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## LANDSCAPE ARCHITECTURAL PROPOSAL OF THE LEISURE PATH ALONG THE RIVER GAUJA IN LATVIA

**Purpose.** To propose the recreational educational trail for the public along the river Gauja.

**Methods.** Field, landscape and architectural proposal.

**Results.** The recreational educational trail will lead along riverside and has a start point at an active leisure park ‘‘Rāmkalni’’, about 40 km away from the capital of Latvia- Riga and end in Sigulda, about 53 km away from Riga. The planned route includes 8 stops who are currently separated and don’t have a connecting route yet. For the trails and stairs in places of terrain changes, it is planned to use the wood of *Larix* trees, as it rots much more slowly than other trees. The topics of the informational boards in the planned trail are educational about: the trail, Gauja River, Gauja National park, geology of the cliffs, active leisure park ‘‘Tarzāns’’, Sigulda city.

**Conclusions.** The landscape architectural proposal and design of the equipment is simple, minimalist and natural shapes, with simple bench and information sign structures, mostly using wood material like wooden beams. Most of the places showcase the beauty of the picturesque Gauja Valley, some of them are also designed for outdoor activities.

**KEYWORDS:** *landscape, educational trail, leisure time, recreation in forest, Gauja river, Latvia*

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### Introduction

Latvia is a land of forests and wood – our “green gold”. Almost every Latvian resident is connected to forests, forestry and forest products in various ways. The forest is both deeply rooted in our cultural traditions and provides opportunities for spending free time and earning income. Wood has long been used in construction, making furniture and various household items, and since Latvia regained its independence, the forest sector has become one

of the most influential in the national economy. In the development of rural regions of Latvia, the forest is one of the most important resources, providing a livelihood for more than 80 thousand people who work in various fields. To these should be added another 150 thousand Latvian private forest owners who earn irregular income from the forest [1].

Recent research frames forest recreation not as a luxury activity but as a widespread, soci-

ally important and economically relevant use of forests [2].

In many European countries the forests are the most attractive areas and they are dominant for short term or long-term recreation of the inhabitants. They are also attractive as a place to visit for foreign visitors [8]. Latvia, a country with >50% forest cover, treats forests as a routine leisure space for walking, short hiking, and informal nature-based activities such as berry/mushroom picking [3, 4]. An important social driver of long-term demand for forest visits is early-life exposure. In nine-country European countries (Austria, Czech Republic, Switzerland, Germany, Denmark, France, Poland, Slovakia, and UK) frequent childhood forest visits and proximity to forest during upbringing is linked with much higher adult visitation rates later in life [5]. Also, more than 80% of Latvian residents regularly relax in the forest, playing sports, picking mushrooms or berries [1].

### ***Material and methodology***

Although Latvia is a relatively small country in terms of territory, we have something to be proud of in terms of forests – Latvia is the fourth most forested country (approximately 53% of Latvia's territory is covered by forests) in Europe, only surpassed by Finland (77%), Sweden (76%), and Slovenia (63%).

Forests in Latvia are owned both publicly and privately. The state owns the largest share of the forest land, while private ownership is also significant. The state forests are managed by a state-owned enterprise, *Latvia's State Forests* (Latvijas Valsts Meži, LVM), which manages over 1 million hectares of forestland. Currently, more than 50 local tree and shrub species are found in Latvian forests, of which only nine play a decisive role in the formation of stands. According to statistical inventory data, in 2010, forest stands consisting of 2–3 tree species prevailed in the country – 54%. In second place, occupying 37% of all forest areas, are pure stands. Forest stands consisting of 4–5 tree species occupy 9%, but more than five tree species are found in one stand very rarely – only 0.2% of cases. The majority – 54% of Latvian forests are covered by deciduous trees, the remaining 46% – by coniferous trees [1].

Gauja National Park, established in 1973, is the largest and oldest national park in Latvia, covering over 900 square kilometers. It is renowned for its diverse landscapes, featuring

Educational/interpretive infrastructure is important for offering more complex experiences from the hiking. An eye-tracking study with school-aged youth on forest educational trails in Poland shows that visitors do look at interpretive boards, but attention is uneven. Large visual elements attract initial gaze, while dense text produces many fixations but lower sustained engagement. Overly cluttered layouts reduce comprehension. The educational boards on trails should prioritize simple visual hierarchies, concise explanations, and clear iconography in situ [6]. Other authors also emphasize that boards should be harmonious with the site and tell the story of the site [7].

