Digital Reconstruction of the U.S. Base in Baltra, Galápagos Islands: A Forgotten Chapter of WWII in South America

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Keywords: Remote Sensing, Historical Cartography, Digital Archaeology, Aerial Photography, Galapagos, Ecuador

Abstract

During World War II, Ecuador authorized U.S. military installations, including a major base on Baltra Island that supported Panama Canal defense and housed over 3,000 personnel. Its construction, in 1941, substantially transformed local landscapes and ecosystems. Returned to Ecuador in 1946, the base's infrastructure was largely dismantled, abandoned, or destroyed prior to withdrawal. Our project produced a 3D digital reconstruction of the Baltra base as it existed during WWII using photogrammetry, remote sensing, and archaeological research. We digitized and georeferenced historical aerial photographs and maps, reviewed archival documentation, and processed remote sensing data. Drone-based field surveys generated orthophotos and DEMs, enabling accurate 3D modeling of key structures. According to our study, Baltra Island once hosted extensive WWII-era infrastructure, with 660 mapped structures in 1959, most of which had originally been roofed. Today, only a few remnants remain, and modern development is concentrated around the Seymour Galápagos Airport and the Ecuadorian Air Force Base. Roads and some concrete structures persist, but most 1940s buildings are abandoned or dismantled. A 3D reconstruction and fieldwork identified key historical facilities and measured surviving platforms. Ecologically, Baltra shows strong recovery: yellow land iguanas and native flora have rebounded, supported by restoration programs and minimal modern disturbance, creating a landscape where historical layers and renewed ecosystems coexist. Though short-lived, the U.S. presence left an important material, ecological, and social legacy in the Galápagos Islands.

1. Introduction

During World War II, Ecuador approved the construction of military bases on its territory as part of a strategic agreement with the United States. These bases were key to defending the Panama Canal. Baltra Island was chosen because of its favorable terrain and central geographic location in the Galápagos archipelago.

Starting in 1941, the U.S. Navy Construction Battalion Detachment 1012 (Seabees) equipped a seaplane base on Baltra with fuel tanks, pontoon docks, and a water-supply system. The Baltra Base included two runways and more than 200 buildings—including barracks, offices, hangars, a theatre, and a beer garden.

In 1946, the United States handed over the airbase to the Ecuadorian government. However, prior to the transfer, many facilities were either abandoned or dismantled: some buildings were shipped to other islands, while military equipment was either returned to the U.S. or discarded at sea. During its operation, the Baltra Base caused significant changes in the island topography, as well as ecological damage to the archipelago's ecosystems due to military activities both at the main base and in adjacent radar stations. Today, a small area of the original site remains active as an Ecuadorian military installation, and one runway has been converted into the main civilian airport of Galapagos.

Our project uses geotechnologies for the reconstruction, in digital, of the Baltra Island Military Base, combining photogrammetry and remote-sensing methods. Photogrammetry serves superbly to digitally preserve at-risk sites and structures, in archaeological research, safeguarding both their material qualities and historical memory. Our approach combines remote sensing with digital archaeology integrating material culture analysis, interpretation of historical records, and 3D modeling of archaeological sites, facilitating deeper exploration of historical events and the conservation of physical evidence. From a geo-information standpoint, our work reconstructs spatial layouts by translating historical maps and photographs from two-dimensional plans into three-dimensional volumes, enabling a variety of educational and research applications.

Remote sensing provides a theoretical and methodological bridge between the physical traces of past human activity and their contemporary representation through geospatial technologies. From a theoretical standpoint, its use in historical research draws from landscape archaeology and spatial theory (Knapp & Ashmore, 1999), emphasizing the relationship between human agency and the modification of terrain over time. Historical aerial photography, declassified military imagery, and modern satellite data together enable a historic analysis of land-use change, infrastructure construction and deconstruction, and environmental transformation. In this sense, remote sensing operates both as a tool of detection by revealing traces otherwise inaccessible to field ground observation and a medium of interpretation, connecting spatial patterns with cultural processes and historical events (Lasaponara & Masini, 2011).

Techniques such as multispectral analysis, LiDAR, and synthetic aperture radar contribute to identifying subsurface structures, reconstructing past topographies, and monitoring degradation of heritage sites (Forte, 2014). Using historic aerial photography to reconstruct infrastructure has not been done at this scale before. When combined with GIS-based spatial analysis, these methods allow researchers to visualize and quantify changes in human-environment interactions over time, contributing to a more nuanced understanding of this military-purposed landscapes.

