

Appendix 2. Legend to the ecosystem map of the Tesiin-Gol Bulnain-Nuru National Park

Index Types	Ecosystem Types
MOUNTAINOUS	
ALPINE (Glacial Zone)	
1	Rounded blocky summits (stone fields) with gleyic mountain-tundra gravelly skeletal soils, supporting sparse mountain grass (<i>Festuca airoides</i> , <i>F. altaica</i>) – dryad (<i>Dryas octopetala</i>) tundra with patches of dwarf birch (<i>Betula glandulosa</i>).
2	Predominantly plateau-like rocky summit areas, transitional to the mountain taiga belt, with a mountain-tundra soil-vegetation complex: yernik tundras (<i>Betula glandulosa</i>), fragments of subalpine larch (<i>Larix sibirica</i>) – yernik open woodlands, sparse gravelly mountain dryad tundras, grass (<i>Festuca airoides</i> , <i>Ptilagrostis mongolica</i> , <i>Koeleria altaica</i>) – kobresia (<i>Carex myosuroides</i> , <i>C. borealipolaris</i> , <i>C. macrophylla</i>) alpine meadows, stone fields (kurums), and bedrock outcrops.
3	Gentle sub-summit slopes and wide ravines in the upper reaches of watercourses, with stone fields (kurums) and wet micro-depressions; gleyic mountain-tundra podzols and mountain-meadow soils predominate under mountain-tundra yernik (<i>Betula glandulosa</i>) with a lichen - grass (<i>Festuca airoides</i> , <i>Ptilagrostis mongolica</i>) – forb (<i>Bistorta vivipara</i> , <i>Pedicularis lapponica</i> , <i>Potentilla nivea</i>) herbage (including post-fire recovery stages), often with scattered stunted larches. Minor inclusions in micro-depressions include hygrophilous sedge (<i>Carex melananthiformis</i> , <i>C. orbicularis</i> , <i>C. stenocarpa</i> , <i>C. bigelowii</i> subsp. <i>ensifolia</i> , <i>C. curaica</i> , <i>Eriophorum scheuchzeri</i> var. <i>scheuchzeri</i> , etc.) – moss cryogenic marshes, while well-drained ecotopes feature sedge (<i>Carex ledebouriana</i>) – grass (<i>Festuca airoides</i> , <i>F. kryloviana</i> , <i>Ptilagrostis mongolica</i>) – kobresia alpine meadows.
4	Lower parts of the high mountains, with stone fields (kurums) on steep and gentle slopes. Dominant soils include mountain sod-taiga, permafrost-taiga coarse-humus, mountain sod-meadow permafrost, and permafrost-taiga soils. These support stunted subalpine larch open woodlands with yernik (<i>Betula glandulosa</i> , <i>B. fruticosa</i>) and willow (<i>Salix glauca</i>) shrub layer, and a forb (<i>Bistorta vivipara</i> , <i>Gentiana algida</i>) – grass (<i>Festuca airoides</i> , <i>F. altaica</i> , <i>Ptilagrostis mongolica</i>) – kobresia (<i>Carex myosuroides</i> , <i>C. macrophylla</i>) herbage (including post-fire successional stages). On south-facing slopes, <i>Rhododendron parvifolium</i> , <i>Dasiphora fruticosa</i> , <i>Spiraea alpina</i> , and <i>Juniperus communis</i> var. <i>saxatilis</i> gain increasing importance among shrubs, while meadow-forest species (<i>Sanguisorba officinalis</i> , <i>Galium boreale</i> , <i>Trollius asiaticus</i>) are prominent in the herbage.
5	Well-grassed sub-summit, convex, and gentle slopes, predominantly south-facing, with poorly developed mountain-meadow soils under sedge (<i>Carex ledebouriana</i> , <i>C. rupestris</i>) – forb (<i>Bistorta vivipara</i> , <i>Leontopodium leontopodium</i> , <i>Pedicularis lapponica</i>) – kobresia alpine meadows, typically forming complexes with yerniks (with larch participation), stone fields (kurums), and fragments of sedge cryogenic marshes.
6	Steep and gentle south-facing slopes with high-mountain steppe coarse-humus and meadow-steppe soils, supporting vegetation of sedge (<i>Carex pediformis</i> , <i>C. ledebouriana</i> , <i>C. myosuroides</i> , <i>C. macrophylla</i>) – forb (<i>Potentilla nivea</i> , <i>Leontopodium leontopodium</i> , <i>Antennaria dioica</i> , <i>Koenigia angustifolia</i>) – fescue (<i>Festuca airoides</i> , <i>F. lenensis</i> , <i>F. kryloviana</i> , <i>Koeleria altaica</i> , <i>Sibirotrisetum sibiricum</i>) and fescue – kobresia high-mountain cryophytic steppes with an admixture <i>Dasiphora fruticosa</i> , often includes yerniks, larch forests, or larch open woodlands on shaded slope breaks.
