

SETTLEMENT TRANSFORMATIONS IN THE SOUTHERN RANGE OF RADZIEJOWA - SPATIAL AND SOCIAL ANALYSIS OF THE PROBLEM AREA

Rafał BLAZY^{1,*}, Hanna HREHOROWICZ-GABER¹, Alicja HREHOROWICZ – NOWAK¹,
Agata KONCZAL², Anna KARAS¹, Matevž JUVANČIČ³, Ioan Gabriel SANDU^{4,5}

¹ Cracow University of Technology, Faculty of Architecture, Department of Spatial Planning,
Urban and Rural Design, ul. Warszawska 24, 31-155 Kraków.

² University of Gdansk, Faculty of History, ul. Wita Stwosza 55, 80-308 Gdańsk.

³ University of Ljubljana, Faculty of Architecture, Zoisova cesta 12, 1000 Ljubljana

⁴ “Gheorghe Asachi” Technical University of Iasi, Faculty of Materials Science and Engineering, Blvd. Mangeron, No.
51, 700050, Iasi, Romania;

⁵ Romanian Inventors Forum, Str. Sf. P. Movila 3, Iasi, Romania

Abstract

The article presents changes in settlement in the southern Radziejowa range and analyzes their causes and impact on local communities. The research paper discusses in detail the availability of infrastructure, social, economic and natural conditions influencing settlement processes. In addition, important problems related to maintaining settlement and the possibilities of revitalization activities in order to preserve cultural and landscape heritage.

Keywords: settlement transformation, depopulation, infrastructure access, southern Radziejowa range, revitalization

Introduction

The Radziejowa Range, due to its rich settlement history and unique landscape values, has been depopulated in some parts in recent decades. This article attempts to answer the question of the causes of this phenomenon — economic, social, natural and infrastructural factors, with particular emphasis on the differentiation of settlement between inaccessible and well-connected areas. Such studies are important not only for recognizing the demographic and economic processes taking place in this area, but also for the protection of cultural heritage.

Studies of settlement in the Radziejowa Range are important for both science and the local community. From a scientific point of view, this concerns the provenance of the decline of settlement, which can contribute to a better understanding of the socio-economic and demographic processes taking place in the mountainous regions of Poland. It can also help identify factors contributing to the depopulation of mountain areas, a phenomenon observed not only in the Sădecki Beskids, but also in other parts of the country. The results of this study may have practical significance for local communities. Understanding the reasons for the decline of settlements and identifying factors that facilitate the maintenance of population in a given area may be the basis for creating a local development strategy, including activities supporting the

* Corresponding author: rafal.blazy@pk.edu.pl

local economy, infrastructure development, promotion of tourism and protection of cultural heritage.

The article attempts to comprehensively analyze the settlement of the southern slopes of the Radziejowa range, with particular emphasis on Niemcowa Mountain.

The following elements will be identified and analyzed during the study:

- Location and current condition of houses: inhabited, abandoned, decaying, ruins
- Reasons for depopulation of the region: demographic, economic, social and environmental perspectives
- Impact of infrastructure and availability of services
- Examination of the historical and cultural significance of Niemcowa Mountain

This will reveal not only the current state of settlement, but also possible actions for the protection and revitalization of the region.

The article uses a variety of research methods that allowed for an in-depth analysis of the settlement of the Radziejowa range. The field analysis included field research in the Radziejowa range, as well as direct observations and photographic documentation. The field research also included visits to the hamlets of Borownice, Kosarzyska, Czercz and Latawcowa and to the top of Niemcowa Mountain. Information was collected from residents on the history of settlement, reasons for abandoning their homes, and possible revitalization activities in the area. Spatial analysis methods included GIS tools that allowed for the analysis of the layout of houses and the availability of infrastructure and services in the study area.

Characteristics of tourist routes in the radziejowa mountain

Materials - general characteristics of the radziejowa range

The Radziejowa Range, part of the Sąddecki Beskids, is a region in southern Poland (Fig. 1) with a diverse landscape. The Radziejowa Range begins in the Dunajec Valley in the west and extends to the Gromadzka Pass in the east [1]. It contains all the peaks of the Sąddecki Beskids above 1200 m above sea level, including the highest peak of Radziejowa, from which the range takes its name.

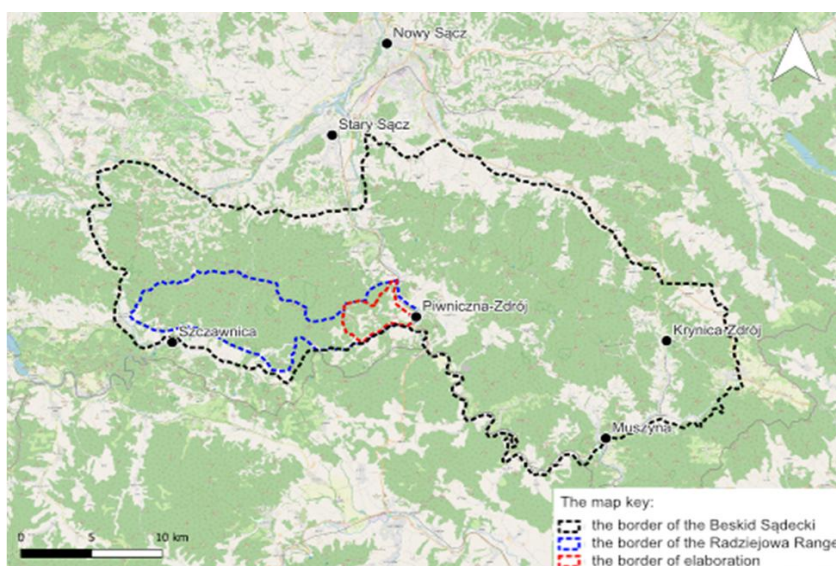


Fig. 1. The map of borders of the Sąddecki Beskids, the Radziejowa range, the boundaries of the study.

