

The influence of environmental and non-environmental factors on the development of settlement in a mountain catchment

Abstract

Settlement in the Skawa catchment (Polish Western Carpathians) developed between the 7th and 18th centuries, influenced by political, economic and natural factors. Up to the 14th century, natural factors dominated, related to the location of settlements. Later, with changes in the borders of the Polish Kingdom, new settlements were established much faster in order to expand the Polish and Silesian influence. From the 15th century, the higher parts of the Beskids were intensively settled with the clearing of the Carpathian primeval forest. This stage of colonization took place with the participation of the Wallachian population. On the scale of the entire catchment area, the tendency of the settlements to spread up the main river is typical for mountainous areas. However, in the case of several settlements, their location was dictated by political factors, which disturbs this picture.

Keywords

Settlement geography • colonization • natural conditions • non-environmental conditions • Poland

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Introduction

The population began to enter the Polish Carpathians from the upland area as early as the late Neolithic (Ralska-Jasiewiczowa 1980). Intensive changes in the natural environment in the Carpathians, caused by humans, are associated only with the population of the late Roman period. The introduction of agricultural land to the forest led to the creation of an agricultural landscape (Godłowski & Kozłowski 1985). It is assumed that, around AD 1000, settlements near Krakow covered up to 30% of the area, including farmland and buildings (Maruszczak 1984). According to Łowmiański, there were approximately four hectares of agricultural land per inhabitant of the settlement, which was a sufficient size for food provision (Łowmiański 1967). According to Kozacki (2007), settlement developed in the valleys, starting from coastal areas, to terraces, and continued upstream of the rivers. Settlement, the rule of which was to occupy new areas, also underwent regressive changes when natural disasters or armed conflicts led to their depopulation (Maruszczak 1999). An important issue from the point of view of the history of settlement is the analysis of the impact of environmental and non-environmental factors on the decision about the location (Ao et al. 2010). In the literature on this subject, both for Poland and other countries, there is a lack of studies discussing the development of settlements in mountainous regions at different scales – for example, at the level of catchment areas or mountain ranges. On the other hand, this issue has been studied from a regional perspective in the foreland of the Carpathians, in historical Lesser Poland – for example, in works on the Brzesko region (Sikora 2006) and the area of the Krakow-Częstochowa Upland (Laberschek 2019). The most monumental works on settlement issues, however,

focused mainly on historical aspects and dealt, for example, with settlements in the whole of historical Malopolska (Bujak 2001 – a reprint of a book published in 1905) or the Sanok region, covering mountainous and foothill areas in Eastern Poland (Fastnacht 1962).

The aim of the research presented in this article is to indicate how the factors determining the location of settlements in the Skawa catchment changed. Did settlements spread according to the generally accepted principle of gradual and consistent occupation of neighbouring areas? Were the earliest locations determined solely by environmental factors? The answer to these questions will not only allow us to recognize the regional history of settlement but will also provide a voice in the discussion on the origins and directions of anthropoppression in the Carpathians. Although it is impossible to reconstruct the area occupied by settlements in the past, before the precise maps of the 19th century, an analysis of the location of settlements allows us to see where they were concentrated and how they spread in the region. This spread shows the directions of anthropoppression and allows us to answer the question of whether anthropoppression did indeed gradually move up the catchment area, affecting mountainous areas only in the early modern period. This research is part of an environmental history approach, in which the interdependence of socio-economic and natural conditions determines the direction of change in the geographical environment (Ashmore 2015).

The research area covers the river catchment, which comprises the area from the southern border of Poland, including Babia Góra (1,725 m above sea level), to the Oświęcim Basin and the Upper Vistula Valley. The Skawa River and its tributaries drains an area of 1,160 km², including the Beskid Żywiecki, Makowski and Mały (middle mountains) and the Carpathian

Foothills – namely, the Silesian and Wieliczka foothills. According to the modern administrative division, the Skawa catchment area is located in Lesser Poland (Fig. 1).

In order to solve the research problem, the development of settlements in the Skawa catchment area in the period from the 7th to the 18th century was examined. The information on the first and last locations in the catchment area determined the time range. Based on an analysis of sources, including, among others, the *Liber Beneficiorum* (Przeździecki 1864), royal surveys (Malecki 1962, 1964; Falniowska-Gradowska 1973; Falniowska-Gradowska & Leśniak 2005) and the *Historical–Geographical Dictionary of the Polish Lands in the Middle Ages* (HGDP) (Leszczyńska-Skrętowa & Sikora 1980), as well as the literature on the subject, approximate dates for the foundation of individual towns and villages were determined. An invaluable source of information was the HGDP, which contains information on the first source references for every village founded in Malopolska up to and including the 16th century. Volumes 'A' to 'N' have been published so far. Information on settlements starting with the letter 'O' can be found in the index of settlements in the Section for the *Historical–Geographical Dictionary of Lesser Poland* (Tadeusz Manteuffel Institute of History, Polish Academy of Sciences) in Krakow, where the research was carried out. The *Historical Atlas of Poland* (Rutkowski 2008) was used to check which settlements were founded in the second half of the 16th century at the latest. A detailed bibliography of the sources used to determine the date of foundation of all settlements can be found in Appendix 1. The most important historical events that influenced border changes in the studied area were analysed. The development of the parish networks and the course of trade routes were examined. A simplification was made, adopting contemporary borders for the range of villages.

