

LONG -TERM SCALE CHANGES OF LAND USE IN PEASANT FARMING OF THE TARDONA HILLS

Orsolya SZIRMAI¹ - Szilárd CZÓBEL²

¹ Plant Ecology Research Group of Hungarian Academy of Sciences, Szent István University, Hungary

² Department of Botany and Plant Physiology Szent István University, Hungary

Introduction

For centuries, small-scale and family-based peasant farming was the traditional way of life in the Tardona Hills. Use of traditional methods this sustainable farming focused on food production, including plant cultivation and animal husbandry. Records show that farming has been practiced for 800 years in the research area. Since the first Military Survey Map the ratio of cultivated and uncultivated lands parallel with the changes in land use and land cover can be spatially detected. In the mid 19th century records of land use types appeared and became more frequent. The mentioned documents (maps and records) representing different periods well complement each other and enable us to follow centuries-long historical land use and land cover changes. This paper shows the characteristic land use types of peasant farms and their distribution on a selected area of the Tardona Hills from 1784 to 1984. Thereby landscape-scale changes can be detected in the within the mentioned period. These historical records are essential to interpret the data of the recent vegetation.

Methods

Study site

The survey was carried out on a 30 km² area of southwest-northeast ridge of Tardona Hills, nearby the Bükk Mountains, in Hungary. It is bordered by the Nyöggő and Harica Stream Valley on the north, Sajó Valley on the east, Bábonny Stream, and Barossakna Lyukóháza Road on the south, the narrow gauge railway line on the south-west, and Mahóca Varbó Road on the west. The study site belongs to the municipality of Sajószentpéter, Sajóbáony, Sajókápolna, Sajólászlófalva, Radostyán, Parasznya és Varbó (from the Sajó Valley toward the Bükk Mountains). Micrometeorological characteristics (annual mean temperature is 9°C, annual mean precipitation is around 600 mm) show similar pattern along the ridge, the site is dominated by brown forest soils covering pannon-sand, clay and loess sediments. Altitude range between 200-320 m, above mean sea level (Szirmai and Czóbel, 2005).

Vegetation

The vegetation of the ridge is very variable, comprising mosaics of grasslands, woodlands and forest patches. It shows transition from the plain to the mountain and part of the forest-steppe zone (Szirmai and Czóbel, 2005). The natural forest associations were *Aceri tatrico-Quercetum*, *Quercetum petraeae-cerris* and *Quercus petraeae-Carpinetum* (Zólyomi, 1967). At the end of the 1700's – according to the first records (Military Survey I. 1784) – the ridge was covered by cultivated lands (vineyards, hayfield and pastures) and natural vegetation (grasslands and forests).

Methods

Land use and land cover data based on historical records [(Györffy, 1963; Fényes 1851, KSH 1988, Military Survey Map I. (1784); II. (1857); III. (1883-84); Military Map of People Republic of Hungary (1959, 1976)], from 1784 to 1984. Statistical data of the settlements were collected, and land cover area of different land use types were calculated in case of maps.

Results and discussion

At the end of the 1700's only one-third of the study area was covered by forest, and the distribution of grasslands and vineyards were similar (Figure 1). At that time there wasn't any plough-land on the range.