MID-MOUNTAIN (forest)	
7	Upper levels of north-facing mid-mountain slopes with mountain permafrost-taiga and mountain forest permafrost coarse-humus soils, supporting subalpine larch forests with yernik (<i>Betula fruticosa</i> , <i>B. glandulosa</i>), <i>Dasiphora fruticosa</i> , and <i>Spiraea alpina</i> . South-facing slopes feature minor inclusions of kobresia meadows and high-mountain cryophytic steppes. In shrubby ravines of stream headwaters, <i>Betula fruticosa</i> is dominant.
8	Mid-mountain slopes and summits, predominantly north-facing (shaded), with mountain permafrost-taiga and mountain sod-taiga deep-permafrost soils, supporting mountain-taiga larch forests: lingonberry (<i>Vaccinium vitis-idaea</i> , <i>Pyrola rotundifolia</i>) – green-moss types on steep and gentle north slopes, and herb (<i>Poa nemoralis</i> , <i>Elymus sibiricus</i> , <i>Carex lanceolata</i> , <i>Geranium pseudosibiricum</i> , <i>Chrysanthemum zawadskii</i> , <i>Ranunculus propinquus</i> subsp. <i>subborealis</i>) – shrub (<i>Lonicera caerulea</i> subsp. <i>altaica</i> , <i>Spiraea media</i> , <i>Ribes nigrum</i>) types on gentle slopes and deluvial fans; locally with fragments of pseudo-taiga rhytidium larch forests: areas of snags resulting from wildfires or insect pest outbreaks are common, occasionally with felled areas. On steep non-northern slopes, meadow-steppe and meadow communities occur; lower forest edges and narrow valley bottoms are occupied by shrublands of <i>Dasiphora fruticosa</i> , <i>Betula fruticosa</i> , and <i>Salix rosmarinifolia</i> .
9	Non-southern slopes with mountain sod-taiga permafrost, forest permafrost coarse-humus, and taiga deep-permafrost soils, supporting mountain larch shrub (<i>Lonicera altaica</i> , <i>Spiraea media</i> , <i>Rosa acicularis</i>) – herb (<i>Poa nemoralis</i> , <i>Elymus sibiricus</i> , <i>Carex lanceolata</i> , <i>Geranium pseudosibiricum</i> , <i>Vicia ramuliflora</i> , <i>V. cracca</i> , <i>Ranunculus propinquus</i> subsp. <i>subborealis</i>) sub-taiga forests on moderate slopes. These include minor presence of taiga lingonberry–green moss larch forests and, predominantly on gentle slopes, rhytidium–herbaceous (<i>Festuca ovina</i> , <i>Poa nemoralis</i> , <i>Bromopsis inermis</i> , <i>Carex lanceolata</i> , <i>C. amgunensis</i> , <i>Geranium pseudosibiricum</i> , <i>Chrysanthemum zawadskii</i> , <i>Bistorta officinalis</i>) pseudo-taiga larch forests (typically used for grazing, hence poor regeneration). The lower forest edges consist of narrow shrubland belts of <i>Dasiphora fruticosa</i> , <i>Salix rosmarinifolia</i> , and <i>Betula fruticosa</i> with meadow-steppe herbage, extending into intermontane valleys; small areas of snags and felled sites are also present.
10	Shaded slope breaks on well-illuminated steppe slopes with mountain sod-forest deep-permafrost soils; aspect-related insular herbaceous larch forests used for livestock grazing (characterized by sparse density and poor regeneration); often include glades with meadow-steppe herbage (<i>Trisetum sibiricum</i> , <i>Elymus sibiricus</i> , <i>Koeleria gracilis</i> , <i>Carex pediformis</i> , <i>Galium verum</i> , <i>Leontopodium leontopodium</i>) and patches of pseudo-taiga fescue (<i>Festuca ovina</i>) – rhytidium (<i>Rhytidium rugosum</i>) larch forests.