The main ridge of the Radziejowa Range extends from the Dunajec Valley near Łąck, initially heading south and reaching the peaks in Cebulówka, Koziarz and Jaworzynka, with a culmination at the Dzwonkówka peak. At this point, the ridge shifts to a latitudinal orientation and continues eastward. Then it descends to the Przysłop Pass and climbs to the top of Skalka. Then it crosses Przehyba and Wielka Przehyba, where it turns south. Then it passes the twin peaks of Złomisty Wierch and Przełęcz Długa, finally reaching the highest elevation – Radziejowa. From this peak the ridge descends to Przełęcz Żłobki, then rises to Wielki Rogacz and descends again to Gromadzka Przełęcz [4]. From the Radziejowa Range there are several side ridges, mostly in the meridional direction. They reach towards the Dunajec valleys in the north and west and the Grajcarek and Biała Woda valleys in the south [1].

In terms of hydrographies, the Radziejowa Range is poor in major rivers, the Dunajec and Poprad are only its border. There are practically no water reservoirs or lakes here. Numerous streams and brooks flow in valleys that cut into the bedrock.

Natural and cultural values of the trails in the Radziejowa range

The tourist trails in the Radziejowa range offer many natural and cultural values. The Range's affiliation with the Poprad Landscape Park means that many areas are protected due to unique species of flora and fauna. In addition, the trails of the Radziejowa range run through areas that were previously inhabited. There are numerous chapels, places commemorating the history and culture of the region, and the remains of former farms are places that testify to the former agricultural culture in difficult mountain climatic conditions.

Importance of routes for the local community and tourism

The tourist trails in the Radziejowa Range are of great importance to the local community, both from an economic and social perspective. The development of tourism in the region is closely linked to them; every year it attracts tourists, which is an important source of income for the residents. It is this influx of tourists that provides income for the service industry. In addition, the trails contribute to social adaptation and the development of a healthy lifestyle among the local population. The maintenance and development of tourist trails in the Radziejowa Range requires appropriate infrastructure and financial outlays. Local authorities and tourist organizations, including PTTK, are responsible for marking, maintaining and promoting the trails. Cooperation between local communities, local authorities, tourist organizations and private entrepreneurs is important to maintain the proper condition of the trails (in Poland there is no comprehensive law regulating the course and functioning of tourist trails). The cooperation of local communities, local authorities, tourist organizations and private entrepreneurs is important for maintaining the proper condition of the trails.

Settlement history in the Radziejowa range

Changes in the settlement structure of the Radziejowa range are a reflection of many processes that have taken place in this area over the years. The nature and directions of settlement changes in the Beskid Sądecki mountains significantly differed from each other in the Middle Ages and in modern times, as social, economic and political relations changed over the centuries. The number of changes that have taken place in the past in the settlement structure of the Radziejowa range reflects its history, from the dynamic development of important centers in the Middle Ages, through significant economic changes in the 19th and 20th centuries, to contemporary migration trends. The analysis of these changes allows for a better understanding of the multidirectional demographic and spatial dynamics and for a fixed diagnosis of what factors currently determine this state of settlement.

The beginnings of settlement in the region

The history of settlement in the Beskid Sądecki dates back to the Middle Ages when the difficult-to-access areas began to be settled by the Vlachs and local Slavic population [3]. The first Polish settlers most likely came to the Sączę region in the 12th century from two main

directions: from Kraków, through the valleys of the Skawa and Raba rivers, and from the Sandomierz region, through the valleys of the Vistula and Dunajec rivers. This theory is confirmed by the similarities in costume, embroidery and local nomenclature, which connect the Nowy Sącz region with the areas around Kraków and Sandomierz [8]. During this period, the mountains and the dense forests overgrowing them hindered the development of settlement. While the fertile areas of the Sądecka Basin, the Dunajec valley and the lower Poprad River were already at the end of the period of feudal fragmentation (1138-1320) an area of intensive economic and settlement activity, in the Beskid Sądecki areas physiographic barriers still slowed down the pace of settlement [4].

Colonists, looking for new areas to settle, advanced deep into the mountains along watercourses. The choice of the place for settlements was determined by the terrain and the proximity of water, which is why people usually settled in the valleys of rivers and streams [7], which created favorable conditions for agriculture and animal husbandry [8]. It was the so-called "wild", free colonization of independent settlers who cleared the forests and established single, several-family settlements [8]. The buildings were mostly scattered around the area, with houses grouped in small groups up to a few buildings each, or individual households, which resulted from the nature of self-sufficient farms. Villages were created in this way as early as the 15th century [8]. More or less at the same time, during the 14th, 15th and 16th centuries, the Vlachian colonization took place. Shepherds of Vlachian-Ruthenian origin, wandering along the mountain ridges, moved from the territories of today's Romania to the west. They occupied natural grazing pastures in the Carpathians, created new pastures, cutting clearings on ridges and slopes, building huts and establishing farms, or going down into the valleys and founding new villages [8] [2].

