

**LAND USE IN DOLOMITE REGIONS
IN SLOVENIA**

**RABA TAL NA DOLOMITNIH OBMOČJIH
SLOVENIJE**

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Izvleček

UDK 552.54(497.12)

Matej Gabrovec: Raba tal na dolomitnih območjih Slovenije

Dolomit pokriva 12% slovenskega površja (glej karto 1), kar je skoraj 2500 km². Večina pripada triasu, nekaj dolomita pa je tudi jurskega in krednega izvora (glej tabelo 1).

Ključne besede: dolomit, izraba tal, Slovenija

Abstract

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Matej Gabrovec: Land Use in Dolomite Regions in Slovenia

In Slovenia, dolomite covers 12 % of all land (see map 1), almost 2500 km². The majority is of Triassic origin, with some of Jurassic and Cretaceous origin (see Table 1).

Key words: dolomite, land use, Slovenia

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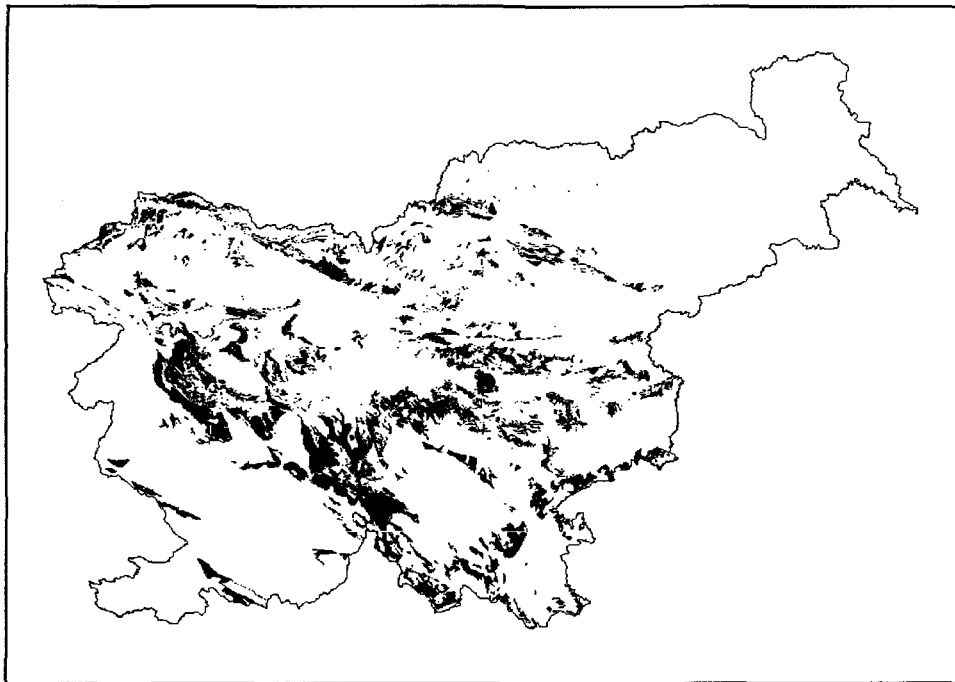
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The dolomite surfaces in Slovenia cover approximately 2500 km², which is 12 % of the territory of the Republic of Slovenia. Most of the dolomites are of Triassic age and a tenth of Jurassic or Cretaceous age. Most of the dolomite areas are in the pre-alpine areas and on Dinaric plateaus. The land use of the dolomite regions differs greatly from the one of the karst limestone and the non-karst areas. A high percentage of meadow areas, which can be often found on very steep slopes, is rather typical. A growing number of steep meadows and pastures has lately been abandoned. Thus, it is the dolomite regions that take the biggest share of surfaces which are in the process of being overgrown.

In Slovenia, dolomite covers 12 % of all land (see map 1), almost 2500 km². The majority is of Triassic origin, with some of Jurassic and Cretaceous origin (see Table 1).



Map 1: Dolomite regions in Slovenia / Karta 1: Dolomitna območja v Sloveniji

Table 1: Dolomite in Slovenia by age

Geological Period	Area in km ²	% of Area
Permian	14	1
Triassic	2153	86
Scythian	35	1
Anisian	307	12
Carnian (mainly Cordevolian)	535	21
Rhaetian-Norian	1146	46
Bača dolomite	130	5
Jurassic	252	10
Cretaceous	83	3
Total	2502	100

The sources for Table 1 are the basic 1 : 100000 scale geological maps. In some questionable cases when the data on the basic geological maps did not match, I utilized the newest 1 : 500000 scale geological survey map. In the scythian layer, the dolomite alternates with limestone and sandstone. The table considers only dolomite which is particularly distinct on the geological maps. On the majority of geological maps, lithological links from this period are not distinguished, and therefore the actual areas of dolomite from this period are considerably larger.

