



## FLOODPLAIN VEGETATION MAPPING OF NORTHERN DVINA AND PINEGA RIVERS, ARCHANGELSK REGION, RUSSIA

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Pinega reserve and Natural Park "Golubinsky karst massif"

The fragment of the geological map (Atlas of the Arkhangelsk region, 1977)

Study areas: the floodplain of Northern Dvina, the floodplain of Pinega

Fragments of space image with gps-binding

GPS-database of geobotanical working field nicknames

The large-scale geobotanical map of the Northern Dvina floodplain (1:30000)

The large-scale geobotanical map of the Pinega river's valley (scale 1:30000)

№	Дата	Место	Масштаб	Метод
889	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
890	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
891	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
892	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
893	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
894	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
895	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
896	09.08.2015	Восточная часть	1:30000	Спутниковый снимок
897	09.08.2015	Восточная часть	1:30000	Спутниковый снимок

Geobotanical survey of floodplain natural complexes near gypsum outcrops in the Northern Dvina and Pinega river valleys was done in 2012-2017. Large-scale (1 : 30 000) geobotanical maps of key polygons were composed. Remote and field studies of the spatial structure of vegetation cover were performed. Georeferenced geobotanical descriptions were made, together with landscape-geobotanical profiles, a typology of floodplain vegetation and legends for maps were developed, satellite images were interpreted, large-scale maps of key areas were compiled.

To demonstrate the structure of floodplain vegetation on the maps the following approach were used. The higher divisions of the legend were distinguish based on the differentiation of the territory into large geomorphological elements or types of landscapes of the river valley. These are the bottom and the sides of the valley. The bottom of the valley includes the following landforms: shoals, riverbed shafts, inter-shaft depressions, former riverbeds and lakes. The sides of the valley represent the slopes of the above-floodplain terraces (composed of gypsum rocks).

The middle links of the legend show intra-landscape differences (for example, "Vegetation of floodplain ponds", "Vegetation of the valley sides"). Further, the vegetation is divide into forest, shrubby, meadow and riparian communities. The lower divisions of the legend are shown as homogeneous (one plant community within the selected contour) and heterogeneous (several plant communities) territorial vegetation units. Heterogeneous territorial vegetation units are series, combinations, and ecological series of plant communities. For example, the floodplain vegetation in the geobotanical map of Pinega river valley is represented by 17 homogeneous types of plant communities, and 23

heterogeneous types (3 series, 14 combinations and 6 ecological series). The identification of associations was based on after the search of the common the species and biomorphic composition of the dominants. The composition of the dominant species and indicator species typical for specific habitat conditions were taken into account. Typological vegetation units were selected on the basis on the composition of dominant species and groups of indicator species. The vegetation typology used in the map legend is based on the ecological and phytocenotic principles.



### Geomorphological elements of the river valley and floodplain vegetation

Floodplain riparian zone - Alluvial Sands - *Petasites spurius*

Floodplain riparian zone - Willow scrubs

Floodplain middle zone - Oxbow lakes-streams - Old willow forests

Floodplain middle zone - Mezophytic meadows

The vegetation of the gypsum rocks

Karst forms on the river Malaya Kiroksa (Northern Dvina)

Floodplain middle zone - hydrophytic communities

Floodplain riparian and middle zone - Willow scrubs and forests

Pinega - *Alnus incana*

Northern Dvina - *Alnus incana* + *A. glutinosa*

Floodplain terrace zone

Floodplain middle zone - Mezohydrophytic meadows

The vegetation of the gypsum slopes

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