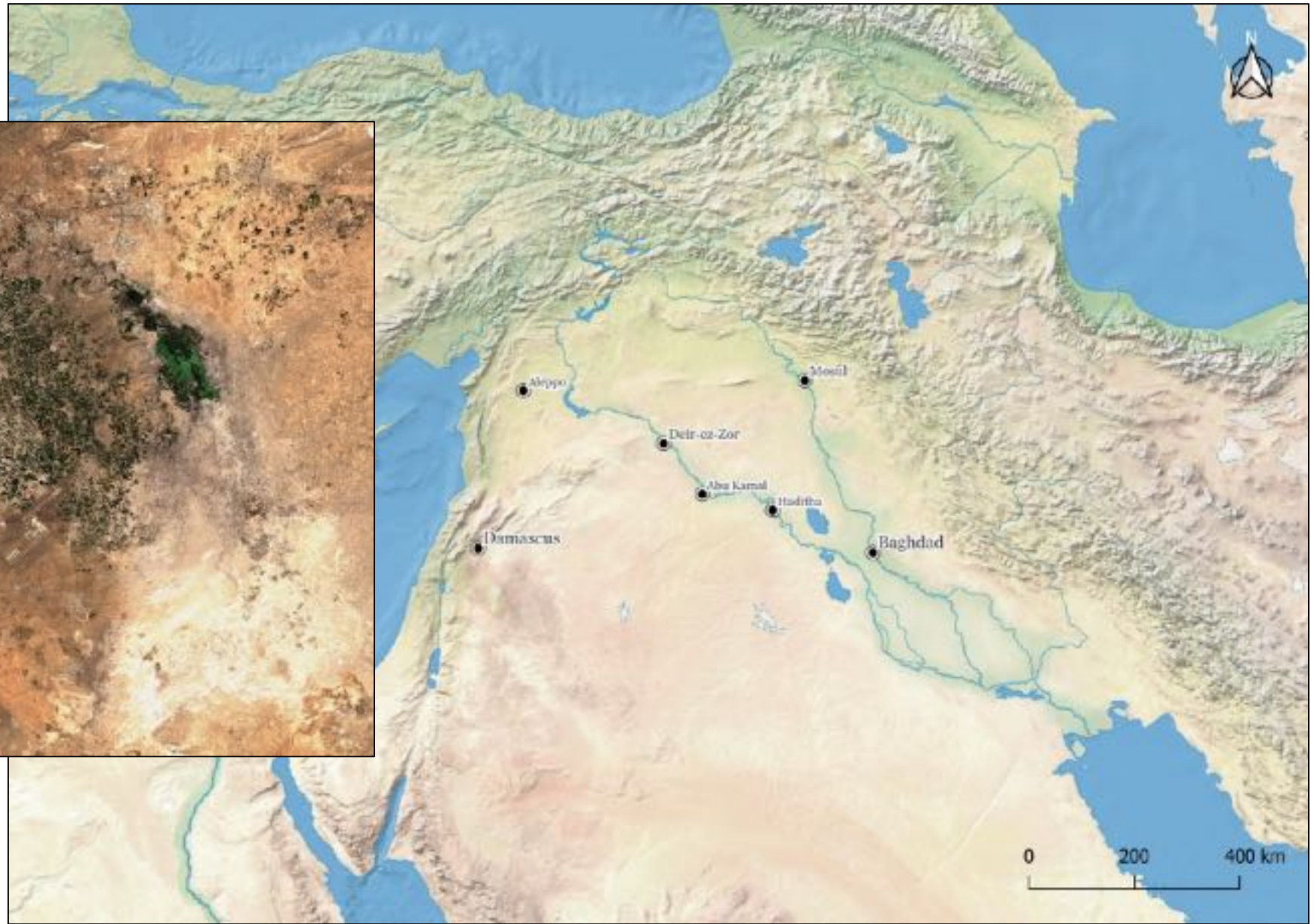


The Damascus Oasis:
past researches and new directions in the analysis of
archaeological settlement patterns



SAPIENZA
UNIVERSITÀ DI ROMA



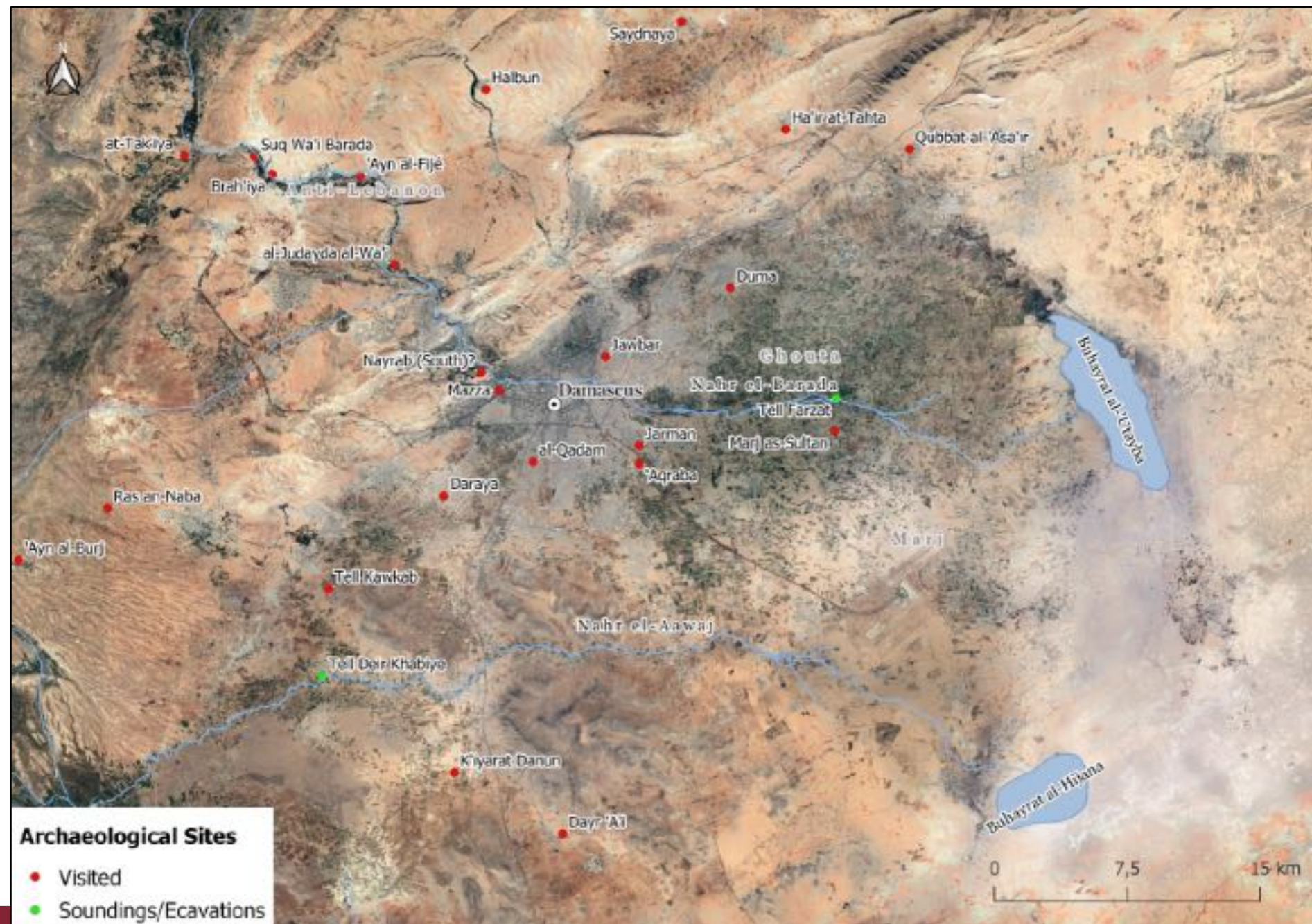


Introduction: the Damascus Oasis

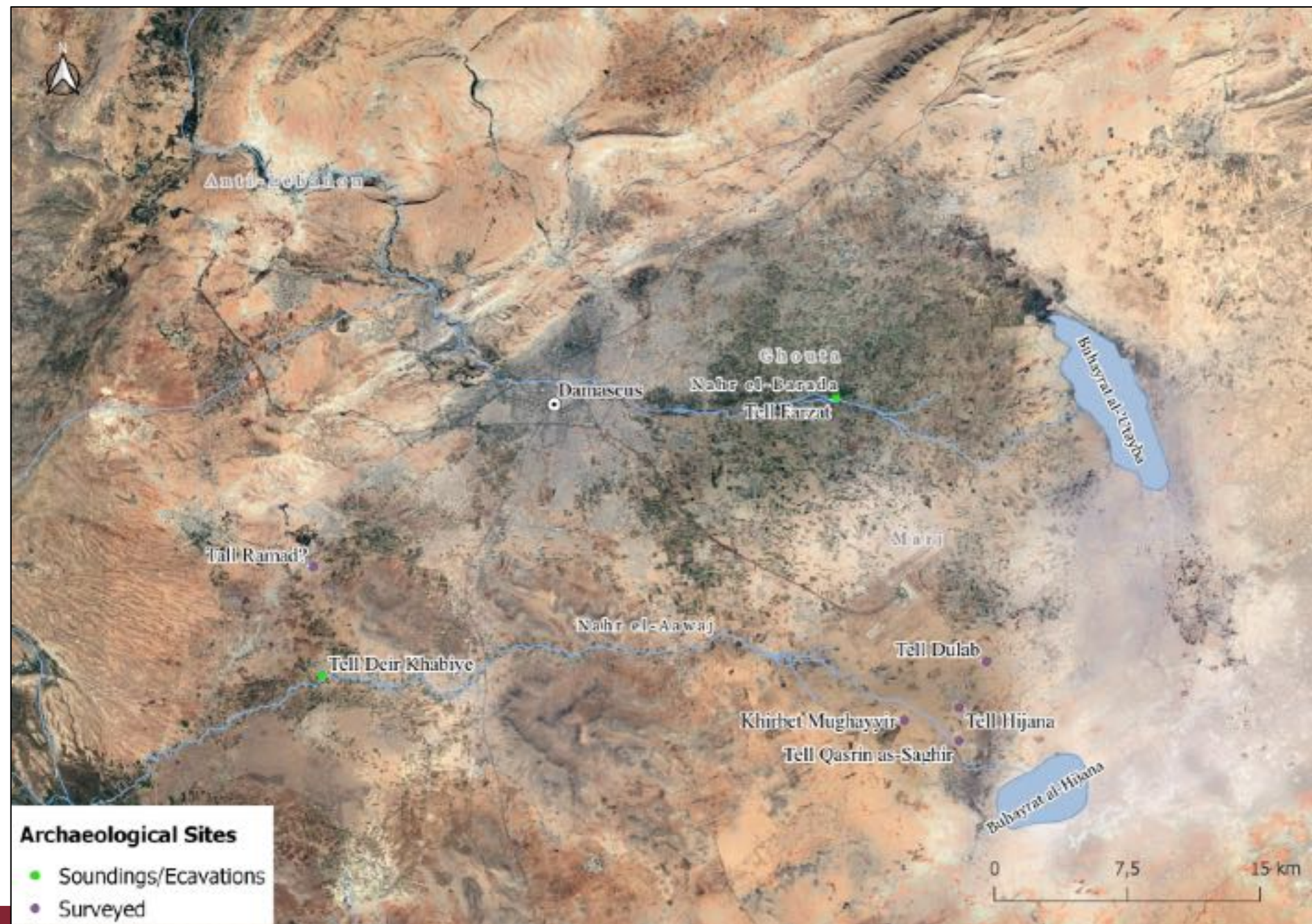
- The region sits at a crossroad between Northern Syria, Southern Palestine, Egypt, and the Euphrates valley.
- More data for Classical and Medieval periods, textual data for preclassical periods.
- Lack of evidence is a consequence of the history of research in the area.
- Limited number of surveys, most researches are site-based.