At the same time, colonization took place on the basis of granting of the privilege of location. During the reign of Casimir the Great, settlement expansion in the border areas was intensified, and therefore more emphasis was placed on settling the lands on the Poprad River. In 1348, under the German law in *cruda radice*, the village of Piwniczna Szyja [8] (now Piwniczna-Zdrój) was founded. Location in *cruda radice*, (on a raw root), means the migration of settlers to a new, as yet undeveloped area, requiring them to completely prepare the area, including, for example, cutting down forests or draining swamps. Most settlements located in *cruda radice* were established in woodlands, in the area of the former backwoods [8].

Early modern settlement in the Radziejowa range

The dynamic growth of the population and the high population density meant that the previously settled areas of the Nowy Sącz region ceased to be capacious and attractive. The locators (Polish: *zasadźcy*) were forced to look for new areas for settlement in previously inaccessible mountain areas, whose harsh geographical conditions set back the settlement action in the Middle Ages [6][9]. Villages located at the mouth of streams began to move upstream, changing their character from agricultural to mountainous with an economy based on livestock conducted by the pastoral system [9]. Inside the forests covering the mountains, numerous hamlets (Polish: *wsie zarębne, zarębki*) also emerged, due to clear-cutting and slash-and-burn management. The system of *zarębki* refers to newly established settlements cut or cleared in the upper wooded part of arable land (derived from Old Polish *zaręba, zaręb* meaning 'a place cleared of shrubs,' and *zarębać* meaning 'to cut down'). This system was used to create such villages as Obidza, Brzyna and the mountain hamlets in the vicinity of Piwniczna, as well as numerous hamlets adjacent to other towns [9]. Technical progress and experience gained in the settlement process enabled the development of early modern settlement in this area [6].

The settlement action in the mountain areas intensified in the 16th century [10]. In the western part of the Beskid Sądecki, to which discussed here the Radziejowa range belongs, a settlement action was organized under the aegis of the nobility and small rulers in the crown lands. Villages founded in the 16th century and earlier are distinguished by a regular plan and compact buildings [11]. The year 1572 marks the turning point of the period of democracy nobility.

Since then, large areas of noble estates in the rocky and forested regions of Obidza have been transformed into farmland [11]. Obidza is a village established without a foundation act, where the settlement proceeded spontaneously, within the system of *zarąbki*, without any plan. It was first mentioned in 1468, but later documents from the 16th and 17th centuries do not mention it. It was not until the 18th century that Obidza appears again, mentioned as a settlement belonging to the dominion of Jazów. Obidza village is located on the northern side of the Radziejowa range, located in the valley of the Obidzki Potok. It should not be confused with the hamlet of Piwniczna of the same name, located at the Gromadzka Pass, which until the 19th century was marked on maps as a clearing. Although Obidza does not lie within the boundaries of this study, it is mentioned here as a model example of a dispersed village of a hamlet-manor character, on the example of which the process of populating these areas can be reconstructed [6].

It is one of the youngest villages in the Radziejowa range and is a unique example of a mountain dispersed settlement. Dispersed villages were established on mountain ridges, on slopes, in places suitable for cultivation, and in stream valleys in the form of solitary farms or small clusters of houses, called hamlets. Human settlements were separated from each other by forest parts and thickets left after the forest was cleared [9].

A similar situation took place in the area of Piwniczna, where the settlement developed spontaneously, without a specific plan. Mountain hamlets were established in deforested areas, in the valleys of streams (tributaries of the Poprad River) and in the less steep parts of the mountains [9]. The farms were isolated from each other and were sometimes placed many kilometers from Piwniczna, following their own rhythm of life. Lone homesteads or groups of houses in one clearing were separate settlement units, having their own fields, meadows and wastelands intended for grazing animals [9]. It should be noted, however, that this happened much later than in the case of Obidza. On the eastern slopes of Przehyba and Radziejowa, up to the Poprad valley, not a single settlement point was established until 1800, and later colonies of Piwniczna, such as Kosarzyska, Niemcowa or Sucha Dolina, were then only the names of physiographic objects [6]. The eighteenth century closes the cycle of colonization in the most inaccessible, forested areas, located deep in the mountains (According to the division into cycles of settlement development in the Carpathians proposed by Maria Soja [12]). It should be added that in this century, the Podgórze nobility showed a huge initiative in settlement, establishing numerous new settlement points, which contributed to the intensive development of settlement in the discussed areas [6]. At that time, the settlement network became denser. This was the final phase of colonization. This century was also marked by particularly burdensome serfdom obligations.

Settlement and demographic changes in the nineteenth and twentieth centuries

In the nineteenth and twentieth centuries, significant changes took place in the Polish lands that influenced the formation of the rural space. They were the result of political factors, such as both world wars and political changes, but also economic processes, including population migration, the development of tourism and economic transformations.

Hamlet-style settlement reached its peak intensity only in the 19th and 20th centuries. Many settlements, which today are parts of larger towns, were established then. It was a continuation of the natural settlement development, though without official founding documents or designated settlers [6]. This process was facilitated by the enfranchisement of peasants (in 1848 in the Austrian Partition) and the abolition of servitudes — the rights to use manor meadows, pastures, and forests — which caused numerous disputes [9]. Peasants could establish and develop their own farms on previously used lands, and as compensation for the rights to use manor forests taken away from them, they obtained ownership of forest plots [6].

