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Doctoral Thesis

CONSERVATION OF ARCHEOLOGICAL SITES IN JORDAN

CASE STUDY OF THE MACHAERUS FORTRESS-PALACE



UNIVERSITÀ DEGLI STUDI "G.D'ANNUNZIO" CHIETI PESCARA
DOTTORATO **CULTURE DEL PROGETTO: CREATIVITÀ, PATRIMONIO, AMBIENTE**

"Our ancient walls, with silent grace,
Hold whispers of a vanished race.
To mend their stone, to shore their might,
Is to rekindle history's light.
For in these forms, by time undone,
A story lives, for everyone."

Università degli Studi "G. d'Annunzo" Cheti - Pescara

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INTRODUCTION

1.1 Reserach Background

Cultural heritage is the tangible and intangible legacies including physical artifacts, cultural property, and intangible attributes of a group or society, inherited from past generations, maintained in the present, and passed on to future generations[1].They are touchstones, our points of reference, and our identity[2]. The Conservation of built cultural heritage is a multi-faceted process that aims to safeguarding and interpreting the physical remains of human history and culture. This process includes measures to preserve the associated tangible and intangible values, ensuring their accessibility to current and future generations while minimizing deterioration. As emphasized by international conventions[3], the guiding principle for the conservation process is respecting the original cultural heritage, including its aesthetic, historical, and physical integrity. As noted by Matero «conserving cultural heritage requires high moral responsibility and experience»[4]. «Conservation of built heritage is the process that gives silent ruins a voice and the ability to speak about the history and people of the place»[5]. Consequently, conserving built heritage is a complex process that requires balancing original and contemporary values. This balance is essential for achieving a meaningful interpretation in the present while maintaining connections to ancient and modern communities.

Religious and sacred sites are unique and sensitive categories of built heritage that are associated with spiritual significance. These sites are not just physical structures, but also sources of intangible values. They serve as a bridge between the physical and spiritual realms, providing a sen-

1 Bolin.A,(2020)

2 Van Ginkel. H, (2005)

3 (AIC 1979: code I, IIA; UNESCO 1978: articles 1, 3, & 9; Australia ICOMOS 1988: articles 2 &3)

4 Matero.F, (2006)

5 Teba.T, (2016)

se of identity and belonging to communities, and as places of worship, pilgrimage, and community gathering, playing a central role in the cultural traditions and people's identity. They also represent a strong relationship between human settlements and the environment. Therefore, conserving them is paramount to preserving these intangible values and ensuring the continuity of spiritual traditions.

This dissertation examines archaeological sites of religious and spiritual significance, moving beyond traditional material-based conservation approaches. By considering the site's interconnectedness with its surrounding historical context, this study aims to enhance understanding of the site's historical, narrative spiritual value and, consequently, better site-level conservation.

The Hashemite Kingdom of Jordan, located east of the Mediterranean Sea, boasts a rich tapestry of civilizations spanning from prehistory to the Islamic period. These include numerous sites of religious significance mentioned in sacred texts. However, these sites face degradation from various factors, necessitating effective conservation strategies. Current literature often overlooks the interconnectedness of these sites and lacks a comprehensive approach to their preservation. Therefore, an integrated strategy is crucial, addressing not only the physical conservation of these sites but also their intangible cultural heritage and their relationship to the surrounding historical context. Such a holistic approach would ensure the long-term preservation of these invaluable resources for future generations.

This dissertation focuses on the archaeological sites in Jordan, specifically on Machaerus Fortress-Palace(-Mukawir,Macharonte,Qal'atAlmashnaqa, □□□□□). A site situated within the biblical holy land, with multidimensional significance, recognized on the Vatican-acknowledged Jordan bible pilgrimage map, as the location of John the Baptist's imprisonment and execution.

Machaerus Fortress-Palace is a testament to Jordan's rich and complex history. Preserving and presenting this site is essential for safeguarding this invaluable heritage, allowing future generations to appreciate and understand its significance. The dissertation investigates the conservation challenges faced by the site and emphasizes the urgent need for its protection, presentation, and sustainability. To address these challenges. through the archaeological site of Machaerus Fortress Palace as a case study, this seeks to contribute to a more effective approach to built heritage conservation in Jordan.

The dissertation proposes an integrated framework that encompasses conservation of both physical and non-physical values. A two-level conservation strategy; first, focused on the on-site preservation of physical remains. Second, implemented at a regional level through the concept of cultural routes, connecting sites through shared histories and enhancing the understanding of their broader cultural significance. This dissertation employes for the first time to employ the concept of cultural routes as a tool for heritage conservation in Jordan, it suggests creating a pilgrimage road that connects Machaerus with other significant pilgrimage sites, such as Mount Nebo and Bethany Beyond the Jordan. This integrated approach aims to enhance the spiritual experience for pilgrims, contribute to the comprehensive conservation of Machaerus, and foster a deeper understanding of its historical and religious context within the broader cultural landscape.

The integrated conservation approach that recognizes Machaerus within a wider regional framework, acknowledging its historical interconnectedness with other sites and the importance of preserving both its tangible and intangible values. This two-tiered approach, combining on-site preservation with regional cultural routes, is essential for the long-term protection of Jordan's rich cultural heritage

and ensuring its continued relevance for future generations.

This dissertation adopts an interpretive philosophy and a qualitative research paradigm, employing a case study approach focused on Machaerus Fortress-Palace. diffirerent data collection methods including archival research of historical documents, maps, and photographs; field observations and condition assessments of the site; and spatial analysis of the Machesus region reconstruct and analyze potential historical pilgrimage routes.This multi-faceted methodology allows for a comprehensive understanding of the site's historical context, current condition, and potential for integration within a broader cultural landscape.

This study's findings underscore the urgent need for a comprehensive theoretical framework for conserving and presenting archaeological sites. This framework should address both the physical preservation of a site and the interpretation and communication of its historical and cultural significance. Moreover, this study demonstrates the practicality of developing a general methodology that can be adapted to the unique characteristics of individual sites. The successful implementation of this methodology at Machaerus showcases its potential for broader application.

1.2 Research Problem

Archaeological sites are, by their very nature, subject to continuous processes of loss and degradation resulting from a combination of natural and human-induced factors. Approaches to heritage conservation are shifting from a site-based focus to more holistic perspectives. This shift challenges the traditional tendency to treat monuments in isolation from their surrounding contexts. It also plays a key role in the ongoing discussion about the relationship between cultural heritage and sustainable development. In many developing countries, including Jordan, current approaches tend to freeze heritage areas, limiting their use primarily to

tourist attractions. This approach often neglects the needs of local communities and the potential for heritage to contribute to broader social and economic development[6].

At Machaerus, these factors have contributed to the current state of the site, necessitating a considered and informed approach to conservation. Despite its rich archaeological heritage, the Hashemite Kingdom of Jordan faces a significant challenge in effectively conserving and presenting its cultural treasures. There is a critical gap in the existing literature on conservation efforts for archaeological sites in Jordan.

The Current conservation practices often take a fragmented, site-specific approach, neglecting the broader historical context and the interconnectedness of sites, especially those that share cultural, historical, and religious significance. This narrow focus overlooks the intangible values associated with these sites, such as religious beliefs, cultural practices, and historical narratives, thereby diminishing the overall effectiveness of conservation efforts. This fragmented approach threatens the long-term sustainability of these irreplaceable cultural treasures and undermines their potential to contribute to tourism, education, and a sense of national identity.

This fragmented approach is particularly evident in the case of Machaerus fortress, which, despite having undergone extensive excavations and surveys, has been treated as an isolated site. The conservation efforts carried out on the Machaerus fortress have been fragmented and reactive. These efforts have mainly consisted of minor maintenance and occasional interventions that may be destructive. This narrow approach neglects the broader historical context of the site, including its connections to other locations and its role in shaping regional identity.

6 Romano.M,(2000)

The current situation at Machaerus fortress highlights the need for a more comprehensive conservation strategy that considers not only the physical state of the ruins, but also the historical narrative, connection, and its contemporary function as a pilgrimage site (sacred site). Operating on two levels; At the site level, there is a need for improved strategies for the physical preservation and presentation of the fortress itself. Crucially, at the regional level, the isolated treatment of Machaerus fails to recognize its historical connections to other significant sites, thereby diminishing the understanding of its own historical and religious significance and hindering efforts to fully realize its potential as a pilgrimage site.

1.3 State of The Art

The alarming state of built heritage in the Arab region, including Jordan, is evident in numerous studies and reports. A 2016 statistical study by the UNESCO World Heritage Center highlights this alarming trend, reporting that 41% of world heritage sites in the Arab region are listed as endangered—the highest percentage globally[7] .This statistic underscores the urgent need for effective conservation strategies.

A major factor contributing to the deterioration of heritage sites is the absence of comprehensive conservation and management plans. Without these plans, built heritage sites are exposed to various threats, such as natural disasters, inadequate maintenance, improper restoration, and the pressures of tourism. The lack of effective conservation and management can have serious consequence resulting in the loss of both physical and non-physical elements of these important sites.

Moreover, the specific context of archaeological-re-

7 (UNESCO, 2016)

ligious sites is among the world's most popular visitor attractions[8]. They require particularly sensitive conservation approaches. Several studies have emphasized their role as repositories of cultural heritage and spiritual practices. As scholars[9] pointed out, these sites are not merely physical structures but also repositories of intangible cultural heritage and spiritual practices. This necessitates a more nuanced approach to conservation that goes beyond the preservation of material fabric. Oviedo[10] argues, that traditional conservation paradigms, often rooted in natural sciences, have historically overlooked these spiritual dimensions, particularly in indigenous cultures. This neglect can lead to a disconnect between conservation efforts and the communities who hold these sites sacred, potentially undermining the long-term success of conservation initiatives. Alexopoulos[11] further emphasizes the need for sensitivity in the presentation of religious sites, arguing that interpretation should respect the spiritual significance of the site while also providing informative and engaging experiences for visitors.

This need for a more holistic approach to conservation is particularly relevant in Jordan. For instance, the UNESCO World Heritage Site of Petra, Jerash, Bethany beyond the Jordan and so many sites, demonstrate the visible degradation resulting from inadequate conservation and management practices. The absence of an integrated approach has led to the erosion of structures, the desecration of artifacts, and the disruption of the site's natural environment. These sites, while significant in their own right, also highlight the need for an integrated approach that considers the interconnectedness of sites within broader cultural landsca-

8 Shackley, M, (2001)
9 Stovel et al,(2005)
10 Oviedo. G,(2012)
11 Alexopoulos. G, (2014)

pes. This concept of interconnectedness is also crucial for religious sites, which often form part of pilgrimage routes or networks of sacred places. However, existing literature often treats these sites in isolation, neglecting their role within these broader networks.

The concept of cultural routes offers a valuable framework for addressing the interconnectedness of cultural heritage sites. cultural routes connect places and people through shared histories, cultural practices, and landscapes. They offer opportunities for promoting cultural tourism, fostering intercultural dialogue, and supporting local communities. successful examples of cultural routes such as the Santiago de Compostela pilgrimage route in Spain and the Silk Road, demonstrate the potential for these initiatives to enhance heritage preservation and promote sustainable development. This research draws on the existing literature on cultural routes to inform the development of a suitable framework for connecting Machaerus with other pilgrimage sites. Although the concept of cultural routes is well-established in international heritage discourse, its application as a formal conservation strategy in Jordan remains largely unexplored. While there are some examples of themed tourist trails or itineraries in Jordan, these do not typically adopt the holistic and integrated approach characteristic of true cultural routes, which emphasizes the integration of tangible and intangible heritage. This research sets itself apart by explicitly employing the concept of cultural routes as a core component.of the conservation strategy for Machaerus Fortress. This novel application seeks to move beyond site-specific conservation practices and embrace a landscape-scale approach that recognizes the interconnectedness of cultural heritage.

The case of Machaerus Fortress-Palace exemplifies these challenges. conservation efforts have been limited and primarily focused on basic maintenance (add reference if

available). This gradual approach fails to address the site's broader historical and religious context, particularly its significance as a site of biblical pilgrimage related to John the Baptist. Previous research may have focused on the site's archaeological remains or its historical connections to Herod the Great, but there is a clear gap in the literature regarding an integrated approach to its conservation that considers both its tangible and intangible values and its potential role within a broader pilgrimage route. This research addresses this gap by proposing a two-tiered conservation strategy: on the one hand, focusing on the on-site preservation of Machaerus itself, addressing issues such as [mention specific on-site conservation needs, e.g., stabilizing walls, improving drainage]; and on the other hand, integrating Machaerus into a regional cultural route, connecting it with other relevant pilgrimage sites such as Mount Nebo and Bethany Beyond the Jordan. This integrated approach aims to enhance the understanding of Machaerus within its historical and religious context and contribute to its long-term preservation.

1.4 Research Aims and Questions

This dissertation aims to develop an integrated conservation strategy for Machaerus Fortress-Palace by integrating on-site preservation efforts with a regional cultural route, thereby enhancing the understanding of its historical and religious significance within the broader cultural landscape of Jordan. To conduct a comprehensive analysis of the historical, archaeological, and religious significance of Machaerus Fortress-Palace, exploring its connections to biblical narratives and its role in the region's history, thereby identifying the sites' cultural values.

1. To identify and analyze potential routes (ancient routes) connecting Machaerus with other significant pilgrimage and historical sites in Jordan, considering historical eviden-

ce, geographical factors, and existing infrastructure,(spatial components), and subsequently propose a pilgrimage route that effectively links these sites, considering cultural routes criteria.

2. To develop a detailed conservation plan for Machaerus Fortress-Palace that addresses both the assessment of the site's physical condition and state of conservation, the identification of conservation priorities, and the integration of intangible heritage values. The research tries to respond to the following questions :

2. How can a cultural route be designed to connect Machaerus Fortress with other significant pilgrimage sites in Jordan, considering historical evidence, geographical factors, visitor experience, and the protection of cultural heritage resources, to enhance the understanding of Machaerus within its broader historical and religious context?

2. What are the key on-site conservation priorities for Machaerus Fortress, and how can a conservation plan be developed to integrate both tangible and intangible heritage values, ensuring the long-term preservation of the site while also supporting the development of the proposed cultural route.

1.5 Research Importance

This research addresses the critical need to safeguard Jordan's archaeological sites, particularly those facing threats to their integrity and sustainability. Machaerus Fortress-Palace, a site with immense potential as a prominent destination for cultural tourism and biblical pilgrimage, exemplifies this need. Its historical, religious, and architectural significance, including its role as the site of John the Baptist's imprisonment and execution and its diverse range of structures representing three distinct historical periods, makes it compelling . The Machaerus Fortress , the second-to-last Herodian fortress in the region, encompasses a diverse

range of structures, including watchtowers, hermit caves, ritual pools, a water system, a royal palace, and remnants of Roman siege works. These structures represent three distinct historical periods and showcase a unique architectural style. This research proposes an integrated conservation strategy for Machaerus, operating on two interconnected level to fill the gaps in literatures as discussed previously in the state of the art.

This study offers significant value on three key levels: Conservation of Archaeological Sites in Jordan: This research contributes to the effective conservation of Machaerus Fortress-Palace by developing a conservation framework that integrates both tangible and intangible heritage values. By moving beyond site-level conservation and considering the interconnectedness of archaeological sites, this framework can serve as a model for other sites in Jordan and beyond, particularly those with spiritual significance or shared historical themes. For example, the framework's emphasis on integrating intangible heritage could be applied to other pilgrimage sites in the region, while its approach to cultural route development could be adapted for sites connected by other historical narratives.

Enhanced Biblical Pilgrimage Experience: This research seeks to enhance the pilgrim experience by developing a well-designed pilgrimage route connecting Machaerus with other significant sites. This route will not only provide physical access to these sites but also enhance the understanding of their interconnected narratives. For
instance, the route could incorporate interpretive materials that highlight the shared historical and religious context of the sites, or it could offer opportunities for reflection and spiritual engagement at key locations. This integrated approach aims to create a more meaningful and immersive pilgrimage experience.

Contribution to Future Studies and Best Practices: This

dissertation contributes to the development of best practices for archaeological site conservation, particularly those with religious significance. By addressing the shortcomings of existing approaches and advocating for an integrated, landscape-scale perspective, this research offers a valuable framework for safeguarding and presenting Jordan's archaeological legacy. The proposed framework, with its focus on cultural routes and integration of tangible and intangible heritage, can serve as a model for future research and conservation initiatives both locally and internationally, particularly in regions with rich interconnected cultural heritage.

1.6 Research Structure

This dissertation is structured to address the research's systematic aims. The structure is divided into two main parts, theoretical and practical, and comprises seven chapters, each contributing to a deeper understanding of the research aims and their implementation.

Part 1: Theoretical section (Chapters 1-4).

Chapter 1 (Introduction); provides a comprehensive overview of the research context, highlighting the significance of the study, identifying the key problems addressed, and outlining the specific research aims. It also presents the overall structure of the dissertation, guiding readers through the research journey.

Chapter 2; ("Literature Review and Theoretical Framework); provides a comprehensive review of the relevant literature develops a solid theoretical framework to guide/inform the research, and discusses key concepts, methodologies, and the existing knowledge base on heritage conservation, cultural routes, and archaeological sites in Jordan.

Chapter 3: (Methodology); focuses on the data collection methods and analysis techniques employed in the research. It justifies the rationale behind the chosen methodologies,

ensuring they are systematic and aligned with the research objectives. It also discusses the ethical considerations and potential limitations of the research approach.

Chapter 4; Case Studies; This chapter presents and analyzes several reference case studies of successful cultural routes and archaeological site conservation projects in Jordan and internationally. It identifies successful practices, challenges, and lessons learned that can be applied to the Machaerus Fortress-Palace project.

Part 2: Research Implementation and Analysis-Practical Section (Chapters 5-7)

The theoretical framework established in Part I provides the foundation for the practical application presented in Part II, which focuses on the development of a specific cultural route and conservation plan for Machaerus Fortress-Palace.

Chapter 5: (Developing the Pilgrimage Route); this chapter explores the specific elements of the region to develop a pilgrimage route connecting Machaerus Fortress-Palace with associated pilgrimage sites. It discusses the historical and cultural significance of these interconnected sites and the potential impact of the designed route on these locations. It analyzes the feasibility, sustainability, and visitor experience potential of the proposed route.

Chapter 6: Conservation plan `of Machaerus Fortress-Palace; This chapter defines the site's value and conservation issues, addressing both the tangible and intangible aspects of its heritage. It outlines the specific conservation approaches employed, including structural repairs, restoration, preventive conservation, and interpretation. It evaluates the effectiveness of these approaches and identifies areas for improvement. Chapter 7: (Conclusion and Recommendations); summarizes the key findings of the research, drawing connections between the two research aims. It discusses the contributions of the research to the field and offers recommendations for future research and heritage management

THEORETICAL SECTION
THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Introduction

This chapter presents a comprehensive review of the theoretical and practical frameworks that inform the conservation of archaeological sites, in addition to the context of cultural routes. This review establishes the foundation for the research presented in this thesis, providing a holistic understanding of the principles, strategies, and challenges associated with safeguarding cultural heritage. The chapter investigates cultural routes as a tool for heritage conservation, explores established approaches to the architectural conservation of archaeological sites, and examines the role of international conventions and charters in guiding best practices. A critical analysis of Jordan's national heritage conservation strategies further contextualizes the specific challenges and opportunities related to the preservation of the Machaerus Fortress. This integrated approach will inform the development of a conceptual framework for Machaerus, considering its unique historical significance and potential within regional cultural itineraries.

2.2 Cultural Routes, Concept Development

Cultural routes have emerged as a valuable tool for appreciating and understanding the cultural significance of heritage. They encompass both tangible (physical structures and artifacts) and intangible (practices, traditions, and knowledge) elements, connecting regions and fostering dialogue between diverse cultures[12] . Historically, these routes served as vital arteries for the transfer of goods, ideas, and cultural elements[13] .

The concept of cultural routes has evolved with UNESCO[14] , ICOMOS[15] , and the Council of Europe played a key role in

12 Teba.T,(2016)

13 Iakovaki et al,(2023)

14The United Nations Educational, Scientific and Cultural Organization

15International Council On Monuments and Sites

its development. These organizations have established various definitions and criteria, highlighting the importance of historical significance, cultural exchange, and dynamic interaction along the route. One crucial aspect of cultural routes is their potential to contribute to the conservation of archaeological sites. Integrating archaeological sites into cultural itineraries, can raise awareness about their cultural value, promote responsible tourism practices, and generate revenue that can be reinvested in conservation efforts.

2.2.1 Cultural Routes, Definition, and Classification

It all began when *UNESCO*'s experts designated the Pilgrim's Route to Santiago de Compostela as a World Heritage Site in 1993. Subsequently, the first explicit definition of a heritage route emerged from a meeting of the World Heritage Committee in Madrid in 1994, attended by representatives from *UNESCO* and *ICOMOS* is

«A heritage route is composed of tangible elements of which the cultural significance comes from exchanges and a multi-dimensional dialogue across countries or regions, and that illustrates the interaction of movement, along the route, in space and time»[16].

This definition emphasizes two key aspects; the continuity in space and time that can be explained by the dynamics of movement. Furthermore, it refers to a whole and highlights exchanges and dialogue between regions and countries. This definition was accepted as the basis of further definitions and studies about cultural routes.

The Council of Europe defined the term cultural routes as «*a route or series of route ways, based on a cultural concept or phenomenon of national significance to common European values*»[17] . This definition has since broadened to encom-

16 Routes As Part of Our Cultural Heritage, Report on The Meeting of Experts, Unesco World Heritage Committee, Madrid, 1994

17 Council of Europe Committee of Ministers Resolution CM/Res(2013)66

pass collaborative projects focused on cultural, educational, heritage, and tourism development. These projects aim to promote and develop routes based on historical roads, cultural concepts, or figures of national importance, with carefully determined itineraries incorporating key points and tangible elements that underscore the route's significance.
In 1997, the Council of Europe and the Grand Duchy of Luxembourg established the European Institute of Cultural Routes. To implement the cultural routes program of the Council of Europe, which started in 1987 with The Pathways to Santiago de Compostela and contains approximately 30 European cultural routes today. Afterward, In 1998, a group of (ICOMOS) members established the International Committee on Cultural Routes (ICCR) [18] , the main aim was to

[...*to promote, consistent with the aims of ICOMOS international cooperation, the identification, study, and enhancement of cultural routes and their significance about their main value as a whole, and connection with the protection, maintenance, and conservation of their monuments, groups of buildings, archaeological remains, cultural landscapes, and sites, as they are connected through cultural values and historical links*][19] :

The ICOMOS-ICCR, further refined the concept of heritage routes, drawing upon the Madrid meeting's definition, as the following

«*Cultural routes are not simple ways of communication and transport which may include cultural properties and connect different peoples, but special historic phenomena that cannot be created by applying one's imagination and will to the establishment of a set of associated cultural assets that hap-*

18 Comité Internacional de Itinerarios Culturales, CIIC
19 http://www.icomos-ciic.org/INDEX_ingl.htm (Last accessed 01.05.2010)

pen to possess features in common»[20].

Accordingly, the defining elements for cultural routes as stated by *CIIC_ICOMOS* include context, content, cross-cultural significance as a whole, and the dynamic character of Cultural Routes. Where context refers to the natural setting, content refers to tangible elements that bear witness to its cultural heritage and provide physical confirmation of its existence, and cross-cultural significance implies a value as a whole that is greater than the sum of its parts and gives the route its meaning[21] . Itineraries that meet these criteria were designated as cultural routes while others fell under the broader categories of cultural landscapes or tourist routes.

In 2005, the *UNESCO* expanded the Operational Guidelines for implementing the World Heritage Convention to include heritage routes alongside cultural landscapes, historic towns, and heritage canals ,(Madrid's 1994 definition remained foundational to this expanded framework). Lately, in 2008, the *ICOMOS* developed their chartres on cultural routes to establish research principles and methods specific to cultural routes, provide usage guidelines, and outline knowledge development, evaluation, protection, preservation, management, and conservation mechanisms. The charter defined cultural routes as

«Any route of communication, be it land, water, or some other type, which is physically delimited and is also characterized by having its own specific dynamic and historic functionality, which must fulfill the following conditions: It must arise from and reflect interactive movements of people as well as multi-dimensional, continuous, and reciprocal exchanges of goods, ideas, knowledge and values between peoples, countries, regions or continents over significant periods of time.

20 (ICCR, 2008).

21 Majdoub, W, (2009)

It must have thereby promoted a cross-fertilization of the affected cultures in space and time, as reflected both in their tangible and intangible heritage» [22]

In conclusion, we can say , there are two primary definitions of cultural routes; The first proposed by ICOMOS—ICCR emphasizes historical significance, internal dynamics, and mobility, and it could be used on any scale so long as there is embedded cultural relevance. The second from CE—European Institute of Cultural Routes, focuses on the route's potential to represent European heritage and contribute to regional and local development. It allows for the route to be newly created, which is not a requirement for the ICOMOSdefinition.

ICOMOS-ICCR Charter	CE- European Institute of Cultural Routes
It must arise from and reflect interactive movements of people as well as multi-dimensional, continuous, and reciprocal exchanges of goods, ideas, knowledge, and values between peoples, countries, regions, or continents over significant periods of time. It must have thereby promoted a cross-fertilization of the affected cultures in space and time, as reflected both in their tangible and intangible heritage. It must have integrated into a dynamic system the historic relations and cultural properties associated with its existence.	be centered on a theme representative of European values and common to several European countries; follow a historical route or (in the case of cultural tourism) a newly created route; give rise to long-term multilateral cooperation projects in priority areas (scientific research; heritage conservation and enhancement; cultural and educational exchanges among young Europeans; contemporary cultural and artistic practices; cultural tourism and sustainable development); be managed by one or more independent, organized networks (in the form of an association or a federation of associations).

Table 2.01: A Comparison of Cultural Route Criteria: ICOMOS-ICCR and Council of Europe. Source: Researcher, 2024

The definitions presented above, while valuable, have limitations. While (ICOMOS) primarily focuses on historical roads, the european Union's definition centers on only on european heritage. The concept of cultural routes in the middle east, including Jordan, remains somewhat undefined. Therefore, this study adopts an international framework to provide a more structured definition

«A *historic or contemporary path or network of paths that connects places of cultural significance, at local, regional or*

22 The ICOMOS Charter on Cultural Routes, 2008.

international level, encompasses tangible and intangible heritage elements, reflecting the diverse cultural interactions and exchanges that have occurred along its course, contribute to a shared cultural heritage, foster intercultural dialogue, and promote sustainable tourism and economic development».

This definition is accepted through this study.

In light of the definitions and criteria, mentioned above, Martorell Carreño[23], classified the cultural routes as illustrated in the table:

Table 2.02 classifications of cultural routes concept by Martorell Carreño, A. (2003), appropriated by the reseracher

Theme	example
Its origin	A cultural route is clearly the work of man designed as a means of communication and transport.
Its essence	represent means of communiations ad evedence of interrelationsip btween distant cultural groups
Its function	A cultural route is a historic route of communication.
Its extent	The extent of a cultural route is defined by historically-determined limits, which are independent of natural boundaries. .
Its mportance	through cultrual exchange between diffirent cultural groups linked to well-establishe cultural route.
Its srtucture	diversity of cultural charistaristics produced diffirent structural configurations of cultural routes.
Its constituent elements	diffirint heritage element along the route are vary from urban centers, landscape, difensive sturutures and others.
By their study	The key elements to understand a cultural route are the physical route itself, the properties associated with its function, the tangible and intangible manifestations of heritage related to the process of communication and dialogue between the peoples involved, etc.
By their dynamics	Cultural routes are shaped by human movement and historical processes, not just natural forces. They reflect human interests and are understood as cultural phenomena

The ICOMOS[24]. also classisfied the cultural routes into;

Table 2.03 ICOMOS classification for cultural routes by ICOMOS

Variable	example
Territorial scope	local, national, regional, continental, or intercontinental.
Function	within a given cultural region or extended across different geographical areas, they have shared or continue to share a process of reciprocal influences in the formation or evolution of cultural values.
Function	social, economic, political, or cultural. These characteristics can be found shared across a multi-dimensional context.
duration in tim	those that are no longer used versus those that continue to develop under the influence of socio-economic, political, and cultural exchanges.
Structural configuration	linear, circular, cruciform, radial, or network.
natural environment	land, aquatic, mixed, or other physical setting.

