



FIVE YEARS OF CONFLICT

The State of Cultural
Heritage in the
Ancient City of Aleppo





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A comprehensive multi-temporal satellite
imagery-based damage analysis for the
Ancient City of Aleppo

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This work is dedicated to the
inhabitants of the City of Aleppo

Preface

The Syrian conflict has unleashed one of the biggest humanitarian crises in recent times, taking an enormous toll on the lives of millions of people. Aside from the tremendous human cost, the conflict has resulted in the widespread destruction of critical infrastructure and urban centres, disrupting the social and economic life of the Syrian people. Cultural heritage, an essential component of identity, as well as a vital repository of memory and traditional knowledge, has also been profoundly affected.

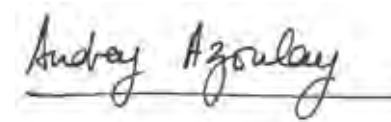
Syria epitomizes the devastating impact of this kind of destruction on the cultural heritage of humanity. The Ancient City of Aleppo, one of six Syrian World Heritage sites added to UNESCO's List of World Heritage in Danger in 2013, was once recognized as a best practice example in the field of urban conservation. Today it lies largely in ruins, with its invaluable centuries-old landmarks and cultural manifestations severely damaged or destroyed.

This report was developed jointly with the UN satellite imagery programme UNITAR-UNOSAT relying on satellite imagery and related 3D documentation, due to the difficult security situation and restricted access to the city. It analyses the scale of the destruction of cultural heritage in Aleppo immediately following the cessation of hostilities in December 2016.

Such new technology provides a remarkable tool with unmatched precision for documenting and understanding heritage, and the report provides a crucial planning tool for the eventual recovery of the city.

At an international level, UNESCO has taken the lead in protecting cultural heritage from destruction and looting in a world where it is targeted at an unprecedented rate. The adoption of the historic United Nations Security Council Resolution 2347 (2017), the first to focus exclusively on cultural heritage, showed the critical importance of culture in responding to conflict and recognizing the central role of UNESCO in these international efforts.

Restoring cultural heritage is part of the process of healing communities in the wake of a crisis. It is a powerful force for reconciliation and dialogue, and one that will be vital to the inhabitants of Aleppo in the coming years. When conditions allow, UNESCO stands ready to offer its expertise and assistance to the residents of this historic and inspiring city as they rebuild their neighbourhoods and their future.



Audrey Azoulay
Director-General
UNESCO



“Restoring cultural heritage is part of the process of healing communities in the wake of a crisis. It is a powerful force for reconciliation and dialogue, and one that will be vital to the inhabitants of Aleppo in the coming years.”

Foreword



“Through scientific methods, our team of image analyst experts derive detailed information on what happened [...] This is particularly important in terms of reconstruction”

The conflict in Syria has seen an unprecedented exodus of refugees and a vast movement of internally displaced persons. The international community has so far not been able to facilitate an end to hostilities despite the best efforts of United Nations agencies and the Office of the Special Envoy for Syria. UNITAR, and specifically our Operational Satellite Applications Programme (UNOSAT), has been assisting the effort with satellite imagery analysis since the very beginning of the conflict and it has supported the humanitarian community with up-to-date reports on damage, as published for Syria in 2014 and 2015, as well as a situation analysis of refugee settlements, while documenting the locations and movements of internally displaced persons. This work is always carried out on request from the thematically mandated United Nations agency.

It is in this context that UNITAR has partnered with UNESCO to assist in providing technical support for the protection of cultural heritage, and in many cases, unfortunately, documenting its destruction. By using publicly available satellite images we are able to provide facts on the ongoing situation on the ground, but also in conflict areas with no or restricted access to the international community. Through scientific methods, our team of image analyst experts derive detailed information on what happened where and at what point in time. This is particularly important in terms of reconstruction, but also as we concentrate our efforts towards peace and reconciliation, of which cultural heritage plays an integral part.

Our analysis is shared with architects and archeologists who have added their cultural expertise to our technical analysis. It is

through such partnerships that we can build on the strength of each entity so as to deliver one united response. I would like to thank UNESCO for taking the lead and for playing such an active role in protecting cultural heritage from wanton destruction and looting. Although this fight is not yet won, there is considerable momentum to support UNESCO in this struggle, and we at UNITAR are proud to contribute in this effort. I would also like to thank the Government of Norway for its financial support to UNITAR-UNOSAT, which enabled dedicated analysis on Aleppo.

Nikhil Seth
Executive-Director
UNITAR

Acknowledgements

CO-EDITED BY

Manuel Fiol
Youmna Tabet
With the support of
Léonie Evers

DIRECTED BY

Nada Al Hassan
Einar Bjørge

AUTHORS

Introduction

Jean-Claude David
Ruba Kasmó

Historic Description and Loss Assessment

Ruba Kasmó

Satellite Imagery-based Damage Assessment

Emma Cunliffe
Manuel Fiol
With the support of
Ruba Kasmó

OTHER CONTRIBUTORS

Giovanni Boccardi
Lars Bromley
Sebastian Chinchilla
Thierry Grandin
Katarina Palmkron

Graham Phillip
Julie Rasmussen
Caryn Saslow
Olivier Van Damme
Iconem

REVIEWERS AND OTHER CONTRIBUTORS

Scientific reviewer

Ross Burns

Language Editor

Cathy Lee

Graphic Designer

Ana Carrasco

PARTNERS

Directorate General of Antiquities and Museums of Syria
(DGAM)
EAMENA



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UNESCO Heritage
Emergency Fund

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THE CITY OF ALEPPO OVER TIME: A HISTORY OF DESTRUCTION AND RECONSTRUCTION

Thanks to its strategic location, Aleppo has long been a major commercial and production centre since its foundation, and it has always been able to overcome the several episodes of destruction throughout its long history. Its period of greatest political expansion occurred at the beginning of the second millennium BCE as the capital of the Amorite Kingdom of Yamhad when the city's importance was confirmed by its designation as the seat of the Storm God of Halab¹. The remains of the monumental temple devoted to this deity in the Citadel is one of the most important recent archaeological discoveries in Syria because it documented for the first time Aleppo's history over the entire period of the Aramean era to the early Syrian era². Aleppo was however destroyed by the Hittites in the mid-sixteenth century BCE.

In the aftermath of the conquests of Alexander the Great in 333 BCE, Seleucus Nicator founded a colony of Macedonians in a place named Beroia, which was part of the Hellenic Empire. The city was built according to a regular Hippodamean plan, which can still be observed in the western section of the city close to Bab Antakya. In 64 BCE, Aleppo was incorporated into the Roman province of Syria and became a provincial centre in the region of Antioch. The period between the first century BCE and the second century CE witnessed the greatest expansion of Aleppo as a Roman city. The Roman urban works incorporated layouts related to provincial routes and topographical lines. Consequently, the regularity and

1/ The Storm God, Hadad, played a supra-regional role in the ancient Near East. His temple, excavated in the Citadel of Aleppo by a Syrian-German mission, can be traced back to the middle of the third millennium BCE in the Early Bronze Age.

2/ Between the middle of the third millennium BCE and the sixth century BCE.

monumentality of the classical city was transformed and a more diffuse city plan began to emerge.

The Persian invasion of 540 CE again caused severe damage to Aleppo. The Citadel held out against the attack, but the city itself was burned down. Later, Emperor Justinian (525–565 CE), who erected a great cathedral dedicated to Saint Helena, rebuilt its defenses. However, the Sack of Antioch in 538 CE and the constant threat of Persian invasion prevented the complete recovery of the city. With the rise of Christianity in late antiquity, new religious buildings were embedded in the urban fabric of the classical city. The broad streets and regular open spaces began to disappear with the encroachment of housing and retail spaces.

In 636 CE, Aleppo integrated peacefully into Islamic rule, and the city's first mosque was built near Bab Antakya. Very little is known about Aleppo's urban development in the first centuries of Islamic rule. The most important addition was the Umayyad Mosque (also known as the Great Mosque) built around 717 CE to cater for the expanding population. The mosque was constructed beside the Byzantine cathedral and they coexisted for some time.

The period from the Abbasid rule in 750 CE up to the Zengid rule in 1129 was marked by political instability, and several local dynasties ruled Aleppo at different times. However, this period was rich in artistic and intellectual activity, especially during the era of relative prosperity under the Hamdanid dynasty (944–1002 CE). Unfortunately, few architectural works have survived this period as the city was ravaged by the Byzantine invasion of 962 CE and was then contested among various princes, as well as being attacked by the Crusaders. These continuous and disturbing events eroded the city's urban fabric and infrastructure. The Great Mosque's

magnificent minaret, built in 1090 during the rule of the local Seljuq dynasty (1080–1117) bore testimony to the skill of the local stonemasons before its destruction in 2013, and gave an idea of the quality of the lost artistic heritage of this period.

After this long period of instability, the city was liberated from the threat of the Crusaders, and Aleppo witnessed its first rebuilding campaign in the Islamic period under Nur al-Din Zengi (1146–1174). During his reign, he rebuilt the city walls, fortified the Citadel, expanded the Great Mosque, and founded many madrasas and other institutions. One of the buildings dating back to this period is the palatial residence of al-Matbakh al-Ajami, the oldest parts of which are dated to the twelfth century.

In 1183, Aleppo was captured by Salah al-Din al-Ayyubi³, marking the start of Ayyubid rule over the city and a period of prosperity that lasted until the Mongol conquest in 1260. The Ayyubid period marked the apogee of medieval Aleppo, which became one of the most thriving cities in the Muslim East; new extramural neighbourhoods were built, the Citadel reconstructed, the water-supply system repaired and improved, and the markets enlarged. The famous ruler al-Zahir Ghazi (1186–1216) rebuilt the fortifications, restored the gates and built new ones. One of these is the northern Bab al-Nasr, which was rebuilt in 1212. The rulers and their statesmen adorned the city with numerous madrasas including Madrasa al-Sultaniyya, which was completed in 1223 and held the mausoleum of al-Zahir Ghazi.

However, the Mongol invasion of 1260 left Aleppo semi-deserted and in ruins. Taken by the Mamluks the following year, the city was to remain under their domination until the Ottoman conquest in 1516. The city recovered slowly, but

3/ Known in the West as Saladin.

it was not until the fourteenth century that new structures were built again. Once security had been restored, the city was devastated yet again by the invasion of Timur in 1401⁴. Architectural examples of this period include Madrasa al-Sahibiyya, Hammam Yalbougha al-Nasiri and al-Utrush Mosque, which was started in 1398 and completed in 1408, a few years after the invasion by Timur.

During the ensuing second period of Mamluk rule (1401–1516), Aleppo entered a new period of prosperity. Around 1428, the city walls were substantially extended to the south and east, which increased the enclosed area by nearly 50 per cent and placed the Citadel at the heart of the city. Aleppo benefitted from the patronage of the Mamluk governors who built mosques and madrasas and who embarked on a building programme to expand and improve the city's markets. The first large khan in the central commercial area was Khan al-Sabun, built by the governor Azdumur ibn Mazid in the late fifteenth century.

Under the subsequent four centuries of Ottoman rule (1516–1916) – with the exception of the period of Egyptian rule (1831–1840) by Ibrahim Pasha that temporarily removed Aleppo from Ottoman administration – Aleppo was transformed from a frontier city on the borders of the Islamic lands to an inland urban centre well protected from outside aggression. The important regional market and the development of oriental trade with Europe fuelled the city's economic, demographic and urban growth so that it became the Ottoman Empire's third city after Istanbul and Cairo. The demand for space for commercial and production activities was strong, and the large Ottoman endowments responded to this demand. The endowments established

4/ Also known as Tamerlane.

in the sixteenth century were concentrated in the central commercial area, and their beneficiary institutions were supported by hundreds of commercial facilities. The first of these endowments was al-Khusrawiyya Complex, established by Husrev Pasha in 1546, and the second was that of Mohammed Pasha Dukakinzade in 1556 that included al-Adiliyya Mosque and Khan al-Nahhasin, among other properties.

To accommodate the population growth, new extramural suburbs were established and the already existing ones expanded, especially towards the north and east. Of these, the northwestern neighbourhood of al-Jdaydeh was the centre where Christians settled and established churches from the fifteenth century. One of earliest churches is the Armenian Orthodox Forty Martyrs church. The neighbourhood developed well into the seventeenth century and became a centre of production with many qaysariyyas (bazaars) established there. This neighbourhood boasted many beautiful residences built by wealthy tradesmen in the eighteenth and nineteenth centuries, such as Bayt Ajiqbash and Bayt Ghazaleh. Other equally valuable residences that housed the elite families of Aleppo are located in the different neighbourhoods of the Old City, such as Bayt Ibrahim Pasha Qatr Aghasi and Bayt Janbulat.

In 1822, Aleppo was struck by a strong earthquake. The impact was massive; the Citadel was badly damaged and subsequently deserted, and about 60 per cent of the urban fabric was destroyed. The revenues of the endowed properties, which constituted the vast majority of the deteriorated buildings, were scarce and thus unable to cover the high costs of reconstruction. The scholars and lawmakers of the city therefore devised new systems for the administration of the endowed buildings, such as long-term

rents and replacement contracts in order to attract private capital and facilitate the restoration and reconstruction works.

The nineteenth century also brought about profound changes to the city's social, administrative and economic life, opening a new chapter in its history and setting it on the path towards modernity. The Tanzimat⁵ reforms, enacted from 1839 and inspired by the West, oriented the changes in the city. In 1866, the first municipal body was created in Aleppo, which marked the start of the foundation of new neighbourhoods in the west. The new buildings were characterized by the preference for external windows on the street instead of interior courtyards and broad, regular streets. New materials and eclectic designs emerged. From 1882 a new city centre began to develop outside the northwestern corner of the walled city beyond Bab al-Faraj, answering the need for services and providing access to new means of transportation and regional links. Over time, these areas became known as the 'modern city', whereas the walled city and its pre-nineteenth century extensions were consolidated as the 'Old City' of Aleppo. In addition, many public buildings that could provide services to modern standards were established. These included hospitals, schools, administrative buildings, police stations, and so on. Two examples were the National Hamidi Hospital, inaugurated in 1900, and the New Serail whose construction was halted because of the First World War and was only completed in 1933. These changes were accompanied by the introduction of the 1884 Ottoman law⁶ that dealt with

5/ This word meaning 'reorganization' in Ottoman Turkish and Arabic concerns the period of reforms that preceded the promulgation of the Ottoman Constitution of 1876.

6/ The texts written in Ottoman Turkish were published in French in 1906 by George Young, Secretary at the British Embassy.

the protection of historical monuments and informed the work of the Antiquities Administration, an organization developed under the French Mandate for Syria and Lebanon.

From the early days of the French Mandate in 1923, the French Institute (l'Institut français) and the Arab Academy of Damascus fostered the recognition of Arab and Muslim culture, the promotion of traditional arts and crafts, and the restoration of monuments. In this context, the French art historian and archaeologist, Jean Sauvaget, drew up a list of Islamic monuments to be protected in Damascus and Aleppo, and the National Museum of Aleppo was opened in 1931.

Aleppo continued to develop and the early years of independence after 1946 were marked by hectic modernization. In 1954, French urban planner André Gutton further developed urban projects that were initially started under the Mandate, but the wide-scale expropriations and highly destructive demolitions in several historic neighbourhoods, including Bab al-Faraj, al-Jdaydeh and the areas west of Bab al-Jinan, destroyed tens of hectares in the process of urbanization. In addition, the Syrian Antiquities Law No. 222 of 1963 was passed to govern the protection of cultural heritage. Although the law paid special attention to historic monuments, it still acknowledged the 'historic areas'. Between 1968 and 1974, the Directorate General of Antiquities and Museums designated more than 160 buildings and a number of markets as historic monuments.

Between 1968 and 1974, under the auspices of Japanese urban planner Gyoji Banshoya who was mandated by UNESCO, a set of general guidelines and a protection plan for the Old City were drawn up. Banshoya suggested



Aerial photograph taken on 12 January 1936 by the thirty-ninth Regiment of the French Observation Aviation in the Levant
© Michel Écochard Archive, courtesy of Aga Khan Documentation Center at MIT.*

limiting through-routes and cancelling the municipal projects to widen alleys and open up cul-de-sacs. His alternative proposals included dead-end streets and the definition of two levels to classify the ancient urban fabric: a protected centre and a zone where changes were authorized, following certain rules and after inspection by the authorities (see Figure 1).

Following the declaration of the intramural Old City as a national historic area in 1976, Law No. 222 was put into effect to guide and control interventions within the Old City, and a Conservation Committee was formed to oversee its application. In 1978, the DGAM expanded the boundaries of the protected zone to include some pre-nineteenth century extramural neighbourhoods. In 1979, Aleppo's Conservation Committee requested UNESCO's support in suggesting actions to preserve its historic fabric. An international symposium was held in 1983 to promote the conservation of the Old City. In 1986, the Old City was declared a UNESCO World Heritage property (see Figure 2) whose outstanding universal value (OUV) is justified by the cohesive and unique urban fabric shaped by successive rulers. The main concern then became the restoration of monuments. The DGAM undertook this work in association with the municipality and it realized numerous restoration works in the Citadel, the Great Mosque, and many other historic buildings.

In 1992, on the initiative of the Friends of the Old City of Aleppo, the DGAM and the municipality solicited the German Technical Cooperation Agency (GTZ) to support urban conservation. The initiative brought about some effective results; between 1992 and 1994, several national institutions were set up, inventories were carried out, and a comprehensive conservation plan was developed. In 1992, the Directorate of the Old City (DOC) was created under the supervision of the municipality, though it was only given independent status in 2000. One of its first tasks was to set

up a Committee for the Preservation of the Old City, which drafted the Project for the Rehabilitation of Old Aleppo in early 1993. A plan for the Old City was approved in 2000. Notable measures were the scrapping of new road-building and demolition plans. Other measures included the upgrade of the water supply and sewage systems, street paving was 80 per cent renewed, interest-free loans were made available for residents seeking to restore their homes, and neighbourhood social infrastructure and school facilities were completed or modernized.

Zoning defined the function of each area. Tourist facilities were consolidated around the Citadel and in al-Jdaydeh neighbourhood. In the residential neighbourhoods, the objective was to encourage local residents and their activities to remain. The Aga Khan Trust for Culture (AKTC), in partnership with the DGAM, initiated a project in 1999 for the conservation of citadels in Syria, which included Aleppo. It financed conservation projects and several archaeological excavations within the Citadel with the participation of the World Monuments Fund (WMF). The Aga Khan Historic Cities Programme (AKHCP), in partnership with the DGAM and GTZ, reviewed and carried out the Aleppo Citadel Perimeter project between 2004 and 2010.

By early 2011, the results were impressive. Aleppo was again prosperous and in the process of modernizing. The authorities linked their interests with those of city businesses, and tourism investment was rapidly growing. However, in July 2012, Aleppo fell into conflict. The tremendous escalation of the conflict during the five ensuing years resulted in a vast humanitarian crisis with huge loss of life and the displacement of large sections of the community. It has also resulted in the major destruction of the urban fabric as a result of bombardments, underground bombs, shelling, fires and street combats.

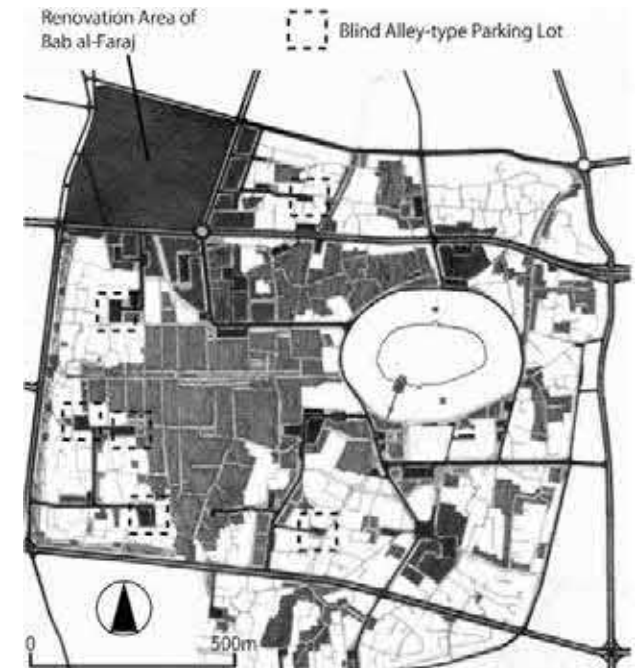
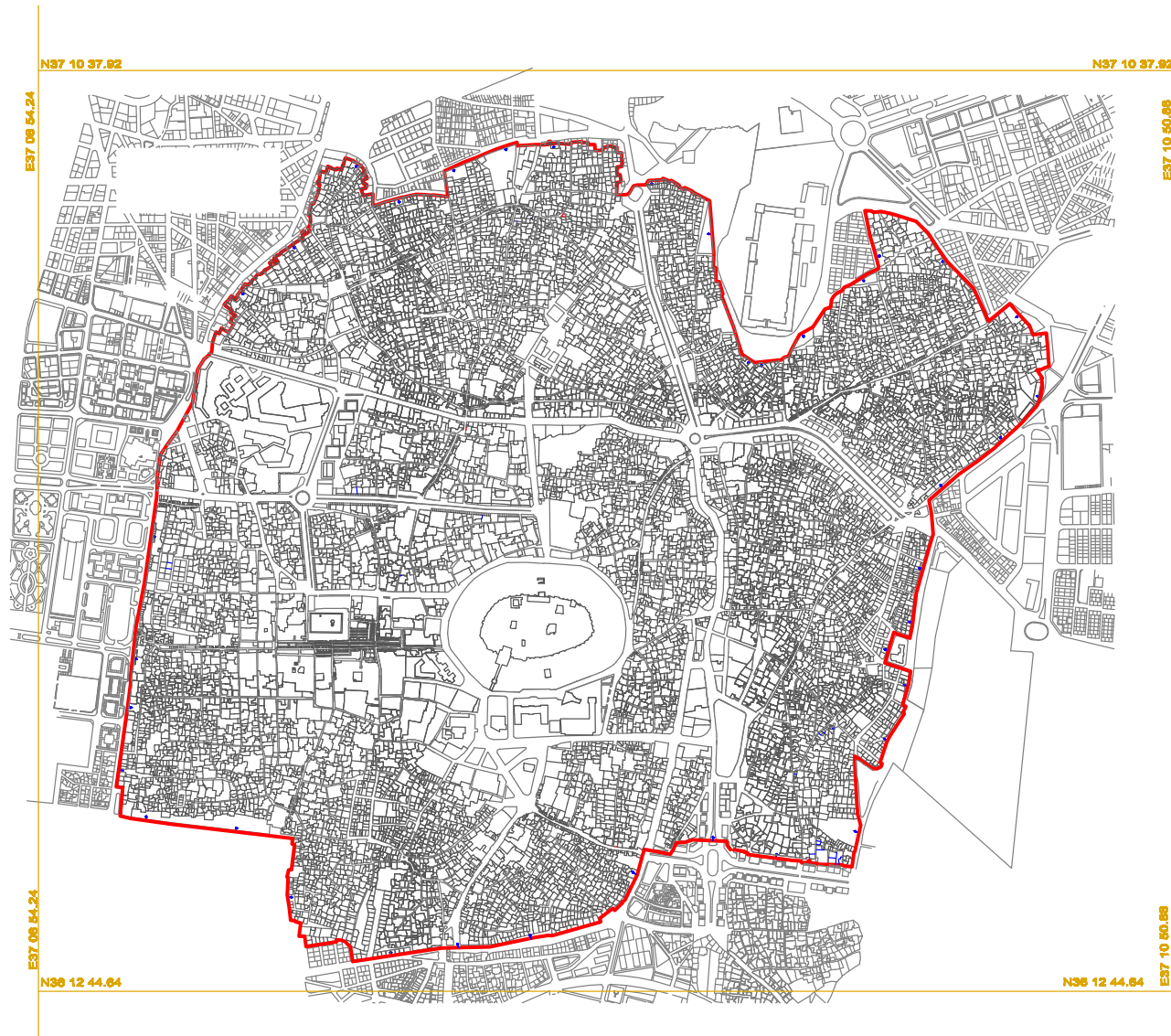


Figure 1. Banshoya's Master Plan for the City of Aleppo. (Source: Banshoya, G. and David, J-C., 1973).

December 2016 marked the end of combat in the city. Aleppo became partly accessible, which allowed UNESCO to undertake an emergency assessment mission in January 2017. At the request of the Syrian institutions, in early March 2017 UNESCO hosted the first international coordination meeting for the recovery of Aleppo's cultural heritage. Among the main outcomes of the meeting, it was agreed that UNESCO would provide the framework for the coordination of all culture-related recovery efforts for Aleppo.



MORE INFORMATION



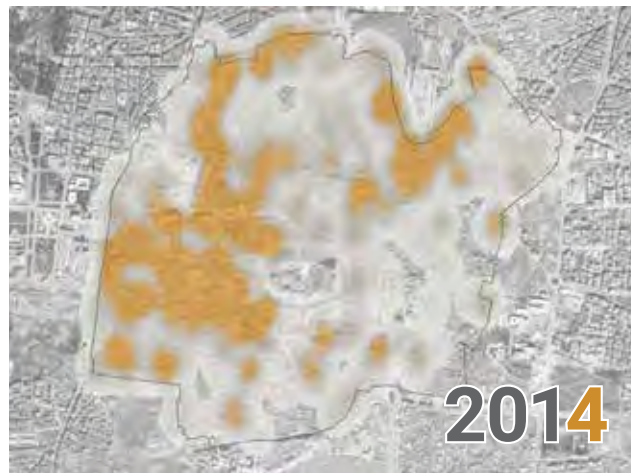
Scan the code to download documents related to the World Heritage property of the Ancient City of Aleppo, including the map.

Figure 2. Ancient City of Aleppo - Map of the inscribed property: boundaries in 2012 (Source: UNESCO - DGAM).

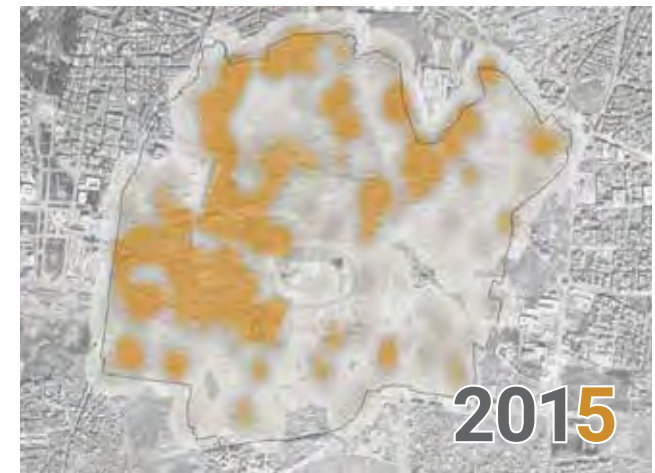
FIVE YEARS OF DESTRUCTION: OVERVIEW (2013 - 2017)



The Great Mosque's magnificent minaret built in 1090 during the rule of the local Seljuq dynasty (1080–1117) testified to the artistic quality and high skill of the local stonemasons. The minaret was destroyed on 24 April 2013.



The National Hamidi Hospital (later the Carlton Hotel) had historic and architectural importance as the first modern hospital built in Aleppo and was one of the best-preserved examples of public buildings established in the city after the Ottoman reforms. The building was destroyed on 4 May 2014.



Between 2014 and 2015, most of the historic buildings south of the Citadel of Aleppo were destroyed or severely damaged, including the New Serail, Madrasa al-Sultaniyya, Hammam Yalbougha al-Nasiri and al-Khusrawiyya Complex.



