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## CHANGES IN WORSHIP BUILDING LANDSCAPES 21ST-CENTURY IN EUROPE



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Abstract. Worship building landscapes, like others, are changing. The aspects that are studied about worship building landscapes are also changing. This study aims to create a context for the changes in Latvian worship building landscapes in the 21st century, by exploring and examining what changes in worship building landscapes have been recorded in studies in the anglophone research literature in Europe. Relevant peer-reviewed articles published in scientific journals were searched in the literature database "Web of Sciences". In research was identified 106 publications about worship building landscape practices, which included 51 about physical changes in today's worship building landscape, and also 38 about church politics, 62 about practices connected to the church, and 11 about pilgrimage. A widely explored topic in research is landscape change from a broad perspective, examining the influence of political, social, economic, and migration factors. Publications also show a strong focus on planning challenges, shifts in landscape perception, and how these perceptions evolve about worship building landscapes. The construction of new worship buildings, however, remains a less commonly studied subject. In certain parts of Europe, more specialized topics have gained attention, such as ruins, the risks posed by natural disasters, geotourism, and the role of worship buildings as habitats for owl nesting and bat nurseries. Research papers on changes in worship buildings vividly illustrate the intricate patterns shaping their landscapes, drawing the interest of scholars from diverse disciplines. When planning the development of landscapes surrounding places of worship, a holistic perspective is crucial. Traditionally, the focus has been heavily on the architectural values of these sites. However, in the 21st century, a broader approach is emerging, integrating economic, social, and environmental considerations alongside architectural aspects. Keywords: worship building landscape, literature review, church

### Introduction

An integral part of the landscape is its variability, which is an endless object of research from a variety of angles. The greatest threat to the landscape is irreversible and undesirable changes. Landscapes today are generally experiencing changes due to both climate change and changes directly caused by humans – redevelopment, energy landscape, infrastructure, and building development (Shannon, 2018). In the context of church landscapes, these issues are also important and are often contrasted with the preservation of the current state of the church landscape. Whatever is decided, it is important to make an informed decision, which is sometimes lacking in time (Corner, 2014).

Cultural and historical landscapes are important not only in a cultural context but also in an economic and social one (Council of Europe, 2000; Council of Europe, 2005). Latvian church landscapes, both urban and rural landscapes, have significant historical, social, and symbolic significance, as they are built on important trade routes, lakes, and rivers in such a way as to be visible from a distance. Often, church landscapes include cemeteries, which are important as an element of the cultural environment, as well as having scenic, ecological, and historical significance. Church landscapes also indicate historical changes and the residents' belonging to a confessional tradition (Spārītis, 2011).

In Latvia, worship building landscape studies have been conducted so far for individual territories, or even individual landscapes in-depth, revealing the main themes architecture, landscape, worship building garden, worship building landscape and elements, and imageability, where a large focus is on the worship building landscape as a whole, as well as its elements as cultural and historical value. In several regions of Latvia, cultural landscapes are experiencing negative changes, experiencing a loss of function and not introducing new or temporary uses, or there is a lack of justification and context for an informed transformation of the cultural landscape of places of worship so as not to lose existing values (Pidža, 2011; Markova, 2012a; Markova, 2012b; Markova, 2013a; Markova, 2013b; Markova 2014a; Markova 2014b; Markova, Ņitavska 2015a; Markova, Ņitavska 2015b; Markova, Nitavska 2016; Lazdāne, Markova, Ziemelniece

2013; Ziemelniece 2017; Ziemelniece 2023).

However it is not always necessary to continue local research traditions, a broader vision is also needed. The literature review on the topic is considered good for research development (Pickering, Byrne, 2014). Landscape architects must work on a territorial scale, juxtaposing ecological systems, scientific data, construction methods, social practices, and cultural values, integrating all of this into a human-made environment (Shannon, 2018). Often, cultural landscapes are viewed from a narrower perspective, highlighting their cultural heritage significance, but this is not comprehensive and is more about how to design, taking into account cultural heritage (Riesto, Tietjen, 2018).