The altitude of the centre of each village was also determined. The heights were obtained from the digital terrain model (geoportal.gov.pl). The village centre was considered to be the area around the old church. In the absence of such an object, the centre was considered to be of the part of the village with the highest density of buildings. The location in the mesoregion was also assigned to the village centres according to the regionalization of Solon et al. (2018). The relationship between the altitude of the village centre and the date of the location was tested using Spearman's non-parametric correlation test, as the input data did not have a normal distribution.

Early medieval settlement (7th–10th century)

From the early Middle Ages, two colonization currents can be observed in the Skawa catchment area: the northern one, from the river mouth with the settlement of Grodzisko and the alleged stronghold in Rudze; and the southern one, near Dąbrówka and Zembrzyce, with a probable settlement in Zagórze (Reyniak 1980). Settlement traffic moved up the river. It can be assumed that the development of settlements also progressed from Krakow up the Vistula. This led to the colonization of the settlement emptiness between Lesser Poland and Silesia in the estuary section of the Skawa (Zator, Grodzisko) and the Soła rivers (Oświęcim) (Kozbial 2014). Archaeological research confirms that establishing strongholds, around which settlements were built, was associated with conditions favourable for farming. At the same time, their location on steep-walled hills provided natural protection from the side of the Skawa River. The settlements did not have any natural defensive elements on the side of the upper parts of the catchment area, which confirms that the river valley was treated as a route for the potential arrival of new settlers or invaders (Reyniak 1980). There is no evidence of continuity of settlement between the gord period and the later foundations. For this reason, the villages appear in the following analysis according to the first source records.

12th–13th century – between Krakow and Silesia

During the reign of the first Polish dynasty of kings – the Piasts – the area in question was an integral part of the Polish state; after the so-called division into districts, it fell within the borders of the Duchy of Krakow and was directly subordinate to the Oświęcim castellany (Nowakowski 1985). Until the end of the 12th century, the peripheral nature of the Skawa catchment was the cause of the settlement emptiness in this area (Rajman 2000).

In studies on the history of the region and individual settlements (e.g. Siemionow 1984), information about the beginnings of some settlements in the 12th century can be found (Zator, Rudze, Woźniki, Mucharz). However, there is no evidence for this either in the sources or in toponymic interpretations (Rymut, Czopek-Kopciuch & Bijak 2015). According to Kiryk (1985), due to its proximity to Oświęcim, only the beginnings of settlements in the vicinity of Zator were possible, but this is only speculation.

In the 13th century, the natural conditions for the foundation of settlements ceased to be the basic factor determining their formation. The settlement action in the Skawa catchment area took place then from two directions – namely, from the West (the Dukes of Opole) and the East (the Dukes of Krakow). Until the second half of the 13th century, the Skawa River was an approximate border between the duchies, characterized by the variable position of the multi-thread channel (Baczowski 2009; Witkowski 2021). It should be noted that, in the Middle Ages, the borders usually ran through uninhabited mountainous areas. This shows that the Skawa Valley was the scene of intense competition between the two principalities, which led to the establishment of a temporary border along the river. The Benedictine and Norbertine orders took part in the colonization (Rajman 2000).

In the 13th century, ten settlements were founded in the Skawa catchment area, eight of which were established on areas rising above the valley bottoms (Fig. 2). Zator is located on a high terrace near the junction of the Skawa and Vistula valleys. Thanks to its position, it has natural defensive elements, namely steep slopes that limit access to the town from the north and east. The neighbouring village of Rudze was founded on the Skawa terrace – also on a steep slope. The village of Woźniki, located upstream from Zator, was founded at the mouth of the Zygodówka stream. The settlement was established at the mouth of the valley, using its V-shaped cross-section as a natural defensive element. To the west, the village opens into the Skawa valley. Mucharz was founded in the upper reaches of the Skawa, in its gorge section, on the Upalenisko hill.

The main settlement movement, initiated by the duke and the neighbouring families, was concentrated in the lower course of the Skawa valley (Zator and its neighbourhood). The second area was the foreground of the Little Beskids, where Wadowice and nearby Roków were founded. Wadowice, as a settlement founded by the duke, was settled on an impulse on the threshold of the mountains, in the southernmost, relatively flat part of the foothills. At that time, Zator was the centre of a developing economy in the Skawa catchment area, based on agriculture, fishery and pond farming, and benefited from being in the vicinity of the commercial route to Silesia (Kozbial 1999).

The last part of the catchment, colonized in the 13th century, was its headwater area. The only village that was settled at that time was Spytkowice, while the neighbouring villages in the catchment area under study were established 200 years later. Although Spytkowice was situated in the highest part of the catchment area, it was easily accessible through the low watershed line from the Raba and Orawa catchment areas (the Danube basin). As a result, this area was in the zone of influence of the nobility of Nowotarska Land and was colonized by, among others, the Cistercian Order.

