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ГЕОГРАФИЧЕСКИЕ НАУКИ

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DYNAMICS OF THE LANDSCAPES OF KAMENNY, KRESTOVSKY AND ELAGIN ISLANDS

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Аннотация: *статья посвящена изучению динамики ландшафтов Крестовского, Каменного и Елагина островов с момента основания Петербурга и до настоящего времени с целью определения перспектив их дальнейшего развития и использования. В рамках работы были проведены полевые исследования ландшафтов островов; составлена база данных точек описания ландшафтов, которая послужила основой для составления карты состояния растительности Крестовского, Каменного и Елагина островов. Также был проведен анализ современной ландшафтной структуры островов и описаны дальнейшие перспективы их развития.*

The article is devoted to the study of the dynamics of the landscapes of the Krestovsky, Kamenny and Elagin Islands from the moment of the founding of St. Petersburg to the present in order to determine the prospects for their further development and use. As part of the work, field studies of the landscapes of the islands were

carried out; a database of landscape description points has been compiled, which served as the basis for a map of the vegetation state of the Krestovsky, Kamenny and Elagin Islands. An analysis of the modern landscape structure of the islands was also carried out and further prospects for their development were described.

Ключевые слова: *ландшафт, динамика ландшафтов, карта растительности, полевые исследования.*

Keywords: *landscape, landscape dynamics, field research.*

Kamenny, Elagin and Krestovsky islands occupy an area of approximately 60,000 km^2. Each of these islands has a similar, but still different history [1]. The transformation of the islands begins almost in the first half of the XVIII century. By the beginning of the XIX century, ponds had already been dug on Elagin Island, a clear-cut layout of the territory appeared on Kamenny Island [2], and a system of alleys was laid on Krestovsky Island. Over the entire period of active development of the Neva delta (from the 18th to the 21st centuries), the landscapes of the islands have undergone significant changes. The anthropogenic impact on the study area consisted of repeated drainage of flooded areas of the islands, changes in the shape of coastlines due to their upgrading, the development of a network of bridges and roads, infrastructure facilities, palaces and estates in the Neva delta. The organization of gardening farms, the care of woody plants and shrub layers, the arrangement of lawns - all this led to a change not only in the landscape structure of the territory, but also in the species composition of the vegetation of the islands.

After analyzing the development of the landscapes of the territories, a stage of field work was carried out, which consisted in the study of the elementary landscapes of Kamenny, Elagin and Krestovsky Island. For convenience, the route description method was used.

At the first stage of field work, a reconnaissance [3] of the islands was carried out, including an assessment of forest cover, swampiness of the territory, the presence of water bodies, the location of roadways (including those with public transport); familiarization with the main types and types of geocomplexes and their diagnostic

features.

As a result of the work in the MapinfoPro 15.0 program, a map of geocomplexes was compiled, on the basis of which the following locations were identified on the territory of the islands: Litorina terrace with bulk soil more than 1 m (Ng1), covering an area of about 6.7 km^2; Littorin terrace with fill soil less than 1 m (Ng), located on an area of about 4.6 km^2; Lithoral (L) with an area of 0.4 km^2.