11	Steep and gentle marginal areas of northern macro-slopes and lateral spurs facing river valleys and steppe basins, featuring a combination of larch forests on mountain permafrost sod-taiga soils on north-facing slopes, and mountain meadow steppes on mountain non-calcareous chernozems and meadow-steppe soils on other aspects: forb (<i>Sanguisorba officinalis</i> , <i>Bistorta officinalis</i> , <i>Pulsatilla turczaninowii</i> , <i>Leontopodium leontopodium</i> , <i>Galium verum</i> , <i>Veronica incana</i>) – sedge (<i>Carex pediformis</i>) – small-bunchgrass (<i>Koeleria macrantha</i> , <i>Festuca lenensis</i> , <i>Poa attenuata</i>) communities on gentle slopes; petrophytic steep-slope fescue (<i>Festuca lenensis</i>) – sedge (<i>Carex pediformis</i>) communities and their digressive fescue – short-herb (<i>Potentilla acaulis</i> , <i>Artemisia frigida</i> , <i>Veronica incana</i> , <i>Leontopodium leontopodium</i> , <i>Carex duriuscula</i>) pasture modifications; forest edges feature a minor presence of grass (<i>Sibirotrisetum sibiricum</i> , <i>Bromus inermis</i> , <i>Elymus sibiricus</i> , <i>Poa pratensis</i>) – forb (<i>Geranium pratense</i> , <i>Vicia cracca</i> , <i>Achillea asiatica</i> , <i>Sanguisorba officinalis</i> , <i>Valeriana officinalis</i>) polydominant mesophilic meadows with high abundance of <i>Dasiphora fruticosa</i> and <i>Salix rosmarinifolia</i> .

12	Felled areas and forest patches destroyed by wildfires or insect pests, in the early stages of stand regeneration: recolonized by pioneer herbaceous (<i>Calamagrostis lapponica</i> , <i>C. epigeios</i> , <i>Bromus inermis</i> , <i>B. pumpellianus</i> , <i>Poa sibirica</i> , <i>Carex pediformis</i> , <i>Epilobium angustifolium</i> , <i>Aster altaicus</i> , <i>Vicia cracca</i>) and shrub (<i>Spiraea media</i> , <i>Dasiphora fruticosa</i> , <i>Clematis alpina</i> subsp. <i>sibirica</i>) communities. Larch regeneration begins to form small patches; these sites feature deadwood, snags, and scattered groups of undamaged trees.
13	Wet deluvial aprons of shaded aspects facing basins and wide mountain valleys, with mountain meadow permafrost and meadow-bog permafrost soils, supporting yerniks of <i>Betula fruticosa</i> with <i>Dasiphora fruticosa</i> , <i>Salix rosmarinifolia</i> , <i>S. glauca</i> and a grass (<i>Ptilagrostis mongolica</i> , <i>Sibirotrisetum sibiricum</i> , <i>Poa sibirica</i>) – sedge (<i>Carex ledebouriana</i> , <i>C. myosuroides</i> , <i>C. macrophylla</i>) – forb (<i>Bistorta vivipara</i> , <i>Sanguisorba officinalis</i> , <i>Bupleurum multinerve</i> , <i>Galium verum</i> , <i>Allium schoenoprasum</i>) cryophilic-meadow and forb-hygrophilous sedge mire-meadow herbage. These occur in complex with small patches of dwarf birch forests and open woodlands; well-drained ecotopes (illuminated slopes and micro-elevations) feature fragments of kobresia meadows and meadow-steppe communities.
MID-MOUNTAIN (forest-steppe and steppe)	
14	Steep and gentle well-illuminated non-northern slopes (bordering forest stands) with thin mountain chernozem and dark chestnut soils, supporting a mountain forest-steppe complex of meadow-steppe vegetation: sedge (<i>Carex pediformis</i>) – forb (<i>Bupleurum multinerve</i> , <i>Pulsatilla turczaninowii</i> , <i>Galium verum</i> , <i>Potentilla fragarioides</i> , <i>P. sericea</i>) – grass (<i>Festuca lenensis</i> , <i>Trisetum sibiricum</i> , <i>Koeleria gracilis</i> , <i>Helictotrichon schellianum</i>) meadow steppes on well-grassed slopes; petrophytic fescue (<i>Festuca lenensis</i>) – forb (<i>Galium verum</i> , <i>Aster altaicus</i> , <i>Potentilla sericea</i> , <i>Artemisia glauca</i> , <i>Achillea asiatica</i>) – sedge (<i>Carex pediformis</i>) moderately moist steppes on steep rocky slopes; shrublands of <i>Spiraea media</i> (with <i>Dasiphora fruticosa</i> , locally <i>Betula fruticosa</i>) with a forb (<i>Galium verum</i> , <i>Phedimus aizoon</i> , <i>Koenigia angustifolia</i>) – grass (<i>Festuca lenensis</i> , <i>F. sibirica</i> , <i>Koeleria macrantha</i>) herbage; and aspect-dependent larch forests on shaded slope breaks.
