</i>											
<i>Caltha palustris</i> L.	+	+	1	+	+	.	.	.	1	+	IV
<i>Myosotis palustris</i> (L.) L.	+	1	+	1	+	.	1	.	1	1	IV
<i>D.s. of Plantaginetea majoris</i>											
<i>Lysimachia nummularia</i> L.	+	+	.	1	+	.	1	+	1	1	IV
<i>Agrostis stolonifera</i> L.	.	.	.	.	.	+	+	.	.	.	I
<i>D.s. of Agropyro-Rumicion crispis</i>											
<i>Ranunculus repens</i> L.	+	+	1	2	.	1	2	1	1	1	V
<i>Carex hirta</i> L.	+	+	.	+	+	.	.	+	.	+	III
<i>Rumex crispus</i> L.	.	+	+	.	.	.	+	+	.	.	III
<i>Potentilla anserina</i> L.	+	+	.	.	.	.	.	.	.	.	I
<i>D.s. of Bidentetea tripartitii</i>											
<i>Rorippa palustris</i> (L.) BESS.	.	.	.	.	+	1	1	+	.	.	II
Other species											
<i>Carex nigra</i> (L.) REICHARD	.	+	.	+	+	1	1	+	.	+	IV
<i>Juncus atratus</i> KROCK.	1	+	1	+	.	2	.	.	+	+	IV
<i>Gratiola officinalis</i> L.	+	+	1	.	+	.	1	+	1	.	IV
<i>Orchis palustris</i> JACQ.	+	+	+	.	.	.	.	+	+	+	IV
<i>Beckmannia eruciformis</i> HOST	.	+	.	.	.	1	1	.	.	.	II
<i>Agrostis gigantea</i> ROTH	1	.	.	+	.	.	.	+	+	+	II
<i>Lythrum virgatum</i> L.	.	+	.	.	.	+	.	+	.	.	II
<i>Thalictrum lucidum</i> L.	.	+	+	.	.	.	.	.	+	+	II
<i>Rumex thyrsiflorus</i> FINGERH.	.	.	.	.	.	1	.	.	+	+	II
<i>Elytrigia repens</i> (L.) NEVSKI	.	.	.	.	+	.	.	+	.	.	I
<i>Stellaria palustris</i> RETZ.	+	.	.	.	.	.	.	.	+	.	I

Species present in only one relevé: *Agrostis canina* L. (4.+), *Alisma lanceolatum* WITTH. (6.+), *Carex cespitosa* L. (8.+), *C. elongata* L. (10.+), *C. flava* L. (8.+), *Dactylorhiza majalis* (REICH.) P. F. HUNT et SUMMERHAYES (1.+), *Galium aparine* L. (5.+), *Glechoma hederacea* L. (3.+), *Inula britannica* L. (7.+), *Potentilla reptans* L. (9.+), *Ranunculus flammula* L. (6.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood of the Desna river, June 1–30, 1974–1982.

tion of other species is less significant as compared with the previous association. The communities of this association may be treated as a transition from moist to wet meadows. In the Desna flood plain this association exhibits a certain stability, its communities not depending on conditions of utilization.

Caricetum gracilis (ALMQUIST 1929) R. Tx. 1937

Table 16

This association is one of the widespread associations in the Desna flood plain along the entire length of the river. Its communities evolve in the central and terrace

