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Х А Б А Р Л А Р Ы

ИЗВЕСТИЯ

РОО «НАЦИОНАЛЬНОЙ
АКАДЕМИИ НАУК РЕСПУБЛИКИ
КАЗАХСТАН»
ЧФ «Халық»

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В 2016 году для развития и улучшения качества жизни казахстанцев был создан частный Благотворительный фонд «Халык». За годы своей деятельности на реализацию благотворительных проектов в областях образования и науки, социальной защиты, культуры, здравоохранения и спорта, Фонд выделил более 45 миллиардов тенге.

Особое внимание Благотворительный фонд «Халык» уделяет образовательным программам, считая это направление одним из ключевых в своей деятельности. Оказывая поддержку отечественному образованию, Фонд вносит свой посильный вклад в развитие качественного образования в Казахстане. Тем самым способствуя росту числа людей, способных менять жизнь в стране к лучшему – профессионалов в различных сферах, потенциальных лидеров и «великих умов». Одной из значимых инициатив фонда «Халык» в образовательной сфере стал проект *Ozgeris powered by Halyk Fund* – первый в стране бизнес-инкубатор для учащихся 9-11 классов, который помогает развивать необходимые в современном мире предпринимательские навыки. Так, на содействие малому бизнесу школьников было выделено более 200 грантов. Для поддержки талантливых и мотивированных детей Фонд неоднократно выделял гранты на обучение в Международной школе «Мирас» и в *Astana IT University*, а также помог казахстанским школьникам принять участие в престижном конкурсе «*USTEM Robotics*» в США. Авторские работы в рамках проекта «Тәлімгер», которому Фонд оказал поддержку, легли в основу учебной программы, учебников и учебно-методических книг по предмету «Основы предпринимательства и бизнеса», преподаваемого в 10-11 классах казахстанских школ и колледжей.

Помимо помощи школьникам, учащимся колледжей и студентам Фонд считает важным внести свой вклад в повышение квалификации педагогов, совершенствование их знаний и навыков, поскольку именно они являются проводниками знаний будущих поколений казахстанцев. При поддержке Фонда «Халык» в южной столице был организован ежегодный городской конкурс педагогов «*Almaty Digital Ustaz*».

Важной инициативой стал реализуемый проект по обучению основам финансовой грамотности преподавателей из восьми областей Казахстана, что должно оказать существенное влияние на воспитание финансовой грамотности и предпринимательского мышления у нового поколения граждан страны.

Необходимую помощь Фонд «Халык» оказывает и тем, кто особенно остро в ней нуждается. В рамках социальной защиты населения активно проводится работа по поддержке детей, оставшихся без родителей, детей и взрослых из социально уязвимых слоев населения, людей с ограниченными

возможностями, а также обеспечению нуждающихся социальным жильем, строительству социально важных объектов, таких как детские сады, детские площадки и физкультурно-оздоровительные комплексы.

В копилку добрых дел Фонда «Халык» можно добавить оказание помощи детскому спорту, куда относится поддержка в развитии детского футбола и карате в нашей стране. Жизненно важную помощь Благотворительный фонд «Халык» оказал нашим соотечественникам во время недавней пандемии COVID-19. Тогда, в разгар тяжелой борьбы с коронавирусной инфекцией Фонд выделил свыше 11 миллиардов тенге на приобретение необходимого медицинского оборудования и дорогостоящих медицинских препаратов, автомобилей скорой медицинской помощи и средств защиты, адресную материальную помощь социально уязвимым слоям населения и денежные выплаты медицинским работникам.

В 2023 году наряду с другими проектами, нацеленными на повышение благосостояния казахстанских граждан Фонд решил уделить особое внимание науке, поскольку она является частью общественной культуры, а уровень ее развития определяет уровень развития государства.