Globally, protected areas – many of them forest-dominated – receive on the order of eight billion visits per year, generating hundreds of billions of dollars of direct in-country spending annually and indicating very high social demand for contact with semi-natural and natural environments [2].

dense forests, rivers, lakes, sandstone cliffs, caves, and valleys carved by the Gauja River. The park is a haven for nature lovers and outdoor enthusiasts, offering opportunities for hiking, cycling, and water sports. In addition to its natural beauty, Gauja National Park is rich in cultural heritage, with medieval castles like Turaida and Sigulda, ancient hillforts, and charming towns like Cēsis. The park is also home to many protected species of flora and fauna, making it an important conservation area. It's a popular destination for ecotourism, combining natural beauty with historical exploration [9].

The planned route will lead along riverside and has a start point at an active leisure park "Rāmkalni", about 40 km away from the capital of Latvia- Riga and end in Sigulda, about 53 km away from Riga. The route along the river is a typical Vidzeme landscape- hilly and covered by trees- 53,8% of Latvia's territory is forested. Sigulda is one of the most picturesque towns in Latvia, thanks to its location next to river Gauja valley. Because of the reddish Devonian sandstone which forms steep rocks and caves on both banks of the river, Sigulda has been called the "Switzerland of Vidzeme".

Gauja River is the longest river entirely in Latvia, stretching about 452 kilometers (281 miles). It flows through the picturesque Gauja National Park, known for its stunning natural

landscapes, sandstone cliffs, caves, and dense forests. The river is popular for outdoor activities like canoeing, rafting, and hiking, especially in the scenic sections near Sigulda and Cēsis. Gauja has a rich history, with ancient settlements along its banks, making it a cultural as well as a natural treasure in Latvia [10].

Two castles standing at a shooting distance from each other – Sigulda Castle and Turaida Castle – are the first objects to be seen by travellers who have approached the primeval

valley of the River Gauja. Events related to these castles date back to the 13th century when each bank of the River Gauja remained in the possession of different rulers – Riga Bishop and Order of Sword Brothers. Castle restoration was commenced in 1953 with the reconstruction of the castle tower. Sigulda New Castle is situated next to Sigulda Medieval Castle. It was erected by Duke Kropotkin in 1878 and it was rebuilt in 1936, still retaining the unique interior of national romanticism [11].

### Results

Leisure path along the river Gauja in Latvia is located in Vidzeme, a region in Latvia known for river landscapes. The route develops along river Gauja, starting at an active leisure park “Rāmkalni” and continuing until Sigulda and is in the territory of Gauja National Park (Fig. 1). The chosen route is located in

Vidzeme, a region in Latvia known for river landscapes. The route develops along river Gauja, starting at an active leisure park “Rāmkalni” and continuing until Sigulda and is in the territory of Gauja National Park. Intended length of the trail is 19 km, average time needed to finish the trail: 6-8 hours.



**Fig. 1** – Localization of the educational trail [12]

The planned route consists of 8 stops which are currently separated. Most of the places show the beauty of the picturesque Gauja valley, some of them are for active leisure as well. Sigulda provides many more tourist attraction spots, there are plenty of options for both active and passive leisure. The stops are:

1. “Rāmkalni” active leisure park,
2. Ziedleju cliffs,
3. The Katlapu rock,
4. “Ķeizarskats” (“The King’s View”),
5. Adventure park “Kaķīškalns”,
6. Sigulda Bobsleigh and Luge track,
7. The Cane Park in Sigulda,
8. Laima clock at Sigulda train station.

There have been identified positive sides of the area, which includes: All stops in the planned route are accessible by car, so in case of accidents, there are possibilities to get help easily. Ķeizarskats already has a good infrastructure-wooden footbridges, information signs, trash bins etc. The chosen route is naturally very beautiful and appealing, thanks to the picturesque valley of Gauja and also easily walkable, as it consists of forest roads, surface along the river and asphalt roads which are in very good quality.

Negatives elements, which was identified are: Ziedleju cliff is getting ruined by visitors who carve names in the cliff, slowly making it smaller. Katlapu iezis, already a very popular

stop for tourists, tends to be quite polluted, as there are no trash bins in the area. In some spots it is difficult to access the river because of the branches carried together by the stream.

The landscape architectural proposal (Fig. 2) and design of the equipment is simple, minimalist and natural shapes, with simple bench and information sign structures, mostly using wood material like wooden beams. Main inspiration textures- wood and rusted metal as

references to Gauja National Park forests and the sandstone cliffs. For the trails and stairs in places of terrain changes, it is planned to use the wood of *Larix* trees, as it rots much more slowly than other trees. It is meant to keep the natural wooden texture shown to mix with the visual look of the river's bank- flowy and natural. Design elements are meant to be both educational and applicable for active leisure as well.