15	Mountain slopes facing valleys and intermontane basins in the marginal parts of the mid-mountains, with mountain dark chestnut and thin chernozem soils, supporting mountain moderately moist (meadow) forb (<i>Bupleurum bicaule</i> , <i>Galium verum</i> , <i>Sanguisorba officinalis</i> , <i>Leontopodium leontopodium</i> , <i>Aster altaicus</i>) – grass (<i>Festuca lenensis</i> , <i>Koeleria macrantha</i> , <i>Sibirotrisetum sibiricum</i>) – sedge (<i>Carex pediformis</i>) steppes (typically with <i>Dasiphora fruticosa</i>) and their petrophytic variants (digressive variants of these steppes predominate, dominated by trampling-resistant pasture short-herbs (<i>Veronica incana</i> , <i>Potentilla acaulis</i> , <i>Leontopodium leontopodium</i> , <i>Artemisia frigida</i> , <i>Carex duriuscula</i> , <i>C. pediformis</i> , and <i>Festuca lenensis</i>)). These occur in combination with aspect-dependent island herbaceous and rhytidium-herbaceous larch forests on mountain forest dark-colored soils at shaded slope breaks, with a minor presence of meadow shrub communities of <i>Dasiphora fruticosa</i> and <i>Betula fruticosa</i> .
16	Treeless slopes and deluvial aprons of varying steepness, with mountain dark chestnut and meadow-chestnut soils, supporting a mountain meadow-steppe complex. This includes fescue – forb – sedge (<i>Carex pediformis</i>) meadow steppes (often with <i>Dasiphora fruticosa</i>) on well-grassed slopes, and petrophytic pediform sedge – forb – grass (fescue) moderately moist steppes on steep rocky slopes (predominantly, these steppes are represented by digressive variants, dominated by trampling-resistant pasture short-herbs); in inter-ridge valleys and hollows within the steppe vegetation, cryophilic meadows are common: grass (<i>Sibirotrisetum sibiricum</i> , <i>Hordeum brevisubulatum</i> , <i>Festuca sibirica</i> , <i>Agrostis divaricatissima</i>) – sedge (<i>Carex enervis</i>) – kobresia (<i>Carex macrophylla</i> , <i>C. simpliciuscula</i>) mesophilic types, and marshy hummocky <i>Agrostis divaricatissima</i> – sedge (<i>Carex enervis</i>) types, with <i>Salix rosmarinifolia</i> and <i>Dasiphora fruticosa</i> .
17	Slopes and inter-ridge valleys of low intermontane spurs with mountain gravelly dark chestnut thin soils and, in dry valleys, sandy-loam meadow-chestnut soils on eluvial and deluvial deposits, featuring a combination of steppe communities degraded by overgrazing: petrophytic mountain moderately dry small-bunchgrass (<i>Festuca lenensis</i> , <i>Agropyron cristatum</i> , <i>Poa attenuata</i>) – sedge (<i>Carex duriuscula</i>) – short-herb types; and in dry valleys, <i>Leymus chinensis</i> – small-bunchgrass – sedge (<i>Carex duriuscula</i>) (short-herb) moderately dry types. North-facing slopes feature mountain moderately moist fescue (<i>Festuca lenensis</i>) – sedge (<i>Carex duriuscula</i> , <i>C. pediformis</i>) – short-herb communities with <i>Dasiphora fruticosa</i> .
MOUNTAIN-VALLEY COMPLEXES	
18	Narrow mountain river valley floors of the forest belt with a meadow-shrub soil-vegetation complex: shrublands of <i>Dasiphora fruticosa</i> , typically with an admixture of <i>Betula humilis</i> and willows (<i>Salix</i> spp.), and a meadow herbage (<i>Agrostis vinealis</i> , <i>Poa sibirica</i> , <i>Sibirotrisetum sibiricum</i> , <i>Carex ledebouriana</i> , <i>C. simpliciuscula</i> , <i>Sanguisorba officinalis</i> , <i>Bistorta vivipara</i> , <i>Rhodiola rosea</i>). These include meadow-steppe and high-mountain steppe communities on adjacent aprons, riparian willow shrublands, and locally, fragments of hygrophilous sedge-moss marshes and wet shrubby larch open woodlands.
19	Narrow mountain river valley floors of the forest belt (lower reaches) with a forest-shrub soil-vegetation complex: forb-shrub larch forest and larch open woodland with a moist forest-meadow herbage (<i>Poa nemoralis</i> , <i>Sibirotrisetum sibiricum</i> , <i>Elymus sibiricus</i> , <i>Bistorta officinalis</i> , <i>Sanguisorba officinalis</i> , <i>Carex lanceolata</i> , and hygrophilous sedges) and <i>Dasiphora fruticosa</i> ; shrubby meadow steppe (<i>Dasiphora fruticosa</i> , <i>Festuca lenensis</i> , <i>Koeleria macrantha</i> , <i>Carex pediformis</i> , <i>Bupleurum multinerve</i> , <i>Potentilla fragarioides</i> , <i>P. sericea</i> , <i>Pulsatilla ambigua</i>) on old well-drained gravel deposits; mountain-valley shrublands of <i>Betula humilis</i> and riparian willow shrublands.