Поддержка Фондом выпуска журналов Национальной Академии наук Республики Казахстан, которые входят в международные фонды Scopus и Wos и в которых публикуются статьи отечественных ученых, докторантов и магистрантов, а также научных сотрудников высших учебных заведений и научно-исследовательских институтов нашей страны является не менее значимым вкладом Фонда в развитие казахстанского общества.

С уважением, Благотворительный Фонд «Халык»!

NAS RK is pleased to announce that News of NAS RK. Series of geology and technical sciences scientific journal has been accepted for indexing in the Emerging Sources Citation Index, a new edition of Web of Science. Content in this index is under consideration by Clarivate Analytics to be accepted in the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index. The quality and depth of content Web of Science offers to researchers, authors, publishers, and institutions sets it apart from other research databases. The inclusion of News of NAS RK. Series of geology and technical sciences in the Emerging Sources Citation Index demonstrates our dedication to providing the most relevant and influential content of geology and engineering sciences to our community.

Қазақстан Республикасы Ұлттық ғылым академиясы «ҚР ҰҒА Хабарлары. Геология және техникалық ғылымдар сериясы» ғылыми журналының Web of Science-тің жаңаланған нұсқасы Emerging Sources Citation Index-те индекстелуге қабылданғанын хабарлайды. Бұл индекстелу барысында Clarivate Analytics компаниясы журналды одан әрі the Science Citation Index Expanded, the Social Sciences Citation Index және the Arts & Humanities Citation Index-ке қабылдау мәселесін қарастыруда. Web of Science зерттеушілер, авторлар, баспашылар мен мекемелерге контент тереңдігі мен сапасын ұсынады. ҚР ҰҒА Хабарлары. Геология және техникалық ғылымдар сериясы Emerging Sources Citation Index-ке енуі біздің қоғамдастық үшін ең өзекті және беделді геология және техникалық ғылымдар бойынша контентке адалдығымызды білдіреді.

НАН РК сообщает, что научный журнал «Известия НАН РК. Серия геологии и технических наук» был принят для индексирования в Emerging Sources Citation Index, обновленной версии Web of Science. Содержание в этом индексировании находится в стадии рассмотрения компанией Clarivate Analytics для дальнейшего принятия журнала в the Science Citation Index Expanded, the Social Sciences Citation Index и the Arts & Humanities Citation Index. Web of Science предлагает качество и глубину контента для исследователей, авторов, издателей и учреждений. Включение Известия НАН РК. Серия геологии и технических наук в Emerging Sources Citation Index демонстрирует нашу приверженность к наиболее актуальному и влиятельному контенту по геологии и техническим наукам для нашего сообщества.

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STRUCTURAL ANALYSIS OF THE GEOSYSTEMS OF THE TOBOL RIVER BASIN WITHIN THE KOSTANAY REGION

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Abstract. The purpose of the study is to carry out the natural landscape differentiation of the Tobol River basin within the Kostanay region. The results of component studies of geosystems, a three-dimensional relief model, Landsat 8 TM satellite images, materials obtained during the development of methods of surveying the territory and image processing, Google Earth geoportal data, field research materials with GPS-binding were used as initial information for mapping the studied territory. A landscape map of the Tobol River basin was made, which is based on the structural and dynamic principle of community typification and reflects the genetic origin, classification hierarchy. Its main task was to demonstrate the spatial and temporal patterns operating in geosystems. 78 individual landscapes of the Tobol River basin within the Kostanay region are highlighted and shown on the map. The following classification categories are

highlighted by headings and subheadings in the legend: class (plain and valley), types (forest-steppe, steppe and semi-desert), subtypes (north-steppe; south-steppe; meadow, floodplain and estuary; salsoleae-meadow-steppe and salsoleae-saline). A block diagram of geoinformation mapping of landscapes has been compiled. The presented work reflects the natural landscape differentiation of the geosystems of the Tobol River basin within the Kostanay region. The influence of geomorphological, climatic, and soil-plant factors and conditions form the modern steppe denudation and accumulative landscapes of the Tobol River basin within the Kostanay region.

