

*Physical Geography*

## The Anthropogenic Transformation of Natural Landscapes of Sub-Mediterranean Semi-Humid Foothills

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(Presented by Academy Member Z. Tatashidze)

**ABSTRACT.** In sub-Mediterranean semi-humid foothills the stability of landscapes has been established – the degree of anthropogenic influence on them, the sections of ecological tensions and the territory distinguished for high landscape diversity have been determined. © 2007 Bull. Georg. Natl. Acad. Sci.

**Key words:** *sustainable, geoecology, re-anthropogenization.*

Determination of sustainable landscapes is one of the main tasks of geoecological investigation. Sustainability of landscapes is the capacity of resistance to natural and anthropogenic factors – “Immunity” [3].

The landscapes of sub-Mediterranean semi-humid foothills of Georgia, enclosed within the natural habitat of intense anthropogenic influence (area 2587 km<sup>2</sup>), vividly presenting a many-sided picture: 632 km<sup>2</sup> (25%) area – on the average occupies a modified (20-50%) landscape; A territory with the area of 448 km<sup>2</sup> (18%) is represented by rather transformed (50-80%) landscapes; a territory of 910 km<sup>2</sup> (35%) is covered with rather modified (80-95%) landscapes; and the territory of the area of 548 km<sup>2</sup> (28%) – are practically completely transformed (95-100%) landscapes.

On the basis of comparison of available literary and cartographic sources (a landscape map of the Caucasus, 1:1000 000, 1979) and our investigations in the sub-Mediterranean semi-humid foothills four landscape categories are represented [1]. The 15<sup>th</sup> erosion-denudation relief of hilly foothills with the landslide and mudflow processes, shibliak, shrubs-hornbeam-oak-wood derivatives, here and there with arid sparse wood, with lammergeier field and partial phrygana (500 – 800m).

The 16<sup>th</sup> hilly erosion-denudation relief of hilly foothills with landslide and mudflow processes, shrub-hornbeam-oak-wood derivatives, shibliak, at some places with arid sparse wood, with phrygana and beard grass steppes, here and there with badlands (700 – 1000m).

The 17<sup>th</sup> denudation-accumulative relief of hilly foothills with landslide and mudflow processes, with complexes of hammer-like field, shibliak, rarely with phrygana and wood derivatives (700 – 1000m).

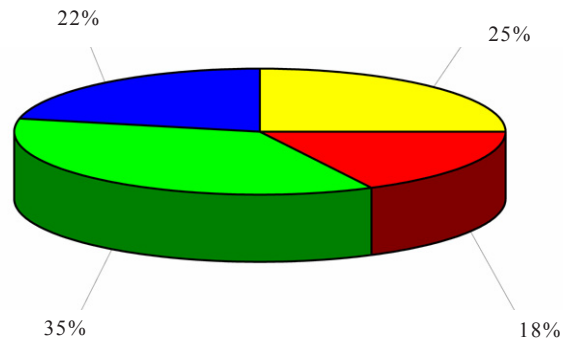
The 18<sup>th</sup> hilly erosion-accumulative relief of hilly foothills with landslide and mudflow processes, shrub-hornbeam-oak-wood derivatives and shibliak (300 – 800m).

On the basis of researches carried out we can conclude that rather transformed (50-80%) landscapes are least represented, while strongly modified (80-95%) landscapes are represented widely.

According to the genres the anthropogenesis acquires the following image:

In the 15<sup>th</sup> category the landscapes modified by (20-50%) occupy 41% (180 km<sup>2</sup>) of category, and the landscapes modified by (80-95%) occupy 59% (258 km<sup>2</sup>).

In the 16<sup>th</sup> category we encounter a whole spectrum of transformation. Here, the change by (20-50%)



occupies 20% (250 km<sup>2</sup>); The least represented is (50-80%) change 18%-(224km<sup>2</sup>). The (80-95%) transformation is spread at 21% (268km<sup>2</sup>) and the (95-100%) change is represented in 41% of the category (536km<sup>2</sup>), being a dominant in the category. And the least is represented the 50-80% change, 224 km<sup>2</sup> (18% of the category).