20	A serial cryophilic-meadow mountain-valley complex in the floors of wide mountain valleys, predominantly among mountain-steppe ecosystems, featuring: grass (<i>Poa sibirica</i> , <i>Ptilagrostis mongolica</i> , <i>Hordeum brevisubulatum</i> , <i>Bromus inermis</i>) – willow (<i>Salix rosmarinifolia</i>) – kobresia (<i>Carex simpliciuscula</i> , <i>C. myosuroides</i>) meadows (often with <i>Dasiphora fruticosa</i>) on gently sloping parts of the valley floor, with fragments of forb-fescue meadow steppes; and forb (<i>Sanguisorba officinalis</i> , <i>Parnassia palustris</i> , <i>Leontopodium leontopodium</i> , <i>Aster altaicus</i>) – grass (<i>Agrostis vinealis</i> , <i>Poa sibirica</i> , <i>P. pratensis</i>) – sedge (<i>Carex enervis</i> , <i>C. simpliciuscula</i>) wet meadows (often with cryogenic hummocks) along the riparian thalweg of valleys.
SUB-PLAIN	
INTERMOUNTAIN BASINS AND WIDE RIVER VALLEYS (automorphic and semi-hydromorphic)	
21	Gently sloping widenings in the upper reaches of mountain valleys with a high-mountain meadow cryogenic soil-vegetation complex: forb (<i>Potentilla nivea</i> , <i>P. fragarioides</i> , <i>Sanguisorba officinalis</i> , <i>Bistorta vivipara</i> , <i>Leontopodium leontopodium</i> , <i>Galium verum</i>) – grass (<i>Festuca airoides</i> , <i>Ptilagrostis mongolica</i> , <i>Agrostis divaricatissima</i> , <i>Poa sibirica</i>) – kobresia (<i>Carex myosuroides</i> , <i>C. macrophylla</i> , <i>C. simpliciuscula</i>) and kobresia - sedge (<i>Carex ledebouriana</i> , <i>C. melananthiformis</i> , and other hygrophilous sedges) alpine meadows on meadow and meadow-permafrost soils. These occur with significant participation of <i>Agrostis divaricatissima</i> – sedge (<i>Carex enervis</i>) – kobresia marshy meadows with cryogenic hummocks along stream channels, and shrublands of <i>Dasiphora fruticosa</i> and <i>Betula fruticosa</i> with a meadow herbage.
22	North-facing, waterlogged upper levels of aprons in intermontane basins, with meadow permafrost and meadow-bog permafrost soils, supporting alpine shrub communities (<i>Dasiphora fruticosa</i> with <i>Betula fruticosa</i> , <i>Salix glauca</i> , <i>S. rosmarinifolia</i>) with a cryophilic-meadow and marshy-meadow herbage (<i>Poa sibirica</i> , <i>Ptilagrostis mongolica</i> , <i>Festuca kryloviana</i> , <i>Sibirotrisetum sibiricum</i> , <i>Bromus inermis</i> , <i>Carex myosuroides</i> , <i>C. macrophylla</i> , <i>C. ledebouriana</i> , <i>C. lanceolata</i> , <i>C. melananthiformis</i> , <i>C. orbicularis</i> , <i>Bistorta vivipara</i> , <i>Vicia cracca</i> , <i>Sanguisorba officinalis</i> , <i>Valeriana officinalis</i> , <i>Allium schoenoprasum</i>). These include fragments of grass-kobresia cryophilic meadows.

23	Gently sloping aprones of intermontane basins, predominantly north-facing with high groundwater table, featuring meadow-permafrost and meadow-chernozem soils under forb (<i>Bistorta vivipara</i> , <i>Sanguisorba officinalis</i> , <i>Potentilla fragarioides</i> , <i>Parnassia palustris</i> , <i>Artemisia phaeolepis</i>) – grass (<i>Festuca lenensis</i> , <i>F. kryloviana</i> , <i>Poa sibirica</i> , <i>Ptilagrostis mongolica</i>) – kobresia (<i>Carex myosuroides</i> , <i>C. simpliciuscula</i> , <i>C. macrophylla</i>) cryophilic meadows with <i>Dasiphora fruticosa</i> . These include patches of fescue – sedge (<i>Carex pediformis</i>) meadow steppes on well-drained ecotopes.