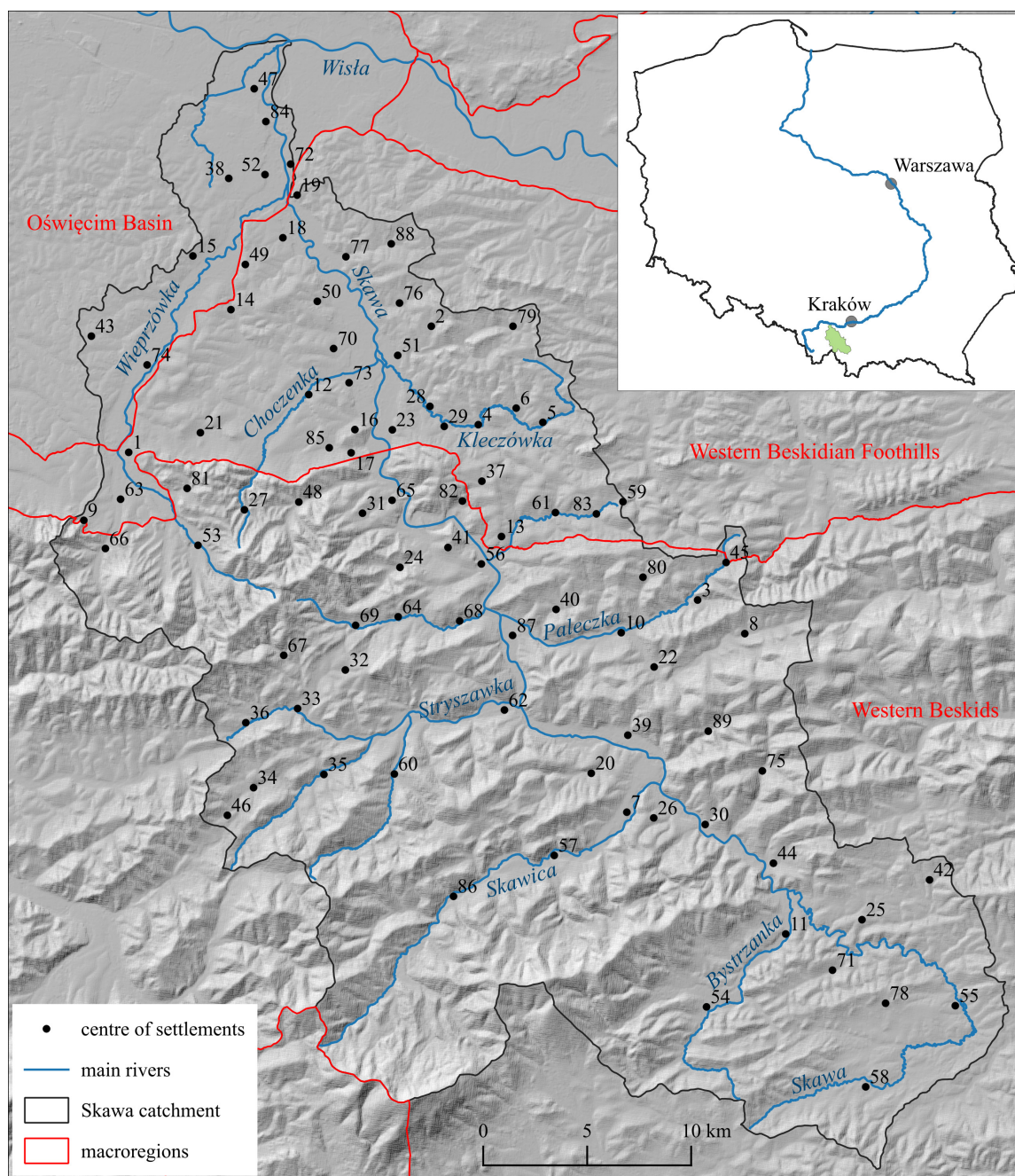


Figure 1. Development of settlements in the Skawa catchment area against the background of the physical–geographical division. The numbers of the settlements refer to the numbering in Appendix 1

Source: own elaboration. The shaded relief model was obtained from OpenTopography High-Resolution Topography Data and Tools (Hengl et al. 2022)

14th century – in the Duchy of Oświęcim

The division of the Duchy of Opole and Racibórz, and the subsequent separation of the Duchy of Cieszyn, changed the map of the borderland. Around 1315, the Duchy of Oświęcim was divided among the heirs of Mieszko Cieszyński; it covered the middle and lower parts of the Skawa River catchment to the east. During that period, thirty settlements were established in total. With the foundation of new villages, the parish network developed.

On the slopes of the foothills and in the valleys of small tributaries near the bottom of the Skawa Valley, new villages were founded to fill the gap between Wadowice and Zator (Radocza, Tomice, Witanowice and Babica). The great importance of Wadowice at that time is evidenced by the location of the villages on its southern side – Chocznia, Gorzeń and Jarosławice. The Wieprzówka Valley was also an important direction of settlement expansion. Settlements were established up along the catchment area from Gierałtowice to Andrychów, with Inwałd – the most



Figure 2. The development of settlements in the Skawa catchment area in the 13th–18th centuries
Source: own elaboration

important village in the microregion at that time – as the seat of the parish (Fig. 2). Another valley along which new villages were founded was the Kleczówka river valley, which joined the Skawa River at Wadowice. Here, Barwałd Średni, Klecza Dolna and Barwałd Górny were founded one after the other.

The second group of 14th century settlements was established around Mucharz, the importance of which, at that time, is proved by the fact that there was a parish in this village,

extending over a considerable area that stretched at various times from Tomice, Roków and Wadowice to Skawica (Fig. 1). The greatest distance between the villages of this parish was as much as 75 km. The settlement around Mucharz occupied the valleys of the Skawa mountain tributaries, which meant that these villages had natural defensive values. However, this was not a decisive factor when choosing a place to settle; rather, the available free areas near Mucharz were chosen.