**Fig. 2** – Landscape-architectural proposal of the educational trail [12]

The concept of the trail is connecting already existing viewpoints along the river Gauja and leading to an urbanized territory- city of Sigulda. There are 2 active leisure parks in the trail, 4 stops at the best viewpoints of river Gauja and 3 viewpoints in the city, included a bobsleigh track.

The topics of the informational boards in the planned trail are:

1. Main board about the trail,
2. Educational board about Gauja River,
3. Educational board about Gauja National park,

4. Educational board about geology of the cliffs,
5. Informational board active leisure park "Tarzāns",
6. Informational board about Sigulda city.

The design elements which was proposed for this trail are swings, informational board and benches (Fig. 3). The swings are planned to be on top of the Katlapu iezis, giving the visitors a great opportunity to make the trip remarkable by providing the feeling the adrenaline of using the swings on the highest point of the terrain, where, looking down, there is a great view of

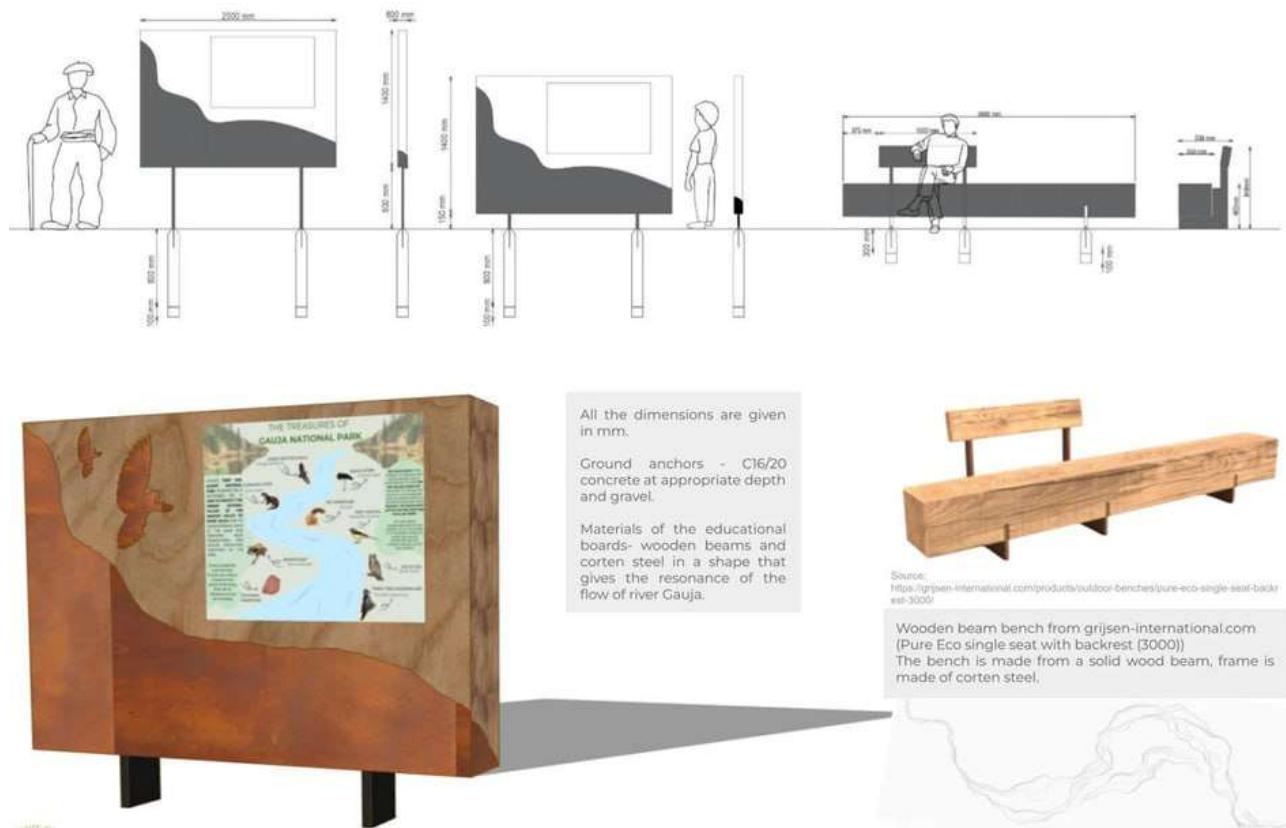


Fig. 3 – Design of the educational board and bench [12]

the river Gauja. Being on a hill allows the swing's user to feel more connected to the open space. This heighten sense of speed and altitude contributes to the fun factor, especially for children. Ground anchors - iron structure connection with hydro isolation in C16/20 concrete at 1 meter depth and then gravel. Materials of the swings - solid oak planks with elaborately spliced rope.