At the turn of the eighteenth and nineteenth centuries, Galicia had a very poorly developed road network, which made communication difficult even between larger urban centers. There was a particular lack of roads in the foothills. The dispersion of settlements delayed electrification, while the remoteness from communication routes further deepened the

region's civilizational backwardness [13]. In the 19th century, with the development of road infrastructure and the appearance of railways, the settlement in the Radziejowa range began to change. This was related to economic changes related to industrialization and economic migration, which contributed to the partial depopulation of the countryside. The locals, due to unfavorable conditions, difficult terrain and low prices of agricultural products, often had no choice but to emigrate. However, economic trips here did not take on the same scale as, for example, in Podhale, Spisz or Orawa; the locals were reluctant to leave their homeland [9]. Emigration did not affect the progressive overpopulation in the valleys. As a result, in the nineteenth and first half of the twentieth century, the population had to be redistributed, and settlements were advancing deeper and deeper into the mountains [11]. During this time, many farms began to switch to more intensive forms of cultivation and breeding. Since the late 19th century, pastoral livestock farming had been practiced in this area [9]. At the same time, health tourism was developing rapidly in the area, attracting more visitors each year. At the turn of the nineteenth and twentieth centuries, baths with mineral waters were built in Piwniczna. In 1906 the first tourist trail from Piwniczna to Szczawnica was marked. Piwniczna soon became an important summer resort town [9].

The interwar period was characterized by significant unemployment, occurring in all branches of the economy. At that time, the rural population was looking for work in resorts as servants in guesthouses and hotels, or by selling local products to holidaymakers [9]. Although Piwniczna developed particularly in the interwar period as a health resort, it was still a typical agricultural town, and the unemployment occurring in this sector at that time took on catastrophic proportions. Many people engaged in agriculture were forced to look for work and income outside the country [14]. In addition, in the interwar period, epidemics of infectious diseases broke out in Piwniczna every now and then, decimating the town's population. However, the mortality record was broken later, in 1942, when 230 people died, including 126 from dysentery, and several cases of typhus deaths were recorded [15].

The main driver of depopulation was, however, World War II. During the hostilities large-scale migrations occurred, causing civilian populations to move both within Poland and abroad. In the years 1940-1945, 3444 people left Nowy Sącz county, most of them being deported to forced labor in Germany [1]. On the war front, 50 residents of Piwniczna died in Nazi prisons and camps. The Jewish population was deported and 129 people out of 24 Jewish families were killed. 356 people were deported from Piwniczna to work in Germany. In relation to the total, human losses amounted to 10.6% [15]. Although there were no direct military operations in Piwniczna, the material losses were significant. The blowing up of the bridge over the Poprad River by the retreating German troops was disastrous. Due to the destruction of the railway bridges, trains did not reach Piwniczna. The lack of railway communication made it impossible to deliver food from other regions of the country, which were in a better situation. After the liberation, partisan troops remained in the area belonging to Piwniczna for some time; forests, inaccessible terrain and scattered development of mountain settlements were a beneficial base for them [15].

After the war ended, there were further significant changes in the settlement structure. Ownership transformations and land-use changes have been influenced by the implementation of the planned economy and collectivization, which have left their mark on rural communities in the area. The agrarian reform, parceling and regulations made by People's Republic of Poland new government, caused transformations in the structure of land divisions. The leading type of settlement became the collective village, characterized by a uniform and planned design. The development of industry, new income opportunities and progressive urbanization favored the migration of people from rural areas to cities, which resulted in the processes of depopulation of some parts of Radziejowa. In addition, in 1948, grazing animals were prohibited in the forests and shepherds found themselves in a difficult situation due to the lack of a pasture base. However, the possibility of grazing in the Lemko lands opened up; many settlers moved to the areas east of Poprad or to Jaworki, where the state organized new grazing halls [9].

Efforts towards the reconstruction of Piwniczna and its surroundings were taken after the war by the Municipal National Council, which made it a priority to improve the railway and road infrastructure. However, this was not an easy task; in 1950, as a result of a heavy downpour caused by a cloudburst, the roads in the mountain hamlets were completely destroyed and the local population was cut off from the world. A high-voltage line was brought to Piwniczna only in November 1955. Despite significant progress in this matter, in 1966 about 50% of households and mountain hamlets did not have an electricity connection. Hamlets such as Skorupy, Walczaki, Bziniaki, Błankowa, Podbukowiec, Sucha Dolina, Zaczerczyk, Zamakowisko, Łazy and Żeniowika were still waiting for electricity [15].

The post-war period was shaped by the outcomes of World War II and the deportations of Ruthenians in the 1940s and so was characterized by demographic regression. Before World War II, the Lemkos primarily inhabited the eastern regions of the Beskid Sądecki, beyond the Poprad River. The population residing in the Radziejowa Range was Roman Catholic, which distinctly set this area apart. Demographic continuity has not been disrupted here. Moreover, in 2002, a high percentage of long-established residents - those living in the area since birth - was recorded. In the rural areas of the Piwniczna municipality, this figure was approximately 80%, while the national average for Poland was 59.2% [12].