Keywords: classification of geosystems, landscape mapping, landscape structure, Tobol River, Kostanay region

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ҚОСТАНАЙ ОБЛЫСЫ ШЕГІНДЕГІ ТОБЫЛ ӨЗЕНІ БАССЕЙІНІНІҢ ГЕОЖҮЙЕЛЕРІН ҚҰРЫЛЫМДЫҚ ТАЛДАУ

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Аннотация. Зерттеудің мақсаты-Қостанай облысы шегінде Тобыл өзені бассейнінің табиғи-ландшафтық дифференциациясын жүргізу. Зерттелетін аумақты картаға түсірудің бастапқы ақпараты ретінде геожүйелерді компоненттік зерттеу нәтижелері, жер бедерінің үш өлшемді моделі, Landsat 8 ТМ ғарыштық түсірілімдері, аумақты түсіру және суреттерді өңдеу әдістерін дамыту

кезінде алынатын материалдар, Google Earth геопорталының деректері, GPS-байланыстырумен далалық зерттеу материалдары пайдаланылды. Тобыл өзені бассейнінің ландшафтық картасы жасалды, ол қауымдастықтарды типтеудің құрылымдық-динамикалық қағидаты бойынша құрылған және генетикалық шығу тегін, жіктеу иерархиясын көрсетеді. Оның негізгі міндеті геожүйелерде әрекет ететін кеңістіктік және уақыттық заңдылықтарды көрсету. Қостанай облысы шегіндегі Тобыл өзені бассейнінің 78 жеке ландшафтары картада көрсетілген. Легендадағы тақырыптар мен тақырыпшалар келесі жіктеу категорияларын анықтайды: класс (жазық және алқапты), түрлері (орманды дала, дала және шөлейт), кіші түрлері (солтүстік-дала; оңтүстік-дала; шалғынды, жайылмалы және лиманды; сортаң-шалғынды-дала және сортаң-сортаң). Ландшафтарды геоақпараттық картаға түсірудің блок-схемасы жасалды. Ұсынылған жұмыста Қостанай облысы шегінде Тобыл өзені бассейнінің геожүйелерінің табиғи-ландшафтық дифференциациясын көрсетілген. Геоморфологиялық, климаттық және топырақ-өсімдік факторлары мен жағдайларының әсерін Қостанай облысы шегіндегі Тобыл өзені бассейнінің қазіргі дала денудациялық және аккумулятивті ландшафттары қалыптастырады.

Түйін сөздер: геожүйелердің жіктелуі, ландшафтық картографиялау, ландшафт құрылымы, Тобыл өзені, Қостанай облысы

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СТРУКТУРНЫЙ АНАЛИЗ ГЕОСИСТЕМ БАССЕЙНА РЕКИ ТОБОЛ В ПРЕДЕЛАХ КОСТАНАЙСКОЙ ОБЛАСТИ

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Аннотация. Цель исследования – провести природно-ландшафтную дифференциацию бассейна реки Тобол в пределах Костанайской области. В качестве исходной информации картографирования исследуемой территории использовались результаты компонентных исследований геосистем, трехмерная модель рельефа, космические снимки Landsat 8 TM, материалы, получаемые при развитии методов съемки территории и обработки изображений, данные геопортала Google Earth, материалы полевых исследований с GPS-привязкой. Была выполнена ландшафтная карта бассейна реки Тобол, которая построена по структурно-динамическому принципу типизации сообществ и отражает генетическое происхождение, классификационную иерархию. Основной ее задачей стала демонстрация пространственно-временных закономерностей, действующих в геосистемах. Выделены и показаны на карте 78 индивидуальных ландшафтов бассейна реки Тобол в пределах Костанайской области. Заголовками и подзаголовками в легенде выделены следующие классификационные категории: класс (равнинные и долинные), типы (лесостепные, степные и полупустынные), подтипы (северостепные; южностепные; луговые, пойменные и лиманные; солонцово-лугово-степные и солонцово-солончаковые). Составлена блок-схема геоинформационного картографирования ландшафтов. В представленной работе отражена природно-ландшафтная дифференциация геосистем бассейна реки Тобол в пределах Костанайской области. Влияние геоморфологических, климатических и почвенно-растительных факторов и условий формируют современные степные денудационные и аккумулятивные ландшафты бассейна реки Тобол в пределах Костанайской области.