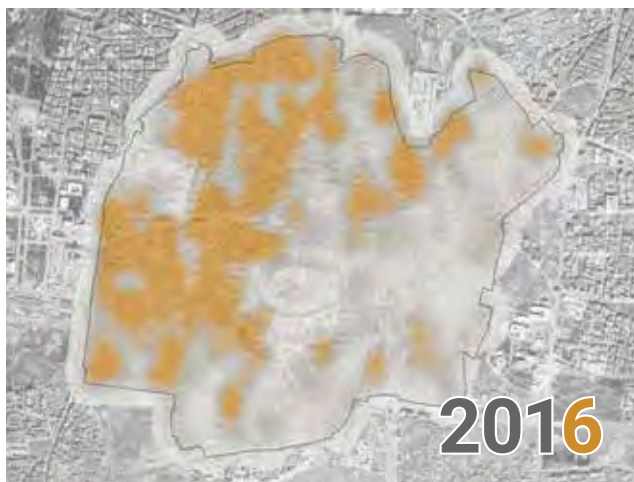
Figure 3. Great Mosque of Aleppo. 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License).



Figure 4. National Hamidi Hospital. 23 May 2014 © 2014 DigitalGlobe (Source: U.S. Department of State, NextView License).



Figure 5. Historic Buildings - South of the Citadel of Aleppo. 26 April 2015 © Pléiades Image CNES 2015, Distribution Airbus Defence and Space.



On 26 April 2016, al-Jdaydeh Quarter and al-Hatab Square were severely damaged.

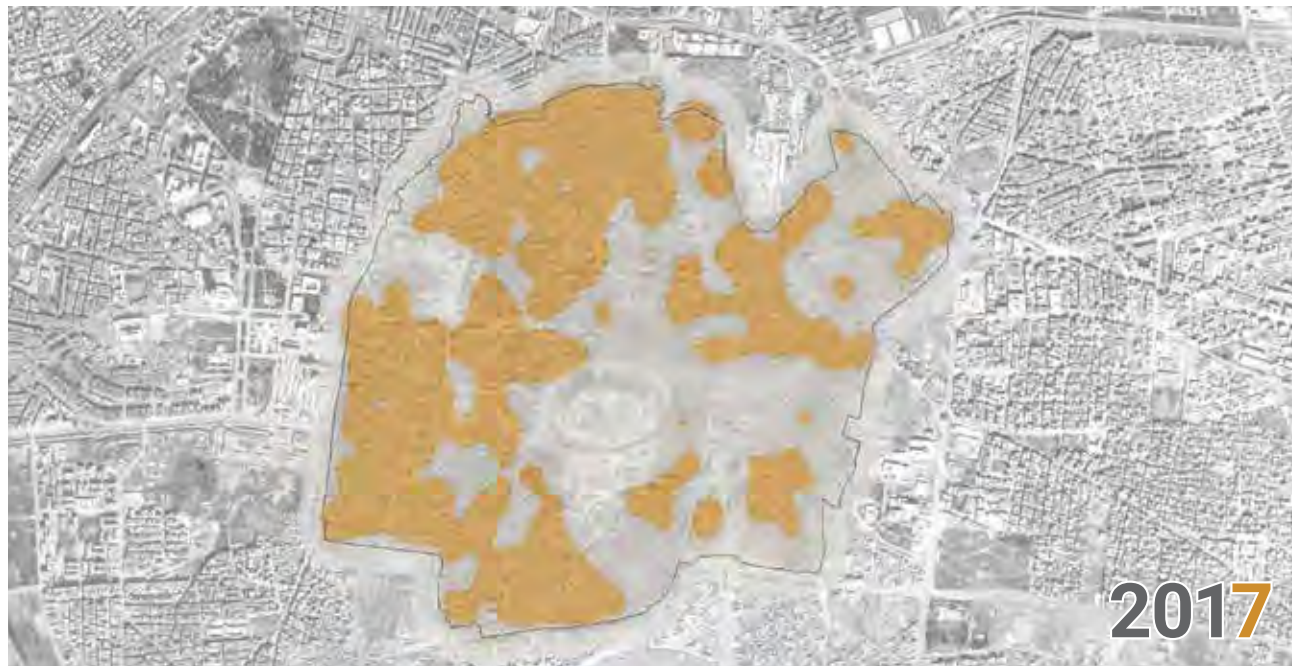


Figure 6. Al-Hatab Square. 18 September 2016 © 2016 DigitalGlobe (Source: U.S. Department of State, NextView License).



Figure 7. Al-Adiliyya Mosque. 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

Al-Adiliyya Mosque is an important example of Mimar Sinan's provincial mosques. On 17 February 2017, al-Adiliyya Mosque was severely damaged.

FIVE YEARS OF DESTRUCTION: HISTORIC TIMELINE

The Ancient City of Aleppo is one of the oldest continuously inhabited cities in the world. It may have been inhabited since the 6th millennium BCE. Located at the crossroads of several trade routes since the 2nd millennium BCE, Aleppo was ruled successively by the Amorites, Hittites, Assyrians, Akkadians, Greeks, Romans, Byzantines, Umayyads, Abbasids, Seljuqs, Zengids, Ayyubids, Mamluks and Ottomans who all left their mark on the architectural fabric of the city. Since its inscription on the UNESCO World Heritage List in 1986, the layout of the old city in relation to the dominant Citadel had basically remained unchanged until the Syrian conflict reached Aleppo in 2012.



© One Stop Map

OUR INITIATIVES

2013

Inscription on the UNESCO World Heritage List in Danger. UNESCO-led high-level meeting on an Action Plan for the Safeguarding of the Syrian Cultural Heritage on 29 August 2013.



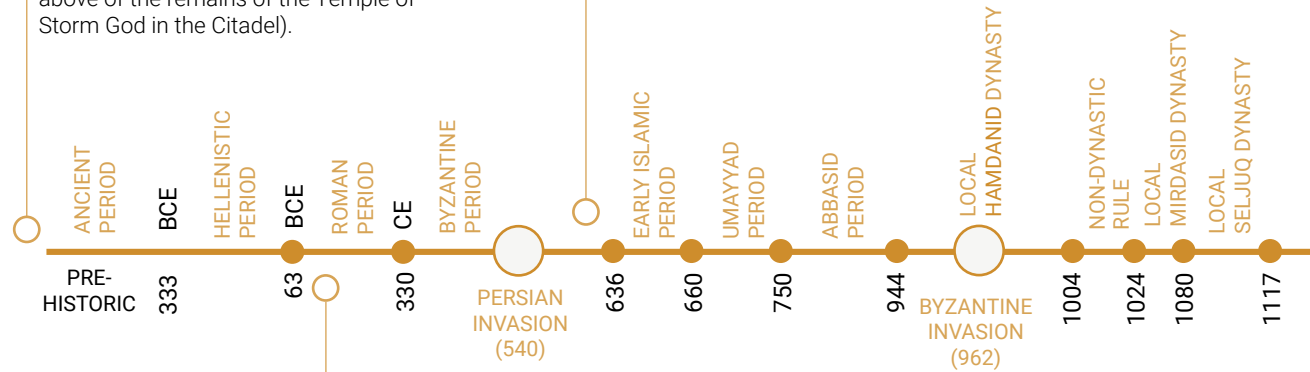
TEMPLE OF THE STORM GOD

Aleppo was the capital of the Amorite Kingdom of Yamhad and designated as the seat of the Storm God, Hadad. The temple was one of the greatest religious centres of ancient times (see image above of the remains of the Temple of Storm God in the Citadel).



GREAT MOSQUE OF ALEPPO AND ITS MINARET

In 636 CE Aleppo surrendered to the Muslims, and the city's first mosque was built near Bab Antakya. The Great Mosque was built around 717 CE to cater for the expanding population. The minaret of the mosque was built in 1090 and was a testimony to the skill of the local stonemasons of this period.



EARLIEST URBAN FEATURES

Seleucus I Nicator founded a colony of Macedonians called Beroia, part of the Hellenic Empire. In 64 BCE, Aleppo was incorporated into the Roman province of Syria and in 330 CE became a part of the Byzantine Empire. The Persian invasion of 540 CE caused severe damage to Aleppo. The Citadel held out against the attack, but the city itself was burned down.



Traces of the Hellenistic street network in the Ancient City of Aleppo. Gaube, H., "A History of the City of Aleppo" in Syria, Medieval Citadels between East and West, Ed. Bianca, Stefano, Aga Khan Trust for Culture, Italy, p. 75.

2014

UNITAR-UNOSAT published 'Satellite-Based Damage Assessment to Cultural Heritage Sites in Syria.' First UNESCO International Expert Meeting 'Rallying the International Community to Safeguard Syria's Cultural Heritage'.



2016

UNESCO and UNITAR-UNOSAT co-published 'Satellite-Based Damage Assessment of Cultural Heritage Sites: 2015 Report of Iraq, Nepal, Syria and Yemen.' Second UNESCO International Expert Meeting 'Follow-up to the Implementation of the UNESCO Action Plan for the Emergency Safeguarding of Syria's Cultural Heritage'.



CITADEL OF ALEPPO

The Citadel, as it looks today, dates mainly to the Ayyubid period. The Ayyubid ruler al-Zahir Ghazi reconstructed the walls and defensive towers, built the entrance block and its bridge and adorned the Citadel with the Royal Complex and many other structures (see Citadel entrance above).



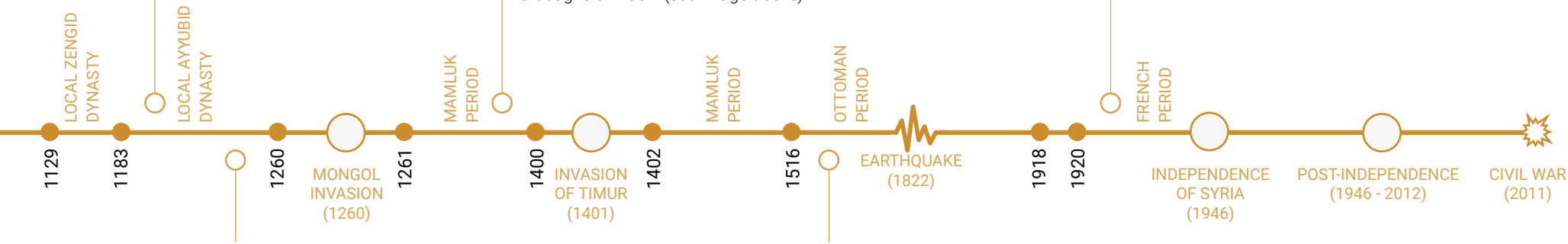
HAMMAM YALBOUGHA AL-NASIRI

The Mongol invasion left Aleppo semi-deserted and in ruins. The city recovered under the Mamluk rule and entered a period of prosperity despite its devastation by the invasion of Timur. The city walls were extended which increased the intramural area by nearly 50 per cent and put the Citadel at the heart of the city. Aleppo benefited from the patronage of the Mamluk governors who built mosques, madrasas, hammams, khans and other buildings. One example from this period is Hammam Yalbugha al-Nasiri (see image above).



THE NATIONAL MUSEUM

The National Museum of Aleppo was founded in 1931. In 1966, the old building was demolished and replaced with a larger, more modern structure. The museum holds artefacts covering all eras of the city's history as well as of the northern Syria and Euphrates regions (see National Museum entrance above).



MADRASA AL-SULTANIYYA

The Zengid and Ayyubid periods marked the apogee of medieval Aleppo, which became one of the most thriving cities in the Muslim East. Madrasas were among the many institutions founded in the city. Madrasa Al-Sultaniyya was completed in 1223 and held the mausoleum of the ruler al-Zahir Ghazi.



AL-KHUSRAWIYYA COMPLEX

During the Ottoman rule, Aleppo witnessed enormous economic, demographic and urban growth. Al-Khusrawiyya complex (1546) was the first Ottoman-style complex in the city and the largest in its time.



Images on Page 20

Top left: © World Monuments Fund
Top right: © Alain Homsji*

Images on Page 21

Top left: © Bernard Gagnon
Top middle: © Bernard Gagnon
Top right: © Kervorkmail
Bottom left: © Reem Qudsi
Bottom right: © Preacher Lad



Destruction in the Ancient City of Aleppo and Matbakh al-Ajami. Picture date: 2014 © UNESCO

IMAGERY USED FOR THE COMPREHENSIVE DAMAGE ASSESSMENT

To assess damage in the World Heritage Site of the Ancient City of Aleppo in Syria, UNITAR-UNOSAT reviewed six commercial, high-resolution satellite images of the World Heritage property and used specialized remote-sensing techniques that resulted in an in-depth analysis of the destruction and damage to numerous architecturally and historically significant buildings.

Comprehensive damage assessments use imagery from DigitalGlobe WorldView-2 & 3 sensors and Airbus Defence & Space Pléiades constellation:

PRIOR TO CONFLICT

- 2010: [21 November 2010 DigitalGlobe WorldView-2 Satellite Image](#)

CONFLICT IMAGERY

- 19 July 2012 – Start of Hostilities in Aleppo
- 2013: [23 September 2013 DigitalGlobe WorldView-2 Satellite Image](#)
- 2014: [23 May 2014 DigitalGlobe WorldView-2 Satellite Image](#)
- 2015: [26 April 2015 Airbus Defence & Space Pléiades Satellite Image](#)
- 2016: [18 September 2016 DigitalGlobe WorldView-3 Satellite Image](#)
- 22 December 2016 – End of Hostilities in Aleppo
- 2017: [20 February 2017 DigitalGlobe WorldView-3 Satellite Image](#)

The analysis team assessed all the available commercial satellite imagery for each chosen site in Aleppo, acquiring the most relevant imagery available. Most of the commercial sources for such imagery were provided under the U.S. Government NextView license by the U.S. Department of State Humanitarian Information Unit. Occasionally, secondary imagery sources, primarily Google Earth, were used to help better visualize ground conditions and compensate for intermittent haze, cloud cover or other interference. UNITAR-UNOSAT conducted the damage assessment of the historic sites using its standard analysis methodology and quality control procedures with the aim of detecting multiple instances and categories of structural damage or other activities, such as digging, which would indicate looting.

Damage assessments using satellite imagery are mostly limited to relatively significant and critical levels of structural damage and are not intended to catalogue all damage to structures. The analysis only assesses what is visible from above, though in some specific imagery, damage conditions to the façade of structures is also apparent. Activities such as digging are much more apparent, as even small holes will displace enough soil to make them easily identifiable in imagery. The assessment was limited to sites located within the boundaries of the World Heritage site of the Ancient City of Aleppo as inscribed in 1986, and other significant locations, such as the National Museum. The old neighbourhoods outside this boundary also contain many historically and architecturally significant buildings, which are registered as national monuments. Many of these monuments have witnessed different levels of damage and will be included in upcoming assessment and reconstruction efforts.

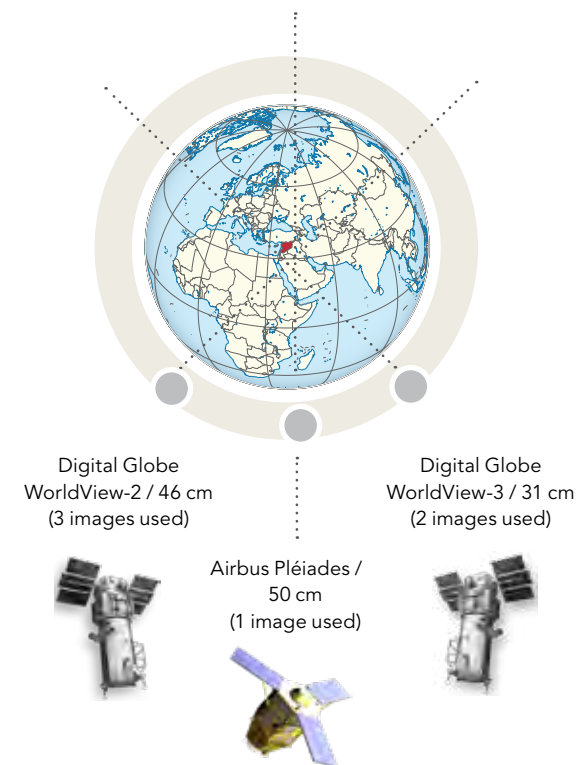


Image Copyright: All satellite imagery are provided by U.S. Department of State, Humanitarian Information Unit, under NextView License (DigitalGlobe © 2017) and Airbus Defence & Space © 2017 provisions, unless otherwise specified.

Given these limitations, and the inherently conservative nature of satellite-based damage assessments, a series of categories of damage to the sites were used in this report (see satellite damage assessment categories on page 26).

In addition, the historical value of each site was assessed to determine the severity of the historical loss resulting from assessed damage, or in some cases the destruction of key historical elements within a broader cultural site (see historical loss categories).

These analyses, part of a UNITAR-UNOSAT programme established in June 2014, have contributed to damage assessments of the historic sites in Aleppo at multiple time intervals, providing a cumulative view of all visible damage on satellite imagery as seen in Figure 8. From this base damage assessment, UNITAR-UNOSAT evaluated the status of land plots (see Figure 9) within the Ancient City of Aleppo providing an in-depth view of the condition of the World Heritage property ⁷.


⁷ The damage description for the 518 sites assessed in this study is available on the EAMENA website upon request.

Historical buildings were identified using the georeferenced Gaube & Wirth cadastral map of 1984. A sample of one third of the historical buildings that were listed in the Gaube & Wirth Index of Historic Monuments Aleppo located within the World Heritage property and assessed for damage were checked by experts to ensure the buildings aligned correctly with the georeferenced cadastral map. Although every effort went into ensuring that the correct buildings and building extents were identified, there may be discrepancies between the indexed historical buildings and the cadastral map as a result of urban landscaping over the last 33 years since the original cadastral evaluation.


SATELLITE DAMAGE ASSESSMENT CATEGORIES

Site Destroyed 


All or most of the visible key elements of the assessed site have collapsed (80–100 per cent of structure destroyed) due to military or civilian activity.

Site Severely Damaged 

A significant part of the visible key elements of the site has collapsed or is partially damaged (40–80 per cent of structure damaged) or significant military or civilian activity has contributed to extensive damage at the site.

Site Moderately Damaged 

Limited damage observed relating to key elements of the site (5–40 per cent of structure damaged) or where military or civilian activity has contributed to damage at the site.


Site Possibly Damaged 

Assessed site structures do not appear to be damaged, but debris is visible around key site structures.


HISTORICAL LOSS ASSESSMENT CATEGORIES

Critical Loss 


All of the main historically valuable elements inside the cultural heritage site are destroyed causing critical loss.

Severe Loss 

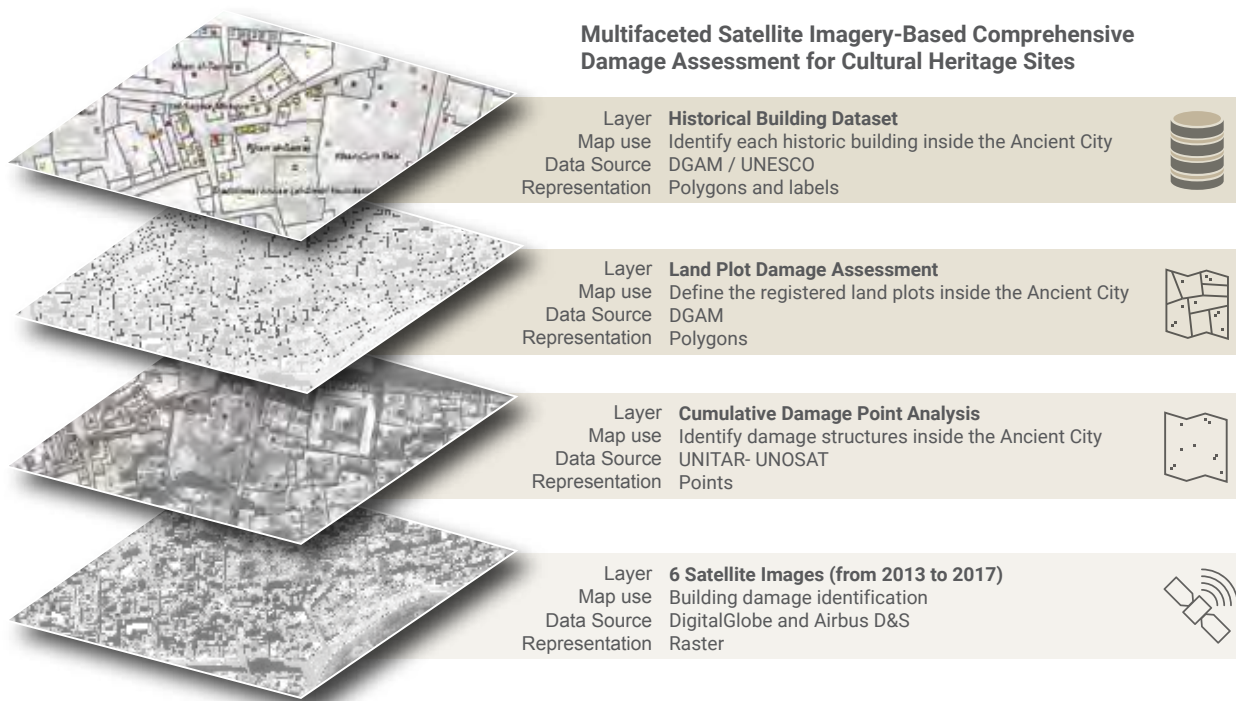
Many of the main historically valuable elements of the cultural heritage site are severely damaged causing severe loss.

Moderate Loss 

Some of the main historically valuable structures inside the cultural heritage site are moderately damaged causing moderate loss.

Minimal Loss 

None of the main historically valuable elements of the cultural heritage site are damaged.



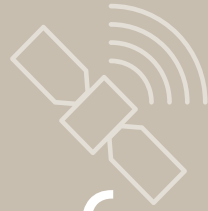
PHASE 1

PHASE 2

PHASE 3

ELEMENTS

PURPOSE
Count all damage instances within the World Heritage property



6

Satellite Images

PURPOSE
Assess damage per land plot



Cumulative Damage Point Analysis



Cadastral Map (building plots)

PURPOSE
Determine total number of damaged historic buildings



Land Plot Damage Assessment



Historic Building List within the World Heritage site boundary

PROCESSES



Damage Assessment Analysis



Computer script that sums damage points



Data pairing & statistical analysis

Cumulative Damage Point Analysis

See Figure 8, Cumulative Damage Point Analysis Map on page 28.

Land Plot Damage Assessment

See Figure 9, Gaube & Wirth Land Plot Damage Assessment Map on page 29.

Historic Building Damage Assessment

See Historic Building Damage Assessment on page 135. The complete damage assessment for all the sites assessed in this study is available on the EAMENA website upon request (Note: Some plots were not identified).

RESULTS





Figure 8. Ancient City of Aleppo. 2013 - 2017 Cumulative Damage Points Analysis.

The first phase of the project involved the use of five consecutive comprehensive damage assessments of the World Heritage property of the Ancient City of Aleppo, which contributed to damage assessments of the historic sites in Aleppo and provided a cumulative view of all visible damage on satellite imagery. The results of the cumulative satellite imagery-based analysis can be seen on the tables and graphs provided or on the EAMENA website. Picture date: 20 February 2017
© 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

**2013 - 2017 Cumulative Satellite Imagery-based Damage Analysis:
Damage Point Trend Analysis**

Damage Levels	2013	2014	2015	2016	2017
Destroyed	17	63	78	152	184
Severe	14	112	129	191	228
Moderate	39	345	348	538	568
Possible	2	84	78	39	51
No Visible Damage	11	56	5	1	11
Total Damage Points	72	604	633	920	1031

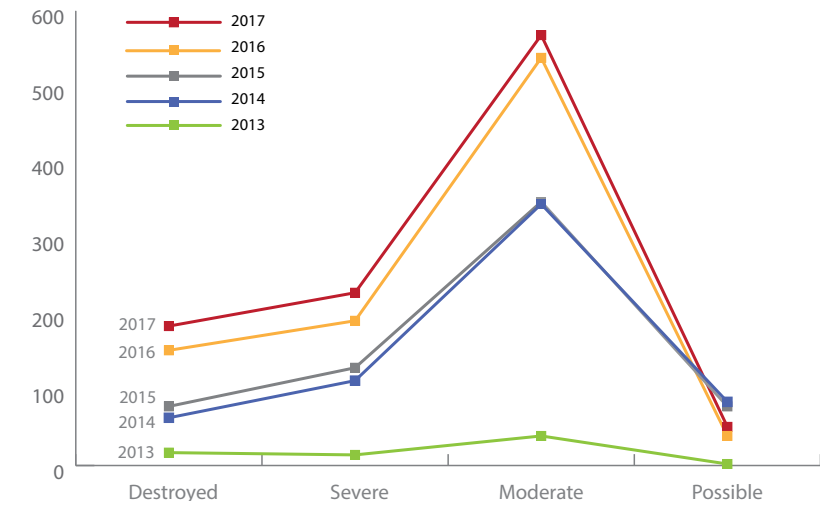


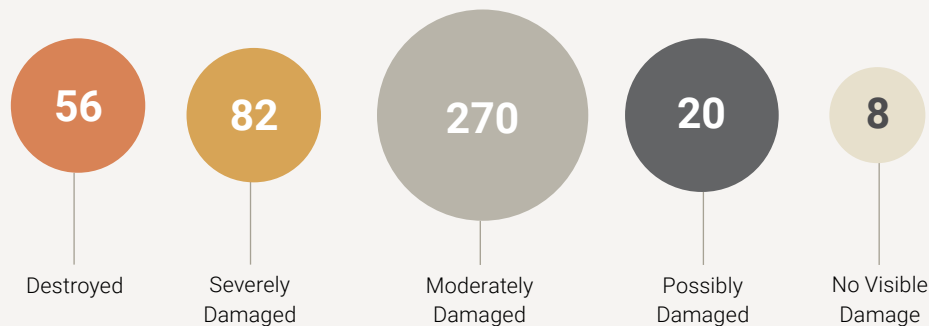


Figure 9. Ancient City of Aleppo: Gaube & Wirth Land Plot Damage Assessment Map.

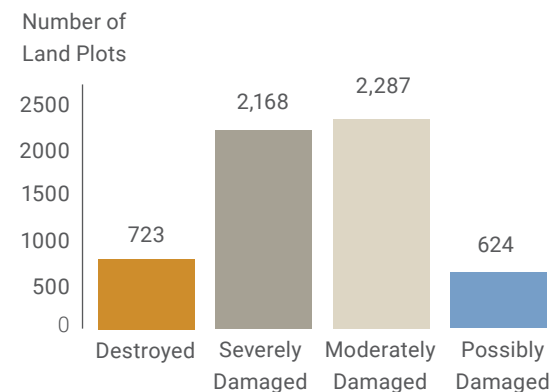
The aim of the second phase of the project was to assess the damage level of each of the land plots inside the World Heritage property. Historical land plots and buildings were identified using the georeferenced Gaube & Wirth cadastral map of 1984. To ensure the buildings aligned correctly with the georeferenced cadastral map, a sample of one third of the historical buildings that were listed in the Gaube & Wirth Index of Historic Monuments in Aleppo located within the World Heritage property that were assessed for damage were checked by experts to validate their correct location. Although every effort went into ensuring that the correct buildings and building extents were identified, there may be discrepancies between the indexed historical buildings and the cadastral map as a result of urban landscaping over the last 33 years since the original cadastral evaluation. The results of this analysis phase can be seen in Figure 9 or on the EAMENA website. Picture date: 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

2013 - 2017 Gaube & Wirth Land Plot Damage Assessment	
Damage Levels	Number of Land Plots
Destroyed	723
Severely damaged	2,168
Moderately damaged	2,287
Possibly damaged	624
Total Damage to Land Points	5,802

Ancient City of Aleppo: Total damage to historic buildings (2013 - 2017)



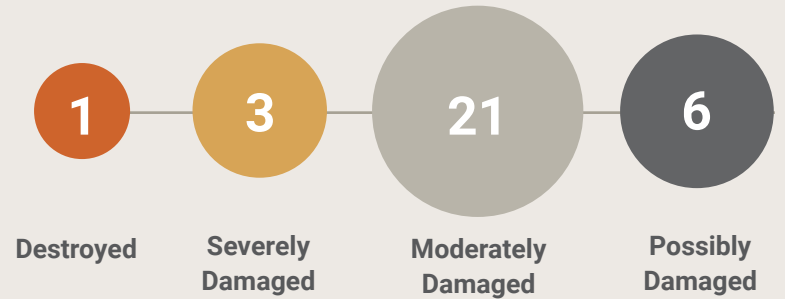
Note: Thirty-seven cadastral plotted buildings could not be identified and 22 were assessed as part of other plots (for example, building annexes).