However, the population decline recorded in the Beskid Sądecki was on a much smaller scale than in the areas further to the east. There, these processes were more intense, often leading to complete depopulation and the disappearance of villages (M. Soja provides exact statistical data for the town and municipality of Piwniczna for the periods 1921–1931, 1931–1950, 1978–1988, and 1998–2007) [12]. It would seem that in the coming decades, the areas located in the highest parts of the mountains, due to advanced urbanization processes, will show a tendency for depopulation. Nonetheless, between 1970 and 1978, there was a small but notable population increase. In the next decade, the population in the rural areas of the Piwniczna municipality increased by about 7%. Since the 1990s, the ongoing suburbanization of the areas around Piwniczna has been observed; they are gradually transforming into immigration zones [12].

The importance of niemcowa mountain in the context of settlement

Niemcowa Mountain, one of the main peaks of Radziejowa, plays a key role in the history of settlement and regional development. In the old days, due to their strategic location, the houses were located near the mountain. The natural defense provided by the summit played a large role in attracting settlers, especially during times of conflict. Niemcowa also played an important social role, as shown by the existence of the student hostel 'Chatka pod Niemcową'. These facilities not only attracted hikers but also served as a place for integrating tourists with the local community, fostering human connections. Niemcowa also became part of the history of educational development. From 1937 to 1961, with a break for the duration of the war, a primary school operated there. It was the highest situated educational institution in Poland (1026 m above sea level), which enabled children from hamlets located more than 7 km from Piwniczna to attend school. It was located in the private building belonging to the Nosal family. After the war, education resumed. In 1946 the school was attended by about 10 students [17]. This was particularly important due to the difficult access to education, especially for the inhabitants of the upper parts of villages and hamlets [9]. The school inspired Maria Kownacka to write a book entitled 'Szkoła nad obłokami' (The School Above the Clouds), published in 1958. To this day, Niemcowa Mountain is visited by travellers and hikers. The demand for various types of tourist facilities and services can be an impulse for the development of the local economy, therefore the creation of new jobs, which will attract both more visitors and people wishing to settle in the area.

Integrated Field Analysis Method and In-Situ Interview

The current state of settlement of the Radziejowa range is very diverse, there are fully preserved farms, in good, average or poor technical condition, to those abandoned or temporarily inhabited, to ruins and remains of old buildings or gaps after development (Fig. 2, 3). Selected areas of the southern slopes of the Radziejowa range, especially those around the

peak of Góra Nemtsowa, create an interesting mosaic of living conditions, reflecting broader trends in the mountain areas of southern Poland.

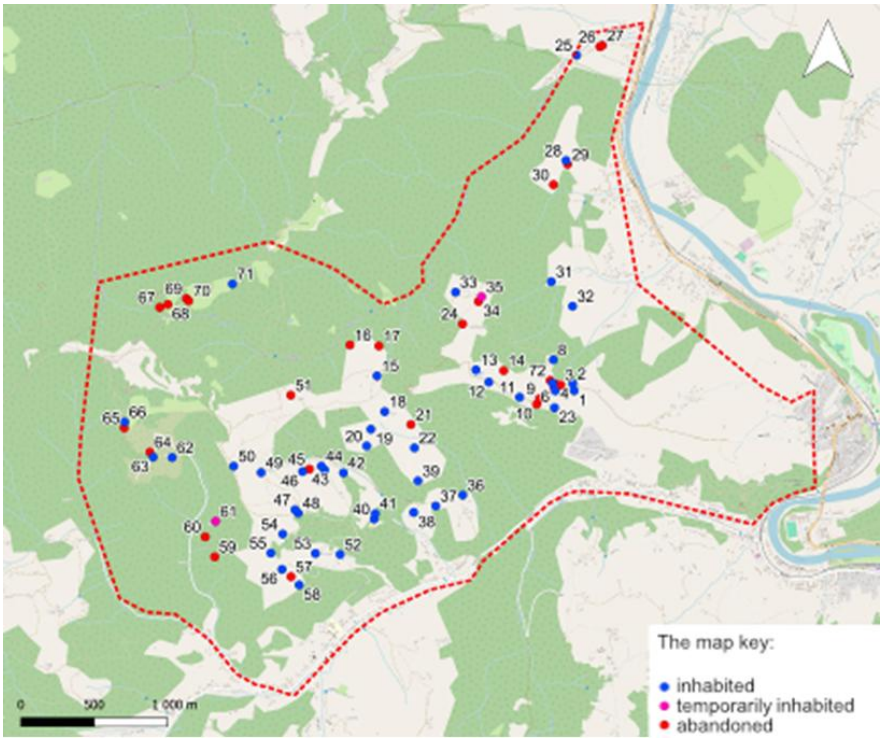


Fig. 2. Inventory map of old houses in Piwniczna-Zdrój.