Ключевые слова: классификация геосистем, ландшафтное картографирование, ландшафтная структура, река Тобол, Костанайская область

Introduction

Natural landscapes represent complex, systemic integrity that has a thousand-year history, developing according to the universal laws of the natural environment. When studying geosystems, scientists should have a clear idea of local natural complexes and their position in the landscape hierarchy, be aware of their diverse value and their personal responsibility for their preservation.

The establishment and identification of the spatial and temporal organization of geosystems, which allows mapping the differentiation and their dynamics, is one of the priority areas of research in physical geography and geoecology of the landscape.

Such scientists as A.G. Isachenko (Isachenko, 1991: 166), V.B. Sochava (Sochava, 1978: 300), N.A. Solntseva (Solntseva, 2001: 203) and others were engaged in the study of landscapes. According to V.A. Nikolaev (Nikolaev, 1999: 18), landscape science is the science of connections that ensure the emergence and maintenance of the harmonic

unity of geosystems, characterized as dynamic systems in which the circulation of matter and energy is stable. The methodology of landscape mapping is based on these principles of teaching.

The advantages of using the basin approach in physical, geographical and geocological studies have been proven in many scientific works by G.F. White (White, 1963: 376), D. Barkin (Barkin, 1970: 14), Z.T. Mukayev (Mukayev, 2019: 115) and in other works.

The basin is an integral natural and economic geosystem, since it is an arena of interaction between nature and society, where natural, economic and socio-demographic processes are interconnected, therefore, when solving territorial planning tasks, it is rational to use the principles of the geosystem-basin concept (Korytnyj, 2017: 7).

Methods and materials

As the initial information for mapping geosystems of the Tobol River basin within the Kostanay region, the results of component studies of geosystems, a three-dimensional relief model, Landsat 8 TM satellite images, materials obtained during the development of methods of surveying the territory, and image processing, data from the Google Earth (U.S., 2021), materials of GPS-linked field studies integrated in a single cartographic projection and coordinate system, topographic maps of scales 1: 250,000, profiles characterizing the lithology and structure of the soil cover, field descriptions (geobotanical, soil, etc.) (US Department of GSK, 2001), as well as the use of the latest technologies of complex spatial analysis (figure 1).