Zakrzów and Stronie, which were founded at that time, were situated on the Stryżówka; they were located in the Barwałd Starosty, where Barwałd Castle sat on the Skawa and Skawinka watershed, guarding the borders of the Duchy of Oświęcim, which required economic support in the form of local settlements. On the other side of the watershed, in the Kleczanka valley, the village of Barwałd was founded, which was the seat of the starosty. The next microregion of the Skawa catchment area that was settled in the 14th century was the Paleczka valley, where the settlement movement progressed from Zembrzyce up the valley (Budzów).

In addition to groups of settlements, single, hard-to-reach settlements also emerged in the 14th century – namely, Zygodowice, belonging to the Cistercian order, in the upper part of the Zygodówka valley. The village of Wysoka, located within the Wieliczka Foothills, was not related to the settlement movement in the Skawa catchment area. The settlement belonged to the Paszkowski family, whose family village was located to the east of the Skawa catchment, in Paszkówka. This resulted in the foundation of Wysoka in the less accessible watershed part of the Foothills.

At the end of the 14th century, Maków (now Maków Podhalański) was founded. The village was established above the Skawa River valley at the foot of the steep slopes of the Myślenice Beskid. This location gave the settlers access to new mountainous parts of the Skawa catchment area within the Lanckorona Starosty.

15th century – in the Kingdom of Poland

The political changes in the 15th century, the creation of the Duchy of Zator (1445), the feudal homage paid to the Polish king by John IV and the sale of two towns, two castles and forty-five villages to Casimir Jagiellon in the mid-1450s did not have a decisive influence on the settlement of the Skawa catchment (Prokop 2002).

In the 15th century, intensive colonization of the upper part of the Skawa catchment began. Sucha (then a village, now the town of Sucha Beskidzka) was founded under the privilege of Duke John II of Oświęcim. On the mountain ridge ending at the forks of the Skawa and Stryżawka, Stryżawa was established – probably the first Wallachian village in the Skawa catchment area. These villages became the nucleus of the so-called Sucha State, an extensive estate belonging to the Komorowski family from Żywiec.

At the same time, in the vicinity of Maków and up the Paleczka River, settlement activities continued in the Lanckorona Starosty. Grzechynia, Kojaszówka and Juszczyń were founded near the mouths of the Skawa tributaries. In contrast, five villages in the Paleczka catchment were founded much higher up in mountain stream valleys (Fig. 1, 2).

Also, between Mucharz and Stronie, other areas in the valleys of small streams, off the main routes (including Łękawica), were settled at that time. At the southern end of the catchment area (i.e. Skawa), three villages were established in the 15th century, the foundation of which was associated, like the previously described Spytkowice, with the settlement activities carried out in Nowy Targ Land.

Settlement of the highest parts of the catchment area (16th–18th century)

From the middle of the 16th century, when the study area was once again entirely within the borders of the Kingdom of Poland, the colonization of the V-shaped mountain valleys dominated (Fig. 3). At that time, the Skawica and Ponikiewka valleys and the upper reaches of the Bystrzanka, Choczenka and Wieprzówka rivers were settled. The settlement of mountain valleys is clearly

visible in Figure 2, where the boundary of 14th and 16th century settlements clearly marks the threshold of the Beskid Mały in the northern part of the Skawa catchment. On the other hand, in the central-western part of the catchment, close to the watershed, the boundary between the Suski (17th century villages) and Ślemień manors – the villages of Las, Kurów and Pewelka – is clearly visible. Only these three villages of the Ślemień Manor crossed the watershed of the Soła and Skawa rivers.

Settlements were also formed on easily accessible ridges, such as Przybradz, Koziniec and Jordanów. The latter was founded as a town on the land of the village of Malejowa (Appendix 1; Kiryk 1985). The most inaccessible areas (including Rzyki, Kaczyna and Skawica) were inhabited by people of Wallachian origin who dealt in the herding and breeding of goats, sheep and pigs. A reference to the settlement of a village in the so-called *cruda radice* – after logging the forest – is the name of the village – Toporzysko, meaning *axe* (Kozbial & Nowakowski 2010). The development of settlements towards the south was determined by the local trade route leading along the Skawa – from Zator through Wadowice to Sucha. This trail existed from at least the second half of the 16th century (Wyrozumka 1977).

In the 17th century, as a result of settlement pressure, the last free areas of the Carpathian primeval forest were settled: the upper course of the Skawica – Zawoja; the upper course of the Wieprzczanka – Wieprzec; and four villages of the Sucha estate – Tarnawa Górna, Targoszów, Kuków and Lachowice. Some of the new villages were built on the site of former timber hamlets – Targoszów, for example, was a hamlet of Krzeszów (Siemionow 1984).

In the 18th century, the two most recent villages in the Skawa catchment were founded. Targanice was separated from the land of Sułkowice as a result of a sale, and Łowiczki was founded on the basis of a fishing settlement in the Zator pond complex. The name Łowiczki comes from the Polish word *‘łowić’*, meaning *‘to fish’* (Nobis 2005).

