

## A RISK PLAN FOR BYBLOS ARCHEOLOGICAL SITE

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Byblos, the modern Jbail, is located on the coast of the Mediterranean Sea, about 30 km north of Beirut, Lebanon. It is one of the oldest continuously inhabited towns in the world and, since 1984, was designated a UNESCO World Heritage site. The name Byblos is Greek; papyrus received its early Greek name (byblos, byblinos) from its being exported to the Aegean through Byblos.



Fig. 1. Byblos, view of the archaeological site

Once the old city was discovered by the French historian Ernest Renan, archaeological excavations were begun by Pierre Montet in 1921; in the mid-1920s Maurice Dunand resumed the work and continued it until the mid-1970, so revealing that Byblos was occupied at least by the Neolithic Period (New Stone Age; c. 8000–c. 4000 bc).

Egyptian monuments and inscriptions found on the site attest to close relations with the Nile River valley throughout the second half of the 2<sup>nd</sup> millennium. The Phoenician alphabet was developed at Byblos, and the site has yielded almost all of the known early Phoenician inscriptions, most of them dating from the 10th century bc. The Crusaders captured the town in 1103 and built a castle but were driven out by the Ayyūbid sultan Saladin in 1189. The town subsequently sank into obscurity.

The ruins today consist of the Crusader fortifications and gate; a Roman colonnade (Nympheum) and small theatre; a wall of the Persian period (538–332 bc); Phoenician ramparts, three major temples, and a necropolis; and remains of Neolithic dwellings.

The 2006 Lebanon War, also called the Israel–Hezbollah War, took place in July – August and also Byblos suffered damages. WAR FREE WORLD HERITAGE LISTED CITIES project, designed and co-financed within the framework of the EU CIUDAD program, focuses on urban and regional planning for cities that are registered in the World Heritage List and located in critical areas being exposed to the threats of conflict and natural hazards. We produced a risk management plan for enhanced protection of the medieval city and archaeological site of Byblos; here, as for the latter, we present a summary of results arising from direct surveys and archaeometric analyses performed in the laboratories of ENEA Bologna.

**RISKS:** Fire – due to the overgrowth of spontaneous vegetation and to the lack of smoking areas and ashtrays; landslide of the coast – due to the erosion of winds (carrying sand) and sea; no remarkable problems in case of earthquake; terroristic attack – due to the surrounding places of worship, that can be targets; the outer limit is not well delimited nor monitored.

**RISKS FOR VISITORS:** Some dangerous areas are not delimited nor monitored; they lack security systems, such as gates and railings; excavations in the King's Tombs area are not pointed out and not secured; sometimes the trail is impervious and dangerous; there is not any indication of a visit itinerary: Visitors can get lost in the site.

**SUGGESTIONS:** since the site is entirely under the sun, include shady break areas; improve the posters that provide historical information all over the trail (some of the posters are actually illegible); a QR code or an audioguide could be useful to make the site more interactive; create a guided itinerary, pointed out by signs; the old railway – built by the archaeologists to remove land excavation - could be used to provide an interactive itinerary, that can be integrated with modern technology (such as audioguide or smartphone applications). This itinerary could be useful especially for children, disabled and old people. Moreover, the old railway's material could be used to create a museum of Industrial Archeology, completed by the old touristic signals.

The area dedicated to the history and the phonetic alphabet is really useful; so, it is suitable to create a similar area with a diachronic 3D model of the site, with the model of every object discovered in the site now treasured in the Beirut National Museum; a photographic reproduction of the object can be placed in the place of the discovery. The roman theater could be used as an open auditorium, for cultural events such as concerts, or for the projection of didactic videos about the history of the site.

Furthermore, maintenance of the whole site is suggested by elimination of the vegetation through a calendar plan and by putting ashtrays close to the waste baskets, or creating a smoking area; it is necessary to have a stock area for the maintenance materials; to create a way of escape in case of emergency; to identify a secondary entrance for first intervention vehicles; to secure the electrical system (cables, control units..); to collocate fire hydrants where is possible, based on the sources of water; to improve the surveillance of the outer limit, with videocameras and vigilants.

In particular, for the existing monuments and ruins, we noticed the following problems.

**CRUSADER'S CASTLE:** The wooden boards at the entrance are disconnected; wall's rock are from different layers, showing different states of degradation; graffiti and inscriptions on the walls and on the door; big vault opening padded; rocks laying on the walls; cement padding of the castle walls; a piece of the old rail covers a stair that has to be replaced by a gate; visible overgrowth of spontaneous vegetation on east side; restored tower with cement integrations to be removed; visible damages caused by the erosion; other damages caused by the wars (e.g. cannon shots): a panel could explain them.

Outside: Moat with walls; iron door that should coated with zinc, or replaced.

**ROMAN NYMPHEUM:** Information panel illegible; dry underbrush with fire risk; cement integrations.

**PERSIAN AREA:** Entrance: Circular pit, maybe for tomb's ventilation; it should be protected with an enclosure. The overgrowth of spontaneous vegetation obstructs the tomb, that is not visible from the trail. Remains of the old railway (a date and the dame of the factory are visible, 1865, *DECAUVILLE COURBEIL*) may be dangerous for visitors.

**OBELISK TEMPLE:** The archeologists moved it from its original site, to proceed with the excavations of the Phoenician area; a big palm is inside the site; there is a good enclosure; since it is made of iron, it needs maintenance; a pause area can be placed in the free zone near the temple.

“L” TEMPLE: Disconnected pavement, it is hard to reach the site; the trail between the L temple and the sea is interrupted and should be repaired; the outer limit should be well delimited and monitored; the cliff should be cleaned. Retaining walls or nets and consolidation materials could be used to control the erosion.

GREAT HOUSE: Paddings of an older building; the terrace and the stairs need to be protected with handrails; the building could be used for didactic activities, or as a restaurant.

OLD SPRING: The site should be protected with an enclosure.

AMPHITEATHER AND KING'S TOMBS: The sarcophagi should be monitored to prevent the dirt; most of the tombs are well enclosed; the remains should be protected too; the dangerous areas should be signaled; the only tomb that can be visited should be protected with an enclosure and a gate or a vigilant; the underground way should be illuminated; a stairway could be built to provide the access to the most deep area, but the sarcophagus should be protected from vandalization and degradation; periodic maintenance of the sarcophagi.