Table 17. *Caricetum vesicariae* BR.-BL. et DENIS 1926

Number of relevé	1	2	3	4	5		6	7	8	9	10	Const.
					100	100						
Area analysed (m ²)												
Total cover (%)												
Number of species	27	15	27	16	21	14	15	15	12	12		
D.s. of association												
<i>Carex vesicaria</i> L.	4	4	4	4	5	4	4	5	4	4	V	
D.s. of <i>Magnocaricion</i>												
<i>Galium palustre</i> L.	1	1	+	+	1	+	+	+	+	+	V	
<i>Carex acuta</i> L.	+	2	+	+	2	+	1	+	+	+	IV	
<i>C. rostrata</i> STOKES	+	+	+	+	+	+	+	+	+	+	III	
<i>Poa palustris</i> L.	+	.	+	+	+	+	1	.	.	.	II	
<i>Phalaroides arundinacea</i> (L.) RAUSCH.	+	.	+	+	+	+	+	+	+	+	II	
<i>C. vulpina</i> L.	.	+	+	+	+	+	+	+	+	+	I	
<i>Iris pseudacorus</i> L.	.	.	+	+	+	+	+	+	+	+	I	
D.s. of <i>Sparganio-Glycerion fluitantis</i>												
<i>Glyceria fluitans</i> (L.) R. BR.	+	+	+	+	+	+	+	+	+	+	IV	
D.s. of <i>Phragmitetea, Phragmitetalia</i>												
<i>G. maxima</i> (C. HARTM.) HOLMB.	2	.	1	.	+	.	+	.	.	.	II	
<i>Alisma plantago-aquatica</i> L.	+	.	+	+	+	+	+	+	+	+	II	
D.s. of <i>Molinio-Arrhenatheretea</i>												
<i>Alopecurus pratensis</i> L.	2	+	+	+	+	1	+	+	+	+	V	
<i>Ranunculus acris</i> L.	+	.	+	+	+	.	+	+	+	+	I	
D.s. of <i>Cynosurion</i>												
<i>Trifolium repens</i> L.	+	.	+	+	+	+	+	+	+	+	I	
D.s. of <i>Molinietalia</i>												
<i>Equisetum palustre</i> L.	+	+	.	+	+	+	+	+	+	+	IV	
<i>Lathyrus palustris</i> L.	+	.	+	+	+	+	+	+	+	+	I	
D.s. of <i>Filipendulo-Petasition</i>												
<i>Stachys palustris</i> L.	.	.	+	+	+	+	+	+	+	+	I	
D.s. of <i>Calthion</i>												
<i>Caltha palustris</i> L.	+	.	+	1	.	+	+	+	+	+	II	
<i>Myosotis palustris</i> (L.) L.	2	1	1	1	+	1	+	+	+	+	V	
D.s. of <i>Plantaginetea majoris</i> , <i>Plantagineta majoris</i>												
<i>Lysimachia nummularia</i> L.	+	+	+	+	+	+	1	+	+	+	V	
<i>Agrostis stolonifera</i> L.	1	.	+	+	+	+	+	+	+	+	IV	
D.s. of <i>Agropyro-Rumicion crispis</i>												
<i>Potentilla anserina</i> L.	+	+	+	+	+	+	+	+	+	+	V	
<i>Ranunculus repens</i> L.	1	+	+	1	+	+	+	1	+	1	V	
<i>Carex hirta</i> L.	+	.	+	.	+	.	+	+	+	+	I	
Other species												
<i>C. nigra</i> (L.) REICHARD	+	+	+	+	+	+	1	+	+	+	V	
<i>Stellaria palustris</i> RETZ.	+	+	+	+	+	+	.	+	+	+	IV	
<i>Juncus atratus</i> KROCK.	.	+	+	.	+	.	+	+	+	+	III	
<i>Orchis palustris</i> JACQ.	+	.	+	+	.	+	.	+	+	+	II	
<i>Inula britannica</i> L.	+	.	+	+	.	+	+	+	+	+	II	
<i>Beckmannia eruciformis</i> HOST	+	.	.	.	+	.	+	+	+	+	I	

Species present in only one relevé: *Carex flava* L. (1.+), *Stellaria graminea* L. (3.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of the Desna river, June 1–30, 1974–1982.

zones on the lowered plain areas often margining the small terrace floodplain bogs, oxbow lakes and lakes. The soil cover is dominated by meadow-boggy and silt-boggy gley soils, ground water is available at a depth of 0.2–0.3 m. The communities are characterized by low species richness (18–31) with the optimum (100 %) coverage. The communities of the association are dominated by *Carex acuta*. Participation of species of other syntaxa is less significant than in other associations of the *Magnocaricion* alliance. Further expansion of this association's range is unlikely to occur. The biological productivity of grass stands of this association is rather high amounting to 3.0–5.0 metric tons of medium-quality hay per hectare.

Caricetum vesicariae BR.-BL. et DENIS 1926

Table 17

No widespread propagation of this association has been observed in the Desna river flood plain. Its communities are formed chiefly in the terrace and less frequently in the central zones of the river valley. Silt-boggy soils dominate in the soil cover with the ground water underlying at the soil surface. The richness of species within the communities is low (12–27) with a high coverage (100 %). The association's communities are dominated by *Carex vesicaria* and species of the *Phragmitetea* (*Equisetum palustre*, *Stellaria palustris*, *Alisma plantago-aquatica*, etc.). The biological productivity of herbage of the association under consideration constitutes 2.8–4.0 metric tons of rough hay per hectare.