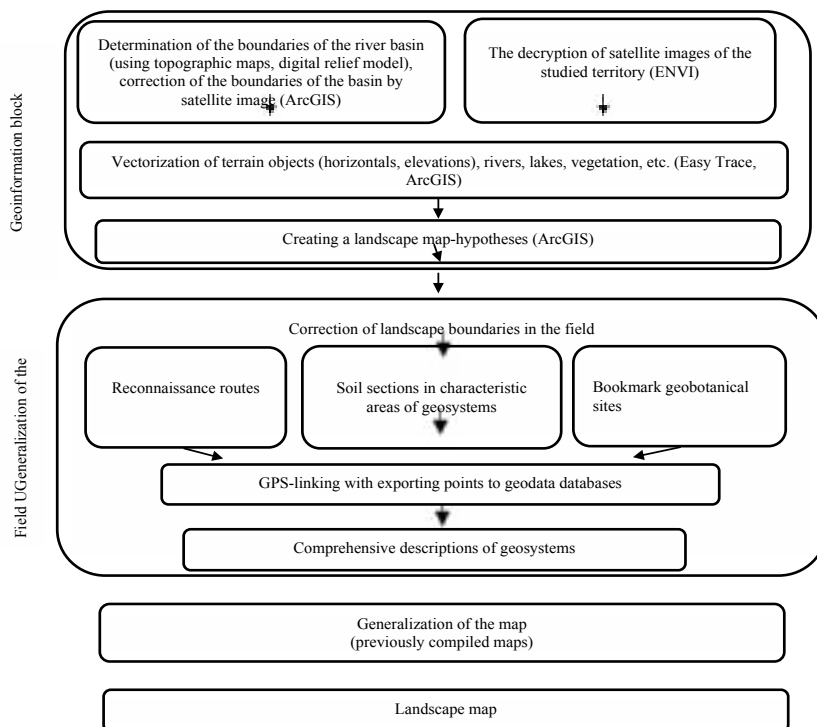


Fig. 1. Block diagram of geoinformation mapping of landscapes (Source: OZgeldinova, 2019: 6020)

Results and discussion

The Tobol River is a left tributary of the Yertis River, originating on the eastern spurs of the Southern Urals and belongs to the Kara Sea basin. The total length of the river is 1,591 km, including 725 km within Kazakhstan. The area of the basin (within Kazakhstan) is 131,679 sq. km. The upper course of the Tobol River is located on the territory of the Kostanay region. It has a constant flow for most of its part. The basin of the Tobol River is located deep in the continent of Eurasia and is remote from the oceans and seas.

The territory of the studied area has its own geological history, which is composed of two large geostructures of Ural and Central Kazakhstan origin. The Turgai trough is tectonic and stands out at the junction of these two geostructures. It is represented by an ancient Paleozoic folded foundation, which is overlain by a layer of horizontally overlying sedimentary rock of the Meso-Cenozoic period. The landscape of the basin territory is a plain of the West Siberian Lowland in the north and the Turgai tableland in the south, which differs from the northern and central by its dryness and diversity of vegetation cover (Chigarkin, 2003: 10), (Medvedev, 2017: 5), (U.S. Geological Survey, 2021).

The absence of high natural barriers in the north and south of the territory is accessible to the movement of warm, dry subtropical air of the deserts of Kazakhstan and Central Asia and cold, moisture-poor Arctic air.

Climate has a huge impact on all components of nature, on the formation of geosystems as a natural phenomenon and as a habitat. The climate of the territory under consideration is sharply continental and is characterized by severe frost in winter and dry, hot summers. In summer, the temperature changes dramatically during the day, and the average temperature in July is +20.9 °C. Average January temperature: -14.5 °C.

The number of warm days, the degree of moisture, and the duration of the growing season contribute to the development of animal husbandry and favorable cultivation of crops. As we move from north to south, by an increase in the amount of solar heat and a decrease in precipitation, a natural change of forest-steppe landscapes with steppe and semi-desert occurs in the territory of the Tobol River basin (Geoportal of Kostanay region, 2021), (Ozgeldinova, 2023: 633).

The Tobol River basin is characterized by very significant fluctuations in the water level according to the seasons of the year. During the spring flood, the Tobol in many sections of the current spreads for tens of kilometers along its wide and flat valley. The aridity of the climate of the studied territory caused a relatively weak and uneven development of the river network. In summer, a large number of small reservoirs and watercourses dry up. So on the right bank of the Tobol River basin, there is a drainless area between the Tobol and Ishim rivers. This drainless area is characterized by separate, drying rivers that retain water in ples and lakes in summer (Ulykpanova, 2023: 29).

As we move from north to south, by an increase in the amount of solar heat and a decrease in precipitation, a natural change of forest-steppe landscapes with steppe and semi-desert occurs in the territory of the Tobol River basin.

Within the Tobol River basin, 78 individual landscapes were identified and shown on

the map, which, as a result of their typological grouping, and then structural and genetic classification, were ordered into hierarchical systematics (figure 2).