UNESCO included cultural landscapes as a component of cultural heritage in 1992, defining them as a product of human-nature interaction (UNESCO, 1992). Given that a coordinated cultural heritage policy is being promoted and developed at the European Union level (and trying to include others) (Council of Europe, 2017), it is important to consider changes at the cultural European level. The European Cultural Heritage Strategy for the 21st Century is based on three components – social, territorial, economic, knowledge, and education, where everything can be developed by integrating each other. In the social aspect of cultural heritage development, opportunity creation and participation are essential. The task of the territorial component is focused on the contribution of heritage to sustainable development, which is based on local resources, tourism, and employment. In turn, the knowledge and education component focuses on cognition and research with the help of cultural heritage (Council of Europe, 2017; European Commission, 2019).

Worship buildings have had different social contexts and meanings in society at different times, which are an inseparable part of the processes taking place in worship building landscapes. Local resources include worship building landscapes, which are historical, with only a small number of newly created worship buildings joining them. In turn, knowledge is often not available in sufficient quantities about cultural landscapes and their changes. This research paper aims to summarize the changes in the landscape of churches

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in the 21st century as defined in the scientific literature.

I believe that the literature review method is appropriate not only in the scientific beginnings, (Pickering, Grignon, Steven, Guitart, Byrne 2015) but also over time, to examine the context of the research and to be aware of the topicality of the research, which can change dramatically over time.

#### Method

The first step was a systematic quantitative literature review, based on Pickering and Byrne (Pickering, Byrne, 2014), to determine general aspects of worship building landscape research done in 21. century in Europe. Were searched the literature database "Web of Sciences" for relevant peerreviewed articles published in scientific journals. Web of science the formula was used in the search - TS=(temple\* OR church\* OR mosque\* OR synagogue\* OR "worship building" AND landscape\*). It was also noted that the full article must be available, the article must be in English, the article must be published in this century, and it must be about a European country. The search was done from April to May 2024. Several filter criteria were applied to specify the review (as the terms "worship building" and "landscape", could include a wide range of publications (Table 1)) and at the same time identify as many relevant articles as possible:

- The article should be written in English and published between 2000 and 2024 (chosen to reflect research tendencies in 21. century);
- The article should explicitly address "worship building landscapes";
- The article should examine larger or smaller-scale outdoor spaces of worship buildings (temples, churches, mosques, and synagogues).

Landscapes of churches, as well as cultural landscapes, clearly have an essential value formed by the interaction of man and nature. Therefore, when evaluating scientific publications, publications that focus on human-made elements and changes, as well as natural values and related changes, as well as, of course, studies that focus on human-nature interactions (UNESCO, 1992) and changes in practices, relationships, forms Stephenson, J. (2008).

#### **Results and Discussion**

The authors of various articles on changes in worship building landscapes in the 21st century in Europe have researched different aspects of these cultural landscapes. In this literature review, all publications on the relevant topic were selected based on the cultural value distribution model. Relevant subtopics were identified not only for articles that precisely corresponded to the defined goal but also for all publications on the related topic, outlining the main research directions in the topic of worship building landscapes in general.

In total, 445 articles were obtained after the selection. Articles that were not about European countries were excluded from further research and analysis, although this aspect of the selection was indicated, there were 90 such articles. Articles for which only abstracts were available and no full versions of the articles were available were also excluded – there were

Range and definitions of researched worship building landscape aspects (created by the authors)

Aspect	Definition		
worship building	a church, mosque, or other building where people go for religious services (Collins et.al. 2024)		
landscape	an area perceived by people whose character is the result of the action and interaction of natural and/or human factors (Council of Europe, 2000)		

TABLE 1

22 such articles. The remaining 333 articles were analyzed in more detail.

333 articles, analyzed through the cultural value model, were divided into subgroups (Table 2). The main groups were formed based on the cultural value model, which covers both human and natural practices, forms, and relationships, which was used as a basis for creating a division of the collected articles in the literature review. Although the focus of this article is on the physical landscape of the church, the context is of course also formed by changes in the political landscape of the church (Stephenson 2008). In turn, subgroups were formed if a specific group was read when analyzing the relevant articles.