Environmental and non-environmental conditions for the development of settlements

In the 7th–18th centuries, the factors determining the settlement of the Skawa catchment area changed. The initially peripheral nature of this area influenced the settlement emptiness, except for a few fortified towns, the names of which indicate their defensive functions. The steep hills above the Skawa floodplains were used for their foundation. In two out of four cases, the settlements were located near the mouths of the more important tributaries of the Skawa River, which could be owing to the arrival of settlers in the valley through the low passes from the east and not from the north of the Skawa estuary to the Vistula. Thus, in the early Middle Ages, settlements did not spread in the usual direction up the main river, as was the case in the neighbouring Soła Valley (Kozbial 2014). The main factor in the foundation of Carpathian settlements, both in the early Middle Ages and in prehistoric times, was defensive (Reyniak 1980), as in northern and central Poland (Hildebrandt-Radke, Czembreszuk & Makowiecki 2009; Janiak 2009).

In the 13th century, settlements were founded on terraces above steep slopes, in the mouth of V-shaped valleys or on isolated hills. Non-environmental conditions – political changes that took place on the Silesian-Lesser Poland border and economic considerations – clearly featured at the turn of the 12th and 13th centuries. The best example of the economic conditions of settlement is the foundation of Zator at the junction of the Vistula and Skawa valleys, which made multidirectional trade contact possible. Similar non-environmental reasons for the founding of villages can be found in the Lublin settlement complex (Kociuba 2009).

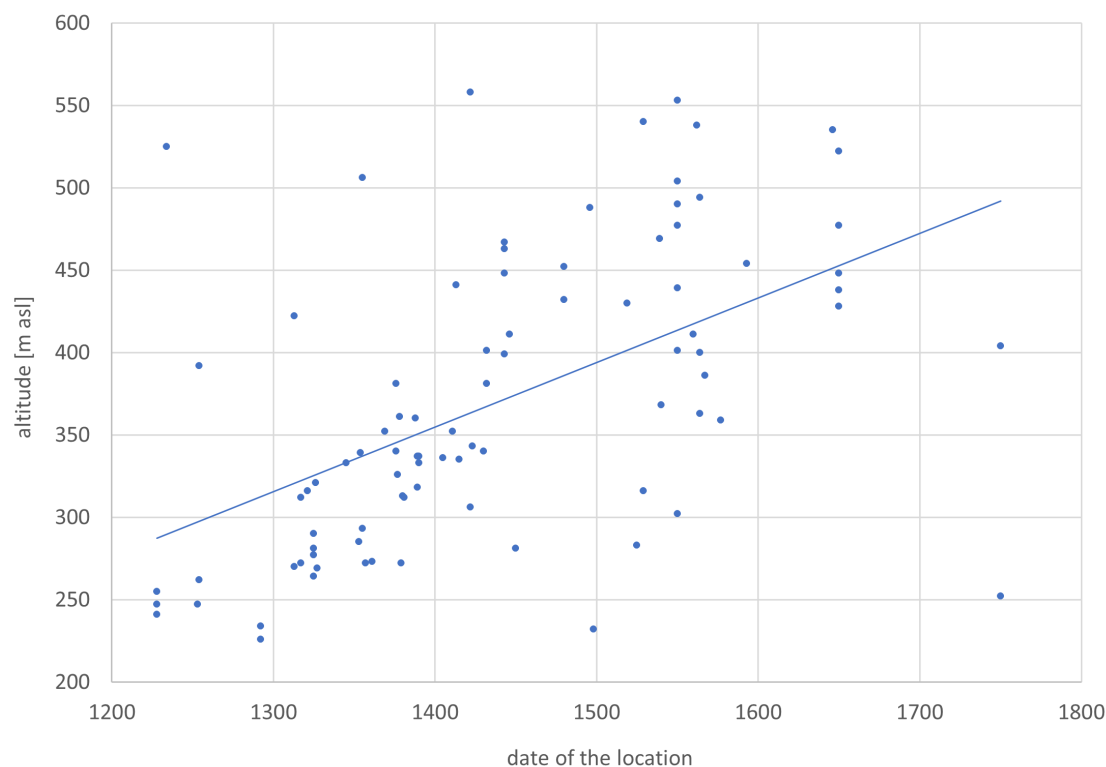


Figure 3. The dependence of the date of the location of villages on their altitude. The Spearman correlation coefficient of 0.61 indicates a strong positive relationship and the p -value = 4.08×10^{-10} indicates that the result is statistically significant. The regression line is upward sloping with $R^2 = 0.29$

Source: own elaboration

At the end of the 13th century, the settlement movement from the western, Lesser Poland direction was to secure the Krakow rulership against Silesia, which was under Czech influence. Religious orders, to which villages were granted, played an important role in the development of settlements (Rajman 1993; Mischke 1995; Dobosz 1999). In the 13th century, the relationship between the location of a village with natural protection and the performance of prestigious functions (Zator, Wadowice, Mucharz) became evident, as had already been observed for settlements in Masovia (Kittel 2013).

The intensive settlement movement in the 13th–14th century could also have been caused by the reconstruction after the Mongol invasion, also in the outskirts of the Carpathians, as demonstrated in the Lublin region (Gurba et al. 1995). When founding settlements, political considerations were crucial. The settlement of the Wieprzówka valley was the result of the settlement pressure from Zator, which was becoming an important urban centre in the Oświęcim Basin. Villages were created in places where conditions were favourable for agriculture, while their centres were founded at a safe distance from watercourses. In most cases, they did not have any natural defensive values.

Most of the 14th century settlements were founded near the already existing, more important centres. This confirms a change in the decision factor when choosing a site – from environmental to non-environmental. In the case of the Skawa catchment area, most of the settlements established near larger towns and villages performed auxiliary functions for them.