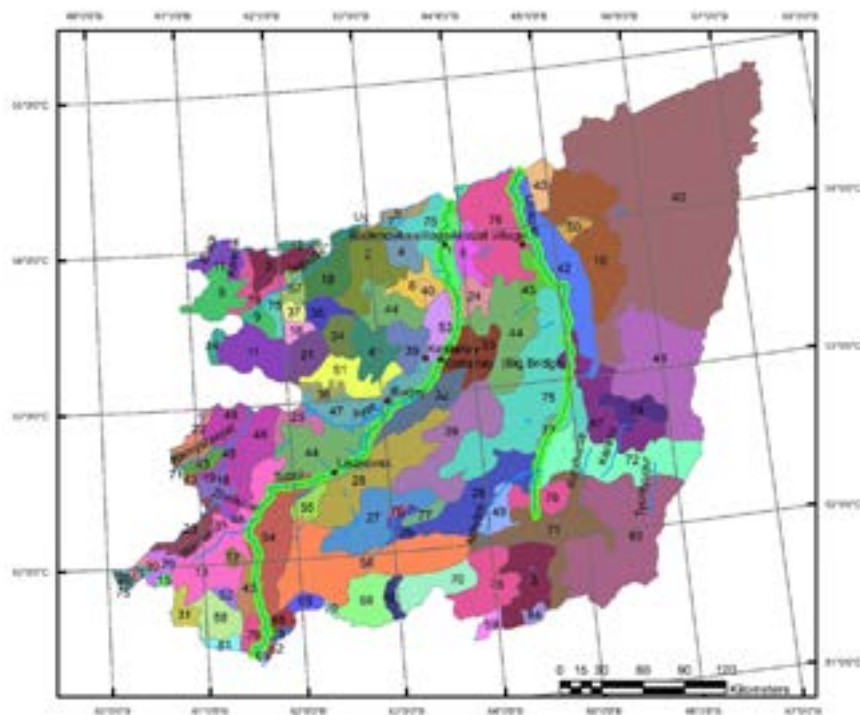


Fig. 2. The landscape map of the Tobol River basin
(Source: Author, created in the program ArcGIS.10.8)

Table 1. Fragment of the legend to the landscape map of the Tobol River basin (map number Figure 2)

№	Names of landscapes
1	Flat landscapes
1	Forest – steppe Denudation plains
	1 - A steep plain with rich grass-red-and-white vegetation in combination with birch, aspen-birch forests, and pegs on ordinary saline chernozems with saline
	2 - A gently-wooded stratified plain with richly-grazed red-and-white vegetation on ordinary chernozems
	4 - A flat-undulating stratified plain with rich grass-red-and-white vegetation on ordinary chernozems, saline soils
2	6 - A flat stratified plain with rich grass-red-and-white vegetation in combination with birch, aspen-birch forests and pegs on sod-weakly podzolic and ordinary chernozems Accumulative plains
	8 - Wavy ancient lake plain with rich grass-red-grass vegetation on ordinary, carbonate chernozems
3	10 - A weakly undulating ancient lake plain with rich grass-red-and-white vegetation in combination with birch, aspen-birch forests, and spikes on ordinary saline chernozems Accumulative-denudation plains
	12 - ridge -undulating plain with grassy, mixed-grass, mixed-grass meadows on meadow soils of river flood plains and estuaries on floodplain meadows