- European travellers and academics visited the region, gathering roman and greek inscriptions.
- Limited soundings and excavations at Tell Farzat (1866) and Tell Deir Khabiye (1928-29?).



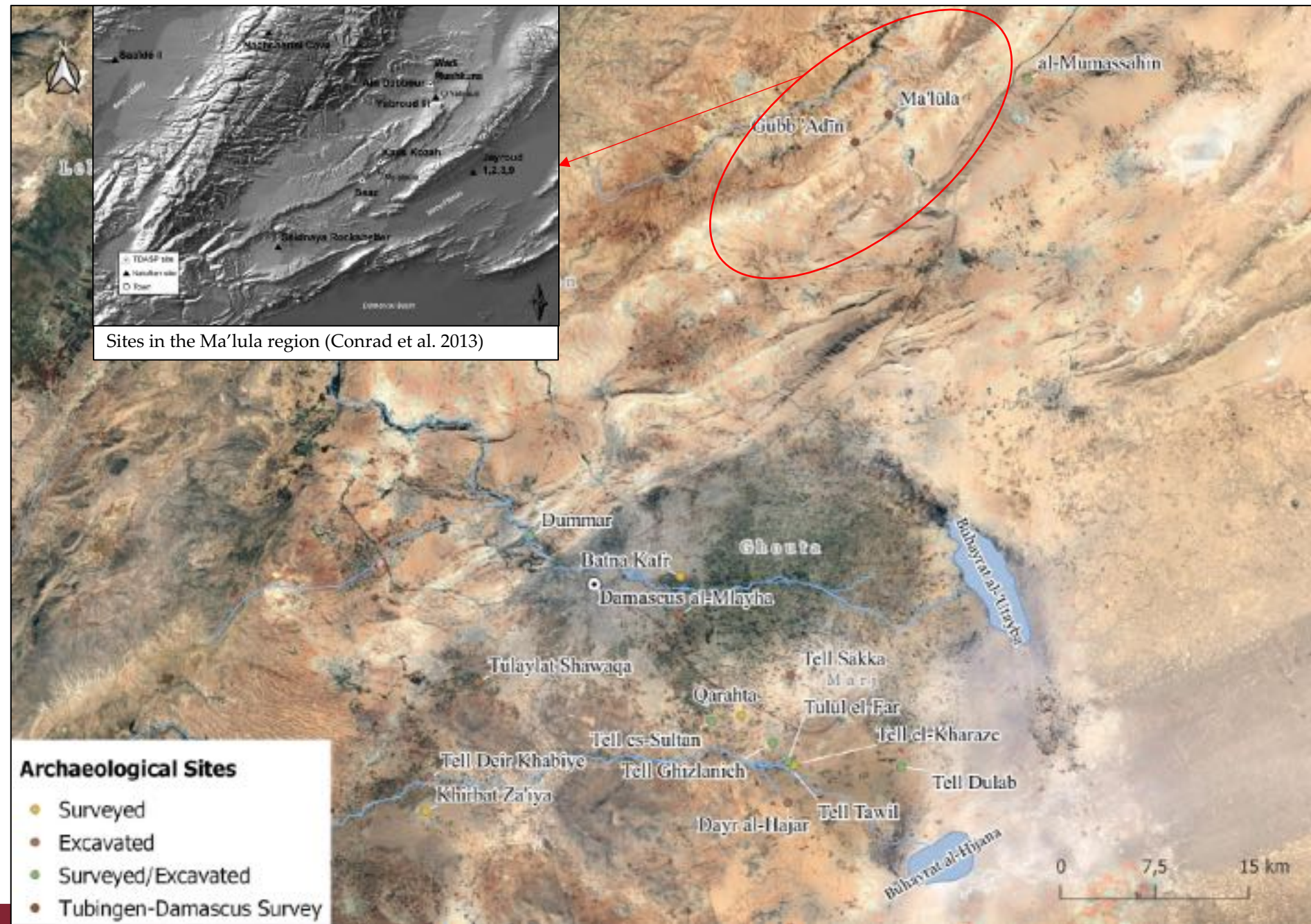
- Surveys around Hijana (Nasrallah 1963)
- Soundings and excavations at Tell Farzat and Tell Deir Khabiye (von Der Osten 1956)



- Site surveys and excavations led by the The French National Centre for the Scientific Research (de Contenson-Van Liere) and later the DGAM
- Long-term excavations at site like Tell Aswad



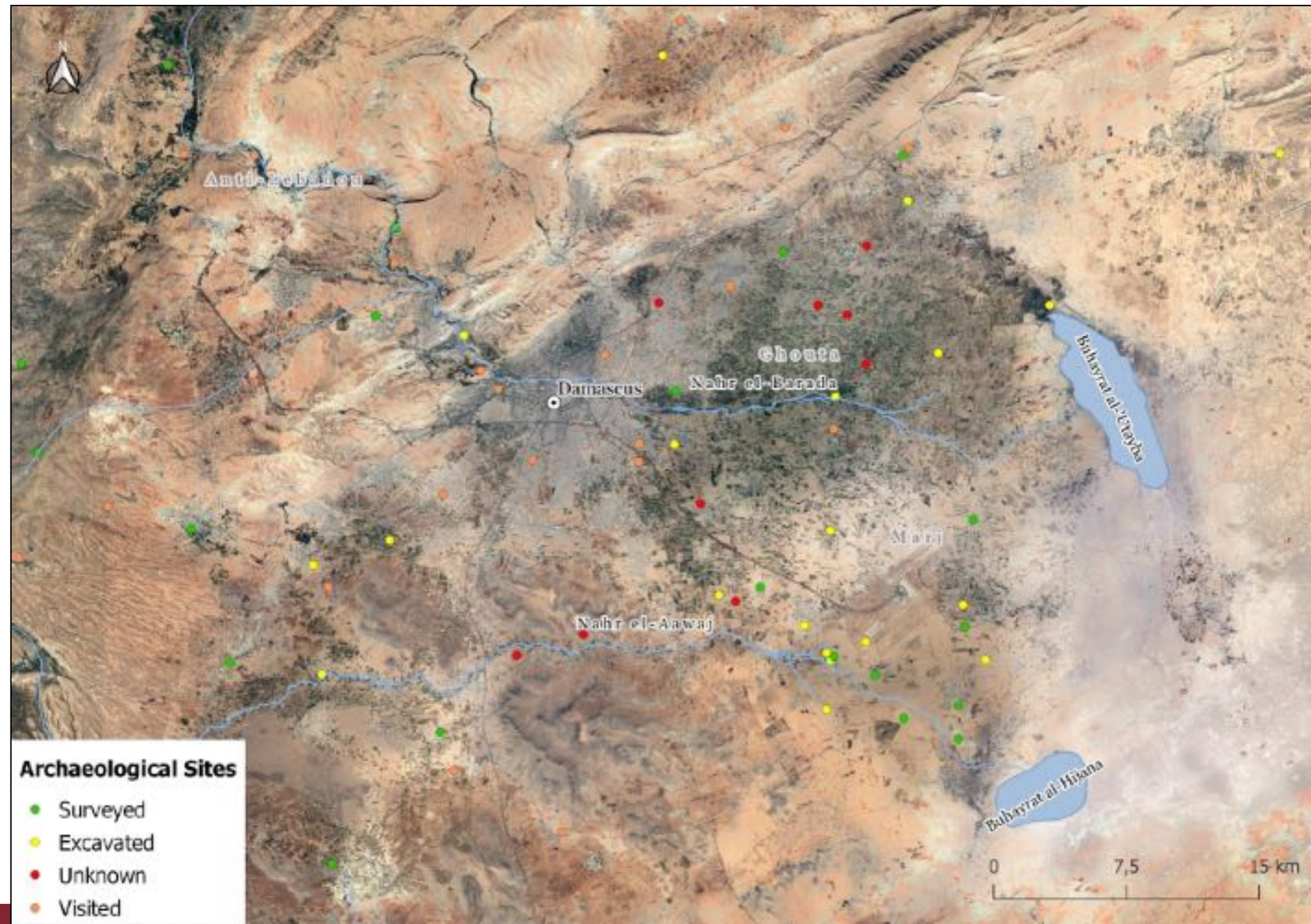
- Site surveys and excavations led by the DGAM and French teams around the Marj and the Ghouta.
- DGAM survey and excavation at al-Mumassahin.
- German-Syrian survey Project around Tell Ma'lula and the Qalamoun region (1999-2006)



- DGAM Excavation at Tell Sakka (1989-2012)
- French-Syrian Excavation and survey around Tulul el-Far



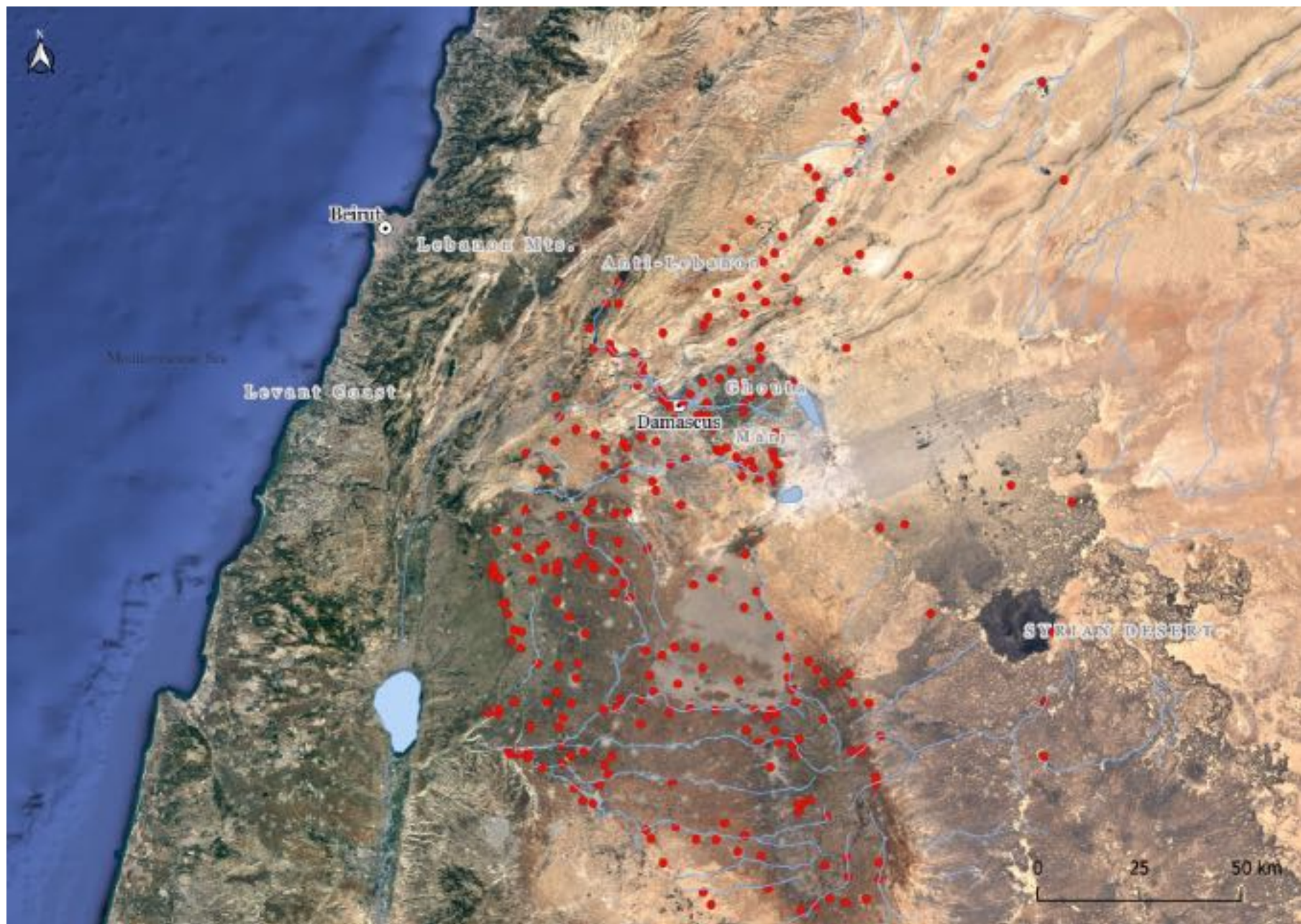
- Archaeological knowledge of the periods after the Neolithic is still limited around a small number of tells, lacking an extensive knowledge of field scatters or low elevated sites.
- Smaller sites constituted an integral part of the archaeological landscape of any region.