24	Floors of intermontane basins with a cryophilic-meadow soil-vegetation complex: sedge (<i>Carex ledebouriana</i> , <i>C. pediformis</i>) – grass (<i>Poa sibirica</i> , <i>Ptilagrostis mongolica</i> , <i>Agrostis divaricatissima</i>) – kobresia (<i>Carex myosuroides</i> , <i>C. simpliciuscula</i> , <i>C. macrophylla</i>) meadows and, on gently sloping bases of slopes and upper ravine reaches, forb (<i>Bistorta vivipara</i> , <i>Bupleurum multinerve</i> , <i>Sanguisorba officinalis</i> , <i>Galium verum</i> , <i>Artemisia phaeolepis</i>) – grass (<i>Sibirotrisetum sibiricum</i> , <i>Poa sibirica</i> , <i>Ptilagrostis mongolica</i>) – sedge (<i>Carex pediformis</i> , <i>C. myosuroides</i>) meadows with <i>Dasiphora fruticosa</i> . These are on meadow-permafrost soils, with inclusions of fescue – sedge (<i>Carex pediformis</i>) meadow-steppe communities on well-drained ecotopes.
25	Gently sloping piedmont aprones of lake basins with grass (<i>Festuca lenensis</i> , <i>F. kryloviana</i> , <i>Sibirotrisetum sibiricum</i> , <i>Koeleria altaica</i>) – kobresia (<i>Carex myosuroides</i>) cryophytic steppes (locally with <i>Dasiphora fruticosa</i>) on high-mountain steppe and meadow permafrost soils, including their digressive short-herb modifications; with inclusions of cryophilic grass (<i>Agrostis divaricatissima</i> , <i>Poa sibirica</i>) – sedge (<i>Carex enervis</i> , <i>C. pediformis</i> , <i>C. simpliciuscula</i>) meadows in ephemeral watercourse hollows
26	Gently sloping piedmont aprones and dry floors of lake basins with a combination of sedge (<i>Carex pediformis</i> , <i>C. simpliciuscula</i>) – forb (<i>Aster altaicus</i> , <i>Potentilla sericea</i> , <i>Artemisia glauca</i> , <i>Veronica incana</i>) – grass (<i>Sibirotrisetum sibiricum</i> , <i>Festuca lenensis</i> , <i>Helictochloa hookeri</i>) meadow steppes with <i>Dasiphora fruticosa</i> on chernozem and meadow-chernozem soils of well-drained ecotopes, and a serial row of cryophilic meadows in ephemeral watercourse hollows: willow (<i>Salix rosmarinifolia</i>) – kobresia (<i>Carex myosuroides</i> , <i>C. macrophylla</i>) with cryogenic hummocks and grass (<i>Agrostis vinealis</i> , <i>Poa sibirica</i>) – sedge (<i>Carex enervis</i> , <i>C. ledebouriana</i> , <i>Triglochin palustris</i>).
27	Gently sloping drained aprones of valleys and basins with dark chestnut, meadow-chestnut, and meadow permafrost soils, supporting forb – sedge (<i>Carex pediformis</i>) – fescue moderately moist (meadow) steppes. Over most of the area, these are dominated by trampling-resistant pasture short-herbs; micro-depressions typically feature <i>Agrostis vinealis</i> – sedge (<i>Carex enervis</i>) cryophilic meadows with an admixture of <i>Salix rosmarinifolia</i> and <i>Dasiphora fruticosa</i> .
28	Alluvial fans of mountain rivers from the Bulnain-Nuru Range, featuring a combination of petrophytic grazing-degraded fescue – short-herb (<i>Carex duriuscula</i> , <i>Artemisia frigida</i> , <i>Veronica incana</i> , <i>Leontopodium leontopodium</i> , <i>Potentilla acaulis</i> , <i>P. sericea</i>) meadow steppes on drained gravelly proluvial deposits with poorly developed dark chestnut soils; grass (<i>Agrostis vinealis</i> , <i>Hordeum brevisubulatum</i>) – forb (<i>Argentina anserina</i> , <i>Halerpestes sarmentosus</i> , <i>Parnassia palustris</i> , <i>Sanguisorba officinalis</i>) – sedge (<i>Carex enervis</i>) meadows (with cryogenic hummocks) on meadow-permafrost soils in ephemeral watercourse hollows; and forb (<i>Bistorta vivipara</i> , <i>Bupleurum multinerve</i> , <i>Sanguisorba officinalis</i> , <i>Galium verum</i> , <i>Artemisia phaeolepis</i>) – grass (<i>Poa sibirica</i> , <i>Ptilagrostis mongolica</i>) – kobresia (<i>Carex simpliciuscula</i>) cryophilic meadows with <i>Dasiphora fruticosa</i> in depressions with a high groundwater table.