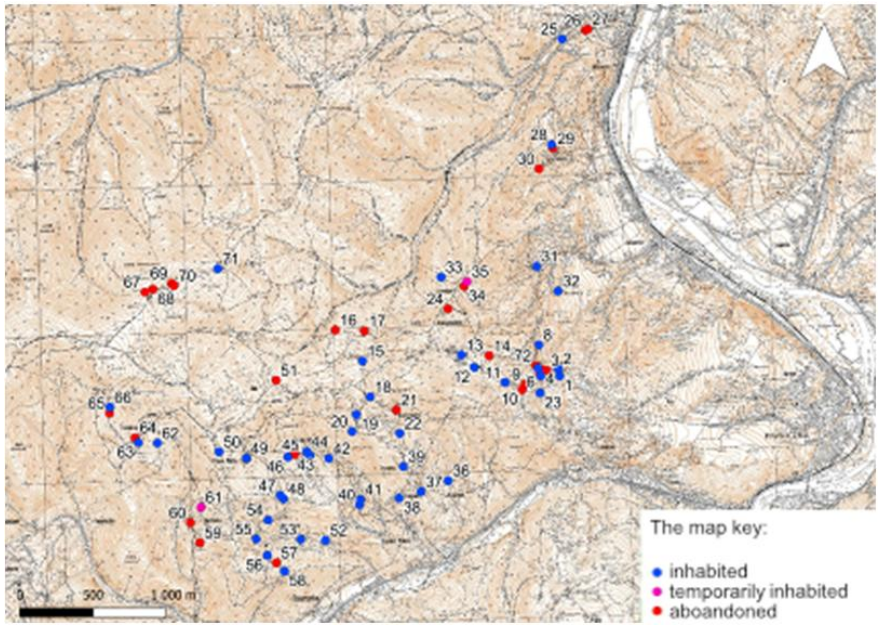


Fig. 3. Inventory map of old houses in Piwniczna-Zdrój.

Table 1. presents a list of old houses in Piwniczna Zdrój, taking into account the state of preservation and visibility on the map, as well as the type of house. The markings listed below used in Table 1. describe the different states of preservation of the buildings, types of houses and their visibility on the map.

State of preservation of the buildings:

Complete (+++): 46 houses are fully preserved.

Partial (+): 11 houses are partially preserved.

Ruin (+/-): 2 houses are in a state of ruin.

Parts of foundations (-): In 7 houses only parts of the foundations of the building remain.

No trace of buildings (---): In 6 places there are no visible traces of buildings.

Type of dwelling:

Inhabited (+): 46 houses are permanently inhabited.

Temporarily inhabited (+/-): 3 houses are only temporarily, seasonally inhabited.

Abandoned (-): 26 houses are abandoned, uninhabited.

Visibility on the map:

Visible (+): 56 houses are visible on the map.

Invisible (-): 16 houses are not visible on the map, sometimes they are covered by treetops or completely missing, so they are invisible.









Below the summary evaluation table (Table 1.), Table 2. presents examples of objects preserved in varying states of condition.

Table 1. Inventory of old houses in Piwniczna-Zdrój

Street name	No. on map	Adress	The state of preservation of the buildings	Type of home	Visibility on the map
Blankowa	52	Blankowa 1	+++	+	+
	53	Blankowa 2	+	+	+
	58	Blankowa 4	+++	+	+
	57	Blankowa 5	---	-	-
	55	Blankowa 6	+++	+	+
	54	Blankowa 11	+++	+	+
	56	Blankowa 9	+++	+	+
	47	Blankowa -lack of adress (nearby 7)	+++	+	+
	48	Blankowa 7	+++	+	+
Borownice	32	Borownice 17	+	+	+
	31	Borownice 18	+++	+	+
	30	Borownice 52	+	-	+
	28	Borownice 53	+++	+	+
	29	Borownice - lack of adress	+	-	+
Bziniaki	23	Bziniaki 1	+	+	+
	7	Bziniaki 2	+++	+	+
	11	Bziniaki 3	+++	+	+
	6	Bziniaki 5	+++	+/-	+
	4	Bziniaki 6	+++	-	+
	5	Bziniaki 7	+++	+	+
	72	Bziniaki 9	+++	-	+
	8	Bziniaki 10, 12	+++	+	+
	2	Bziniaki 11	+++	+	+
	10	Bziniaki 13	+++	-	+
	1	Bziniaki 15, 19	+++	+	+

Street name	No. on map	Address	The state of preservation of the buildings	Type of home	Visibility on the map
Cichoniówka	3	Bziniaki 18	+++	-	+
	9	Bziniaki - lack of adress	-	-	-
	20	Cichoniówka 1	+++	+	+
	22	Cichoniówka 2	+++	+	+
	21	Cichoniówka 3	+++	-	+
	39	Cichoniówka 4	+++	+	+
	18	Cichoniówka 5	+	+	+
Duchówka	19	Cichoniówka 6	+	+	+
	61	Duchówka 3	+	+/-	+
	59	lack of adress	---	-	-
Hale	60	lack of adress	---	-	-
	15	Hale 1, 4, 5	+++	+	+
	17	Hale 2	-	-	-
Jeziory	16	Hale 9	-	-	-
	12	Jeziory 1	+++	+	+
	13	Jeziory 2	+++	+	+
Łazarówka	14	Jeziory 4	+++	-	+
	35	Łazarówka 1	+++	+/-	+
	33	Łazarówka 2	+++	+	+
Młodów	34	Łazarówka - lack of adress	---	-	-
	71	Młodów 34	+++	+	+
	67	Młodów - lack of adress	-	-	-
	68	Młodów - lack of adress	-	-	-
	69	Młodów - lack of adress	+/-	-	-
Niewinna	70	Młodów - lack of adress	+/-	-	-
	36	Niewinna 4	+++	+	+
Polana	37	Niewinna 6	+++	+	-
	42	Polana 1	+	+	+
	46	Polana 3	+	+	+
	43	Polana 6	+++	+	+
	50	Polana 7	+++	+	+
	49	Polana 10, 8, 2, 9	+	+	+
	44	Polana 15	+++	+	+
Szeroka Polana	45	Polana - lack of adress	-	-	-
	40	Szeroka Polana 5	+++	+	+
Szerszeniówka	41	Szeroka Polana 7	+++	+	+
	51	Szerszeniówka - lack of adress	---	-	-
	24	Szerszeniówka - lack of adress	-	-	-
Trześniowy Groń	38	Tromowa 6	+++	+	+
	63	Trześniowy Groń 1	+++	+	+
	62	Trześniowy Groń 2	+++	+	+
	65	Trześniowy Groń 5	+++	-	+
	66	Trześniowy Groń 7	+++	+	+
Witkowskie	64	Trześniowy Groń – lack of adress	---	-	-
	25	Witkowskie 11	+++	+	+
	26	Witkowskie 10	+++	-	+
	27	Witkowskie 10	+++	-	+