Methodological Approach

- Started gathering spatial data on the archaeological sites in the Damascus area and neighbouring regions
- Creation of a database in a GIS platform to store spatial and satellite data (WIP).
- Satellite image interpretation
- More general study on the present and past landscape.





Ancient Near East Placemark for Google Earth

- Launched in 2007, continuously updated.
- 3000 sites
- Highly accurate
- Mostly Tell/well-known sites
- Lacking in small sites and field scatters
 - Possibly a consequence of the publications/satellite images used



Digital Archaeological Atlas of the Holy Land

- Launched in 2009
- 27000 sites
- Differences in sites location accuracy (sometimes even 2-3 km)



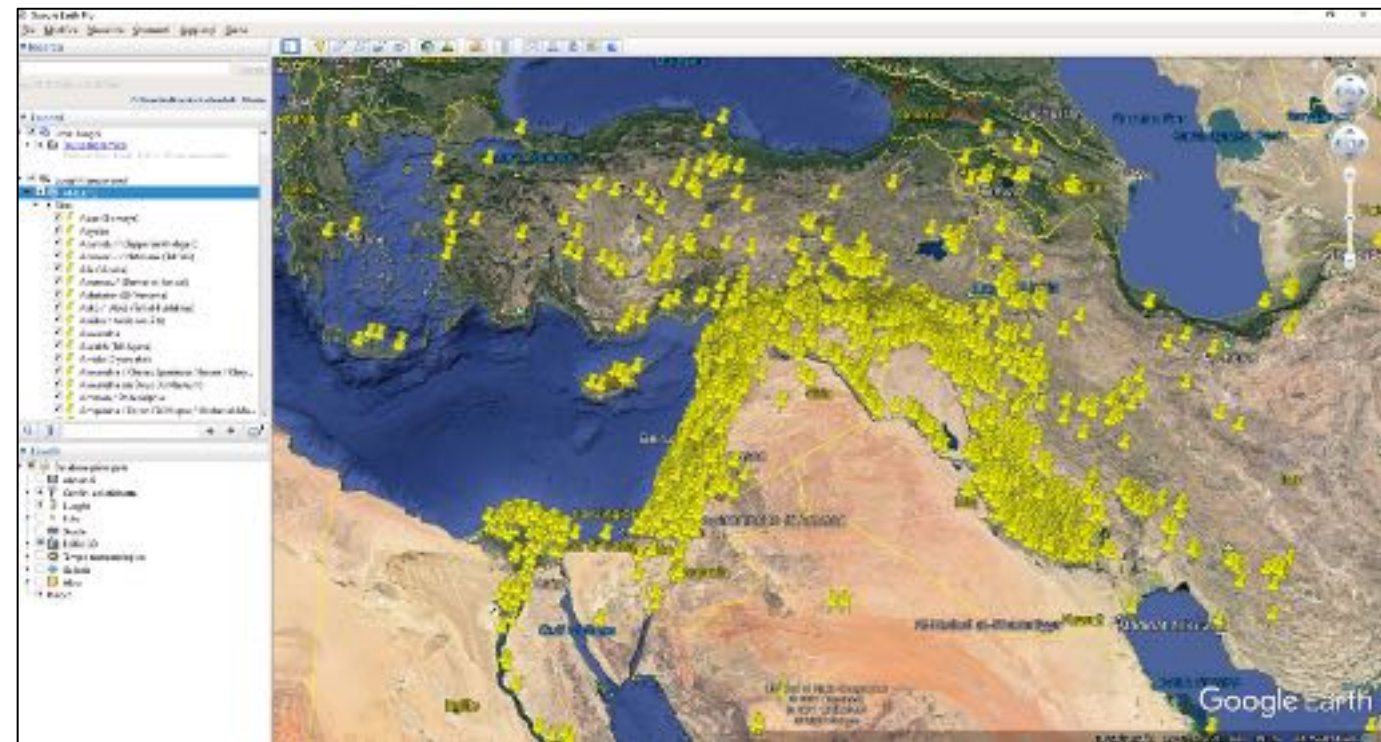
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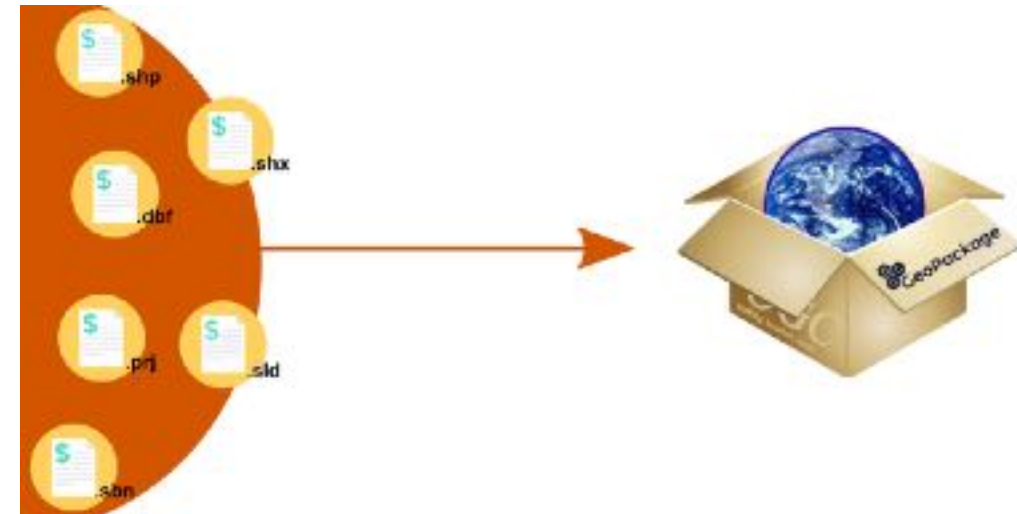
Digital Archaeological Atlas of the Holy Land

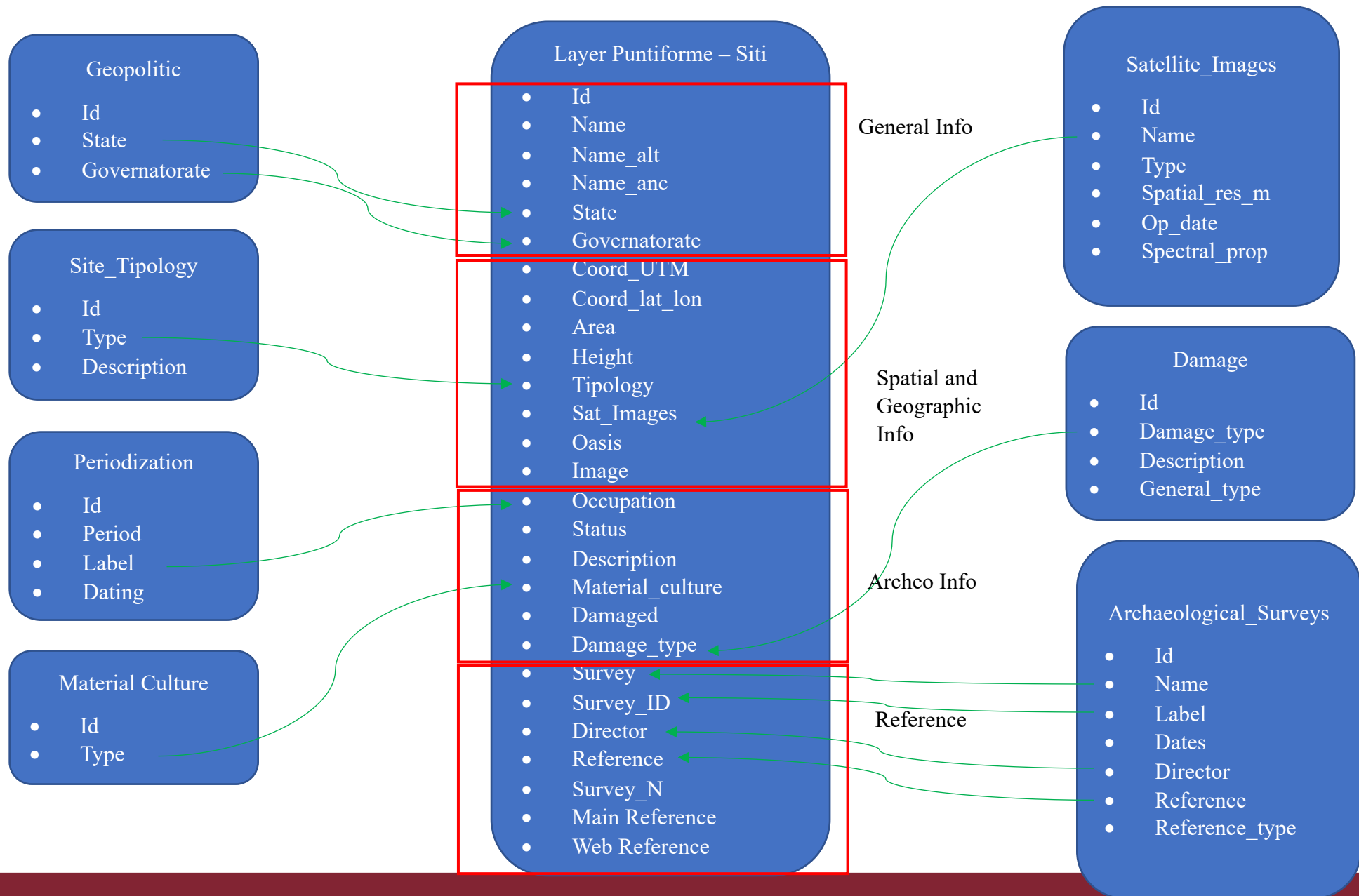
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Geopackage

- Only one file.
- Can be queried as a normal geodatabase through SQL.
- Can contain both topological and symbological information in the same file.
- Able to store both raster and vector layers.





Satellite Images

- High-resolution images available through Google Earth, Bing, and Esri
- CORONA satellite Images:
 - Operating from 1960 to 1972
 - Declassified in 1995 (Clinton 1995a-b)
 - Most useful for archaeology are the KH-4A and KH-4B, with a spatial resolution of 3 and 1-2 m respectively.
 - Covering Damascus area:
 - KH1101-2168
 - KH1110-2300

Naming

DS 1102-1025D A042 = Declassified satellite image

DS 1102-1025D A042 = Satellite generation. KH4B is 11XX, KH4A is 10XX.