29	Proluvial floor of an intermontane basin with alternating drained elevated ecotopes and wide hollows with a high groundwater table and numerous stony channels of ephemeral watercourses, featuring a meadow-steppe complex: short-herb – sedge (<i>Carex pediformis</i>) – fescue moderately moist steppes on thin dark chestnut soils, and a serial meadow row of hollows with grass (<i>Sibirotrisetum sibiricum</i> , <i>Agrostis divaricatissima</i> , <i>Poa sibirica</i>) – forb (<i>Sanguisorba officinalis</i> , <i>Bistorta vivipara</i> , <i>Potentilla fragarioides</i>) – sedge (<i>Carex pediformis</i> , <i>C. simpliciuscula</i>) steppified meadow on meadow-chestnut soils of wide hollows with a high groundwater table, with inclusions of <i>Agrostis divaricatissima</i> – sedge (<i>Carex enervis</i>) cryophilic meadows with <i>Dasiphora fruticosa</i> along thalwegs. In the herb layer of the sandy lakeside zone of the aprones, <i>Neotrinia splendens</i> , <i>Leymus chinensis</i> , <i>Carex korshinskyi</i> , and <i>Aster altaicus</i> are common.
30	Dry floors of intermontane valleys (predominantly south-facing) and aprones of lake basins with a serial meadow-steppe complex: short-herb (<i>Artemisia frigida</i> , <i>Carex duriuscula</i> , <i>Potentilla acaulis</i> , <i>Bupleurum bicaule</i>) – fescue moderately dry steppe on dark chestnut soils of drained aprones; short-herb – grass (<i>Sibirotrisetum sibiricum</i> , <i>Hordeum brevisubulatum</i> , <i>Agrostis divaricatissima</i>) – sedge (<i>Carex enervis</i> , <i>C. simpliciuscula</i>) steppified meadow on meadow-chestnut soils of wide hollows with a high groundwater table, with inclusions of <i>Agrostis divaricatissima</i> – sedge (<i>Carex enervis</i>) cryophilic meadows with <i>Dasiphora fruticosa</i> along thalwegs. In the herb layer of the sandy lakeside zone of the aprones, <i>Neotrinia splendens</i> , <i>Leymus chinensis</i> , <i>Carex korshinskyi</i> , and <i>Aster altaicus</i> are common.
31	Gentle proluvial-deluvial aprons with a shallow groundwater table and lake basin floors characterized by mesophytic and steppified forb (<i>Bistorta officinalis</i> , <i>Galium boreale</i> , <i>Sanguisorba officinalis</i> , <i>Argentina anserina</i> , <i>Parnassia palustris</i>) – sedge (<i>Carex enervis</i> , <i>C. simpliciuscula</i>) – grass (<i>Agrostis divaricatissima</i> , <i>Poa sibirica</i> , <i>Koeleria altaica</i> , <i>Bromus inermis</i> , <i>Sibirotrisetum sibiricum</i> , <i>Hordeum brevisubulatum</i>) meadows on meadow-chernozemic and steppified meadow soils, occurring in a complex with <i>Carex pediformis</i> – short-herb – fescue meadow steppes on elevated habitats with dark chestnut soils
32	Wide piedmont aprons of low mountains and dry basin floors composed of proluvial and eluvial deposits, featuring dark chestnut sandy loam and meadow-chestnut soils. These areas support degraded small-bunchgrass (<i>Festuca lenensis</i> , <i>Agropyron cristatum</i>) - sedge (<i>Carex duriuscula</i>) - short-herb (<i>Artemisia frigida</i> , <i>Veronica incana</i> , <i>Potentilla acaulis</i> , <i>Aster altaicus</i>) moderately dry steppes (with <i>Leymus chinensis</i> in dry valleys), with the inclusion of grass - short-herb - sedge (<i>Carex enervis</i> , <i>C. duriuscula</i>) steppified meadows within the ephemeral stream gullies ("sair" hollows) of gentle basin slopes.
33	Proluvium-mantled lake basin floors (retaining small, shallow saline ponds) with light-textured dark chestnut soils, supporting grazing-degraded moderately dry sedge (<i>Carex duriuscula</i>) - bunchgrass (<i>Stipa krylovii</i> , <i>Agropyron cristatum</i> , <i>Festuca lenensis</i>) - short-herb (<i>Potentilla acaulis</i> , <i>Artemisia frigida</i> , <i>Veronica incana</i> , <i>Ephedra monosperma</i> , <i>Thymus mongolicus</i>) steppes, with the occurrence of <i>Dasiphora fruticosa</i> in micro-depressions, and <i>Leymus chinensis</i> and <i>Neotrinia splendens</i> on sandy soils surrounding the ponds
LOWLANDS, FLOODPLAINS, DELTA AND TERRACES (hydromorphic)	
34	A flat depression within an intermontane basin at the confluence of numerous small headwater streams of the Tesiin-Gol River and zones of groundwater discharge, characterized by a lowland soil-vegetation complex. This complex comprises dense thickets of hygrophilous shrub willows, interspersed with <i>Dasiphora fruticosa</i> , <i>Betula humilis</i> , and scattered larch individuals, occurring on cryogenic meadow-marsh and cryo-marshy soils. It exists in a mosaic with sedge (hygrophilous sedges, <i>Antennaria dioica</i>) - moss marsh, willow (<i>Salix rosmarinifolia</i>) - sedge (<i>Carex enervis</i> , <i>C. ledebouriana</i> , <i>C. macrophylla</i> , <i>C. myosuroides</i>) communities, and forb (<i>Bistorta vivipara</i> , <i>Sanguisorba officinalis</i> , <i>Galium verum</i>) - grass (<i>Agrostis divaricatissima</i> , <i>Ptilagrostis mongolica</i> , <i>Poa sibirica</i> , <i>P. pratensis</i> , <i>Hordeum brevisubulatum</i>) - sedge marshy cryophytic meadows, typically featuring a high abundance of <i>Dasiphora fruticosa</i> .