Table 2. Inventory of old houses in Piwniczna-Zdrój

No. on the map, adress	Picture	No. on the map, adress	Picture
No. 23, Bziniaki 1		No. 10, Bziniaki 13	
No. 16, Hale 9		No. 25, Witkowskie 11	
No. 71, Młodów 34		No. 69, Młodów (School)	
No. 30, Borownice 52		No. 14, Jezioro 4	

Several of the houses have had their function changed or a new house built in their place, and some of the structures have a locally known history. In place of the house number 57 in Table 1. a new building was built. The former houses numbered 1, 26, 27 and 29 changed their function to a farm building. House number 65 is a former student hostel – „Chata pod Niemcową”. The former house marked on the map as number 69 was a school called „Szkoła nad obłokami” in the years 1938-1961, which was located under the peak of Niemcowa.

Inhabited houses

In some parts of the Radziejowa range there are inhabited houses located mainly along the main communication routes and in some of the more accessible valleys: Borownice, Kosarzyska, Czercz and Latawcowa. Locations with easier access to services, including shops, schools and clinics; in this way they increase the attractiveness of these places for permanent settlement. The houses are in good or average technical condition and require regular maintenance; this is one way of showing the commitment of the residents to maintaining their properties. In many of the houses these are new buildings or renovated old houses, significantly adapted to modern standards.



Fig. 4. Restored house of Bronisław Gumulak from the Bziniaki hamlet on the southern slope of Radziejowa.

Some of them are also agritourism facilities, which additionally supports the local economy and allows residents to diversify their sources of income.

Abandoned and decaying houses

In the Radziejowa range there are houses that have been abandoned and their condition is average or poor. These are older, uninhabited buildings for various reasons, but they have not yet fallen into complete ruin. Such houses were probably abandoned as a result of the outflow of people to the cities or due to generational change. Such houses often remain undeveloped, which is why they are gradually destroyed by weather conditions and lack of regular maintenance. Some of them are already damaged - destroyed roofs, cracked walls or overgrown yards, which means that the owners do not live there. Some of the buildings that were previously marked on maps as houses are now converted into farm buildings.

Ruins and remains of buildings

There are places where only ruins and remains of old buildings remain. These places testify to the rich history of settlement in the Radziejowa range, but today they are only a trace of past generations. These ruins are usually located in less accessible places on slopes with a large inclination, without good access to the road, where a car with shopping or a doctor could arrive. In such places, maintaining farms was much more difficult. Ruins may consist of remains of foundations, outlines of walls or old farm buildings, barns, old cowsheds and old

residential buildings. Today, they are often overgrown with vegetation, just like places where there used to be houses and now there is not even a trace of the foundations.

Importance of research

In the study of the current state of settlement in the Radziejowa range, it is important to determine specific socio-economic processes that are or will be implemented by this mountain area. This allows us to indicate the areas most exposed to depopulation and degradation and to define development strategies that counteract these negative trends. In addition, documentation and analysis of the state of settlement contribute to a fairly reasonable level of protection of cultural and natural heritage, as well as conditions for sustainable tourism development.

Changes in the settlement structure

Contemporary migration trends and their impact on settlement in the Radziejowa range and other regions

As a result of urbanization and globalization, more and more people will move out of less accessible areas in the Radziejowa range, located high in the mountains and distant valleys. At the same time, in some fragments by roads and communication junctions, where the level of infrastructure development is satisfactory, houses are inhabited. This is evidenced by the quite dynamic development of these places through the construction of new buildings and the modernization of existing farms. The trend of abandoning houses is not limited to the Sądecki Beskids. This type of phenomenon can be observed in many mountain regions both in Poland and abroad. Among other Polish mountains, this process can be observed in the Low Beskids, Bieszczady and Sudetes, where depopulation results from economic factors, migration, and changing social conditions.