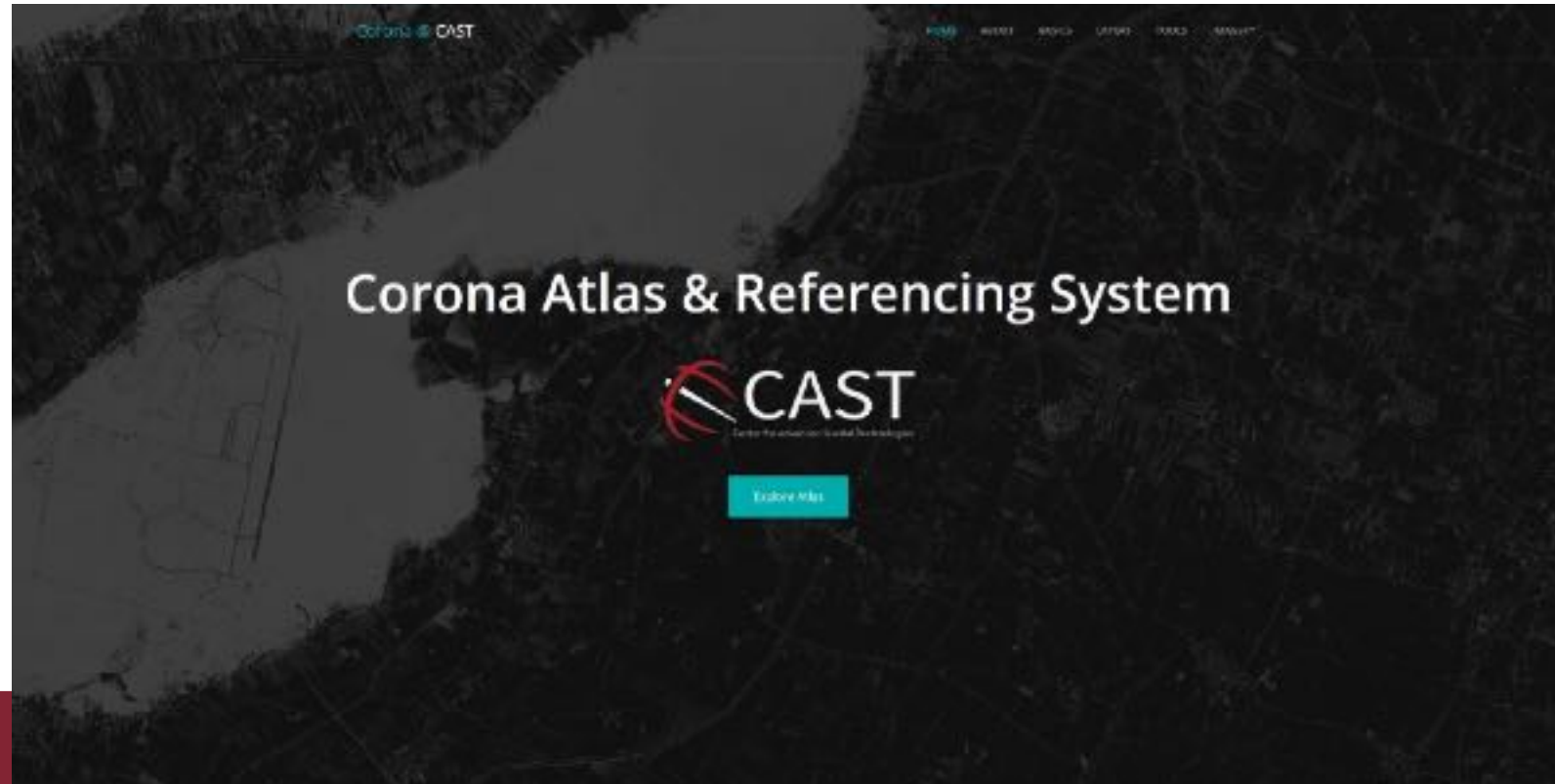
DS 1102-1025D A042 = Mission number. KH4B missions range between 1101-1117.

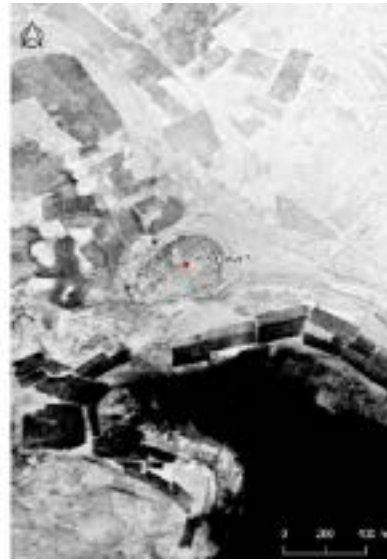
DS 1102-1025D A042 = Bucket number (Film container). Satellites had two buckets.

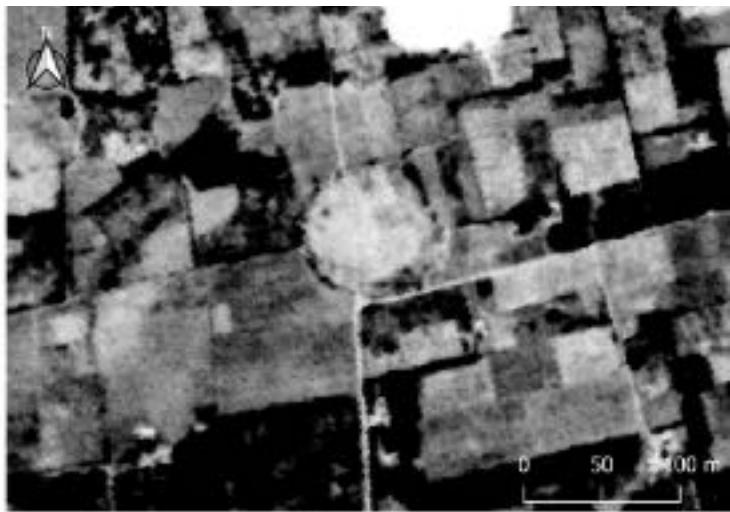
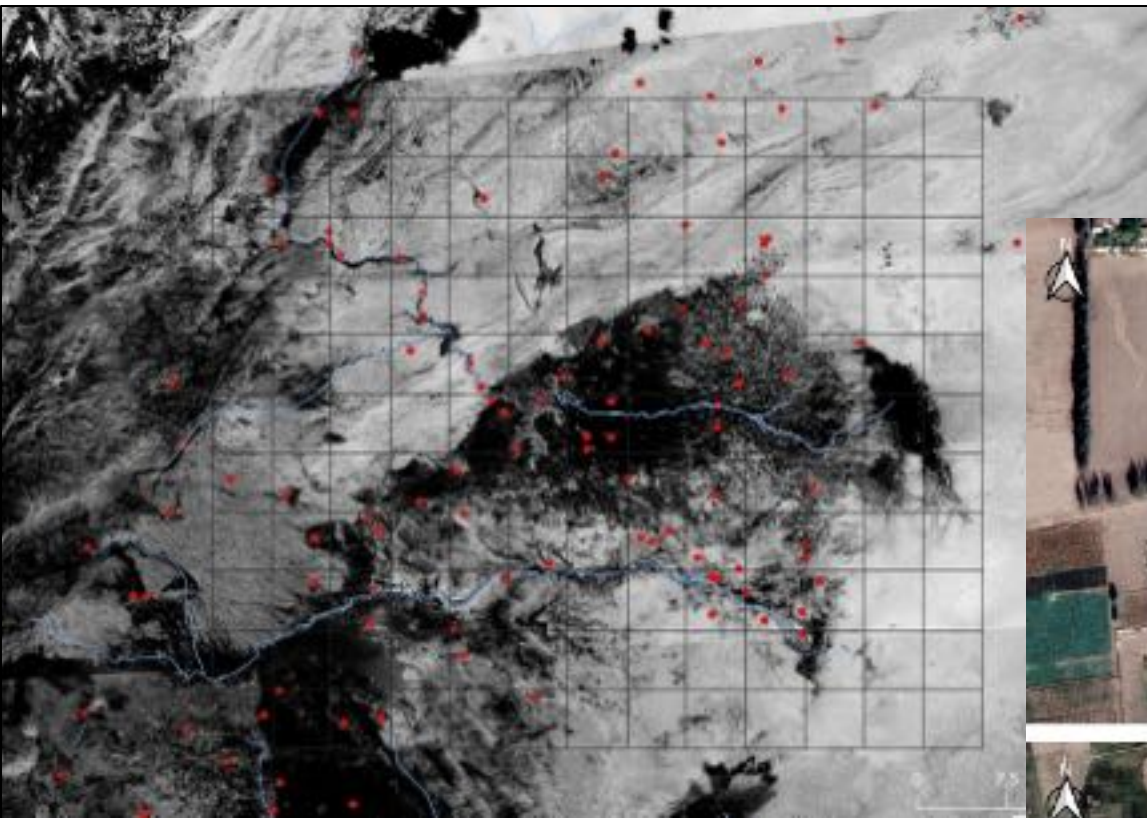
DS 1102-1025D A042 = Revolution number.

DS 1102-1025D A042 = Camera. A or F indicate Aft or Forward camera.

DS 1102-1025D A042 = Number of frame associated with each revolution.



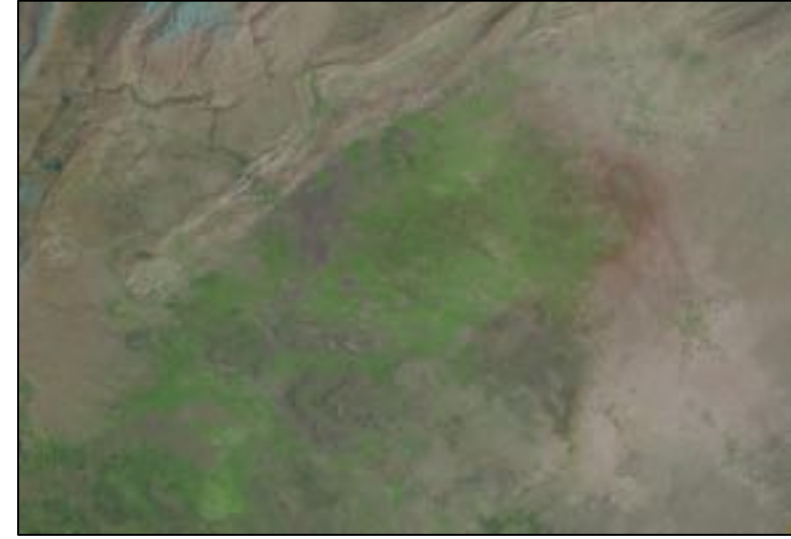
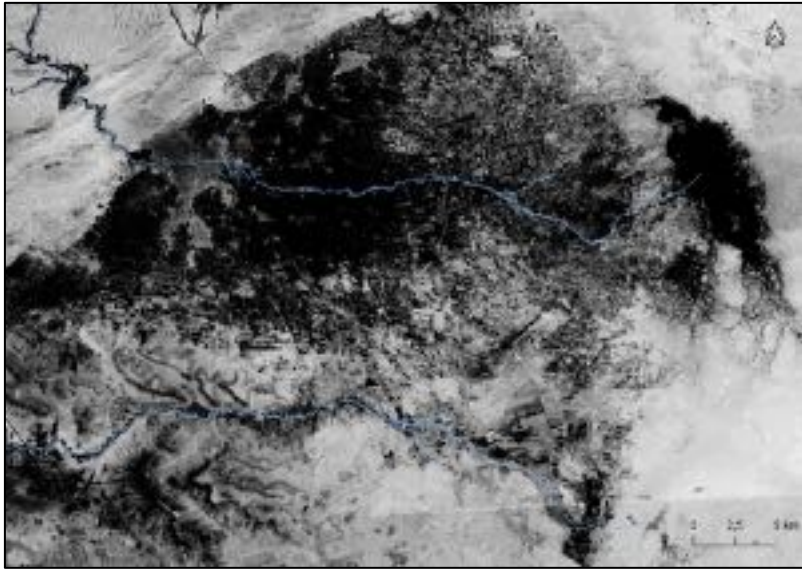