35	<p>In intermontane basins, river fan-deltas with numerous ephemeral stream channels and groundwater discharge points are found. The soil and vegetation cover is poorly developed and subject to heavy grazing pressure, represented by a dynamic meadow complex (including sedge – short-herb – fescue moderately moist steppes on drained fragments of proluvial aprons). This complex comprises grass (<i>Sibirotrisetum sibiricum</i>, <i>Agrostis divaricatissima</i>, <i>Poa sibirica</i>) – sedge (<i>Carex enervis</i>, <i>C. myosuroides</i>) – short-herb (<i>Potentilla fragarioides</i>, <i>Parnassia palustris</i>, <i>Leontopodium leontopodium</i>) cryophytic mesic and steppified meadows on sandy-pebbly deposits with cryogenic hummocks. Additionally, grass (<i>Bromus inermis</i>, <i>Hordeum brevisubulatum</i>, <i>Poa pratensis</i>, <i>Agrostis vinealis</i>)–forb (<i>Sanguisorba officinalis</i>, <i>Bistorta vivipara</i>, <i>Galium boreale</i>) – sedge (hygrophilous sedges, <i>Carex myosuroides</i>, <i>C. borealipolaris</i>) marshy meadows with shrubs (<i>Dasiphora fruticosa</i>, <i>Salix rosmarinifolia</i>) occur under shallow groundwater conditions, along with hummocky riparian cryophytic marshy meadows dominated by <i>Agrostis vinealis</i> - short-herb - sedge (<i>Carex enervis</i>).</p>
36	<p>Floodplains of small rivers in intermontane basins, characterized by a successional series of cryophytic meadows, which are mostly heavily degraded by grazing. These include grass (<i>Agrostis vinealis</i>, <i>Ptilagrostis mongolica</i>, <i>Poa sibirica</i>) – short-herb (<i>Parnassia palustris</i>, <i>Potentilla sericea</i>, <i>Leontopodium leontopodium</i>, <i>Taraxacum pubescens</i>) – sedge (<i>Carex pediformis</i>, <i>C. enervis</i>, <i>C. simpliciuscula</i>) steppified meadows, typically featuring <i>Salix rosmarinifolia</i>, occurring on cryogenic meadow soils with cryogenic hummocks and pitted (“hollow”) microrelief in the transition zone to drained aprons. Additionally, the complex features short-herb (<i>Argentina anserina</i>, <i>Plantago media</i>, <i>Halerpestes sarmentosa</i>) – <i>Agrostis vinealis</i> – sedge (<i>Carex enervis</i>) riparian mesic and marshy meadows on cryogenic meadow-marsh and alluvial gley soils.</p>
37	<p>Floodplains and low terraces of the Tesiin-Gol River and the lower reaches of its major tributaries, characterized by alluvial and paleolake deposits partially mantled on terraces by thin proluvium. The soil and vegetation cover exhibits a successional series with severe grazing digression, including fescue – short-herb (<i>Convolvulus ammannii</i>, <i>Artemisia adamsii</i>, <i>A. frigida</i>, <i>Aster altaicus</i>, <i>Ephedra monosperma</i>) – <i>Leymus chinensis</i> psammophytic steppe on dark chestnut sandy and alluvial steppic soils of the low terrace above the floodplain (with fragments of fescue – short-herb moderately dry steppe). This complex also features riparian <i>Agrostis vinealis</i> – sedge (<i>Carex enervis</i>)–short-herb floodplain meadows, with minor occurrences of reed (<i>Phragmites australis</i> subsp. <i>australis</i>) – sedge hydrophilous meadows in shallow backwaters.</p>
38	<p>Recently exposed shallows of saline lakes (lacustrine deposits with surface salt efflorescence and minor occurrences of Solonetz soils at the periphery), colonized by pioneer open halophytic communities (<i>Puccinellia tenuiflora</i>, <i>Suaeda corniculata</i>, <i>Salicornia europaea</i>, <i>Artemisia anethifolia</i>), interspersed with barren sandy and stony patches.</p>