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23 Martorell Carreño. A. (2003).

24 https://www.icomos.org/images/DOCUMENTS/Charters/culturalroutes_f.pdf. 2008

Cultural routes can be divided into two main categories: The first category is paths used in a period of history for a specific purpose, this type aligns with the (ICOMOS) International Committee on Cultural Routes definition and criteria. This category has two sub-categories; one that was used by people regularly in periods of history such as migration routes , trade routes (Silk Road, King's Highway), military roads (Via Maris and King's Highway), and pilgrimage roads (Santiago in Spain). These routes share the criteria of used in history, own dynamics and mobility of the itinerary. The second sub-category is also historical roads that were used for specific purposes but only by significant individuals in the past but not regularly. For this reason, traces of social, cultural, or economic exchange are not seen as a rule and these routes can only be physical, for instance; the St.Paul Trail in Turkey, and the route of Alexander the Great.

The second category of routes includes itineraries that do not belong to the past with their physical presence but are defined today by the revaluation of cultural heritage and the natural landscape along them. These roads are defined by linking elements such as towns or castles, which belong to a specific region and a specific period of history. These roads are divided into three sub-categories; Historical Roads, Natural Roads, and Historical-Naturla Roads.

Historical roads; roads traditionally linked tangible elements such as buildings and sites, often creating a physical or virtual connection within a region. For instance, the Romanesque routes of European heritage Transromanica, which is a network established around a shared European heritage from the Romanesque period (950-1250 AD). This route unites cultural monuments, sites, and historic roads across Germany, Austria, Italy, and Slovenia, centered on the common theme of late Roman and early Christian ar-

chitecture[25].

Historical-Natural Roads; These routes are defined by the use of historical sites belonging to a specific culture in a specific region and also by the use of natural landscape-including both historical buildings/sites and natural areas great example can be seen in The Route of Don Quixote in Spain. This road centered around Cervantes' iconic literary character, the route weaves through a tapestry of historical sites and natural landscapes within Castilla-La Mancha. It includes not only elements of the cultural heritage of Spain like castles, towns, town squares, and the famous windmills of Don Quixote but also natural values like several lakes throughout the region.

The Nartual roads; are roads that don't contain any of the features mentioned before, they are just natural trails used for outdoor sports, mountaineering, canoeing, walking, cycling, and crossing natural beauty. These roads serve nature tourism mainly, such as hiking, cycling, and horse riding.

2.2.2 Cultural Routes Planning Principles

Cultural Route refers to a curated collection of Points of Interest (POI) within a specific geographic area. These (POI) share common attributes, a central theme, and distinctive architectural or historical features, often encompassing facilities, natural landscapes, and buildings[26] . Cultural routes are pathways through which the cultural significance of heritage is recognized and appreciated. These routes link heritage sites across various scales, reflecting the historical associations between human activity and nature[27] . These associations may include trade routes, migration patterns,

25 http://www.coe.int/t/dg4/cultureheritage/culture/Route 06.05.2010)

26 Iakovaki et al, (2023)

27 KARATAŞ.E.(2011); Teba.T, (2016).

religious pilgrimages, or shared cultural practices. They often arise from trade routes, migration patterns, religious pilgrimages, or shared cultural practices[28].

Cultural routes employ linkage methods to present and promote heritage effectively, including physical connections such as trails or roads, narrative connections (stories or histories), and thematic connections (shared cultural themes or traditions). A well-developed cultural route has several key characteristics. First, it should have a clear thematic coherence, focusing on a specific historical period, cultural tradition, or geographical region. Second, the route should connect sites of cultural significance, such as historical landmarks, archaeological sites, and cultural landscapes. By integrating these elements, cultural routes can serve as powerful tools for heritage conservation and cultural exchanges.

In this context, the planning of cultural routes and networks is a process consisting of consecutive stages and usually differs from planning for single historic and natural sites[29].

This requires a broader perspective encompassing multiple sites and their interconnectedness. By considering the unique characteristics of each site and their relationships within the cultural landscape, planners can develop cultural routes that can contribute to both heritage conservation and sustainable development. Since cultural routes are not only about linking historical sites together with pathways, they are also about creating a spiritual experience/connection between the user and the surrounding environment. Therefore, the relationship between settlements and nature is important. Therefore, it is crucial to spatially understand the site. In this scean, The concept of the cultural landscape is foundational to identifying natural and historical

28 Romano.M,(2000)

29 (Ibid)

man-made components that contribute to a region's unique identity. As a result, we can identify the proposed route's elements, thereby developing a trail or network that aligns with its cultural heritage and values, which is particularly important for pilgrimage trails that enhance religious and spiritual experiences while connecting historical sites.

Despite extensive research and international efforts, a comprehensive framework for cultural route planning remains elusive. Although guidelines have been developed by various organizations and scholars, a standardized approach is lacking. Esra Karatas[30] suggested initial stages of cultural route planning which often involve two key phases, first; understanding the sites; which involves identifying and evaluating the natural and cultural elements of the region to be included in the cultural route. This includes analyzing landscape elements and documenting their significance. Second, trail design; involves defining the specific route or path that will connect the identified sites and trail design regarding several variables, including accessibility, historical significance, and scenic value. The following variables are essential for effective trial design:

1. Narrative Theme or Purpose: Determine the primary focus of the route, such as religious, historical, natural, or cultural themes

2. Shape: Decide whether the route will be linear, circular, or a combination of both.

3. Elements: Identify specific landmarks, historical sites, and natural features that will be included along the route.

4. Length: Calculate the total length of the route in kilometers or miles.

5. Type: Determine the most appropriate mode of travel, such as walking, driving, or cycling, based on the route's characteristics and the intended audience.

30 KARATAŞ.E,(2011)

By carefully considering these variables, planners can create cultural routes that are meaningful while preserving the region's cultural heritage.

Moreover, Durusoy[31] presented a four-phase planning approach based on analyzing the international charters for cultural routes.

1. Survey: Gathering and recording relevant information about the cultural route.

2. Evaluation: Assessing the gathered information to identify significant cultural heritage elements and potential challenges.

3. Decision-Making: Determining the route's objectives, priorities, and management strategies

4. Control and Monitoring: Implementing management plans and continuously monitoring the route's condition and effectiveness

Accordingly, effective cultural route planning requires understanding the region's spatial components(its natural and historical elements) to enable the creation of a meaningful and sustainable route, enriching religious and spiritual experiences while preserving and promoting historical connections. In this regard, a cultural landscape is required The concept of cultural landscape presupposes the protection of the interactions between humans and their environment, This approach can go against the tendency to conserve monuments as isolated from their context[32] . It goes beyond the site itself and considers it within its broader environmental and cultural landscape, emphasizing the interconnectedness of the site with its surroundings and the importance of preserving the visual integrity of the landscape, considering viewsheds, and the relationship between the site and its natural setting.

31 Durusoy.E,(2016)

32 Romano.M,(2000)

In the case of developing a pilgrimage routes that links Machaerus with associated sites, such as Mount Nebo and Al-Maghtas, the cultural route complements the Cultural Landscape perspective by emphasizing the connections between sites, which can significantly contribute to the conservation of Machaerus Fortress by:

1. Enhancing Religious and Spiritual Significance: Integrating the Machaerus fortress into a pilgrimage route, we are not just preserving the physical remains of the fortress but also revitalizing its spiritual significance. This is particularly powerful for sites with strong religious connections, such as Machaerus. Moreover, trails will raise awareness of Machaerus' importance to different faiths, fostering interfaith dialogue and understanding. This can translate into greater support for the preservation of the site from both religious communities and the wider public. Finally, the pilgrimage becomes a form of living heritage that connects contemporary practices with the site's historical and spiritual roots. This can lead to a deeper appreciation of the site and a stronger commitment to its preservation.

2. Complementing Physical Conservation; Bringing attention and visitors to the site can contribute to its protection because increased visibility can deter vandalism and encourage responsible stewardship. ensures that the physical conservation of the fortress is not performed in isolation. It considers the context of the site, its relationship with the surrounding environment, and its significance to living communities. In conclusion, by integrating the cultural landscape and cultural route approaches, the proposed pilgrimage trail can become a powerful tool for the conservation of Machaerus Fortress. It ensures that the site is preserved not in isolation To date, no established guidelines or specific frameworks for planning cultural routes have been found in the literature reviewed by scholars, previous studies, and international conventions. International organizations and

researchers have developed guidelines to guide these processes; however, a comprehensive approach is lacking.

2.2.3. Cultural Routes in Context of Jordan

Jordan has many ancient, historical roads that date back thousands of years. However, in contrast to existing international frameworks within international organizations, Jordan currently lacks a dedicated framework or national legislation for cultural routes. While existing laws address the conservation and management of individual historical sites and structures, a specific legal framework for safeguarding historical routes is absent. This includes both the designation of existing cultural routes and the development of new multi-site cultural or natural trails, and their role in heritage conservation. Jordanian efforts, primarily focused on boosting tourism, have concentrated on advertising and promoting outdoor activities, often limited to basic waymarking. Consequently, cultural routes in Jordan require greater attention and recognition as a vital tool for heritage conservation. A comprehensive framework for their planning and development is essential.

The concept of cultural landscapes highlights the interconnectedness of archaeological sites with their natural and cultural environments. This approach recognizes that the significance of a site is often shaped by its relationship to surrounding features, such as topography, vegetation, and historical events. Similarly, cultural routes emphasize the importance of considering archaeological heritage within broader networks of human activity and exchange. By examining the pathways of migration, trade, and cultural diffusion, archaeologists can gain a deeper understanding of the context and significance of archaeological sites.

2.3 Architecture Conservation of Archeological Sites

Conservation is interpreted in its broadest sense as «*all the processes of looking after a place to retain its cultural significance*»[33]. Architectural conservation refers to the mechanisms of applying interventions to historical structures—the style, form, and physical structure of buildings or sites—to prolong the lifespan of humanity's heritage. This involves the preservation of material characteristics, historical significance, and design integrity[34]. Essentially, architectural conservation seeks to safeguard valuable architectural elements and entire structures from natural and human-induced threats[35] . All that through finding out the best type of intervention that achieves the conservation goals. Four main interventions commonly are used in archaeological sites; restoration, reconstruction, conservation, and preservation. While restoration and reconstruction primarily focus on the physical restoration of material elements[36] . Conservation and preservation emphasize the maintenance of the site's authenticity, significance, and accessibility to the public. These terms, though sharing common objectives of integrity, durability, and accessibility, exhibit distinct approaches and emphases. Thus, in conservation, both tangible and intangible archaeological evidence is protected and presented, including the sites themselves and their ancient inhabitants' cultural heritage.

The purpose of architectural conservation of archaeological sites extends to include studying and displaying the site to the public. It also considers the issues of interpretation, presentation, and accessibility through the site's historic fabric as confirmed by ICCROM and UNESCO in Cyprus in 1983 «*to promote the site's visual accessibility*

33 Australia ICOMOS Charter for Places of Cultural Significance [Burra Charter]
34 Matero.F, (1993); Orbasli.A,(2008); Weaver.M,(1993)
35 Agnew et al., (2002).
36 Ibid

and make its messages displayed for scholars and the public»[37]. Architectural conservation strives to achieve two key objectives; Prolonging Heritage Life and Public Accessibility , Architectural conservation aims to extend the lifespan of built heritage while ensuring its significance is revealed to the public. This is achieved without altering the physical fabric or historical context of the structures. Moreover, Connecting Past and Present; Architectural conservation also serves to bridge the gap between historical structures and the values of past societies. By revealing the cultural significance of these structures, their relevance to contemporary society is highlighted. This emphasizes the importance of finding the most suitable intervention methods to achieve conservation goals. conservation is the process that works towards protecting and presenting tangible and intangible evidence of archaeological sites and their ancient inhabitants through applying different levels of intervention[38] .
Archeolgical site is

« *The location of a significant event, a prehistoric occupation or activity or a building or structure, whether standing, ruined or vanished, underground or underwater, where the location itself possesses historic, cultural or archaeological value regardless of the value of any existing structure. Spatial clustering of archaeological data comprising artifacts, ecofacts, and features in any combination*»[39] .

Until the latter half of the 20th century, the conservation of tangible cultural heritage, such as monumental and archaeological sites, was primarily understood as the protection and preservation of materials and fabric. Sites and monuments were often valued primarily for their artistic and aesthetic qualities, leading to a focus on the mainte-

37 Matero.F,(2006); Orbasli.A,(2008)
38 Teba.T,(2016).
39 Turto.F,(2006)

nance and restoration of physical elements[40]. In the past two decades, archaeological site conservation has undergone a significant transformation, expanding from a narrow focus on individual site elements to a broader, more holistic vision[41]. This shift has encompassed a wider understanding of the archaeological landscape, recognizing the multi-faceted nature of archaeological heritage.

The emergence of discussions surrounding cultural landscapes, cultural routes (explained previously), and intangible heritage has further broadened the scope of conservation efforts, extending beyond individual sites and their tangible remains. Intangible dimentions, which encompasses non-material aspects of cultural heritage such as traditions, customs, and knowledge, has also become a central focus of conservation efforts. Recognizing that archaeological sites are not merely physical objects but also repositories of cultural memory and identity, conservationists are working to preserve and transmit intangible heritage alongside tangible remains. In conclusion, the field of archaeological site conservation has evolved significantly in recent decades, embracing a more comprehensive and inclusive approach. By considering the broader context of archaeological heritage, including cultural landscapes, cultural routes, and intangible heritage, conservationists are working to preserveand present these invaluable resources in a way that is both meaningful and sustainable.

2.3.1 Development of Conservation Concepts

The concept of architectural conservation has been considered by many international associations and congresses such as (*ICCROM, UNESCO, and ICOMOS*)[42] . It mainly focu-

40 Romano.M,(2000)
41 Williams.T,(2018)
42 Orbasli.A,(2008)

ses on the aesthetic, historic, and cultural properties of the studied heritage. For this reason, it is crucial to establish a good understanding of the physical conditions and cultural values that the heritage fabric has, to maintain its authenticity, a very important concept in archaeological sites that show the architectural and, in some cases, urban principles of ancient societies. Agnew and Matero[43] stressed the importance of choosing appropriate conservation approaches to achieve successful and complete protection. In situ conservation, recovering the site's cultural significance, and revealing as much of its information as possible is important. Scholars would mainly adopt this approach unless the natural environment does not allow it[44]. Considerable emphasis was placed on this concept in 20th-century conservation attempts, although it had been applied to some case studies in the 19th century[45] .

The concept of conservation developed throughout time, during the 18th and 19th centuries, there was a rise in interest in the preservation of ancient structures, as well as architectural conservation in general. As a result of modernism and the architectural perspective that went along with it, which rejected a sentimental commitment to older buildings and structures in favor of technological and architectural advancement and change, this style of art and architecture is known as "Modernism".

According to Jokilehto[46], the competing conservation and restoration concepts and principles of the 19th century in Europe contributed to establishing new foundations from which the conservation and restoration principles of the 20th century were produced[47]. Two concepts: Faithful

43 Agnew et al, (2002); Matero.F,(2006)
44 Matero.F,(2006);Matero.F,(1993)
45 Jokilehto.J,(1999)
46 Jokilehto.J,(1999)
47 Matero.F,(1993)

Restoration by John Ruskin and William Morris and stylistic restoration Viollet-le-Duc, are considered to be the essential axis, around which all conservation and restoration principles have been built and developed[48]. By that time Canon Raymond tried to classify specialists into two groups: maximalists who advocate the unity of style theory and minimalists who support original archaeological and documentary values[49].

Stylistic restoration refers to considering the original style of a heritage building in any work carried out on the building. This concept has been used by German restorers in Germany to impose national values and unite, all of these efforts were made to conserve the historical treasures for education, with the aim of goal of enlightening future generations. Johann Wolfgang Goethe, Johann Joachim Winckelmann, and Karl Friedrich Schinkel were the representatives of Stylistic restoration, Schinkel was the one who initially proposed for the in situ protection and presentation concepts[50].

Schinkel believed that historical stratification function requirements governed the restoration aspect and in addition to Stylistic restoration in some of his projects, these attempts at Colone Cathedral and Marienburg Castle stand as the first attempts at respecting the stratifications in historic structures. Notre Dame Cathedral in France, Marine Castle in Germany, Durham Cathedral in the UK, and Florence Cathedral in Italy, all are great examples of the Stylistic restoration concept[51].

As the conservation concept continuously developed, new concepts emerged and were tented at criticizing restoration and its implications on heritage, a new manifesto

48 Denslagen.W,(1994); Orbasli.A,(2008); Pevsner.N,(1969)
49 Jokilehto, (1999).
50 Jokilehto, (1999).
51 Jokilehto.J.(1999)

had been written by William Morris and his colleagues in 1877 and considered as a Philosophical basis of *SPAB*'s[52] . According to *SPAB* believes, old buildings have a future, the SPAB was established in response to the work of Victorian architects whose enthusiasm for harmful restoration caused irreparable damage. SPAB group tried to reinvestigate and rewrite Restoration policies, they formed the basis for the modern conservation policy.

Unlike Stylistic Restoration, the SPAB group stressed protecting the object's style regarding its stratification. They claimed that the protection must extend over style and time together, depending on a critical and independent evaluation of each case[53] . St. Mark's in Venice is a great example of a conservation concept, which demonstrates how this concept got accepted in Europe, especially Italy. It's worth mentioning that, John Ruskin had criticized the cathedral's 1840's restoration and worked on the new protection campaign after 1877[54].

In France, another criticism occurred by Anatole France[55]. Who strongly criticized the restoration of Notre-Dame Cathedral conducted by Viollet-le-Duc. He also accepted and supported Victor Hugo's thoughts concerning the preservation of national memory[56].

As a result, the fact that stylistic and faithful restoration comprises falsifications and the conflict was just one between style and origin. It is believed that neither approach would be suitable for preserving the cultural significance of particular types of heritage, especially archaeological sites; nevertheless, the conflict between them contributed

52 Society for the Protection of Ancient Buildings. https://www.spab.org.uk/about-us/spab-manifesto https://www.spab.org.uk/about-us

53 Jokilehto.J (1999); Morris.W & Webb.P,(1877)

54 Jokilehto.J ,1999)

55 Anatole France (1844-1924) is a French poet, journalist, and novelist.

56 Jokilehto.J,(1999)

to the development of more advanced approaches that can play a vital role in establishing a comprehensive conservation framework for archaeological sites. It is believed that both approaches are not suitable for preserving the cultural significance of certain types of heritage including archaeological sites; however, the conflict between them contributed to more developed approaches that can play an essential role in building a comprehensive conservation framework for archaeological sites. Significant efforts have been made as a response to the conflict in the restoration to develop new fundamental conservation and restoration principles.

The concept of Critical Restoration (restauro critico)[57] applies a systematic and independent investigation of the object's history and condition, taking into account both aesthetic and historical aspects. As elaborated by Carbonara and Jokilehto[58] , Paul Philippot stands up for this approach, similar to Prosper Mérimée in France, and acknowledges the significance of respecting all historical stages of the item to carry out restoration that is successful and comprehensive. In addition, Philippot is a proponent of some essential restoration concepts like reversibility, low impact, compatibility, and authenticity without returning the object to its initial state.

International architects' meetings in Brussels in 1897 and in Madrid in 1904, stressed the importance of critical restoration and emphasized never allowing stylistic restoration under any situation. This decision affected public opinion in Europe, especially France and Scandinavian Countries. Later, Mogens Clemmensen, a Danish architect, called for additional care for the Archeological study of Historical Buildings to strengthen the prospective conservation princi-

57 Critical restoration (restauro critico) is a critical conservative approach which resulted from European scholars' attempts to dissolve the conflict between stylistic and faithful restoration concepts and find new concept that consider more aspects in historic structures.

58 Carbonara.G,(1996); Jokilehto.J,(1999)

ples[59]. Tthereby, the Archeological study of Mechareus is crucial.

In comparison to European countries, Italy showed great interest in restoration and conservation principles. One of the researchers to be interested in stylistic restoration, Gustavo Giovanni, emphasizes the significance of an intermediated idea between pure conservation and stylistic restoration. This concept would bridge the gap between the two practices. Giovanni's approach reached full growth in 1929, it attempted to preserve the authenticity of the building while also respecting all of the monument's artistic and historic stages. Moreover, he accepted modern technology under the condition of dating new additions. Critical restoration theory came to life when Gustavo submitted his approach to the International Congress of Athens in 1931[60].

Giovannoni submitted his approach to the International Congress of Athens in 1931, which was the birth of Critical Restoration. The charter confirmed his approach and for the first time, to expanding the concept of restoration and conservation by including the archaeological site and its immediate environment. As a result, the conservation position was prioritized over the restoration position in the charter of Athens 1931 and 1933 and called for respective restoration in every single site where it works. Moreover, regarding this charter, Scholars set out the foundation for concerning urban heritage preservation.[61]

Other great movements in restoration occurred after the war period, reconstruction thoughts came to appear, and the new concept was used and accepted especially in Germany and France, to restore the destroyed buildings using two main approaches: one that focused on restoring (throu-

59 Jokilehto.J,(1999)
60 Ibid
61 Qing, Y. T. C,(2005)

gh reconstructing) historic structures to their original form, using new materials nonetheless, and another one that called/advice for complete the destroyed buildings using available original materials without reconstructing the lost parts; this concept was called a conservative reconstruction[62]. However, the two approaches were refused, and suitable principles that effectively work in restoration, reconstruction, and conservation, while simultaneously maintaining respect for the building and its physical surrounding context. In this scene, Critical restoration theory was fundamental in establishing the new principles that promoted the conservation and restoration fields.

As a response to the call for suitable principles, new conservation concepts emerged from critical restoration theory in Italy. The new concept affected the scholars' attempts toward the conservation of historical objects. As result of these efforts, several academics were inspired to adapt their approaches to get better results while working with historic buildings. For instance, Renato Bonelli's[63] approach is based on removing some parts to enhance specific values in the historic monument, although he respects the existing conditions of any structure for these conditions are saturated with past achievements. One of his important approaches, in this sense, is to make correspondence between historic monuments and contemporary architectural concepts[64] .

Bonelli has been criticized by Roberto Pane for his "unity of line" concept and also for the subtle difference between his approach and stylistic restoration. This difference in some cases is not recognizable. Pane had worked on redirecting Bonelli's thoughts by relying on critical appreciation

62 Jokilehto.J,(1999)

63 Italian architect and architectural historian.

64 Bonelli.R,(1959),(1963); Jokilehto.J,(1999)

of the monuments. He upholds anastylosis as a good principle for consolidation, urging the importance of differentiation between origin and new materials. In Pane's work, the artistic vision of restoration is recognized. He encourages specialists to be creative and critical at the same time. He points out that «*Restoration itself is a work of art*»[65] . Pan's approach, the anastylosis approach in particular, is efficient in the case of archaeological sites, where buildings are demolished and many of the original materials are available in the vicinity.

Cesare Brandi, whose methodology is quite like Pane's, was instrumental in pushing restoration and conservation to the forefront of the discussion at a critical time. They allow an object's qualities to determine how the process will proceed in their approach to conservation and restoration. Brandi strikes a balance between the historical and aesthetic needs of the restoration process and pays equal attention to the whole appearance of the restored piece and the historical patina that reveals the chronology of the object[66]. Bradie's concept ignores the object's use value and focuses more on material, historical, and aesthetic aspects. This approach is effective with archaeological sites as the original function is not relevant anymore to the present time and its restoration is not considered as a priority.

Bradni's conservation principles condition the addition of new components by guaranteeing object conservation. Bradni considered the appearance as the soul of any monument and should not be altered, and declared that alteration might occur to the structure, especially when the whole object is facing the threat of collapsing due to structural problems. Accordingly, any addition to historical monuments should be recognizable from a close distance, without affecting the

65 Jokilehto, (1999); Pane, (1948; 1950)
66 Brandi.S,(2005)

unity of the object image from far away. On the other hand, Brandi looked forward to re-establishing the potential unity without falsifying the object or obliterating its historical stratification. As this concept respects the future of the object, Brandi emphasizes the importance of giving opportunity for future conservation works; otherwise, the restoration will be a destructive operation[67].

Brandi's efforts expanded to include ruins. Where he claimed that ruin has much to tell, and for that reason reconstructing and restoring it to its original form is not necessary. He criticized many reconstruction projects, such as Stoa of Attalos in the Athenian Argos 1950s and Temple E at Selinunte in Sicily in the 1960s. He justifies his refusal of such reconstructions by maintaining that people during the time would accept the new reality and, as a result, the origin would be lost. Consequently, with his approach, Brandi opens an outstanding gate for critical conservative thinking, especially when he legitimates the restoration in a present period sense without ignoring the conservation of the patina of the time. Brandi manufactured two essential keys for his theoretical gate. He stresses the equal significance of the conservation of object authenticity, on one side, and the historical and critical investigation to suggest any intervention on the other. These keys fundamentally work together to achieve successful and complete conservation and restoration projects.

During that time, two issues were highlightsed: the available materials (tangible and intangible) of the object, as it is essential to not only develop the object, but also to promote the surrounding area, and the act of integrating objects (buildings and sites) with the surrounding physical environment, social context and used disciplines. This integration guarantees efficient interpretation, an integral part of con-

67 Brandi.S, (2005); Jokilehto.J,(1999)

servation[68]. Matero also added that better ways to refine historical narrative and cultural identity[69] . As a result, the concept of cultural property (tangible and intangible heritage) started to be focused upon in 1950 when (UNESCO')" meeting in Florence proposed to institute (ICCROM)[70].

The key aspect of the conventions was the definition of cultural heritage (cultural property). Regarding these conventions, cultural property covers the moveable, immovable, tangible, and intangible heritage, comprised of artifacts, works of art, buildings, monuments, and even archaeological sites[71].

Giovanni Carbonara supported this perspective in his Teoria e metodi del restauro. When he explained that under the conservation procedure, there are no differences between the above-mentioned categories of heritage, and concluded that restoration and architectural restoration are not different from each other, and it is the same for conservation and architectural conservation[72] . Following that, the Venice Charter of 1964 confirmed that « conservation and restoration have been seen as integral parts of the preserving and presenting operations, keeping in mind that conservation is a wider concept that incorporates additional acts, which combined both concepts to protect historical monuments and sites». This charter refers to the principles established by earlier charters by opposing attempts at aesthetic restoration, valuing the patina that comes over time, and considering many aspects of new additions. In addition to this, it promotes Brandi's notion of striking a balance between the aesthetic and historical requirements of the preservation process.

68 Orbasli.A,(2008)

69 Matero.F,(2006)

70 The International Centre for the Study of Preservation and Conservation of Cultural Propety.

71 Jokilehto.J,(1999)

72 Carbonara.G,(1996)

The charter suggests expanding the scale and concentrating on urban settings and a single architectural monument. The charter notes that these sites can be discovered in the civilization's historical and archaeological evidence, developments, and historical events. Thus, it is essential to investigate the civilization's archaeological reports and history, as conservators, particularly at the end of the 20th century, desired to link the examined heritage to the national community and landscape. As with the archaeological site of the Machareus, the incorporation of conserved monuments into contemporary life is a very significant aspect of this charter.

The conservation of heritage, which has cultural significance, officially came to light in 1979 via the Burra Charter revised 1999, that was held in Australia. The involvement of cultural aspects contributes to restoring the identity of ancient people and the past that has formed them. To avoid destroying heritage-related physical evidence, the charter recommends a cautious approach[73] . The effective operation of protection is also attributed in this charter to the outstanding integration between the conservation and management of cultural heritage[74] .

In the 20th century, managing cultural heritage, and archaeological sites in particular has become quite significant. Managing cultural heritage was accepted and emphasized in the international conference The Conservation of Archaeological Sites in the Mediterranean Region, held by Getty Conservation Institution in May 1995. To avoid any negative or fortuitous consequences that may result from in situ unplanned decisions due to the lack of understanding of the site. The conference concluded that lack of management raises a very serious problem during the excavation

73 The Caution approach champions as much care as possible for the object to be usable; as little change as possible to retain the object's cultural significance

74 ICOMOS, 2000

process if there is no conservation plan for the site[75]. Because of this, the management aspect of Mechareus is very vital to establish an effective and comprehensive conservation strategy. In addition, to restoration, reconstruction, and preservation, the broader conservation operation also incorporates a management principle. Thus, various levels of preservation work and architectural intervention may result from conservation to preserve and present historic buildings and sites.

2.3.2 Level of Interventions at Archeological Sites

Conservation interventions are technical measures aimed at protecting, preserving, and presenting the cultural heritage values of these sites. These interventions encompass; the care of the ancient remains through appropriate techniques and methods of intervention, for their protection, conservation and restoration, and safe accessibility as well as understandable for a wider public through a stable design of the ground. In other words, architectural interventions on archaeological sites involve a comprehensive approach that balances preservation, accessibility, and presentation of cultural heritage values. The ICOMOS categorized the level of interventions on archeological sites[76] , as the following:

1. Regular maintenance: A fundamental principle of cultural heritage preservation, particularly for archaeological sites, is the implementation of daily simple and preventive procedures. These programs consist of systematically planned, non-invasive procedures intended to mitigate the potential deterioration of archaeological features. Such interventions are critical for preserving the physical integrity of archaeological remains, facilitating the interpretation of spatial and architectural patterns within the site, and establishing a

75 De la Torre. M, (1998)

76 Principles for the Conservation of Heritage Sites in China-2002

stable foundation for subsequent conservation treatments. By proactively addressing potential threats, regular maintenance demonstrably reduces the rate of deterioration, thereby extending the lifespan of these irreplaceable resources and ensuring their availability for future study and appreciation. «A *routine maintenance program should be established to carry out regular monitoring, to identify and eliminate potential threats, and to repair minor deterioration*»[77]. These actions include environmental management such as vegetation and drainage management, and structural stabilizations Using temporary supports or bracing to prevent the collapse of weakened walls until more extensive conservation can be undertaken.

2. *Physical protection and strengthening*: this measure aims to to protect the physical remains or minimize damage to a site or building without compromising the original materials or significantly altering the historical character of the surroundings. The concept is to create a physical structure (Protective shelter), that protects the ruins from natural threats and, at the same time, respects their character and original material. Therefore, any new protective structures should be simple, functional, and visually unobtrusive. Even when protective structures serve dual purposes, such as housing museums or interpretation centers, the primary focus should remain on safeguarding the heritage site itself. The shelter ranges from a simple structure to very advanced construction elements.

3. *Minor restoration:* this type of intervention measures works on promoting the archaeological ruins without any disturbance. This approach focuses on reconstructing these fragmented elements as much as possible, sometimes incorporating new materials. However, it's crucial to note that no new design features are added to the original structure.

77 Demas.M; Agnew.A,(2002)

Minor restoration is to reintegrate essential elements that enhance our overall understanding of the structure. This can involve restoring key features crucial for interpreting the building's history. It encourages the removal of later, unwanted additions, with careful documentation of each step to ensure transparency and maintain a record of the site's evolution. In essence, minor restoration strives to re-assemble the existing pieces while preserving the original design and historical significance of the structure.

4. *Major Restoration (Critical Restoration)*: This type of intervention represents the most significant alteration to a structure's original fabric, aiming to achieve long-term stability while respecting historical integrity. As noted earlier, it involves significant changes to return a structure to a stable condition. This approach incorporates new, contemporary elements, but only after a thorough understanding of the existing materials. New additions are intentionally designed to complement the original structure, ensuring a harmonious blend. This principle aligns with the main text's emphasis on using replacement elements consistent with the existing fabric. Furthermore, respect for historical stratification is paramount. Disassembling and replacing missing components requires extreme caution, aligning with the main text's emphasis on a cautious approach to complete disassembly and addressing all discovered issues.

5. *Reconstruction:* a sensitive intervention in archaeology, relies heavily on scientific evidence and direct data to re-create lost portions of a site. While controversial, it can be a valuable tool in specific circumstances. Reconstruction can illuminate the historical significance of archaeological remains, allowing us to better understand their original function and context. However, it should only be considered under exceptional circumstances. These include situations where the site faces imminent threats from humans or nature, such as war, earthquakes, floods, or vandalism. however,

Reconstruction, if not carefully planned and executed, can damage or alter fragile ruins, potentially causing irreversible harm. This potential for loss necessitates critical evaluation before embarking on any reconstruction project. This study emphasizes the importance of acknowledging these potential downsides, especially for archaeological sites where remains are often inherently delicate. In other words, Reconstruction can be a valuable tool in archaeology, but it demands extreme caution and an unwavering commitment to preserving the original site's integrity .

2.3.3 Conservation Approaches and Principles

This section outlines the suitable conservation approaches and principles that forms the foundation or the base of comprehensive in-site conservation for the MachaerusFortress-Palace. This will ensure the long-term preservation and effective presentation of the fortress's most significant cultural heritage values.

1. Interpretation, Presentation and Musealization of Archeological Sites:

Interpretation is an essential part of heritage conservation. It is the process whereby the meaning and significance of any object are explained and unveiled[78]. It involves selecting topics, developing themes, becoming a storyteller, and creating an attraction about something or somewhere. When cultural and/or natural heritage is considered, interpretation is about highlighting the significance of the place and shaping visitors' behavior. (Jordan Tourism Development in Petra Region, 2008). Freeman Tilden[79] defined interpretation as an educational activity that reveals meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to

78 Wall. I,(2004)

79 TILDEN.F and CRAIG,(2007: 33)

communicate factual information. According to Thompson[80], there are two main stages for interpretation; Primary interpretation; the first stage, results from interaction with the ruins to clearly establish their objectivity. This type concerns the specialist experts. The secondary interpretation[81]; works on transmitting the most valuable aspects of these facts to the audience, the public, and this concerns the public. The analyses resulted from archeoligical , historical, and urban documents are considered the primary interpretations, while the narrative establishment is the secondary interpretation.

Increasing public awareness usually emerges as a necessity in the protection process because archaeological sites, including fragile architectural remains, are open to damage resulting from human activities[82]. Consequently, Presentation follows interpretation as a tool for increasing public awareness in the field of cultural heritage and its conservation. Presenation is used to present or expose the archeological interpretations through highigting through exposing the valuable aspects of the ruins, and directing people's attention of the importance of protecting the ruins when highlighting a specific threat or erosion taking place on the site[83]. Tim Copeland put classification for the archaeological sites' presentation, in accordance with the interaction mood, into three main forms: enactive, iconic, and symbolic[84]. In case of Machaerus it is important to use the three types.

Considerable work has been undertaken on the design of shelters for in situ archaeological remains. Recent projects have demonstrated a more nuanced understanding of the

80 Thompson. M. W,(1981)
81 Teba.T.(2016)
82 Yurtsevenler.O.(2013)
83 Taylor. R,(2004)
84 Copeland.T,(2004)

need to balance interpretation and presentation with conservation performance[85] . Musealisation is a strategy by which the urban space is transformed and the past is reconstructed depending on the influence of cultural, social, and aesthetic aspects[86]. It is the method by which a specific and active relationship can be established between visitors and objects allowing to display the object from different perspectives which as a result promotes their understanding of its materiality and history.

Musealisation enables visitors to develop a strong appreciation for and relationship with the musealized object or space through the exposed narrative[87].The musicalization principle also plays a significant role in linking fragmented areas in any archaeological site especially when the conservation process requires linking routes between fragmented parts of the site. The principal strategic tool for designing and organizing the musealization of an archaeological site is a master plan[88].

The relationship between interpretation, presentation, and musealization is essential for the effective management of archaeological sites. Interpretation offers context and meaning; presentation brings the archaeological remains to life; and musealization creates a comprehensive experience for visitors. By strategically combining these approaches, we can enhance visitors' understanding, appreciation, and engagement with our archaeological heritage.

Given Machaerus' rich history and archaeological potential. A well-integrated approach to interpretation, presentation, and musealization along with selected conservation approaches to ensure understanding and visualization of the archaeological ruins and demonstrate their valuable si-

85 Williams.T,(2018)
86 Muller.M,(1999)
87 Teba.T,(2016)
88 Panosa.M,(2015)

gnificance and public accessibility (whether for pilgrims or not). Thereby revealing the site's invaluable historical and cultural significance.

2. Values-based Conservation Approach.

The value-based approach was first defined in the ICOMOS Australia Burra Charter which described conservation as « all the processes of looking after a place to retain its cultural significance»[89] . The concept was developed based on the revised Burra Charter principles[90] . It is also endorsed by publications from international conservation institutions like the Getty Conservation Institute[91]. The values-based approach has emerged as a crucial paradigm in protecting archaeological sites. Unlike traditional material-based approaches, which primarily focus on preserving physical structures. The values-based approach recognizes that a site's significance extends beyond its physical attributes, It encompasses the cultural, social, and economic values it holds for various stakeholders, advocating for an interdisciplinary approach to conservation[92]. This necessitates integrating different disciplines in the conservation process.

The value-based approach aims to retain the cultural significance of places, typically by balancing the aesthetic, historic, scientific, spiritual, and social values held by past, present, and future generations[93] . It also emphasizes not to cause damage causing any damage to the physical fabric[94].

The value-based approach focuses on preserving physical fabric and protects and presents the values attributed to this fabric[95]. Therefore, it is considered to be more effecti-

89 ICOMOS 1999, art. 1.4

90 (ICOMOS, 1987; ICOMOS, 2000),

91 De la Torre. M, (2005); Demas.M,(2002); Mason, R. & Avrami, E,(2000); Sullivan, S,(1998)

92 Olukoya, O. A, (2021)

93 This definition is best known through the influential Burra Charter (Australia ICOMOS 2013). The term "values" is used in the sense of positive qualities or attributes ascribed by stakeholders, and not in the sense of ethics or beliefs.

94 Poulios,.I,(2010)

95 Mason, R. & Avrami, E. (2000); Poulios,.I,(2010)

ve than other approaches as it prioritizes heritage values in a flexible and adaptable manner, and promotes a broader appreciation for diverse values, avoiding a narrow focus on specific types. The values-based approach can be applied to a wide range of cultural heritage sites, from small-scale to large-scale projects[96] . In the case of Machaerus fortress, which holds multidimensional significance, tangible and intangible, the value-based approach is a suitable choice and it can help to ensure that the conservation process is aligned with its significance and that the site's authenticity is maintained.

3. *Critical Conservation*

The critical conservation approach is a dynamic strategy that aims to preserve the cultural values of archaeological sites while also making them accessible and understandable to the public. It ensures a balance between preservation and intervention, with a focus on maintaining the authenticity and historical significance of the site. It also incorporates contemporary design concepts and materials with a comprehensive awareness of the original fabric and gives the architect the responsibility of prioritizing the ruins' cultural heritage and critically operating conservation and presentation measures. The key principles of critical conservation include:

a. Minimal intervention: Avoiding unnecessary alterations that could obscure the fortress's history and character.

b. Authenticity: Using original materials whenever possible and clearly distinguishing new additions from the original structure.

c. Compatibility: Ensuring that any new materials or interventions are compatible with the existing structure's physical, chemical, and aesthetic properties, to prevent damage

96 Derek Worthing and Stephen Bond assert in their book "Managing Built Heritage: The Role of Cultural Significance"

or disharmony.
d. Reversibility: Employing techniques and materials that allow for future modifications or corrections without compromising the original fabric.
e. Minimum intervention', 'compatibility' and 'reversibility' were accepted as the core principles for any intervention on tangible cultural heritage in Venice Charter in 1964[97].
f. Structural stabilization: Addressing immediate threats to the fortress's stability, such as erosion or structural weaknesses.
g. Preservation: Implementing measures to prevent further deterioration, including protecting the fortress from weather and human impact.
h. Material selection: Carefully choose materials for interventions that are compatible with the original structure and minimize future deterioration.
i. Anastylosis and Anasteloseis: Employing techniques to reassemble original elements and restore the fortress's appearance.

Principles of International Conventions

Machaerus Fortress, a significant archaeological site and sacred site in Jordan, presents a unique set of challenges and opportunities for its conservation. As a place of historical, religious, and cultural importance, Machaerus' conservation requires a thoughtful approach that balances preservation with accessibility and interpretation a thoughtful approach guided by internationally recognized principles. The Burra Charter, the Charter of Venice, and the Nara document offer a comprehensive framework for guiding the conservation of Machaerus. applying the principles outlined in the Burra Charter and the Nara document, we can develop a comprehensive and effective conservation plan for

97 ICOMOS 1964

Machaerus Fortress. This plan will not only protect the site's physical heritage but also ensure that its cultural and historical significance is conveyed to future generations.

1. *The Burra Charter (Context and Minimal Intervention)*

The Burra Charter's emphasis on understanding a site's cultural context is crucial for Machaerus. The fortress should not be treated in isolation but rather as an integral part of its surrounding landscape and history. This involves: its integration with the cultural context; through establishing connections between Machaerus and its surrounding environment. For instance; The hermit caves and Byzantine villages are essential for understanding the fortress's role within its broader regional context. By understanding the site's historical context, its relationship to the broader region, and its historical significance, we can develop a conservation plan that is both respectful and effective.

Moreover, Respecting the (Cautionary Approach); All interventions should prioritize minimal impact and the utmost respect for the fortress's original fabric. However, ensuring minimal impact doesn't preclude creative interventions. Similarly, the critical conservation approach ensures high appreciation of and respect for the original fabric when any reconstruction or restoration works take place (ICOMOS, 2000). This means prioritizing non-invasive documentation techniques, using compatible materials for any necessary repairs, and carefully evaluating the potential impact of any proposed reconstruction. For example, instead of full-scale rebuilding, consider using stabilized ruins, partial reconstructions, or even augmented reality to convey the fortress's former grandeur without compromising its authenticity. This approach will not only protect the site's physical heritage but also ensure that its cultural and historical significance is conveyed to future generations.

2. *The Venice Charter:*

Guiding Principles for Preservation and Restoration Alon-

gside the Burra Charter, the Venice Charter provides essential guidance for the physical interventions at Machaerus. The Charter's emphasis on preserving existing fabric aligns with the cautionary approach advocated by the Burra Charter. At Machaerus, this translates to prioritizing the stabilization and conservation of existing structures. Any restoration will be carefully considered, justified by thorough documentation, and executed in a way that clearly distinguishes new from old. This ensures that the historical integrity of Machaerus is maintained while allowing for necessary interventions to safeguard its long-term preservation.

3. The Nara Document: (Authenticity and Cultural Values)

The Nara document focuses on authenticity, ensuring that any interventions align with the site's original character (ICOMOS, 1994; Lemaire and Stovel, 1994)[98]. It provides further guidance for interventions at Machaerus. this involves the Values-Based Conservation as the core cultural values of Machaerus Fortrees-Palace are defined through a detailed analysis of the Fortress's archeology, architecture, and written resources. Based on that, and focusing on the excavated physical features as the primary source of information, we can ensure that any interventions are aligned with the site's original character. These values will then guide all conservation decisions, ensuring that any interventions are aligned with the site's original character and significance. in addition to balancing Interpretation and Authenticity, while the ruined fabric of Machaerus should be protected, creative interventions can also play a valuable role in enhancing the visitor experience. However, these interventions must be carefully considered and evaluated to ensure that they do not compromise the site's integrity. Limited and well-researched reconstruction of specific elements, such

98 (ICOMOS, (1994); Lemaire.R. and Stove.H,(1994)

as a section of the wall or a guard tower, can aid visitor understanding without overwhelming the existing ruins. Moreover, Utilizing VR technology can offer immersive and engaging reconstructions of the fortress at its peak, allowing visitors to experience its former glory without physical intervention.

2.4 Jordan in Context: A Critical View of National Cultural Heritage Conservation Strategies for Archaeological Sites

Jordan has demonstrated a long-standing commitment to the protection and management of its rich cultural heritage. Several institutions play a role in safeguarding this legacy, with the "*Department of Antiquities* "DoA"", established in 1988, serving as the primary governmental authority responsible for the protection, registration, and identification of heritage sites, as well as the implementation of archaeological policy[99]. It contributes to providing a legal framework for safeguarding this valued legacy of the past.

The Antiquities Law[100] , provides a legal framework, defining "Antiquity" as «Any movable or immovable object which was made, written, inscribed, built, discovered or modified by a human being before the year AD 1750 including caves, sculpture, coins, pottery, manuscripts and other kinds of manufactured products which indicate the beginning and development of science, arts, handicrafts, religions, traditions of previous civilizations, or any part added to that thing or rebuilt after that date» , and *"Antiquity site" as «Any area in the Kingdom that was considered a historic site under former laws»*[101] .

However, this legal framework, while foundational, presents certain limitations:

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99 Al-Qaatarneh.M,(2013)

100 Law No. 21 of 1988 -amended in 2004-

101 Department of Atniquities of Jordan (DoA),(2004).

1. Strengths and Shortcomings of Existing Frameworks; This limited definition fails to encompass the full range of cultural heritage that should be protected, particularly intangible aspects and cultural landscapes like ancient roads, that contribute to the cultural identity of Jordan. In other words, the former laws lack precision and does not provide clear criteria for the identification and protection of such sites. This could be seen as a limitation in terms of legal clarity and the application of heritage conservation measures. "The DoA" has a poor concept of heritage that focuses on archeological monuments excluding the other nonmaterial component"[102]

The Department of Antiquities "DoA" has launched initiatives such as the Jordanian National Agenda for Antiquities, aimed at aligning with international standards and conventions. However, these efforts have not yet led to comprehensive national policies and strategies for coordinated conservation and management. The agenda mainly focuses on issues of ownership of antiquities and guidelines for excavation, but the implementation and enforcement of these measures remain inconsistent.This inconsistency is reflected in the varying levels of management and protection provided to different archaeological sites. For instance, well-known sites like Petra, Jerash, Ajloun Fortress, and Bethany Beyond the Jordan are well-documented, secured with fencing, and subject to restrictions for visitors. In contrast, other sites, such as the Hellenistic temple of Iraq al-Amir, Qusair Amra, and Machaerus Fortress, are open to the public with minimal supervision.

The current framework fails to recognize the important role that cultural routes play in heritage conservation. Jordan is home to numerous ancient routes and trails, including religious paths like the Ebsus pilgrimage route, histo-

102 Ababneh.A,(2015)

rical roads such as the King's Highway, and segments of the Silk Road that were used for trade. Despite their cultural and historical significance, these routes lack official definitions, planning principles, identification, and management strategies within the Jordanian national agenda. This gap highlights a significant oversight in the existing approach to heritage management. Additionally, the spiritual and religious values associated with sacred sites are often neglected.

The spiritual- religus values is overlooked in the conservation and management practices. This oversight in the conservation and management practices of the sacred sites in Jordan not only neglects their spiritual and religious significance but also fails to recognize their potential as cultural heritage assets. It is crucial to develop a comprehensive approach that incorporates both the preservation of these sites' spiritual values and their sustainable management for future generations to appreciate and benefit from.

2. Fragmented Policies and the Need for a Unified Framework; The fragmented and incomplete nature of policies and legislation governing heritage conservation in Jordan increases the challenges faced in this area. Although the country has ratified the "UNESCO" World Heritage Convention, the adopted policies and legislation in Jordan limit effective implementation and contribute to inconsistencies in the conservation process. These fragmented policies and actions are inadequate to address the complex challenges associated with preserving Jordan's cultural heritage, which includes archaeological sites, historical monuments, and intangible traditions. While it is true that Jordan has made significant strides in preserving its cultural heritage, visible signs of deterioration remain in historic areas, as vividly illustrated by Machaerus Fortress.

Critics may argue that these signs of deterioration are evidence that the current conservation efforts are insufficient. However, it is important to note that the challenges faced

by heritage conservation in Jordan are multifaceted and require a comprehensive and inclusive strategy. « the success of conservation of historical sites in Jordan is challenged by the absence of a defined mechanism for conservation and the lack of an infrastructure that supports conservation practice »[103] . By implementing a unified framework for conservation and addressing the shortcomings of the current policy and legislation, Jordan can ensure the effective preservation of its cultural heritage. Therefore, an urgent need for a comprehensive and inclusive conservation national strategy that address the multifaceted challenges posed by the preservation of Jordan's tangible and intangible cultural heritage within its historical context and cultural landscape. The need for stronger integration of cultural heritage issues into Jordan's national strategic plan is crucial[104]. Such integration would provide a holistic framework for heritage conservation, ensuring that cultural assets are prioritized and protected alongside other national priorities.

In recent years, Jordan has witnessed collaborative efforts between the "DoA", non-governmental organizations "NGOs", and international partners have proven instrumental in protecting and preserving Jordan's archaeological treasures, and the establishment of academic programs related to cultural heritage, largely focusing on the management, conservation, and restoration of tangible cultural heritage. While these initiatives contribute to heritage preservation expertise, a more comprehensive approach is required to address the multifaceted challenges facing Jordan's cultural heritage.

In conclusion, while Jordan has made significant strides in preserving its cultural heritage, the current fragmented approaches and incomplete policies and legislation limit the

103 Daher.R,(1996)

104 Bermamet,T,(2018)

effectiveness of conservation efforts and hinder the comprehensive development and appreciation of Jordan's cultural heritage. To address these challenges, there is an urgent need for a comprehensive and inclusive conservation national strategy that encompasses strategic planning, a unified framework for conservation and sustainable management, and clear guidelines for international partnerships. By prioritizing the protection of cultural assets alongside other national priorities, Jordan can ensure the lasting legacy of its cultural heritage.

2.5 Conceptual Conservation of MAchaerus Fortress.

The conservation of archaeological sites presents a significant challenge due to their inherent complexity. Archaeological sites are not merely collections of physical objects but rather multifaceted entities embodying historical, cultural, architectural, and social dimensions. They are interconnected and not isolated entities; their location, function, and significance are deeply intertwined with the surrounding context—the natural and built environment that reflects past human activity and interaction with the land. This interconnectedness necessitates conservation strategies and approaches that extend beyond the site's physical boundaries. Scholars have argued for a more holistic understanding of historical sites, emphasizing that they cannot be fully understood without considering their connections within natural and cultural environments. Therefore, it is crucial to move beyond the physical remains of archaeological sites to understand their broader cultural, historical, and social significance. This understanding is essential for developing effective conservation strategies that preserve the true value of these sites.

Machaerus Fortress, as both a historical and religious site, requires careful preservation. It is not only a historical site but also a sacred site that needs to be interpreted, pre-

sented, and conserved thoughtfully. A purely material-focused conservation approach is insufficient to preserve Machaerus Fortress given its complex historical, spiritual, and cultural dimensions. Thus, a more comprehensive vision is required to honor its role in regional religious history while preserving its physical structure. The proposed conservation vision integrates physical preservation at the site level with regional analysis, focusing on it historical connection and ancient roads.

As confirmed by international institutions previously, cultural routes serve as dynamic connectors of places, peoples, and traditions, reflecting the historical, spiritual, and cultural exchanges that have occurred over time. In the context of the Machaerus Fortress, cultural routes will not only preserve the physical linkages between historical sites but also provide visitors with a pathway to engage with the region's rich religious and cultural heritage.

A two-level, conservation of Machaerus Fortress; In situ conservation level, focuses on physically preserving the fortress. employing a multidisciplinary approach that integrates historical, archaeological, religious, and architectural analysis, supplemented by direct observation of the site's current condition . This will act as a foundational phase of conservation process , it will define the site's cultural significance and inform subsequent conservation, interpretation, and presentation strategies. Addressing identified knowledge gaps will be crucial for prioritizing conservation interventions. At the regional level, this study goes beyond the fortress itself to explore the historical connections within the broader cultural landscape. This involves analyzing ancient roads, surrounding monuments, settlements, and the natural environment to understand the fortress's role within its regional context. This analysis will inform the development of a cultural route, specifically a pilgrimage route, connecting Machaerus with other significant religious and

historical sites such as Mount Nebo and Al-Maghtas. Recognizing that roads, settlements, and natural features contribute to the historical narrative and meaning of the site.

The proposed pilgrimage route aims to enrich visitors' spiritual experiences by helping them uncover the deeper historical and religious meanings of these sites. Importantly, this comprehensive approach ensures that the findings from the landscape analysis—including the pilgrimage route and its features—will directly inform conservation decisions at the site level. Understanding historical movement patterns and visual connections identified in the landscape study will guide the prioritization of conservation actions, visitor facilities, and interpretive strategies at the fortress. This way, the conservation efforts for Machaerus Fortress will not be done in isolation but will be thoughtfully integrated into its vibrant cultural surroundings. This conceptual framework guarantees a cohesive approach to conserving Machaerus Fortress within the broader cultural context.
Critically, the findings from the regional analysis, including the identified pilgrimage route and its associated features, will directly inform conservation decisions at the in situ level. For example, understanding historical movement patterns and visual connections identified in the landscape study will guide the prioritization of conservation actions, visitor facilities, and interpretive strategies at the fortress. This feedback loop ensures that the conservation of Machaerus is not an isolated endeavor but is thoughtfully integrated into its dynamic cultural landscape.

METHODOLOGY

3.1 Introduction

This chapter outlines the methodological approach used to investigate the development of an integrated conservation framework for the Machaerus Fortress and a pilgrimage route that connects the site to other related pilgrimage sites. It clearly explains the research philosophy, design, data collection methods, analysis techniques, and the study's limitations, ensuring they align with the research aims and objectives. The study is informed by relevant theoretical frameworks, including heritage conservation theories, pilgrimage studies, and spatial analysis methodologies, which provide a theoretical foundation for understanding the potential for developing comprehensive conservation strategies for the Machaerus Fortress.

3.2 Research Philosophy

Research philosophy represents the fundamental beliefs that guide the design and execution of a research study, influencing how data is collected, analyzed, and interpreted. Two primary research philosophies have been identified; positivist (sometimes called scientific), and interpretivism (also known as antipositivist[105]) . According to Howell[106], positivism is rooted in empiricist, which believes the truth of theories must be verified empirically. Positivists assume that reality is stable and can be observed and described objectively[107]. Positivists consider that the findings of the studies can be generalized to similar situations and environments. This guides the researcher to draw universal laws and conclusions based on repeated statistical results and generalizations[108]. However, given the nature of this study, which explores complex cultural and historical phenomena,

105 Galliers. R. (1991)
106 Howell.K. E. (2013)
107 Levin.D.(2008)
108Junjie.M & Yingxin.M (2022)

a purely objective, positivist approach is not appropriate. In contrast, post-positivism or (interpretivism) emphasizes the subjective nature of human experience and the significance of understanding meaning and interpretation. Interpretivism emphasizes the importance of understanding phenomena within their specific contexts, enabling a nuanced understanding of the site's significance and the challenges associated with its conservation. It believes that value- and theory-neutral facts do not exist and that the way people regard objects determines the nature of objects[109]. It recognizes that reality is socially constructed and can be understood through participant interaction[110] . In other words, only through the subjective interpretation of and intervention, in reality, can that reality be fully understood. This paradigm motivates researchers to seek experience and to consider different interpretations of particular social contexts to gain further depth[111] . Unlike positivism, interpretivists focus on adding richness to the data collected[112] .

Site conservation is a complex process that necessitates balancing preservation with accessibility and use. Since the current research seeks to develop an effective and integrated conservation framework for the Mahaerus Fortress, interpretivism aligns well with the research goals of understanding the complexities of site conservation. Therefore, interpretivism is particularly suited for this research because Machaerus Fortress is embedded in a rich historical, cultural, and religious context, and interpretivism can help to understand the different perspectives of stakeholders involved in site conservation. By understanding the diverse perspectives, it is possible to develop more effective and sustainable conservation strategies.

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109 Weber, M., & Henderson, (2012)

110 Saunders. M. (2004). Lewis, P.-Thornhill, A.,(2009)

111 Chen. A. (2001)

112 Al-Riyami. T. (2015)

Given the interpretivist philosophy, a qualitative research paradigm is most appropriate for this study. The qualitative paradigm prioritizes in-depth exploration and analysis of subjective experiences and interpretations, allowing for a rich and nuanced understanding of the complexities surrounding the Machaerus Fortress, pilgrimage, and site conservation. Key characteristics of the qualitative paradigm that align with this research include subjectivity, contextuality, holism, and flexibility. Qualitative research recognizes the subjective nature of human experience and avoids imposing predetermined categories or interpretations. It emphasizes the importance of understanding phenomena within their specific historical, cultural, and social contexts.

Qualitative research seeks to understand the whole picture rather than focusing on isolated variables. Finally, qualitative research allows for flexibility and adaptability as the research process unfolds. In conclusion, adopting an interpretive philosophy and a qualitative paradigm, to explore the complexities of the Machaerus Fortress, specifically focusing on its conservation efforts. The research seeks to provide a comprehensive understanding of the site's conservation challenges and strategies. This approach will provide a deeper understanding of the site's significance, the challenges associated with its conservation, and the potential for pilgrimage development.

3.3 Research Design and Rationale

Aligned with the interpretivist philosophy and research aims, this study employs a qualitative research design. Qualitative research focuses on understanding human experiences, meanings, and interpretations through in-depth exploration and analysis of data, enabling a comprehensive understanding of the subjective experiences and interpretations associated with the Machaerus Fortress, pilgrimage, and site conservation. Furthermore, qualitative research

emphasizes the importance of contextual understanding, which is crucial for understanding the significance of the Machaerus Fortress and the challenges associated with its conservation. Additionally, qualitative research focuses on understanding how individuals construct meaning and derive significance from their experiences, which is essential for understanding the motivations and experiences of pilgrims and stakeholders involved in site conservation.

Based on the research paradgin discussed previously, A case study research design- strategy is employed to investigate the Machaerus Fortress and its associated historical-ancient routes. Case studies are in-depth explorations of specific cases or phenomena, allowing for a detailed and nuanced understanding[113] . Yin defines a case study as «an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not evident; and in which multiple sources of evidence are used»[114].

The case study design is suitable for this research as it provides opportunities for in-depth exploration of the complex issues surrounding Machaerus Fortress and site conservation. Furthermore, case study suggests the ecessitates the use of multiple sources of evidence, including primary and secondary data, to make sense of the collected data regarding the context and to break down the complexity of the phenomenon under investigation[115].

3.4 Data Collection and Analysis Methods

Data collection involves various techniques for gathering information to answer research questions or test hypotheses. This research employs a triangulation of data collection

113 Benbasat, I., Goldstein, D. K., & Mead, M. (1987)

114 Yin, R. K. (2014)

115 MacCallum et al., 2019)

methods, combining secondary and primary data sources to enhance the validity and reliability of findings. The Secondary data collection involved archival research, historical documents including ancient maps, photographs, traveler accounts, pilgrimage itineraries, religious texts, land ownership records, and published and unpublished archaeological reports on Machaerus and its surroundings (including artifact analysis, site plans, and excavation summaries).

This data were used to reconstruct the historical context of Machaerus, trace its development over time, and establish its connections to other significant sites in the region. The primary data field surveys and personal observations, conducted during repeated visits to Machaerus Fortress-Palace between 2022 and 2024. A structured field survey protocol was followed including recording the location and condition of key architectural features, and taking panoramic photographs. Observations focused on the current state of conservation of the site, documenting any signs of deterioration, erosion, structural damage, or damage caused by environmental factors (e.g., weathering, vegetation growth) or human activity (e.g., vandalism, uncontrolled tourism).

A detailed condition assessment was conducted, employing a systematic evaluation of the site's architectural elements. This assessment examined the material condition of walls (e.g., cracking, spalling, mortar deterioration), floors (e.g., erosion, missing tiles), structural integrity (e.g., stability of walls and columns), and other relevant features. This assessment identified specific areas of deterioration, prioritized conservation needs, and pinpointed potential threats to the site's long-term preservation.

Spatial analysis is a key component of this dissertation, employing GIS software (ArcGIS Pro) to create a digital map of the Machaerus region, integrating archaeological data, historical maps (including pilgrimage routes), and en-

vironmental features. Spatial analysis tools is used to analyze the spatial relationships between Machaerus and other sites, identify potential pilgrimage routes based on historical itineraries and landscape characteristics, and visualize the site within its broader geographical context.

To provide a comprehensive and insightful understanding of Machaerus Fortress and its conservation potential, this research employs content and narrative analysis for the qualitative data. The qualitative data related to historical-ancient routes were integrated with spatial data derived from satellite imagery, using GIS software. This integration enabled the study to identify potential historical pilgrimage routes based on geographical features, archaeological evidence, and historical accounts, to understand the spatial relationships between historical routes, Machaerus Fortress, and other significant sites in the region. Consequently, this analysis informs the development of proposed pilgrimage routes, ensuring that they align with historical and cultural significance while considering contemporary factors such as accessibility and sustainability.

Data collection method		Type of Data	Analytic Techniques	Purpose
Case Study Data Collection	Document analysis	Secondary	Qualitative (Content Analysis of Historical Records and Reports)	Understand the historical context of Machaerus, including its occupation phases, architectural development, and patterns of use, to inform conservation decisions.
	Field Observation	Primary	Qualitative (Observation of Architectural Elements, Site Conditions, and Environmental Factors	Assess the current condition of Machaerus's architectural elements, documenting deterioration patterns and potential threats to structural integrity to prioritize conservation interventions.
	Spaitail Analysis	Primary	Quantitative (GIS analysi using ArcGIS Pro, incorporating topographic data, satellite imagery, and historical maps)	Understand the spatial relationships between Machaerus, pilgrimage routes, and other significant sites to analyze the site's role within the broader cultural landscape and inform the development of pilgrimage route itineraries
Reference CasesCultural routes Archeological sites		Secondary	Qualitative (Content analysis. Comparative Analysis	~~Id~~entify practices in the conservation of similar archaeological sites to inform the development of a contextually appropriate conservation strategy for Machaerus.

Table 3.01
Summary of Data Collection and Analysis Methods

3.4 Limitation

Several factors constrained the scope of this research. Notably, limited access to certain primary sources and the challenges associated with interpreting historical data posed significant limitations. Furthermore, resource constraints impacted the depth and breadth of fieldwork, potentially affecting the comprehensiveness of the analysis.

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: Date of Recording:

Description	
Photographic Documentation	
Material(s)	
Type of Deterioration	**Structural:** **Material:** **Surface:**
Potential Causes	**Natural:** **Human-Induced:**
Impact on Cultural Values	**Minor:** Superficial damage, not affecting structural integrity. **Moderate:** Noticeable damage, potentially affecting structural stability in the long term. **Severe:** Significant damage, posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Recommended Action	
Additional Notes/Observations:	

Figure 3.01:
Details condition recording form used in the filed servey.
Source: The Reseracher 2022-202

ARCHEOLOGICAL SITES AND CULTURAL ROUTES: REFRENCE CASE REVIWE AND ANALYSIS

4.1 Introduction

This chapter presents a review and analysis of reference cases for cultural routes and the conservation of archeological sites locally, regionally and internationally. Using reference cases allows for a broader comparative analysis of multiple examples, which aligns with the research aims of identifying general trends and principles across various contexts. It also offers greater flexibility by focusing on specific, relevant aspects of each case, making it more efficient than an in-depth examination of a single instance. Additionally, reference cases help to support generalization, providing a wider scope of evidence to strengthen the applicability of findings across diverse scenarios. Thereby enhancing the overall robustness and generalizability of the research. By examining international and national reference cases, we can identify critical success factors and derive insights for developing a comprehensive heritage management plan for the Machaerus region.

4.2 Case Studies Selection Criteria

The following criteria were systematically employed to select reference cases representing a diverse range of cultural routes:

1.*Historical Significance*: Routes exhibiting significant historical or cultural value comparable to the Machaerus region were prioritized. This ensures the selected cases offer relevant insights into the complexities of managing historically significant sites.

2. *Route Development:* Cases with a demonstrated history of successful development and implementation were chosen. This focus on proven success provides practical, applicable lessons for route design.

3. *Heritage Conservation*: Routes showcasing effective cultural heritage preservation and promotion strategies were selected. This criterion highlights best practices in safe-

guarding heritage assets within the context of route development.

Beyond the primary selection criteria, several additional variables were considered to ensure a comprehensive analysis:

a. Narrative-Theme: The underlying narrative or concept driving the route's design. A compelling narrative can significantly enhance visitor engagement and understanding.
b. Function: The primary purpose of the route (e.g., tourism, education, pilgrimage). Understanding the route's function informs design choices and target audience considerations.
c.Context: Whether the route follows an established historical path or represents a newly created trajectory. This distinction highlights the challenges and opportunities inherent in each approach.
d. Route Shape and Structure: The physical layout and organization of the route, considering factors such as linearity, circularity, or networked pathways. The route's structure influences visitor flow and experience.
e. Content: The types of heritage featured along the route (e.g., archaeological sites, natural landscapes, intangible cultural practices). Content diversity adds richness and depth to the visitor experience.
f. Mode of Travel: The intended means of traversing the route (e.g., walking, cycling, driving). The mode of travel shapes the pace and character of the journey.
g. Historical Focus: The specific historical period, cultural theme, or type of heritage emphasized by the route. A clear historical focus provides interpretive coherence and depth.

Each case study is analyzed through the lens of a successful route design, focusing on; Heritage Conservation; The extent to which the route protects and preserves cultural and natural heritage. Historical Interpretation; The effectiveness of the route in communicating the historical and cultural significance of sites.

Reference cases of Archaeological Sites were chosen for their shared similarities with Machaerus. By examining conservation interventions, outcomes, and lessons learned, we aim to provide valuable insights for developing a robust conservation strategy for the Machaerus Fortress and other archaeological sites along the proposed cultural route. The criteria used for case selections are the following:

1. *Geographical Location:* The sites are located in regions with similar geographical contexts to the Machaerus region.

2. *Shared Site Typologies*: The sites share similar characteristics with the Machaerus Fortress.

3. *Diversity of Threats and Interventions*: The case studies encompass a range of threats and showcase diverse conservation interventions.

By grounding the selection of reference cases in these criteria, we aim to provide an insightful comparative analysis that yields valuable lessons for the development of a culturally sensitive, sustainable, and historically enriching heritage management plan for the Machaerus region.

4.3 Cultural Routes and Archeological Sites: Reference Cases

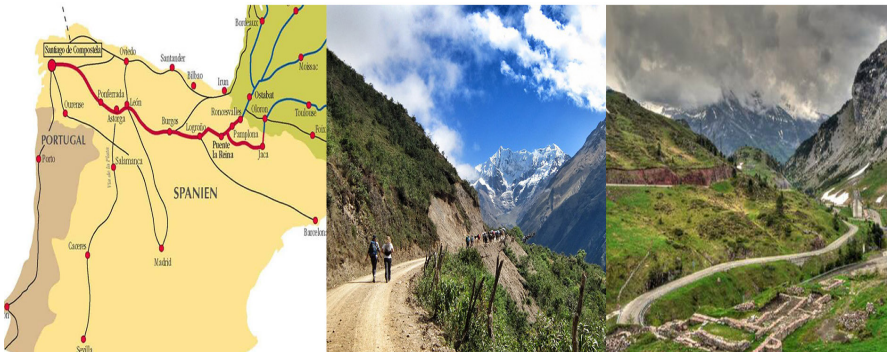
A. Cultural Routes

The Camino de Santiago (Spain) which is also called the (Way of St. James), is a network of four pilgrimage routes extended from the Route of Santiago de Compostela in northern Spain. This ancient route, which dates to the 9th Century -over 1000 years- is still very popular with traditional roman catholic pilgrims who travel to Santiago to demonstrate their faith. The route network to Santiago passes by several built heritage of historical importance created to meet the needs of pilgrims, including cathedrals, churches, hospitals, hostels, and even bridges. The Camino de Santiago was inscribed in the UNESCO World Heritage Sites in1993[116], that

116 https://whc.unesco.org/en/list/669/

contributed to the conservation process. Along the Camino Many historic buildings, churches, and monasteries along the route have been restored and adapted for pilgrim accommodation, ensuring their long-term preservation. Numerous Romanesque churches along the Camino have been restored after being threatened by neglect. The Camino has fostered a profound appreciation for the natural environment, prompting the creation of green spaces that harmonize with the region's historic character.

Figura 4.01.
camino di santiago comopsella.
Source: Google image appropriated and modified by the reserarcher



Anoher important hallowed path etched into the heart of Europe is The Via Francigena (Italy-France-England). This historic route whose origin dates to the early Middle Ages connects several European cities (linking the Cathedral of Canterbury, England with Rome), brings together people from different backgrounds, and invites travelers to walk in the footsteps of countless pilgrims who, centuries ago, sought spiritual solace and renewal. Along its path, ancient abbeys, Romanesque churches, and medieval towns stand as silent sentinels of the past, whispering tales of faith, commerce, and human resilience. Rediscovering this ancient path has played a pivotal role in revitalizing countless cultural and natural heritage sites such as historic towns and villages. The restoration of the Romanesque churches serves as both spiritual and architectural landmarks, the Via Francigena has not only preserved physical structures but also intangible cultural heritage, such as traditions, customs, and local dialects.



Figura 4.02
The Via Francigena
Source: Google image appropriated and modified by the reserarcher

St. Paul Trail is a prominent pilgrimage route in Turkey that offers a unique blend of historical, religious, and cultural experiences. Unlike the ancient pilgrimage paths mentioned before, the St. Paul Trail was developed in 2008, it was a carefully designed route, aiming to offer modern pilgrims a unique blend of history, culture, and natural beauty. While not following an established historical pilgrimage route, the trail leverages the region's rich history and religious significance. It passes through numerous Roman and Byzantine ruins, offering pilgrims a tangible connection to the past. The trail also showcases the diverse natural beauty of Turkey, from coastal plains to rugged mountains. Following in the footsteps of the Apostle Paul, this trail passes by key biblical sites, offering pilgrims a deep connection to Christian history. The St. Paul Trail has contributed significantly to conserving historical sites and promoting cultural heritage. Some examples include the restoration of ancient churches along the trail and the preservation of archaeological sites associated with St. Paul's life and ministry. In terms of the connection between pilgrimage and heritage conservation, the St. Paul Trail serves as a model for other regions seeking to protect their cultural heritage.



Figura 4.03

The St. Paul Trail
Source: Google image appropriated and modified by the reserarcher

The Via Egnatia, was an ancient roman road stretching from the Adriatic Sea to Byzantium (modern-day Istanbul). This route, which dates back to the 2nd century BCE, was a vital corridor of commerce, military movement, and cultural exchange between Rome and its eastern provinces. Today, parts of the Via Egnatia are being revived as a modern cultural and pilgrimage route. Along the route, there are numerous Roman and Byzantine ruins, early Christian churches, and significant archaeological sites. The revival of this road as a pilgrimage path has supported efforts to conserve these historical monuments and encourage sustainable tourism. The route also provides a tangible link to the shared history and heritage of the Balkans and the Eastern Mediterranean.



Figura 4.04
The Via Egnatia
Source: Google image appropriated and modified by the reserarcher

Ibrahim Al-Khalil Path in Palestine is a remarkable cultural route established in 2007, inspired by the journey of Abraham, a figure believed to have lived during the Bronze Age. This route stands as a beacon for cultural road development in the Middle East, uniting significant elements, sites, landmarks, and cities connected to the journey of Abraham and his family. In 2014, it was honored as the best cultural route, showcasing the beautiful integration of historical and natural components with vibrant social and cultural exchanges. Along this inspiring path, travelers can encounter the fourth oldest Byzantine church, a testament to the rich heritage preserved along the way.

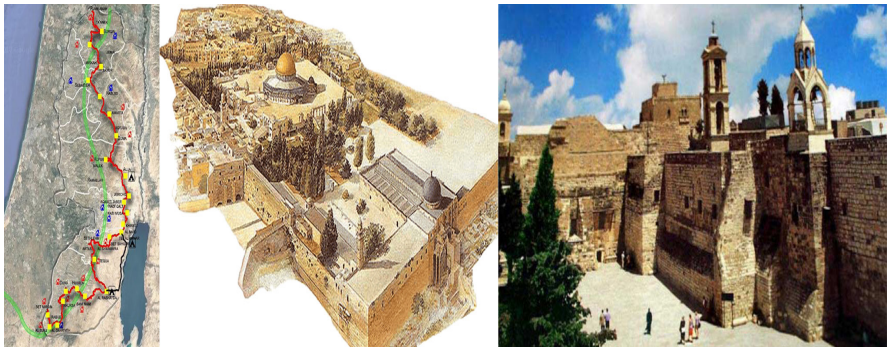


Figura 4.05
Ibrahim Al-Khalil Path in Palestine
Source: Google image appropriated and modified by the reserarcherx

In Jordan, the concept of cultural routes is not officially considered enough, the number of documented routes are quite limited. The Jordan Trail is a remarkable modern hiking route established in 2015. It stretches over 650 kilometers, starting from the north of Jordan near Um Qais and ending at the stunning Red Sea in Aqaba to the south. Although it is not an ancient pilgrimage route, the trail beautifully retraces many historical paths, weaving together the country's rich history and breathtaking landscapes. Along the way, the Jordan Trail passes numerous historical and biblical sites, including the magnificent Petra, the awe-inspiring Wadi Rum, and the serene Dana Biospe Reserve. The trail embodies the spirit of heritage conservation and rural development, encouraging local communities to cherish their traditions and protect the natural beauty around them. Furthermore, the Jordan Trail highlights the profound cultural and religious significance of the country's landscape, creating connections to revered prophets and historical figures from the Bible, such as Moses and Elijah.



Figura 4.06

The King's highway -Jordan
Source: oogle image appropriated and modified by the reserarcher

Another improtant ancient road is Esbus Roman Road (Jordan- Palestine): this Roman road connected Jerusalem, Jericho, Livias, and Esbus, thus linking the road system of Palestine with the famous north-south uia nova of Trajan in the Roman province of Arabia, east of the Jordan[117] . The Road was later repurposed as a pilgrimage route between Mount Nebo and Jerusalem, providing early Christian pilgrims with a direct path to the Promised Land. The road traverses key historical sites, including Madaba and Esbus (modern-day Hesban), where significant religious and cultural landmarks are located. The preservation of this ancient route has been key in conserving its surrounding historical monuments, including Roman ruins and early Christian churches. The road's path has likely guided archaeological investigations, potentially uncovering new sites and informing conservation priorities.



Figura 4.07
Then ancient roman Via Esbus,
Source: Google image appropriated and modified by the reserarcher

Drawing upon that, Cultural routes have played as a pivotal strategy for preserving and promoting cultural heritage in the contemporary landscape. These interconnected pathways, often linking historical sites or places of cultural significance, offer a distinctive approach to heritage conservation that transcends traditional preservation methods. By connecting diverse cultural elements, cultural routes can foster the sites' and places' cultural, and historical value. Consquelty, Pilgrimage routes act as powerful tools for pre-

117 WATERHOUSE & ROBERT IBACH,(1889)

serving cultural heritage. The review showcases how these routes spurred restoration efforts for historical landmarks like churches, monasteries, and ancient towns (Camino de Santiago, Via Francigena, St. Paul Trail, Esbus Roman Road). The reference cases showcase various experiences in developing cultural routes, illustrating that there is no single, definitive process or set of guidelines for this development. The most crucial aspect is to reflect a historical theme. The developed routes primarily followed historical themes, such as military, trade, religious, or cultural exchange. They included natural and man-made elements and contributed to enhancing the historical, cultural, and significance, some of the developed pilgrimage trails followed not only religious themes but also natural, and historical ones, and contained contemporary elements, such as villages and towns. On the other hand, Cultural routes have contributed to the conservation of historical sites and created strong connections between the landmarks along the routes. Modern-designed routes can create unique blends of history, culture, and natural beauty, like the St. Paul Trail, which utilizes the region's rich history and offers a connection to the past.

	Route's Name	Narrative-Theme Function	Context		Route Shape and Structure	Content			Mode of travel
			Ancient-Historical	Newly created Route		Historical elements	Contemporary elements	Natural elements	
1	**The Camino de Santiago (Spain)** ★	Religious, spiritual, cultural Religious pilgrimage to the shrine of the Apostle Saint James in Santiago de Compostela, Spain. .	An ancient- historical		Linear-well-established network of paths and trails	Historical elements (medieval towns, churches, and landmarks natural landscapes, including mountains, forests, and plains			Walking
2	**The Via Francigena (Italy-France-England)** ★★	Religious, cultural, historical The religious pilgrimage route to Rome, Italy.	An ancient-historical (early Middle Ages)		Linear-well-established network of paths and trails	Historical elements: Roman roads, medieval bridges, and ancient churches Natural elements: The route passes through diverse landscapes, such as mountains, valleys, and coastal areas			Walking, cycling
3	**The St. Paul Trail (Turkey)** ★	Religious, cultural, historical Following in the footsteps of Saint Paul		Newly created route linking footsteps of Saint Paul	Linear-well-established network of paths and trails	Historical elements (Roman and Byzantine ruins), cultural elements (local customs and traditions), natural elements (diverse landscapes)			Walking, cycling
4	**The Via Egnatia (Balkans, Greece, Turkey).** ★ ★★	Cultural, historical (trade-military road), Ancient Roman road, revitalized as a pilgrimage route	Ancient -Historical. (Roman road)- newly developed as a pilgrimage and cultural route.		Linear-well-established network of paths and trails	Historical Elements: Roma settlements, bridges.			
5	**Abraham Path (Middle East).** ★★	A walking - cultural road following in the footsteps of Abraham	A newly developed route with deep historical roots, connecting sites associated with Abraham's life.		Linear-well-established network of paths and trails	Historical elements: Historic sites and towns Natural elements: mountains, deserts, and valleys.			Walking
6	**The Jordan Trail- king's highway (Jordan)** ★★	A hiking Trail that connects major archaeological and cultural heritage sites, and landscapes.	A newly developed route, based on ancient routes		Linear-well-established network of paths and trails	Historical elements: historical sites, including ancient Roman ruins, Byzantine churches, Islamic mosque, Petra and Jerash, Contemporary element: The trail offers opportunities to experience Bedouin culture, including traditional hospitality, music, and dance. Natural elements: mountains, deserts, wadis (valleys), and forests.			Walking, cycling
7	**Ebsus Road Jrdan** ★ ★★	Historical trade road. (Jericho-Livias-Esbus route), now a pilgrimage route that connects to significant biblical sites.	A historical trade (Early Roman) road connecting Jerusalem to Mount Nebo.		Linear	Historical elements: Roman ruins including Miles Stone, watch towers, monastery, and rest houses. Natural elements: water springs. it is located at the lowest point on the earth. Contemporary elements: villages and towns.			Walking,

★ Complies with difinition of ICOMOS Internation Scientific Commettl for Cultural Routes ICCR- ICOMOS Charter on Cultural Routes 2008.

★★ Comolies with difinition of European instisute of Cutlrual Routes

Table 4.01
Summary Analysis: Cultural Routes. The Reseracher

b. Archeological Sites Reference Cases

Altıntepe Castle- Eastern Turkey is an Urartian fortress dating back to the 8th-6th centuries BC and stands as a testament to the ingenuity and power of the Urartian civilization. The fortress was also an important center for the Eastern Roman Empire, aka the Byzantine Empire. Strategically, the castle, the fortress along the ancient Silk Road, played a crucial role in controlling trade routes and safeguarding the kingdom's territory. However, despite its historical significance, the site faced numerous challenges, including illegal activities, erosion, tourism impact, and biodeterioration. The site was not fully excavated, therefore, in recognizing the urgent need for intervention, authorities initiated a comprehensive conservation in 2008 to transform Altıntepe Castle into an open-air museum. The conservation proposal prioritized the physical preservation of the site, implementing measures to mitigate erosion, prevent illegal activities, and manage biodeterioration. Moreover, sought to make the site accessible to the public while fostering a deeper understanding and appreciation for its historical significance. Notably, A network of walking paths was designed to guide visitors through the site while minimizing the impact on archaeological features. The paths were crafted with materials that beautifully harmonize with the natural surroundings, embodying restoration rather than reconstruction for the ruins.



Figura 4.08
Right: Museualization routes of rartian-era Altıntepe Castle; (AA Photo)
Left: An aerial view shows the 2,900-year-old Urartian-era Altıntepe Castle, in Erzincan, Turkey, May 24, 2022. (AA Photo)

A UNESCO World Heritage Site Masada Fortress- West Bank is one of the seven Herodian fortresses, in the Judaean desert overlooking the Deadsea. The last stand of Jewish rebels against the Roman Empire. The fortress is quite similar to Machaerus Fortress in terms of natural and geographical features, architectural formation, and historical development, some scholars believe Masada and Machaerus Fortress to be twins. Due to the poor condition of the structures and facings, a comprehensive recovery and on-site conservation treatment was implemented to enhance the public presentation of the entire building. Sensitive conservation efforts were conducted at Masada, including in-situ consolidation. The only modern interventions are the lower visitor and cable car facilities, which in their new form have been designed and relocated sympathetically, to minimize visual impact, though the siting of the summit station, is still controversial. In terms of authenticity, There have been no additions or reconstructions, beyond an acceptable level of anastylosis, and inappropriate materials used in early conservation projects are being replaced. Limited restoration works have been carried out to aid visitor interpretation with original archaeological levels clearly defined by a prominent black line set in the new mortar joints. Significant archaeological elements, such as the Roman camps and siege works, remain virtually untouched. The authenticity is therefore of a very high level. A buffer zone has surrounded the site to provide more protection, the site follows the National Parks, Nature Reserves, National Sites, and Memorial Sites Law.



Figura 4.09
Masada Fortress in west bank
Source: world history encyclopedia

Another interesting site on Oman called Al Baleed Site; the Archaeological Park is an open-air historical park, It is a UNESCO World Heritage site and famous for the frankincense trade port in the past. the conservation of the historical sites employed the museum approach, by creating pathways for public circulation. followed the Triple R' — recognizable (the reconstruction should be easily distinguishable from the original), respectful (the reconstruction as similar as possible to the original), and, reversible (consolidated portions should be easily dismantled to easily detect original features) — approach to conservation of historical stone features[118]. This approach to the detailed projects achieved a sufficient safety level for excavations at the southwestern side of the city.



Figura 4.10
The archeoligcla site and open musum of Albaleed showing the pathways used for users.
Source: Acaia 61 Studio

118 Sassu et al., (2017)

Jordan (Al-Maghtas), a sacred site of profound biblical significance, is revered as the location of Jesus' baptism by John the Baptist and Elijah's ascension to heaven. This site, a powerful testament to the origins of Christianity, has become a popular pilgrimage destination. Its historical and religious importance is further enhanced by its unique geographical setting, at the lowest point on Earth, approximately 425 meters below sea level. Designated as a natural reserve, Bethany Beyond the Jordan is not only a place of spiritual reflection but also an area of remarkable natural beauty. The site compried of includes two principal archaeological areas: the remnants of a monastery on a mound known as Jabal Mar-Elias (Elijah's Hill) and an area close to the river with remains of churches, baptism ponds and pilgrim and hermit dwellings. The two areas are connected by a stream called Wadi Kharrar[119]. Numerous conservation efforts have been undertaken to protect this significant site considering the spiretual values. Careful excavations have revealed ancient structures, including churches, baptismal pools, and pilgrim dwellings, providing tangible evidence of the site's long history of religious activity. These discoveries have been the focus of ongoing conservation work, including minor restoration and preservation efforts. Damaged structures have been meticulously restored and preserved to maintain their original integrity and ensure their longevity for future generations of pilgrims and visitors. for instance, using traditional materials and techniques, conservators have stabilized the ruins and repaired damaged mosaics, ensuring the preservation of these important historical and artistic elements. The reconstruction aspect was not considered in Bethany.

119 "Baptism Site "Bethany Beyond the Jordan" (Al-Maghtas) – UNESCO World Heritage Centre". UNESCO. Archived from the original on 19 January 2017. Retrieved 6 December 2015.



Figura 4.11
archeological site of al maghtas- Jordan.
Source:Unesco.com

The secod sacred -archeolgical site is Moun Nebo; a prominent mountain in Jordan, believed to be the place where Moses viewed the Promised Land before his death. As a significant religious site for both Christians and Muslims, it has attracted pilgrims and visitors for centuries. The sites included an old basilica, monastery, and mosaics. The conservation and restoration of Mount Nebo involves a comprehensive approach to preserve its religious, archaeological, and environmental significance; works focus on preserving and stabilizing historical, cultural, and architectural heritage to protect it from deterioration while ensuring its integrity and authenticity. Unlike Bethany Beyond the Jordan and other reference cases, the Basilica of Mount Nebo was reconstructed in different periods, by constructing a new structure on plinths placed outside the basilica, while keeping the original ruins, and mosaic inside protected. The interior columns were restored using steel connectors between the capital and the shaft.new pathways lifted on the origin ground for visitors were added using wood ma-

terial. The conservation aimed to maintain and preserve historical, aesthetic, and religious values.



Figura 4.07
a: Ruins of the basilica when first excavated
b. Arial view of Mount Nebo
c. The interior of the basilica showing the columns reconstruction old
d. The interior of the basilica shows the columns, pathways and roofing
Source: DOA Jordan Library; The rseracher

Upon the previous review, the following reflection could be drawn:

Firstly, like Altıntepe, Machaerus requires a robust strategy to combat immediate threats. Erosion, potential looting, and the impact of future tourism must be addressed proactively. This means implementing stabilization measures and establishing a clear management plan to safeguard the site's physical integrity. Secondly, Masada's example underscores the critical importance of authenticity. Any intervention at Machaerus should prioritize preservation over reconstruction. The principle of 'anastylosis'—re-integrating existing elements—should be favored. Where restoration is necessary, it must be clearly distinguishable from the original fabric, as seen in Masada's marked mortar lines. This approach ensures that the historical narrative remains transparent and truthful. Thirdly, the 'Triple R' approach from Al Baleed—recogni-

zable, respectful, and reversible—must be fundamental to any conservation work. If any new material is used, it should be easily differentiated from the original. Any intervention should be respectful of the original building techniques, and any new material, or intervention, should be able to be removed without damaging the original fabric. Fourthly, Altıntepe and Al Baleed both highlight the value of transforming sites into accessible open-air museums. Machaerus should be designed with visitor pathways that minimize impact, allowing the public to experience the site without causing further damage. This requires careful planning and the use of materials that harmonize with the existing landscape. Fifthly, Masada's experience with visitor infrastructure emphasizes the need for sensitive design. Any modern additions, such as visitor centers or access routes, must be implemented with minimal visual intrusion. This means prioritizing designs that blend with the natural surroundings and respecting the site's overall aesthetic. Finally, the broader context of Machaerus must be considered. As with Masada's buffer zone, a comprehensive management plan should address the surrounding environment and ensure long-term protection. This includes legal frameworks, environmental considerations, and community engagement.

Regarding the local cases(Al-Maghtas and Mount Nebo), While Bethany prioritizes religious values and archaeological integrity through minimal intervention, Mount Nebo prioritizes functionality and visitor engagement through more extensive restoration. Ultimately, both approaches strive to preserve these treasured Jordanian sites' historical and religious significance.

Machaerus is older historically than Bethany and Mount Nebo. However, Machaerus presents a unique challenge compared to Mount Nebo and Bethany Beyond the Jordan. As a fortress and royal palace, its historical significance

differs from that of the religious sites. While Mount Nebo and Bethany have undergone extensive restoration, Machaerus remains largely unexcavated and unprotected. A holistic conservation approach for Machaerus, inspired by the strategies employed at these other Jordanian sites. This approach includes the site itself and the surrounding context. Since Machaerus is not fully excavated yet, therefore, extensive reconstruction might not be ideal initially, consequently, selective restoration of key architectural elements is recommended for better understanding and interpretation of the site.

Following the example of Mount Nebo, propose using local and sustainable materials for any necessary restoration work at Machaerus.Emphasize the use of reversible interventions wherever possible. This allows for future adjustments or removal if needed.

a singular, large-scale shelter similar to the one at Mount Nebo may not be the most suitable solution. instead, of constructing smaller, strategically placed shelters over specific vulnerable areas. for example, the fortress walls, exposed cisterns, or the foundations of the palace complex.

	Name of the Site	Type of the site	Site Significance	Types of visitors	Historical period	Level of Excavation Preservation	Main threats Natural/ Human	Conservation and intervention work		
								Aims	Conservation interventions	The use of new material
1	**Altıntepe Castle-Eastern Turkey**	Hisotircla-archeological site, Urartian fortress	Military architecture of the Urartian Kingdom	Public Visitors	8th-6th centuries BC Iron age	Not fully Excavated	Natural/ Human	To become an open-air museum. To prioritize the physical preservation of the site	structural stabilization to prevent further collapse of walls and buildings. restoration of key structures, such as the temple and fortification walls. reinforcing the castle walls, repairing stonework, and consolidating areas. Temporarily, shelters have been erected over some of the most delicate areas to protect them from the elements, and drainage systems have been installed to prevent water damage during rainy seasons.	compatible materials that resemble the original building materials. modern synthetic materials
2	**Masada Fortress-West Bank**	Fortress	Military architecture	Public Visitors and pilgrimage	1st century BCE	fully Excavated	Natural/ Human	Archeological park and pilgrimage site	Stabilization of walls, protection against erosion, maintenance of existing structures, and visitor management.	Use of materials compatible with the original, such as local stone and lime mortar.
3	**TheArcheological Al Baleed Site-Oman**	The major port city of the medieval Islamic period,	Historical and archeological site	Public Visitors	slamic medieval period	Fully excavated Not Fully preserved	Natural/ Human	to protect and stabilize the archaeological remains while facilitating ongoing research. To convert the site into an archeological park	reinforcement of the city walls, repairing and consolidating structures, and installing protective barriers	uses traditional materials modern materials are chosen for their compatibility with the original materials
4	**Mount Nebo-Jordan**	Monastery, with Basilica	Biblical pilgrimage site. Religious, historical, cultural	Pilgrimages Public Visitors	Byzantine 4th century AD	Fully excavated Fully preserved	Natural	To preserve the historical and artistic value and promote the religious value of the place.	Restoration - Permanent Protective shelter. - walkways -Anstilosis for the columns. - New raised floor for the central part. - glass floor.	-Metal frame 2008. - double sandwich metal sheets for insulations. - limestone. - steel walkways. - wooden slats for internal wall cladding. -Lamellar wood beams for roofing.
5	**Bethany Beyond the Jordan-Jordan**	A complex of archeological sites.	Biblical pilgrimage site. Religious, historical, Natural, cultural	Pilgrimages Public Visitors	Late Chalcolithic - Hellenistic and Byzantine 3500 B.C- 15 A.C	Not Fully excavated Not Fully preserved	Natural/ Human	Preserving ruins in their original state with minimal restoration.	Sensitive Interventions. -Minimum restoration and preventive measures - No reconstructions even if possibl. - Consolidation -Temporary Protective shelters and walkways. - New buildings are located outside the core area.	-wooden bridges and floors. -rope fencing at sensitive areas. - Materials and structures are preserved in their original state

Table 4.02
Summary analysis of archeo-ligcal sites .
Source: the reseracher

PRACTICAL SECTION
PILGRIMAGE ROAD DEVELOPMENT: INTEGRATING MACHAERUS WITH ITS SURROUNDINGS

5.1 Introduction

This project responds to the research problem of Machaerus Fortress's isolation. through the integration of the concept of cultural routes, as a tool of conservation,through proposing a pilgrimage route connecting Machaerus Fortress to other significant pilgrimage sites, which develops the conceptual proposal outlined in the previous chapter.

The proposed road aims to enhance the dependent understanding of the historical narrative and its connection to the surroundings, which in turn will enhance Machaerus Fortress' cultural value and provide a meaningful experience to pilgrims by tapping into the rich historical and spiritual layers that are embedded within the landscape. The study's primary aim is not to layout a specific road but to explore the historical context and interconnectedness of Machaerus Fortress and its surrounding environment. Using the concept of cultural routes to create a spiritual experience for pilgrims as well as highlighting the historical significance of the fortress and its role within the broader regional narrative, we hope to elevate the fortress's value, thereby advocating for its preservation.

5.2 The Machaerus Fortress in Jordan and the biblical Holy Land: Understanding the site

5.2.1 General Background

Machaerus holds a geographically and historically significant position within the biblical Holy Land. Situated in the Great Jordan Rift Valley, the lowest point on Earth, its unique locale is further enhanced by the presence of seven other Herodian fortresses nearby[120]. This cluster of fortifications underscores the strategic importance of the area. Machaerus's mention in biblical texts, coupled with its location in .the historical region of Moab, emphasizes its religious and

120 Taylor.J. (2021)

historical significance The broader holy land region encompassing Machaerus, situated within modern-day Jordan, spans elevations from -423 meters below sea level to 730 meters above, highlighting a dramatic range in topography. These diverse environmental characteristics likely influenced not only the siting of Machaerus but also the routes and experiences of pilgrims, traders, and military who established these roads and traversed the region throughout history. The interplay between these geographical features, the historical significance of the site, and the evolution of pilgrimage routes forms a crucial area of investigation for understanding the complex cultural landscape surrounding Machaerus.

The topography surrounding Machaerus Fortress is characterized by a complex interplay of mountain ranges, valleys, water springs, and the Dead Sea, contributing to both the fortress's strategic advantage and its natural defenses. Rather than existing in isolation, Machaerus was integrated into a broader network, exhibiting both visual and historical linkages to Jerusalem and other Herodian fortresses on the west bank of the Jordan River. This interconnectedness suggests a deliberate strategic and possibly communicative function within the Herodian power structure.

5.2.2 Spatial Analysis of the Region

The pilgrimage region within the Holy Land needs to be understood as a total system, following certain concepts, such as change, periods, and historical context. The region reveals a variety formed from cultural to natural and from historic to contemporary elements, and gains significance from them. Since the proposed pilgrimage road has a historical theme, the spatial analysis of the region will focus mainly on the historical-religous components.

MAchaerus Fortress was one of a series of hilltop strongholds established by Herod the Great — the father of An-

tipas — along the edge of the Jordan Valley and Dead Sea. Protected on three sides by deep ravines, it afforded seclusion and safety in times of political unrest. The spatial components of the Machaerus Fortress and biblical pilgramage region are divided into historical elements, which include archaeological sites, landmarks, and ancient routes scattered throughout the region, all associated with the Machaerus fortress. Natural elements of the region mainly consist of mountains, water springs, and valleys, which all have been shaping the region and contributed to forming the region's identity. And Contemporary elements mainly consist of today's town centers and villages.

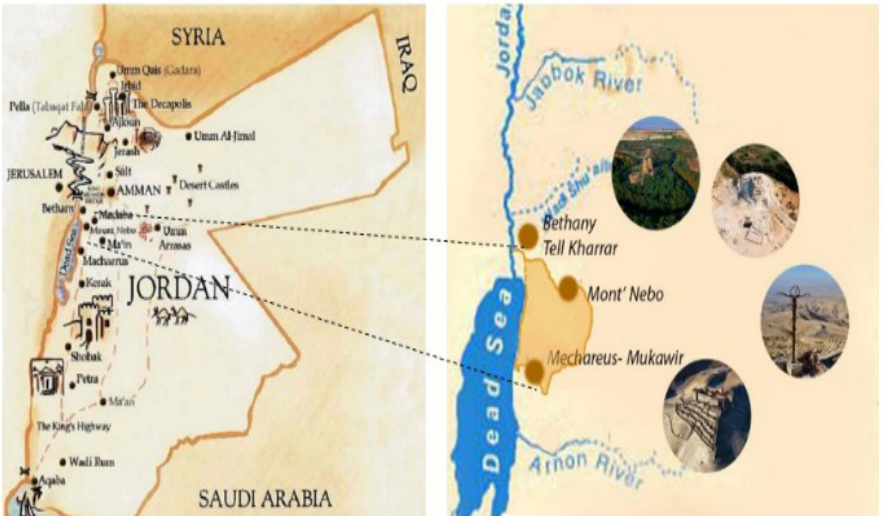


Figure 5.01
A geographical representation of Jordan with a delineation of the biblical Holy Land region
Source: Google Images, modified by the researcher

Several important settlements and roads anad natrua elemtns, are scattered around Machaerus. alltogher provide tangible evidence of the region's rich past and importance.

Around 2 km east of the Machaerus fortress, there is Machaerus[121] byzantine village provides insights into the later phases of the site's occupation.The village was estabished in the 6th cetnury was inhabitated by priests, where they constructed a Byzantine basilica (Bishop Malechios), containing a mosaic floor dating back to the 7th century AD, along with a prayer room (13.4 x 6 m), a western basilica (20 x 19 m), and

121 previously was named Macberus.

the remains of Roman baths. The presence of these structures suggests a thriving community with both religious and secular functions.



Figure 5.02
The Byzantine Church ruins of Machaerus.
Source: Universes in Universe - Worlds of Art (UiU

South of Machaerus there is Callirhoe[122]; a luxurious resort built by king herod and it is known or its hot springs , therapeutic waters, villas dated back to 1st century, and a harbor. Josephus[123] and Pliny the Elder[124] document the site's significance, noting its association with Herod's illness and the therapeutic qualities of its waters. « On the same side there is a hot spring possessing medical value, the name of which, Callirrhoe, itself proclaims the celebrity of its waters[125]». The Madaba mosaic map depicts three buildings at the site, a spring house, a nymphaeum, and a house through which a river flows. Archaeological excavations have uncovered several ancient villas, dating back to the Early Roman (Herodian) period, including a large villa with a central courtyard and a plastered pool fed by a spring. The recent discovery of a harbor confirms the site's importance for boat traffic on the Dead Sea and its connection to Machaerus. An 8 km road connected Callirhoe to Machaerus, fun-

122 Also called *Ain Zara*

123 Joseph. BJ 1.(657; AJ 17.171)

124 Pliny the Elder was a Roman historian, naturalist, and administrator.

125 Pliny (HN 5.15.72)

ctioning as a vital link between the fortress and its harbor[126], facilitating communication and the movement of goods and people.



Figure 5.03
Ruins of Callirrhoe.
Source: Department of Antiquities in Jordan (DOI).

St. George Basilica in Madaba is a Byzantine church from the 6th century CE, housing a remarkable mosaic map crafted in AD 560, the map has 157 captions (in Greek) depicting all the major biblical sites of the Middle East, from Egypt to Palestine with a dimention of 15m to 25m long and 6m wide. This map depicts holy places in the Holy Land, offering valuable cartographic evidence of the region's sacred geography during the Byzantine period. The inclusion of Machaerus and other sites underscores their importance within the broader Christian context. The church has been reconstrcuted (Orthodox church). St. Georgechurch is official bilpical pilgramage site by the vatican



Figure 5.04
St. George church exterior and interior.
Source: seeholyland.net

126 Strobel.A & Wimmer.S. (2003)

Mount Nebo, a sacred mountain and biblical site, serves as a prominent pilgrimage destination. It features the remnants of a 4th-century AD church, renowned for its exceptional Byzantine mosaics. As the believed location from which Moses gazed upon the Promised Land, Mount Nebo holds profound religious significance and offers sweeping panoramic views, enhancing its appeal to pilgrims. Of particular relevance to Machaerus, its proximity and historical connection via established routes, such as the King's Highway. Notably, Mount Nebo's site has undergone reconstruction, a factor that must be considered when contrasting its conservation approach with the desired authenticity for Machaerus.



Figure 5.05
Archeological site of Mount. Nebo.
Source: Department of Antiquities of Jordan

Bethany Beyond the Jordan;a complex of archaeological sites, dating back to 1st century CE, is traditionally believed to be the site of Jesus' baptism by John the Baptist. As a major pilgrimage destination, Bethany beyond the Jordan attracts visitors from around the world. Its location near the Jordan River and its association with biblical narratives contribute to its spiritual significance.



Figure 5.06
Bethany beyond the Jordan (Al-Maghtas).
Source: www.baptismsite.com

Many unexcavated settlements, documented by Jordanian archaeologist Moh. Waheeb and mentioned on the Madaba mosaic map, lie between Mount Nebo and Bethany beyond the Jordan. These sites, while less explored archaeologically, contribute to the overall sacred geography of the region and warrant further investigation to understand their role within the pilgrimage network.The site of Khirbet Ataruz, Located 3 km east of Machaerus is an archaeological site with evidence of occupation from the Iron Age through the Hellenistic, Roman, and Islamic periods. Mentioned in biblical and historical sources, including the Moabite Stele, Ataruz (Ataruzis) contains the remains of a temple dating to the late 10th – early 8th centuries BCE. While not an officially recognized pilgrimage site, its historical and archaeological significance suggests that it could have served as a station or point of interest for pilgrims traversing the region.
the reseraches couldnot provide figures of (Khirbet Ataruz) as it is unfully excavated.

The spatial relationships between these sites are further defined by the network of ancient roads that crisscrossed the region, facilitating movement and communication. The

Callirhoe–Machaerus herodian road is a 8 km road, connected Machaerus to its harbor at Callirhoe. Passing by natural springs and watchtowers, this vital artery served as the primary link between the fortress and the Dead Sea, connecting it to Jerusalem and beyond. The road is approximately 2 m wide[127] , its occasional curbstones, retaining walls, and paved sections, highlighting the engineering efforts involved in its construction and maintenance.

The Machaerus Fortress - Machaerus Village Road; is a 2 km road connected Machaerus Fortress to the nearby Machaerus village to the east, branching off from the larger King's Highway. This local road facilitated daily life and interaction between the fortress and its supporting settlement.

The King's Highway; one of the world's oldest continuously used communication routes, the King's Highway dates back to the Iron Age. Serving as a pre-Roman trade and military road, it linked empires from Egypt across the Sinai Peninsula, northward through Transjordan to Syria and Mesopotamia.The Nabataeans, according to Kasher[128], extended the road and used it for trade, potentially leading to conflicts with the Hasmoneans te reason where Machaerus were fist constructed in its current location. The road was renovated and re-used by the Romans as the Via Nova Traiana, it served both military and trade purposes. During the Byzantine period, the Via Nova Traiana became a crucial pilgrimage route to the Holy Land, particularly to Mount Nebo.

Within the holy land and pilgramage boundaries, there is also Via Esbus;branching off from the Via Nova Traiana, the Via Esbus connected Jerusalem to Mount Nebo, passing by Livias and the traditional site of Jesus' baptism at al-Maghtas on the Jordan River near Jericho. This route formed

127 Marciak et al., (2023)

128 Kasher.A. (1985)
***The analysis incorporated ancient road maps, which are comprehensively documented in the appendix.

an important link within the broader network of pilgrimage routes in the region, connecting key religious sites and facilitating the movement of pilgrims.along the road, the ruins of watch towers water cisterns are witness on their precence.

The modern settlements and infrastructure that interact with the historic and natural features of the region. Aiming to establish a connection between the past and present in the development of the Machaerus pilgrimage route, the research looks at the elements of historical importance and modern day reality frame. Some of the important villages and towns in the area are Lib Village, Faisaliyeh, and Madaba City which form a integral part of the region. These settlements represent the current population centers and are important for understanding the social and economic dynamics of the area. Given Their proximity to historical sites. In addition, the modern King's Highway and the Dead Sea Highway have greatly improved access and mobility in the region as well. These roads aid movement for local people as well as the tourists and pilgrims visiting the area. The effects of such infrastructure on the local environment, the historical places, and the prospects of developing pilgrimage tourism will be analyzed.

The pilgrimage region surrounding Machaerus is defined by its striking natural features, which contribute significantly to its historical and spiritual significance. These natural elements include Wadi Zarqa Ma'in; This prominent wadi (valley) serves as a crucial geographical feature, influencing the region's hydrology and landscape. It likely provided essential water resources for settlements and travelers along pilgrimage routes, including those connecting Machaerus and Mount Nebo. The wadi's rugged terrain and seasonal water flow would have shaped the experience of pilgrims traversing the area, Ma'in Hot Springs, These natural thermal springs, situated near the Dead Sea, have been utili-

zed for therapeutic purposes for centuries. Their presence would have offered respite and healing to pilgrims, as well as serving as a potential economic resource for the region. The hot springs' unique geological formation and mineral content contribute to their significance. The Dead Sea, As a defining geographical feature, the Dead Sea's hypersaline waters and unique environment have profoundly impacted the region. Its low elevation, mineral-rich deposits, and distinctive atmospheric conditions create a unique ecosystem. The Dead Sea's presence would have been a significant factor in the experience of pilgrims, and its resources, such as bitumen and salts, would have been utilized by local populations.The Judean Desert Landscape, The arid, rugged terrain of the Judean Desert, characterized by rocky hills, canyons, and sparse vegetation, forms the backdrop for the pilgrimage region. This harsh yet beautiful landscape would have tested the endurance of pilgrims and contributed to the sense of a spiritual journey. The unique geological formations and desert flora and fauna add to the ecological value of the region.

5.3 Designing Trail

5.3.1 Defining Elements of Pilgrimage Road Network

Having established a comprehensive understanding of the Machaerus pilgrimage region, it is essential to delineate the proposed pilgrimage road, outlining its constituent elements and intended purpose. The trail's design is informed by a synthesis of data derived from existing literature and the aforementioned reference cases.

Route	Variables (Route Elements)					
	Theme	Context	Content			Form /shape	length
			Historical	Natural	Contemporary		
Route 1	Roman Trade-Pilgrimage Road	Historical Road	**Historical:** livias, Roman watch tower, pilgrimage stations, and pools. Hesban. Mount Nebo. **Natural:** Kharrar Valley, Musa water spring. **Contemporary:** Madaba city, Rama village.			Linear	28.1km
Route 2	Trade-Miliary-pilgramage road.	Historical- newly developed road	**Historical:** George's Church, Mount Nebo, kings's Highway, **Natural:** **Contemporary:** lib village, Machaerus Village, Faisalieh village.			Linear	43 km
Route 3	Roman Road	Historical	**Historical:** ruins of watch towers. **Natural:** Mai'n Valley **Contemporary:** not existing.			linear	41 km
Route 4	Roman Military Road	Historical	**Historical:** Machaerus Fortress, watch towers, archeological complex of Callirrhoe **Natural:** Mai'n Valley, Ain Zara water spring **Contemporary:** not existed			Linear	6-8 km
Route 5	Roman Military Road	Historical- newly developed road	**Historical:** Callirrhoe, Bethany beyond the Jordan **Natural:** Dead Sea, Ain Zara water spring **Contemporary:** Swiemeh village, Rama village.			Linear	51.2 km

Table 5.02:
Variables of proposed pilgramage road. the reseracher 2024

5.3.2 Describing the Pilgrimage Road

Considering ancient roads and networks as an interpretative way of enhancing historical-spiritual experiences basic idea for developing a pilgrimage Road. The proposed road consist of pilgrimage sites, ancient routes modern routes, natural elements and contemporary elemtns.

Phase 1- Bethany Beyond the Jordan to Mount Nebo:
The beginning of pilgrimage at Bethany Beyond the Jordan AL-Maghtas. Explore the archaeological remains of the baptismal site and immerse yourself in the serene atmosphere of this sacred place. Then, embark on a journey along the ancient Roman road, later transformed into the Byzantine pilgrimage route (Esbus). Pass through historical sites and enjoy stunning views as you make your way to Mount Nebo, the traditional burial place of Moses.

Phase 2: Mount Nebo to Machaerus Fortress.
From Mount Nebo, descend to the modern road leading to Faisalieh. Here, you have two options:
Option A: Continue south along the King's Highway, passing through the archaeological park of Madaba, famous for its

Byzantine mosaics, especially those depicting the city of Jerusalem. Visit St. George's Church before turning west and following the ancient King's Highway to Lib. From Lib, branch off to the west, passing through the historical village of Macharus and reaching the imposing Machaerus Fortress, the site of John the Baptist's imprisonment and execution.

Option B: From Faisalieh, head south directly to Machaerus Fortress along the ancient Roman road, offering a more direct route with a distance of 41.7 km

Phase 3: Machaerus Fortress to Bethany Beyond the Jordan

Depart from Machaerus Fortress and follow the ancient Herodian road, originally connecting Machaerus and Callirrhoe. This scenic route passes by the Zara water springs, offering a refreshing break. Continue north, following the ruins of the ancient road, until you return to Bethany Beyond the Jordan, completing your pilgrimage journey.

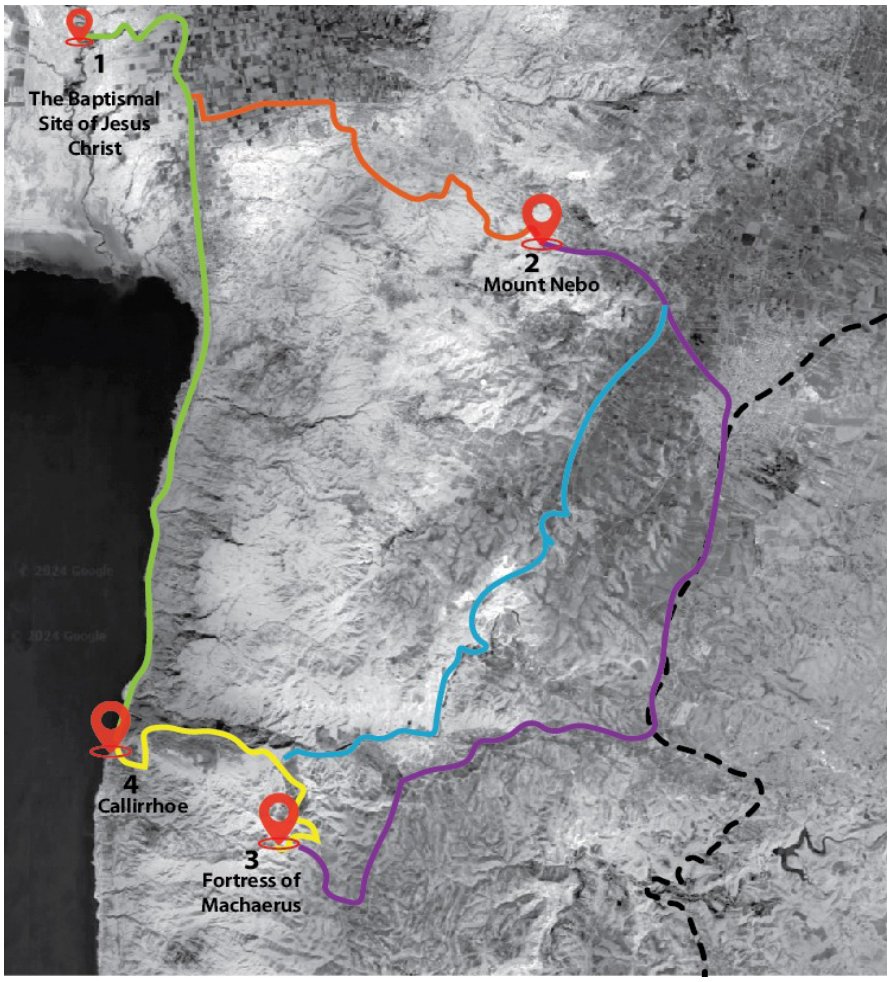


Figure 5.09
proposed pilgramage routes linking MAchaerus fortress within other pilgramage routes.
Source:The reseracher 2024

The proposed pilgrimage road offers a unique journey through the rich historical and spiritual landscapes of Jordan. It also enhances the historical narrative of the Machaerus Fortress, consequently contributing to better the site's understanding, appreciation, and presentation. Those ancient routes, once traverled by pilgrims, traders, and armies, invites travelers to retrace the footsteps of history and connect with the region's deep religious significance. Regarding the accessibility. The Road is generally accessible.

(This study utilized ancient maps of the region in diffirent historical periods, all of which are included in the appendix)

SITE-LEVEL CONSERVATION OF MACHAERUS FORTRESS-PALACE

6.1 Introduction

This chapter focuses on the site-level conservation of Machaerus Fortress-Palace, addressing the research problem of its ongoing deterioration and the need for a comprehensive conservation strategy. the study explores the fortress's historical, and political evolution, religious significance, and architectural formation to understand how these factors have shaped the site's identity and cultural significance, and analyze its current physical condition. This chapter aims to develop appropriate conservation interventions that balance the often-competing demands of preservation, research, sustainability, and its modern value as a religious pilgrimage by identifying key characteristics and values. This approach recognizes that effective conservation must protect and preserve the site's physical fabric, and communicate its intangible heritage. The chapter presents a detailed analysis of the site, outlining a specific conservation proposal that considers various aspects, including architectural choices, material conservation, and interpretive strategies.



Figure 6.01
A general aerial view of the Machaeru^s
Source: Voros.G.(2016)

The site-level conservation of the Machaerus fortress-palace encompasses an integrated approach that considers its tangible and intangible significance. This integrated approach prioritizes preserving the original structure while allowing for the interpretation and presentation of the site's layered history. The proposed interventions were selected based on available archaeological, historical, and geographical studies and biblical scripts, besides detailed in situ architectural analyses and observations of key areas, considering the religious and spiritual value of the site

6.2 Site Understanding and Analysis

6.2.1 Site Description

Machaerus, as explained previously, is a prominent hilltop fortress located approximately 70 kilometers southwest of Amman the capital. The strategic position within the Dead Sea Rift Valley, at an elevation of approximately 1,100 meters above the Dead Sea (and approximately 700 meters above sea level), provides commanding views of the surrounding landscape. This geological formation, which resulted from the tectonic activity between the African and Arabian plates, has shaped the region's dramatic landscape, including the Jordan Valley and the Dead Sea, wadi al Mujib reserve. The fortress's elevated location offers panoramic views extending westwards to Jericho. on clear days, to the Temple Mount in Jerusalem, southwards to Masada, and northwards to Alexandrium, demonstrating its strategic importance within the Herodian defensive network. This geographical context is crucial for understanding Machaerus historical and military significance. The natural defenses afforded by the site's topography, characterized by steep slopes and deep ravines, have significantly influenced its history. These natural features provided a strong defensive advan-

tage, allowing control over key trade routes, including the ancient King's Highway, which contributed to the region's economic development. The site's location also provided a vantage point for monitoring movement and potentially warning Hasmonaean and later other Herodian fortresses of approaching threats, particularly from the Nabataeans to the south. Currently, the ruins of Machaerus offer a glimpse into the past, allowing visitors to explore the remnants of the palace, fortifications, and other structures.



Figure 6.02
MAchaerus Fortress with the surrounding context
Source: Voros.G.(2016)

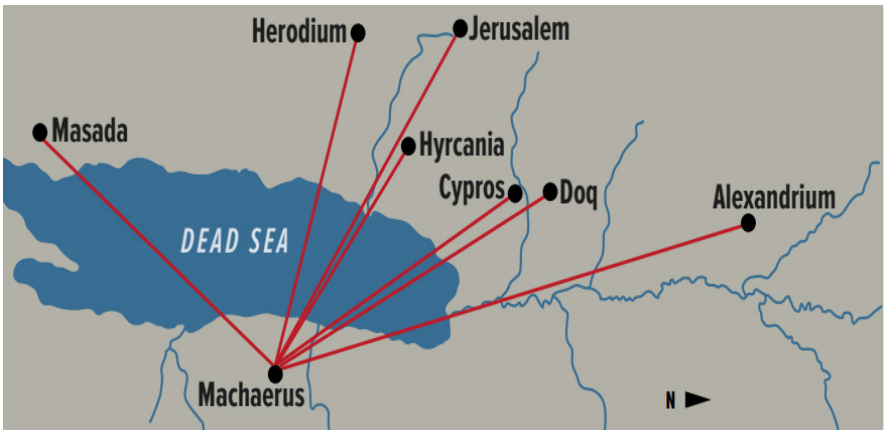


Figure 6.03
Machaerus Fortress over-looking on the herodian fortresses
Source: Department of Antiquities of Jordan.

6.2.2 Historical and Archaeological Analysis

Machaerus possesses a rich and complex history, marked by distinct historical, political, religious, and cultural layers that have profoundly shaped its significance. Machaerus's strategic location has been a constant factor influencing its

history. Machaerus possesses a rich and complex history, marked by distinct historical, political, religious, and cultural layers that have profoundly shaped its significance. Machaerus's strategic location has been a constant factor influencing its history. Moreover, this sacred site is of immense importance to the adherents of both Christianity and Islam. The Muslims also recognize the Baptist as Prophet Yahya ibn Zakaria.

The site was first described in detail by the historian Flavius Josephus, as the location of John the Baptist imprisoned and executed[129]. «John that was called the Baptist: for Herod slew him [...] he was sent a prisoner, out of Herod's suspicious temper, to Machaerus, the castle I before mentioned, and was there put to death»[130]. The written evidence of Josephus was also confirmed by the related reference in the Ecclesiastical History (I 11, 4-6) of Eusebius of Caesarea (c. 324 AD). According to the Gospels, all the facts from the Antiquitates regarding John's arrest and imprisonment by Herod Antipas are consistent with and complement Josephus' account.

The fortress where first discovered by the German explorer Ulrich Jasper Seetzen 1767-1811, who identified the site as the ancient Machaerus, sword, mentioned by Roman geographers and historians during the 1st century AD[131]. . This was a crucial step in recognizing the location of the ancient fortress. In 1909, Fr. Félix-Marie Abel OP[132] identified the Machaerus lower city, expanding the understanding of the site beyond the citadel itself. the fortress remained abandoned till significant archaeological work began In the 1960s and 1970s, that time, August Strobel conducted surveys, no-

129 Eerdmans Dictionary of the Bible 2000

130 Antiquitates Judaicae XVIII 5,2

131 Ulrich Jasper Seetzen german Expolrer

132 Fr. Félix-Marie Abel OP

tably mapping the circumvallation wall.[133]

Archeological studies have linked the site to the Late Hellenistic and Roman periods, confirming two main periods of occupation: the Late Hellenistic (Hasmonean, 90 BC–57 BC) and the Herodian (30 BC–AD 72). The site was briefly occupied again soon after AD 72, but was eventually abandoned because the Romans destroyed it all. The Macherus fortress was initially erected by the Hasmonaean king Alexander Jannaeus around 90 BC for geopolitical reasons, primarily as a defensive fortress against the Nabataeans to the south. This strategic importance is evident in the site's initial design as a fortified structure, with sturdy walls, defensive towers, and a water cistern. In 57 BC, during the Roman period, the region was divided into various administrative districts, including Perea. The Roman commander Pompey, under the authority of the Roman governor Gabinius, first destroyed the Machaerus fortress[134].

In 30 BC, a new chapter began with Herod the Great[135]. Machaerus underwent a significant transformation, evolving from a simple military station to a luxury royal palace. The transformation of the site into a luxurious royal palace reflected the political and cultural shifts in the region. King Herod aimed to create a symbol of his power and greatness. This transformation involved extensive architectural modifications, which included the peristyle courtyard, a southern courtyard, protruding bastions, a mikvah[136], two tricliniums[137], the construction of elaborate mosaics, a bathing house, and several storage rooms, all of which showca-

133

134 Japp, 2016; Kennedy & Riley, 2012

135 Herod was a Roman client king of Judea (referred to as the Herodian kingdom), where he commissioned the construction of many major colossal building projects, such as the port at Caesarea Maritima, the fortress at Masada, the Tomb of the Patriarchs in Hebron, and the renovation of the Second Temple in Jerusalem.

136 a pool used for the purpose of ritual immersion in Judaism to achieve ritual purity

137 formal dining rooms

sed Herod's refined taste and love for luxury. The complex system of fortifications utilized natural geological features, watchtowers, and a large defensive wall to protect an upper palace and lower city, further emphasizing this display of power. «Machaerus was next to Jerusalem, the most strongly fortified place in Judea»[138]

Salome's demands led to the imprisonment and eventual execution of John the Baptist during his birthday celebration. The Gospels of Mark and Matthew gave detailed descriptions of the circumstances of the imprisonment and the execution. The Bible verse Matthew 14:3-11 discusses John the Baptist's imprisonment as it states:

« Now Herod had arrested John and bound him and put him in prison because of Herodias, his brother Philip's wife, for John had been saying to him, "It is not lawful for you to have her." The verse continues by stating, "The king was distressed, but because of his oaths and his dinner guests, he ordered that her request be granted 10 and had John beheaded in the prison." "He was beheaded after Salome's fateful dance ».

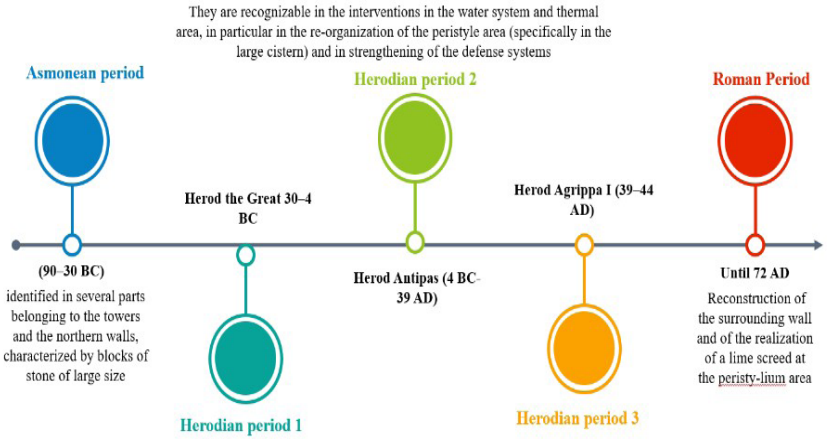
The detailed accounts in the Gospels of Mark (6:14-29) and Matthew (14:1-12), corroborated by Flavius Josephus (29 A.D) in Antiquities of the Jews (XVIII, 5, 2) and Eusebius of Caesarea in (c. 324 A.D) Ecclesiastical History (I 11, 4-6), firmly establish Machaerus as the location of this pivotal event. firmly establish Machaerus as the location of this pivotal event. According to the Gospels, all the facts from the Antiquitates regarding John's arrest and imprisonment by Herod Antipas are consistent with and complement Josephus's account. Here, the Machaerus Fortress gained its religious-sacred importance.

In 44 A.D., after the death of King Herod Agrippa I, Machaerus, along with Perea, came under the control of the Roman

138 (Pliny the Elder, Historia Naturalis, 15, 16).

Prefect of Judea in Jerusalem. Recognizing its continued strategic importance, the Romans seized control of the fortress, transforming it into a military garrison. They refortified the citadel, adapting it to their military tactics and requirements. This period marked a transition in the fortress's function, shifting from a royal residence to a strategic military outpost. Citizens living in the lower city successfully seized control of the citadel from the Romans. The Zealot rebels then fortified it later, aiming to establish their influence over this stronghold. After the destruction of Jerusalem in 71/72 A.D., Emperor Vespasian ordered his forces, including Legion X Fretensis under the command of Lucilius Bassus, the Roman Legatus of the Judea Province at the time, to retake and reclaim Machaerus. This campaign ultimately led to the downfall and destruction of the fortress, which eventually faded into forgotten history. Machaerus was the second-to-last Jewish stronghold to fall to Rome during the revolt, with Masada being the last, located across the Dead Sea. It is important to note that Machaerus was Herod's easternmost fortress, situated in present-day Jordan. This fortress has direct lines of sight to other Herodian fortresses located west of the Jordan, stretching from Masada in the south to Alexandrium in the north. Some scholars believe that Machaerus is the twin fortress of Masada. The following timeline image summarizes the chronological evolution of the Machaerus fortress. and the remains of the main periods.

Figure 6.04
Timeline of the MAchaerus construction
Source: Reseracher 2023



6.2.3 Architecture Analysis

The architectural remains at Machaerus offer a tangible record of the site's complex history, reflecting its transformations across different periods of occupation. plex measured approximately 140 meters in length from east to west and 60 meters in width from north to south[139] , encompassing an area of 5,000 square meters. Two primary areas divide the archaeological site: the upper city, which includes the fortress and royal palace, and the lower city. As mentioned by the late Father Michele Piccirillo (OFM) during his observation in his internet description of the Machaerus fortified royal castle in 2004, "The upper city was composed of the royal palace defended by four towers, of which only three have been identified"[140].

A staircase to the east connected the royal palace to the lower city. In addition, the site also includes a sophisticated water management system, a circumvallation wall (siege wall), and hermit caves carved into the slopes below the hill, which were used for spiritual practices.

139 Vörös.G. (2019)
140 Piccirillo, M. 2004



Figure 6.05
Machaerus Satellite view and plan of Herodian Fortress Google Images plan after Voros and a general aerial view of Mechareus fortress, showing the location of the fortress, Source: Gyozo Voros 2019, appropriated by the researcher.
Source: The Research 2024

The architecture of Machaerus exhibits three distinct layers, each reflecting a specific historical period and its associated cultural values: the Hasmonean, with its intricate designs; the Herodian, showcasing grandiosity and innovation; and the early Roman era, characterized by robust structures and strategic engineering. Each construction phase weaves a chronological narrative, revealing the fortress's evolution and significance throughout history.

The earliest construction phase at Machaerus -the Hasmonean period (90 BC–57 BC) -is characterized by a primarily defensive architectural style, built in the Hellenistic style using large, roughly hewn blocks of local limestone and employing the prevalent masonry techniques of the time. The presence of sturdy walls, defensive towers strategically positioned for surveillance, and a water cistern are indicative of the site's primary function as a military stronghold. Excavations have also revealed remnants of the northern walls and an ancient Hellenistic mosaic, providing valuable insights into the site's earliest phases. However, due to subsequent construction and destruction, very few structures from this period remain. The use of ashlar limestone, cut into smooth blocks of varying size and condition, is a key characteristic of Hasmonean construction[141]. Evidence suggests the use of mudbrick and wood in addition to the limestone, reflecting a more modest scale of construction compared to the later Herodian period. This emphasis on defense directly reflects the site's historical value as a strategic military outpost during this period.

Figure 6.06 (Left)
Hashmonean Ruins, mikveh
Source: the resrecher 2024



Figure 6.07 (Right)
Hashmonean Ruins, North bastions with towers,
Source: the resrecher 2024



141 Vörös.G. (2019)

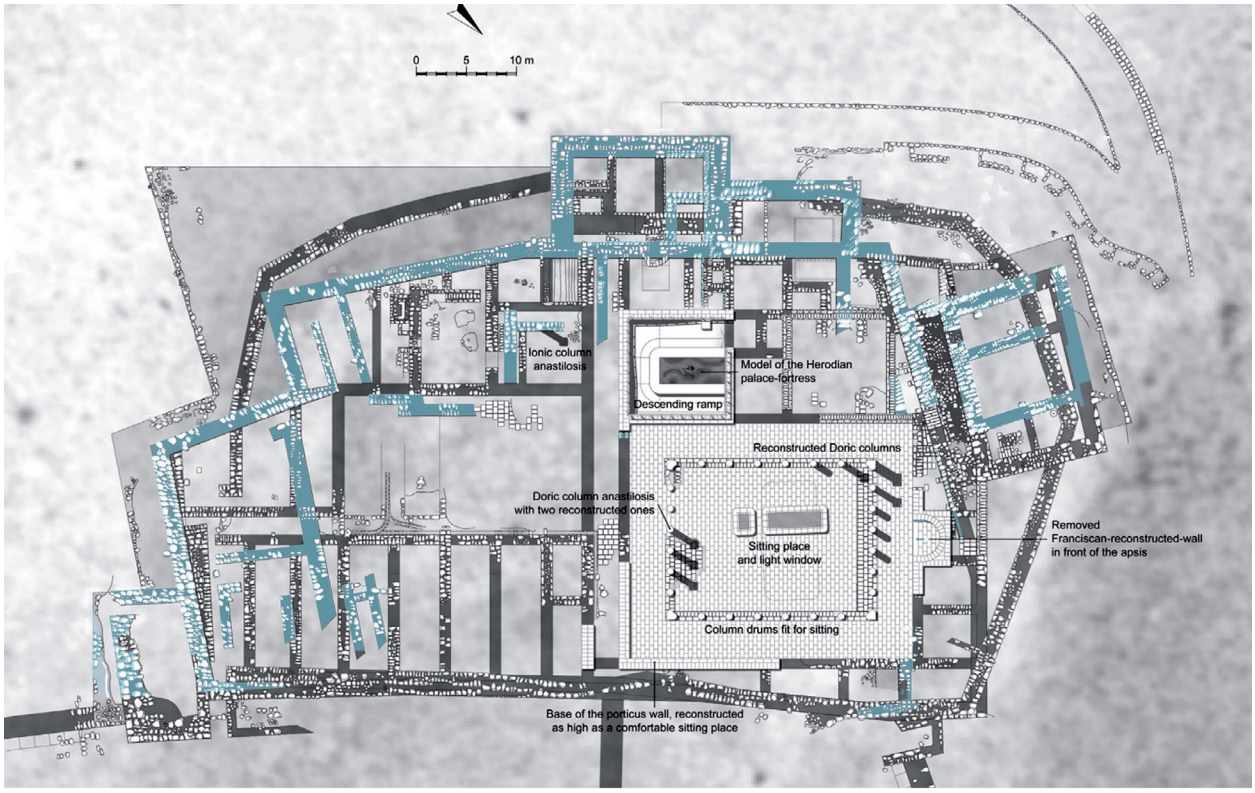


Figure 6.08
The Hashmonean period ruins of Machaerus Fortress-Palace.
Source: Vörös.G. (2019), appropriated by the researcher 2023

A significant architectural transformation took place at the Machaerus fortress during the Herodian Period (30 BC-AD 72). When the fortress was transformed into a royal palace. This transformation was evident in the extensive architectural modifications and ornate decorative works. The peristyle courtyard, likely used for military drills in the Hasmonean period, was redesigned as a formal reception area. «It is not simply the largest architectural place in the fortified palace of Machaerus, erected on the summit of the hilltop, but the only space where the Tetrarch was able to receive the large gathering of these official guests. The royal courtyard of Machaerus had to be the very place where, according to Josephus, Antipas made his historical judgment of a death sentence on John the Baptist»[142].

A large cisterns were added to supply water for the growing population and the intricate water features typi-

142 The History of the Archaeological Missions to Machaerus voros

cal of Herodian palaces. The palace complex was organized into two wings: an eastern wing featuring a bathhouse with mosaic floors and five storage rooms, and a western wing containing a peristyle court surrounded by colonnades, two halls on the south side, and a triclinium. Herod maintained and enhanced the fortress walls, strategically placing towers to flank the palace complex and integrate defense into the overall design. Herod also constructed a surrounding city with walls, towers, and large cisterns, further emphasizing his power and control. The use of ashlar limestone, precisely cut and fitted, along with mortar and iron reinforcements, reflects the advanced building techniques of the Herodian period. The presence of both Doric and Ionic columns, some of which have been re-erected on their original foundations, further demonstrates the architectural sophistication of this period. The architectural grandeur of the Herodian palace contributes significantly to the site's aesthetic value and reinforces its historical value as a symbol of Herodian power and innovation.

Figure 6.09
The Herodian layout plan. Source: Vörös.G. (2019), appropriated by the researcher 2023

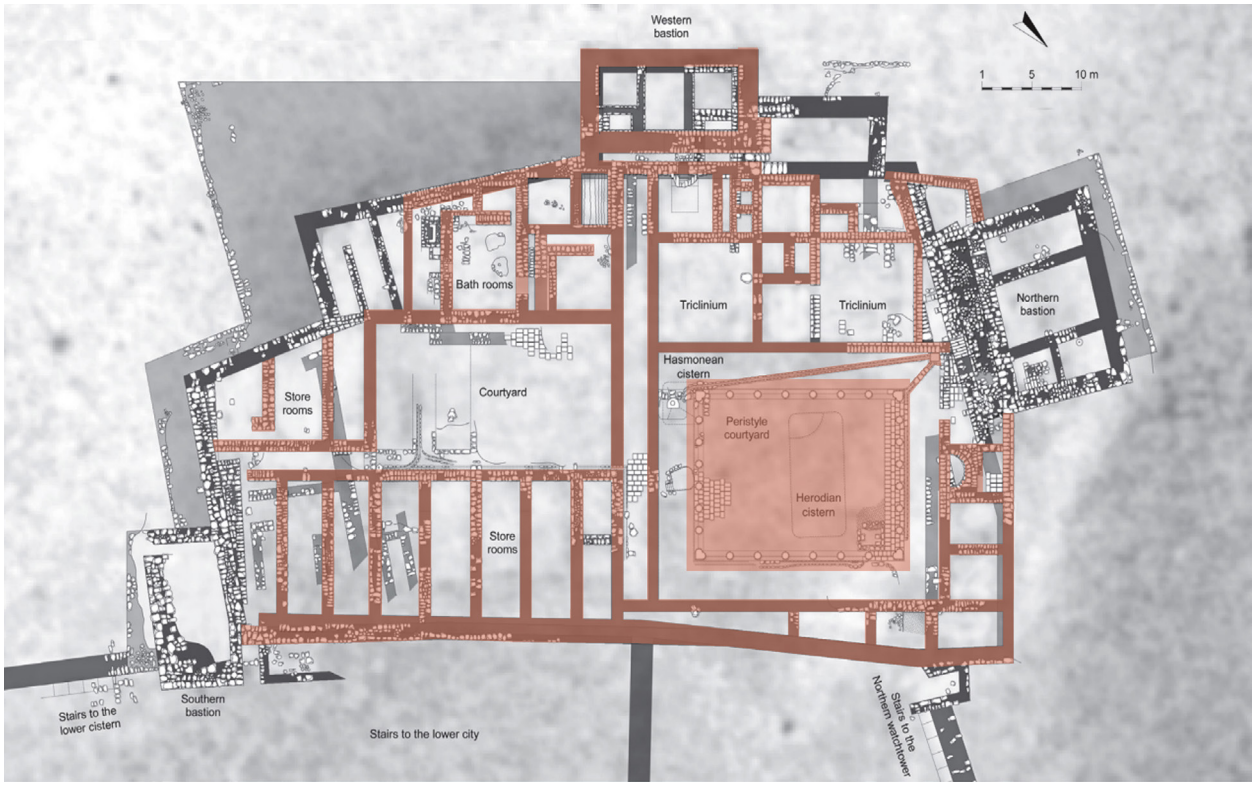




Figure 6.10
Hrodian Ruins, the royal courtyard, dining room storage room, Herodian ritual pools, Source: The researcher 2022-2023

Following the Jewish Revolt and the destruction of Jerusalem in 72 AD, the Romans repurposed Machaerus, transforming the Herodian fortress into a military garrison. This shift in function is reflected in significant architectural modifications. The Romans reinforced the existing perimeter wall and added a lime screed in a specific area, likely for practical reasons related to their military use. A unique

feature in Transjordan, a 2.2-mile circumvallation wall, discovered in 1965, attests to the site's strategic importance to the Romans[143]. Built by the Tenth Legion, this extensive siege wall provided enhanced defense capabilities. Further Roman additions include new walls and towers, along with a brick bathhouse and theater, indicating not just a military presence but also an effort to establish a functioning Roman settlement. These adaptations underscore Macharus's continued strategic value under Roman rule, adding another layer to its rich historical narrative.



Figure 6.11
Roman layout plan
Source: Vörös.G.(2019), appropriated by the researcher 2024

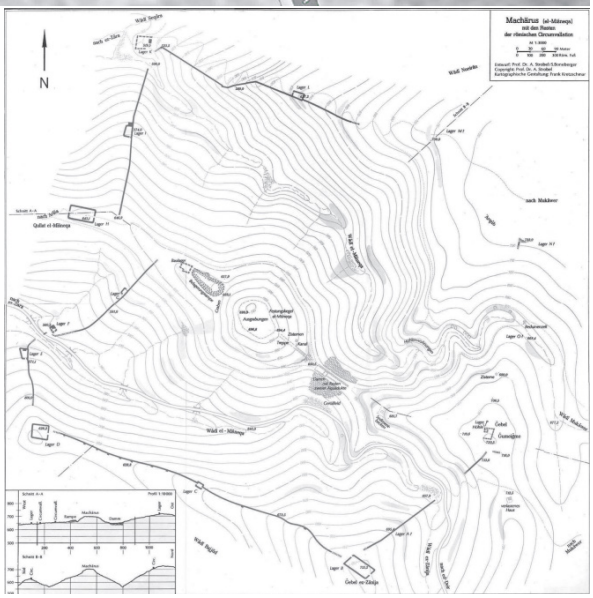


Figure 6.12
The overall master plan of Machaerus Fortress,
Source: Department of Antiquities of Jordan

143 Strobel, (1965)



Figure 6.13
Detailed ground floor plan of the royal palace
Source: örös.G. (2019) appropriated by the reseracher. 2023

Machaerus is also surrounded by a network of caves, one of which is traditionally associated with the imprisonment of John the Baptist, significantly enhancing the site's religious significance. Archaeological studies confirm that these caves date back to the Roman period and mark the beginning of pilgrimage activity in the 6th century. Ascetic priests used these caves for religious ceremonies, rituals, meditation, and burial sites, further connecting them to spiritual practices.



Figure 6.14
Caves surrounding the Machaers fortress
Source: The Reseracher 2022-2023

The Machaerus summit is reached thorugh winding path, approximately 800-1000 meters long, provides access to Machaerus Hill. This modern road was built by Department of Antiquities of Jordan. However, despite being partially paved, it can be slippery during rainy weather. As well as steep parts, there are also some flat parts. The route offers breathtaking views of the surrounding landscape, making

it a popular spot for hikers and nature enthusiasts. Along the way, there are several lookout points where visitors can take a break and admire the picturesque scenery. Staircases down lead to a path that winds up to the top of the citadel. On the northern slope, there was the Herodian lower city, with the prison cell of John the Baptist. the path is quit similar to the path of Masada fortress (mentioned previously).

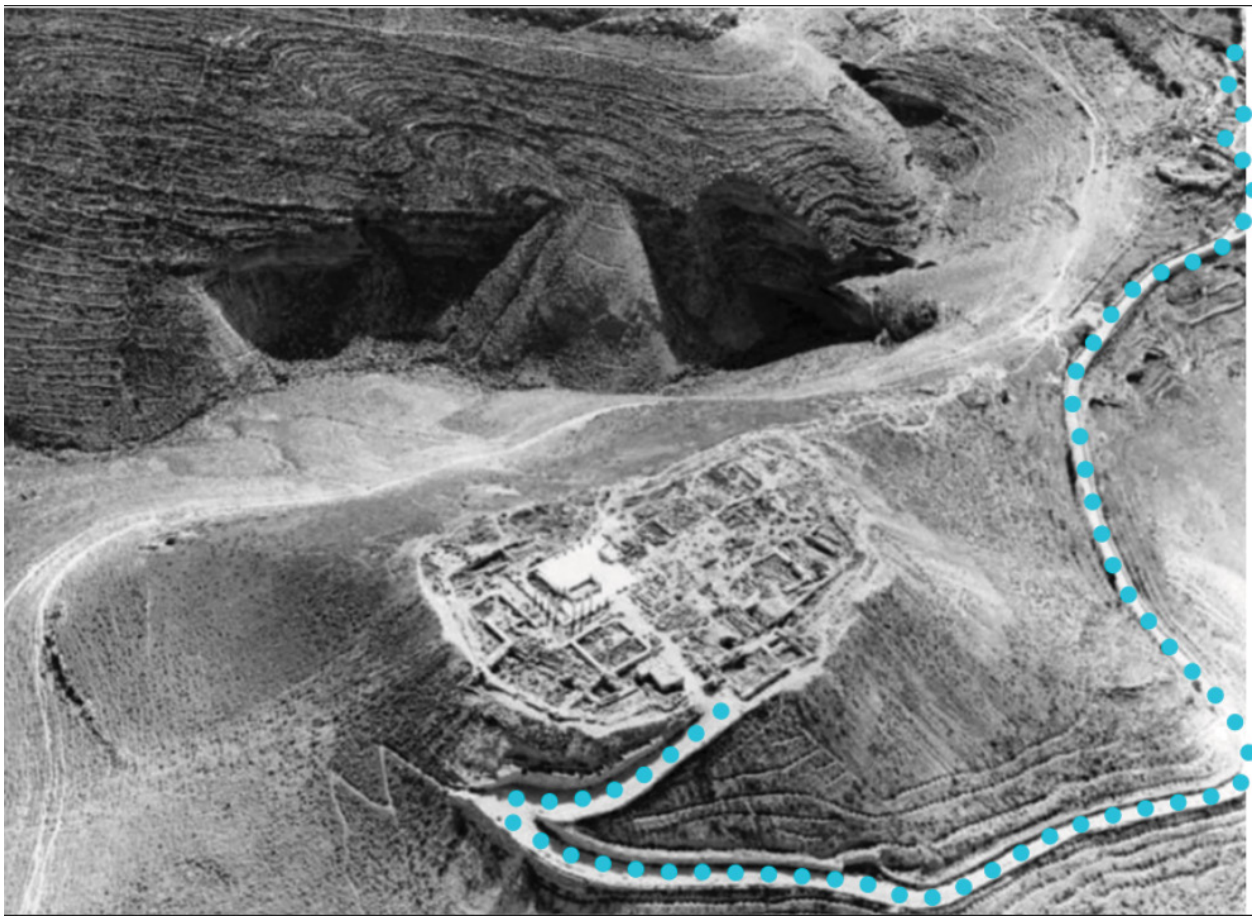




Figure 6.15
path accending to Machaerus Summit.
Source: Satalite image appropriated by the reseracher.

Figure 6.17
parts of the path accending to Machaerus Summit
Source: the reseracher 2022-2023

6.2.4 Defining the Site's Values

Cultural heritage values are the meanings, significance, and importance ascribed to cultural heritage places, objects, and practices by people and communities, both past and present. These values are diverse and multifaceted, encompassing historical, archaeological, aesthetic, religious/spiritual, social, and economic dimensions. They inform how we understand, interpret, and manage cultural heritage, guiding Cultural heritage values are the meanings, significance, and importance ascribed to cultural heritage places, objects, and practices by people and communities, both past and present. These values are diverse and multifaceted, encompassing historical, archaeological, aesthetic, religious/spiritual, social, and economic dimensions. They inform how we understand, interpret, and manage cultural heritage, guiding conservation and preservation efforts.[1]

Machaerus Fortress is not just a historical site; it is a rich tapestry of history, power, and faith. Its physical fabric embodies the rise and fall of empires, the ambitions of royal courts, and the enduring power of religious belief. The site's evolution from a Hasmonean fortress to a Herodian palace and then a Roman garrison, each leaving distinct architectural and archaeological traces, demonstrates its continuous adaptation and strategic importance over centuries. This dynamic history has imbued Machaerus with a rich tapestry of cultural heritage values.

Machaerus's strategic location, commanding views of the Dead Sea, and controlling vital trade routes like the King's Highway have constantly influenced its history. Its initial construction by the Hasmonean king Alexander Jannaeus (c. 90 BC) as a defensive measure against the Nabataeans, its subsequent transformation into a luxurious palace by Herod the Great (c. 30 BC), and its later use as a Roman military garrison (after AD 72) all contribute to its significant historical value. These successive occupations reflect shifts in regio-

nal power dynamics and political control, making Machaerus a key site for understanding the history of the region. The fortress's role in the Jewish Revolt against Rome, which ended with its siege and destruction, makes it even more important in terms of history. The circumvallation wall, unique to Transjordan, shows how the Romans used siege tactics during the revolt. In addition, the archaeological remains at Machaerus provide invaluable insights into the past. The different levels of occupation, the walls, towers, cisterns, mosaics, and other architectural features that have been preserved, and the artifacts and other materials that have been found during excavations all show that people lived at the fortress at different times. These remains contribute to our understanding of ancient architecture, engineering, daily life, and military practices in the region. For example, the discovery of the Hellenistic mosaic provides evidence of the site's earlier occupation and cultural influences.

The Herodian period showcases the site's architectural and aesthetic value. Herod turned the fortress into a palatial complex with bathing chambers, iwans, extensive mosaics, and a peristyle court. This shows the creativeness and appreciation of beauty in architecture during the Herodian era. The imposing walls, sophisticated water systems (including large cisterns), and the use of high-quality materials such as ashlar limestone further enhance this value. For example, the presence of both Doric and Ionic columns, some of which have been re-erected, demonstrates the adoption of classical architectural orders and the high level of craftsmanship achieved during this period. The sophisticated water systems, including the large cisterns described in the architectural analysis, demonstrate Herodian engineering prowess and adaptation to the arid environment.

Machaerus holds profound religious/spiritual value due to its association with the imprisonment and execution of John the Baptist. The detailed accounts in Mark 6:14–29 and

Matthew 14:1–12, along with Josephus's supporting evidence (Antiquities of the Jews XVIII, 5, 2), make Machaerus the clear place where this important event in Christian history took place. This direct connection to a key figure in Christian tradition imbues the site with deep spiritual meaning and makes it a destination for pilgrimage and commemoration. The presence of hermit caves, dating back to the Roman period, further reinforces this spiritual dimension. In light of that, Machaerus Fortress aligns with the following UNESCO World Heritage Criteria:

Criterion (i) (Cultural and natural phenomena of outstanding universal value): Machaerus represents a masterpiece of human creative genius, particularly in its Herodian architectural phase, showcasing innovative design and engineering solutions adapted to the challenging desert environment. The integration of the natural topography into the site's design also demonstrates a unique creative approach.

Criterion (ii)-Exhibition of a timeline reflecting human values and development: Machaerus exhibits an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design. The site demonstrates the evolution of military architecture and urban planning from the Hasmonean to the Roman periods, reflecting the influence of different cultures and their respective building traditions.

Criterion (iii)-Unique or rare testimony to a cultural tradition or civilization: Machaerus bears a unique or at least exceptional testimony to a cultural tradition or to a civilization that is living or which has disappeared. The site provides a unique testimony to the Herodian period and its impact on the region, particularly its architectural achievements and its role in regional politics, as evidenced by the transformation of a military fortress into a lavish palace.

Criterion (vi)-Direct or tangible associations with events or

traditions, with ideas, beliefs, or artistic and literary works of outstanding universal significance: Machaerus is directly or tangibly associated with events and beliefs. The site's association with John the Baptist and its role in early Christian history create a direct and tangible link to events and traditions of outstanding universal significance. This association has made Machaerus a place of pilgrimage and religious commemoration for centuries.

6.2.5 Physical Condition Evaluation, Threats and challenges.

A comprehensive on-site assessment of the current physical condition of Machaerus Fortress is crucial for understanding the site's preservation state, identifying its primary threats, to proposing appropriate conservation interventions. The following assessment focused on key architectural features of the Machaerus fortress, which includes the fortifications (walls and towers), the palace complex (courtyards, storage room rooms, and decorative elements), the water management system (cisterns, mikveh and channels), and other significant features such as the hermit caves. The methods demonstrated in chapter three previously, allowed for thoroughly examining the site's architectural elements, focusing on key aspects such as structural integrity, material condition, evidence of previous interventions, and site accessibility. The observations and data collected during these site visits are documented in detail in the condition recording forms (Appendix A, Table A.1). Table 6.01 provides a summarized overview of the condition of key architectural features, highlighting the most significant threats and their potential impact on the site's defined cultural values mentioned previously. This assessment forms the foundation for the conservation proposal presented in the following Section.

Feature	Historical Period	Material(s)	Condition	Threats	Impact on Cultural Values	Priority
Fortifications: Walls & Tower	Hashmonean, Herodian, Roman	Limestone, Mortar	Partially standing, some sections collapsed	Erosion, vegetation growth, vandalism Lose of Material.	Historical, Architectural educational significance,	Consolidation and strengthening.
The palace complex, (Courtyar, room , Decorative elements)	Herodian	Limestone paving, Plastered walls	Partially preserved, some areas eroded. Fragmentary remains, some wall sections standing. Totally destroyed, only few columns remain	Erosion,collapse vegitation, lack of maintenance, loss of material, Vandalism, inappropriate restoration,	Religious, aesthetical, historical, social significance, Architectural, understanding of building techniques.	vegetation removal, flooring repair Consolidation and strengthening Restoration and reconstruction of remaining columns
Water Management: Cisterns & Channels	Hashmonean, Herodian	Stone,Plaster Rock-cut channels	Fragmentary remains, some wall sections standingn and foundations	Collapes,vegitation, loss of material	Architectural, understanding of building techniques.	Consolidation and strengthening.

The hermit caves, that belongs to Byzantine period, are fragile, and undefined officially.this compromise the Religious significance, understanding of monastic life A priorety is for Documenting. Documentation, labeling, mapping, safe access, environmental maintenance
Accessibility : Difficult, un planned and doesnto cover all the sites components, doesont cosider the pilgrms need, disability as well.
The layout of the fortress is unclear, unreadable. This affects the sit'esUnderstanding of site organization, spatial relationshipsthe.

Table 6.02 A-1 Summary of Physical Condition Assessmen of Macharus Fortress. te reseracher 2024

Machaerus Fortress faces a complex array of conservation challenges that threaten its long-term preservation and accessibility. A primary concern is the structural deterioration of its physical remains. The fact that only a quarter of the site has been excavated, coupled with the absence of integrated documentation for discovered structures, creates a significant knowledge gap. This lack of comprehensive information hinders effective conservation planning and implementation. Environmental factors exacerbate the structural issues. Uncontrolled vegetation growth, a persistent problem in arid environments, exerts pressure on the masonry and contributes to its breakdown. Past earthquake activity has also left lasting damage, compromising the stability of the remaining structures. These natural forces are compounded by human-induced threats, including vandalism, neglect, and improper conservation practices. The cumulative effect of these factors has resulted in a fragile and isolated site, poorly presented to the public. Interpretation and presentation shortcomings further contribute to the site's vulnerability.

Despite its multidimensional significance, the remaining elements of Machaerus require effective interpretation, conservation, and presentation to enhance public understanding and appreciation. Previous interventions, often focused on singular elements without considering the site's overall context and associations, have proven inadequate. This fragmented approach has undermined the site's holistic preservation and interpretive potential. As a direct consequence of these issues, Machaerus experiences significantly lower visitor numbers compared to other pilgrimage sites, despite its profound historical and religious significance. This lack of visitation not only deprives the public of access to a crucial cultural landmark but also limits the potential for sustainable tourism and community engagement.

Overall, the site is experiencing significant degradation of its physical remnants, primarily due to neglect and inadequate conservation measures. This deterioration has severely impacted the structural integrity, stability, and overall preservation of Machaerus. Furthermore, it has compromised the authenticity and legibility of the archaeological artifacts, hindering the ability to fully comprehend and appreciate the site's historical, religious, and cultural importance. As a site of sacred significance, Machaerus holds immense value for pilgrims and devotees. Its present condition undermines the spiritual experience for visitors, diminishing their ability to connect with the site's sacred legacy. The decline in preservation also affects the overall visitor experience, potentially resulting in safety risks and a diminished appreciation of the site's diverse value. Ultimately, this cumulative neglect threatens the long-term sustainability of Machaerus as a cultural and religious heritage site, potentially culminating in an irreversible loss of information, context, and the ability to engage with its sacred legacy. Addressing these challenges requires a comprehensive and integrated conservation strategy that prioritizes research, documentation,

appropriate interventions, and effective public engagement

6.3 Conservation Proposal

This section presents a general framework of interventions designed to address the challenges and threats identified in the previous section and to ensure the long-term preservation and enhancement of the site's defined cultural values. This framework provides guiding principles and general approaches to conservation, recognizing that further detailed planning and specialized studies, including detailed design specifications and material analysis, would be required in a practical conservation project. This dissertation does not aim to propose specific designs but rather to present a general framework to avoid precluding future research and more detailed site-specific investigations. Authenticity and integrity, as emphasized in international chartres and conservation principles[144], serve as the cornerstones of the conservation proposal.

6.3.1 Conservation Objectives

The conservation proposal for Machaerus Fortress aims to achieve the following objectives, which are directly informed by the identified threats mentioned previously , and designed to preserve and enhance the site's defined cultural values:

1. Stabilize and Conserve the Structural Fabric: To stabilize and conserve the structural fabric of Machaerus, mitigating the risk of further collapse and deterioration caused by factors such as seismic activity, weathering, and biological growth. This objective directly addresses the threats to structural integrity and aims to preserve the site's architectural and historical values by protecting its physical form

144 ICOMOS, 1999 [Add full citation for the Burra Charter or other relevant ICOMOS document]; Orbaşlı, 2008, p. 64),

and preventing the loss of original fabric.
2. Manage Biological Growth and Mitigate Environmental Impacts: To manage biological growth (vegetation) and mitigate the impacts of environmental factors (weathering, erosion) on the site's structures. This includes implementing strategies to control vegetation growth, improve drainage, and protect vulnerable surfaces from further deterioration. This objective aims to preserve the site's architectural, historical, and aesthetic values by preventing further damage to the fabric.
3. Enhance Site Presentation and Interpretation: To enhance the presentation and interpretation of Machaerus for visitors, providing clear and informative interpretive materials, improving site accessibility (where appropriate and without compromising archaeological integrity), and creating a respectful and enriching visitor experience. This objective aims to enhance the site's educational and social values by promoting public understanding and appreciation of its significance.
4. Maintain and Respect the Site's Spiritual Significance: To maintain and respect the site's spiritual significance, particularly its association with John the Baptist, by ensuring that any interventions are sensitive to its religious context and do not diminish its sacred character. This objective aims to preserve the site's religious/spiritual value and to facilitate respectful pilgrimage.

6.3.2 General Concepts and Approaches to Conservation at Machaerus

This section outlines the general concepts and approaches that guide the specific conservation interventions proposed for Machaerus. These approaches are based on established conservation principles, including respect for authenticity, minimal intervention, reversibility, compatibility of materials, and sustainability, as outlined in international charters

[145]. These principles are fundamental to ensuring that conservation actions preserve the site's cultural values defined previously for present and future generations.

A key concept guiding the conservation of Machaerus fortress is a holistic approach that integrates conservation with interpretation and presentation, adopting principles comparable to musealisation but extending beyond traditional museum practices. This approach aims to establish a dynamic and meaningful relationship between visitors and the site, going beyond simply providing basic information about period, style, and function. Rather, it focuses on conveying the site's layered history and significance through careful conservation and sensitive interpretation within its original context. This approach aims to respect the evolutionary trajectory of Machaerus, seamlessly integrating archaeological interpretation within its existing architectural and urban fabric.

Recognizing Machaerus's evolution across three distinct historical periods (Hasmonean, Herodian, and Roman), the interpretive strategy will emphasize the continuity and transformation of this significant place. This will be achieved through a combination of physical pathways and digital representations, allowing visitors to engage with the site's rich history and gain a comprehensive understanding of its transformative journey. Specific routes will be designed to highlight evidence of political evolution between different phases of the fortress, particularly focusing on the Herodian period as a key phase demonstrating significant political, architectural, and technological advancements.

The conservation and interpretation of Machaerus will be approached with utmost sensitivity and respect for its religious significance, particularly its association with John the

145 the Burra Charter (ICOMOS, 1999 - add full citation) and as discussed by Orbaşlı (2008, p. 64)

Baptist. The preservation of the authentic fabric is paramount in maintaining this spiritual significance. The visitor experience has to be designed to foster a sense of reverence and contemplation while providing informative and engaging insights into the site's history and archaeology. Given that Machaerus has not been fully excavated, a precautionary and flexible approach to conservation is crucial. The principle of minimal intervention will be strictly adhered to, allowing for reversibility in interventions, especially in light of potential future archaeological discoveries that may alter our understanding of the site's significance and narratives. Unlike previous conservation efforts that may have treated Machaerus in isolation, this proposal emphasizes the importance of considering the site within its broader landscape and its associations with the surrounding area.

The selection of appropriate levels of intervention, materials, and treatments is based on the data collected during site visits, the site understanding established through historical, archaeological, and architectural analyses, the physical condition analysis, and the defined conservation objectives. The use of materials and treatments will adhere to standards and guidelines recommended by national and international conventions and organizations. These interventions will be guided by the principles of respect for authenticity, sustainability, compatibility, reversibility, distinction, and minimal intervention.Building upon these established principles and concepts, the following section will focus on developing the general framework of architectural interventions designed to address the identified threats and preserve and present the identified cultural values.

6.3.3 Proposed Interventions

Before implementing any major conservation interventions, several preparatory measures are essential. Proactive conservation measures are crucial for the long-term preser-

vation of the Machaerus Fortress. These measures include removing uncontrolled vegetation growth which poses a significant threat to the site's structural integrity. A program of careful vegetation removal is crucial , prioritizing manual methods to minimize damage to the archaeological fabric. This will be followed by ongoing monitoring and maintenance to prevent future regrowth. Moreover, mapping out the elements affected by overgrowth will also contribute to developing targeted strategies that not only address immediate concerns but also anticipate future challenges. This proactive approach aligns with best practices in heritage management, as it enables researchers to visualize changes over time and tailor maintenance efforts accordingly. Furthermore, using suitable software fosters collaboration among interdisciplinary teams, ensuring that conservation measures are informed by both ecological and archaeological insights, ultimately contributing to the preservation of cultural heritage for generations to come.



Figure 6.18
Vegitaion removal on some ruins at Mchaerus Fortress. Source: The reseracher 2023-2024
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Removing previous inappropriate or poorly executed ventions is also quite an important measure; for example, the steel frame surrounding the Herodian water cistern will be carefully removed. This removal aims to improve the accuracy of the site's architectural interpretation and prevent further damagefrom incompatible materials or construction techniques. Removing such inappropriate interventions reflects a respect for the original construction material's site value and authenticity and aligns with best practices for cultural heritage conservation, given that prioritizing interventions that respect the site's integrity and enhance the interpretation of the site. Documenting the removal process also can enhance future interventions and improve the overall comprehension of related historical structures.replacing the visible steel structure with a hidden, lightweight steel framework is a promising approach to preserving the Herodian water cistern while minimizing its visual impact. It represents a thoughtful balance between conservation and visitor experience. Careful planning and execution would be essential to ensure the success of this project.

Structural Consolidation and Enhancement of Interpretability: Fragmented walls and other structural remains will be carefully consolidated using compatible materials and reversible techniques. Where appropriate and based on sufficient archaeological evidence, limited anastylosis (repositioning of original stones) may be undertaken to enhance the understanding of the original building layout. Any new mortar used will be carefully selected for compatibility with

the original materials, prioritizing a mix of soil, water, and lime. This approach aims to improve the overall readability of the ruins and prepare them for future conservation and interpretive interventions. and enhance the clarity of the layout of the fortress.

The following phase focuses on enhancing visitor experience and accessibility by creating a well-defined network of pathways within the site. These pathways will function as mini cultural routes, guiding visitors through the site while minimizing disturbance to archaeological remains. The proposed network routes aims to improve visitor orientation and understanding of the site's layout and significance, and to manage pedestrian flow efficiently, particularly in areas with high visitor concentration. The development of this pathway netweork will contribute to a more engaging and inclusive visitor experience while preserving the integrity of the archaeological remains.

The primary access route, is an existing 800m walkway from the parking lot to the top of the hill , which will be rehabilitated to enhance the visitor experience. Improvements include widening the path, upgrading the surface with accessible materials, and installing appropriate signage and safety features. Interpretive panels along the route will highlight panoramic views of the surrounding landscape, including the water canal and Roman siege works. This will create a more engaging and educational journey for visitors, enriching their understanding of the site's historical context. The design will subtly guide visitors through key areas while fostering a sense of discovery and providing resting areas for comfort. This approach creates a seamless and enriching visitor experience that integrates accessibility, historical interpretation, and the natural beauty of the surroundings.

A network of secondary routes will connect visitors to key points of interest, including the hermit caves and the pre-

sumed location of John the Baptist's imprisonment. These routes will enhance the spiritual experience, offering scenic overlooks and interpretive opportunities.Route 2 will connect to surrounding caves, whereas Route 3 will specifically highlight the hermit caves and the area associated with John the Baptist. To enrich the visitor experience further, consider introducing a Route 1, potentially dedicated to exploring the fortress itself. Establishing distinct routes, possibly with varying levels of difficulty, can effectively serve diverse visitor interests and physical capabilities. It is crucial that these routes are meticulously maintained, safe, and easily navigable, supported by clear signage and effective wayfinding. Additionally, integrating interactive elements, such as audio guides or digital reconstructions, could significantly enhance visitor engagement and comprehension.

Internal walkways within the fortress will guide visitors through the site, minimizing disturbance to the archaeological remains. Constructed from durable, revisable,weather-resistant materials visually compatible with the site, these walkways will follow the original layout of the structures. Elevation changes will subtly differentiate areas and provide visual cues, replacing color coding. Raised walkways could highlight key structures or areas of interest, while ground-level paths provide general access. This nuanced approach respects the site's sacred nature while enhancing visitor understanding. The walkway surfaces should be firm, even, and accessible to all visitors, regardless of mobility.

The design and construction of pathways and walkways will be guided by several principles focused on preserving the archaeological remains and harmonious integration with the site's context. Minimal intervention will be prioritized to ensure minimal disturbance to the archaeological landscape, maintaining its integrity. Reversible materials and techniques will be employed, enabling future modifications or removals without harming the site's original fabric. The fe-

asibility of accessible pathways for visitors with disabilities will be considered, promoting an inclusive experience while safeguarding archaeological integrity. Material selection will ensure visual and physical compatibility with the site's existing aesthetics, allowing new pathways to complement its historical significance. This commitment to these principles aims to enhance accessibility while honoring and protecting the archaeological value of the site.

Protective shelters at Machaerus present significant challenges and require careful consideration to avoid compromising the site's authenticity and integrity. Shelters are typically justifiable only in cases where exceptionally vulnerable mosaics, wall paintings, or other features exist. At Machaerus, such features are currently absent. Also, putting shelters right on top of or next to important architectural remains is usually not a good idea because it could cover up the remains, give the wrong impression that the area is complete, and even damage the archaeology below. Therefore, rather than placing shelters within the core archaeological zone, a single, unobtrusive protective shelter is proposed near the site entrance. This location offers several advantages: it provides a designated gathering point for visitors, offers shade and respite, and enhances the visitor experience without impacting the sensitive archaeological remains. Crucially, it sits outside the main archaeological area, far from the fortress's walls, columns, and other features. The study suggests avoiding permanent foundations. and using reversible materials designed for easy removal without damaging the archaeological remains. Avoiding permanent foundations ensures minimal ground disturbance. The design will prioritize minimal visual impact, blending with the landscape through natural materials and simple forms. This approach balances visitor needs with the crucial preservation of Machaerus's authenticity and integrity.

The Herodian royal courtyard at Machaerus holds immen-

se historical and spiritual significance, serving not only as the largest architectural space within the fortress but also as the setting for Antipas's judgment of John the Baptist. Its importance for both historical understanding and pilgrimage necessitates a sensitive approach to conservation. While full reconstruction would compromise the site's authenticity, To improve the visitor experience and show the courtyard's original shape and purpose, a critical conservation approach is suggested that includes minimal/partial reconstruction, anastylosis, and the protection of existing fabric. So, the study suggests that rebuilding three important columns at the northern end, putting low, non-structural markers at other column locations, and using different materials for reconstructed parts based on existing archaeological evidence is a good way to show the size and layout of the courtyard without giving visitors the wrong idea about the level of original material. A qualified conservator will guide the assessment and replacement of damaged mortar and stone slabs with appropriate materials. Use of a lime-based mortar that is similar to what was probably used originally, stone slabs, picking a type of stone that matches the original in color, texture, and geological origin, or a substitute that looks a lot like the original and weathers similarly. Moreover, the study suggests restricting foot traffic within the courtyard itself. Visitors and pilgrims can instead utilize the proposed walkways surrounding the courtyard. This measure will minimize potential damage to the archaeological remains from foot traffic, erosion, and other environmental factors. This controlled access also allows for a more contemplative experience, encouraging visitors to appreciate the courtyard's scale and historical significance from a respectful distance, further preserving the site's integrity. This will balance preserving authenticity with enhancing the interpretive potential for historical understanding and spiritual reflection.

The outside walls of the fortress will be fixed up in a way that follows the rules of critical conservation, combining consolidation with selective reconstruction. The primary focus will be on consolidating existing masonry and preventing further decay, ensuring the long-term preservation of the remaining fabric. the limited reconstruction of the walls to enhance the visitor experience and understanding of the fortress's scale, layout, and historical significance. This approach ensures that any modifications made are grounded in reliable historical data, preserving the integrity of the archaeological site. By focusing on well-documented areas, we can maintain a balance between intervention and conservation.. Reconstructed sections will be clearly distinguishable from the original fabric through the use of [specify material/technique, e.g., a slightly different color or texture, or thin mortar lines]. This selective reconstruction will not aim to create a complete or conjectural outline of the fortress but rather to reinforce and interpret key sections, giving visitors a clearer sense of the fortress's footprint and defensive architecture. Areas where archaeological evidence is insufficient for accurate reconstruction will be consolidated and preserved, with interpretive markers or other non-structural means potentially used to suggest the general layout without implying a certainty that does not exist.
The water cistern at Machaerus is a vital component of the fortress's infrastructure, providing essential water resources for its inhabitants. These elements reflect the advanced Hasmonean and Herodian construction techniques of the time, underscoring their significant historical value. The primary focus of the proposed intervention will be on consolidating the remaining structure, including stabilizing the walls and repairing the plaster lining where possible. This will ensure the long-term preservation of this important feature. All materials used in the conservation will be compatible with the original fabric and easily distinguishable from

it. A breathable, lime-based mortar will be used for consolidation. This approach prioritizes the preservation of the existing remains while enhancing visitor understanding of the cistern's role in the fortress's water management system. Given the considerable depth of the cistern, safety is a paramount concern. To mitigate this risk, a light, protective shelter is proposed. This shelter will utilize lightweight and transparent materials to minimize decaying remains, allowing visitors to safely view the cistern's interior. The design will be carefully considered to minimize visual impact and integrate seamlessly with the surrounding environment. The shelter will be designed to minimize disturbance to the archaeological remains by utilizing lightweight materials and a foundation system that distributes weight evenly. This approach ensures that the integrity of the site is preserved while providing necessary protection from environmental elements. This approach balances the need to ensure visitor safety with the desire to preserve the historical integrity of the cistern and provide an enriching interpretive experience."

The numerous hermit caves surrounding Machaerus offer a fascinating glimpse into the diverse history of the region, providing evidence of human presence and spiritual practices beyond the fortress wall. These caves, likely occupied by early Christian ascetics, contribute to our understanding of the broader cultural landscape and the site's enduring significance as a place of retreat and contemplation. As an initial step in their conservation, hermit caves are thoroughly labeled, documented, and mapped, including their precise location, dimensions, and any notable features such as rock carvings or evidence of past habitation. This comprehensive documentation will create a valuable record for future research and preservation efforts. The long-term preservation of these fragile environments is paramount. Therefore, the implementation of appropriate safeguards is crucial. While

ensuring easy and safe access to all the caves might seem desirable, it is essential to carefully consider the potential impact of visitation on these delicate ecosystems. Unrestricted access could lead to erosion, damage to fragile features, and disturbance of any remaining archaeological deposits. Therefore, rather than proposing unrestricted acces the study recommend a phased approach. Initially, access will be limited to a select number of caves chosen for their stability, accessibility, and interpretive potential. These selected caves will be made accessible via carefully designed minor routes that minimize disturbance to the surrounding environment. The impact of visitation on these pilot caves will be closely monitored. Based on the findings of this monitoring program, future decisions regarding access to other caves will be made. This cautious, phased approach balances the desire to share these important cultural resources with the critical need to protect them for future generations. Furthermore, interpretive materials will be developed to explain the history and significance of the hermit caves.

CONCLUSION

7.1 Introduction

The study set out with the main aim of establishing an effective conservation framework for archaeological sites in Jordan with the Machaerus Fortress-Palace being the focus. Achieving this aim was done by attempting to develop correlations between two main disciplines. (Architecture and conservation and cultural routes) that have contributed to a sensitive conservation framework that enables the preservation and representation of the site's value. The sensitivity of the framework and the correlations between the three disciplines have made it possible to promote specific interventions that exceed the simple maintenance and anastylosis work on the fabric; they have, further, enhanced the role of design approaches to the site that respect the fabric, expose the knowledge properly in spatial resolution and elaborate the communication and educational values of the ruins. Each chapter of the thesis has a comprehensive conclusion of its outcomes; however, there is still a need in this chapter for reviewing the original aims and objectives of this study, highlighting by doing so its contributions to archaeological sites in general and Machaerus in particular as a specific case study.

7.2 Results and Reflections

The comprehensive theoretical review in Chapter 2 explored suitable interfaces informing the site's preservation and presentation strategies, aligning with its cultural, historic, and artistic conditions. Consequently, various approaches and principles have been employed for the conservation and presentation of archaeological sites' original fabric in general and Machaerus in particular.

The outcomes of this study underscore the importance of the coherent theoretical framework for the conservation and presentation of archeological sites. The dissertation focused on the constituent parts of the site and em-

phasized that each element, while contributing differently, is equally essential to the overall conservation framework, based on the area's history, values, and physical condition. This study also confirmed the feasibility of developing a general methodology and framework tailored to the specific characteristics of such sites. therefore, it is strongly advised that approaches to such sites be informed by directly engaging with and critically assessing their archaeological, architectural, historical, and cultural aspects. The dissertation aims to establish a coherent methodology that can be applied to the restoration and presentation of additional archaeological sites in Jordan, with necessary modifications tailored to the specific character of each site under investigation.

The Machaerus Fortress was selected as a case study to corroborate the conservation approach. Chapter 2 established a theoretical context for archaeological sites through a focused analysis of archaeological, architectural, and conservation. This interdisciplinary approach enabled the study to eventually build a critical and design-led methodology and conservation framework. The study of the Machaerus fortress was based on extensive reading and analysis of numerous archaeological and excavation reports produced by the German, American Italian, and Hungarian missions in addition to historical religious documents. This in-depth research facilitated a coherent interpretation of the ruins.
The conservation framework is based on a critical judgment of each area in the fortress, advocating flexibility in applying architectural principles to interpret the ruins spatially, considering their physical and cultural conditions.

The study recognizes the immense role of values-based and critical conservation approaches in building the required framework for the conservation of the Machaerus fortress. Machaerus is not just a collection of ruins, but a key element within a broader cultural landscape, specifically an ancient route connecting the fortress to other significant sites. These routes, reflecting the historical and spatial connections between Machaerus and its surrounding context, are central to the site's value, particularly as a biblical pilgrimage destination, enhancing its cultural value and contributing to a deeper understanding of the site. This understanding of Machaerus within its broader cultural landscape directly informs the subsequent conservation interventions.

The conservation proposal emphasizes a values-based approach while also recognizing the site's potential as a pilgrimage destination. It suggests specific interventions to transform the neglected and fragile ruins of the Machaerus fortress into an open-air museum and a pilgrimage site. This transformation aims to make the journey along the ancient routes an integral part of experiencing and understanding the site's cultural and spiritual significance.

As the first phase of developing the conservation framework, a detailed study was conducted on the spatial components of the Machaerus fortress and its surrounding context. This study involved documenting and mapping the fortress's layout, including the ancient routes that connected it to the surrounding landscape. The spatial analysis revealed that Machaerus was not an isolated structure; rather, it was part of a historical and political evolution in the region. Recognizing this historical connection, the concept of cultural routes was employed not merely as a tool for linking points of interest (POIs), but as an integral conservation tool. By highlighting and interpreting these ancient routes, the study aims to enhance the historical narrative and, in turn, enrich the site's overall cultural value. This understan-

ding of Machaerus within its broader cultural landscape will inform subsequent conservation interventions.

The proposed interventions for the fortress were designed to identify and prioritize both the original and contemporary values of the ruins while applying critical conservation judgment to any additions to the authentic fabric. This process included a thorough assessment of the historical, archaeological, architectural, spiritual, and cultural significance of each area within the fortress. A critical approach was adopted throughout the fortress, that focuses on the spatial representation of the essence of the ruins, utilizing design principles that carefully divert all new loads away from the original fabric. Selectively reconstructing certain ruins that exhibited strong conservation and educational potential. For example, the partial reconstruction of the three northernmost columns in the Herodian courtyard, based on the in-situ remains and the analysis of similar column bases from other Herodian sites, will enhance visitors' understanding of the courtyard's original scale and layout, thereby strengthening the site's architectural and interpretive values. This selective reconstruction aims not to recreate a complete colonnade but to provide a visual anchor that helps in understanding the space. The materials used were critically chosen, reflecting the identified values and the physical condition of the ruins. Therefore, most interventions employed sustainable, reversible, and distinguishable materials, incorporating a clear protective and separation layer (in most cases, the original mortar) between the original fabric and any new additions. Thus, a proposed conservation framework was most appropriate for the Machaerus fortress, particularly given that the site has not yet been fully excavated. This approach allows for flexibility and adaptation as discoveries are made.

In conclusion, this dissertation has developed a replicable and adaptable methodology for the conservation and inter-

pretation of complex archaeological sites, demonstrated through its application to Machaerus. This methodology integrates spatial analysis, values-based conservation, and the "open museum" to transmit the site's values, representing the achievements of past peoples and making them relevant to modern communities By creating an 'open museum' experience that encourages visitor interaction and exploration, which connects modern communities with the history and significance of Machaerus, emphasize the universal themes of power, spirituality, and human resilience, making the site's stories resonate with contemporary audiences. This research contributes to the field of heritage management by demonstrating how a holistic, values-based approach, incorporating spatial analysis and the "open museum" concept, can be effectively applied to complex archaeological sites like Machaerus, ensuring their preservation and accessibility for future generations.

7.3 The Impact of Conservation Framework on The Machaerus Fortress Palace

The conservation framework developed in this study has had a demonstrably positive impact on the understanding of Machaerus Fortress's values. The fortress's fragile condition and relative isolation necessitated a careful and nuanced approach, balancing a wide range of architectural principles and approaches with a deep respect for the site's authentic fabric. The level of intervention for each area was determined by a comprehensive assessment of its specific characteristics, its cultural and contemporary significance, and its educational potential, ranging from simple maintenance to carefully considered partial reconstruction. The review of diverse conservation case studies in Chapter 4 provided valuable inspiration and informed the development of creative and contextually appropriate proposals for each area of the fortress, both at the architectural and urban scales.

Machaerus Hill encompasses a variety of distinct structures, including the palace, lower city, hermit caves, water cisterns, and bathhouse, each exhibiting unique architectural, urban, and cultural characteristics. Therefore, the study adopted a phased approach, beginning with a detailed analysis of each area individually to uncover its specific cultural significance before integrating these individual narratives into a cohesive whole. This 'bottom-up' approach ensured that the unique values of each component were fully understood and considered in the development of the conservation framework.

The theoretical framework for Machaerus took into account the fact that the site remains only partially excavated, yet possesses a remarkably well-preserved authentic fabric, hidden for centuries. This presented both a challenge and an opportunity: how to reveal and interpret this hidden history without compromising the site's integrity or precluding future discoveries. A key element in this interpretation is the recognition of Machaerus not as an isolated entity but as a vital node within a broader cultural landscape, connected to its surroundings through a historic pilgrimage route.

The proposed development of this pilgrimage route, as detailed in the previous section, has significantly contributed to the understanding and enhancement of Machaerus's values. By tracing and interpreting the ancient pathways that linked Machaerus to other significant sites in the region, the project has revealed the fortress's integral role within a network of religious, historical, and cultural exchange. This has not only broadened our understanding of Machaerus's historical and cultural significance but has also added a new dimension to its interpretive value, allowing visitors to experience the site within its broader context. The pilgrimage route itself becomes a tangible link to the past, offering a unique and enriching experience that connects visitors to the spiritual journeys of those

who came before them, thereby enhancing the site's spiritual value.

Consequently, the wide range of interventions proposed for Machaerus has significantly enhanced the readability and perception of the architectural and urban principles of the fortress. The consolidation of the remaining sections of the Herodian courtyard walls, combined with the selective reconstruction of three key columns, has clarified the courtyard's original scale and layout, revealing its importance as a space for royal ceremonies and public gatherings. This has significantly enhanced our understanding of the fortress's architectural and historical value. Furthermore, the interventions have facilitated the identification and presentation of the diverse artistic, historical, and cultural values embedded within the authentic ruins, The careful documentation and mapping of the hermit caves, combined with the phased approach to visitor access, has highlighted their significance as evidence of early Christian asceticism in the region. This has enriched our understanding of the site's cultural and spiritual value and its role within the broader religious landscape. Finally, the conservation of the surviving fragments of the bathhouse mosaics, combined with interpretive panels explaining their original context and design, has revealed the high quality of the artwork and provided insights into the daily life and cultural influences within the fortress, thereby enhancing the site's artistic and aesthetic value. These specific examples, in conjunction with the development of the pilgrimage route, demonstrate how the conservation framework has brought the values of Machaerus into sharper focus, providing a more comprehensive and nuanced understanding of the site's rich history and significance.

7.4 Limitations and Future Expectations

This study acknowledges certain limitations inherent in

its scope. Due to the fragile condition of the ruins, some areas of the Machaerus fortress were inaccessible during the on-site architectural analyses and observations conducted between 2022 and 2024. While extensive archaeological and excavation reports provided valuable insights into these areas, by referencing accessible locations with similar structural characteristics and architectural principles, a complete understanding of these inaccessible zones remains a subject for future investigation.

The limited timeframe of this PhD study has necessarily restricted the exploration of a broader range of alternative interventions. Nevertheless, this research establishes a solid foundation for future work at Machaerus. It provides a comprehensive framework for understanding the site's values, its historical context, and its architectural significance. It is anticipated that this work will serve as a valuable resource for other researchers, architects, and heritage professionals, enabling them to engage with the site, build upon the findings presented here, and develop further conservation and interpretation strategies, informed by evolving research, new technologies, and different theoretical perspectives. Specifically, future research could focus on. Ultimately, the goal is to ensure the long-term preservation and accessibility of Machaerus for future generations, allowing its rich history and cultural significance to continue to inspire and educate.

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APPENDICES

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: The Royal Court Date of Recording: 20/05/2022-2023

Description	Rectangular shape with apsidal throne-niche, the courtyard is a part of the Herodian palace complex. The courtyard is the most important architectural space of the Herodian castle on the east bank of the Dead Sea. It was the largest architectural space in the fortified palace of Machaerus with a dimension of xxxx and surrounded by 28 columns (doric style, 3.8 m height)
Photographic Documentation	  
Material(s)	Lime Stone (Herodian “lithostrotos” (stone pavement))
Type of Deterioration	Structural: Cracking (horizontal, diagonal), deformation. Material: Erosion, biological growth (vegetation, hardy grasses or small desert shrubs), material loss, detachment, spalling, Surface: scratching
Potential Causes	Natural: Seismic activity, weathering (wind, rain, temperature fluctuations), vegetation growth, water infiltration, geological instability. Human-Induced: Vandalism, uncontrolled tourism, previous inappropriate restoration/conservation interventions, neglect.
Impact on Cultural Values	damage, posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Recommended Action	cleaning, consolidating (strengthening) weakened stone, and replacing any missing or severely damaged slabs with compatible materials. Careful attention must be paid to using appropriate consolidates that don't harm the original stone. replacing deteriorated mortar Protection against Weathering as Limestone is vulnerable to weathering
Additional Notes/Observations:	

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: apsidal throne-niche Date of Recording: 20/05/2022-2023

Location	A semicircular apsidal niche of the royal Herodian throne seat. The lower courtyard of the royal palace complex at Machaerus, situated on the summit of the fortress, overlooking the Dead Sea and surrounding landscape. This specific structure is found on the western side of the central palace building
Photographic Documentation	
Material(s)	Ashlar limestone (Nari type), lime mortar, (evidence suggests decorative finishes), possibly marble (for specific decorative elements or throne base), opus reticulatum (for specific structural or decorative elements).
Type of Deterioration	**Structural:** Cracking (vertical, horizontal, diagonal), bulging, subsidence, collapse, deformation. **Material:** Erosion (wind, water), weathering (freeze-thaw, salt crystallization), biological growth (vegetation, lichens, moss), staining, discoloration, loss of material, detachment, spalling, efflorescence. **Surface:** Abrasion, scratching, graffiti.
Potential Causes	**Natural:** Seismic activity, weathering (wind, rain, temperature fluctuations), vegetation growth, water infiltration, geological instability. **Human-Induced:** Vandalism, uncontrolled tourism, previous inappropriate restoration/conservation interventions, neglect.
Impact on Cultural Values	**Severe:** Significant damage, posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Recommended Action	Stabilize the wall using appropriate consolidation techniques. Cleaning and consolidation of the mosaic floor. Implementation of a visitor management plan to control access to the cave.
Additional Notes/Observations:	

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: Nothern-Southern and Western Bastion
Date of Recording: 20/05/2022-2023

Description	The northern, southern, and western bastions of Marcher's Fortress are key defensive structures, strategically positioned to offer enfilading fire and enhance the fortress's resistance to siege
Photographic Documentation	 
Material(s)	Ashlar limestone (Nari) (rectangular blocks). Mortar
Type of Deterioration	**Structural:** Cracking, bulging, collapse, deformation. **Material:** Erosion, biological growth (vegetation) loss of material, detachment, spalling. **Surface:** Abrasion, scratching,
Potential Causes	**Natural:** Seismic activity, weathering (wind, rain, temperature fluctuations), vegetation growth, water infiltration, geological instability. **Human-Induced:** previous inappropriate restoration/conservation interventions, neglect.
Impact on Cultural Values	Significant damage, posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Recommended Action	Stabilization of Cracks. Consolidation of Walls. Repairing or Replacing Damaged Stones.
Additional Notes/Observations:	the northern bastion varies slightly depending on the specific section of the structure and the period of its construction because Machaerus was built and modified over time.

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: Walls Date of Recording: 20/05/2025

Description	The walls of Machaerus Fortress were a crucial element of its defense, combining natural advantages with sophisticated Herodian engineering. They served not only as a barrier but also as an integral part of the fortress's infrastructure. The walls included storage rooms, dining rooms and
Photographic Documentation	   
Material(s)	Ashlar limestone (Nari type), lime mortar
Type of Deterioration	**Structural:** Cracking (vertical, horizontal, diagonal), bulging, subsidence, collapse, deformation. **Material:** Erosion (wind, water), weathering (freeze-thaw, salt crystallization), biological growth (vegetation, lichens, moss), staining, discoloration, loss of material, detachment, spalling, efflorescence. **Surface:** Abrasion, scratching, graffiti.
Potential Causes	**Natural:** Seismic activity, weathering (wind, rain, temperature fluctuations), vegetation growth, water infiltration, geological instability.

	Human-Induced: Vandalism, uncontrolled tourism, previous inappropriate restoration/conservation interventions, neglect.
Impact on Cultural Values	**Severe:** Significant damage, potentially affecting structural stability in the long term.posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Recommended Action	Stabilize the wall using appropriate consolidation techniques. Cleaning and consolidation of the mosaic floor. Implementation of a visitor management plan to control access to the cave.
Additional Notes/Observations:	

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: Floors Date of Recording:20/05/2022-2023

Description	The remains of mosaic floors, particularly within the bathhouse. These mosaics indicate opulence and sophistication in the palace's design. A mosaic from the baths of the fortress of Machaerus which was built by Herod the Great, 1st century BC, this is the most ancient mosaic found in Jordan
Photographic Documentation	 
Material(s)	Ashlar limestone (Nari type), lime mortar stone pavement for the courtyard, while the storage rooms were basic floring
Type of Deterioration	**Structural:** deformation. **Material:** Erosion, biological growth (vegetation, discoloration, loss of material, detachment, spalling, **Surface:** Abrasion,
Potential Causes	**Natural:** Seismic activity, weathering (wind, rain, temperature fluctuations), vegetation growth, water infiltration, geological instability. **Human-Induced:** neglect.

Impact on Cultural Values	Significant damage, posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Additional Notes/Observations:	The mosaic floors are lost as well, the only survived mosaic floor were relocated to Madaba archeological museum. It's important to recognize that the flooring within Machaerus would have varied depending on the function of the space. Royal areas would have featured more decorative floors, while utilitarian areas would have had more basic flooring.

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: Bathhouse Date of Recording: 20/05/2025

Description	Bathhouse is significant archaeological find, offering insights into the lifestyle and architectural sophistication of the Herodian era with Roman-influenced architecture. There were also hashmonean mikfeh
Photographic Documentation	 
Material(s)	Ashlar limestone, lime mortar, and stone.
Type of Deterioration	**Structural:** Cracking (vertical, horizontal, diagonal), bulging, subsidence, collapse, deformation. **Material:** Erosion (wind, water), weathering (freeze-thaw, salt crystallization), biological growth (vegetation, lichens, moss), staining, discoloration, loss of material, detachment, spalling, efflorescence. **Surface:** Abrasion, scratching, graffiti.
Potential Causes	**Natural:** Seismic activity, weathering (wind, rain, temperature fluctuations), vegetation growth, water infiltration, geological instability. **Human-Induced:** Vandalism, uncontrolled tourism, previous inappropriate restoration/conservation interventions, neglect.
Impact on Cultural Values	**Minor:** Superficial damage, not affecting structural integrity. **Moderate:** Noticeable damage, potentially affecting structural stability in the long term. **Severe:** Significant damage, posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Recommended Action	Stabilize the wall using appropriate consolidation techniques. Cleaning and consolidation of the mosaic floor. Implementation of a visitor management plan to control access to the cave.
Additional Notes/Observations:	

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: Columns Date of Recording: 20/05/2025

Description	The columns played both structural and decorative roles, enhancing the grandeur of the fortress.two type of columns were found ; both Doric and Ionic columns. The Doric columns were used within the royal courtyard, and Ionic columns where used within the royal bath house.
Photographic Documentation	
Material(s)	Ashlar limestone (Nari type), lime mortar
Type of Deterioration	**Structural:** Cracking (vertical, horizontal, diagonal), bulging, subsidence, collapse, deformation. **Material:** Erosion (wind, water), weathering (freeze-thaw, salt crystallization), biological growth (vegetation, lichens, moss), staining, discoloration, loss of material, detachment, spalling, efflorescence. **Surface:** Abrasion, scratching, graffiti.
Potential Causes	**Natural:** Seismic activity, weathering (wind, rain, temperature fluctuations), vegetation growth, water infiltration, geological instability. **Human-Induced:** Vandalism, uncontrolled tourism, previous inappropriate restoration/conservation interventions, neglect.

Impact on Cultural Values	**Minor:** Superficial damage, not affecting structural integrity. **Moderate:** Noticeable damage, potentially affecting structural stability in the long term. **Severe:** Significant damage, posing an immediate threat to structural integrity or causing significant loss of material/aesthetic value.
Recommended Action	Stabilize the wall using appropriate consolidation techniques. Cleaning and consolidation of the mosaic floor. Implementation of a visitor management plan to control access to the cave.
Additional Notes/Observations:	

Appendix A, Table A.1
Details of Condition Recording Form for the Machaerus Fortress-Palace
Researcher Name: Maysoleen Al-Adayleh. 2021-2024

Name of the Feature: Caves Date of Recording: 20/05/2025

Description	The hermit caves vary in condition, with some well-preserved and easily accessible, while others are partially collapsed or obscured by vegetation
Photographic Documentation	   
Material(s)	Cut rock stone
Type of Deterioration	**Structural:** Cracking, deformation. **Material:** biological growth (vegetation), staining, discoloration **Surface:** scratching, graffiti.
Potential Causes	**Natural:** vegetation growth, water infiltration, geological instability. **Human-Induced:** Vandalism, neglect.
Impact on Cultural Values	Noticeable damage, potentially affecting structural stability in the long term.
Recommended Action	Documentation, mapping, and labeling the caves. Removing any vegetation growth Cleaning and consolidation of the cave walls Implementation safety measurements to control access to the cave.
Additional Notes/Observations:	

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Abstract in Italian

La tesi di dottorato affronta la cruciale sfida della conservazione dei siti archeologici in Giordania, una regione eccezionalmente ricca di testimonianze delle antiche civiltà occidentali. L'obiettivo principale è identificare, preservare e valorizzare i profondi valori culturali di questi beni patrimoniali insostituibili. In particolare, la tesi esplora il patrimonio unico – tangibile e intangibile – del sito archeologico estremamente sensibile della Fortezza-Palazzo di Machaerus, una significativa roccaforte erodiana che domina il paesaggio circostante e si pone in dialogo con Gerusalemme e altre fortificazioni regionali dello stesso periodo. Machaerus non è solo un luogo di rilevanza storica e archeologica, ma anche un sito ufficialmente riconosciuto come meta di pellegrinaggio biblico, rinomato come il luogo dell'imprigionamento e della decapitazione di Giovanni Battista.

La tesi propone un quadro di conservazione integrato e multidimensionale, che considera il valore storico, religioso, archeologico, architettonico e urbanistico del sito, articolandosi su scala micro (unità architettoniche specifiche) e macro (paesaggi culturali e regionali). Tale approccio ne estende la rilevanza oltre i confini immediati del sito stesso. L'elemento innovativo della ricerca è l'integrazione del concetto di itinerari culturali come strumento strategico per la conservazione del patrimonio. Inquadrando Machaerus all'interno di un più ampio percorso di pellegrinaggio, lo studio intende migliorare la conservazione, l'interpretazione e la gestione sostenibile del sito. Questo approccio promuove un'interazione più consapevole da parte dei visitatori con le rovine archeologiche, contribuendo al contempo alla protezione della struttura originaria dai crescenti flussi

turistici e religiosi.

La metodologia adottata implica un'analisi approfondita dell'archeologia e dell'architettura di Machaerus, nonché dei suoi complessi contesti politici, sociali, storici e religiosi. L'analisi dettagliata fornisce una lettura critica e gerarchizzata del valore delle diverse aree del sito. Inoltre, è stata condotta un'analisi comparativa con casi studio internazionali, che ha permesso di individuare buone pratiche e strategie innovative adottate in siti archeologici analoghi, offrendo spunti preziosi per la conservazione di Machaerus. Gli interventi architettonici proposti, basati su una revisione sistematica della letteratura, su rilievi dettagliati e su modellazione virtuale, mirano a bilanciare le esigenze conservative con l'introduzione di una nuova materialità rispettosa del contesto. I modelli virtuali fungono da strumento fondamentale per comunicare la proposta di conservazione e per migliorarne la percezione, contribuendo a costruire una narrativa coerente che supporti la proposta urbanistica complessiva per il sito e la sua integrazione in una rete culturale più ampia. I risultati di questo studio sottolineano l'importanza di un solido quadro teorico per la conservazione e la valorizzazione dei siti archeologici, ponendo le basi per interventi sostenibili e culturalmente significativi.

This dissertation addresses the critical challenge of conserving archaeological sites in Jordan, a region exceptionally rich in ancient Western civilizations. The primary aim is to identify, preserve, and present the profound cultural values of these irreplaceable heritage assets. Focusing on the highly sensitive archaeological site of Machaerus Fortress-Palace, a significant Herodian fortress overlooking Jerusalem and other regional Herodian strongholds, this thesis explores its unique tangible and intangible heritage. Machaerus is not only a site of historical and archaeological importance but also a designated official biblical pilgrimage site, renowned as the location of John the Baptist's imprisonment and beheading. The thesis proposes a comprehensive conservation framework that acknowledges Machaerus's multi-dimensional value, integrating historical, religious, archaeological, architectural, and urban perspectives across micro and macro scales.

The thesis proposes a comprehensive conservation framework that acknowledges Machaerus's multi-dimensional value, integrating historical, religious, archaeological, architectural, and urban perspectives across micro and macro scales. A key innovation of this research is the integration of the cultural routes concept as a strategic tool for heritage conservation. By framing Machaerus within a broader cultural route – specifically, a pilgrimage route – the study seeks to enhance the site's preservation, interpretation, and sustainable management. This approach facilitates a deeper engagement of visitors with the archaeological ruins, while simultaneously protecting the original fabric from the increasing flux of visitation and pilgrimage. The methodology involves an in-depth understanding of Machaerus' archaeology, architecture and its complex political, social, historical and religious contexts. This comprehensive analysis provides informed interpretations and value prioritizations for each key area of the site. A comparative analysis with international case studies has also been undertaken.

The proposed architectural interventions, grounded in systematic recording, extensive literature review, and virtual modeling, aim to balance preservation implications with appropriate new materiality. These models serve as a vital vehicle for transmitting the reality of the conservation proposal and enhancing its perception, ultimately contributing to a comprehensive narrative that informs the urban proposal for the entire site and its integration into a wider cultural heritage network. The outcomes of this study underscore the importance of the coherent theoretical framework for the conservation and presentation of archeological sites.