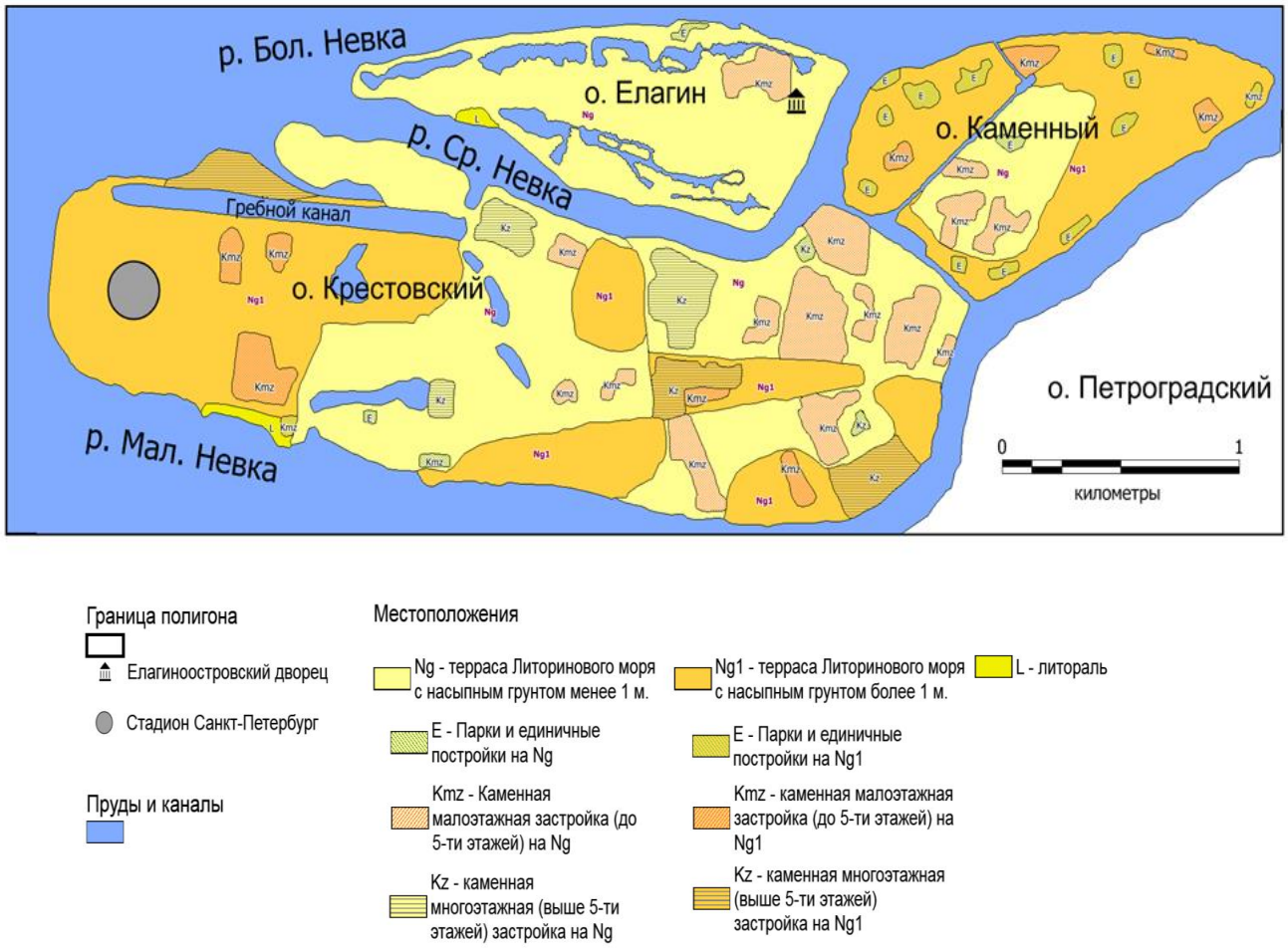

Fig. 1. Map of the geocomplexes of Krestovsky, Elagin, Kamenny Islands

As part of the second stage of field work, descriptions of the vegetation of the geocomplexes were carried out, with the obligatory consideration of the dominant species of higher plants in the study area. As a result of the work carried out, a map (on a scale of 1: 20000) of the state of vegetation of Krestovsky, Elagin, Kamenny Islands was compiled, the basis for which was the map of the difference for the territory of the Elagin Island on a scale of 1:6000, published and compiled by A.I. Reznikov and G.A.

Isachenko in 2013 [4].

As a result, 25 plant communities were identified, among which broad-leaved, coniferous-broad-leaved and maple communities are dominant.