Historic Landscape Characterization

- Study the changes in modern landscape by combining cartographic and documentary sources with aerial imagery and pedestrian survey to unravel the reasons and elements that formed the landscape as we see it at the moment of the regional analysis.
- The landscape is considered not in fixed terms but as a continuous narrative.
- Emphasis on the long-term perspective





From left to right and top to bottom: the Damascus Oasis on CORONA Images (1970), Landsat 5 (1986; 1999), Bing Satellite (2011?); Google Earth (2019-2020)

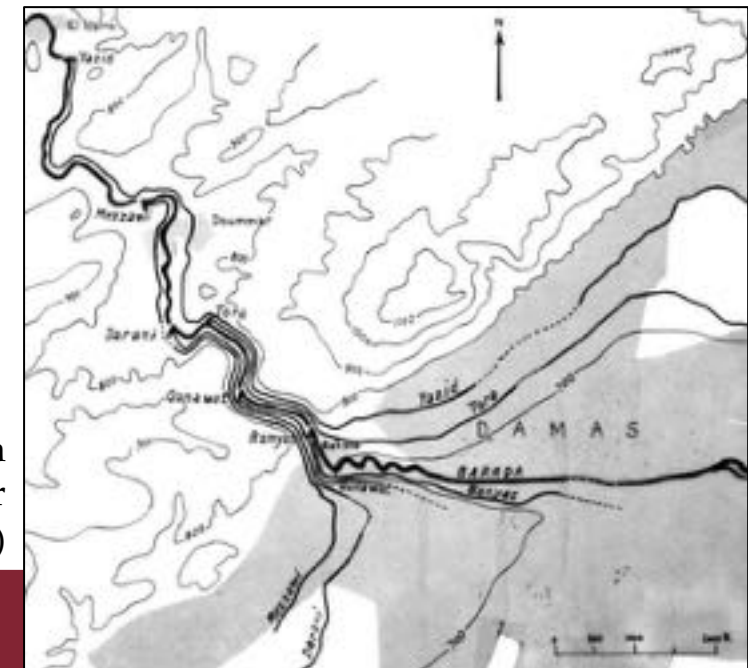
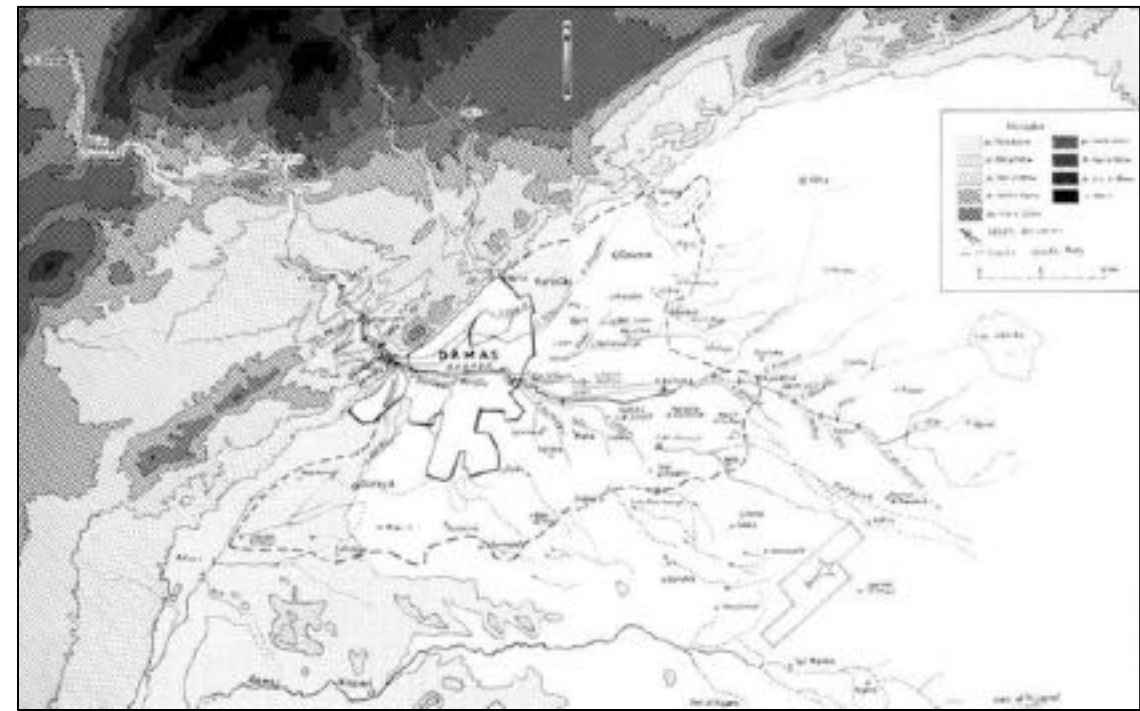
Impact on Cultural Heritage

- The drying up of traditional irrigation systems, apart from human and environmental damage, also affects our ability to infer hypotheses on the ancient waterscape.
- It is likely that many sites in the region around Damascus had disappeared entirely long before the first surveys due to the intensive and prolonged cultivation in the region
- Differences between the Ghouta and the Marj area.



Water Management

- Data are mostly tied to roman and early 20th century systems.
- Until the introduction of the motor-pump, most areas relied on traditional irrigation techniques.
- Undated diversions of the Barada river at its entrance in the Damascus basin.



Top: Irrigation in the Damascus basin
Bottom: Diversion canals on the Barada river
(Bianquis 1989)

Water Management

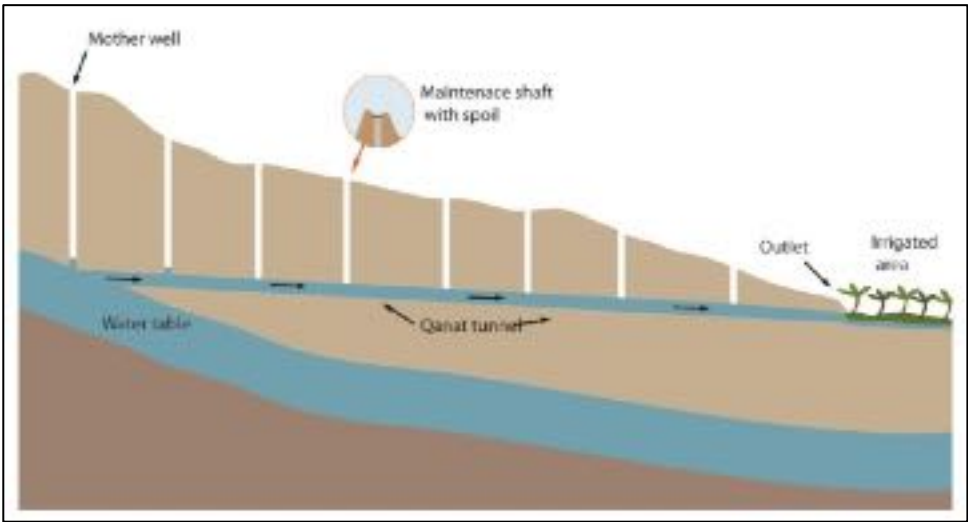
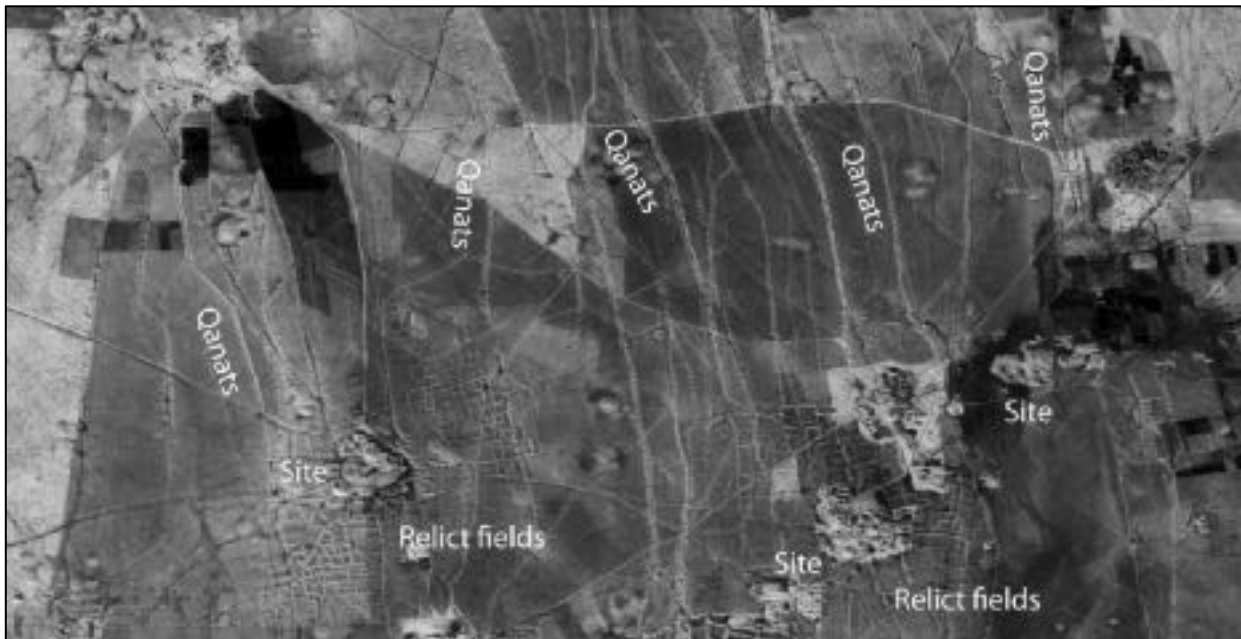
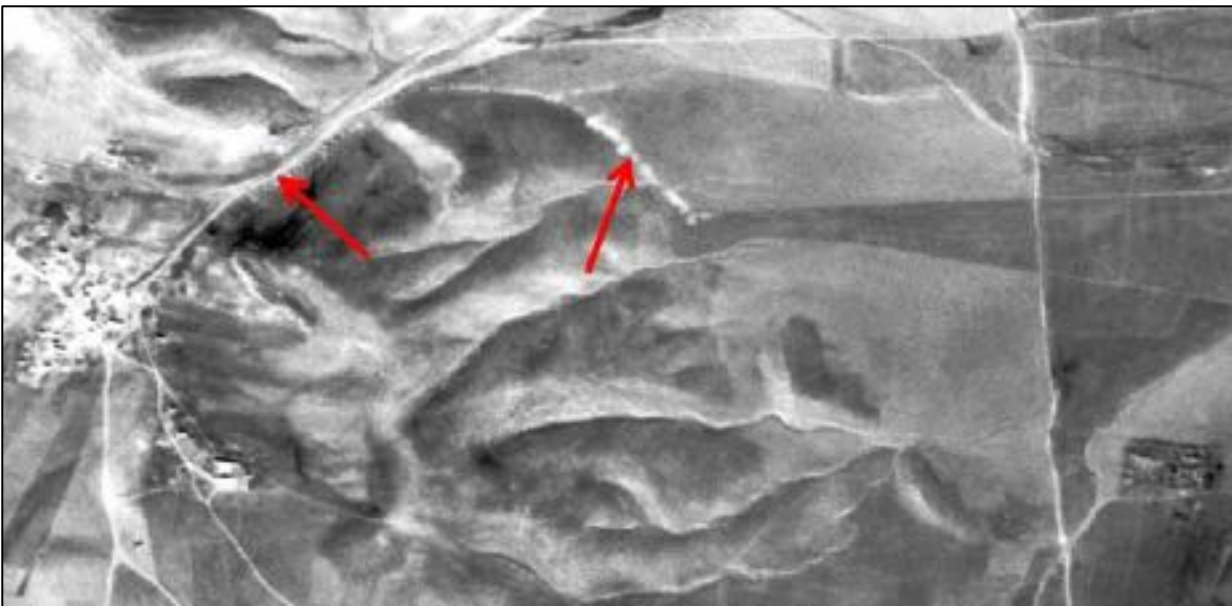
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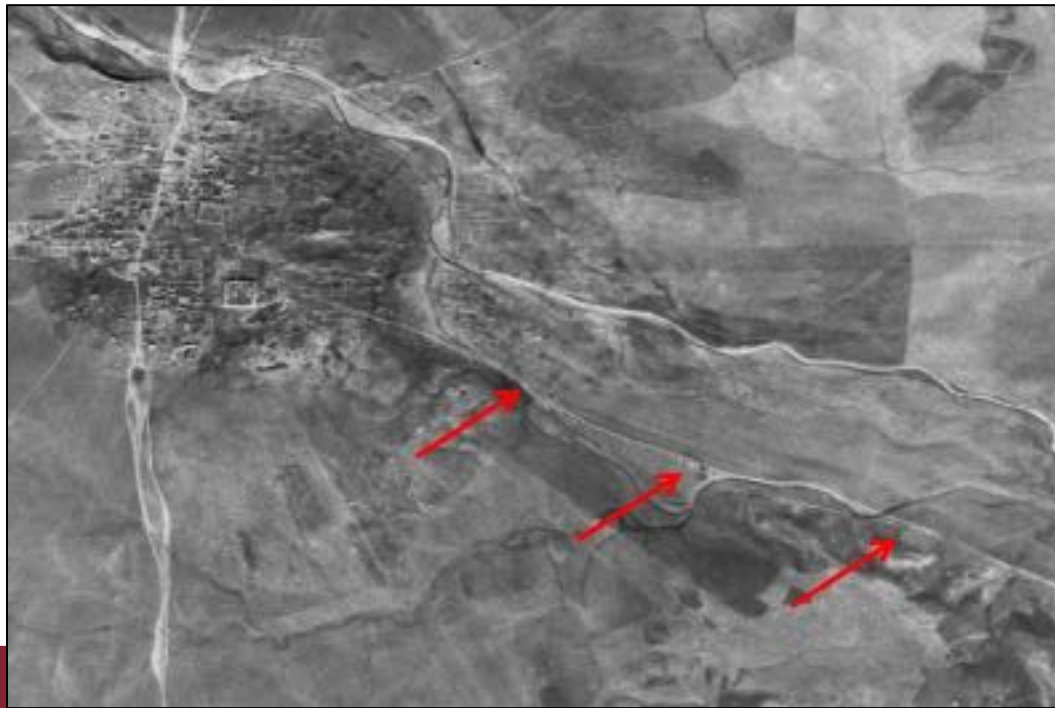
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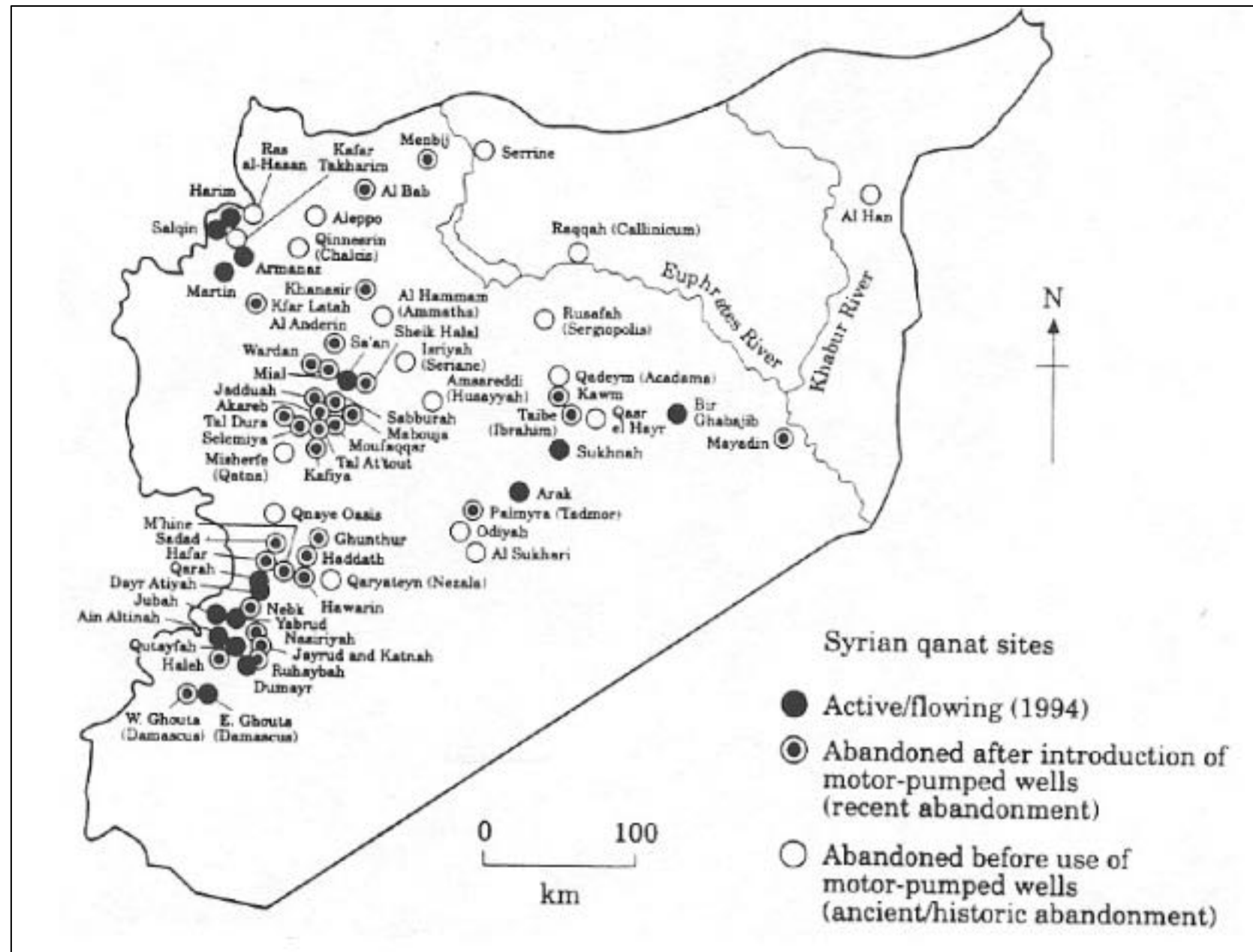
Qanats structure and their appearance on CORONA images from North Syria (Rayne 2014)