Citadel of Aleppo



31 sites





Aleppo Citadel Entrance. Picture date: 4 April 2010 © Bernard Gagnon

Citadel of Aleppo



A symbol of the city, the Citadel of Aleppo is its most prominent historic site. Located in the centre of the Ancient City of Aleppo, it is situated on an elliptical mound standing approximately 50 metres high. The sloping sides are formed from a combination of a natural rock feature that has been built up and rounded off artificially, faced with large blocks of limestone, some of which survive today. It is surrounded by a deep, wide moat, dating from the twelfth century.

Besides the walls and defensive towers, dating mainly from the Ayyubid and Mamluk periods, the site contains a variety of structures from different eras. They include the remains of the Temple of the Storm God, the Byzantine hall, the small mosque and the hammam to its south (Zengid period), as well as the Great Mosque, the Royal Complex (which includes the Ayyubid Palace, the Arsenal and the Royal Hammam), al-Tawashi Palace and the Cistern (Ayyubid period), the Throne Hall (Mamluk period), the dwellings, the windmill and the barracks (Ottoman period).

Based on the remains of the Temple of the Storm God, which date from the Bronze and Iron Age, the human use of the Citadel hill dates back to the early third millennium BCE. Its history as a fortified acropolis began under the Seleucids (333–63 BCE). It continued to have religious significance during the Roman and Byzantine periods.

OVERALL SATELLITE DAMAGE ASSESSMENT

MODERATE 

Although individual structures within the Citadel are heavily damaged, given the site's scale, the overall damage is categorized as moderate.

UNITAR-UNOSAT identified a total of 31 affected historic buildings/areas, including 3 modern buildings, of which 1 is destroyed, 3 are severely damaged, 21 are moderately damaged, and 6 have sustained possible damage as of 20 January 2017. However, within this assessment, and although the overall damage to the walls is less than 40 per cent and so classed as moderate, the towers and wall around them in two locations have been destroyed and several of the towers have sustained heavy damage.

OVERALL HISTORICAL LOSS

MODERATE 

HISTORIC PERIOD: Prehistoric up to Late Ottoman Period
ALEPPO DISTRICT: The Citadel
PLOT AREA: 123,000 m²

The Citadel stands at the centre of the Old City of Aleppo and is considered the main landmark of the entire metropolis. Indeed, it holds the remains of the ancient Temple of the Storm God and it is one of the most remarkable examples of military architecture in the Middle East. Some of the structures within the Citadel, as well as some sections of its wall, have sustained severe damage. However, the overall site shows moderate damage and has preserved its valuable architectural elements, including the remains of the Temple, the Great Mosque, the Royal Complex, the entrance complex and the Mamluk Throne Hall, among other structures. Consequently, the overall historical loss is categorized as moderate.

















The two mosques inside the Citadel are known to have been built on sites once used for Byzantine churches.

The Citadel's role in the early centuries of Islam is unknown. After the Byzantine troops destroyed Aleppo in 962 CE, the Hamdanid rulers, under whose dynasty Aleppo enjoyed one of its most flourishing eras, decided to move their residence to the Citadel, which was a turning point in its role as the 'ruler's residence' in addition to its military function. Its strategic importance in the struggle against Byzantium continued into the battles with Crusaders when it became the Muslims' power base in northern Syria. Towards the end of the twelfth century, after Salah al-Din's successes against the Crusaders and with the Ayyubids in firm control of the city, it was made the focal point of new palatial headquarters established by al-Zahir Ghazi, Salah al-Din's son. Most of the structures date from the Ayyubid period. The Citadel was severely damaged in invasions by the Mongols (1260 CE) and Timur (1401 CE) and subsequently restored and rebuilt several times under the Mamluks.

During the Ottoman period, the Citadel's military importance as a defensive fortress gradually diminished and it was used as military barracks. After it was heavily damaged in the 1822 earthquake, major restoration projects were undertaken by the Ottomans and the French, and later by the Government of the Syrian Arab Republic. In 2000, a comprehensive joint DGAM–AKTC project for the Citadel was launched that involved the stabilization of structures, the restoration of several monuments, upgrading of the site as a tourist attraction and enhancement of the urban surroundings. One of the WMF's contributions was the construction of a shelter for the Temple of the Storm God.

SECTOR DAMAGE ASSESSMENT INSIDE THE CITADEL

UNITAR-UNOSAT conducted satellite imagery-based damage analysis using imagery acquired 20 February 2017, 18 September 2016, 1 May 2015, 26 April 2015, 23 May 2014, 23 September 2013 and 21 November 2010. UNITAR - UNOSAT identified a total of 31 affected sites, of which 1 is destroyed, 3 are severely damaged, 21 moderately damaged, and 6 with possible damage as of 20 January 2017.

 ENTRANCE COMPLEX/BRIDGE TOWER	 WALL SECTIONS	 MUSEUM IN FORMER ARSENAL
2 Moderately damaged	1 Destroyed 2 Severely damaged 5 Moderately damaged	1 Possibly damaged
 WATCH TOWERS/VIEW POINT	 SUQ	 BARRACKS
4 Moderately damaged 1 Severely damaged	1 Possibly damaged	1 Moderately damaged
 TEMPLE	 DIG HOUSE/RESTROOMS	 CISTERN
1 Moderately damaged	1 Moderately damaged	1 Moderately damaged
 MODERN THEATRE	 PALACE	 STONE CLADDING
1 Moderately damaged	1 Moderately damaged	1 Moderately damaged
 MOSQUES	 BATH HOUSES (HAMMAMS)	 OTTOMAN DWELLINGS
2 Moderately damaged	1 Moderately damaged 1 Possibly damaged	1 Possibly damaged
 AYYUBID ROOMS		
2 Possibly damaged		

DAMAGE EVOLUTION (2014 - 2017) - Number of Damaged Sites

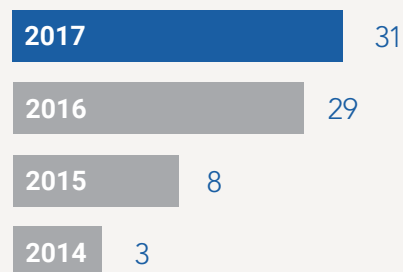


Illustration credits: Thomas Helbig, James Christopher, CombineDesign, Anton, Hopkins, Nikita Kozin, Magicon, Dairy Free Design, Hat-Tech, Yasser Megahed, Aaron P. Brown, kareemovic2000, David Scarnà and Ayub Irawan, all from the Noun Project; Tribalium/Shutterstock*; Yoko Design/Shutterstock*.



Figure 10. The analysis is based on imagery acquired on 20 February 2017, 18 September 2016, 1 May 2015, 26 April 2015, 23 May 2014, 23 September 2013 and 21 November 2010. The map illustrates the six different areas within the Citadel of Aleppo according to which the damaged historic buildings were grouped. Labelled on 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

DAMAGED STRUCTURES

Area 1/ Barracks of Ibrahim Pasha, North Wall, Modern Theatre, the Ayyubid Room and Temple of the Storm God **Area 2/** East Wall, Mill, Dig House **Area 3/** Ayyubid Cistern, Royal Hammam, Arsenal and al-Tawashi Palace **Area 4/** Great Mosque, Small Mosque, Suq, Hammam of Nur al-Din, Ottoman Dwellings and West Wall **Area 5/** Entrance Complex, Bridge and South Wall **Area 6/** Stone cladding

- | | | | |
|-----------------------------------|---------------------------------------|--------------------------------------|----------------------------------|
| 1. Modern Theatre (built in 1980) | 10. Ayyubid Room | 19. Small Mosque | 27. West Wall |
| 2. Barracks of Ibrahim Pasha | 11. Ayyubid Cistern | 20. Great Mosque | 28. Watch Tower (Southwest Wall) |
| 3. Temple of the Storm God | 12. South Wall | 21. Ottoman Dwellings | 29. Stone cladding |
| 4. North Wall | 13. Royal Hammam | 22. Suqs and excavations to the West | 30. Entrance Complex |
| 5. Dighouse and Modern Restrooms | 14. South Wall | 23. Northwest Wall | 31. Bridge Tower |
| 6. Mill and View Point | 15. Museum in former Arsenal | 24. West Wall | |
| 7. Watch Tower (East Wall) | 16. Al-Tawashi Palace | 25. Watch Tower | |
| 8. East Wall | 17. Ayyubid Rooms | 26. West Wall | |
| 9. Watch Tower (East Wall) | 18. Hammam Nur al-Din and excavations | | |

AREA 1

THE BARRACKS OF IBRAHIM PASHA AND MODERN THEATRE

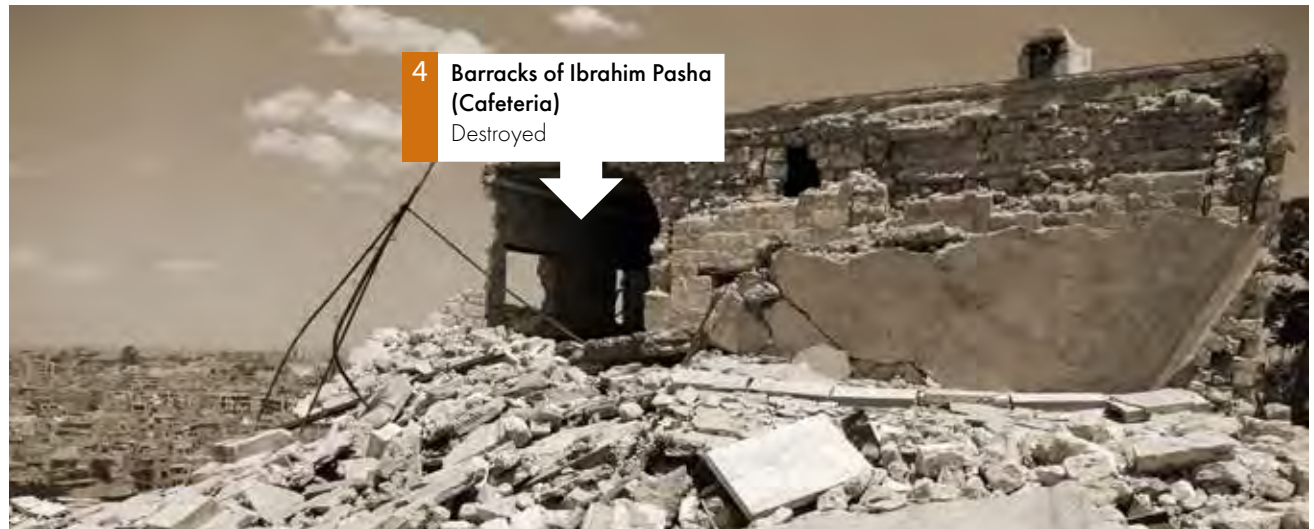
The section of the Barracks of Ibrahim Pasha that houses the Citadel's museum and the visitor centre appears stable. There are several holes in the roof (Damage Point 2) and areas where this has affected the top of the walls. However, the western end of the building that houses the cafeteria has been completely destroyed (Damage Point 4). The Modern Theatre, built in 1980, sustained only slight damage to the stage area (Damage Point 1). (see Figures 11 and 12).

TEMPLE OF THE STORM GOD

A roof was constructed in 2005 to protect the excavated area of the Temple of the Storm God. This had collapsed by May 2014. By 2016 the collapsed roof had been entirely removed (Damage Point 3). The appearance of the excavation under the roof is unknown. Between 2016 and 2017, an unknown number of sandbags burst and the content was spread over a larger area (blue limits – extent of disturbed earth in 2013, and orange limits – extent of disturbed earth in 2017. See Figures 13 and 14). The sand bags were placed to protect the site and to stabilize the walls of the excavation.

NORTH WALL

One of the towers and a section of the North Wall between the Great Mosque and the Barracks of Ibrahim Pasha have sustained severe damage (Damage Point 4). Damage was identified for the first time using imagery collected on 18 September 2016 when compared with imagery collected on 23 September 2013 (see Figures 15 and 16).



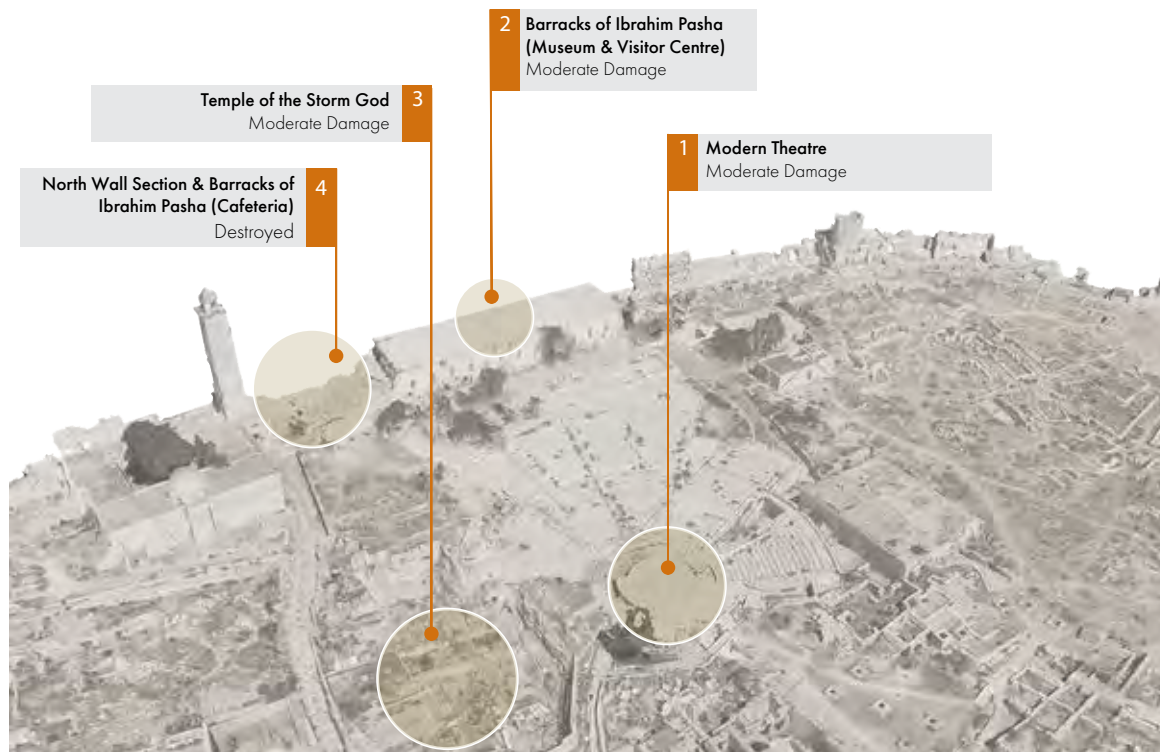
Barracks of Ibrahim Pasha (Cafeteria section). Picture taken from the west side of the Ibrahim Pasha Barracks looking into the western end section of the building that was completely destroyed. Picture date: 28 May 2017 © Art Graphique & Patrimoine.



Modern Theatre. Picture taken from the north section of the modern theatre (media cavea) looking toward the orchestra area. Picture date: 28 May 2017 © Art Graphique & Patrimoine.

AREA 1

Citadel of Aleppo 3D representation. A 3D map of the most relevant damage points for Area 1. The damage points are derived from UNITAR-UNOSAT's satellite imagery-based damage assessment using a DigitalGlobe WorldView-3 satellite image collected on 20 February 2017. This 3D map was created by Iconem in 2017. 3D Image © Iconem/DGAM.



Figures 11 and 12. Barracks of Ibrahim Pasha. *Top right (Before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom right (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

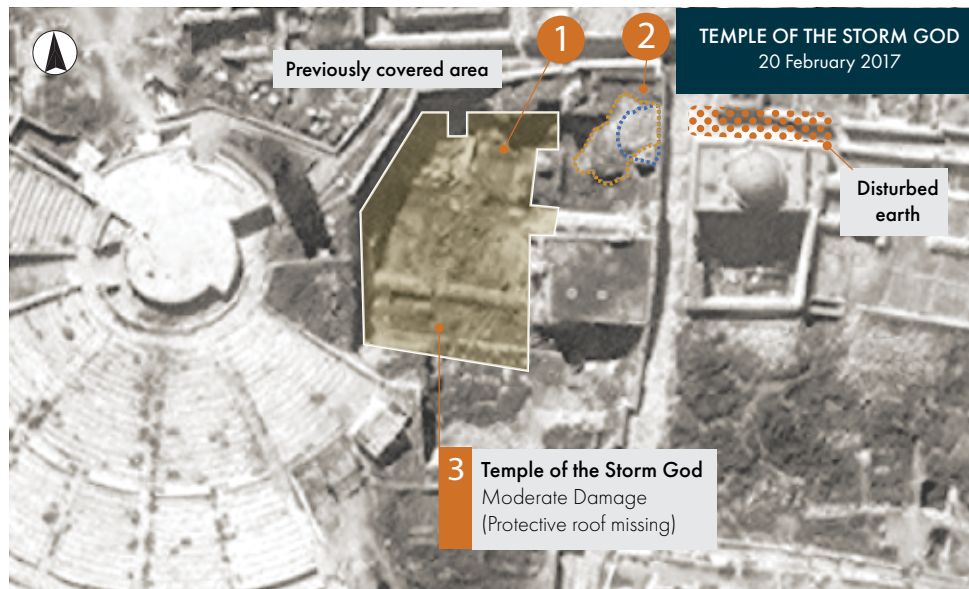


TEMPLE OF THE STORM GOD
21 November 2010



3 Roof protecting the excavation site

Ground view of the roof protecting the excavation site of the Temple of the Storm God. Picture date: 14 April 2010 © Mappo



TEMPLE OF THE STORM GOD
20 February 2017

Previously covered area

1

2

Disturbed earth

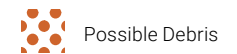
3 Temple of the Storm God
Moderate Damage
(Protective roof missing)

In 2017, the area with the disturbed earth (see Damage Point 2) is significantly larger in width and height, a possible indicator that the protective sand bags located in that corner burst with the contents spread over a larger area.

- 1 Area previously covered by roof
- 2 Disturbed earth not present on the 2014 image.

Satellite imagery shows a difference in the amount of material that is visible on the southwest corner of the Temple of the Storm God. When comparing the image collected in 2013 against the image collected in 2017, the area covered by the material is roughly 53 m², while in 2014 it was only 22 m², which is an 82 per cent increase or 31 m² more area covered by the material. Based on satellite imagery analysis, this is a combination of soil and debris. Please note that the area was not covered by the protective roof though it was clearly visible on imagery prior to 2017.

- — — Extent of disturbed earth from burst sand bags (2013)
- — — Extent of disturbed earth from burst sand bags (2017)



Figures 13 and 14. Temple of the Storm God. Top left (Before image): 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). Bottom left (After image): 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).



Temple of the Storm God. Protective sand bags. Picture date: 18 June 2015 © Basel Shuhema.



Temple of the Storm God. The orthostats lining the northern wall of the cella. Picture date: 2010 © World Monuments Fund.

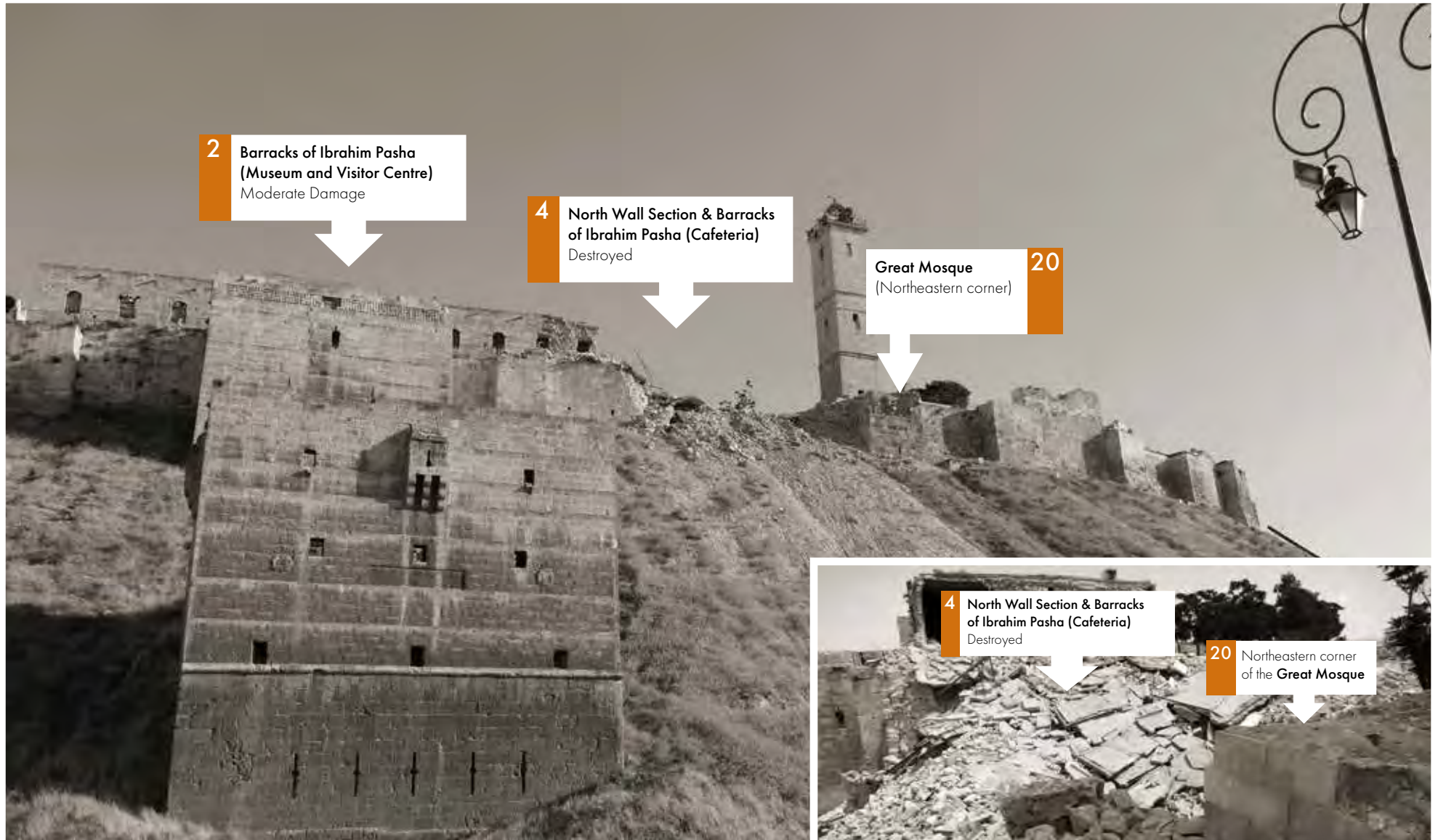


NORTH WALL
20 February 2017

4 North Wall Section & Barracks of Ibrahim Pasha (Cafeteria) Destroyed

NORTH WALL
23 September 2013

Figures 15 and 16. North Wall. Bottom right (Before image): 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). Full page (After image): 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).



Full page image: View of the Barracks of Ibrahim Pasha and the North Wall Section. Picture taken from outside the Citadel of Aleppo looking onto the North Wall. The Barracks and the destroyed section of the North Wall between the Barracks containing the Museum & Visitor Centre and the Great Mosque are clearly visible. Picture date: 27 May 2017 © Art Graphique & Patrimoine. **Bottom right:** Barracks of Ibrahim Pasha & North Wall Section. Picture taken from the northeastern corner of the Great Mosque looking onto the western section of the Ibrahim Pasha Barracks and the North Wall section that were destroyed. Picture date: 27 May 2017 © Art Graphique & Patrimoine.

AREA 2

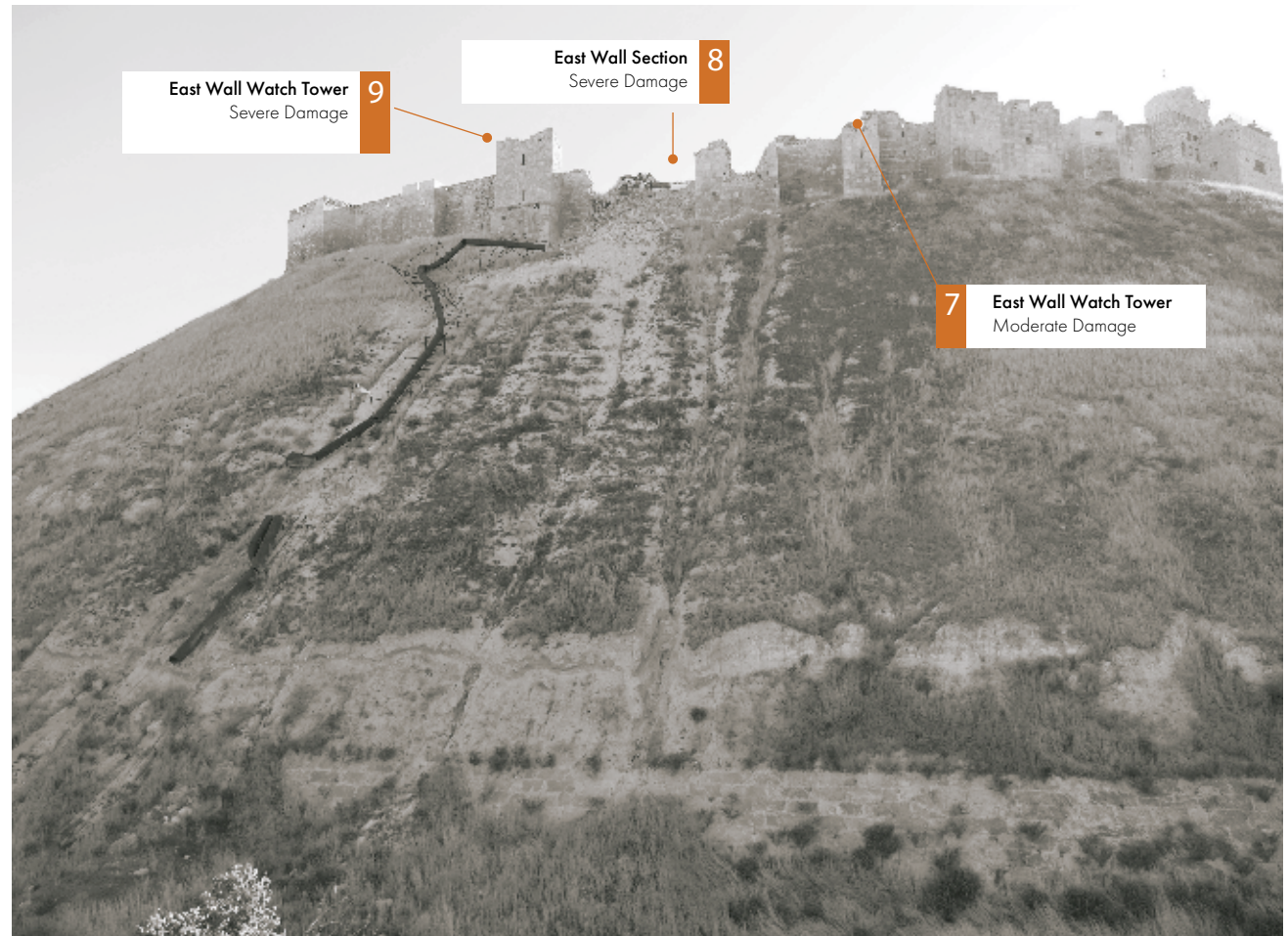
EAST WALL SECTION

A section of ground over the unexcavated area behind the East Wall has sustained severe damage. The damage appears deep enough that the site beneath it may have been heavily damaged as piles of rubble are visible, as well as a large impact crater (see Figure 20). The ground is heavily disturbed and the walls are no longer visible (although they may have been buried). The extensive disturbed area covers approximately 1000m². There are several possible small holes scattered throughout the area (see Figures 17, 18 and 19).

A section of the wall further north also sustained some damage (Damage Point 8). This section has been severely damaged and the towers to either side have sustained serious and moderate damage, respectively (see Figures 18 and 19, Damage Points 9 & 7).

MODERN RESTROOMS AND DIG HOUSE

The modern restrooms have partially collapsed in the southeast corner (Damage Point 5), and there are several holes in the roof. The opposite building, which was used as a dig house by the Syrian-German excavation team, also sustained moderate damage with two holes in the roof and a possible collapse at the northwestern end (see Figures 20 and 21, Damage Point 5).



Picture taken from outside the Citadel onto the East Wall. Picture date: 27 May 2017 © Art Graphique & Patrimoine.

AREA 2 / EASTERN WALL SECTION

Citadel of Aleppo 3D representation. A 3D Map of the most relevant damage points for Area 2. The damage points are derived from UNITAR-UNOSAT's satellite imagery-based damage assessment using a DigitalGlobe WorldView-3 satellite image collected 20 February 2017. 3D Image © Iconem/DGAM.

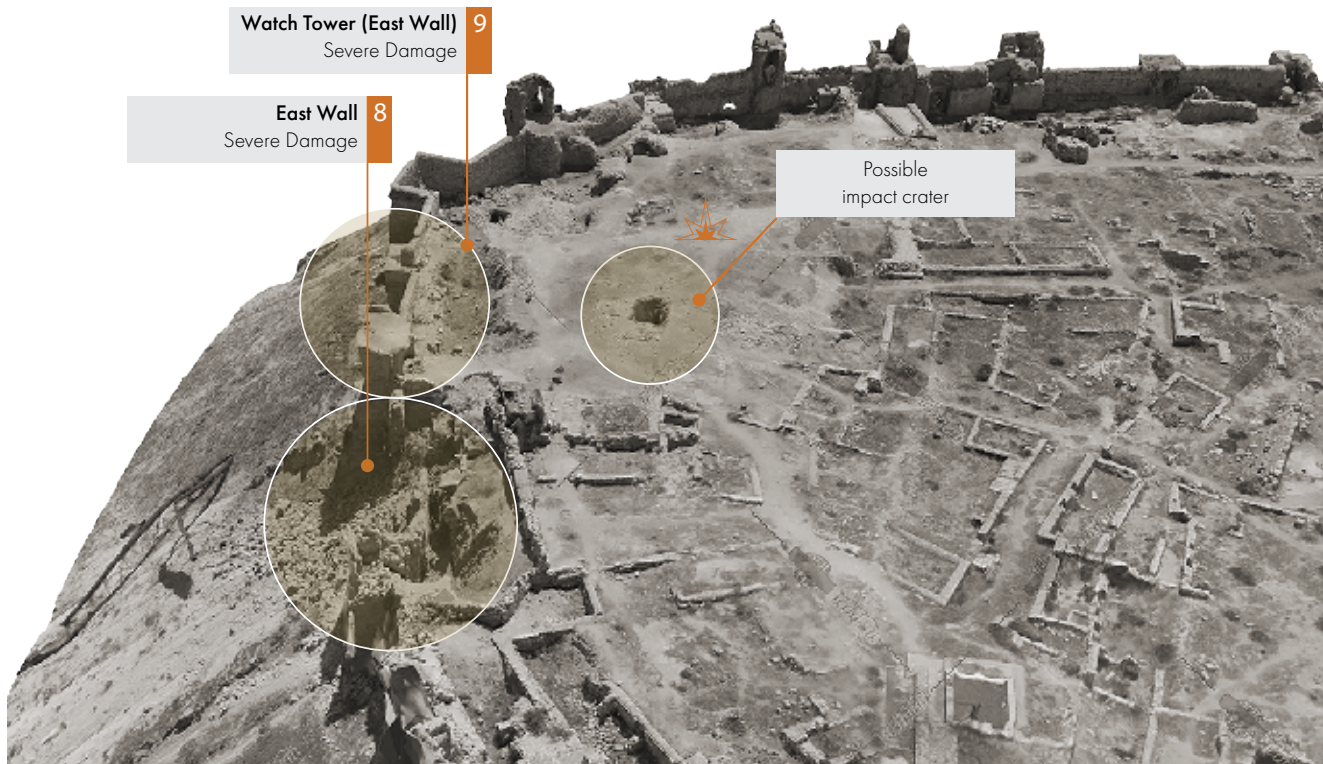
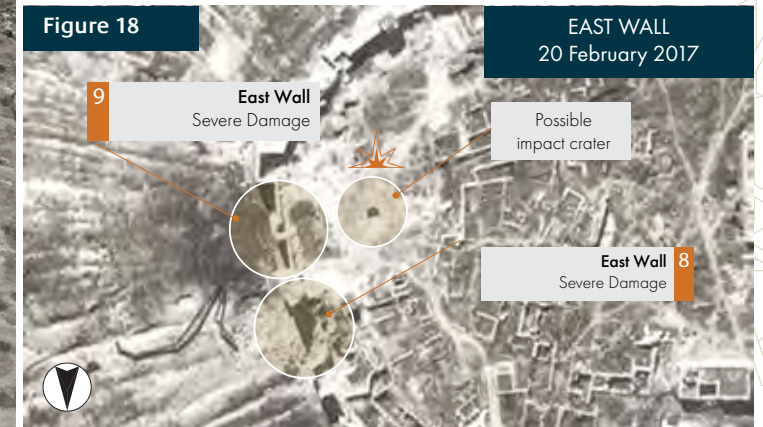
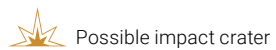


Figure 17. East Wall Section. 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License).

Figure 18. East Wall Section. 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

Figure 19. East Wall Section. 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).





Picture taken from the North Wall looking onto Areas 1 and 2. The dig house and the modern restrooms in front are clearly visible. Picture date: 26 May 2017 © Art Graphique & Patrimoine.

Figures 20 and 21. Modern Restrooms and Dig House. *Top left: (Before image):* 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

AREA 2 / MODERN RESTROOMS AND DIG HOUSE

Citadel of Aleppo 3D representation. A 3D Map of the most relevant damage points for Area 2. The damage points are derived from UNITAR-UNOSAT's satellite imagery-based damage assessment using a DigitalGlobe WorldView-3 satellite image collected 20 February 2017. 3D Image © Iconem/DGAM.



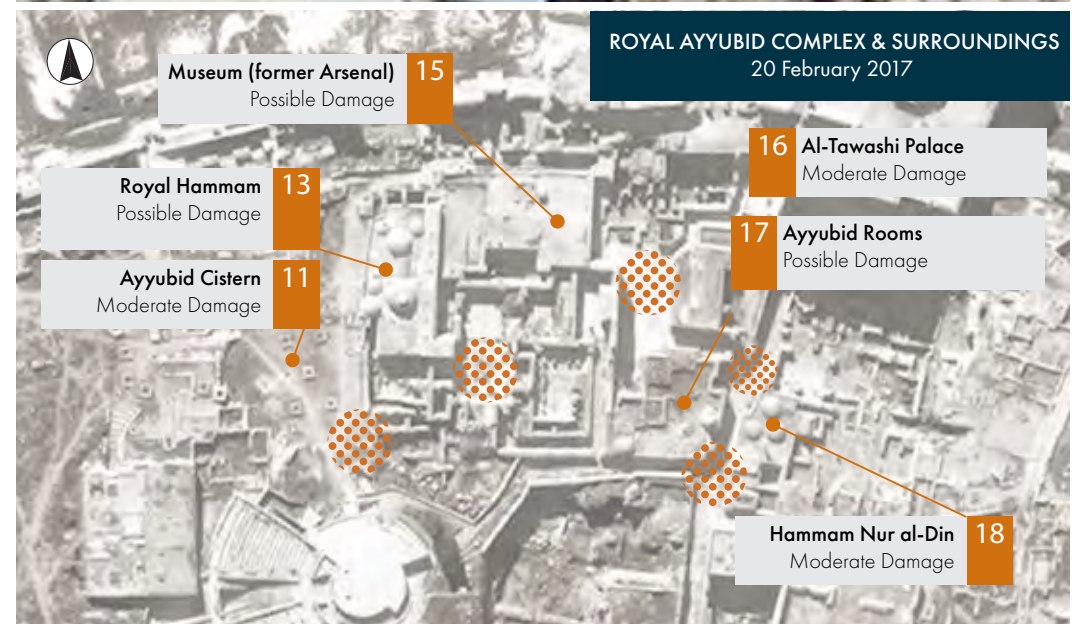
AREA 3

THE ROYAL AYYUBID COMPLEX AND ITS SURROUNDINGS


There is light damage to al-Tawashi Palace (Damage Point 16) and possible impact damage to the roof of the Museum in the former Arsenal (Damage Point 15). One of the Ayyubid Rooms on the eastern side of the main alleyway of the Citadel has one possible roof impact crater (Damage Point 17). There is impact damage on the roof of the Ayyubid Cistern to the east of the Royal Hammam (Damage Point 11) and possible impact damage to the roof of the Royal Hammam (Damage Point 13). There is possible impact damage to the roof of the building by the Hellenistic Well. There is also moderate damage to the Ayyubid Rooms with possible damage to the roof, a small pile of debris by the entrance, and a possible looting hole (see Figures 22 and 23).

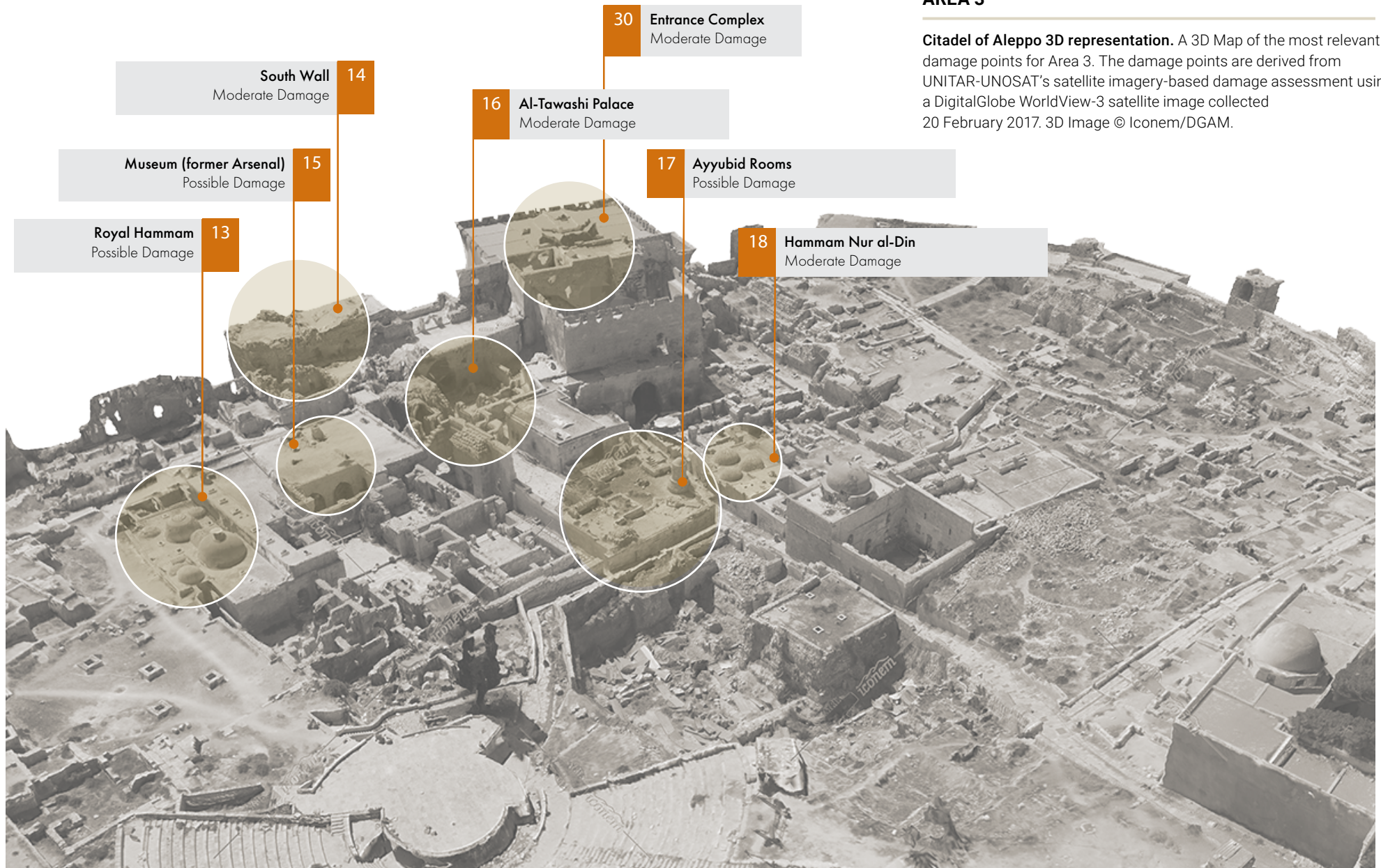


Al-Tawashi Palace. Picture date: June 2010 © Ross Burns.



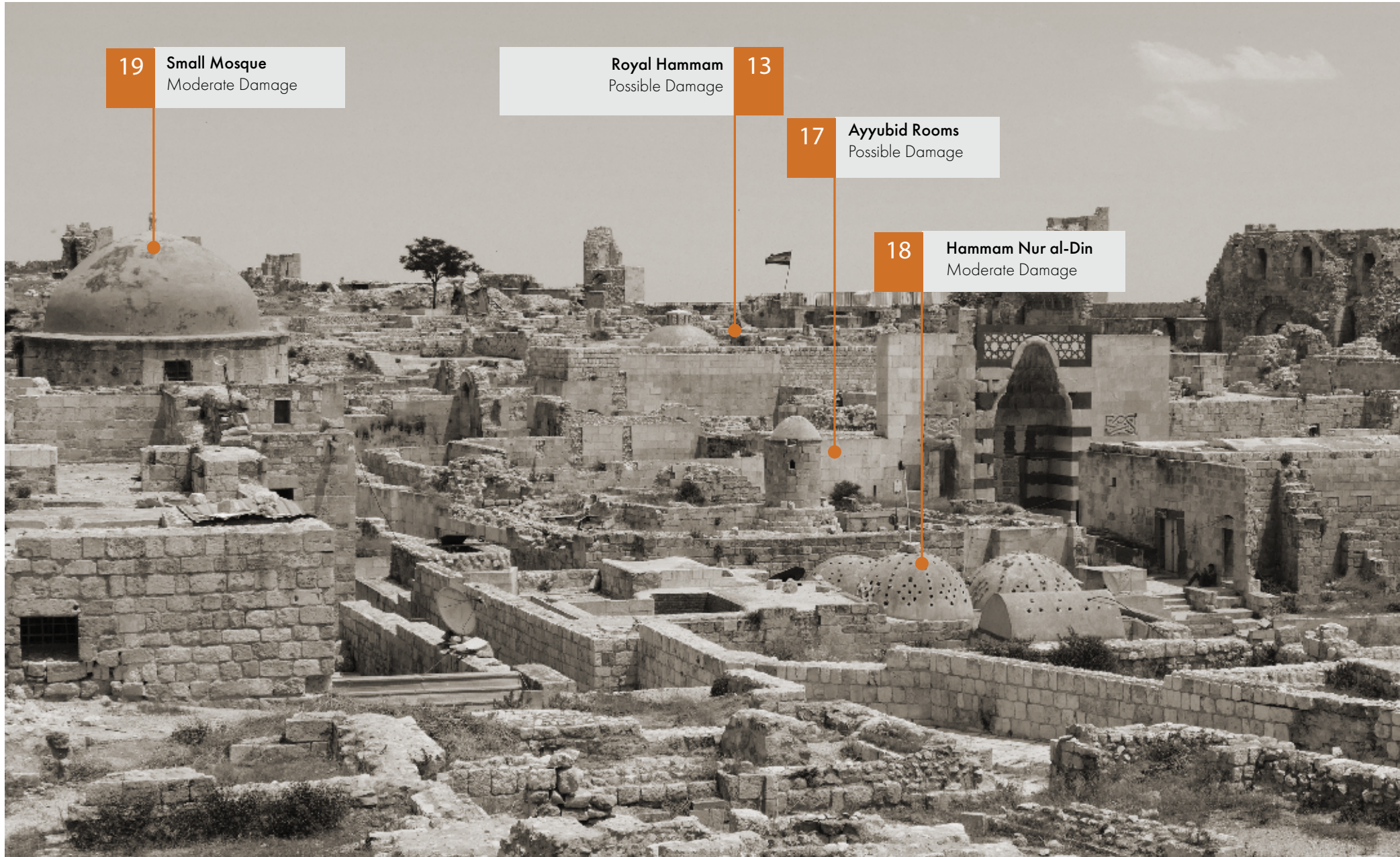
Figures 22 and 23. The Royal Ayyubid Complex and its surroundings. *Top right (Before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom right (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

 Possible Debris



AREA 3

Citadel of Aleppo 3D representation. A 3D Map of the most relevant damage points for Area 3. The damage points are derived from UNITAR-UNOSAT's satellite imagery-based damage assessment using a DigitalGlobe WorldView-3 satellite image collected 20 February 2017. 3D Image © Iconem/DGAM.



19 **Small Mosque**
Moderate Damage

13 **Royal Hammam**
Possible Damage

17 **Ayyubid Rooms**
Possible Damage

18 **Hammam Nur al-Din**
Moderate Damage

The Ayyubid Royal Complex and its surroundings (Area 3). Picture taken from the suqs and excavation area. Picture date: 26 May 2017 © Art Graphique & Patrimoine.



Aerial view of the Royal Complex. Picture date: 2016 © Aga Khan Trust for Culture — Aga Khan Historic Cities Programme.



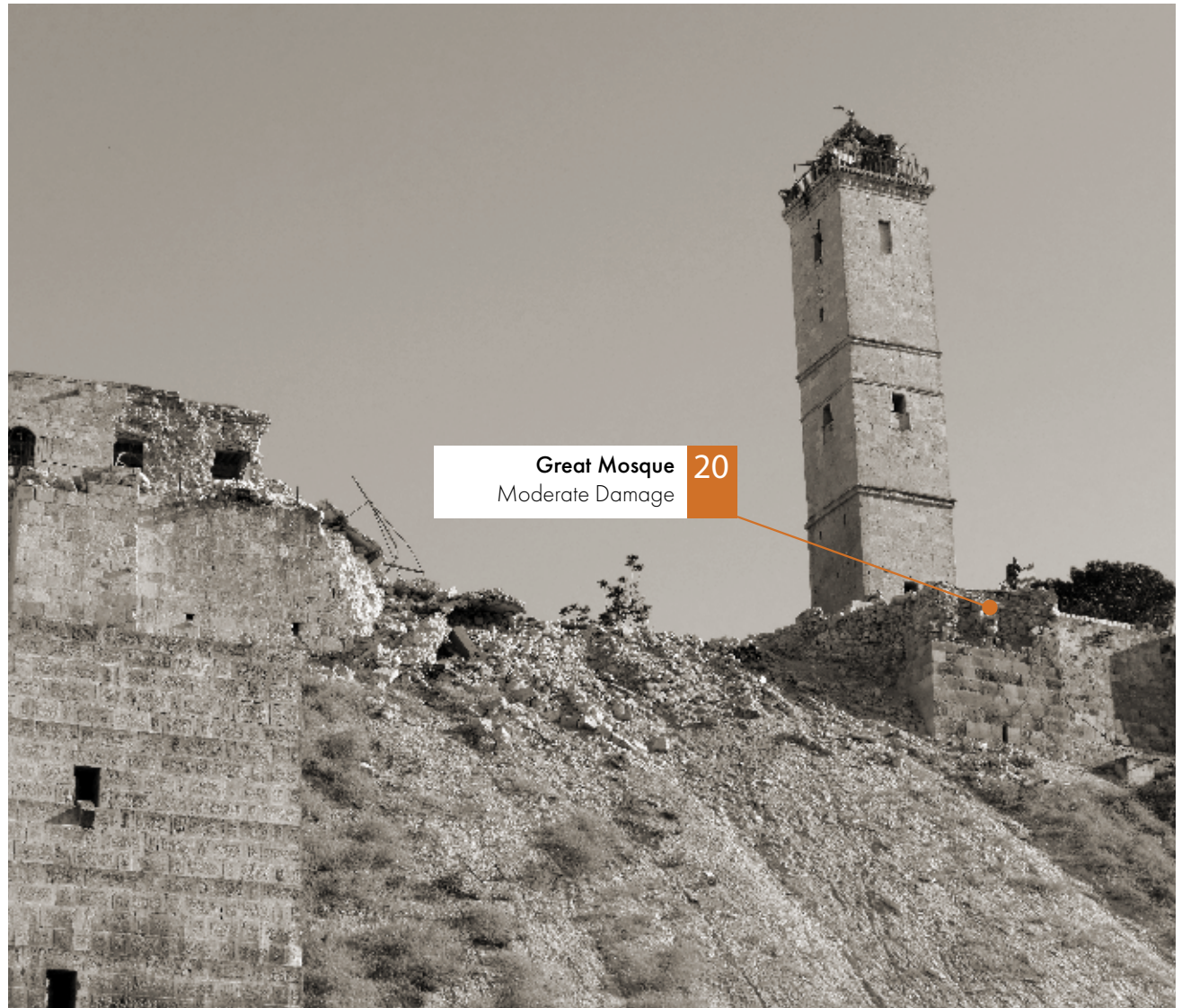
AREA 4

GREAT MOSQUE

A debris pile indicates damage to the eastern wall and base of the minaret of the Great Mosque (Damage Point 20). Additional debris is clearly visible around the North and East Wall of the Great Mosque with some possible damage to a small section of the North Wall/roof (Damage Point 4), though the rest of the structure appears undamaged (see Figures 24 and 25).

SUQ

By 2016 one of the buildings in the excavation area around the suq had been damaged and there is at least one hole, possibly two, due to subsidence or the gradual sinking of a small arch in the archaeological area (Damage Point 22). The buildings around the Hammam Nur al-Din have also been damaged (see Figures 26 and 27).



Picture taken from outside the Citadel looking into the North Wall. The Barracks of Ibrahim Pasha that were severely damaged and the destroyed section of the North Wall between the Barracks and the Great Mosque are visible. Picture date: 27 May 2017 © Art Graphique & Patrimoine.



Figure 24. Great Mosque. 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License).

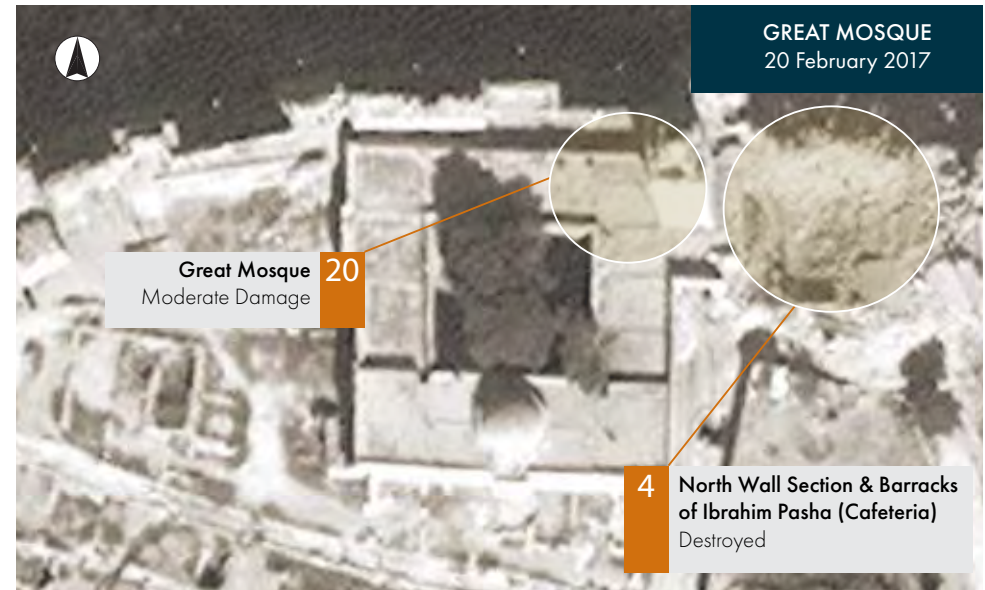


Figure 25. Great Mosque. 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).



Figure 26. Hammam Nur al-Din. 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License).

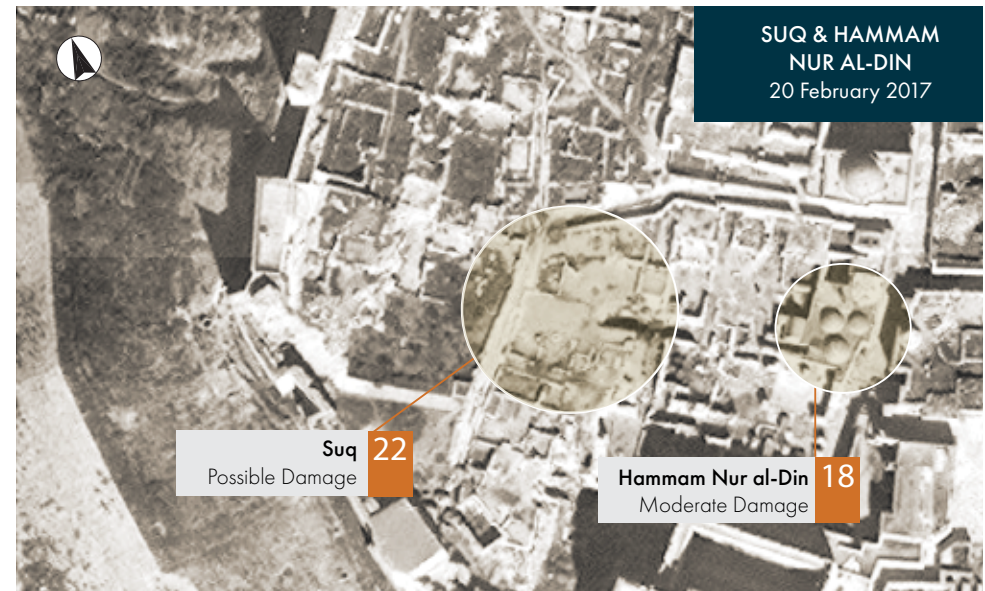


Figure 27. Hammam Nur al-Din. 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

AREA 5 & 6

SOUTH WALL AND STONE CLADDING

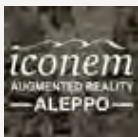
Impact damage is visible in the moat (the damage largely dates to 2012) (Damage Point 29) and some tunnel entrances were visible next to the fortified wall and the south advance tower (see Figure 29). Minor structural damage is visible in some of the other structures, including some of the towers on the wall (May 2014). By October 2014 damage was visible on the roof and crenellations of the second tower to the east of the Entrance Complex (see Figures 28 and 29, Damage Point 14).



Figures 28 and 29. South Wall and Stone cladding. Top right (Before image): 21 November 2010 © DigitalGlobe (Source: U.S. Department of State, NextView License). **Bottom right (After image):** 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

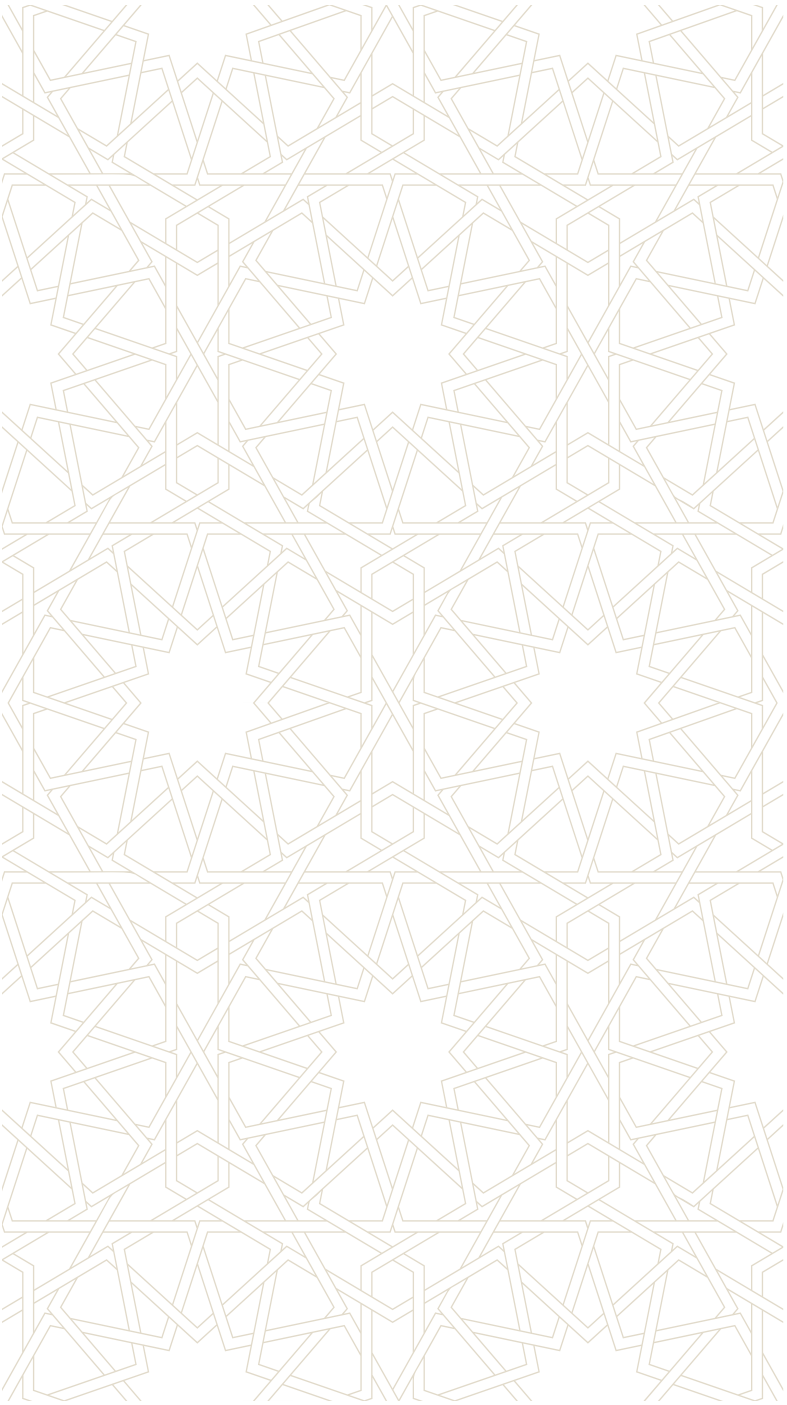


MORE INFORMATION



Aleppo Citadel Augmented Reality 3D Model – © UNITAR-UNOSAT/Iconem/DGAM

This is not just a simple map representation of the Citadel of Aleppo, but rather a complex, live, direct, and three-dimensional view of the Citadel of Aleppo. This 3D model was produced by Iconem using a process called photogrammetry based on nearly 1,000 photos taken in September 2016, both with a drone and from the ground, that were then automatically assembled to produce the model. A powerful computer detects and matches the thousands of feature points from the collection of photos to determine the camera positions. Every pixel from the photos is projected in the three-dimensional space to produce a large 3D point cloud, which is meshed and textured to produce this 3D digital copy of the state of the Citadel from the time the photos were taken. This model can be integrated into an augmented reality application, which uses the camera of a device to detect a visual marker and its location. Knowing the position of the camera and its relative position to the device, the 3D model can be superimposed at the place of the marker in real time. Scan the code to download the application and visit the Citadel of Aleppo in 3D.



Using satellite imagery, this study examined 175 religious places within the World Heritage property that includes the Great Mosque, Madrasa al-Sultaniyya, Madrasa al-Sahibiyya, al-Utrush Mosque, al-Khusrawiyya Complex, al-Adiliyya Mosque and the Forty Martyrs Armenian Orthodox Church, among other structures. As it is not possible to detail every site in this publication, locations have been summarized and only a few key sites are mentioned.

The damage assessment for all the sites assessed in this study is available on the EAMENA website upon request.

Of the locations examined, 17 are destroyed, 21 have sustained severe damage, 121 have sustained moderate damage, and 16 have some possible damage or no visible damage. Visible rubble in the streets suggests that a number of other religious sites may be affected.



MORE INFORMATION

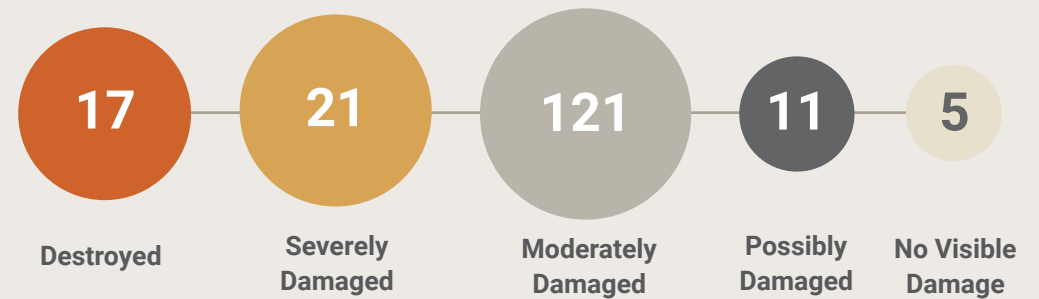
Scan the code to access the study on the EAMENA website



Religious Places



175 sites





The Courtyard of the Great Mosque of Aleppo. Picture date: 2008 © UNESCO/R. Van Oers.

The Great Mosque



36°11'57.726"N 37°9'24.686"E

The site of the Great Mosque was once the Hellenistic Agora, which later became the garden of the Byzantine Cathedral of Saint Helena. Construction of the mosque was started by the Umayyad caliph al-Walid I in 715 CE and finished by his successor Suleiman in 717 CE. Throughout its history, the mosque has been subjected to multiple adaptations and reconstructions due to natural disasters, destruction and expansion. After it was burned to the ground, it was restored by Sayf al-Dawla al-Hamdani in 962 CE. At the north-west corner of the mosque, the 45m high minaret, designed by the architect Hasan ibn Mufarraj al-Sarmini, was built between 1089 and 1094 during the time of the Seljuk governor, Aq Sunqur al-Hajib. In the second half of the twelfth century, Nur al-Din Zengi restored the mosque after a second great fire destroyed the earlier Umayyad structure. He expanded the prayer hall towards the east, rebuilt its roof and added the porticoes to the west of the courtyard. During the 1260 Mongol invasion, the mosque was destroyed once again. The Mamluks had it rebuilt and transformed. Sultan Qalawun replaced the burnt mihrab and rebuilt the roof in 1285. Sultan al-Nasir Mohammed (1293–1341) had a new minbar constructed during his reign. In 1630, during the Ottoman period, the portal of the main prayer hall was built and in 1632 the courtyard was paved with white, black and yellow marble. In 1882, the sundial was installed and the entrance and porticoes restored. In 1951, the structures to the north of the mosque were demolished to open up Khan al-Wazir street. The mosque's northern façade, together with the

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE 

The minaret was destroyed during fighting in April 2013 (see Figure 31, Damage Point 4). In September 2012, a huge fire in the covered suqs damaged much of the eastern side of the mosque (the outer wall abutting the suqs and the eastern portico) and destroyed the library. This severe damage was visible by 2014 on satellite imagery in the eastern portico (see Figure 31, Damage Point 2). In addition, the stone-tiled courtyard is partially destroyed. Lastly, the garden to the north has suffered moderate damage. The entrance passage to the suq from the eastern portico (see Figure 31, Damage Point 1) has been seriously damaged. The imagery of 2015 and 2017 show additional damage to the eastern portico. A section of the eastern wall and the northeastern corner of the mosque are destroyed. The images also show the protective work undertaken on the sundial in 2013 (see Figure 31, Damage Point 3), which was wrapped with sandbags and encased in cement to protect it. Smoke blackening is visible on the satellite imagery, affecting at least one of the galleries, and DGAM confirmed that fire also destroyed al-Waqifiyya Library.

northern and western entrances, were rebuilt later according to a design of the Aleppine architect, Abdulmunim Herbli. In 2003, the mosque underwent a comprehensive restoration, including a new layout for the northern garden adjacent to the mosque. In 2005, al-Waqifiyya Library was installed on the site of a former underground parking lot located under the northern garden.

The mosque is built around a vast courtyard that connects the different sections of the building. The courtyard is famous for its stone pavements and contains two domed ablution fountains and a sundial. The main prayer hall is located at the south of the courtyard. It contains the key elements of the mosque: the shrine of Zachariah (Zakaria), a minbar and an elaborately

OVERALL HISTORICAL LOSS

CRITICAL 

HISTORIC PERIOD:

Seljuk / Zengid / Ayyubid / Mamluk / Ottoman

ALEPPO DISTRICT: Al-Mdineh

PARCEL No.: 2367 - 2379 and 3001

HISTORIC BUILDING No.: 100

PLOT AREA: 8,613 m²

The Great Mosque of Aleppo is one of the architectural masterpieces of the Muslim world. Its richly layered history, combined with religious assets emphasized by the presence of the relics of Prophet Zakariyah and the connection with Nur al-Din Zengi, the great Muslim commander, are some of its key qualities. The minaret and its decoration were unique in the history of Islamic architecture and its square plan became the model for a number of other twelfth and thirteenth century minarets in Syria. Taking these points into consideration, the overall historical loss is categorized as critical.

carved mihrab. Originally, the hall had a basic straight rooftop with a central dome, but the Mamluks replaced it with an intricate cross-vaulted system with arches and a small dome over the arcades. There are three halls abutting the other sides of the courtyard. Made of limestone and built on a square base of 4.95 m², the minaret was approximately 45m high. It boasted five intricately carved bands of Kufic inscriptions, alternating with bands of relief ornaments and muqarnas. Above a final band of muqarnas niches, the gallery was covered by a wooden canopy.



Figure 30. Great Mosque of Aleppo. 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License).



Figure 31. Great Mosque of Aleppo. 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

- 1** Entrance passage to the suq from the eastern gallery portico
- 2** Eastern portico
- 3** Protective work undertaken on the sundial in 2013
- 4** Great Mosque Minaret destroyed in April 2013



The Courtyard of the Great Mosque of Aleppo. Picture date: 16 January 2017 © UNESCO/G. Khawam.



Great Mosque of Aleppo. *Top left:* Damage to the Great Mosque's northern entrance. Picture date: 16 January 2017 © UNESCO/G. Khawam. *Bottom left:* Damage to the Great Mosque's northern façade. Picture date: 16 January 2017 © UNESCO/G. Khawam. *Top right:* The Great Mosque of Aleppo, the Minaret. Picture date: 28 December 2009 © Alain Homsi*. *Bottom right:* Great Mosque of Aleppo and the destroyed minaret. Picture date: 16 January 2017 © UNESCO/G. Khawam.



The Great Mosque of Aleppo. The northern garden. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.



Great Mosque of Aleppo. *Top left:* Damage to the Great Mosque's western entrance. Picture date: 16 January 2017 © UNESCO/G. Khawam. *Bottom left:* Damaged pillar in the Great Mosque's main prayer hall. Picture date: 16 January 2017 © UNESCO/G. Khawam. *Bottom right:* One of the mihrabs in the prayer hall of the Great Mosque. Picture date: 16 January 2017 © UNESCO/G. Khawam. *Right:* Protective barrels in the prayer hall of the Great Mosque. Picture date: 16 January 2017 © UNESCO/G. Khawam.

Madrasa al-Sultaniyya



36°11'49.508"N 37°9'42.666"E

Madrasa al-Sultaniyya, also called al-Juwvaniyya, was probably first constructed by al-Zahir Ghazi, son of Salah al-Din, before he died in 1216, though it was not completed until 1223 by Atabek Toghrul. The madrasa was restored during the Mamluk era in 1469 and the octagonal minaret was added above its portal. The building suffered severe damage in the 1822 earthquake and was deserted until 1884 when the governor of Aleppo, Jamil Pasha, had it restored. In 1979, the General Directorate of Islamic Endowments (Awqaf) added several sections and an upper floor in the northeastern corner. The madrasa was prominently located south of the entrance to the Citadel. It was a typical Ayyubid madrasa with a straight entrance axially oriented with respect to the mihrab. Its vaulted portal led to a rectangular courtyard (16.8 × 19.7m). A tripartite arcade led to a spacious tripartite prayer hall with a deep southern niche set with a splendid mihrab. The southeastern corner contained the mausoleum of al-Zahir Ghazi, while the southwestern corner was chamfered on the exterior at an unusual angle. The madrasa had rows of student cells on its eastern and western sides.

OVERALL SATELLITE DAMAGE ASSESSMENT

DESTROYED

The madrasa was completely destroyed except for remains on the northern side of the courtyard and the minaret, though they are also heavily ruined.

OVERALL HISTORICAL LOSS

CRITICAL

HISTORIC PERIOD: Ayyubid

ALEPPO DISTRICT: Citadel Perimeter

PARCEL No.: 2303

HISTORIC BUILDING No.: 342

PLOT AREA: 2,957 m²

Among the Ayyubid madrasas established in Aleppo, Madrasa al-Sultaniyya was of particular historic importance as it contained the mausoleum of al-Zahir Ghazi, the famous ruler of Aleppo. Architecturally, it was rich in inscriptions and contained splendid architectural features representing the Ayyubid style, such as the mihrab in the prayer hall and the pool in the courtyard. Consequently, the overall historical loss is categorized as critical.



Figures 32 and 33. Madrasa al-Sultaniyya. *Top left (before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (after image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). *Ground pictures. Top right: (before image):* Madrasa al-Sultaniyya - northern façade. Picture date: 13 December 2015 © 2015 Reem Qudsi. *Bottom right (after image):* Madrasa al-Sultaniyya. The remains of the entrance and the minaret. Picture date: 16 January 2017 © 2017 UNESCO/C. Menegazzi.

Madrasa al-Sahibiyya



36°11'58.908"N 37°9'30.795"E

The madrasa, also known as al-Fustuq Mosque, was built by Ahmad ibn Yakub al-Sahib in 1349 and later supported by a large endowment established by Mohammed ibn Nasir al-Din al-Sarimi around 1410. An elevated kuttab (traditional primary school) was constructed and attached to its western side at the entrance of Suq Aslan Dede. The building was restored in 1986. The madrasa is located at the northern border of the covered suqs (al-Mdineh district) overlooking Khan al-Wazir street. Its decorated portal leads to a small courtyard. The prayer halls on the eastern side of the courtyard are covered by central domes.



Madrasa al-Sahibiyya. Picture date: 2005 © Ross Burns.

OVERALL SATELLITE DAMAGE ASSESSMENT

MODERATE 

There is a large amount of debris around the courtyard, and the walls and fibreglass canopy appear to be damaged (see Figure 35, Damage Point 1). However, the domes and the main building seem to be intact. The kuttab (see Figure 35, Damage Point 2) was destroyed.

OVERALL HISTORICAL LOSS

MODERATE 

HISTORIC PERIOD: Mamluk

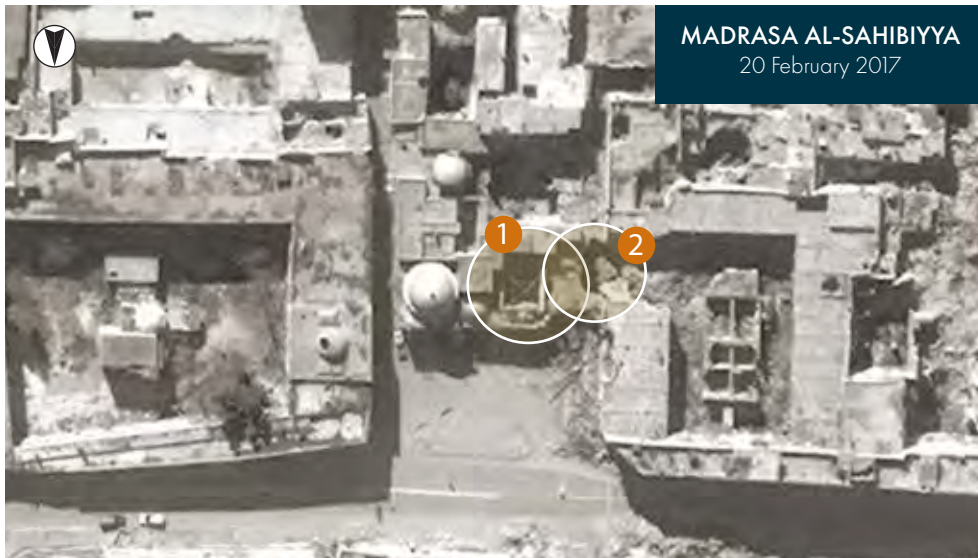
ALEPPO DISTRICT: Suwayqat Ali

PARCEL No.: 3451

HISTORIC BUILDING No.: 140

PLOT AREA: 271 m²

Despite the fact that the picturesque elevated kuttab with its Mamluk blazons and polychromic masonry has completely collapsed, the other significant architectural elements of Madrasa al-Sahibiyya are still intact and have sustained moderate damage, including the richly decorated portal in Mamluk style and the dome of the main prayer hall. Taking these points into consideration, the overall historical loss is categorized as moderate.



Figures 34 and 35. Madrasa al-Sahibiyya. *Top left (before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (after image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

Ground pictures. *Top right:* Khan al-Wazir and Madrasa al-Sahibiyya. Picture date: 16 January 2017 © 2017 UNESCO/C. Menegazzi.

Bottom right: Madrasa al-Sahibiyya, the collapsed kuttab. Picture date: 16 January 2017 © 2017 UNESCO/C. Menegazzi.

1 Fibreglass canopy damaged

2 Kuttab

Al-Utrush Mosque



36°11'46.869"N 37°9'48.957"E

The construction of the mosque was initiated in 1398 under the orders of the Mamluk governor, Aqbougha al-Utrush, who died five years later and was buried in the mosque. The governor, Dimerdash al-Nasiri, completed the building in 1565 and established a supporting endowment. After being severely damaged in the 1822 earthquake, the mosque was restored in 1922 and the upper section of the minaret was rebuilt in 1953. The mosque is located about 200m south of the Citadel. It is rectangular in shape measuring 42m x 36m with the main façade facing west and the secondary façade facing north. The portal leads to a courtyard, which is surrounded by vaulted porticoes on three sides and the prayer hall in the south. The mausoleum is located in the northwest corner of the mosque. The octagonal minaret rises to the left of the entrance on the west façade.

OVERALL SATELLITE DAMAGE ASSESSMENT

MODERATE 

In October 2014, a number of holes in the roofs of the prayer hall and the northeastern portico were visible (see Figure 37, Damage Point 2). It appears that the minaret may have been damaged by September 2016 (see Figure 37, Damage Point 3), and the roof of the prayer hall may have been damaged in two places (see Figure 37, Damage Point 1).

OVERALL HISTORICAL LOSS

MODERATE 

HISTORIC PERIOD: Mamluk

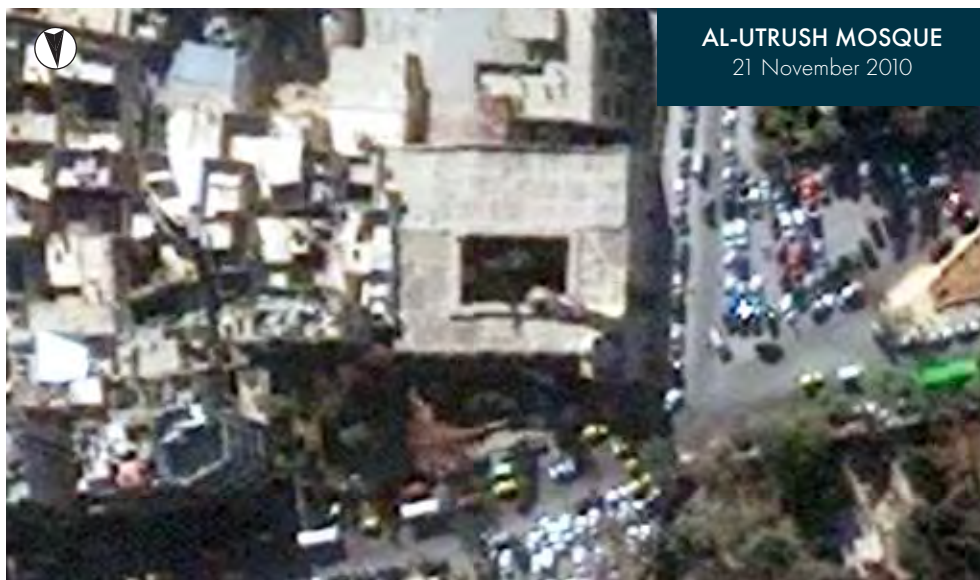
ALEPPO DISTRICT: Al-Ajam

PARCEL No.: N/A

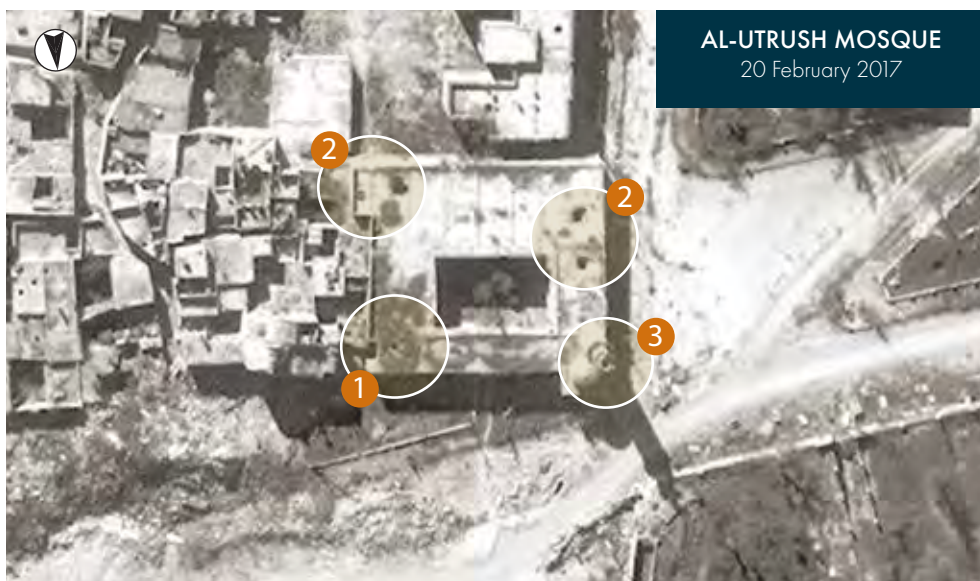
HISTORIC BUILDING No.: 337

PLOT AREA: 1,454 m²

Al-Utrush Mosque has one of the finest façades of Mamluk buildings in Aleppo, in particular the western and northern façades, and the only minaret in Aleppo with two balconies. These elements are moderately damaged. Considering that the mausoleum of Aqbougha al-Utrush may also be damaged, the overall historical loss is categorized as moderate.



AL-UTRUSH MOSQUE
21 November 2010



AL-UTRUSH MOSQUE
20 February 2017



- 1 North wall (damaged)
- 2 Roof holes on prayer hall and western portico (damaged)
- 3 Minaret (damaged)

Figures 36 and 37. Al-Utrush Mosque. *Top left (Before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). *Ground picture. Right:* Al-Utrush Mosque. Picture date: 16 January 2017 © 2017 UNESCO/C. Menegazzi.

Al-Khusrawiyya Complex



36°11'49.192"N 37°9'38.792"E

Al-Khusrawiyya complex was commissioned by Husrev Pasha, Aleppo's governor between 1531 and 1534, and designed by the renowned court architect Mimar Sinan. The inscription above the mosque entrance indicated that it was completed in 1565. The complex, the largest in its time, included a mosque, a madrasa, a mausoleum, a public kitchen and guest rooms, and was supported by numerous revenue generating properties including a khan, a qaysariyya (now Khan al-Shune, outside the complex to the north), and a suq with a large number of shops. The complex suffered from the 1822 earthquake when the khan and most of the shops were demolished. In the following years, it was abandoned and then became a shelter for the poor and homeless. The first restoration works were conducted in 1884 by the governor Jamil Pasha Namiq. In 1911, Mohammed Rida al-Zaim restored the madrasa and renovated the northern portico. These works were suspended during the First World War when it was used for military storage and occupied by soldiers. Led by Yahia al-Kayyali, Director of the Awqaf, restoration of the eastern section of the complex continued after the war in 1921. It was then reopened as a religious high school. During the twentieth century, the Awqaf further conducted several restoration works, including the stabilization of the mosque's dome.

The complex occupied an important location in front of the Citadel's gate. It had three entrances leading to a large courtyard. The courtyard was surrounded by guest rooms and a cross-vaulted portico to the north. On the west side of the courtyard was the public kitchen. The mosque was flanked by the madrasa to the west and several rooms to the east (storage areas, a stable, toilets and six other rooms before the earthquake, and study rooms and a library in the twentieth century). To the south of the mosque, there was a small domed mausoleum.

The mosque was the only building of the complex that had foregone major alterations. It was composed of a five-bay portico preceding a cubical prayer hall covered by a hemispherical dome and flanked on both sides by two domed rooms. The polygonal minaret rose on a square base to the west side of the mosque.

OVERALL SATELLITE DAMAGE ASSESSMENT

DESTROYED

In 2014, except for the northern portico, the entirety of the complex was destroyed. The mosque at the centre of the complex appears to have been demolished by explosives, which caused the building to cave in, and all that remains is a large crater (see Figure 38).

OVERALL HISTORICAL LOSS

CRITICAL

HISTORIC PERIOD: Early Ottoman

ALEPPO DISTRICT: Citadel perimeter

PARCEL No.: 3001

HISTORIC BUILDING No.: 159

PLOT AREA: 7,030 m²

Al-Khusrawiyya complex was of exceptional historical importance as the first Ottoman-style complex in Aleppo, which had brought a completely new architectural and urban style to the city. It was considered one of the early works of Mimar Sinan that combined the Ottoman style with local building techniques and materials. The architectural and decorative elements of the mosque, the magnificent portal, the ceramic tiles above the windows, the mihrab, and the minbar in the prayer hall were all valuable examples of this combination. Taking these points into consideration, the overall historical loss is categorized as critical.



Figures 38 and 39. Al-Khusrawiyya Complex. Bottom right (Before image): 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). **Full page (After image):** 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).





The site of al-Khusrawiyya Complex. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.



Al-Khusrawiyya Complex. Picture date: 8 January 2011 © Preacher Lad.

Al-Adiliyya Mosque



36°11'50.766"N 37°9'27.76"E

Al-Adiliyya Mosque is the centrepiece of the complex of Dukakinzade Muhammad Pasha, governor of the city between 1551 and 1553. Its name, al-Adiliyya, is derived from the Arabic word al-Adl (justice) owing to its proximity to the seat of government in Dar al-Adl (the House of Justice) at the time of its construction. It was designed by Mimar Sinan and, according to the inscription above its entrance, was completed in 1565. The mosque suffered from the massive earthquake of 1822 and was restored in 1923 when the wooden roof of the outer portico was replaced by an iron one. In 1975, intensive restoration works were carried out by the General Directorate of Islamic Endowments (Awqaf) and the iron roof was replaced by a new one made of reinforced concrete.

The mosque is located in the southeast of al-Mdineh district and is well connected with the covered suqs. It follows the classic Ottoman style with its square prayer hall (approximately 15.5 x 15.5m) covered by a hemispherical dome and preceded by porticoes. The minaret on the northwestern corner has a polygonal shaft with a balcony resting on a stone muqarnas.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE

The dome of the prayer hall completely collapsed between 18 September 2016 and 20 February 2017 (see Figure 41, Damage Point 3); and two of the smaller domes of the inner portico possibly have holes (see Figure 41, Damage Point 2). In addition, the western end of the outer portico has collapsed (see Figure 41, Damage Point 1). Since 2017 rubble has been visible at the base on the southern wall (see Figure 41, Damage Point 4), but it is not possible to determine whether this is from damage to the façade or to the collapse of the dome.

OVERALL HISTORICAL LOSS

SEVERE

HISTORIC PERIOD: Early Ottoman

ALEPPO DISTRICT: Al-Mdineh

PARCEL No.: 3235

HISTORIC BUILDING No.: 113

PLOT AREA: 3,858 m²

Al-Adiliyya Mosque is an important example of Mimar Sinan's provincial mosques representing the stylistic outcome of years of interaction between local, regional and imperial influences. Despite its classic Ottoman style, the decorative elements combine Ottoman conventions with local materials and building techniques, especially in the use of muqarnas and polychromic masonry. At the city level, the mosque has a typological specificity as the only mosque in Aleppo to have a double portico preceding the prayer hall. Taking all these factors into consideration, the overall historical loss is characterized as severe.



Figures 40 and 41. Al-Adiliyya Mosque. *Top left (Before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). *Ground picture.* Right: Al-Adiliyya Mosque and Minaret. Picture date: 16 January 2017 © 2017 UNESCO/G. Khawam.



- 1** Western end of the outer portico collapsed
- 2** Smaller domes of inner portico with holes
- 3** Dome of the prayer hall collapsed
- 4** Rubble at the base on the southern wall



Al-Adiliyya Mosque, the outer portico. Picture date: 16 January 2017 © UNESCO/G. Khawam.



Al-Adiliyya Mosque, the dome of the Prayer Hall. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.

Forty Martyrs Armenian Orthodox Church



The Forty Martyrs Armenian Orthodox Church was built in 1491 to replace a small chapel in the old Christian cemetery of al-Jdaydeh quarter and then enlarged in 1500. It was renovated again in 1616 after the cemetery was moved. It is a three-nave basilica church with no dome. A bell tower was added in 1912. During the second half of the twentieth century, the interior of the church underwent massive renovations to meet the traditional requirements of Armenian churches.

OVERALL SATELLITE DAMAGE ASSESSMENT

MODERATE

There is debris visible on the roof, particularly on the northern side (see figure 43, Damage Point 1), but the main structure, including the bell tower, appears largely intact. The southern annexed building has sustained severe damage (see Figure 43, Damage Point 2), possibly impacting the main church where they adjoin.

OVERALL HISTORICAL LOSS

MODERATE

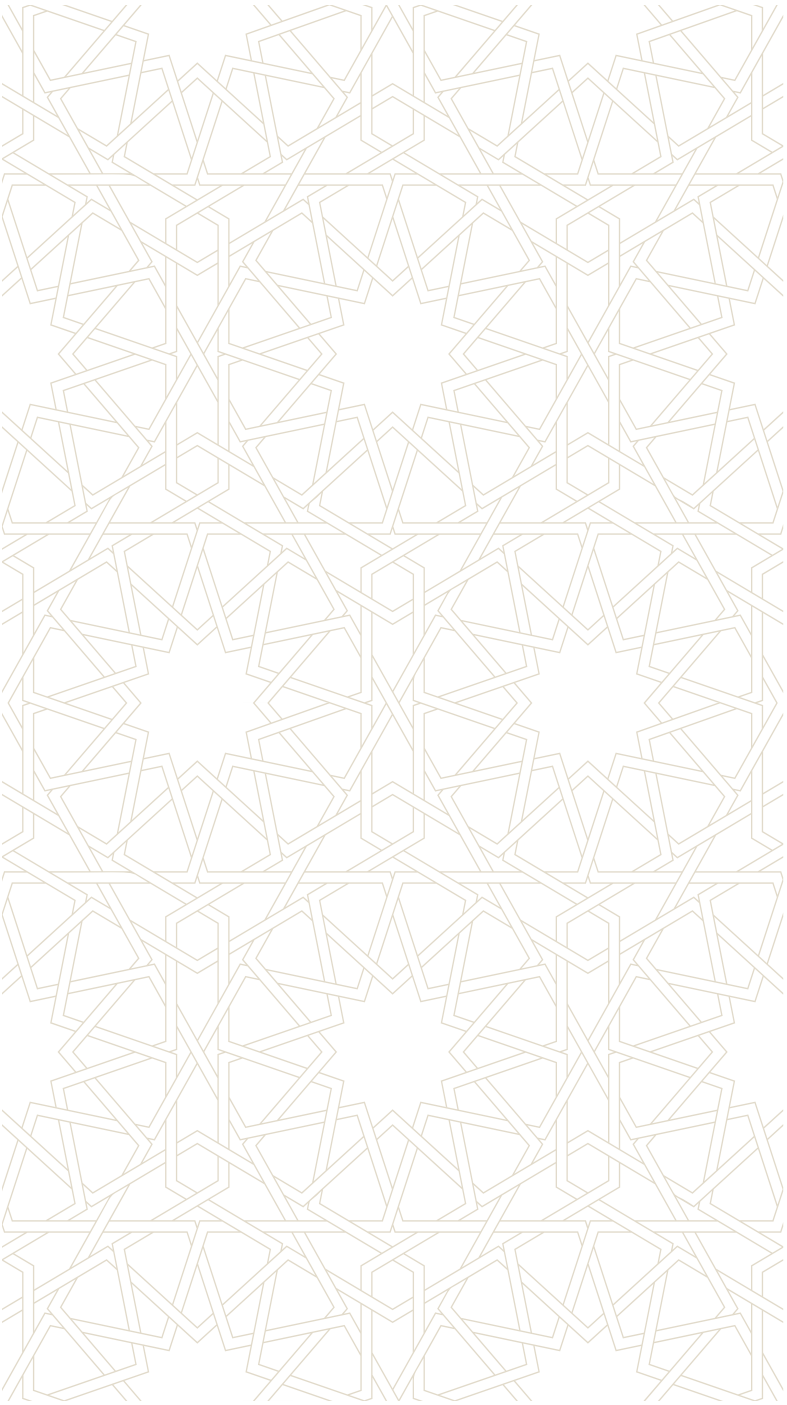
HISTORIC PERIOD: Ottoman
ALEPPO DISTRICT: Al-Jdaydeh
PARCEL No.: 2356
HISTORIC BUILDING No.: 760
PLOT AREA: 941 m²

This is the oldest active church in the Armenian diaspora and in the city of Aleppo, and is particularly rich in icons with more than 30 samples. The bell tower is considered a unique example of baroque architecture in Aleppo. The overall historical loss is categorized as moderate because the main structure and the bell tower appear largely intact.



Figures 42 and 43. Forty Martyrs Armenian Orthodox Church. *Top left (Before image):* Forty Martyrs Armenian Orthodox Church. 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). *Ground picture. Right:* Collapsed annex building to the Forty Martyrs Armenian Church. Picture date: 16 January 2017 © 2017 UNESCO/G. Khawam.

- ① Debris visible on the roof
- ② Southern building severely damaged



Aleppo has always been known for its role in the local, regional and international trade due to its location and the local potential for commercial production. For this reason, the Old City boasts a large number of buildings associated with trade, including suqs, khans and qaysariyyas. Many of these buildings are concentrated in the central commercial area (al-Mdineh district), which developed around the Great Mosque and was expanded on the two sides of the main thoroughfare linking Bab Antakya in the west to the Citadel's perimeter in the east. This area contains around 35 suqs, 20 khans and several qaysariyyas, with its oldest sections dating to the Mamluk period and located to the south and east of the Great Mosque. Other commercial centres have developed inside and outside the city's gates, especially towards the east, north and northwest, and along the thoroughfares connecting these gates with the city centre. Finally, smaller commercial facilities, mainly suqs and shops, are scattered in the centres of the residential neighbourhoods. These facilities are intended to serve the needs of the local inhabitants in each neighbourhood.

Using satellite imagery, this study examined 63 suqs and qaysariyyas, and 94 khans within the World Heritage property. As it is not possible to detail every site in this publication, the locations have been summarized and only three key sites located in al-Mdineh district are mentioned. They are Khan al-Nahhasin, Khan al-Sabun and Suq al-Zarb. Of the suqs and qaysariyyas examined, 13 are destroyed, 21 have sustained severe damage and 29 have sustained moderate damage.

The damage assessment for all the sites assessed in this study is available on the EAMENA website upon request.

Of the khans examined, 18 are destroyed, 22 have sustained severe damage and 53 have sustained moderate damage, with 1 having sustained some possible damage. Visible rubble in the streets indicates that a number of other commercial buildings may be affected.



MORE INFORMATION

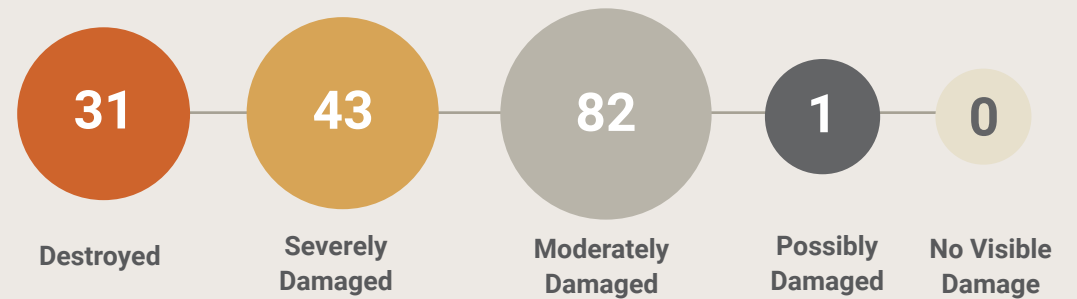
Scan the code to access the study on the EAMENA website



Marketplaces



157 sites



Khan al-Sabun



36°11'59.221"N 37°9'29.073"E

Khan al-Sabun, also named Azdumur, was built by the Mamluk Emir Azdumur ibn Mazid al-Ashrafi during his tenure in Aleppo from 1484 to 1494. In the last years of the Ottoman rule, the northern wing served as al-Faruqiyya school. This wing was demolished, but its richly decorated façade overlooking the courtyard was preserved and replaced by a multi-storey building when Khan al-Wazir street was widened in the 1950s. The wooden roofs in the upper floor were replaced with reinforced concrete during restoration works in the 1980s.

The khan is located at the northern border of the covered suqs in al-Mdineh district overlooking Khan al-Wazir street. It is a two-story structure whose spaces are arranged around a central rectangular courtyard. The building's single entrance is on its southeastern corner leading through a long L-shaped vestibule to the corner of the courtyard.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE

Although assessed as 'destroyed' in 2014, the level and extent of the damage of the khan has been reassessed. The khan itself has sustained severe damage and several sections have been destroyed (see Figure 45, Damage Point 1), but the majority of the building is standing, albeit with holes in the roof and piles of rubble indicating further damage.

OVERALL HISTORICAL LOSS

SEVERE

HISTORIC PERIOD: Mamluk
ALEPPO DISTRICT: Al-Mdineh
PARCEL No.: 2387
HISTORIC BUILDING No.: 137
PLOT AREA: 2,153 m²

Khan al-Sabun was one of the best preserved examples of the Mamluk urban khans in Aleppo, and the first large khan built in the central commercial zone (al-Mdineh). Architecturally, it is highly valuable for its rich decorative details and Mamluk blazons in the entrance façade and the northern façade overlooking the courtyard. The overall historical loss is therefore categorized as severe.



Figures 44 and 45. Khan al-Sabun. *Top left (Before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). **Ground pictures.** *Top right:* The courtyard of Khan al-Sabun. Picture date: 16 January 2017 © 2017 UNESCO/C. Menegazzi. *Bottom right:* Eastern façade. Picture date: 16 January 2017 © 2017 UNESCO/C. Menegazzi.



Façade of Khan Al-Shouneh. Picture date: 16 January 2017 © UNESCO/G. Khawam.



South of the suqs, Khan al-Qadi. Picture date: September 2005 © Ross Burns



Khan al-Nahhasin



36°11'54.081"N 37°9'24.695"E

Khan al-Nahhasin and the suq extending along its eastern side were built between 1553 and 1556 as a part of Mohammed Pasha Dukakinzade's complex. Since its construction, and according to an inscription dating from 1559, it served as the seat of the Venetian Consulate, which occupied the khan's first floor. Following the closure of the consulate in 1798, the former Venetian consul, Salerio Rizzini, continued to live in the residential section of the khan with his family while the other sections, the offices and the chapel, became the property of the Kabbaye family. In 1819, the ownership of the Consul's residence transferred to the Poche family who still owns it. The family used the residence to bring together its valuable collections of photographs, antiques and records. Apart from its consular and residential functions, very little is known about the khan's history. It was most likely confined to the Venetian trading houses active in the trade of silk and spices. The khan was partially damaged during the earthquake in 1822. The southwestern corner collapsed and only a section of the western wing was rebuilt. A backyard belonging to the Poche residence had replaced the rest. The residence itself had undergone considerable changes, including the replacement of the original vaulted roofs and the addition of terraces and new rooms, in particular the dining hall was rebuilt in the early 1900s. The shops at the ground floor of the khan were turned into a very active commercial facility specializing in the wholesale trade of shoes and bags. The khan is a two-storey structure arranged around an almost square courtyard. The building entrance is located in the middle of its eastern side and leads through a rectangular vestibule to the courtyard. A stable is located in the southern wing.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE

The khan has sustained severe damage as the southwestern corner is completely destroyed (see Figure 47, Damage Point 2). There is rubble in the courtyard, suggesting additional damage to the walls, and part of the northern section of the roof has collapsed (see Figure 47, Damage Point 1). In 2014, the Directorate General of Antiquities and Museums (DGAM) reported the looting of some elements of the high-value private collection of the Poche house.

OVERALL HISTORICAL LOSS

SEVERE

HISTORIC PERIOD: Ottoman
ALEPPO DISTRICT: Al-Mdineh
PARCEL No.: 3125
HISTORIC BUILDING No.: 97
PLOT AREA: 3,147 m²

Khan al-Nahhasin was one of the urban khans that housed consulates and residences of the European merchants, and thus bears witness to the adaptive changes and different architectural styles of the time. Despite the destruction of one section of the Poche residence, the other valuable sections of the khan remained intact or moderately damaged, most notably the decorated entrance of the khan together with the preceding dome and the dining hall of the residence; one of the earliest examples of the use of iron beams as roof support. Taking into consideration that these elements have been severely damaged or destroyed, the overall historical loss is categorized as severe.



KHAN AL-NAHHASIN
23 September 2013



KHAN AL-NAHHASIN
20 February 2017

Figures 46 and 47. Khan al-Nahhasin. *Left (Before image):* 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). *Right (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

- 1 Northern section of the roof collapsed 2 Southwestern corner destroyed



Courtyard of Khan al-Nahhasin. Picture date: 14 June 2017 © UNESCO/M. Samman.



Khan al-Nahasin. The courtyard's northeastern corner. Picture date: 14 June 2017 © UNESCO/M. Samman.

Suq al-Zarb



36°11'55.837"N 37°9'36.629"E

Suq al-Zarb is located at the eastern extreme of the central commercial zone (al-Mdineh district) and its entrance begins at the Citadel's perimeter. Extending from east to west, it contained around 65 shops arranged in two rows and covered with a barrel vault. The eastern section of the suq can be dated to the late Ottoman period. However, the northern row of its western section, abutting Khan Khayer Bek, was built with the khan in the early fifteenth century and then vaulted over to connect with the more irregularly arrayed shops on the southern row.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE 

By 2014, much of the suq, particularly the southern side, had sustained heavy damage. As the conflict continued, the suq sustained additional damage, including severe damage to the buildings that mark the entrance (see Figure 49, Damage Point 2), and notably to the southern building, which was partially destroyed. The northern side of the suq is in better condition than the southern half and has mostly sustained only moderate damage (see Figure 49, Damage Point 1), though there are sizeable mounds of rubble in the street indicating additional damage to the buildings.

OVERALL HISTORICAL LOSS

SEVERE 

HISTORIC PERIOD: Ottoman

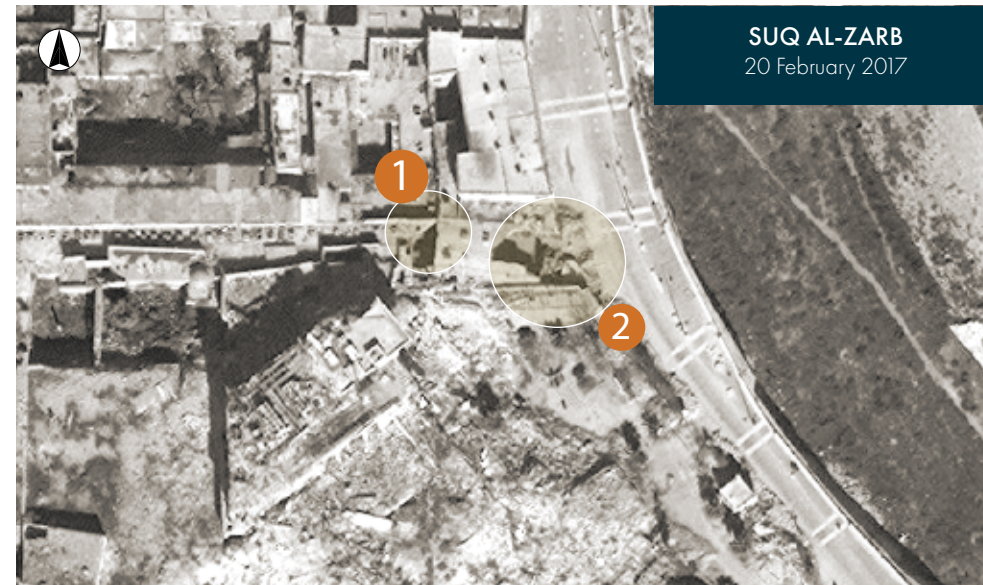
ALEPPO DISTRICT: Al-Mdineh

PARCEL No.: 3393/3456,

HISTORIC BUILDING No.: 162, 163, 165 and 166

PLOT AREA: 221 m²

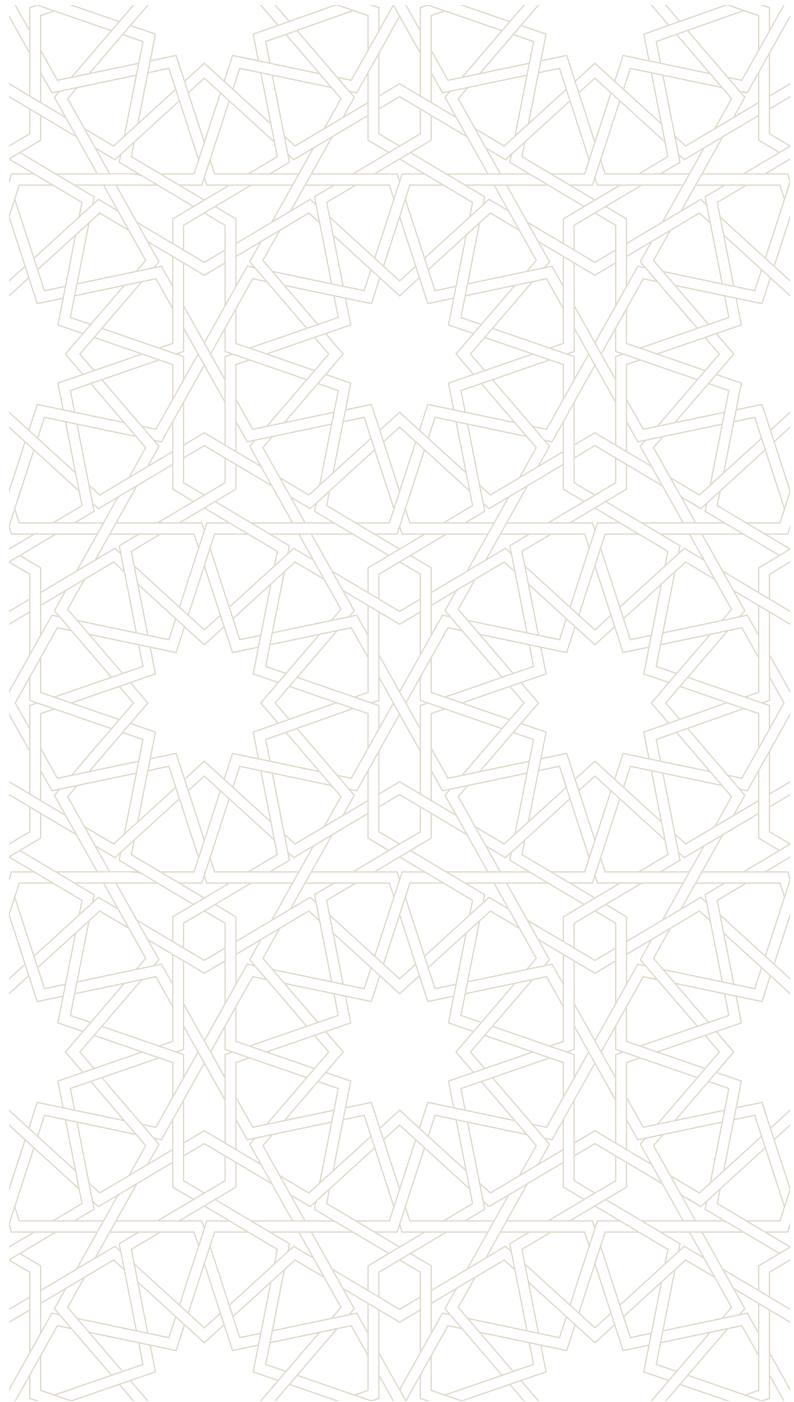
As one of the historically and architecturally valuable covered suqs of al-Mdineh district, and taking into consideration its location at the eastern entrance of this significant part of the Old City, the overall historical loss is categorized as severe.



Figures 48 and 49. Suq al-Zarb. Top left (Before image): 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). **Top right (After image):** 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). **Ground picture. Bottom:** Suq al-Zarb. Picture date: 28 May 2017 © Art Graphique & Patrimoine.

1 Northern side of the Suq (moderate damage)

2 Building that marks the entrance (severe damage)



Aleppo's National Museum, located outside the limits of the World Heritage property, held artefacts covering every era of the city's history, as well as from northern Syria and the Euphrates region. In addition, several historic buildings were restored and used as specialized museums. They include the Museum of Popular Arts and Traditions in Bayt Ajiqbash and the Museum of Medicine in the Islamic World in Bimaristan Arghun al-Kamili, among others. Other buildings were under restoration for use as museums when the conflict erupted.

Using satellite imagery, this study examined three of the museums in Aleppo, two of which are detailed here. One was severely damaged and one sustained moderate damage.

Museums



2 sites



Museum of Popular Art and Traditions (Bayt Ajiqbash)



36°12'22.096"N 37°9'23.902"E

Bayt Ajiqbash was built in 1757 and was the property of the Qara Ali and then Ajiqbash families. The rooms in the eastern side were demolished to widen the street that connects Awjat al-Kayali and al-Hatab square. The Directorate General of Antiquities and Museums (DGAM) expropriated the house in 1967 and had it restored. It was inaugurated as the Museum of Popular Art and Traditions in 1982. The western entrance leads to a central courtyard of rectangular shape, around which the spaces of the house are arranged. On the south is a high iwan flanked by two rooms, while the main qa'a (hall) extends along the northern side. The service section is located on the western side.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE

There is clear evidence of debris around the walls, the roof of the building is heavily damaged, and a small section of it to the southeast appears to have collapsed (see Figure 51, Damage Point 1). There is possibly a hole in the southwest corner of the roof (see Figure 51, Damage Point 2). Given the nature of this assessment, it is not possible to measure the effect on the museum's contents. For more information, refer to the DGAM publication on the state of the museums (DGAM, 2016a).

OVERALL HISTORICAL LOSS

SEVERE

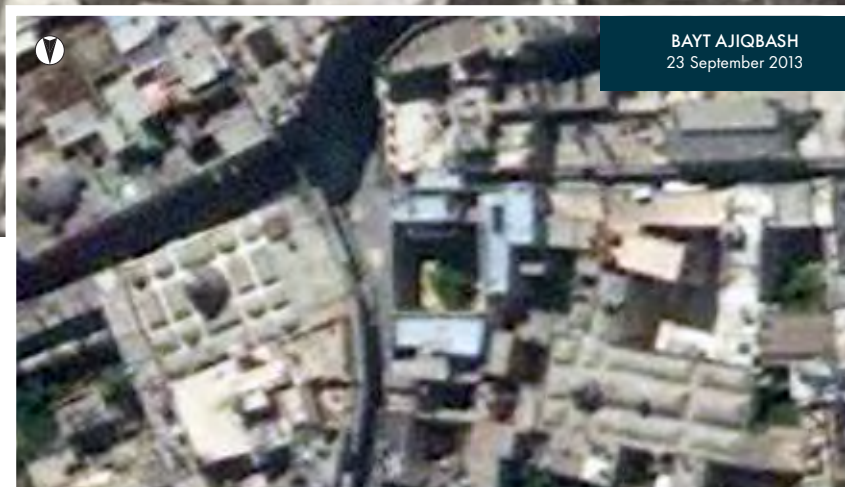
HISTORIC PERIOD: Ottoman
ALEPPO DISTRICT: Al-Jdaydeh
PARCEL No.: 2303
HISTORIC BUILDING No.: 445
PLOT AREA: 495 m²

In 2013, the collection from the Museum of Popular Art and Traditions was moved to the National Museum of Aleppo. Bayt Ajiqbash is especially famous for its rich stone decorations, reflecting the impact of European baroque ornamental forms. In addition, the southern iwan, the qa'a and the other rooms on the ground floor were decorated with wooden panels. Taking into consideration that these elements have been severely damaged or destroyed, the overall historical loss is categorized as severe.



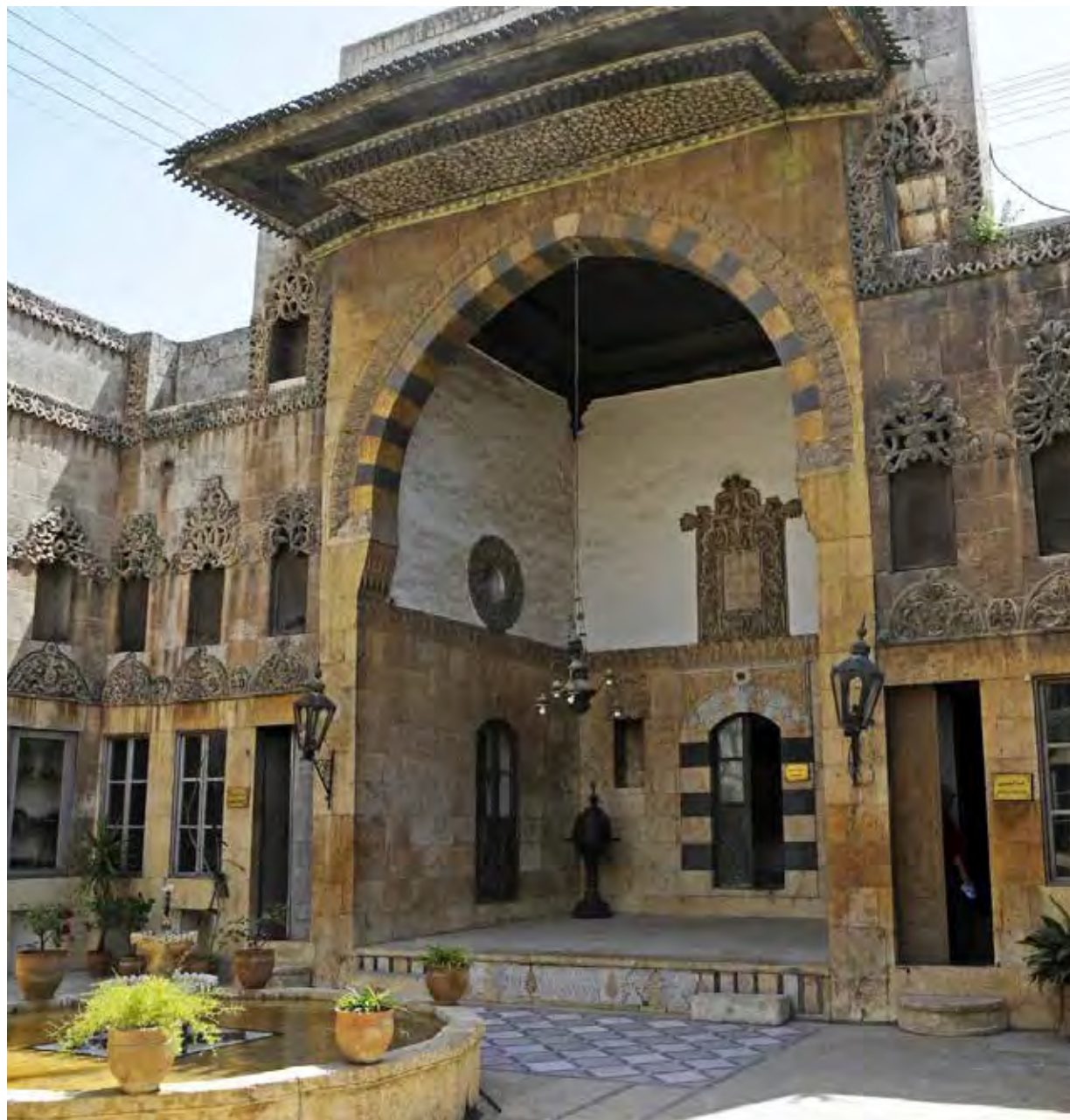
Figures 50 and 51. Bayt Ajiqbash. Bottom right (Before image): 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). **Full page (After image):** 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

- 1** Roof of building damaged and small section of southeast corner of building collapsed
- 2** Southwest corner of the roof damaged





Damaged South Iwan of the Museum of Popular Art and Traditions (Bayt Ajiqbash). Picture date: 16 January 2017 © UNESCO/C. Menegazzi.



Archive photo of the South Iwan, Museum of Popular Art and Traditions (Bayt Ajiqbash). Picture date: April 2009 © Gerhard Huber.





View over al-Jdayeh district and al-Hatab square in close proximity to Bayt Ajiqbash. Picture date: 16 January 2017 © UNESCO/G. Khawam.



Museum of Popular Art and Traditions, southwest corner. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.



National Museum of Aleppo



36°12'12.645"N 37°9'0.888"E

The National Museum of Aleppo was established in 1926. In 1931, following a decision by the Syrian authorities, a small Ottoman palace was designated to host the museum. After three decades, the building was too small to host the growing number of objects, so in 1966 it was decided to demolish the old museum and replace it with a larger, more modern structure. The new museum was inaugurated in 1972.

The museum is located in the northwest of the Old City, not far from the clock tower in Bab al-Faraj district. It comprises two floors, a basement and two gardens, as well as an annex used as the local headquarters of the Directorate General of Antiquities and Museums (DGAM). Artefacts from every historical period were exhibited in the museum, the largest sections were devoted to the Iron Age and the Islamic period. The entrance to the museum was a reconstruction of a gateway to an Iron Age (ninth century BCE) neo-Hittite palace at Tell Halaf with the original statues. The museum had around 27,000 registered artefacts, most of which came from archaeological missions undertaken between 2008 and 2011.



MORE INFORMATION

For a detailed description of the status of the Museum collection and damage, please see the DGAM publication *Syrian Archaeological Heritage, Five Years of Crisis 2011–2015* (DGAM, 2016).



OVERALL SATELLITE DAMAGE ASSESSMENT

MODERATE 

No damage was visible to the building in 2014 when satellite imagery was examined, although reports of damage had been received. By 2017 a section of the roof had been damaged on the eastern side (see Figure 53, Damage Point 1), and the adjacent walls may also have been damaged as there appears to be rubble at their base. An additional section of the roof on the southern side may also have been damaged. The roofed area in the courtyard (the covering for sculptures) has also been damaged, though it was repaired between 2016 and 2017. There is impact damage on the path to the museum, although it is not possible to assess whether this has affected any of the sculptures stored in the grounds; however, a small white area by the entrance (visible in the September 2016 image) may support reports of damage to the entrance (DGAM, 2016b). Damage to the collections cannot be assessed via satellite imagery, however, the DGAM has published a dedicated report (DGAM, 2016a), as has the former curator (Kanjou, 2016).

OVERALL HISTORICAL LOSS

MODERATE 

HISTORIC PERIOD: Modern

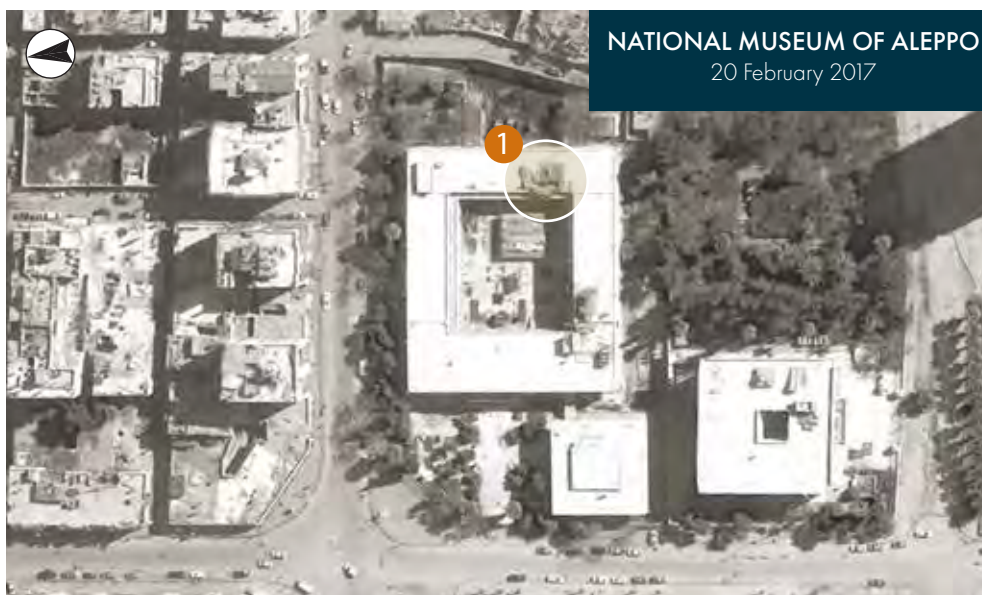
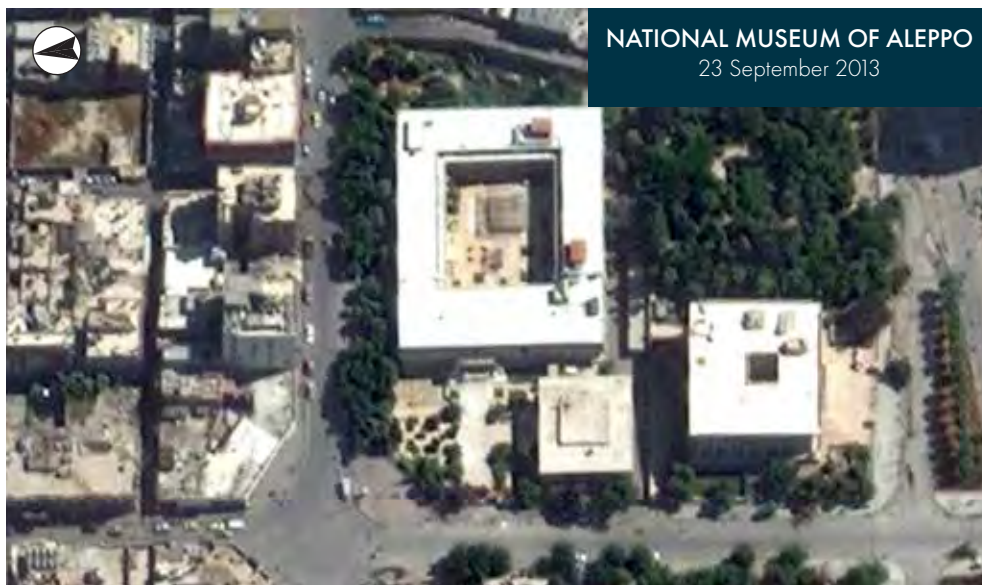
ALEPPO DISTRICT: Baron Street (outside the Old City)

PARCEL No.: n/a

HISTORIC BUILDING No.: 228

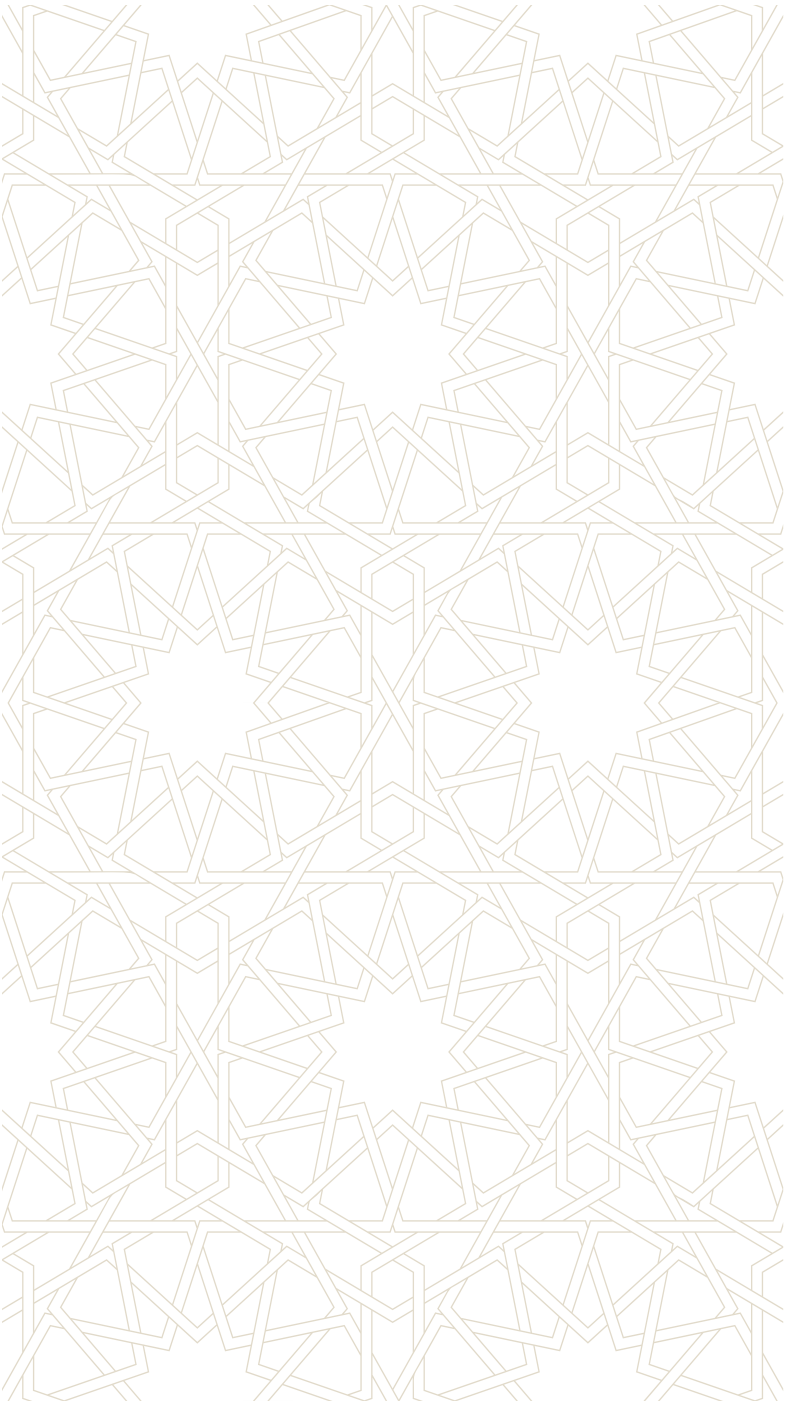
PLOT AREA: 9,252 m²

At the beginning of 2012, around 1,000 of the most valuable objects (approximately 5 per cent of the collection) were moved to a safe location, and the rest were packed and placed in storage. The exhibits that were too big to move inside the galleries were sand-bagged, and all the halls and storerooms were sealed off with metal (fireproof) doors and reinforced with concrete. In early 2014, the most valuable artefacts were transferred to Damascus and stored at another protected storage place. The remaining artefacts of both the National Museum and the Museum of Popular Art and Traditions were stored in the basement of the National Museum and placed on a 70 cm-high platform so that they would be safe from groundwater. A generator operates a pump to drain the water. The sculptures in the garden have been entombed inside concrete blocks for their protection, and sandbags were piled up at the main entrance to prevent access. Given these precautions, the overall historical loss is assumed to be moderate.



Figures 52 and 53. National Museum of Aleppo. *Top left (Before image):* 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). *Ground pictures. Top right:* Entombed museum entrance. Picture date: 16 January 2017 © 2017 UNESCO/C. Menegazzi. *Bottom right:* Mitigation measures at the entrance of the National Museum of Aleppo. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.

1 Eastern side of the roof damaged



In addition to religious buildings and those associated with commerce, the World Heritage property of the Ancient City of Aleppo also includes numerous historic public buildings that echo the thriving and dynamic urban character of the city throughout its history. These include hammams, hospitals, historic administrative buildings, sabils (water fountains), coffee houses and the Clock Tower, among other structures. In addition, the urban fabric of residential neighbourhoods boasts a large number of luxurious residences, rich in their architectural elements and decorative details.

Using satellite imagery, this study examined 101 of these historical buildings. As it is not possible to detail every location in this publication, only some key sites are mentioned. Of the public buildings and residences examined, 8 are destroyed, 17 have sustained severe damage, 65 have sustained moderate damage, and roughly 11 have some possible damage or no visible damage.

The damage assessment for all the sites assessed in this study is available on the EAMENA website upon request.



MORE INFORMATION

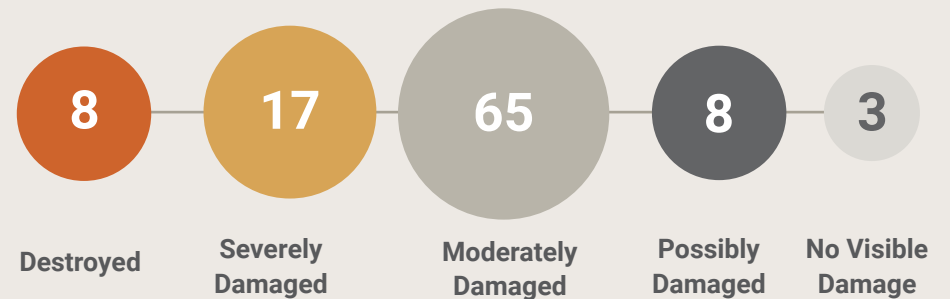
Scan the code to access the study on the EAMENA website



Other Historic Buildings and Places



101 sites



Al-Matbakh al-Ajami



36°12'0.649"N 37°9'31.175"E

The oldest parts of Al-Matbakh al-Ajami, a palatial residence, can be dated to the twelfth century when it was the palace of the Zengid amir, Majd al-Din ibn al-Daya. In the Ayyubid period, it belonged to the Bani al-Ajami, an illustrious family who possessed much of the land between the Citadel and the Great Mosque. In the Mamluk period, it may have come into the possession of Ahmad ibn Yaquq ibn al-Sahib who founded the nearby Madrasa al-Sahibiyya in 1349. The building was renovated in the late fifteenth century by Khayer Bek who added a dome above the central qa'a (hall). The entire southern section of the palace was demolished when Khan al-Wazir street was widened in the 1950s. It housed the Museum of Popular Art and Traditions between 1967 and 1975. The main façade was reconstructed in the 1980s. In 2005, the Directorate General of Antiquities and Museums (DGAM) started interior renovation works with a view to turning it into a restaurant. The palace is entered through a long vaulted passage with a bent axis that leads from the street to the northeastern corner of the central qa'a. This space (9.7 × 9.9m) is surrounded by four iwans and is covered by a dome. The northern iwan is flanked by narrow arched openings forming the tripartite façade composition that is typical of Zengid and Ayyubid palaces.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE 

The building has been severely damaged. The dome was destroyed as seen on Figure 56 (Damage Point 2), but had sustained continued damage since 2014 (Damage Point 1, see Figure 55). Parts of the roof have collapsed, and piles of rubble and debris on the roof and along the bottom of the walls indicate further structural damage (see Figure 56, Damage Point 2).

OVERALL HISTORICAL LOSS

SEVERE 

HISTORIC PERIOD: Zengid / Ayyubid / Mamluk

ALEPPO DISTRICT: Suwayqat Ali

PARCEL No.: 2057

HISTORIC BUILDING No.: 182

PLOT AREA: 481 m²

Al-Matbakh al-Ajami is the only surviving non-royal palatial residence from medieval Aleppo, if not from all of Syria. Its architectural design and features, the central qa'a with its dome (one of the largest Mamluk domes in Aleppo), the iwans and the northern tripartite façade of the main chamber are all unique examples of the successive styles of medieval Islamic rule. Consequently, the overall historical loss is categorized as severe.



AL-MATBAKH AL-AJAMI
21 November 2010



AL-MATBAKH AL-AJAMI
20 February 2017



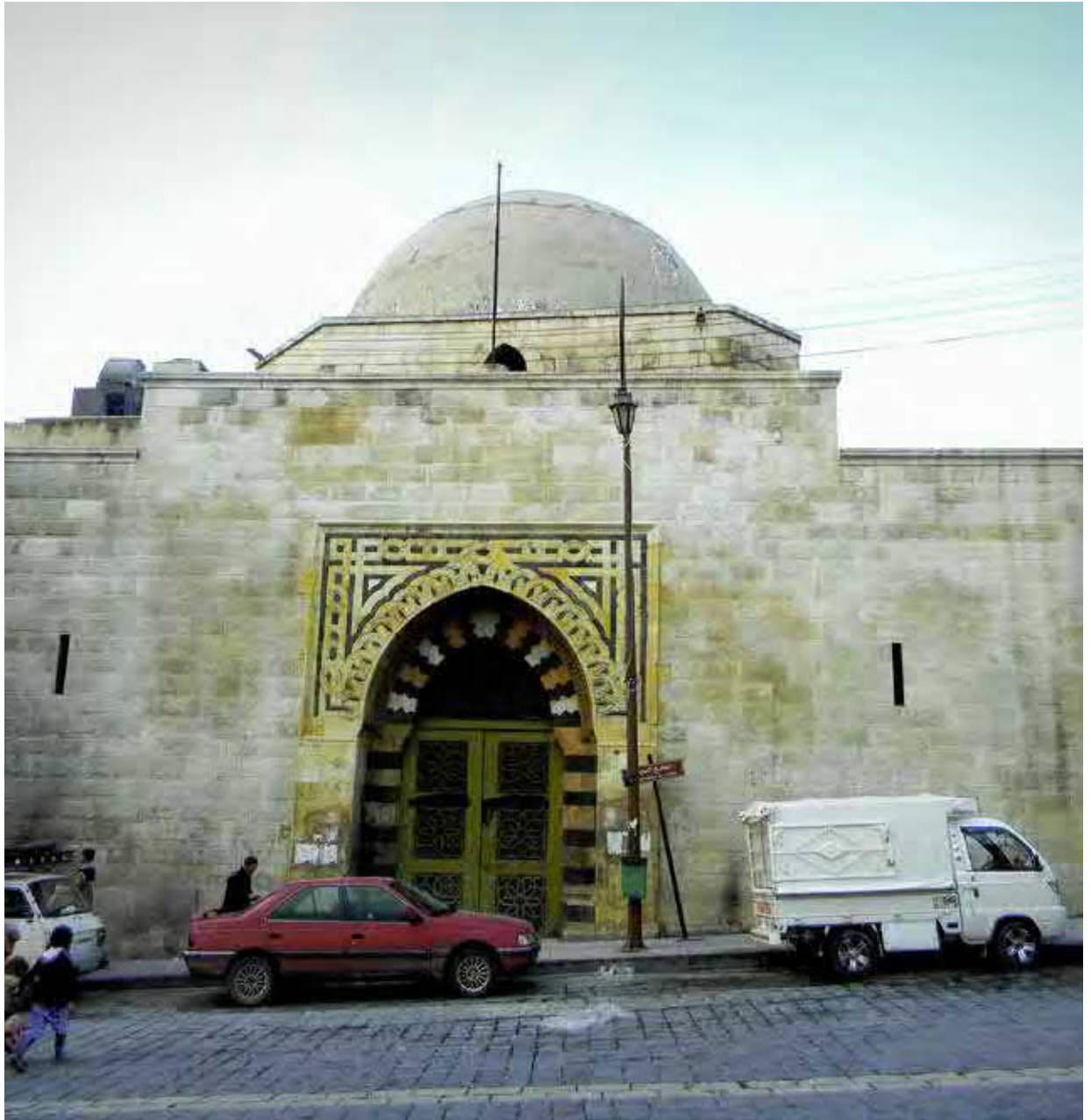
AL-MATBAKH AL-AJAMI
23 May 2014

Figures 54, 55 and 56. Al-Matbakh al-Ajami. *Top left (Before image)*: 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image 1)*: 23 May 2014 © 2014 DigitalGlobe (Source: U.S. Department of State, NextView License). *Top right (After image 2)*: 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License).

1 Dome damage in 2014 2 Dome completely destroyed in 2017  Visible debris



The main façade of al-Matbakh al-Ajami. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.



The main façade of al-Matbakh al-Ajami. Picture date: 8 January 2011 © Preacher Lad.

Bab al-Nasr Area



36°12'14.057"N 37°9'39.039"E

Bab al-Nasr (the Gate of Victory) is one of the five remaining gates of the walled city. It was originally called Bab al-Yahud because of its location next to the Jewish quarter and cemetery. It was rebuilt and renamed by al-Zahir Ghazi in 1212 and subsequently became one of the city's most important gates as it gave access to the flourishing northern extramural neighbourhoods. The original gate seemed to have had a simple form and to have allowed direct access to the city. This was made more complicated as a result of the Ayyubid reconstruction that comprises two towers. The western tower contains a mosque. In the eastern tower, a vaulted corridor and three successive doorways created a double-bent axis for defensive purposes. In the 1890s during the Ottoman period the wall between the two towers was demolished to open the gate to traffic when al-Khandaq street (the former moat outside the northern walls) was transformed into a main thoroughfare.



Inner face of the gateway looking north. Picture date: 27 June 2005 © Ross Burns

OVERALL SATELLITE DAMAGE ASSESSMENT

MODERATE 

Bab al-Nasr area has sustained moderate damage, while the contemporary building in the vicinity of the two towers has sustained significantly more damage. The shops and the buildings to the north of the western tower have collapsed (see Figure 58, Damage Point 1), and there is a hole in the roof of the tower near the collapsed area, as well as debris around the façade. Most of the contemporary buildings to the southeastern corner of the eastern tower have been completely destroyed (see Figure 58, Damage Point 4). There is a hole in the roof of the tower and evidence of further impact damage. All buildings to the north of the eastern tower are destroyed. The adjacent buildings to the north tower are severely damaged, and the roof covering between the two towers has been destroyed. (see Figure 58, Damage Point 1).

OVERALL HISTORICAL LOSS

MODERATE 

HISTORIC PERIOD: Ayyubid

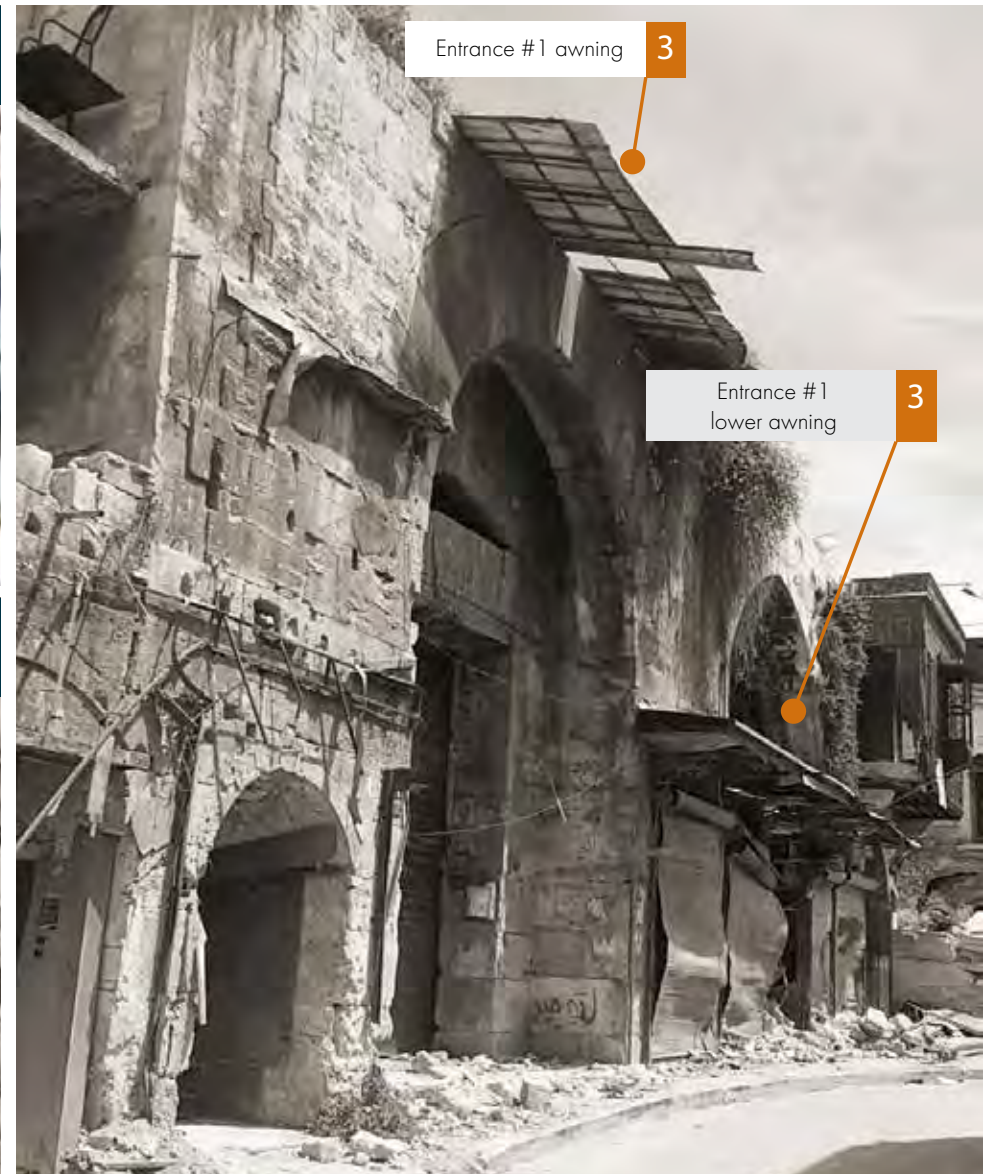
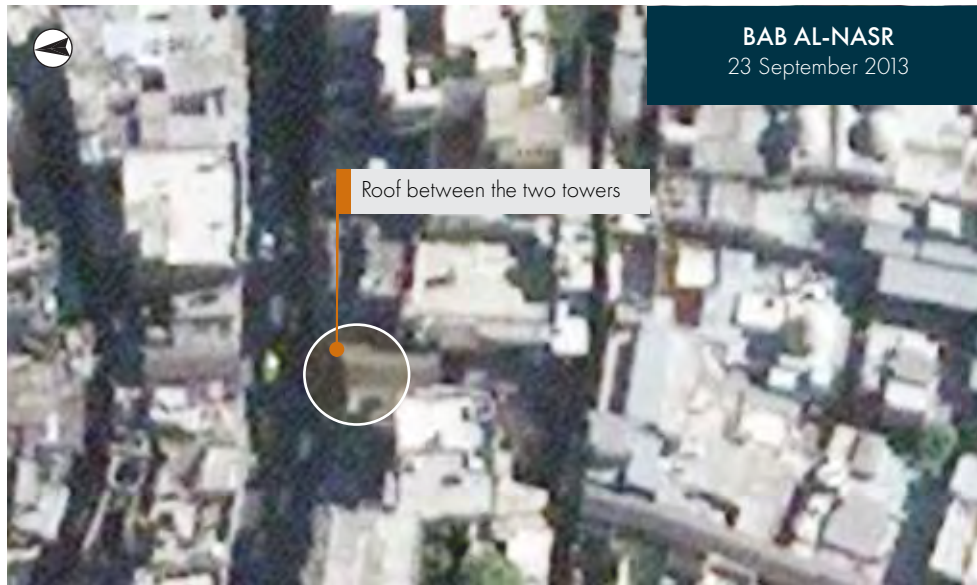
ALEPPO DISTRICT: Dakhel Bab al-Nasr

PARCEL No.: 1583, 1584 and 3817

HISTORIC BUILDING No.: 277

PLOT AREA: 428 m²

Bab al-Nasr is one of five remaining gates that represent the development of the city's military architecture during the Ayyubid period. However, unlike the other gates, the continued attacks have jeopardized the value of this gate owing to its location within the urban fabric of the Old City. This has resulted in the moderate damage sustained to various parts of the structure and surrounding buildings. Consequently, the overall historical loss is categorized as moderate.



Figures 57 and 58. Bab al-Nasr. Top left (Before image): 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). **Bottom left (After image):** 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). **Ground picture.** Right: The eastern tower of Bab al-Nasr. Picture date: 14 June 2017 © UNESCO/M. Samman.

- 1** Buildings to the north of the western tower collapsed
- 2** Buildings to the north of the eastern tower destroyed
- 3** Entrance #1 and #2 awning (see gap between metal sheets visible on imagery as well)
- 4** Buildings next to the southeastern corner of the eastern tower destroyed and the tower damaged



Bab al-Nasr. Perspectives from the eastern tower. Picture date: 14 June 2017 © UNESCO/M. Samman.



Bab al-Nasr. Gateway looking south. Picture date: 14 June 2017 © UNESCO/M. Samman.



Hammam Yalbougha al-Nasiri



36°11'51.627"N 37°9'50.435"E

Hammam Yalbougha al-Nasiri was constructed in the late fourteenth century by the Mamluk governor of Aleppo, Amir Yalbougha al-Nasiri, on the ruins of a previous Ayyubid Hammam. It was partially destroyed during Timur's invasion. After reconstruction, the Mamluk hammam retained its function as a public bath until the early twentieth century when it was converted into a felt factory. The building was bought and partially restored by the Directorate General of Antiquities and Museums (DGAM) in the 1960s. In 1983, a comprehensive restoration of the hammam was decided with all the sanitary installations repaired and modern facilities added.

The hammam comprises the three main sections of a traditional public bath: the barrani (frigidarium), the wastani (tepidarium) and the juwwani (caldarium). Each of these three sections has a large central domed area flanked by four iwans. A café, kitchen, laundry and other service rooms were added to the existing facilities.



The main façade of Hammam Yalbougha al-Nasiri. Picture date: 5 April 2010 © Bernard Gagnon.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE 

The hammam has suffered severe damage. Several of the domes have collapsed (see Figure 60) or have holes, and there is rubble surrounding it that suggests further damage to the east façade.

OVERALL HISTORICAL LOSS

SEVERE 

HISTORIC PERIOD: Mamluk

ALEPPO DISTRICT: Citadel Perimeter

PARCEL No.: 2300

HISTORIC BUILDING No.: 339

PLOT AREA: 809 m²

Hammam Yalbougha al-Nasiri was one of the few Mamluk public baths to have preserved its original function. It occupies a significant location at the foot of the Citadel's entrance and faces the street with a monumental façade built in polychrome masonry, typical of the Mamluk style. Taking these points into consideration, the overall historical loss is categorized as severe.



Figures 59 and 60. Hammam Yalbugha al-Nasiri. *Top left (Before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Top right (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). *Ground pictures. Bottom left:* The main façade of Hammam Yalbugha. Picture date: 16 January 2017 © UNESCO/C. Menegazzi. *Bottom right:* The northern façade of Hammam Yalbugha. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.

- 1 Damaged and collapsed domes
- 2 Damaged dome
- 3 Damage to the façade

- 4 Debris
- Visible debris

Bayt Ghazaleh



36°12'23.779"N 37°9'23.381"E

Bayt Ghazaleh is named after the Ghazaleh family who acquired it in 1834. Even though an inscription in one of the northern rooms indicates that the residence was built in 1691 by Khajdor ibn Murad, some sections possibly date from the sixteenth century. In 1914 it was turned into a state school. From 2007 to 2011, the Directorate General of Antiquities and Museums (DGAM) conducted a major restoration campaign to transform the residence into a museum dedicated to the history of the city of Aleppo. In parallel, in 2010, descendants of the Ghazaleh family commissioned a study, including historical research on the house and its neighbourhood, a stylistic analysis of the decorative elements and a detailed architectural survey.

The residence is located in the extramural neighbourhood of al-Jdaydeh. The current entrance on the house's eastern side was opened in the nineteenth century. It leads to the principal courtyard measuring 250m² that gives access to the rest of the house. Leading off the courtyard are the southern iwan, a western T-shaped qa'a and several rooms. Kitchens and other service quarters, stables, granaries and warehouses for provisions were probably situated to the northeast and south of the house, accessible from the alleys surrounding the plot. A beautiful bath house is located in the western part of the residence.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE

Bayt Ghazaleh has sustained severe damage. The southern iwan (see Figure 62, Damage Point 3) seems mostly destroyed, as is most of the southern part of the building around the courtyard. The hammam and changing rooms in the northwest corner (see Figure 62, Damage Point 2) are heavily damaged, although the dome appears intact. The main courtyard is full of rubble, with additional rubble in the northern courtyard. The eastern side is also heavily damaged, and debris is visible along the length of the outside wall. Much of the rest of the structure shows signs of additional structural damage. The domed reception room, kitchen, service areas and rooms alongside them appear largely intact. In 2014, social media reported that the building's decorative panels were dismantled and transferred to an unknown location. Along the southeast of the building, a row of boutique shops, part of the original structure, are also almost all destroyed (see Figure 62, Damage Point 1).

OVERALL HISTORICAL LOSS

SEVERE

HISTORIC PERIOD: Ottoman
ALEPPO DISTRICT: Al-Jdaydeh
PARCEL No.: 2236-2340
HISTORIC BUILDING No.: 453
PLOT AREA: 1,620 m²

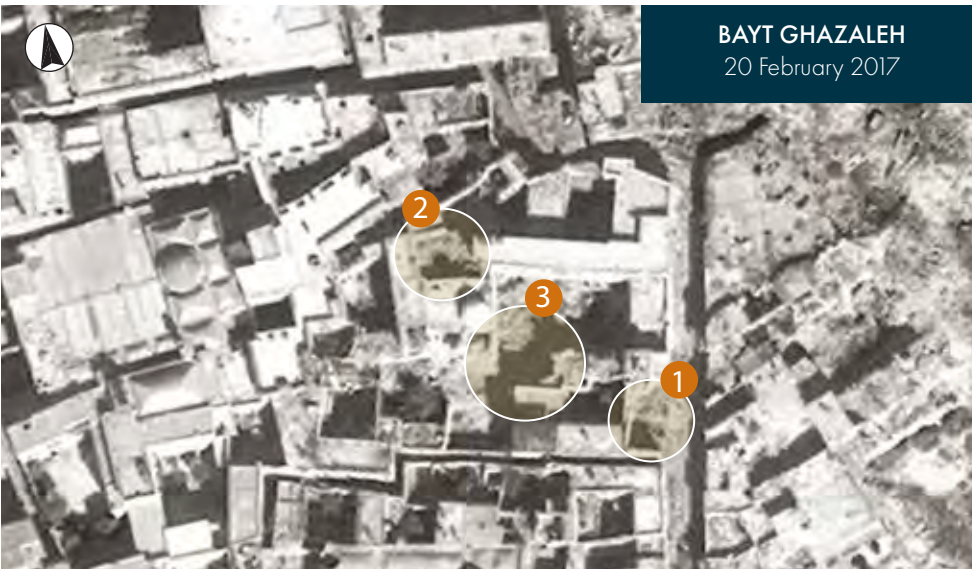
Bayt Ghazaleh was a unique example and the largest of the luxurious traders' residences in al-Jdaydeh neighbourhood. Given the probable loss of its rich stone decorative façades made using polychromic masonry and carved floral designs, and the exceptional painted woodwork dating from the mid-seventeenth century that is known to have disappeared, the overall historical loss is categorized as severe.



MORE INFORMATION

Scan the code to access the 3D survey of Bayt Ghazaleh developed by Art Graphique & Patrimoine for UNESCO, November 2017.



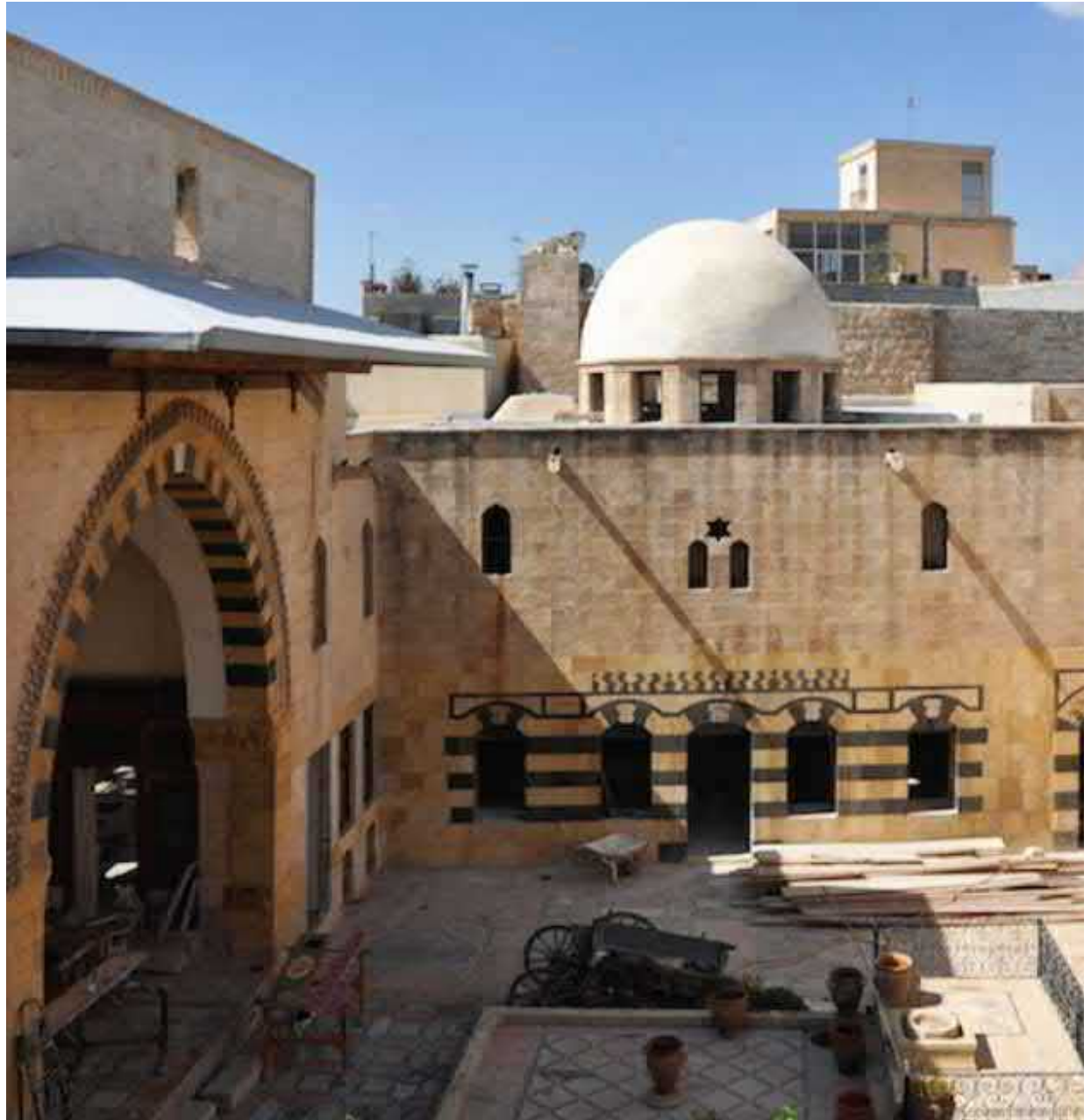


Figures 61 and 62. Bayt Ghazaleh. *Top left (Before image):* 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). *Bottom left (After image):* 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). *Ground picture.* *Right:* Bayt Ghazaleh, western domed reception hall. Picture date: 2001 © Tonino34.

- 1 Southeast building and boutique shops destroyed
- 2 Hammam and changing rooms in the northwest corner
- 3 Southern iwan destroyed



Bayt Ghazaleh, southeastern corner of the residence. Picture date: 16 January 2017 © UNESCO/G.Khawam.



Archived photo of Bayt Ghazaleh, western façade of the main courtyard showing the domed reception hall. Picture date: 28 September 2010 © François Cristofoli.

Bayt Ibrahim Qatr Aghasi



36°12'6.012"N 37°9'41.759"E

Bayt Ibrahim Qatr Aghasi was the home of Ibrahim Pasha Zada Qatr Aghasi and was a fine example of the spacious traditional residences of Aleppo's wealthy families. As there are no existing inscriptions on the building, it is only possible to date construction from its architectural features. The oldest area could possibly date from the end of the seventeenth or beginning of the eighteenth century. The wooden panels in one upper room date from 1802. Parts of the residence were used as a state school (Sayf al-Dawla school) in the early twentieth century. It was gradually expropriated and then restored in the 1990s by the Directorate General of Antiquities and Museums (DGAM) with funds from the Friends of the Old City of Aleppo. Since 1992, it had served as the headquarters of the Directorate of the Old City (DOC) and housed the Department of Building Control and Land Registry of the DGAM. The residence consisted of the three main sections of traditional houses: the salamlek (reception section), the haramlek (private section) and the khadamlek (service section), as well as a large stable. Each section contains spaces and rooms arranged around a courtyard.

OVERALL SATELLITE DAMAGE ASSESSMENT

SEVERE 

Bayt Ibrahim Qatr Aghasi has sustained severe damage. There has been considerable damage to the northern end of the building with most of the roof destroyed (see Figure 64, Damage Point 1). There are large piles of debris at the base of the south-facing walls in the eastern courtyard (see Figure 64, Damage Point 2) suggesting the walls may have been heavily damaged, though they appear intact in imagery. In addition, a large section of the southernmost part of the building has been severely damaged (see Figure 64, Damage Point 3).

OVERALL HISTORICAL LOSS

SEVERE 

HISTORIC PERIOD: Ottoman
ALEPPO DISTRICT: Al-Farafira
PARCEL No.: 3533 and 3548
HISTORIC BUILDING No.: N/A
PLOT AREA: 2,524 m²

Bayt Ibrahim Qatr Aghasi is a valuable example of residences belonging to the noble families of al-Farafira, a prestigious intramural neighbourhood. The residence was famous for its vast courtyards and iwans, multiple spaces and wood-panelled rooms. In addition, because of its contemporary function, it held archival data from the DOC and DGAM administrations. Consequently, the overall historical loss is categorized as severe.



BAYT IBRAHIM QATR AGHASI
23 September 2013



BAYT IBRAHIM QATR AGHASI
20 February 2017



Figures 63 and 64. Bayt Ibrahim Qatr Aghasi. Top left (Before image): 23 September 2013 © 2013 DigitalGlobe (Source: U.S. Department of State, NextView License). **Bottom left (After image):** 20 February 2017 © 2017 DigitalGlobe (Source: U.S. Department of State, NextView License). **Ground picture. Right:** Bayt Ibrahim Qatr Aghasi. Picture date: December 2016 © DGAM.

- 1** Northern end of the building
- 2** Eastern courtyard (south-facing walls)
- 3** Southernmost part of the building



Bayt Ibrahim Qatr Aghasi. **Left:** Bayt Ibrahim Qatr Aghasi. Picture date: 15 June 2017 © UNESCO/M. Samman. **Top right:** Bayt Ibrahim Qatr Aghasi. Picture date: 15 June 2017 © UNESCO/M. Samman. **Bottom right:** Bayt Ibrahim Qatr Aghasi. Picture date: 15 June 2017 © UNESCO/M. Samman.



Bayt Ibrahim Qatr Aghasi. Picture date: 15 June 2017 © UNESCO/M. Samman.



The National Hamidi Hospital



36°11'53.759"N 37°9'36.734"E

When the 1822 earthquake destroyed the building that housed the governor's office during the Ottoman period and was built on the remains of the medieval Dar al-Adl (House of Justice), the decision was made to build a modern charity hospital on the site. The construction of the hospital was begun in 1883 by Aleppo's governor Jamil Pasha, and was completed by the governor Raif Pasha in 1897. Once it was furnished and had the necessary supplies, the building was officially inaugurated in 1900. It contained 32 rooms in addition to the many clinics, operating rooms, storage areas and two large gardens. The building was used as a nursing school in the late twentieth century. In late 2010, it was restored and used as a hotel called the 'Carlton Hotel'.

OVERALL SATELLITE DAMAGE ASSESSMENT

DESTROYED

Satellite imagery confirms that the building was completely destroyed, not even the foundations remain (see Figure 66). This was caused by explosives that were placed in a tunnel underneath it in May 2014.

OVERALL HISTORICAL LOSS

CRITICAL

HISTORIC PERIOD: Late Ottoman

ALEPPO DISTRICT: Citadel Perimeter

PARCEL No.: 3334

HISTORIC BUILDING No.: 161

PLOT AREA: 1,762 m²

The National Hamidi Hospital had historic and architectural importance as the first modern hospital built in Aleppo and one of the best preserved examples of public buildings established in the city after the Ottoman reform. It occupied a significant location at the foot of the Citadel's entrance. Taking these factors into consideration, the overall historical loss is categorized as critical.



Figures 65 and 66. The National Hamidi Hospital (Carlton Hotel). *Bottom right (Before image):* 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). *Full page (After image):* 23 May 2014 © 2014 DigitalGlobe (Source: U.S. Department of State, NextView License).





The National Hamid Hospital (Carlton Hotel). Picture date: 16 January 2017 © UNESCO/G. Khawam.



The National Hamidi Hospital (Carlton Hotel). Picture date: 25 September 2009 © Lazhar Neftien.

The New Serail



36°11'50.194"N 37°9'46.802"E

The idea for the construction of a new government house dated back to the late Ottoman period. However, construction was halted and then re-started in 1928 after the establishment of the State of Syria under the French Mandate. The New Serail was inaugurated on 15 April 1933 and it became the regular seat of the city's governor and mayor. It was designed by the architect Kegham Akgulian and built under the supervision of the engineer Kevork Baboyan. It served as the seat of government until 2008 when the new headquarters of the Aleppo City Council was inaugurated. In 2011, the Serail was under renovation to become a hotel.

The building was located to the south of the Citadel and east of its main entrance. Designed in a U-shape, it comprised three floors and a basement. There was a large atrium in the middle with rooms on both sides. To the south, there was a large garden.

OVERALL SATELLITE DAMAGE ASSESSMENT

DESTROYED 

The site was demolished between 2014 and 2015. The centre and entire eastern wing were completely destroyed when a tunnel was dug and explosives were placed underneath the building, leaving a large crater (see Figure 68).

OVERALL HISTORICAL LOSS

CRITICAL 


HISTORIC PERIOD: French Mandate
ALEPPO DISTRICT: Citadel Perimeter
PARCEL No.: 2302
HISTORIC BUILDING No.: 340
PLOT AREA: 2,747 m²

Taking into consideration that the New Serail was the regular seat of the city's governor and mayor since the early years of the State of Syria, and that it was an important example of local modern architecture, the overall historical loss is categorized as critical.



THE NEW SERAIL
23 May 2014

Figures 67 and 68. The New Serail. Bottom right (Before image): 21 November 2010 © 2010 DigitalGlobe (Source: U.S. Department of State, NextView License). Full page (After image): 23 May 2014 © 2014 DigitalGlobe (Source: U.S. Department of State, NextView License).

 Possible impact crater



THE NEW SERAIL
21 November 2010



The rubble of the New Serail. Picture date: 16 January 2017 © UNESCO/C. Menegazzi.



The New Serail. Picture date: 16 April 2010 © MlleAlxVuk.



This comprehensive study has revealed significant damage to cultural heritage within the World Heritage site of the Ancient City of Aleppo up to the end of the armed conflict in December 2016. The UNOSAT satellite imagery analysts, together with UNESCO's experts on cultural heritage in Syria, have documented a detailed list of damage at 518 cadastral-plotted buildings¹⁰ within the World Heritage site and the National Museum, which lies just outside the boundaries of the site, counting the Citadel and each suq as a single entity. More than 1,400 plots were assessed¹¹, with almost 1,000 individual damage points recorded. Among these 518 cadastral plotted buildings, damage levels were identified as follows: 56 destroyed¹², 82 severely damaged, 270 moderately damaged, 20 possibly damaged, and 8 with no visible damage.

Thirty-seven cadastral plotted buildings could not be identified and 22 were assessed as part of other plots (for example, building annexes).

The damage observed through satellite imagery can be attributed to various factors, including airstrikes, bombardments, underground bombs, shelling, fire, street combat, and possible looting in some locations. The damage identified ranges from debris visible on the building roofs, to holes in the roofs and partial structural collapse, to complete destruction. More than 10 per cent of the historic buildings of Aleppo were destroyed during the last five years of fighting. In some cases, the destruction of significant historic elements impact the Outstanding Universal Value of the site. Additional damage, such as the reported looting of the decorative panels from seventeenth century Bayt Ghazaleh, is not visible in imagery. Although only a few of the assessed buildings are undamaged, and the damage to some buildings is severe, 51 per cent of the assessed buildings are moderately damaged and might be restored. However, in many cases, holes in roofs are visible, which expose sites to weathering and internal structural degradation over time.

In addition, high levels of damage to the housing and infrastructure that surround the historic buildings were observed during the study. This impedes the provision of basic shelter to Aleppo's inhabitants and their return to the city.

As the custodians of the city's cultural heritage, it will be Aleppo's inhabitants who will revive the social and economic life of Aleppo and the associated public and private spaces. Aleppo's reconstruction is likely to occur at a rapid pace to meet the urgent needs of the inhabitants. While these are vital needs, reconstruction should be planned in an integrated way.

Indeed, cultural heritage fosters awareness of collective memory, shared history and the values, references and symbols that define identities. It also creates the conditions for meaningful citizenship. Moreover, maintaining and promoting cultural diversity in cities – be it through monuments, sites or social and cultural practices – is a fundamental condition to achieve social inclusion, social cohesion, and sustainable development, and can play a fundamental role in empowering youth, women and vulnerable groups.

Therefore, being a multi-faceted process, it would be important to conceive and plan the recovery and reconstruction of Aleppo within a broad strategy that encompasses social, economic and environmental concerns, and that seeks to achieve stability, dialogue and reconciliation. It is crucial that recovery and reconstruction prioritize the needs of local communities and their participation in decision-making processes, while mitigating the risks of favouring one historical narrative over another. Considerations include cultural and religious rights, property rights, representation and participation. Informed mediation is key throughout the recovery process.

This report constitutes an essential starting point to strategically plan the recovery of the city, help implement short-term emergency and mitigation measures, and identify priority actions. The assessment and analysis show the extent of the damage throughout the entire World Heritage property and facilitate an understanding of critical situations in the city with extreme accuracy and detail. They provide an essential foundation to address the complex and numerous challenges faced in organizing the reconstruction and recovery of the city.

UNITAR-UNOSAT and UNESCO undertook this report to create awareness and mobilize decision- and policy-makers as well as the general public on the urgent need, when conditions allow, to scale-up actions on the ground in order to safeguard and protect the remaining monuments, shrines, mosques, archaeological sites and other cultural property in Aleppo. It is critical to engage all the parties concerned to protect this cultural heritage and thereby strengthen the foundations of security, peace and development.

¹⁰ The damage assessment for the 518 sites assessed in this study is available on the EAMENA website upon request. Data can be accessed at <http://tinyurl.com/chs-syria-2017>. Please visit <http://eamena.arch.ox.ac.uk/database-registration-form-unosat>

¹¹ Some entities such as the suqs are spread over several plots.

¹² This number excludes the 23 cadastral plotted buildings destroyed before the conflict within the partial implementation of the previous master plans.

Glossary

Bab (باب)	A city gateway
Bayt (بيت)	A residence, house
Halab (حلب)	Aleppo
Hammam (حمام)	A traditional public bath
Iwan (ايوان)	A hall or space with three walls, usually vaulted, open to a courtyard
Khan (خان)	A roadside inn (caravanserai) or structure designed as a residence and trading facility for traveling merchants
Kuttab (كتّاب)	A traditional primary school
Madrassa (مدرسة)	A traditional school sometimes proposing Islamic higher learning
Mihrab (محراب)	A semicircular niche in the wall of a prayer hall that indicates the Qibla direction, that is, the direction of the Kaaba in Mecca and hence the direction that Muslims should face when praying
Minbar (منبر)	The pulpit in the mosque where the imam stands to deliver sermons
Muqarnas (مقرنص)	A form of architectural ornamented vaulting, producing a sort of cellular structure, sometimes also called 'honeycomb' vault
Qa'a (قاعة)	A hall
Qaysariyya (قيسارية)	A series of rooms around a courtyard, used for handcraft activities or to house poor single workers during the Ottoman period
Qubba (قبة)	A dome
Serail (السراي)	A palace or government building that was considered to have particular administrative importance
Suq (سوق)	A marketplace with shops on both sides of a street, generally organized by products or activities
Waqf (وقف)	An inalienable charitable endowment, typically donating a building or plot of land or even cash for Muslim religious or charitable functions
Awqaf (plural of Waqf) (اوقاف)	The General Directorate of Islamic Endowments

Acronyms

AKHCP	The Aga Khan Historic Cities Programme
AKTC	The Aga Khan Trust for Culture
DGAM	The Directorate General of Antiquities and Museums
DOC	The Directorate of the Old City
EAMENA	Endangered Archaeology in the Middle East & North Africa
GTZ	The German Technical Cooperation Agency (today GIZ, the German Agency for International Cooperation)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNITAR	United Nations Institute for Training and Research
UNOSAT	United Nations Operational Satellite Applications Programme
WMF	World Monuments Fund

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Damage to the doorways of the prayer hall of the Great Mosque of Aleppo.
Picture date: 16 January 2017 © UNESCO/C. Menegazzi

FIVE YEARS OF CONFLICT | THE STATE OF CULTURAL HERITAGE IN THE ANCIENT CITY OF ALEPPO

Damage to Syria's cultural heritage sites has been widely reported but, until now, the extent of the damage to the World Heritage site of the Ancient City of Aleppo has never been documented in a comprehensive manner.

Using satellite imagery to assess the state of the World Heritage property as of December 2016 in the wake of years of armed conflict, this report provides the first thorough accounting of the impact of the conflict on Aleppo's cultural heritage.

The conflict in the city damaged most of its cultural heritage landmarks and urban infrastructure, including the Citadel, the Great Mosque, and countless other historical buildings with cultural, religious, economic and social significance. Through a partnership between UNESCO and UNITAR-UNOSAT, the assessment combines the expertise of imagery analysts, historians, archaeologists and architects to show with great accuracy and detail the extent of damage throughout the entire World Heritage property.

Restoring cultural heritage is part of the process of healing communities in the wake of a crisis. This report provides an essential foundation to address the complex and numerous challenges facing Aleppo in organizing its reconstruction and recovery – one important step forward in the rehabilitation of the city and its vibrant cultural heritage.



Scan the code to access the damage assessment for the 518 sites analyzed in this study, available on the EAMENA website upon request.



This project was made possible thanks to funding by the Norwegian Ministry of Foreign Affairs and the UNESCO Heritage Emergency Fund.



UNESCO
Heritage
Emergency Fund



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