Articles that simultaneously go the furthest into the history of worship building landscapes, such were 35 articles, speak specifically about forms. Archaeological research is not only carried out in places where it has not been done before but is also carried out repeatedly, using modern new technologies. Various historical research is still being carried out, which is facilitated by new finds, new information, as well as technological developments. The evaluation of the past also differs from the perspective of the relevant time and the change of values, which view rituals, routes, and elements in a different light. To some extent, research on the past of churches also brings to the 21st century worship building landscape, because they can change our perception of the worship building landscape, and provide an understanding of its planning, arrangement of elements, and meaning. This does not directly affect the changes that are taking place today but provides additional information and explanation. 136 studies are related to the historical perspective of worship building landscapes, which are still relevant in the context of worship building landscapes - studying the principles of worship building landscape design in different periods, trying to understand the reasons, and basic principles, and discovering lost landscapes. Worship building landscapes have been a source of inspiration in various historical periods, as well as works of art and literature as a source of knowledge, where to look for information about worship building landscapes, their meaning, elements, and other information this is reflected in scientific articles - 21 about writers, 10 about painters. A sacred place includes not only the church but also a fairly wide surrounding landscape (Foletti, 2022).

TABLE 2

Distribution of landscape cultural values (created by the authors)

Landscape components	Forms	Relationships	Practices (including process)
Landscape component topics related to worship building landscape change/number of articles on the relevant subtopic	historical landscape elements (archaeology) / 35	landscape description or landscape as inspiration (paintings, literature, letters, church historical documents, etc.) / 136	<ul> <li>religion politics / 38;</li> <li>practices connected to church / 62;</li> <li>pilgrimage / 11;</li> <li>physical changes in nowadays worship building landscape / 51</li> </ul>

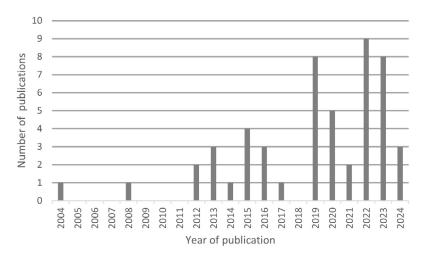


Fig. 1. Number of publications according to years in 21. century (created by the author)



Fig. 2. Publication keyword word cloud (https://wordcloud.online/)

There are scientific articles about practices, but not about changes in the physical landscape today, there are 106 in total (which include - religion politics / 38; practices connected to church / 62; Pilgrimage / 11). The research focuses on various topics that are contemporary changes, but not in the physical church landscape, such as the sacralization of nature, church acoustics, a summary of research conducted by a particular journal on worship building landscapes, practices, the spiritual landscape, as a community of believers, the political landscape, the linguistic landscape, the online church, the church music landscape, the assessment of seismic safety in churches, monitoring and conservation methods, a large part of this research examines changes in the worship building landscape in a political context, how this landscape (the number of churchgoers) changes due to migration, political processes, etc. and how the worship building landscape and worship buildings are affected by climate change, changing technological possibilities, and the connection of mental health and well-being with church practices, education.

51 research papers meet the aim of this research and represent the research done on changes in the physical worship building landscape today. Worship building landscape change is not a new research topic, but still, only after 2012, we can find many more publications about this topic (figure 1).

Several subthemes were defined when studying the selected

publications. The graphical analysis of the keyword collection vividly depicts the emphasis on "heritage", as well as the expected emphasis covering topics such as - "conservation", "urban", "cultural", "religion", "architecture" and "geotourism" (figure 2.).

# Landscape change

Sacral landscape change includes also confessional changes and functional changes. These changes are visible and could be restored and preserved not only in architecture but also in the sacral landscape (Łach et al., 2022).

Although the modern landscape often has other goals and objectives, the importance of searching for the dominant features of the church, identifying spatial connections, developing the landscape according to historical axes, and creating harmony is still seen. Moreover, the usefulness of using this in both pedagogy and in the practice of landscape architects is increasingly being seen - to look at the compositional elements and techniques of sacred elements (Barreiros Proença et al., 2022).

Landscape changes can occur at different scales and similarly, the area of influence for each change made can be different. Large trees are a kind of point element in the landscapes of churches, but at the same time, they have a wide impact, forming visual boundaries, and affecting sight lines. In many European countries, large trees have an important place attraction, and symbolism. Sacred trees are important elements in sacred landscapes. Trees should not be cut down hastily, but rather their quality should be reviewed and, by making changes, incorporated into the overall landscape, into the composition of the church. Technical capabilities in tree research have changed and provide the opportunity to make more informed decisions, as well as implement tree protection measures, thereby preserving the integrity of the landscape (Dudkiewicz & Durlak, 2023). When planning church gardens and territories, large trees to be preserved must be taken into account, and measures to improve the condition of trees must be implemented accordingly, as well as educating owners and managers about the relevant values and conservation opportunities is important (Dudkiewicz & Durlak, 2023).

A part of the landscape of a church can also be large complexes of buildings and outdoor spaces, which include temples, monasteries, gardens, and public outdoor spaces. For these large complexes in Ukraine, the connection with water areas, natural elements, and terrain remains important (Mishchenko, 2022). In Latvia, a study of landscape changes based on a case study – Ilūkste church – has defined that despite the demographic and economic changes in the

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city, the church landscape itself has retained its main characteristics. The positive changes in the landscape are that with EU financial support it is possible to demolish the ruins of the Soviet era, increasing the value of the landscape. The natural base of the landscape – floodplain meadows – ensures the openness of the landscape views and the preservation of sight lines (Ziemeļniece, 2023).

If new buildings are developed near them today, it disrupts the overall perception of the complex and can affect the sacred meaning of the object. A significant part of the landscape of a church can be both the city center building and residential buildings, a monastery, a park, a cemetery, a memorial site, or a complex. When developing new buildings, it is important to consider not only the physical boundaries of sacred objects and complexes but also to look more broadly at the perception zone of the landscape. And the opposite is also true - when creating new and spacious residential structures, it is necessary to think about the location of new religious buildings. Because, as the research survey shows, the most important thing when thinking about the location of a religious building is its proximity to residential buildings (Mishchenko, 2022).

Nowadays, the landscape is influenced by globalization processes, but on the other hand, the landscape is also influenced by migration processes. Mosques are not typical of the Polish landscape, but they are an important part of the local population and an essential part of the Polish Tatar culture. These structures play a significant role for the local population in the specific regions (region of Podlachia). For Muslims and Tatars moving into the area in question, the cultural heritage already there is important, and it is preserved with great zeal and is an essential social bond (Janowski et al., 2023).

Traditional approaches may vary from country to country. For Ukrainian Orthodox churches, traditional approaches include native plants, preservation of existing tree tops, architecture in harmony with nature, alternation of open and closed landscape spaces, and creation of sightlines. Nowadays, landscape changes have led to the fact that Ukrainian Orthodox churches no longer have pronounced regional differences, but what has remained from traditional methods is the creation of diverse sightlines and efforts to include the connection of the sacred landscape with the natural background (Sleptsov et al., 2021).

Landscape changes can also be functional and often this means that the visual image of the landscape does not

change significantly, but the changes are more related to the perception and openness of the place. Sedova has defined the cyclical nature of landscape changes (ecclesiastical heritage) in her study, which includes: value investigation/judgment, forms of obsolescence definition, adaptive reuse interventions, creation of value, and impact generation (figure 3). From time to time this cycle begins again, in this process to be implemented in life, it is important to have a decision support system (Sedova, 2022).

One example is the abandoned church development project with the aim not to change the functionality, but to preserve the historical and spiritual significance as much as possible. In Flanders, as elsewhere in Europe, several abandoned churches are emerging as a result of migration and there is a significant discussion about what the possible development is. Several scenarios are proposed for discussion and presented to interested parties. The keytothis future development is the vision that the cemetery is a public outdoor space (Goyvaerts & Keere, 2020; Plevoets et al., 2019).

Landscape changes are not always directly related to the sacral building or sacral landscape itself. This is clearly illustrated by the example of Studenica marble restoration of the churches of Studenica and Sopocani, because to use the right material, it was decided to restore the marble quarries. Marble quarries have also become part of the national heritage, and this material is essential precisely in the context of church architecture. The marble quarries are in the same region as the churches, so landscape changes affect both objects in conjunction. Here, the cultural landscape on a wider scale is important, as well as the added value of the management vision, where residents are involved (Ristić et al., 2019).

In connection with landscape changes, the issue of insufficient protection, which is formed by defining formal protection zones but not implementing detailed management steps, continues to emerge. Landscape development can be quite fragmented, and is also affected by the lack of disaster management. In the case of Moldova, drastic changes in sacred landscapes are made by industrialization, household construction, tourism, and the construction of the associated buildings. On the other hand, landscape change is governed by natural processes such as floods, lateral erosion, the variability of the water flow within the catchment, and reforestation (Nicu & Stoleriu, 2019).

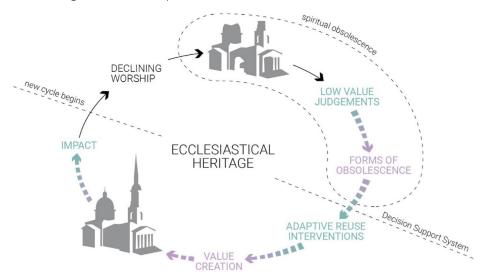


Fig. 3. Landscape change circulation (Sedova, 2022)

#### The importance of planning

Cultural landscapes and their elements are essential, but their identification is not enough and a specific plan is needed to preserve and restore them. Management must be designed so that the benefit is not only aesthetic but also functional and brings economic benefits. In rural regions, taking into account demographic changes, it is a great challenge to maintain and restore cultural and historical elements, because they often lack functional significance. There is a need to change the perception of the local communities (Constantin & Constantin, 2020).

The connection of the region, the development of tourism, and the development of cross-border regions are of great importance. The landscape values of places of worship also include cemeteries and their planning. The landscape values identified in this study mainly cover the location, diversity of views, the presence of natural values, and architectural stylistics. In turn, for architecture, not only the style, or a mixture of styles, but also the condition (degree of preservation), and the importance of the element are important (Dzikowska et al., 2023).

The connection between natural values and sacred sites has their importance in nature conservation. Sacred sites, and worship building territories often also have the importance of nature protection or preserving natural diversity, but in the Western world, this connection is less emphasized/studied (Frascaroli, 2013).

A planning aspect that needs to be addressed is also the problem of churches and sacred places in general when the territory is covered by private property. The surrounding territories affect both the spiritual and physical accessibility of the landscape, as well as the perception of the landscape. A balance must be found between private property rights and the common good of society. The article (Kalwaria Zebrzydowska Cultural Landscape) emphasizes the importance of local community involvement and the way to develop it positively. Not only the municipality, local stakeholders, and private owners, but also cultural heritage protection professionals must act (Zalasiska & Piotrowska, 2012).

On a city scale, the significance and role of a place of worship are influenced by the historical context, as well as by the changing paradigms of today. In the context of cities, the overall structure of the city and what planning techniques have shaped the overall structure of the city are also important. The example of Barcelona reveals that places of worship are important elements of the city's structure in the public outdoor space of the present and the future (Arboix-Alió et al., 2023). When planning the development of a city, it is essential to consider the buildings of worship and public space to ensure better development quality and usefulness to society.

Cultural landscape planning and management can be implemented using a variety of methods. The Morticelli Church case study illustrates a comprehensive methodology that can be used by a municipality to develop cultural landscapes that have significant public involvement. Each of the stages requires the inclusion of several methods that ensure public involvement in two main categories — coexplore and co-design, as well as the parallel co-evaluation. The four main phases of the exploration and design process are — activation, opening, action, and reuse monitoring (Cerreta et al., 2020).

Landscape changes, if not regulated, can be not only negative but also irreversible. An understanding of the landscape is essential and should be developed among schoolchildren (Corsani Gabriele & Morelli Emanuela, 2015).

## Landscape perception

Sacred landscapes in some countries or regions are an integral part of the festive tradition, such as harvest festivals in England. Such traditions attract both local residents and visitors to the area, and the number of visitors to such services can be seen separately from everyday users. Although the role of agriculture in the daily lives of residents has changed, it still retains an important place in the attraction of a place (Walker, 2012).

The perception of the landscape in several European countries shows a connection with nature, which is an important part of the landscape, and affects the location and dominance of the church in the landscape. Churches were built on the highest place, if there was a river or lake nearby, then they were also included in the overall composition. Since ancient times, the natural environment has been considered a component that enhanced the quality of Christian architecture (Chernyshev et al., 2020).

The perception of the landscape is intertwined with the significance and relevance of landscape changes, as often the overall landscape is perceived as a sacred environment. Still, the function of the church has been changed, for example, to a community gathering center. The church building, together with the surrounding environment, retains the significance of a dominant landmark, and architectural values, but its use becomes much more open to different groups of society (Sedova, 2022).

Landscape perception is also an important factor to consider when planning a change or renewal of use, especially for objects such as places of worship. This study emphasizes that the basis of successful development is close cooperation with the community in the research, planning, and evaluation processes, where various methods should be used at each stage. The importance of sacred landscapes as essential to society is demonstrated by the willingness of society to participate in the processes by investing its time and energy (Cerreta et al., 2020).

Changing the function of the church, while maintaining it as an important gathering place, is the guiding motive for the development projects of churches and the territories that include them. There are efforts to be as open as possible so that people in the newly created territories feel comfortable and visit the former church building, which has been given a new function (Shen, 2024).

The perception of the landscape of churches can be a challenge if the landscape of churches is not typical, as in most European countries with prominent church towers. This is discussed in the context of the landscape of churches in Ibiza - seeing it as a challenge and untapped potential - because the churches of the Ibizan countryside are more associated with the mosques of Greece, Italy, Morocco, and Tunisia (Ramón-Cardona & Sánchez-Fernández, 2022).

Modern technologies can help record and pass on the landscape to future generations, allowing for very precise recording of the smallest details. The added value of such videos is detailed additional information, methods, scans, cartographic material, etc. (Valzano et al., 2019).

Nowadays, not only the landscape is changing, but also the tools for studying landscape perception. For example, using modern technologies, it is possible to study how drivers perceive landscape elements, including places of worship, as distinct landscape elements. Research data on landscape perception reveal that the most important elements are the recognizable elements of the landscape, and a study of driver perceptions revealed that wind turbines are not perceived more negatively than church towers. For the study participants, such objects are considered to be recognizable

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elements of the landscape and landmarks. This study also did not find any effect of place attraction on emotions or responses to sacred landscapes or other landscape types (Antonson et al., 2014; Bartie et al., 2015; Maehr et al., 2015).

#### **New churches**

New churches can be very diverse. Here a connection is formed with planning, as well as with the perception of landscapes. New churches today are considered not only completely newly built buildings but also rebuilt existing churches, as well as buildings and structures that complement the church, as in this case - a boat. Nowadays, the importance of the coexistence of the spiritual and the secular is increasingly emphasized. Here, the religion in question and its openness to secular functions play a role (Jordan, 2022).

The creation of new churches can also have a broad significance for the integration of certain groups in society. For religious communities, a worship building is not only a sacred building, but it is an important cultural center. It is important to understand this, and what the meaning and attitude of the locals are (Fridolfsson & Elander, 2013). Many new churches are being built in Georgia today, so the question of how new churches are perceived and what the reasons are is very relevant. New churches often lack one or more of the qualities that older churches possess and are the basis for the perception of churches as secular objects (Manning, 2008).

The sacralization of the landscape in Poland includes both the construction of new churches, the seasonal use of the landscape, and the creation of other elements in the landscape - chapels, wayside crosses, and religious monuments, as well as linguistic sacralization - in the form of plaques, plates, and banners, as well as religious nomenclature (particularly of patron saints) and signs on streets, town and village squares, and cities and schools. It should be noted, however, that the construction of new churches has decreased in recent decades (Garbin, 2013; Przybylska & Czepczyński, 2017).

Along with new churches, new elements also appear, such as linguistic elements. The linguistic landscape of places of worship appears in the modern urban landscape in a variety of ways - it can be temporary if it is a message board or a notice in a window, but it can also be long-term, if it is a name on a facade, or it is a city sign (tourist signs, road signs) (Alberts & Tieken-Boon van Ostade, 2024).

The challenges of building a new church can be related to the planning process itself, especially if the church in question is a non-white and non-Christian church. The challenges in developing such places of worship are the planning process the public's attitude and the lack of knowledge and experience in various sectors. Here the connection between the spiritual and the political crystallizes and the importance of political support, still present today, becomes apparent (Boland et al., 2021).

#### Ruins

Ruins can last for a very long time and it is the decision of the society and management of each time to restore, preserve, or perhaps demolish the evidence of the past. After World War II, it was not immediately clear everywhere that buildings with architectural and cultural values should be preserved (Larkham, 2019; Larkham & Adams, 2022).

Ruins are like a kind of continuation of the life of a church landscape, where functions differ and can be different, according to the status and significance of the ruins in society. In many places in Europe, churches were also damaged during the war, but their development has varied since then - ruins have survived, but without a structure; ruins have survived, but without a memorial function; or ruins have survived and the site has a memorial function. The significance of ruins

can also change over time and as generations change, their status, functionality, and spiritual significance and importance in attracting a place are. This has required discussions and has been followed by a long and slow process of raising funding (Larkham, 2019).

## Threats of natural disasters

The impact of climate change has not left the worship building landscape untouched. Meteorological hazards and the damage they cause affect both natural and man-made objects. Often, the most threatened areas are those where the threat of natural disasters is rare, and the region is not prepared for it. It is essential to be aware of the safety of construction materials, but it is even more important to train residents and tourists on how to act in such situations. It is essential to be aware of these threats and take them into account both when organizing activities in the area and when considering tools to inform visitors to the area. Regional and local monitoring is essential, as is understanding the building materials used and their specificities (Mihăilă Stefan et al., 2019).

By creating a digital twin for a church, it is possible to monitor, control, and record it in great detail and continuously. It could also be that the large flows of tourists are having a negative impact on the church's structures, or they are being affected because they are not well maintained enough (Lerario & Varasano, 2020).

In the past, buildings were built to withstand natural disasters. One thing would be important for this to be observed today, but another factor is the more frequent occurrence and much wider impact of natural disasters. This article emphasizes that it is possible that it is not municipalities, but many more insurance companies that could influence buildings not to be built in places where the soil and flood conditions are not suitable for them (Kušar, 2008).

## Geotourism

Several studies reveal the close connection between church buildings and the geological values of the landscape. An important part of geotourism routes is the various buildings, which also have architectural, social, and economic values of the place and region. Accessibility and comprehensibility of information are essential in geoparks, where various models, digital maps, and different levels are used to help understand the historically formed natural and cultural landscape. Both quarries and churches are equally important in geopark project surveys, where information such as accessibility, state of preservation, location, as well as connections to existing tourism routes, and their potential for geotourism development are collected for both. Studies that highlight the importance of sacred landscapes include the following geoparks and geopark projects: Tras-os-Montes e Alto Douro University campus (Portugal), Nisyros Geopark (Greece), Roztocze Stone Forest Geopark (Greece), Psiloritis Geopark (Greece), Busca Onyx quarry (Piedmont, Italy), Valdelsa Basin (Montespertoli, Tuscany, Italy), Ostrava-Karvina District (Czech Republic), sacral landscape of West Sussex (Bone, 2016; Fassoulas et al., 2022; Freire-Lista et al., 2023; Lamich et al., 2016; Marengo et al., 2019; Nomikou et al., 2023; Skowronek et al., 2024; Tognaccini, 2019).

### Owls and bats

Church towers and the surrounding natural areas form an inseparable bond, providing nesting sites for owls (Tyto alba) and nursery sites for bats (Myotis myotis, Rhinolophus hipposideros). In the case of owls and bats, the problems are both the drastic changes in the surrounding landscape, the loss of corridors, and the closure of churches, which often means closing the towers with plywood or over a longer

period, the removal or collapse of the building (Berková et al., 2014; Klein et al., 2023; Reiter, 2004; Žmihorski et al., 2020).

#### Conclusions

Exploring and examining what changes in worship building landscapes, which are recorded in studies in the anglophone research literature in Europe allows the acknowledgment of the wider aspects of the worship building landscape and its cultural values, both natural and manmade. The various themes that emerge in the context of worship building landscapes vividly illustrate that value lies not only in the stylistics of historical architecture, or in the building itself, as dominant, but it encompasses a vision on a territorial scale of ecological systems, scientific data, construction and restoration methods, social practices, and cultural values, all of which are integrated into a human-made environment. The topic that was widely researched is landscape change in a wider view, where landscape change is researched by looking at political, social, economic, and migration influences. Also in publications is a strong interest in planning challenges and changing landscape perception, as well as landscape perception of changing worship building landscapes. New worship buildings are not so common topic. Topics that are more researched in only some parts of Europe are ruins, threats of natural disaster, geotourism, and worship building role in owl nesting and bat nurseries.

Whether we are talking about the different stages of the landscape, the different users of the landscape, or the drastic changes (wars) of the landscape, it is essential to make a balanced decision about what is preserved, restored, and maintained in the landscape. To successfully develop the landscape, planning, management, and management tools and guidelines are needed, as well as information/education measures are still important.

In the context of sacred landscape planning, two main directions can be read: one is regional, covering rural landscapes and villages, while the other is city-wide. In both, churches are highlighted as essential dominants and connecting objects even today. Although the landscape is changing, society continues to look for the quality of religious buildings in worship building landscapes, which encompasses historicity and connection with natural values. Discussions about whether to preserve the building ruins or the separate sacral elements in question return cyclically.

Worship building change research papers vividly depict the comprehensive pattern of the landscape, attracting scholars from various fields. When planning the development of the landscape of places of worship, it is important to look at it comprehensively, not only at the architectural values of the place of worship, which has been largely predominant until now but in the 21st century, several other aspects are emerging, which encompass not only economic, social but also natural factors. The additional value would be looking at research papers in other languages and a more regional overview.

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#### Kopsavilkums

Raksta mērķis ir analizēt izmaiņas dievnamu ainavās 21. gadsimtā Eiropā, īpašu uzmanību pievēršot angliski rakstītai zinātniskajai literatūrai un veidojot kontekstu Latvijas dievnamu ainavu pārmaiņām. Pētījumā tika izmantota sistemātiska kvantitatīva literatūras pārskata metode, analizējot 333 zinātniskus rakstus no datubāzes Web of Science.

Literatūras analīzē identificētas četras galvenās tematiskās grupas: fiziskas izmaiņas dievnamu ainavā, politiskās norises, reliģiskās prakses un svētceļojumi. Vairums publikāciju koncentrējas uz plaša mēroga ainavu pārmaiņām, kuras ietekmē politiskie, sociālie, ekonomiskie un migrācijas faktori. Fiziskās izmaiņas dievnamu ainavās tika analizētas 51 publikācijā, īpaši izceļot koku nozīmi, sakrālās telpas struktūru un ainavu uztveri. Tika secināts, ka jaunu dievnamu celtniecība ir reti pētīts temats, bet vietumis apskatīti specializēti aspekti, piemēram, drupas, dabas katastrofu riski un dievnamu loma dzīvnieku biotopos. Ainavu uztvere ir svarīga sabiedrības līdzdalības un plānošanas daļa, jo baznīcu un to apkārtnes uztvere mainās līdz ar to funkciju pārdefinēšanu. Pētījums uzsver plānošanas nozīmi sakrālās ainavas attīstībā, uzsverot sabiedrības iesaisti, ilgtspēju un dabas vērtību saglabāšanu. Tika konstatēts, ka ainavu pārmaiņas var būt gan funkcionālas, gan vizuālas, un to cikliskums ietekmē kultūrvēsturiskās vērtības saglabāšanu. Kopumā pētījums parāda, ka mūsdienu pieeja dievnamu ainavu pētniecībā kļūst aizvien integrētāka, ietverot arhitektūras, sociālos, ekonomiskos un ekoloģiskos aspektus.