2. Objectives

The main objective was to produce a 3D digital model of the U.S. Base Beta in Baltra Island, which operated in the Galápagos from 1942 to 1946 during World War II (Idrovo, 2013). Specific objectives aimed to *a)* determine the base's spatial footprint and delineate key operational zones to assess ecological impact on Baltra Island; *b)* assess the current preservation state of material remains and identify any at-risk materials; *c)* suggest methods for site conservation and potential inclusion in tourism itineraries; and *d)* preserve the site's historical memory and its significance within the contemporary human history of the Galápagos Islands (Figure 1).

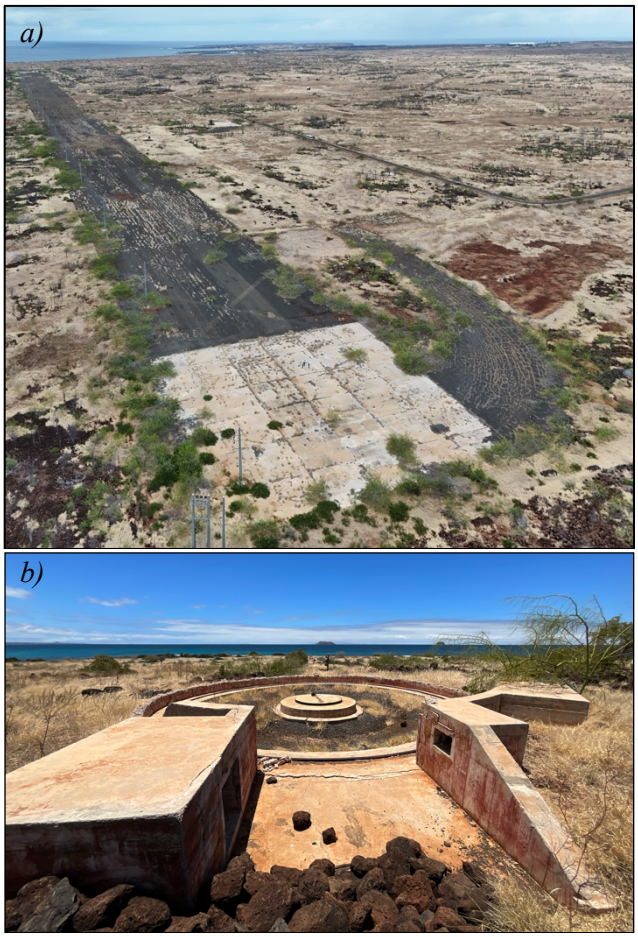

Figure 1. Many of the material remains of US Baltra Base are still visible on the surface, but no conservation efforts have been made to preserve the site. The visible remains include concrete building foundations, walls, and paved roads, many of which are covered by vegetation. *a)* an aerial view of the main runway, *b)* the concrete foundations of one of the four heavy anti-aircraft batteries that existed at Baltra Base during WWII (Photos by the authors, Oct. 2025).

Digital archaeology combines the analysis of material culture, the interpretation of historical records, and the digital modeling of archaeological and heritage sites to propose a better exploration of historical events and the conservation of their material evidence. Photogrammetry in contemporary archaeology is applied to preserve sites or buildings at risk, which is the case of Baltra US Air Base. Digital preservation of the materiality and memory of sites at risk are the objectives of digital archaeology. The relevance of this information from a geographic information perspective is based on the reconstruction of spaces from historical information, starting with two-dimensional extensions and then converting these areas into three-dimensional volumes that will allow for different educational and research applications, among others (De Paolis et al., 2022; Forte & Campana, 2016; Morgan, 2022; Olivito et al., 2016; Pierdicca et al., 2016).

3. Methodology

To recreate the Baltra Base as it existed during 1942-1946 in a digital 3D model, we apply an integrated methodology that includes: the analysis and digitization of historical photographs and maps, archival document review, processing of remote-sensing data, and a contemporary topographic survey using drone and portable LiDAR technology to generate digital elevation models (DEM) digital surface models (DSF), and digital objects of standing remaining of buildings and infrastructure.