The settlement movement from the end of the 15th and the beginning of the 16th centuries was of a different nature and direction. The region of the Skawa catchment area was within the

borders of the Polish Crown and new villages emerged mainly for economic reasons. In the 15th century, next to the nuclei of the later so-called Sucha State, single settlements were created on the Skawa River. Those located in the northern part of the catchment area filled the settlement emptiness, while to the south of Sucha, villages were founded 'in cruda radice' – places convenient for the development of livestock breeding, which the Wallachian population engaged in. As early as the 16th century, these towns and villages were surrounded by newly formed settlements, occupying the most difficult places to cultivate and inhabit – in V-shaped valleys located in the upper part of the catchment (Górka & Więclaw-Michniewska 2016).

The development of settlements was clearly linked to changes in land cover and land use. These changes reflected the anthropopressure that had developed over the centuries and were responsible, among other things, for the indirect human influence on the hydromorphological conditions of the rivers (Śkarpich, Hradecký & Dušek 2013). Although no detailed studies have been carried out in the Skawa catchment, numerous studies from other areas of the Carpathians indicate the direction of these relationships. Research from the Beskid Niski shows that prehistoric humans significantly influenced not only the size of forest areas but also the species composition of forests (Wacnik et al. 2016). Wallachian settlements, identified in the Skawa catchment in the 16th century, triggered the processes of soil erosion on slopes and alluvial aggradation along rivers in the Czech Carpathians (Wistuba, Sady & Poręba 2018). In the Bieszczady Mountains, the expansion of settlements in the 16th and 17th centuries was accompanied by both an increase in the area of agricultural land and the development of crafts and, later,

the timber industry (Kukulak, Pazdur & Kuc 2002). In the 18th and 19th centuries, when the Carpathians were entirely within the Habsburg Empire, intensive forest management in Galicia led to the deforestation of large areas (Munteanu et al. 2014). In the Skawa catchment, forests then covered only 26% of the catchment area (Witkowski 2021).

Conclusions

The general direction of settlement development up the main valley and further along the tributary valleys is maintained in the Skawa catchment area (Fig. 3). It is clearly visible, however, that it was political and economic considerations that influenced the emergence of the most important settlements in the region, and the place and time of their foundation go beyond the main direction of colonization of the foothills and Beskids. A survey of settlements in the Skawa catchment area confirms that the highest parts of the Beskids have been settled since the 15th

century. However, in the lower, more accessible parts of the Beskydy, settlements and thus anthropopressure appeared earlier – as early as the 10th century. Research in the Skawa catchment area confirms that the spread of historical settlements depended primarily on colonization trends, which were mainly determined by politics.

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Appendix 1. The basic characteristics of the settlements analysed, including the sources of information.

	towns (t) and villages	physico-geographical macroregion (mesoregion)	altitude [m asl]	date of the location	16th century information about settlements *			
					name	type	parish affiliation	property
1	Andrychów (t)	Western Beskidian Foothills (Silesia Foothills)	333	1345	Andrychów	village	Andrychów	noble
2	Babica	Western Beskidian Foothills (Wieliczka Foothills)	313	1380	Babica	village	Witanowice	noble
3	Baczyn	Western Beskids (Makowski Beskid)	411	1446	Baczyn	village	Lanckorona	municipal
4	Barwałd Dolny	Western Beskidian Foothills (Wieliczka Foothills)	277	1325	Barwałd Niższy	village	Barwałd Niższy	municipal
5	Barwałd Górny	Western Beskidian Foothills (Wieliczka Foothills)	312	1381	Barwałd Górny	village	Barwałd Niższy	noble
6	Barwałd Średni	Western Beskidian Foothills (Wieliczka Foothills)	316	1529	Barwałd Średni	large village	Barwałd Niższy	municipal
7	Białka	Western Beskids (Żywiec-Orawa Beskid Mts)	400	1564	Zabielna	village	Maków	municipal
8	Bieńkówka	Western Beskids (Makowski Beskid)	463	1443	Bieńkówka	village	Herbułtowice	municipal
9	Brzezinka	Western Beskids (Mały Beskid Mts)	477	16th c.	the settlement did not yet exist			
10	Budzów	Western Beskids (Makowski Beskid)	352	1369	Budzów	village	Maków	municipal
11	Bystra	Western Beskids (Orawa-Jordanów Foothills)	452	1480	Bystra	large village	Jordanów	noble
12	Chocznia	Western Beskidian Foothills (Silesia Foothills)	293	1355	Chocznia	large village	Chocznia	municipal
13	Dąbrówka	Western Beskidian Foothills (Wieliczka Foothills)	340	1430	Dąbrówka	village	Stryśzów	noble
14	Frydrychowice	Western Beskidian Foothills (Silesia Foothills)	264	1325	Frydrychowice	large village	Frydrychowice	noble