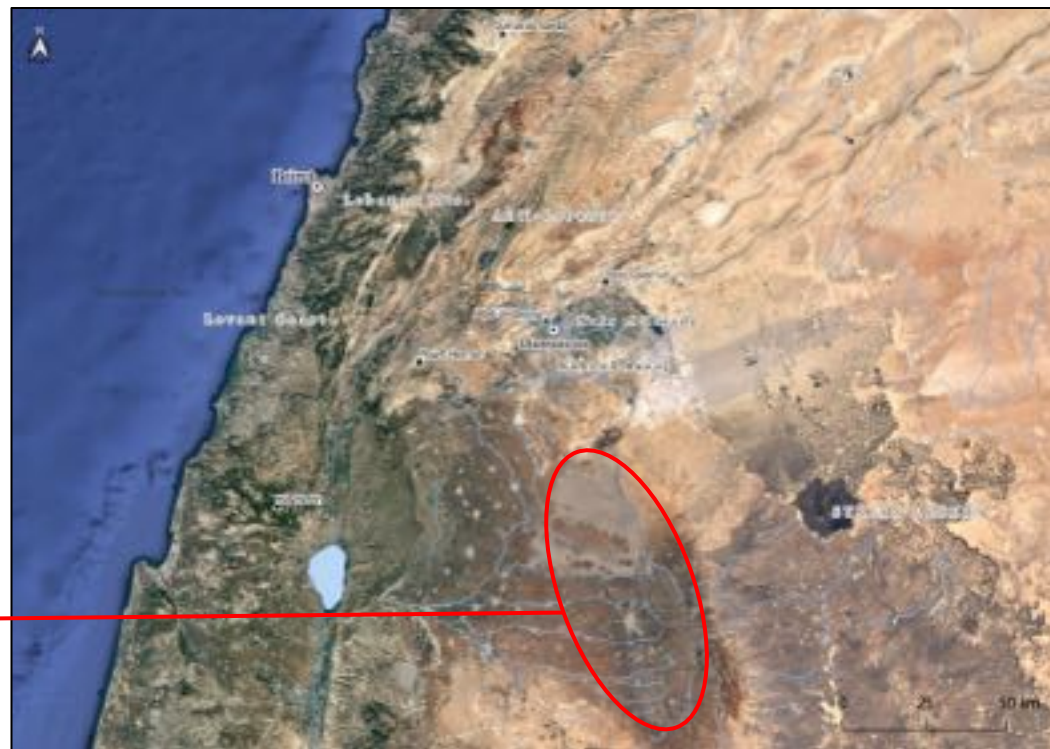
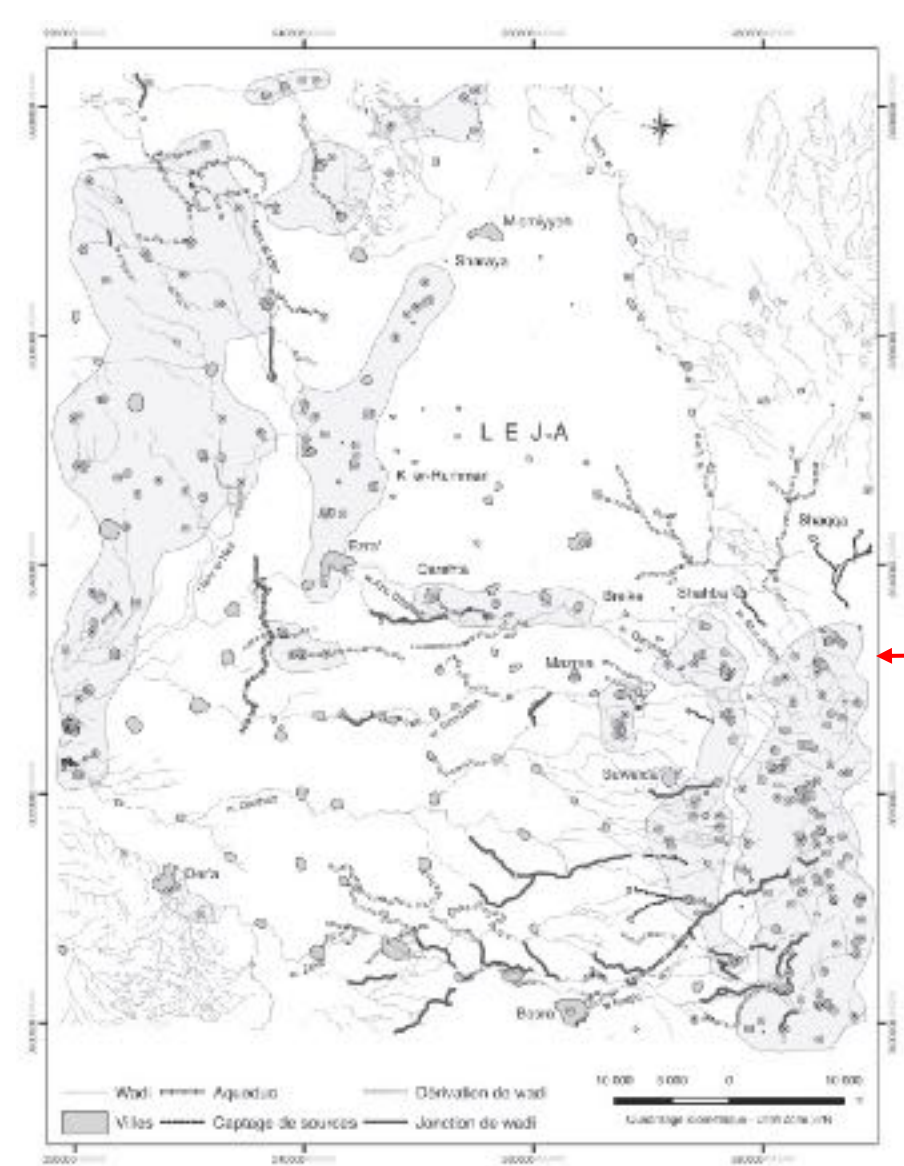