Caricetum rostratae (DAGYS 1932) BAL.-TUL. 1963

Table 18

This association is distributed mainly within the up-stream of the Desna river occupying small areas. Its communities are developed in the terrace zone of the flood plain and are related to the lowered plains. These rest on peaty and peat-boggy soils with ground waters available at a depth of 0.1–0.8 m. The microrelief is composed of low sedge hillocks and multiple ruggedness caused by early spring grazing. The communities have low species richness (13–22) with high coverage (100 %). The composition of the association is dominated by *Carex rostrata* and *C. acuta*. The areas occupied by the association under consideration are gradually reduced. The biological productivity of herbage amounts to 2.0–4.0 metric tons of low-quality hay per hectare.

Table 18. *Caricetum rostratae* (DAGYS 1932) BAL.-TUL. 1963

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
	Area analysed (m ²)				100						
	Total cover (%)				100						
Number of species	13	19	13	14	19	17	17	14	22	22	
D.s. of association											
<i>Carex rostrata</i> STOKES	4	5	4	4	4	5	5	4	4	4	V
D.s. of <i>Magnocaricion</i>											
<i>C. acuta</i> L.	3	+	3	+	3	3	+	1	+	+	V
<i>Galium palustre</i> L.	1	.	1	1	+	1	1	+	.	.	IV
<i>C. vulpina</i> L.	.	.	.	.	.	+	.	.	.	.	I
D.s. of <i>Sparganio-Glycerion fluitantis</i>											
<i>Glyceria fluitans</i> (L.) R. BR.	.	+	.	1	1	.	1	1	+	+	IV
D.s. of <i>Phragmitetea</i> , <i>Phragmitetalia</i>											
<i>G. maxima</i> (HARTM.) HOLMB.	.	+	.	1	+	.	+	+	+	+	IV
<i>Alisma plantago-aquatica</i> L.	.	.	.	.	+	+	.	.	+	+	II
<i>Eleocharis palustris</i> (L.) R. BR.	.	.	.	.	.	.	.	.	+	+	I
D.s. of <i>Molinio-Arrhenatheretea</i>											
<i>Cerastium holosteoides</i> FRIES	.	+	.	.	+	+	+	.	+	+	III
D.s. of <i>Cynosurion</i>											
<i>Trifolium repens</i> L.	.	+	+	.	.	.	+	.	.	+	II
D.s. of <i>Molinion</i> , <i>Molinietalia</i>											
<i>Deschampsia cespitosa</i> (L.) BEAUV.	+	+	+	+	+	.	+	+	+	+	V
<i>Equisetum palustre</i> L.	1	1	+	1	+	1	+	+	1	1	V
D.s. of <i>Calthion</i>											
<i>Myosotis palustris</i> (L.) L.	1	+	+	1	1	1	1	1	2	1	V
<i>Caltha palustris</i> L.	.	+	.	+	.	+	+	+	+	+	IV
D.s. of <i>Filipendulo-Petasition</i>											
<i>Stachys palustris</i> L.	.	.	.	.	.	+	.	.	+	+	II
D.s. of <i>Agropyro-Rumicion crispi</i> , <i>Plantagineta</i> , <i>Plantaginea</i>											
<i>Lysimachia nummularia</i> L.	+	+	+	+	+	+	+	+	+	1	V
<i>Ranunculus repens</i> L.	+	+	+	+	+	+	+	+	+	+	V
<i>Potentilla anserina</i> L.	+	+	.	+	+	.	+	.	+	+	III
Other species											
<i>Carex flava</i> L.	+	.	.	.	+	+	.	.	+	+	III
<i>Stellaria graminea</i> L.	.	1	.	.	+	.	+	.	+	+	III
<i>S. palustris</i> RETZ.	+	.	.	.	+	.	.	+	+	+	III
<i>Epilobium palustre</i> L.	+	.	+	.	+	+	.	+	+	.	III
<i>Orchis palustris</i> JACQ.	.	+	.	+	+	+	.	+	+	.	II
<i>Agrostis gigantea</i> ROTH.	.	+	.	+	+	+	.	.	+	+	II
<i>Carex nigra</i> (L.) REICHARD	.	1	.	.	.	.	.	1	+	+	II
<i>C. muricata</i> L.	.	.	+	.	+	+	.	.	.	.	II
<i>Calamagrostis canescens</i> (WEB.) ROTH	.	2	.	.	.	.	.	.	.	.	II

Species present in only one relevé: *Alopecurus geniculatus* L. (4.+), *Allium angulosum* L. (9.+), *Beckmannia eruciformis* HOST (4.+), *Carex cespitosa* L. (3.+), *C. elongata* L. (3.+), *Juncus atratus* KROCK. (7.+), *Myosotis caespitosa* K. F. SCHULTZ (2.+), *Prunella vulgaris* L. (2.+), *Ranunculus acris* L. (9.+), *R. flammula* L. (1.+), *Senecio paludosus* L. (6.+).