	towns (t) and villages	physico-geographical macroregion (mesoregion)	altitude [m asl]	date of the location	16th century information about settlements *			
					name	type	parish affiliation	property
15	Gierałtowice	Oświęcim Basin (Wilamowice Submontane Region)	281	1325	Gierałtowice	village	Gierałtowice	noble
16	Gorzeń Dolny	Western Beskidian Foothills (Silesia Foothills)	337	1390	Gorzeń	village	Wadowice	noble
17	Gorzeń Górny	Western Beskidian Foothills (Silesia Foothills)	333	1390	the settlement did not yet exist			
18	Graboszyce	Western Beskidian Foothills (Wieliczka Foothills)	247	1253	Grabiszycze	village	Grabiszycze	noble
19	Grodzisko	Western Beskidian Foothills (Wieliczka Foothills)	262	1254	Grodzisko	village	Woźniki	noble
20	Grzechynia	Western Beskids (Żywiec-Orawa Beskid Mts)	401	1432	Grzechinia	village	Maków	municipal
21	Inwałd	Western Beskidian Foothills (Silesia Foothills)	312	1317	Inwałd	large village	Inwałd	noble
22	Jachówka	Western Beskids (Makowski Beskid)	381	1432	Jachówka	village	Maków	municipal
23	Jaroszowice	Western Beskidian Foothills (Wieliczka Foothills)	272	1317	Jaroszowice	village	Wadowice	municipal
24	Jaszczurowa	Western Beskids (Mały Beskid Mts)	337	1389	Jaszczerówka	village	Mucharz	noble
25	Jordanów (t)	Western Beskids (Orawa-Jordanów Foothills)	494	1564	Jordanów	town	Jordanów	noble
26	Juszczyn	Western Beskids (Żywiec-Orawa Beskid Mts)	467	1443	Juszczyn	village	Maków	municipal
27	Kaczyna	Western Beskids (Mały Beskid Mts)	401	16th c.	the settlement did not yet exist			
28	Klecza Dolna	Western Beskidian Foothills (Wieliczka Foothills)	285	1353	Klecza	large village	Klecza	noble

	towns (t) and villages	physico-geographical macroregion (mesoregion)	altitude [m asl]	date of the location	16th century information about settlements *			
					name	type	parish affiliation	property
29	Klecza Górna	Western Beskidian Foothills (Wieliczka Foothills)	281	15th c.	the settlement did not yet exist			
30	Kojszówka	Western Beskids (Makowski Beskid)	399	1443	Kojszówka	village	Maków	municipal
31	Koziniec	Western Beskids (Mały Beskid Mts)	368	1540	Koziniec	village	Mucharz	municipal and noble
32	Krzeszów	Western Beskids (Pewel-Krzeczów Ranges)	506	1355	Krzeszów	large village	Krzeszów	noble
33	Kuków	Western Beskids (Mały Beskid Mts)	448	17th c.	the settlement did not yet exist			
34	Kurów	Western Beskids (Pewel-Krzeczów Ranges)	490	16th c.	Kurów	village	Ślemię	noble
35	Lachowice	Western Beskids (Żywiec-Orawa Beskid Mts)	438	17th c.	the settlement did not yet exist			
36	Las	Western Beskids (Mały Beskid Mts)	504	16th c.	Las	village	Ślemię	noble
37	Łękawica	Western Beskidian Foothills (Wieliczka Foothills)	335	1415	Łękawica	village	Kletcza	noble
38	Łowiczki	Oświęcim Basin (Upper Vistula River Valley)	252	18th c.	the settlement did not yet exist			
39	Maków (Maków Podhalański, t)	Western Beskids (Makowski Beskid)	361	1378	Maków	village	Maków	municipal
40	Marcówka	Western Beskids (Makowski Beskid)	352	1411	Marczówka	village	Stryśzów	noble
41	Mucharz	Western Beskids (Mały Beskid Mts)	392	1254	Mucharz	village	Mucharz	monastery
42	Naprawa	Western Beskids (Makowski Beskid)	540	1529	Naprawa	large village	Łętownia	noble
43	Nidek	Oświęcim Basin (Wilamowice Submontane Region)	321	1326	Nidek	village	Nidek	noble
44	Osielec	Western Beskids (Makowski Beskid)	430	1519	Osielec	village	Maków	municipal
45	Palcza	Western Beskids (Makowski Beskid)	441	1413	Palcza	village	Herbułtowice	municipal

	towns (t) and villages	physico-geographical macroregion (mesoregion)	altitude [m asl]	date of the location	16th century information about settlements *			
					name	type	parish affiliation	property
46	Pewelka	Western Beskids (Pewel-Krzeczów Ranges)	553	16th c.	Jeżowice	village	Ślemię	noble
47	Podolsze	Oświęcim Basin (Upper Vistula River Valley)	226	1292	Podolsze	village	Zator	noble
48	Ponikiew	Western Beskids (Mały Beskid Mts)	363	1564	Ponikiew	village	Wadowice	municipal
49	Przybradz	Western Beskidian Foothills (Silesia Foothills)	283	1525	Przybradz	village	Przybradz	noble
50	Radocza	Western Beskidian Foothills (Silesia Foothills)	272	1357	Radocza	village	Radocza	noble
51	Roków	Western Beskidian Foothills (Wieliczka Foothills)	255	1228	Roków	village	Wadowice	noble
52	Rudze	Oświęcim Basin (Upper Vistula River Valley)	234	1292	Rudze	village	Zator	noble
53	Rzyki	Western Beskids (Mały Beskid Mts)	411	1560	Rzeczki	village	Andrzychów	municipal
54	Sidzina	Western Beskids (Orawa-Jordanów Foothills)	538	1562	Miłoszów	large village	Miłoszów (Sidzina)	municipal
55	Skawa	Western Beskids (Orawa-Jordanów Foothills)	488	1496	Skawa	large village	Rabka	noble
56	Skawce	Western Beskids (Mały Beskid Mts)	306	1422	Skawce	village	Mucharz	monastery
57	Skawica	Western Beskids (Żywiec-Orawa Beskid Mts)	454	1593	Skawica	village	Maków	municipal
58	Spytkowice	Western Beskids (Orawa-Jordanów Foothills)	525	1234	Spytkowa	large village	Raba	noble
59	Stronie	Western Beskidian Foothills (Wieliczka Foothills)	422	1313	Stronie	village	Stryszów	municipal
60	Stryszawa	Western Beskids (Żywiec-Orawa Beskid Mts)	432	1480	Strzeszawa	large village	Zembrzyce	noble