Water Management

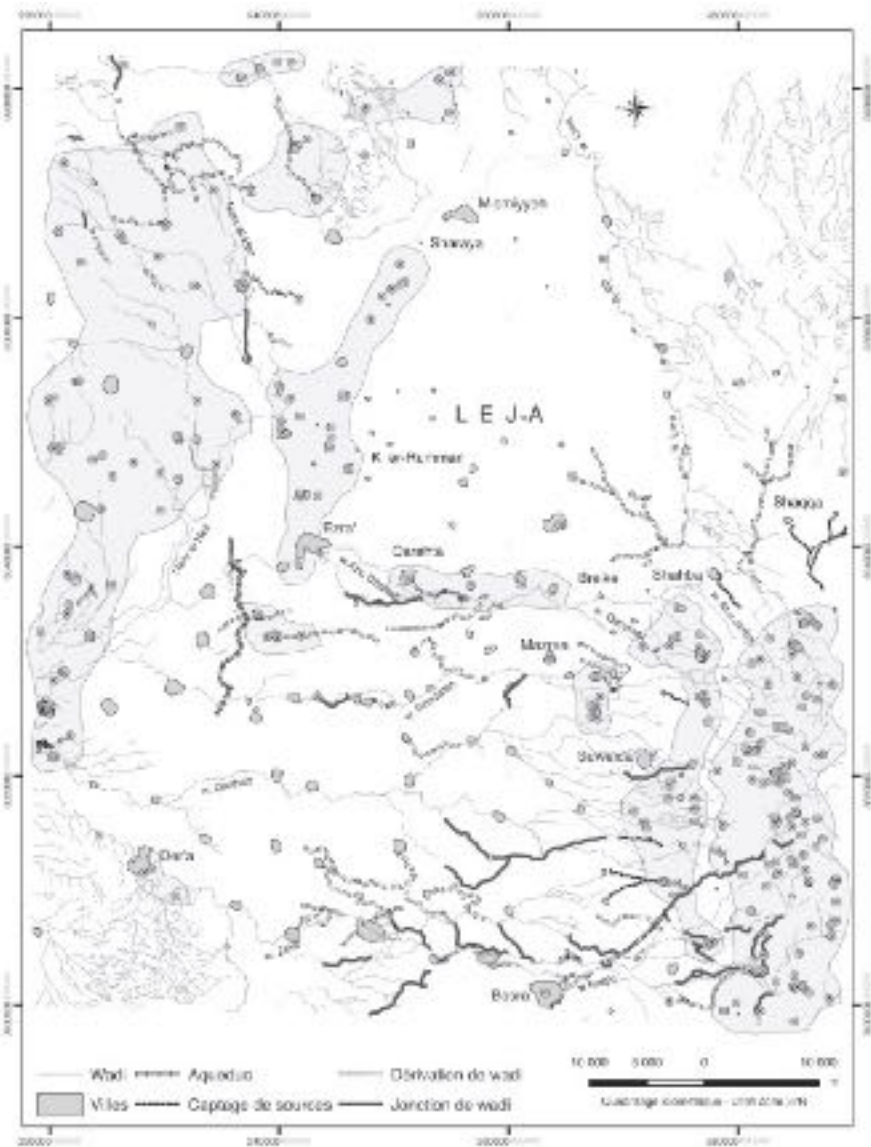
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Qanats recorded throughout Syria by D.R. Lightfoot (Lightfoot 1996)

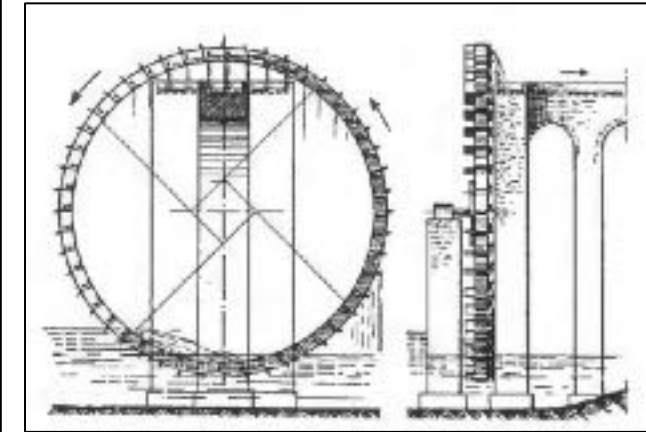
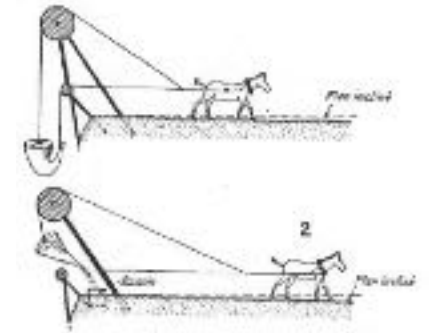
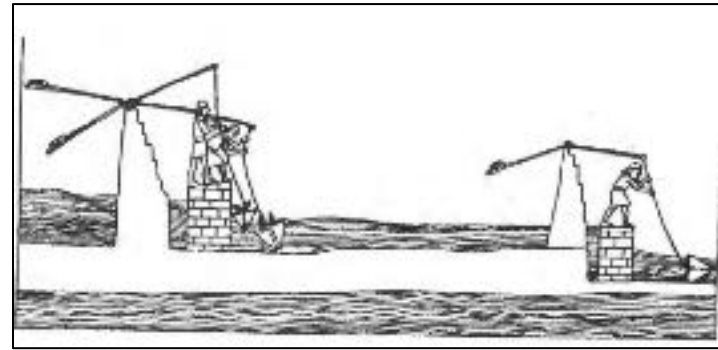




Villages and water management systems in the Hauran region (Braemer-Devtian 2009)



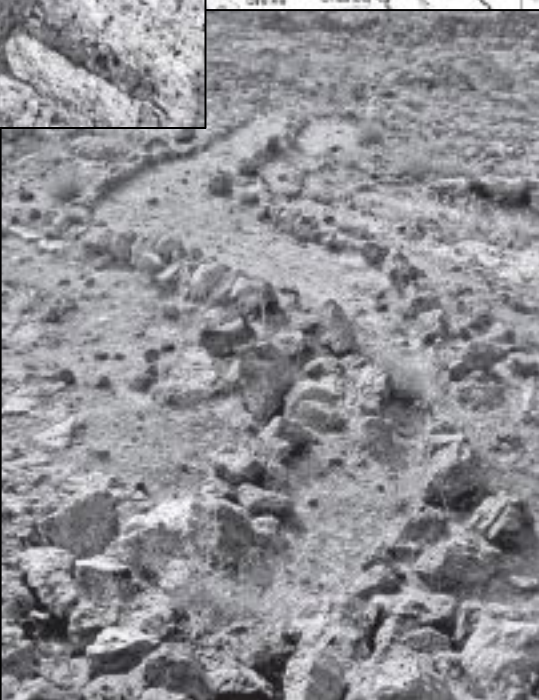
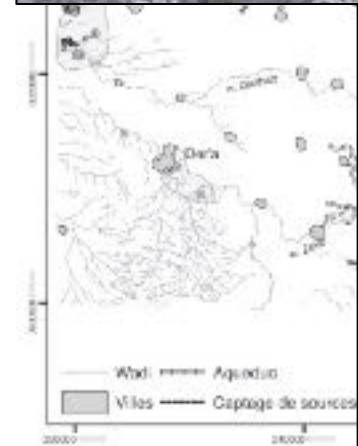
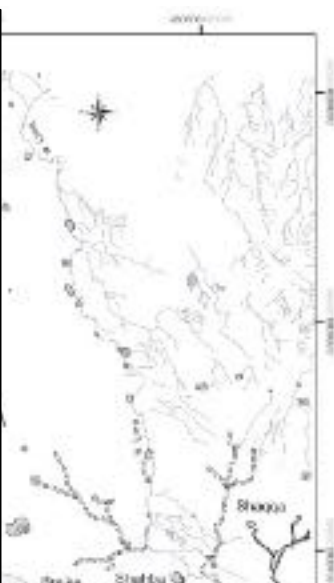
Villages and water management systems in the Hauran region (Braemer-Devtian 2009)



Top Left: Shaduf represented on an Assyrian relief. (Hamide 1990)

Top Right: Schematic view of a nasba. (Hamide 1990)

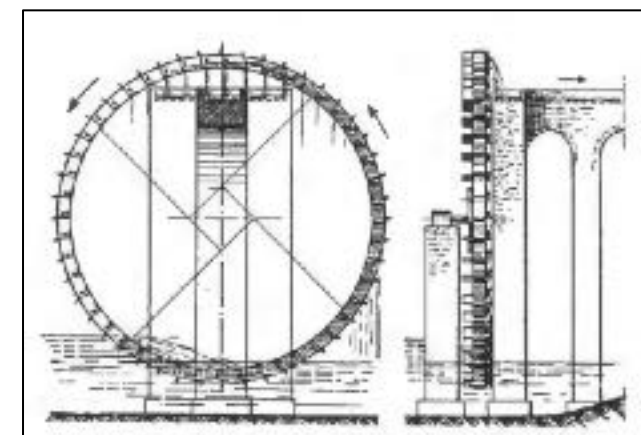
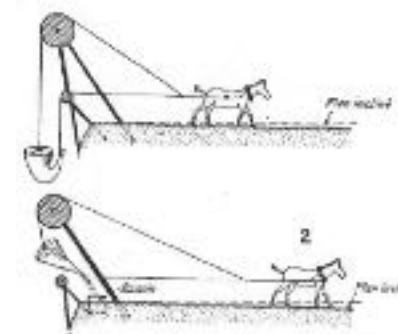
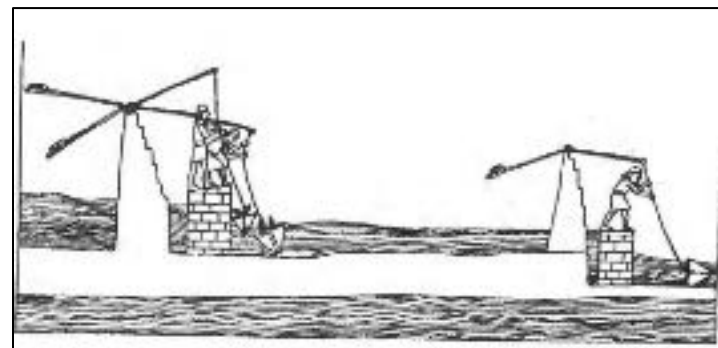
Bottom: examples of Noria along the Habur and the Euphrates (Geyer 1990; Hamide 1990; Northedge-Roaf 1988)