Factors affecting changes in the settlement structure in the Radziejowa range

Changes in the settlement structure in the Radziejowa range are influenced by several factors, both natural and socio-economic. Natural factors such as orography, natural resources and climatic conditions affect the distribution and development of settlements in mountainous regions. The availability of water, timber and fertile soils, in addition to climatic conditions, have a major impact on the distribution and development of settlements in mountainous regions. Areas with a large slope are a problem for settlements because rainwater runs off quickly, which means it infiltrates less deeply into the ground, which negatively affects the development of crops. Rapid water runoff also affects soil erosion, Carpathian flysch (landslides) which leads to the degradation of agricultural land, reducing its productivity and difficulties in the safe location of farm buildings. In areas with a large slope, it is difficult to build road infrastructure due to the large slope, which limits the access of the necessary machines for construction. Climatic conditions largely determine the distribution of settlements. High-mountain areas have a harsher climate: lower temperatures and more frequent snowfall. This additionally complicates agricultural and industrial activities. The shorter growing season limits the possibilities of growing many plants. This reduces the agricultural potential of these areas. In addition, very frequent landslides, snow avalanches, and rapid weather changes on steep slopes also increase the risk for residents; this discourages settlement. Proper physical conditions suitable for human habitation are therefore an important factor in maintaining or reducing human settlement in mountainous regions [1]. Economic factors include the lack of economic prospects, low prices of agricultural products, limited employment opportunities, and lack of access to modern technologies and infrastructure. Extensive agriculture, characteristic of places with unfavourable natural and socio-economic conditions such as the Radziejowa range, plays a role in shaping the local landscape and people's living conditions. Small farm areas, unfavourable terrain conditions and the lack of possibilities for mechanical cultivation mean that agriculture in this area is mainly based on traditional, less intensive cultivation methods. The vast majority of farms in this area are small family farms; due to their small size, they have

limited production possibilities. Limited access to agricultural machinery and technological innovations means that field work is still often done manually or with simple tools [1]. Insufficient access to appropriate access roads, warehouses and sales markets drastically reduces the profitability of agricultural production. The lack of economic prospects in this region is a problem for local farmers. Agricultural production in this region does not generate sufficient income to provide a good standard of living. For these reasons, farmers do not have the opportunity to invest in the modernisation of their farms. This is also related to their reduced competitiveness on the market. All this forces residents to make decisions about migration; therefore, they often leave the region in search of better life opportunities. Younger generations tend to leave the region. Most often, they seek better life opportunities due to the above-mentioned factors that limit them. Demographic factors are also present; in some parts of the Radziejowa range, the general ageing of the population and the low birth rate have a demographic impact. The older generation is unable to look after their farms, which require renovations due to their poor technical condition.

Changes in the settlement pattern are determined by social and cultural factors, which include changes in lifestyle and changing values and preferences of the younger generation, who have an increasingly weaker bond with tradition and ancestry. In earlier years, when the world did not have access to television, people in the higher parts of the mountains had it easier, because it was easier to live without being aware of the changing world. Currently, young people decide to change their place of residence, where they will find better work, education and a higher standard of living.

Spatial policy and planning are influenced by government policy and local initiatives aimed at protecting the environment, all of which can affect settlement patterns. An important aspect is investment in infrastructure, especially roads and the development of tourism, and together with the protection of the Poprad Landscape Park.

The future of settlement in the Radziejowa range

Future scenarios: possible directions of the region's development

Forecasts regarding the future of settlement in the Radziejowa range indicate further changes. This depends on the following factors: The development of tourism, especially agritourism and ecotourism, may contribute to the revival of some villages and settlements - areas attracting new investments and residents. On the other hand, if depopulation trends continue, it will lead to further degradation of some areas. Especially those less accessible and lacking appropriate infrastructure.

Another option would be to return to organic farming. The current trend of healthy food shows that people increasingly appreciate organic vegetables. The use of modern technologies could improve work and attract young people.

Another potential direction of development is agritourism, which combines traditional agriculture with tourism. In agritourism farms, guests should be offered not only accommodation or space for daily agricultural work, but also tastings related to local products or workshops on cooking traditional dishes. Thanks to such changes, local customs could be maintained and the income of residents could increase.

The role of local and regional policy in shaping the future of settlement

The future of settlement in the Radziejowa range is significantly influenced by local and regional policy. Local government is responsible for shaping the development of the region by making strategic decisions and implementing support programs. Creating favorable conditions for economic development is an aspect that should be invested in, with particular emphasis on industries such as tourism, organic farming and agritourism. An important aspect is investment in infrastructure, modernization of roads, access to water and sewage systems, and access to the Internet. These investments allow the area to become more attractive to future settlers and

entrepreneurs. Similarly, a policy focused on the development of education, health, culture and sports will allow young people to stay in the region, who are now moving en masse to large cities, where they see greater prospects for a happy life.

Conclusions

The Radziejowa Range in the Sądecki Beskids is characterized by a rich history of settlement, which has evolved over the centuries. Research in this area concerned depopulation and changes in the settlement structure caused mainly by socio-economic and natural factors. Field research and GIS analyses confirmed that an important factor in maintaining and developing settlement is the availability of infrastructure in the form of roads, which will provide good communication. The current settlement structure of the Radziejowa Range is not uniform. There are both inhabited and well-kept houses, as well as abandoned, destroyed ones, as well as ruins of old buildings and no traces of buildings. Migration processes, both historical and contemporary, have significantly influenced the current state of settlement. Another factor that has a very significant impact on the local economy, as well as the prospects for regional development in this area, is the development of tourist infrastructure. This includes the maintenance and promotion of tourist trails. The historical and cultural significance of Niemcowa Mountain itself for local identity is another important element that can help revitalize depopulated areas. The study results recommend that in order to reverse the trends of depopulation and degradation of this area, it is necessary to direct all efforts towards revitalizing the local economy, developing infrastructure, and preserving cultural and natural heritage. Creating special plans that take into account sustainable development factors between tourism and the local community will allow for the preservation of unique values in the Radziejowa range.

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