The relevés No. 1–10 are made by L. M. SIPAYLOVA in the flood plain of the Desna river, June 1–30, 1974–1982.

Table 19. *Carici acutae-Glycerietum maxima* SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, SIFAYLOVA, V. SOLOMAKHA et MIRKIN 1987 ass. nova

Number of relevé	1	2	3	4	5	6	7*		8	9	10	Const.
							100	100				
Area analysed (m ²)												
Total cover (%)												
Number of species	32	29	30	30	28	12	18	12	12	17	14	
D.s. of association												
<i>Glyceria maxima</i> (C. HARTM.) HOLMB.	3	3	3	3	3	5	3	3	3	3	3	V
<i>Carex acuta</i> L.	4	4	3	4	3	3	4	3	3	3	3	V
D.s. of <i>Magnocaricion</i>												
<i>C. vulpina</i> L.	2	+	+	+	+	1	.	+	+	.	.	IV
<i>C. vesicaria</i> L.	.	.	.	.	.	.	1	.	1	.	.	I
<i>Phalaroides arundinacea</i> (L.) RAUSCH.	.	.	2	1	1	.	+	+	+	+	+	IV
<i>Poa palustris</i> L.	.	2	1	1	+	.	+	.	.	+	+	III
<i>Galium palustre</i> L.	.	.	1	1	1	.	1	1	+	+	+	III
<i>Iris pseudacorus</i> L.	.	.	+	+	.	.	.	.	.	+	+	II
<i>Carex rostrata</i> STOKES	.	.	.	.	+	+	.	.	.	.	.	I
D.s. of <i>Phragmition</i>												
<i>Bulomus umbellatus</i> L.	.	.	.	+	.	+	.	.	.	.	.	I
D.s. of <i>Sparganio-Glycerion fluitantis</i>												
<i>Glyceria fluitans</i> (L.) R. BR.	.	.	.	.	.	.	+	.	.	+	+	I
D.s. of <i>Phragmitetea, Phragmitetalia</i>												
<i>Alisma plantago-aquatica</i> L.	.	.	.	.	+	.	+	+	.	.	.	II
<i>Mentha aquatica</i> L.	+	+	+	+	+	+	.	.	.	.	.	III
<i>Sium latifolium</i> L.	.	.	.	.	.	+	+	.	.	+	.	I
D.s. of <i>Molinio-Arrhenatheretea</i>												
<i>Symphytum officinale</i> L.	+	+	+	+	.	.	.	+	+	+	+	IV
<i>Vicia cracca</i> L.	+	+	+	+	+	.	.	.	.	.	.	III
<i>Alopecurus pratensis</i> L.	+	+	+	+	1	.	.	.	.	.	.	III
<i>Centaurea jacea</i> L.	+	+	.	.	.	.	.	.	.	.	.	I
<i>Ceratium holosteoides</i> FRIES	+	+	.	.	.	.	.	.	.	.	.	I
<i>Festuca rubra</i> L.	+	.	+	.	.	.	.	.	.	.	.	I
<i>Prunella vulgaris</i> L.	+	+	.	.	.	.	.	.	.	.	.	I
<i>Ranunculus acris</i> L.	.	.	+	+	.	.	.	.	.	.	.	I
D.s. of <i>Cynosurion</i>												
<i>Trifolium repens</i> L.	+	+	.	.	.	.	.	.	.	.	.	I
D.s. of <i>Molinietalia</i>												
<i>Coronaria flos-cuculi</i> (L.) R. BR.	+	1	+	+	+	.	+	.	+	.	.	IV
<i>Lathyrus palustris</i> L.	+	+	+	+	+	.	.	.	+	.	.	III
<i>Deschampsia cespitosa</i> (L.) BEAUV.	.	+	.	.	+	.	.	.	.	.	.	I
<i>Filipendula ulmaria</i> (L.) MAXIM.	.	.	.	.	+	.	.	.	.	.	+	I
D.s. of <i>Molinion</i>												
<i>Lysimachia vulgaris</i> L.	.	.	+	+	.	.	.	.	.	.	.	I
D.s. of <i>Filipendulo-Petasition</i>												
<i>Stachys palustris</i> L.	+	+	.	.	.	.	.	+	.	.	.	II
<i>Valeriana wolgensis</i> KOZAK.	+	+	.	.	.	.	.	.	.	.	.	I
D.s. of <i>Calthion</i>												
<i>Myosotis palustris</i> (L.) L.	1	1	1	+	+	+	1	+	2	+	+	V
<i>Caltha palustris</i> L.	+	+	+	+	+	.	1	.	+	.	.	IV