On the top of Katlapu iezis, there is a resting spot with a fireplace for travellers. It is planned to place the swings closer to the edge and redesign the fireplace by adding benches around and trash bins, as currently there is a problem with waste management because of the lack of trash bins. Informative signs of the idea "Take what you came with home" will also be added to minimize the trash in the area.

Proposed educational trail should increase informational and aesthetical value of the existing path and also offer better comfort for the visitors. It is meant to keep the natural wooden texture shown to mix with the visual look of the river's bank- flowy and natural. Main inspiration textures-wood and rusted

natural landscape and enhances the sensory experience, offering a sense of freedom and

Several educational and informational boards are also to be put throughout the trail. Materials of the educational boards- wooden beams and corten steel in a shape that gives the resonance of the flow of river Gauja. They are planned to be in two heights (one at 2 meters and the other one at 1,45 meters), so both adults and children can read the information given at a comfortable height for them. Ground anchors for the elements - C16/20 concrete at appropriate depth and gravel.

Wooden beam bench is from grijzen-international.com (Pure Eco single seat with backrest (3000)) The bench is made from a solid wood beam, frame is made of corten steel.

### Conclusions

metal as references to Gauja National Park forests and the sandstone cliffs.

Most of the places show the beauty of the picturesque Gauja valley, some of them are for active leisure as well. Sigulda provides many more tourist attraction spots, so for those who are interested in staying there after walking the

intended route, there are plenty of options for both active and passive leisure.

This is a popular destination for ecotourism, combining natural beauty, relaxation, and learning.

Forest recreation is an important aspect of Latvia's culture, as forests serve not only as natural resources but also as spaces for relaxation, tourism, and outdoor activities. This recreational value contributes to the well-being of citizens, while also boosting the local economy through eco-tourism and nature-based experiences. Latvia has established a strong legal framework for forest and nature

protection, including protected areas like national parks, nature reserves, and Natura 2000 sites, which ensure the preservation of its rich biodiversity, but, despite the progress. There are also some challenges such as illegal logging, pressures from development, and the impacts of climate change.

However, through continued investments in conservation efforts, public awareness, and sustainable practices, Latvia can safeguard its natural heritage, ensuring that forests remain a vital resource for future generations, which is a gift so valuable that we should put a lot of effort in protecting it and only developing it.

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### **Conflict of Interest**

The authors declare no conflict of interest regarding the publication of this manuscript. Furthermore, the authors have fully adhered to ethical norms, including avoiding plagiarism, data falsification, and duplicate publication.

**Authors Contribution:** all authors have contributed equally to this work. The results are original and unique.

In this study, generative artificial intelligence was not used.

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## ЛАНДШАФТНО-АРХІТЕКТУРНА ПРОПОЗИЦІЯ РЕКРЕАЦІЙНОЇ СТЕЖКИ ВЗДОВЖ РІЧКИ ГАУЯ В ЛАТВІЇ

**Ціль.** Запропонувати рекреаційну освітню стежку для громадськості вздовж річки Гауя.

**Методи.** Польові, ландшафтні та архітектурні.

**Результати.** Рекреаційна освітня стежка проходить вздовж берега річки та матиме початкову точку в парку активного відпочинку «Рамкалні», приблизно за 40 км від столиці Латвії – Риги, та закінчується в Сігулді, приблизно за 53 км від Риги. Запланований маршрут включає 8 зупинок, які наразі розділені та ще не мають сполучного маршруту. Для стежок та сходів у місцях зміни рельєфу планується використовувати деревину модрини (*Larix*), оскільки вона гніє набагато повільніше, ніж інші дерева. Тематика інформаційних стендів на запланованій стежці є освітньою, про: стежку, річку Гауя, Національний парк Гауя, геологію скель, парк активного відпочинку «Тарзан», місто Сігулда.

**Висновки.** Ландшафтно-архітектурна пропозиція та дизайн обладнання прості, мінімалістичні та мають природні форми, з простими лавками та інформаційними знаками, переважно з використанням дерев'яних матеріалів, таких як дерев'яні балки. Більшість місць демонструють красу мальовничої долини Гауї, деякі з них також призначені для активного відпочинку.

**КЛЮЧОВІ СЛОВА:** ландшафт, освітня стежка, дозвілля, відпочинок у лісі, річка Гауя, Латвія

### Подяка

Це дослідження було підтримано Агентством наукових грантів, грант № VEGA 1/0681/24.

### Конфлікт інтересів

Автори заявляють про відсутність конфлікту інтересів щодо публікації цього рукопису. Крім того, автори повністю дотримувалися етичних норм, включаючи уникнення plagiatu, фальсифікації даних та дублювання публікацій.

**Внесок авторів:** всі автори зробили рівний внесок у цю роботу.

В роботі не використано ресурс штучного інтелекту.

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