According to the natural geographical macroregions of Slovenia (Gams, 1992), the proportion of dolomite is quite varied. The smallest is found on the bottom of the Ljubljana Basin, only 2 %, and the greatest in the Dinaric karst of continental Slovenia, 20 %. The high Alps and the alpine foothills account for 15 % each (see table 2).

Table 2: Proportion of Dolomite according to the Natural Geographical Macroregions of Slovenia in %

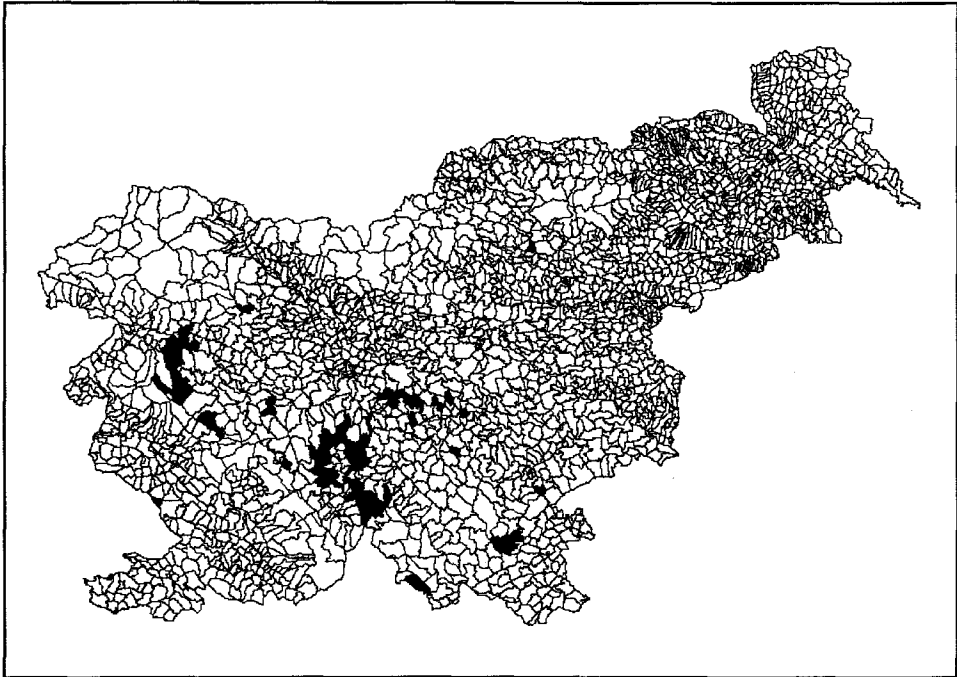
High Alps	15
Alpine Foothills	15
Ljubljana Basin	2
Sub-Pannonian Slovenia	5
Dinaric Karst of Continental Slovenia	20
Primorska (Littoral)	5

In the high mountain world, the dolomite regions are distinguished from limestone areas by major mechanical weathering and therefore much scree is found here (Šifrer, 1963, Kunaver, 1983). We determined the relationship between dolomite and land use primarily in the subalpine and dinaric regions. Here characteristic dry valleys are most typical among relief forms, and shallow dolines and uvalas also occur. The bottoms of the dry valleys are naturally filled with periglacial rubble; here the soil is thicker and in the past

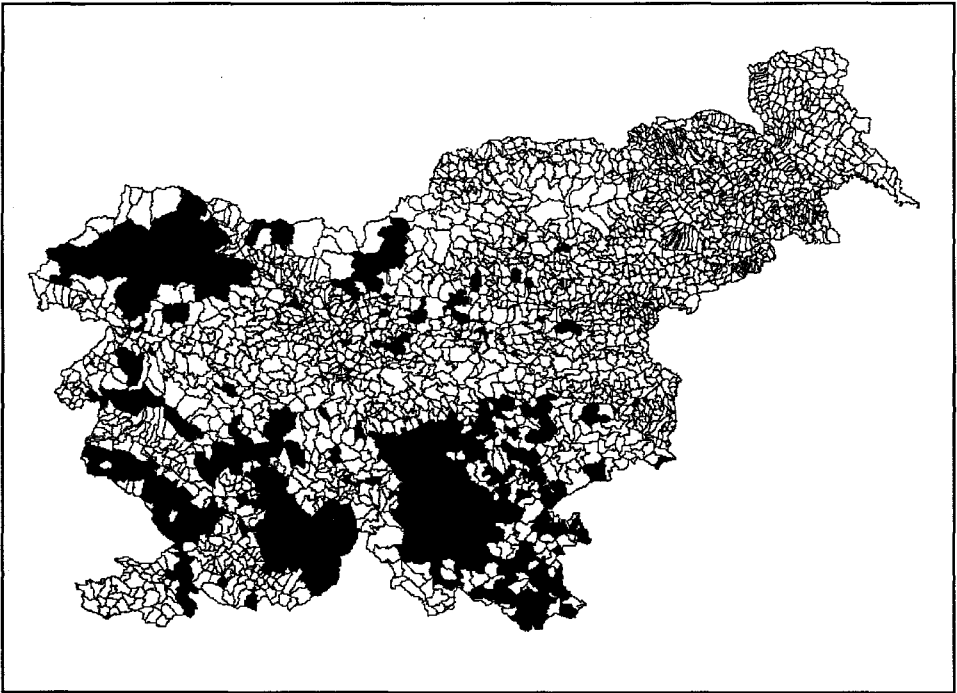
there were cultivated fields here. The slopes of these dry valleys were cleared for meadows which today are often overgrown. The dry valleys develop downhill into gullies. In general, dolomite areas are more suitable for agricultural use because they are less rocky and therefore they have been cleared to a greater extent than land over limestone. Of course, they are less intensively exploited for agriculture than areas of various noncarbonate rocks.