In the 17<sup>th</sup> category the priority development has a 20-50% transformation. It covers 53% (205km<sup>2</sup>) of the category. By 50-80% is changed 58km<sup>2</sup> of the category (15%), and 124 km<sup>2</sup> (which constitutes 32% of the category) experiences a 80-95% transformation.

In the 18<sup>th</sup> category two degrees of anthropogenesis are recorded. 61% (260km<sup>2</sup>) of the category comprises 50-80% modification, and the remaining 39% (166km<sup>2</sup>) occupies a 20-50% modified landscape.

According to the above indicated data 25% (635km<sup>2</sup>) of sub-Mediterranean semi-humid foothills landscapes are modified at an average rate (20-50%); 18% (448 km<sup>2</sup>) is transformed seriously considerably (50-80%); 35% (910 km<sup>2</sup>) are strongly modified (90-100%).

Environment protection and nature use are nearly identical to maintaining and protection of self-restoration of landscapes. [2]

Among the sub-Mediterranean semi-humid foothills we shall distinguish ecologically tensile sections to which the Kaspi and Kazreti districts have been assigned regions belong. Kaspi is included in the 16<sup>th</sup> category “The hilly erosion-denudation narrow mountainside, with active gravitation processes of steep slope, here and there with badlands, constructed of molas rocks, with arid rare wood on dark brown and washed soils” and in the 15<sup>th</sup> category “the hilly erosion-denudation foothills, constructed with volcanic deposit rocks, shrub-hornbeam-oak-wood derivatives,

meadow steppes and shibliak (300–800m) on leached brown and meadow brown soils”.

The territories with high landscape diversity are distinguished in the region. This is Martkopi stationary and adjacent territory which is comprised in the 17<sup>th</sup> category of research region.

In Martkopi stationary and its neighborhood we have distinguished 2 landscape sites. In each landscape sites there are distinguished two valleys. And in valleys there are 20 tracks and 42 facies, giving ground to consider it as a territory distinguished for high landscape diversity where there takes place a process of **reanthropogenesis**. It is distinguished for its high landscape diversity and is a protected territory of some kind. In the category of our research region – “The hilly erosion-accumulative foothills, built of conglomerates, clays and sand-stones, with complexes of beard grass steppes, shibliak, phrygane and wood derivatives, on carbonate, typical brown and sometimes black earth soils”.

The data of Martkopi physical-geography stationary may be extended in the entire 17<sup>th</sup> category of the research region. By expedition and semi-expedition studies and with the use of large-scale maps we can distinguish and give a detailed description of the respective morphological units. And for the remaining 15<sup>th</sup>, 16<sup>th</sup> and 18<sup>th</sup> categories it is possible to establish a definite correlation and detailed characterization.

By using “semaphore maps”, I have assigned a red color to the sections of tension (Kaspi, Kazreti), a green color to the territory distinguished for high landscape diversity (Martkopi) and for remaining territory of the research region yellow color would probably be relevant.

ფიზიკური გეოგრაფია

## საქართველოს სუბხმელთაშუაზღვიური სემიჰუმიდური მთისწინების ბუნებრივ ლანდშაფტთა ანთროპოგენური ტრანსფორმაცია

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(წარმოდგენილია აკადემიკოს ზ. ტატაშიძის მიერ)

ნაშრომში დადგენილია სუბხმელთაშუაზღვიური სემიჰუმიდური მთისწინების ბუნებრივ ლანდშაფტთა მდგრადობა ანთროპოგენური ზემოქმედების პირობებში და განსაზღვრულია საკვლევ რეგიონში ეკოლოგიური დაძაბულობის უბნები და მაღალი ლანდშაფტური მრავალფეროვნებით გამოირჩეული ტერიტორია.

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