Villages and water
Hauran region (Br



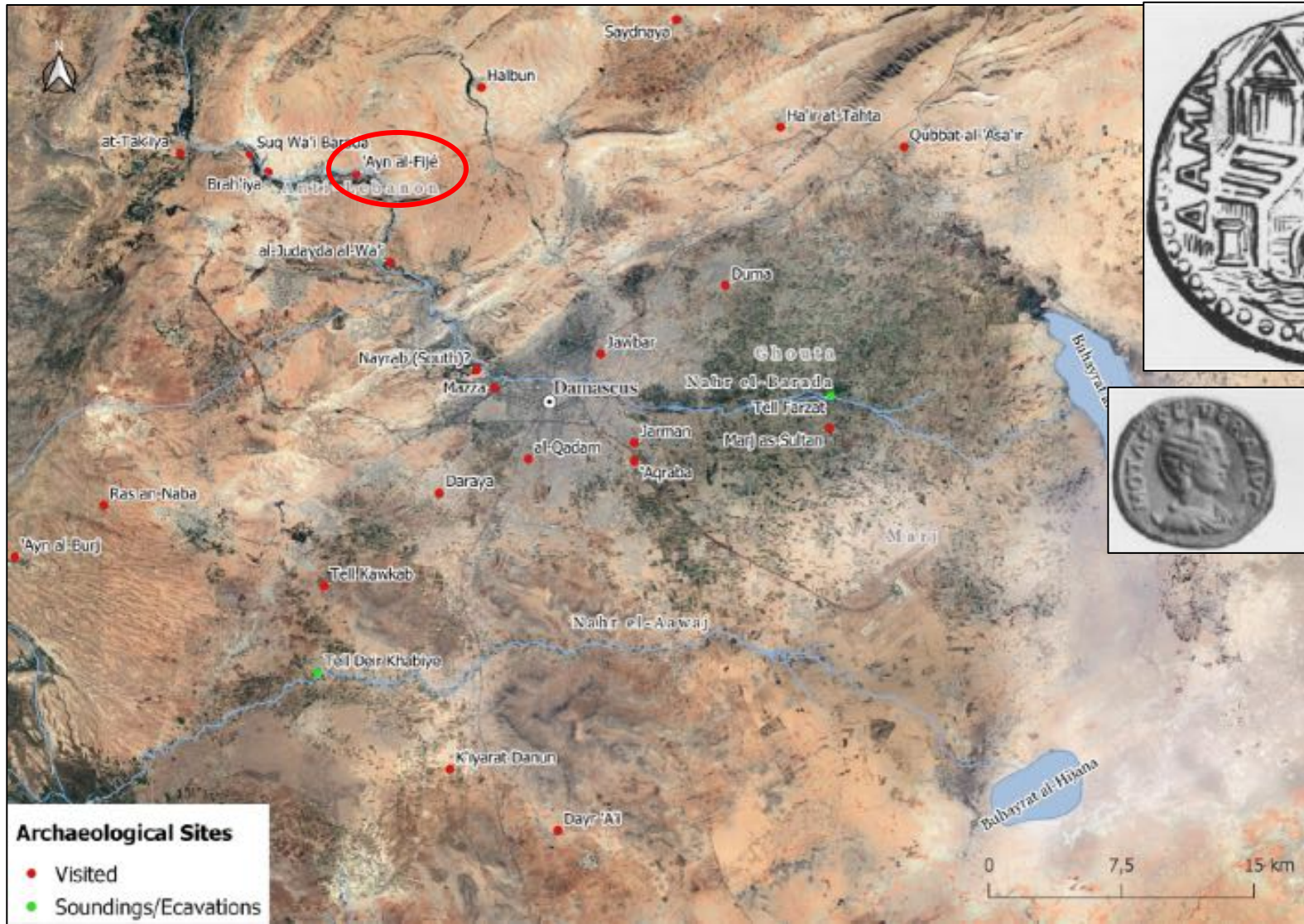
Diversion canals
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Leja, Hauran
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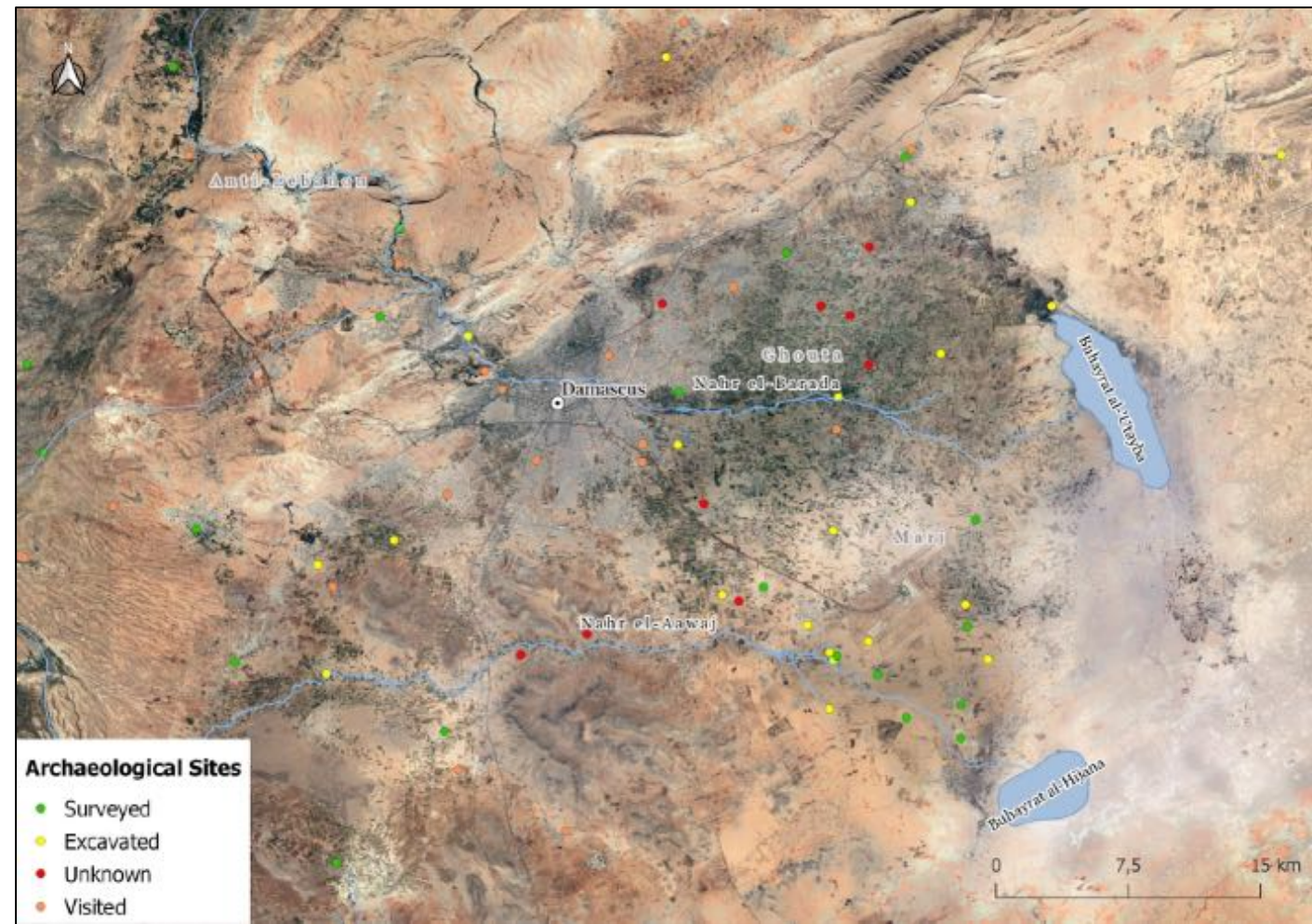
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Late Roman coins from Damascus and plan of the al-Fijé sanctuary (Aliquot-Piraud-Fornet 2008)

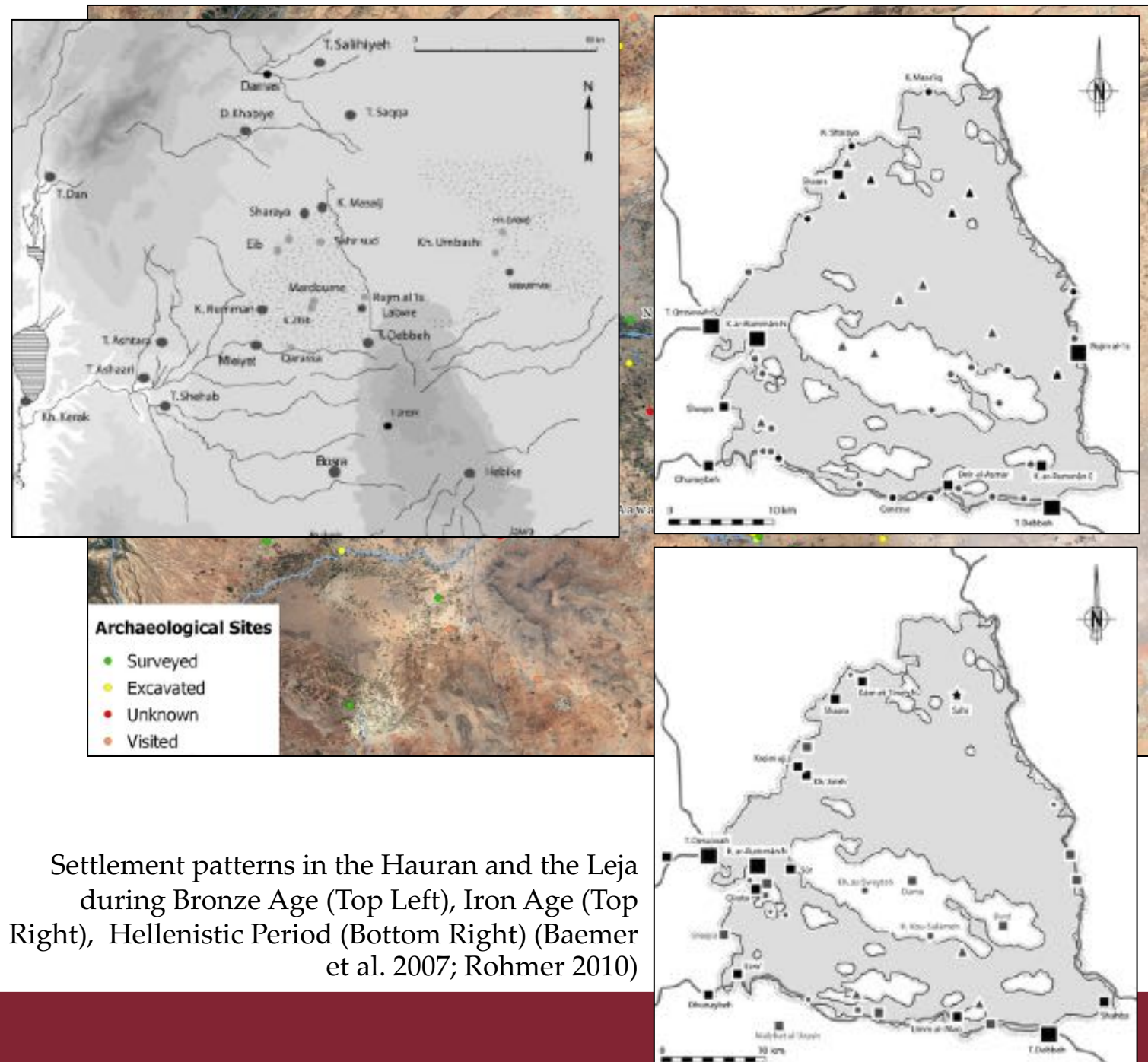
Preliminary Conclusions


- Water and its management were an integral part of the valley
- Role of water management and its relation with pre-roman sites needs to be further studied.
- Recording cultural heritage in the area is still a work in progress.
- However, it is possible to provide some preliminary assessment on survivability and visibility of archaeological features.
- More data are needed to properly evaluate changes in settlement patterns, given also evidence from nearby regions.
- Role of Damascus is still difficult to assess



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A black and white illustration of a coastal scene. In the foreground, a small boat with two figures is on the water. To the left, there are ruins of a building with arched windows. In the background, there are palm trees and a tall, slender tower. The scene is set on a rocky shore with some vegetation.

Thank you for your attention!

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