Archival research gathered information from correspondence, maps, aerial photos, official reports, and diplomatic agreements. Sources include the Naval Oceanographic and Antarctic Institute archives, the Ecuadorian Military Geographic Institute, the Ministry of Foreign Affairs of Ecuador, and the U.S. National Archives (NARA). Satellite imagery was obtained from EarthExplorer (USGS, 2025) for Landsat satellites, Copernicus Hub (ESA, 2025) for Sentinel 2, as well as Planet Labs (Planet, 2025) for Skysat, available for the area. The field visit for photogrammetric survey was carried out using a DJI Air 3 drone during four days in 9 different relevant points identified as important landmarks (Table 1).

***a)* Aerial Imagery**

Camera & Flight Line	*Year*	*Pictures*	*type*	*island*
USAF R3 L14-A	1959	7	BN	Baltra
USAF R3 L15	1959	7	BN	Baltra
USAF R2 L15B	1959	5	BN	Baltra
USAF R25 L28A	1963	2	BN	Baltra
JET R85 L22	1982	3	BN	Baltra
LMK R18 L44	1992	3	BN	Baltra
RC30 R82 L63	2007	4	Color	Baltra
ULTRACAMP XP 2021 L12	2021	8	Color	Baltra
ULTRACAMP XP 2021 L13	2021	4	Color	Baltra
TOTAL (1959-2021)		43		

***b)* Satellite imagery**

Satellite (Resolution)	*Path*	*Row*	*Date*	*Bands*
Landsat 5 (30 m)	018	060	13-Apr-83	7
Lansdat 8 (30 m)	018	060	16-Jun-25	11
Sentinel 2 (10 m)	--	--	28-Aug-25	12
Skysat Planet (3 m)	--	--	18-Jul-24	4

***c)* Drone imagery**

Brand	*Model*	*From*	*Until*	*Images*
DJI	Air 3	05-Oct-25	08-Oct-25	1291

Table 1. Imagery collections used for the 3D Baltra Base Project, including *a)* Aerial imagery ranging from 1959 to 2021, *b)* Satellite imagery from several sources from 1983 to 2025, and *c)* Drone imagery taken during the site visit in October 2025.

We used ArcGIS Pro, Drone2Map, SketchUp, and other complementary software packages for georeferencing the aerial photography, digitizing the observed infrastructure, as well as processing the imagery and constructing the digital model. The mapping of historical infrastructure was part of the multitemporal analysis of aerial photographs (1959–2021) using the ground controls points that were provided with the imagery and other landmarks that have remained in place through time. We also included the satellite imagery (Landsat, Sentinel-2, SkySat) within the ArcGIS Pro platform. Historical maps and archival documents were digitized and aligned to a common coordinate system to ensure spatial consistency. Building and infrastructure footprints were delineated as polygon features by interpreting visible rooftops, concrete foundations, and structural remnants from aerial and historical imagery. Each polygon was attributed with size, material type, and temporal classification based on archival records and field validation. For areas where structures were no longer visible, we relied on historical photographs and derived elevation models to infer their original footprint, ensuring accurate representation of the base's spatial layout during its operational years.

Polyline features were generated to represent the road network and runway alignments. Using the same georeferenced imagery, we traced visible linear features corresponding to roads, taxiways, and runways, corroborating these with elevation data and drone-based orthomosaics collected during the 2025 field survey. Furthermore, the two runways were also mapped as polygons, due the considerably big area of coverage. The digitization process included snapping to control points derived from GPS measurements to maintain positional accuracy. Attributes such as surface or cover type (i.e. asphalt, gravel, basalt, cement, metal, dirt/bare soil, glass), width, and functional classification were added based on historical documentation and field observations. This integrated workflow allowed the creation of a comprehensive vector dataset that supports spatial analysis of infrastructure extent, connectivity, and persistence over time, forming the basis for the quantitative results presented in the next section.

To document the physical traces of the former Baltra Base, we implemented a structured workflow combining drone-based photogrammetry, GIS digitization, and LiDAR scanning. High-resolution orthophotos were generated from DJI Air 3 drone imagery collected during the October 2025 field campaign across nine key sites: the Officers' Club (*Casa de Piedra*), theatre, four anti-aircraft batteries and ammunition bunkers, two water reservoirs, other standing infrastructure, and a naval pier. Drone images were processed in Drone2Map and ArcGIS Pro to create georeferenced orthomosaics aligned to a common coordinate system. These mosaics helped to review the digitized polygon features representing building footprints and structural remnants. