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Quantification of built heritage destruction in Žepa and Srebrenica region during the 1992-1995 Bosnian Serb forces campaign

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Abstract

This article examines the extent of destruction of rural cultural landscapes and vernacular architecture in the Žepa region of eastern Bosnia during the 1992–1995 attacks by Bosnian Serb Forces, led by Generals Ratko Mladić and Zdravko Tolimir, both later sentenced for genocide by the International Criminal Tribunal for the former Yugoslavia (ICTY). These attacks culminated in the capture and devastation of the UN-designated safe enclave in late July 1995. Building on existing legal and scholarly findings that identified the systematic and deliberate nature of such destruction, this study enhances those conclusions through localized and quantified evidence. Using field surveys conducted between 2022 and 2024, combined with satellite imagery, the study applies a Destruction Index (DI) to measure the extent of physical devastation across 1,840 structures in 23 rural settlements. The findings showed that a destruction index of 0.98 reflects deliberate and systematic destruction consistent with the objectives of cultural genocide and the typical tactical approach of Ratko Mladić's forces. These findings confirm the scale and uniformity of targeted erasure across the region. By correlating patterns of destruction with spatial positioning the study reinforces International Criminal Tribunal for the former Yugoslavia (ICTY) jurisprudence that classified such acts as part of a coordinated campaign of persecution and ethnic cleansing. It further contributes to academic debates on cultural genocide by offering concrete, quantified data that localize the broader strategy of territorial and cultural elimination in eastern Bosnia.

Keywords: Cultural genocide, Built heritage, Destruction index, Srebrenica and Žepa region

1. Introduction

The 1992–1995 Bosnian War inflicted catastrophic damage on the social, cultural, and physical fabric of eastern Bosnia's Bosniak communities. The UN-declared safe zones of Srebrenica and Žepa were systematically targeted in an orchestrated campaign of ethnic cleansing carried out by Bosnian Serb forces. The attacks culminated in July 1995 with the fall of Žepa [1] and the systematic destruction of its settlements, orchestrated under the command of Ratko Mladić and Zdravko Tolimir [2] [3], both subsequently convicted of genocide by the International Criminal Tribunal for the former Yugoslavia (ICTY). The campaign went beyond mass murder

and forced displacement [4] [5]: it involved the deliberate, strategic destruction of homes [6], religious buildings [7] [8], and essential communal infrastructure [4].

Such acts were designed to erase the population and their cultural and spatial presence, constituting a form of cultural genocide that has been recognized in international legal rulings [8]. Despite the clear legal and scholarly consensus on the deliberate nature of this destruction, affirmed by the International Criminal Tribunal for the former Yugoslavia (ICTY) in landmark judgments, the detailed spatial and quantitative documentation of destruction across individual villages remains insufficient. Official data is largely absent or incomplete, leaving a critical gap in understanding the scale, distribution, and patterns of devastation in the selected villages that underpin these legal findings, which is shown in Figure 1.

To address this gap, the present study sets out four interrelated aims. First, it seeks to quantitatively assess the extent of physical destruction in selected Bosniak villages and hamlets of the Srebrenica and Žepa regions during the 1992–1995 attacks, using a field-based Destruction Index (DI). Second, the study aims to develop and apply a systematic, replicable method for measuring related destruction across 23 settlements based on direct field surveys, satellite imagery, and survivor testimonies. Third, it endeavors to document and interpret the spatial patterns and intensity of destruction in the absence of reliable official records, producing the most comprehensive empirical dataset currently available for this region. Finally, the study situates its findings within established legal frameworks to demonstrate that the destruction was not incidental but constituted a deliberate, coordinated campaign of spatial and cultural erasure consistent with the ICTY's jurisprudence on persecution, forcible displacement, and cultural genocide.

This study addresses this gap by deploying a field-based Destruction Index (DI), systematically applied to 1,840 buildings in 23 villages and hamlets within the Srebrenica and Žepa regions. Combining detailed on-site surveys and satellite imagery analysis, the DI quantifies destruction with unprecedented precision, producing the most comprehensive dataset of physical devastation for these communities to date. Beyond measurement, the study interprets spatial patterns of destruction to reveal a deliberate, coordinated strategy consistent with ethnic cleansing as defined by ICTY jurisprudence and cultural genocide as a core aspect of destruction of a group national and cultural foundations [9]. By rigorously quantifying the near-total obliteration of Bosniak settlements, this research provides crucial empirical evidence reinforcing and localizing international legal determinations. It contributes decisively to academic discourse on cultural genocide and serves as a foundational resource for ongoing reconciliation, restitution, and heritage preservation efforts today in Bosnia.

1.1. Legal and conceptual framework of cultural genocide

The legal status of cultural genocide remains unresolved and contested within international law. The 1948 Genocide Convention [10] primarily defines genocide in terms of physical and biological destruction of protected groups, omitting explicit recognition of cultural destruction despite early drafts, heavily influenced by Raphael Lemkin [9], which included it as a core element of genocidal intent. This exclusion was due to political resistance, particularly from states wishing to shield colonial or assimilationist practices from scrutiny [11].

Nevertheless, international jurisprudence, notably the International Criminal Tribunal for the Former Yugoslavia (ICTY), has increasingly acknowledged the destruction of cultural and religious heritage as integral to genocidal campaigns. Although "cultural genocide" is not a standalone crime under the 1948 Convention, ICTY rulings have treated systematic cultural destruction as evidence of genocidal intent. In cases such as *Prosecutor v. Radislav Krstić* [12] and *Prosecutor v. Radovan Karadžić* [13], the Tribunal emphasized the targeted demolition of mosques, cemeteries, homes, and cultural landmarks as part of broader efforts to eliminate Bosniak identity and presence in eastern Bosnia. The International Court of Justice (ICJ) stated that the destruction of cultural property cannot be defined a genocidal act, however, it became 'evidence of intent' [14].

Lemkin's foundational insight, that genocide involves not only the physical extermination of a group but also the destruction of its cultural patterns [9] [15], remains central to interpreting these acts. The ICTY's recognition

that the eradication of cultural heritage, religious sites, and communal spaces serves to sever a group's historical continuity reflects this understanding. However, the lack of formal legal recognition for cultural genocide complicates prosecution and post-conflict reparations, leaving a gap between legal frameworks and the lived realities of affected communities [16] [17].

Figure 1. The location of the case study region and its context (*Source: Author*)

Testimonies during the *Prosecutor v. Zdravko Tolimir* [3] trial concretely illustrate this phenomenon. Witnesses described the near-total destruction of Bosniak family homes and communal buildings in the Žepa region as deliberate and systematic: "These were privately owned family houses… Everything else was destroyed, and so were all the outhouses. Everything had been torched" [3]. Regarding the destruction of the village of Slap, testimony noted: "Except for one intact weekend cottage, all other buildings were destroyed or torched" [3].

Such accounts underscore that the destruction was not incidental collateral damage but part of a calculated campaign to erase physical traces of Bosniak presence [7]. The obliteration of homes and community structures reflects a strategic effort to dismantle cultural identity and prevent return, consistent with Lemkin's conception of genocide as encompassing cultural destruction [9], [6].

This research builds on these legal and theoretical foundations by framing the near-total destruction of vernacular environments in the selected villages in the UN Safe zones Srebrenica and Žepa region as an act of cultural genocide. By problematizing the absence of cultural genocide as a distinct legal category, it highlights

the importance of spatial and architectural erasure as both symbolic and strategic tools in genocidal campaigns. Such destruction extends beyond incidental damage, representing a deliberate attempt to obliterate the cultural and spatial fabric that sustains group identity.

1.2. Rural cultural landscape of the Žepa region before the 1992–1995 attacks

The vernacular architecture of the Žepa region prior to the 1992–1995 attacks represented a finely adapted and culturally rich building tradition that evolved through centuries of interaction between people, landscape, and religious worldview. These settlements, composed primarily of dispersed and clustered villages along the upper Drina basin, reflected a vernacular logic rooted in topography, kinship, and subsistence practices [18]. The built environment was not shaped by formal planning but emerged from what Paul Oliver [19] termed "architecture without architects", spatial systems generated by collective knowledge, transmitted across generations.

Settlement patterns across the Žepa area, such as those found in Luka, Podžeplje, Gođenje, and Žepa village, responded to both environmental and cultural imperatives [20]. Houses were typically positioned perpendicular to contour lines to make use of sloped terrain and to create partially sunken basement levels, known as *magaza*, for year-round food storage and thermal insulation. Orientation was often symbolic as well as practical; many houses were aligned toward the Qibla or eastward to capture morning sun [18]. Villages functioned as self-contained social units where space built integrated domestic, agricultural, sacred, and pastoral activities [21].

The most widespread dwelling type was the *brvnara*, a one or two-room log cabin built with horizontally stacked timber logs interlocked at the corners using simple notching techniques *ćert* [18], [20], [22]. These buildings, widespread in forest-rich areas like Vratar, Trla, and Žepa valley, were typically raised above stone foundations or dug into the slope to form a two-level structure. The ground floor *magaza* served as storage, while the upper level *kuća* was used for living.

As households expanded, the *kuća na dizmu* emerged as a more complex form, especially in villages like Podžeplje and Luka [18]. These houses featured a stone or partially sunken basement, above which a timber or plank-framed living space was constructed [20]. Unlike the *brvnara*, the *kuća na dizmu* was more modular, with spatial additions such as verandas, enclosed pantries (*špajz*), and additional rooms. Roofing materials included tile and, in some late cases, metal sheets. The *kuća na dizmu* reflects both continuity and transformation within the vernacular tradition, integrating newer materials while preserving traditional forms of social organization, such as multi-generational living and separation of ritual spaces.

In mountainous and high-altitude areas like Žepska Mountain and Gobelja, residents used *koljebe*, or seasonal mountain huts. These structures were built with timber and stone, often covered with organic roofing such as bark, straw, or wooden planks. They were used seasonally for pastoral activities, especially in the summer months when herding took place in higher elevations. Despite differences in typology and material, vernacular houses across the region shared similar internal spatial structures. Most had a multifunctional main room (*kuća*) where cooking, eating, sleeping, and social interaction occurred. Over time, families added smaller side rooms (*soba*) and storage areas [18]. A central hearth, either located in the middle or against an outer wall, was architecturally and symbolically significant, marking the core of family life [22]. Kadić emphasized the role of roofing in defining regional identity [20]. In the Žepa region, gable roofs (*krov na lastavicu*) were common, reflecting Dinaric construction traditions and allowing for easy runoff of snow and rain. Roofs were supported by a simple timber frame of rafters, tie beams, and posts, with overlapping boards or shingles providing the final layer of protection [18].

The field research indicates that the late 20th-century modernization brought changes to vernacular construction. In villages such as Podžeplje and Krivače, new houses were built using concrete blocks, bricks, and metal elements. However, these hybrid forms often retained traditional orientations, layouts, and social functions. The material shift reflected changing economic realities, including the rise of wage labor and industrial employment, but did not entirely displace vernacular spatial logic. In many cases, new structures were constructed beside older ones, forming a dual domestic landscape of continuity and rupture.

2. Research method

This study adopts an integrated methodology to rediscover, document, and quantify the destruction of built heritage in the Žepa region and surrounding villages during the 1992–1995 attacks. The methodological approach is rooted in archival research, remote sensing [23], [24] and field research [25], with an emphasis on data triangulation to ensure accuracy and reliability.

Fieldwork was conducted in the villages of Žepa, Luka, Podžeplje, and surrounding hamlets with the goal of documenting remnants and ruins. Each structure was inspected, photographed, and geolocated. Data collection included:

- Visual assessment of structural remains and materials;
- On-site mapping and sketching of building footprints, orientations, and conditions.

The field research cross-checked and inspected the data obtained through archival sources and helped verify destruction visible on satellite imagery.

2.1.1. Remote sensing and spatial analysis

To understand the rural landscapes before attacks and to quantify the scale and pattern of destruction, the article uses remote sensing imagery [23], [26], [28] and applies the Destruction Index (DI) [27], a methodology established in the literature [24], [23]. Remote sensing was conducted by integrating geospatial data with findings from fieldwork. A combination of mid-20th-century Yugoslav military topographic maps (1970), Landsat satellite imagery (1995 TM, 1999 ETM+), and high-resolution Sentinel-2 data (2015–2019; 2024) was employed. All sources were georeferenced, overlaid as TIF files in Google Earth (and subsequently in GIS), and precisely traced in AutoCAD. This multi-temporal spatial dataset allowed the research to quantify building-level losses by typology, including mosques, residential homes, schools, and community centers [24]. The resulting data were organized into pre-attack inventories and post-attack destruction records, which were mapped and tabulated to visualize the extent, pattern, and modalities of cultural genocide in built form.

To quantify the severity of destruction in the observed region, the study applied the Destruction Index (DI that enables the assessment of the level of destruction across different types of structures using a five-tier classification system, with each category weighted by severity. The approach of weighing values and indices was included in studies that count for wide area of condition assessment, such as armed conflicts, natural disasters, or examination of damage [29], [27].

The DI is calculated using the following formula:

$$DI = \frac{\Sigma_{i=o}^{n} w_i N_i}{\Sigma_{i=0}^{n} N_i} \quad (1)$$

where, w_i is the weight assigned to damage category i (from 0.0 to 1.0), N_i is the number of buildings in that category. Damage categories were defined based on visibility and severity of structural damage, and usability Table 1.

Table 1. Five-tier classification system based on structural condition and habitability

Category	Index value	Label	Usability	Example
1	0.0	No Damage (Original condition with no visible damage)	Fully habitable	A building that was not directly hit or targeted and remains in full use.
2	0.25	Minor Damage	Habitable or easily repairable	Windows broken by shockwave; door kicked in; small cracks in plaster.

Category	Index value	Label	Usability	Example
3	0.5	Moderate Damage (Visible structural damage; partial loss of building elements)	Temporarily uninhabitable; repairable	Roof partially collapsed; external wall cracked; some rooms unusable.
4	0.75	Severe Damage (Major structural damage affecting core parts of the building)	Uninhabitable; major repairs needed	Entire roof gone; two external walls collapsed, or burned without structural collapse.
5	1.0	Completely Destroyed (The structure is beyond repair or totally leveled)	Completely uninhabitable; rebuild only	Building burned to the ground, no walls left (wooden walls burned) or destroyed by shelling; only foundation remains.

The data for the DI was gathered during site visits and confirmed through map overlays in QGIS. The classification of each building was based on visual assessment and satellite interpretation. Each structure was assigned an ID and classified by type, location, pre-attack function, and destruction level.

2.2. Data analysis and verification

The final dataset was analyzed through comparative analysis of spatial patterns and documented built heritage before and after the 1992–1995 attacks. Verification of satellite data and damage assessments was conducted using a triangulated approach involving:

- Cross-checking satellite observations with on-site fieldwork and archival photographs [30];
- Expert validation of Destruction Index (DI) classifications and ground conditions [25];
- Comparison with building inventories from pre-attacks cadastral data and ethnographic sources.

This rigorous cross-verification process minimized distortions caused by vegetation overgrowth, collapsed structures, or symbolic reconstructions. The methodology provides a robust framework for examining the spatial dimensions of cultural genocide. By combining archival records, remote sensing, and field data, the study retraces the extent of cultural and spatial erasure in the Žepa region. The use of the Destruction Index enables systematic categorization and quantification of structural loss, offering new insights into the deliberate targeting of heritage during the conflict. This approach contributes to broader scholarly discourse on post-conflict cultural erasure and challenges of documentation in inaccessible or neglected regions.

3. Results and discussion

To determine the extent of destruction, it was first necessary to establish baseline data on the number and type of pre-attacks structures. This was accomplished through a combination of archival sources, remote sensing, and on-site fieldwork to identify surviving remains. Contemporary conditions were assessed using recent satellite imagery and field surveys conducted between 2022 and 2024, enabling a comparative analysis of damage across all 23 settlements.

As data collected during the research show, prior to the attacks, a total of 1,840 buildings were identified in 23 villages and hamlets, of which 1,820 were residential, while the remainder comprised communal structures, such as schools, mosques, health centers, and community buildings Table 2.

Table 2. The total number of buildings in the selected villages in the Žepa region before the attacks

Category	Residential Buildings	Community Buildings	School	Health Center	Mosque	Towers (Kule)
Total	1,820	5	7	3	4	1

The number of buildings in each village and hamlet before the attacks is shown in Table 3.

Table 3. Number of buildings in the villages before the attacks

Village/ hamlet		Total	Residential	Community building	School	Health center	Mosque	Tower
1	Luka	186	182	1	1	1	1	
2	Krušev Do	82	81	1	0	0	0	
3	Podžeplje	201	197	1	1	1	1	
4	Krivace	76	76	0	0	0	0	
5	Plane	75	75	0	0	0	0	
6	Brložnik	54	54	0	0	0	0	
7	Stoborani	73	73	0	0	0	0	
8	Gođenje	191	188	1	1	0	1	
9	Purtici	93	93	0	0	0	0	
10	Žepa	165	160	1	1	1	1	1
11	Vrelo	19	19	0	0	0	0	
12	Vratar	131	130	0	1	0	0	
13	Ribioc	43	43	0	0	0	0	
14	Slap	25	25	0	0	0	0	
15	Stop	30	30	0	0	0	0	
16	Pripečak	66	65	0	1	0	0	
17	Čavčići	132	132	0	0	0	0	
18	Krnjići	20	20	0	0	0	0	
19	Laze	40	39	0	1	0	0	
20	Mandre	20	20	0	0	0	0	
21	Borovac	35	35	0	0	0	0	
22	Ljubomišlje	35	35	0	0	0	0	
23	Žepska Mountain	48	48	0	0	0	0	
	TOTAL	1840	1820	5	7	3	4	1

To quantify the scale of destruction, the Destruction Index (DI) was calculated for each village and hamlet using field-based assessments and remote sensing imagery from sources including Sentinel-2 and Landsat ETM+. DI values range from 0 (no damage) to 1 (total destruction), based on a weighted classification of building damage. The results demonstrated that destruction was both widespread and systematic **Error! Not a valid bookmark self-reference.**.

Table 4. The application of DI on buildings in case study villages and hamlets

Village/ hamlet	Total	No Damage	Minor Damage	Moderate Damage	Severe Damage	Completely Destroyed	DI
	Index value	0,00	0,25	0,50	0,75	1,00	
Luka	186	2	1	0	7	176	0,98
Krušev Do	81	0	0	0	2	79	0,99
Podžeplje	201	0	0	1	45	155	0,94
Krivace	76	0	0	0	13	63	0,96
Plane	75	0	0	0	5	70	0,98
Brložnik	54	0	0	2	11	41	0,93
Stoborani	73	0	0	0	40	33	0,86
Gođenje	191	1	0	0	15	175	0,98
Purtici	93	0	0	0	1	92	1,00

Village/ hamlet	Total	No Damage	Minor Damage	Moderate Damage	Severe Damage	Completely Destroyed	DI
	Index value	0,00	0,25	0,50	0,75	1,00	
Žepa	166	0	0	0	8	158	0,99
Vrelo	19	0	0	0	1	18	0,99
Vratar	131	0	0	0	0	131	1,00
Ribioc	43	0	0	0	1	42	0,99
Slap	25	0	0	0	1	24	0,99
Stop	30	0	0	0	1	29	0,99
Pripečak	66	0	0	0	1	65	1,00
Čavčići	132	0	0	0	1	131	1,00
Krnjići	20	0	0	0	1	19	0,99
Laze	40	0	0	0	3	37	0,98
Mandre	20	0	0	0	1	19	0,99
Borovac	35	0	0	0	2	33	0,99
Ljubomišlje	35	0	0	0	0	35	1,00
Žepska Mountain	48	0	0	0	0	48	1,00
TOTAL	1840	3	1	3	160	1673	0,98

Table *5* summarizes the level of physical destruction across the villages and hamlets of the Žepa region based on the Destruction Index (DI), revealing patterns that range from total devastation (DI = 1.00) to significant, though slightly less uniform, levels of damage.

Table 5. Destruction level in villages and hamlets

Destruction Level	DI Range	Villages and hamlets
Total Devastation	DI = 1.00	Vratar, Pripečak, Čavčići, Ljubomišlje, Žepska Mountain
Near-Total Destruction	0.99–0.98	Luka, Žepa, Krnjići, Ribioc, Slap, Stop, Gođenje, Mandre
Severe Destruction	0.96–0.94	Krivače, Plane, Podžeplje, Brložnik
Significant but Less Uniform	DI = 0.86	Stoborani
Overall Average	DI = 0.98	Total of 1,673 buildings completely destroyed out of 1,840

The overall average DI across all surveyed locations was 0.98, indicating near-total eradication of the built environment in the region. Several villages, Vratar, Pripečak, Čavčići, Ljubomišlje, and Žepska Mountain, had DI values of 1.00, meaning all recorded buildings were completely destroyed. In central villages such as Žepa (DI = 0.99), Luka (DI = 0.98), and Gođenje (DI = 0.98), the level of destruction was similarly catastrophic, with few or no structurally salvageable buildings remaining. Table 5 summarizes the level of physical destruction across the villages and hamlets of the Žepa region based on the Destruction Index (DI), revealing patterns that range from total devastation (DI = 1.00) to significant, though slightly less uniform, levels of damage.

Slightly lower DI values were found in Podžeplje (0.94), Brložnik (0.93), and Stoborani (0.86). These exceptions correspond to villages where stone construction was more prevalent and where some ruins, particularly stone basements and thick masonry walls, partially survived. Nonetheless, in all locations, the destruction rendered the villages uninhabitable, and no communal or religious structures remained intact. This level of destruction meant that no viable housing stock remained for immediate return, effectively disabling the return process. The absence of inhabitable homes erased everyday spatial routines and severed residents' emotional and functional connections with their land and settlements. Given the scale of devastation, the

possibility of future life in the region was contingent entirely upon long-term, externally driven reconstruction efforts, economic, infrastructural, and political. However, such support structures were largely absent in the immediate aftermath of the attacks, delaying return and deepening the rupture between community and place. The high DI values across multiple settlements serve as quantitative evidence of an organized campaign not only to expel the Bosniak population but to eliminate the architectural and spatial identity of these communities. The destruction was not incidental, it reflected a strategic pattern of village-level eradication, targeting homes, communal spaces, and vernacular heritage to obliterate cultural memory embedded in space. The data collected and analyzed suggest that in 1995, immediately following the end of hostilities, the region was entirely uninhabitable due to:

- Total physical destruction of housing stock (DI near 1.00),
- Lack of basic infrastructure,
- Insecurity and political obstacles,
- And absence of reconstruction or return mechanisms.

The DI values from 1995 reveal a landscape of total devastation, confirming that no realistic conditions for resettlement existed at that time. The possibility of future life in the region depended entirely on long-term, externally driven reconstruction efforts, economic, infrastructural, and political, none of which were present in the immediate post-attack moment.

3.1. Patterns and strategies of targeted destruction

The spatial mapping of destruction across the studied region reveals a multi-layered pattern of targeting, shaped by tactical geography, phased offensives, and material vulnerability of the built environment. The following patterns emerged from the integration of GIS data and field surveys:

Proximity to BSA-held territory: Villages located closest to the frontlines, particularly those along the borders with Rogatica, Han Pijesak, and Višegrad, were the first to be targeted. Their position made them strategically significant for the Bosnian Serb forces, both for establishing control and preventing mobility within the enclave. This includes villages like Krivače, Plane, Podžeplje, Brložnik, Stoborani, and Gođenje.

Phased encirclement and final assault: The destruction followed a clear spatial logic: it radiated inward toward the central Žepa valley, gradually tightening a noose around the enclave. Seasonal settlements and peripheral hamlets were either destroyed in the initial phase or deliberately preserved for military repurposing before being razed during the final offensive in July 1995.

Timing and operational coordination: The offensives were not random; they were temporally synchronized with broader military goals. For instance, the final wave of destruction corresponded with the fall of Srebrenica and the systematic collapse of UN Safe zones.

Material vulnerability and destruction severity: A significant factor in the Destruction Index (DI) variation between villages was the construction material of buildings. Villages like Stoborani, Podžeplje, and Brložnik, which had a higher proportion of stone-built houses, exhibited slightly lower DI values (0.86–0.94). Stone structures, particularly those with thick masonry and vaulted basements, offered partial resistance to burning and collapse. In contrast, villages such as Vratar, Pripečak, Žepa (central area), and those in the higher altitudes (seasonal settlements) were predominantly composed of wooden houses with only shallow stone foundations. These were especially susceptible to fire and high-explosive damage, leading to total devastation (DI = 1.00) in most cases. This correlation between material typology and DI confirms that architectural vulnerability played a role in shaping not only the extent of physical damage but also the capacity for post-attacks recovery.

3.2. Legal interpretation and ICTY alignment

The spatial and quantitative data presented in this study affirm and strengthen the legal conclusions reached by the ICTY regarding the campaign of ethnic cleansing in eastern Bosnia. While the legal category of “cultural genocide” remains absent from international law, the Tribunal’s judgments in *Krstić* (2001), *Tolimir* (2011),

and *Karadžić* (2016) consistently recognized the destruction of cultural and religious heritage as an element of the genocidal process. What this study adds to those rulings is a precise, settlement-by-settlement quantification of destruction, showing that the obliteration of Bosniak built environments was not random or incidental. With a mean Destruction Index (DI) of 0.98 across 23 villages and hamlets, and five villages registering complete destruction (DI = 1.00), the data reveal an unmistakable pattern: the systematic, near-total elimination of Bosniak spatial presence. This pattern directly supports the ICTY's interpretation that such acts were "deliberate and strategic" rather than militarily necessary. The *Popović et al.* case included testimony from UNPROFOR officer Thomas Dibb, who confirmed that villages were often burned without any tactical justification. The current study provides hard data that reinforce his account: entire villages such as Pripečak, Vratar, and Ljubomišlje were destroyed in their entirety, despite having no strategic military value. Moreover, the targeting of mosques, schools, and communal buildings aligns with the ICTY's finding that the destruction of religious and cultural structures was intended to render return impossible and to dismantle the communal cohesion of Bosniak populations. In Luka, Žepa and Gođenje, all religious and communal buildings were either completely destroyed or rendered unusable.

These empirical findings, based on satellite imagery, field surveys, and archival reconstructions, support the conclusion that the destruction was not simply a byproduct of conflict, but a coordinated campaign of cultural erasure, consistent with the broader patterns of persecution and forcible displacement documented by the ICTY. The deliberate erasure of spatial and architectural identity in the Žepa region reinforces the interpretation that genocide was enacted not only on human bodies, but on the lived environments that sustained Bosniak cultural life. Therefore, while international law has yet to formally prosecute "cultural genocide" as a separate category, the present study provides a compelling localized, empirical case for recognizing it as a fundamental component of the genocidal strategy carried out in the region of Srebrenica and Žepa.

4. Conclusions

The results of this study provide compelling empirical evidence that the destruction of built cultural heritage in the Srebrenica and Žepa region was executed through a systematic and spatially coordinated campaign, consistent with established definitions of cultural genocide. The application of the Destruction Index (DI) reveals not only the scale but the methodical character of architectural annihilation. DI values approaching or equaling 1.00 in the majority of villages indicate total elimination of the pre-attacks-built environment. This systematic destruction aligns with observations by Riedlmayer and others, who noted that in Bosnia, cultural heritage sites, including building structures, were specifically targeted to sever historical continuity and prevent post-conflict return. The erasure of houses, in particular, represents an attack on the embedded memory and identity of Bosniak communities. These buildings were not anonymous shelters but vessels of cultural transmission, adapted over generations to the rhythms of life, land, and religious tradition.

Importantly, the destruction did not affect all villages uniformly. The degree of damage was mediated in part by the material composition of buildings. Wooden structures, dominant in low-lying and high-altitude settlements, were almost entirely incinerated. Stone-based architecture in Podžeplje and Brložnik, while slightly more resistant, also succumbed to shelling, looting, and burning, albeit leaving behind partial remnants. This relationship between materiality and resilience underscores how vernacular construction methods, developed for environmental durability, offered limited protection against mechanized and deliberate destruction.

Furthermore, the spatial logic of destruction supports the conclusion that these acts were tactically planned. Villages critical to movement, observation, or control were destroyed in early waves, followed by an inward progression toward the core of the Žepa enclave. Religious and communal landmarks were erased alongside domestic architecture, confirming that the objective was not only military dominance but the obliteration of cultural presence and the elimination of spatial conditions necessary for return. These findings align with Walasek's analysis of heritage destruction as a strategy of cultural domination, where targeting everyday architecture plays a pivotal role in displacing not just populations but their rootedness in place.

The findings support previous theoretical claims that the architectural destruction in the Žepa region was not random or collateral, but part of a deliberate and spatially coordinated campaign to erase cultural memory and prevent the reconstitution of Bosniak life in the area. The average DI of 0.98 across the region reflects the near-total obliteration of residential, religious, and communal structures. The destruction followed military logic but was animated by a cultural imperative to dismantle the conditions of identity, continuity, and return.

In documenting this process, the study contributes to scholarship on cultural heritage in conflict by offering a replicable method for assessing architectural loss, while foregrounding the importance of vernacular architecture as a target and a casualty of genocide. The destruction of these structures in Žepa constitutes more than the loss of buildings; it represents the violent rupture of a lived cultural landscape. Recognizing vernacular architecture as central to communal life is essential for post-conflict recovery and for ensuring that acts of cultural erasure are neither overlooked nor forgotten.

Declaration of competing interest

The authors declare that they have no known financial or non-financial competing interests in any material discussed in this paper.

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Author contribution

Maida Halilović conducted field research, data collection and analysis. Muhidin Mulalić served as the mentor and provided conceptual guidance, inputs, and critical comments throughout the research and writing process.

Informed consent

Informed consent for the publication of personal data was not obtained, as this article contains no images or identifiable information, and all other data have been fully anonymized.

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