Table 19. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
<i>D.s. of Plantaginetea majoris</i>											
<i>Lysimachia nummularia</i> L.	1	1	1	+	+	1	.	+	.	+	IV
<i>D.s. of Agropyro-Rumicion crispae</i>											
<i>Ranunculus repens</i> L.	1	1	+	.	.	+	1	1	+	.	IV
<i>Potentilla anserina</i> L.	.	.	1	1	+	1	1	.	+	1	IV
<i>Carex hirta</i> L.	.	.	+	+	+	.	+	.	.	.	II
<i>Rumex crispus</i> L.	+	+	.	.	.	.	.	.	.	.	I
Other species											
<i>Carex nigra</i> (L.) REICHARD	2	2	+	+	+	.	1	.	+	.	IV
<i>Orchis palustris</i> JACQ.	+	+	+	+	+	.	.	+	+	.	IV
<i>Juncus atratus</i> KROCK.	+	+	+	+	+	.	+	.	+	.	IV
<i>Agrostis gigantea</i> ROTH	+	+	+	+	+	.	.	.	.	.	III
<i>Alopecurus geniculatus</i> L.	+	.	2	+	+	.	+	.	+	.	III
<i>Rumex thyrsiflorus</i> FINGERH.	+	+	+	+	.	.	.	.	.	.	II
<i>Thalictrum lucidum</i> L.	+	+	+	+	.	.	.	.	.	.	II
<i>Gratiola officinalis</i> L.	1	1	.	.	.	+	.	.	.	.	II
<i>Stellaria palustris</i> RETZ.	.	.	+	+	.	+	.	.	+	.	II

Species present in only one relevé: *Carex elongata* L. (5.+), *Dactylorhiza majalis* (REICHENB.) P. F. HUNT et SUMMERHAYES (1.+), *Glechoma hederacea* L. (1.+), *Lythrum virgatum* L. (5.+), *Potentilla reptans* L. (1.+), *Stellaria graminea* L. (5.+).

The relevés No. 1—10 are made by L. M. SIPAYLOVA in the flood plain of the Desna river, June 1—30, 1974—1982.

Carici acutae-Glycerietum maximae SHELYAG-SOSONKO et al. ex SHELYAG-SOSONKO, V. SOLOMAKHA et SIPAYLOVA 1985

Table 19

This association is rather common for the entire flood plain of the Desna river, its communities being formed in the terrace zone of the flood plain occupying various hollows and edging lakes and oxbow lakes. The silt-boggy gley soils dominate in the soil cover; ground water is found at a depth of 0.1—0.2 m frequently appearing on the ground surface. The communities have a moderate species concentration (12—32) and a high coverage (100 %). The composition is dominated by *Carex acuta* and *Glyceria maxima* forming the basic floristic nucleus. The participation of other species of syntaxa (*Magnocaricion* and *Phragmition* alliances) is almost equal. In future, a slight reduction of areas occupied by the communities of this association is expected. The biological productivity of herbage is high and makes up to 5.0—6.5 metric tons of medium quality hay per hectare.

Spargano-Glycerion BR.—BL. et SISS. in BOER 1942

The *Spargano-Glycerion fluitantis* alliance combines communities of wet meadows with silt-boggy gley soils. In the Desna flood plain it is represented by the *Glycerietum fluitantis* association whose description is given in Table 20.

Table 20. *Glycerietum fluitantis* WILZEK 1935

Table 20. (Continued)

Number of relevé	1	2	3	4	5	6	7	8	9	10	Const.
Other species											
<i>Stellaria palustris</i> RETZ.	+	.	.	+	I
<i>Carex nigra</i> (L.) REICHARD	.	1	.	+	.	.	.	.	.	.	I
<i>Orchis palustris</i> JACQ.	.	.	+	+	I
<i>Juncus atratus</i> KROCK.	.	+	.	+	I
<i>Alopecurus geniculatus</i> L.	.	+	.	+	I
<i>Gratiola officinalis</i> L.	+	+	I

Species present in only one relevé: *Carex flava* L. (2.+), *Eleocharis mamillata* LINDB. fil. (2.+), *Ranunculus lingua* L. (5.+), *Scirpus lacustris* L. (1.+).