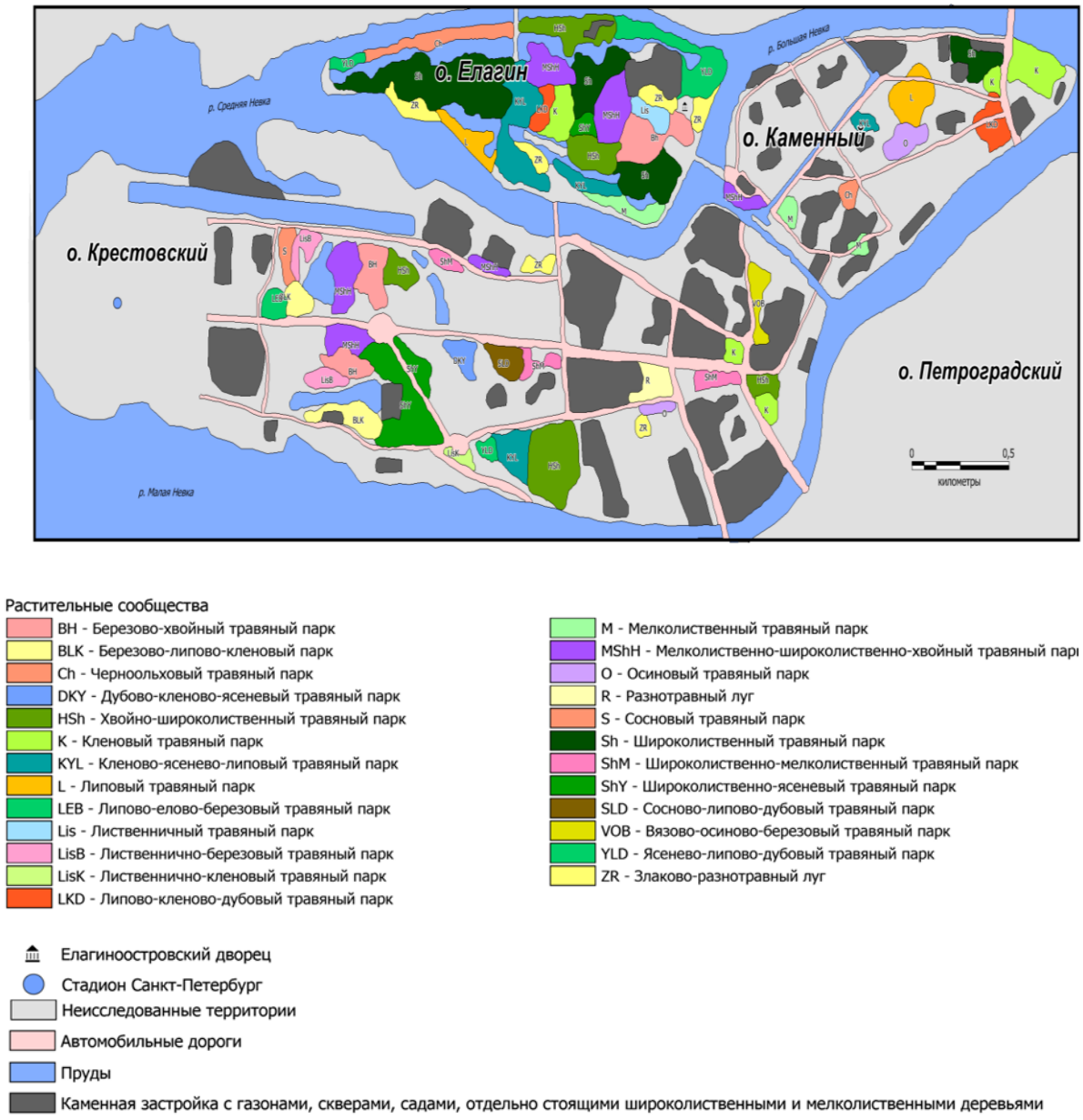

Fig. 2. Map of vegetation states of Krestovsky, Elagin, Kamenny islands

As a result of a comparative analysis of the map of the locations of the islands and the map of the state of vegetation, the following conclusions were made:

– within the territory of the park on Elagin Island, broad-leaved communities of mixed composition prevail on the terrace of the Litorina Sea with bulk soil less than 1 m (Ng). The littoral is completely occupied by a cereal-forb meadow.

– on Krestovsky Island, on the terrace of the Litorin Sea with bulk soil less than one meter (Ng), broad-leaved species predominate, a slightly smaller area is occupied by small-leaved communities. On a terrace with filled soil above 1 m in height (Ng1), broad-leaved and coniferous species predominate equally. Litoral is occupied by a sandy coast, which in the future will become a beach.

– on Kamenny Island, on the terrace of the Litorin Sea with bulk soil less than 1 m (Ng), broad-leaved-small-leaved communities grow; small-leaved-broad-leaved on the terrace of the Litorin Sea with bulk soil above 1 m in height (Ng1).

Based on the studies carried out, possible options for the development of the territories of the islands were proposed, taking into account their landscape features. Of course, they are not realizable outside the existing conditions of the city's development. So, for example, the development of Krestovsky Island is predetermined by the construction of numerous sports facilities, including the St. Petersburg stadium, as well as by the progressive development of elite housing [5], therefore, the proposal of concepts for the development of the island makes no sense. Kamenny Island, in turn, should develop according to the vector of restoration of the park as a recreational area for city residents. Elagin Island has every opportunity to preserve and maintain the park in a well-groomed form, without losing its cultural, artistic and recreational value; the park on the island is an example of a landscape that illustrates important stages in the development of a city and society in particular.

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