	towns (t) and villages	physico-geographical macroregion (mesoregion)	altitude [m asl]	date of the location	16th century information about settlements *			
					name	type	parish affiliation	property
61	Stryków	Western Beskidian Foothills (Wieliczka Foothills)	343	1423	Stryków	large village	Stryków	noble
62	Sucha (Sucha Beskidzka, t)	Western Beskids (Żywiec-Orawa Beskid Mts)	336	1405	Sucha	village	Zembrzyce	noble
63	Sułkowice	Western Beskidian Foothills (Silesia Foothills)	359	1577	Sulikowice	village	Andrzychów	noble
64	Śleszowice	Western Beskids (Mały Beskid Mts)	381	1376	Śleszowice	village	Mucharz	municipal
65	Świnna Poręba	Western Beskids (Mały Beskid Mts)	326	1377	Poręba Świnna	village	Mucharz	noble
66	Targanice	Western Beskids (Mały Beskid Mts)	404	18th c.	the settlement did not yet exist			
67	Targoszów	Western Beskids (Mały Beskid Mts)	522	17th c.	the settlement did not yet exist			
68	Tarnawa Dolna	Western Beskids (Mały Beskid Mts)	340	1376	Tarnawa	village	Mucharz	noble
69	Tarnawa Górna	Western Beskids (Mały Beskid Mts)	428	17th c.	the settlement did not yet exist			
70	Tomice	Western Beskidian Foothills (Wieliczka Foothills)	272	1379	Tomice	village	Wadowice	noble
71	Toporzysko	Western Beskids (Orawa-Jordanów Foothills)	469	1539	Toporzysko	large village	Jordanów	noble
72	Trzebieńczyce	Oświęcim Basin (Upper Vistula River Valley)	232	1498	Trzebieńczyce	village	Zator	municipal
73	Wadowice (t)	Western Beskidian Foothills (Wieliczka Foothills)	269	1327	Wadowice	town	Wadowice	municipal
74	Wieprz	Oświęcim Basin (Wilamowice Submontane Region)	290	1325	Wieprz	large village	Wieprz	noble
75	Wieprzec	Western Beskids (Makowski Beskid)	477	17th c.	the settlement did not yet exist			
76	Witanowice	Western Beskidian Foothills (Wieliczka Foothills)	273	1361	Witanowice	large village	Witanowice	noble

	towns (t) and villages	physico-geographical macroregion (mesoregion)	altitude [m asl]	date of the location	16th century information about settlements *			
					name	type	parish affiliation	property
77	Woźniki	Western Beskidian Foothills (Wieliczka Foothills)	247	1228	Woźniki	village	Woźniki	monastery
78	Wysoka (near Jordanów)	Western Beskids (Orawa-Jordanów Foothills)	558	1422	Wysoka	village	Jordanów	noble
79	Wysoka (near Wadowice)	Western Beskidian Foothills (Wieliczka Foothills)	339	1354	Wysoka	village	Wysoka	noble
80	Zachełmna	Western Beskids (Makowski Beskid)	448	1443	Zachełmna	village	Lanckorona	municipal
81	Zagórnik	Western Beskids (Mały Beskid Mts)	386	1567	Zagórnik	village	Inwałd	noble
82	Zagórze	Western Beskids (Mały Beskid Mts)	318	1389	Zagórze	village	Mucharz	noble
83	Zakrzów	Western Beskidian Foothills (Wieliczka Foothills)	360	1388	Zakrzów	village	Stryszów	municipal
84	Zator (t)	Oświęcim Basin (Upper Vistula River Valley)	241	1228	Zator	town with a castle	Zator	municipal
85	Zawadka	Western Beskidian Foothills (Silesia Foothills)	302	16th c.	Zawada	village	Wadowice	noble
86	Zawoja	Western Beskids (Żywiec-Orawa Beskid Mts)	535	1646	the settlement did not yet exist			
87	Zembrzyce	Western Beskids (Pewel-Krzeczów Ranges)	316	1321	Zembrzyce	large village	Zembrzyce	noble
88	Zygodowice	Western Beskidian Foothills (Wieliczka Foothills)	270	1313	Zegodowice	village	Woźniki	monastery
89	Żarnówka	Western Beskids (Makowski Beskid)	439	16th c.	Żarnówka	village	Maków	municipal

* Rutkowski, H (ed.) 2008, Atlas Historyczny Polski. Województwo krakowskie w drugiej połowie XVI wieku, Neriton, Warszawa. The atlas also identified several hamlets in the Skawa catchment area that are not currently independent villages: Brańkówka (Zagórze), Wiglowice (Laskowa), Zagórnicek (Rzyki), Ostałówka (Zagórze), Huta Strzeszawa (Stryszawa), Malejowa (Jordanów), Chrobaczna (Jordanów), Retsz (Tarnawa Górna).

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