The relevés No. 1–10 are made by L. M. SIPAJLOVA in the flood plain of the Desna river, June 1–30, 1974–1982.

Glycerietum fluitantis WILZEK 1935

Table 20

The communities of this association are common chiefly for the central and terrace zones along the entire length of the Desna. These, as a rule, occupy narrow hollows among the corpora of the typical meadow cenoses. The soil cover is dominated by silt-boggy gley soils with ground waters available at a depth of 0.0–0.3 m. The communities are characterized by a low species richness (15–22)² and a moderate (80–95 %) coverage. The grassland is dominated by *Glyceria fluitans* with insignificant participation of *Phragmitetea* and *Molinion* species. Further expansion of the association areal is not expected. The biological productivity is not high and amounts to 1.8–2.6 metric tons of medium-quality hay per hectare.

SUMMARY

This paper is part of a monograph on the meadow vegetation of the Ukraine. It deals with the phytosociological characteristics of the meadow community syntaxa in the flood plain of the Desna river. The work is based on 420 Braun-Blanquet relevés and covers 18 associations of meadow vegetation belonging to 6 alliances, 2 orders and 2 classes. The results of the investigation are presented in tables and discussed in the text.

The syntaxa identified in the flood plain of the Desna river present a rather clear ecological series. The *Molinio-Arrhenatheretea* class includes syntaxa of the steppe and actual meadows which significantly differ from the syntaxa of the *Phragmitetea* class. On the territory studied the former is presented by the following associations:

Festuco valesiacae-Agrostietum vinealis comprises communities formed under the

²⁾ The discrepancies found in the number of species presented in some tables may be explained by the fact that the descriptions cover years with different flood regime of the Desna river.

effect of intense grazing on true meadow and herbaceous fallows with domination of *Agrostis vinealis*;

Koelerio-Agrostietum vinealis includes typical steppe meadow communities;

Agrostio vinealis-Calamagrostietum epigeios forms communities in the nearbed zone of the Desna flood plain on sandy soils;

Agrostietum vinealis-tenuis characterizes well drained areas predominantly in the central zone of the Desna flood plain;

Euphorbio-Festucetum ovinae is characteristic of soddy podzolic sandy soil terrains where other meadow communities cannot develop normally;

Festucetum pratensis is characteristic of typical true meadow communities and is developed over past areas;

Anthoxantho-Agrostietum tenuis includes meadow communities restricted to drained areas not affected by alluvium regime;

Festuco-Cynosuretum cristati is characteristic of communities with soddy gley loamy soils formed at the border between the central and nearerterrace zone of the Desna flood plain;

Poo palustris-Alopecuretum pratensis includes true meadow communities with meadow gley loamy soils developed in the lower areas of the central zone of the Desna flood plain;

Festuco pratensis-Deschampsietum cespitosae comprises true meadow communities affected by anthropogenic factors;

Deschampsietum cespitosae covers meadow communities formed on bog gley soils in nearerterrace zone of the flood plain;

The *Phragmitetea* class in the Desna flood plain is represented by the following associations:

Phalaridetum arundinaceae includes meadow communities formed over narrow oblong lowlands in the central part of the Desna river flood plain with fertile rich soils;

Caricetum vulpinae includes characteristic communities of swamp meadows with meadow-bog gley soddy soils formed in the level central and nearerterrace zones of the Desna river flood plain;

Caricetum gracilis includes communities typical for swamp meadows with meadow-bog gyey soils;

Caricetum vesicariae characterizes swamp meadow sites with predominantly slimy-gley soils;

Caricetum rostratae includes typical communities of bog meadows formed on bog soil, gley soils, in the depression of mainly the nearerterrace zone of the Desna river flood plain;

Carici acutae-Glycerietum maximae includes communities of swamp meadows with slimy boggy soils found in depressions around lakes, etc.;

Glycerion fluitantis includes meadow communities with slime boggy gley soils formed in narrow hollows of the flood plain;

In the future, the authors plan to complete the Braun-Blanquet processing of data on all the flood plains of the Ukraine.

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