	Steppe
II	North-steppe
a	Denudation plains
1	24- Hilly-undulating plain with rich red-grass and sandy-grass vegetation on southern chernozems
	32- Undulating stratified plain with mixed-red-grass and sandy-grass vegetation on chernozems of southern saline soils
2	33- Flat-undulating plain with mixed-red-grass and sandy-grass vegetation on southern saline chernozems
	Accumulative plains
	38 - Maned ancient Aeolian plain with sandy-grass vegetation on dark-brown saline soils with salt pans
	39 - Wavy-hollow ancient lake plain with mixed grass and red-and-white vegetation on the southern saline chernozems
	40 - A weakly undulating ancient lake plain with rich grass-red-and-white vegetation in combination with birch, aspen-birch forests, and spikes, with wheatgrass, bonfire, veiny vegetation with various grasses, in places halofts - with the participation annual-salsoleae groupings on meadow soils of river floodplains and estuaries on ordinary saline chernozems with saline
	41 - Weakly undulating ancient lake plain with hollows, with mixed-grass and red-grass vegetation on salt flats with southern saline chernozems
	42 - Weakly undulating ancient lake-alluvial plain with rich red-grass and sandy-grass vegetation on ordinary saline chernozems with salt
	44- A flat-undulating ancient lake plain with mixed-grass and red-grass vegetation on the chernozems of the southern saline salt lakes
	45- Flat-wavy ancient lake plain with manes, with mixed-grass and red-grass vegetation on southern saline chernozems with saline
	46 - Flat-undulating ancient lake plain with wheatgrass, bonfire, ostrich, veiny vegetation with various grasses,halofts in places - with the participation of annual-salsoleae groupings on meadow soils of river floodplains and estuaries on meadow saline
3	47 - Flat-undulating alluvial plain with sandy-grass vegetation, grass, grass meadow on meadow soils of river floodplains and estuaries on southern saline chernozems
b	51 - Flat ancient lake plain with mixed grass vegetation on the southern saline chernozems
1	53- Flat-sloping alluvial plain with sandy-grassy-red-veined vegetation on southern saline chernozems
	Accumulative-denudation plains
	55 - A steep plain with sandy-grass, mixed-red-grass vegetation in places with Korzhinsky grass on southern chernozems, saline, carbonate soils
2	South Steppe
	Denudation plains
c	58 - A wooded plain with tipchak-tyr vegetation with the participation of mesoxerophilic variegated grasses on dark-brown saline soils
1	59 - Ridge-hilly plain with halophytic grouping on salt marshes and salt marshes on meadow soils, salt marshes with chestnut saline
	Plains accumulative
	67 - Weakly undulating ancient lake plain with mixed-red-grass vegetation, in places with Korzhinsky grass on southern saline chernozems
	Semi – desert
	Accumulative plains
	71 - ridge-hilly plain with sandy-grass vegetation on dark-brown salty with salt
	72 - Gently undulating ancient lake plain with grass-type vegetation on dark brown saline with salt pans
	Landscapes of river valleys and lake depressions
	Meadow, floodplain and estuary

1	73 - Floodplain terrace with grassy, mixed-grass, mixed-grass meadow on meadow soils of river floodplains and estuaries on floodplain meadow soils
1	Saline - meadow-steppe 75 - A complex of low above-floodplain terraces with rich grass-red-grass and sandy-grass vegetation on ordinary saline chernozems with saline
2	76- Flat terrace and bottoms of lake and estuary depressions with sandy grass vegetation on dark chestnut saline with salt Solonetz -saline 77 - A high above-floodplain terrace with a halophyte grouping on southern saline chernozems with
3	salt lakes

The following classification categories are highlighted by headings and subheadings in the legend: class (plain and valley), types (forest-steppe, steppe, and semi-desert), subtypes (north-steppe; south-steppe; meadow, floodplain, and estuary; saline-meadow-steppe and saline) (table 1).

Our medium-scale (1:500,000) landscape map of the Tobol basin within the Kostanay region is based on the structural and dynamic principle of community typification and reflects the genetic origin, classification hierarchy. Its main task was to demonstrate the spatial and temporal patterns operating in geosystems.