According to their relief characteristics, which are also reflected in land use, dolomite areas differ considerably from karst areas and areas of fluvial relief. On the survey speleological maps of Slovenia, they are characterized as partial fluviokarst (Habič, 1982). In further work, I attempted to determine whether differences in land use are significant enough to be reflected in official cadastral data as well.

With the help of the Register of Territorial Units (ROTE) (Lipej, 1990) and digitalized geological maps, we divided all Slovene cadastral districts into three groups according to their dominant type of stone. In the first dolomite prevailed, in the second limestone, and in the third noncarbonate rocks. In our analysis we ranked only those cadastral districts where one of the mentioned types of rock occupied at least two-thirds of the surface area of the cadastral district. We excluded from our analysis cadastral districts where unconsolidated sedimentary rocks prevailed (see Maps 2-3).



*Map 2: Cadastral districts where dolomite dominates
Karta 2: Katastrske občine, kjer prevladuje dolomit*



Map 3: Cadastral districts where limestone dominates
 Karta 3: Katastrske občine, kjer prevladuje apnenec

For each cadastral district we calculated the proportion of cultivated fields, meadows, pastures, and forest in 1953 and 1987 (Kladnik, 1985). When combined all the data, we were able to calculate average land use for dolomite, limestone, and noncarbonate rock areas for all of Slovenia.

Table 3: Land use in Slovenia according to type of rock

	% field		% meadow		% pasture		% forest	
	1953	1987	1953	1987	1953	1987	1953	1987
Dolomite	10	8	26	25	15	11	45	53
Limestone	9	7	16	15	22	16	44	49
Noncarbonate	15	11	16	18	13	9	47	52

The first fact we can observe from Table 3 is that there is somewhat more field on dolomite than on limestone, but there are more significant differences in the proportions of meadow and pasture. On dolomite we have substantially less pasture areas than on limestone and rather a larger proportion of meadow. This fact clearly reflects intensive agricultural exploitation in dolo-

mite areas compared to limestone karst areas.

Because the official cadastral data followed the changes in land use with quite considerably delay and we could therefore not get an accurate picture, we verified the data on a test area with data from the Agrokarta (Germek, 1987). In the framework of the Agrokarta project which goal was the assessment of current and future use of agricultural land, land use for the whole country was charted on a 1 : 5000 scale. For several districts there were data available in digital form on agricultural use according to survey units and cadastral districts. The computer records also contained data about so-called pedosequence and categories of agricultural land. For analysis we selected the Idrija District because it has a large proportion of dolomite area. The advantage of the data from the Agrokarta is that it also includes overgrown areas.

Table 4: Land use relative to various rock in the Idrija District in 1987 (Source Agrokarta, analysis deals only with agricultural land)

	% field	% meadow	% overgrown
Dolomite	4	89	7
Limestone	2	94	3
Noncarbonate	6	92	1

An interesting finding is that there is a greater proportion of overgrown land on dolomite than on limestone. This can be explained by the fact that in contrast to limestone areas, some very steep slopes in dolomite areas were used for meadows which today are not suitable for mechanized farming. We achieved similar results in an analysis of land use in the Polhov Gradec hills (Gabrovec, 1990).

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Povzetek

V Sloveniji zavzemajo dolomitne površine približno 2500 km², kar predstavlja 12 % ozemlja Republike Slovenije. Večina dolomitov je triasne starosti, desetina pa jih je jurske ali kredne starosti. V Sloveniji je največ dolomitnih pokrajin v predalpskem svetu in na dinarskih planotah. Dolomitna območja se glede rabe tal precej razlikujejo tako od kraških apnenčastih območij kot tudi od nekraških predelov. Značilen je velik delež travniških površin, ki so pogosto tudi na zelo strmih pobočjih. Strmi travniki in pašniki na dolomitnih pobočjih se v zadnjem času vse bolj opuščajo. Tako v Sloveniji opazamo, da je največji delež zaraščajočih se površin prav na dolomitnih predelih.