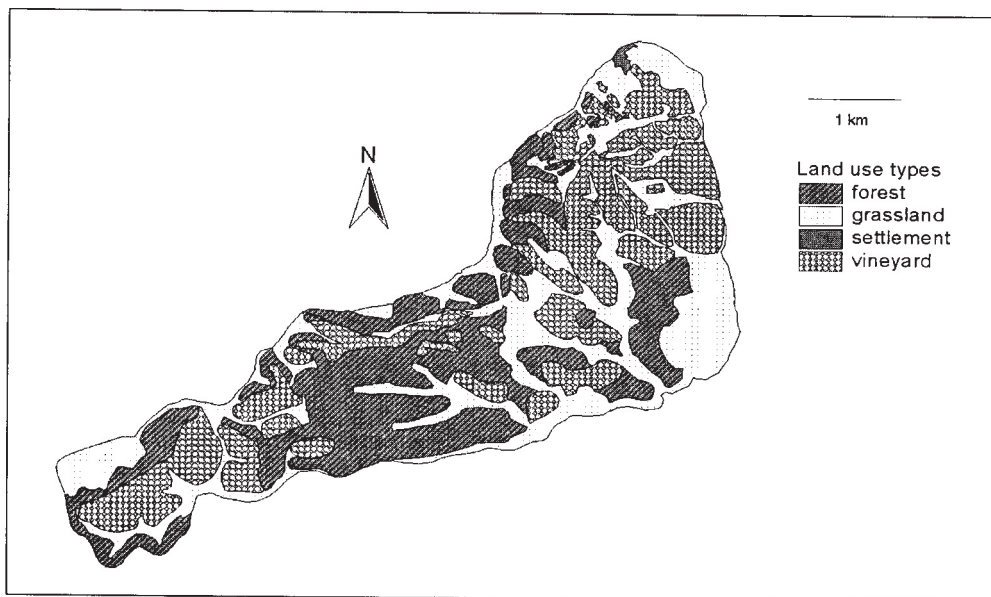


Figure 1. Land use types and land cover on the ridge in 1784. (Map modified after Military Survey Map I., 1784)

Data show that from the mid 19th century to 1984 (Table I.) the area of forested lands changed the least out of land use types. The only exceptions were Sajóbáony and Sajólászlófalva, where forested area decreased half of the previous expansion. In the first case it was due to the setting of a chemical factory complex and its environmental pollution, while in latter forests were converted to plough-land. Opposite with these locations at Sajószentpéter forest patches expanded slightly and continuously during this period.

Table I. Statistics for land use in Tardona Hills settlements, from 1851 to 1984 (ha) (data sources: Fényes 1851 & KSH 1988).

settlement	year	plough-land	vineyard	garden/ orchard	grassland	forest
Parasznya	1851	241	104	0	443	879
	1895	368	0	26	194	1015
	1935	405	19	28	222	939
	1971	348	37	66	177	932
	1984	168	29	85	325	947
Radostyán	1851	251	102	0	379	391
	1895	269	3	24	203	288
	1935	288	2	25	156	310
	1971	237	22	40	185	259
	1984	184	23	40	189	315
Sajóbábony	1851	247	5	0	148.35	329
	1895	429	9	34	258	572
	1935	416	13	35	267	573
	1971	206	8	64	352	578
	1984	111	1	71	351	187
Sajókápolna	1851	282	186	0	333	420
	1895	376	4	32	202	420
	1935	382	14	35	183	417
	1971	306	35	38	236	400
	1984	341	22	51	172	426
Sajólászlófalva	1851	116	127	0	153	307
	1895	222	4	33	102	297
	1935	254	7	41	95	239
	1971	303	23	44	112	153
	1984	140	24	42	268	153
Sajószentpéter	1851	1576	538	0	1515	0
	1895	2745	125	114	553	74
	1935	2434	147	141	811	54
	1971	1793	150	329	607	52
	1984	1673	184	304	567	109
Varbó	1851	482	71	0	712	2581
	1895	433	3	53	231	1746
	1935	478	32	51	227	1744
	1971	450	50	106	188	1720
	1984	108	50	95	462	1755

In the mid 19th century still expanded vineyards characterized the ridge, but due to the phylloxera disease (1885-89) their area shifted drastically, and just fragments of the former vineyards were replanted. Beside the mentioned in Sajóbábony only 1 hectare vineyard remained in 1984 because of the environmental pollution and industrialization. After the Second World War vineyards enlarged, but since 1984 growing number of abandoned area have been observed everywhere on the ridge.

Gardens and orchards increased till 1971, but since then an opposite trend has occurred.

Plough-lands – in inverse ratio to grasslands – expanded significantly till 1935, since their area have been declining continuously.

Decreasing of arable lands well demonstrates the period of intensive industrialization in the case of Sajóbábony and Sajószentpéter, and furthermore the regulation of Sajó River. In the latter case the ratio of plough-lands increased significantly.

Conclusions

According to the landscape history records prosperous traditional small-scale peasant farms characterized the examined ridge from the end of 18th century to the mid 20th century. But after the Second World War due to depopulation processes, negative age distribution, industrialization the number of arable lands was strongly decreased.

Among the strip of lands some fragments of natural vegetation survived, hence these became propagule sources in the secondary succession processes of abandoned lands.

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