There is a forest-steppe zone within the Kostanay region in the northern part of the Tobol River basin. The relief is characterized by the alternation of steep, hill-hollow, wavy denudation, and ancient lake and abrasive-accumulative plains. The average monthly air temperature in January is -16°C , in July $+21^{\circ}\text{C}$. And the average annual precipitation is 300-350 mm. Subsequently, strong dry winds are quite frequent in spring and summer, which increase the already significant evaporation and contribute to the blowing off of soils. The entire territory of this zone is represented by rich-grazing-red-and-white vegetation in combination with birch, aspen-birch, settled grass forests, and pegs on ordinary chernozems. In the valleys of the Togyzak and Uy rivers, birch and aspen forests are rare and mixed with steppe areas.

The steppe zone covers almost the entire northern part and the southeastern part of the territory of the Tobol River basin within the Kostanay region. The steppe zone of the basin territory is partially occupied by the vast West Siberian Lowland (northeast of the Kostanay- Kushmurun line), while most of it belongs to the Turgai Depression.

The geomorphological diversity of the relief of the steppe zone is characterized by steep, gently rolling, cuesta-hilly, denudation and maned ancient Aeolian, wavy-hollow, slightly wavy ancient lake accumulative plains.

The soil and vegetation cover is distinguished by rich grass-red-grass-carpet vegetation in places with Korzhinsky's carpet and petrophysics grass-oatmeal-carpet vegetation with Kipchak-oatmeal-carpet vegetation and sand-grass-carpet vegetation is rarely found on southern carbonate chernozems, saline with salt, and sometimes on dark-tan carbonate saline with salt.

The steppe zone of the Tobol River basin is one of the main habitats of waterfowl and near-water birds in Kazakhstan. Globally threatened species such as the curly pelican and Savka nest here. Species included in the lists of the International Union for

the Conservation of Nature and Natural Resources and the Red Book of Kazakhstan: pink pelican, caprice, screamer swan, white-eyed dipper, gray crane, the black-winged pratincole, black-headed goggler (Encyclopedia, 2006:5).

A small part of the studied territory in the south of the basin within the Kostanay region is occupied by a semi-desert zone. This zone is characterized by ridge-hilly, gently undulating, and ancient lake accumulative plains with sandy-grass and grass-type vegetation on dark chestnut saline soils with salt. Semi-desert landscapes are not very stable, since here the lack of moisture reduces the removal of decomposition products, vegetation is poor, soils are weak, highly vulnerable. In this area, the average annual precipitation is 150-200 mm (Kazhydromet, 2021).

The vegetation cover of the semi-desert plains of the territory of the Tobol River basin is characterized by sandy-grass and grass-type vegetation.

On the territory of the Tobol River basin, a complex of low floodplain terraces and bottoms of lake and estuary depressions is well developed (75, 76 landscapes). The Tobol Valley has wide and gentle slopes, strongly dissected by logs and gullies. The main meadow, floodplain, estuary, saline-meadow-steppe, and saline landscapes are concentrated in the floodplains of rivers. Along the banks of rivers, grass, grass meadows are common.

Conclusion

The presented work reflects the natural landscape differentiation of the geosystems of the Tobol River basin within the Kostanay region. The influence of geomorphological, climatic, and soil-plant factors and conditions form the modern steppe denudation and accumulative landscapes of the Tobol River basin within the Kostanay region. The components of the geosystem do not exist in isolation but make up natural landscapes. The catchment basin of the study is characterized by uniqueness and specificity: the nature of the location, the diversity of the relief and climate, the composition of soils, its lake character, and the asymmetry of the catchment areas of the right bank left bank (Newsletter, 2007).

Natural landscape differentiation makes it possible to obtain the necessary information about the current state of geosystems and further use this data to form environmental management strategies (Management of the Land Cadastre, 2021). The geosystem changes as a whole, but at the same time, its components transform at different speeds and often in their ways. Natural landscape differentiation plays a vital role in environmental protection measures, namely in the conservation and rational use of natural resources. Since this helps to prevent a negative impact on landscapes, another critical point is that differentiation allows you to predict possible hazards for the geosystem.

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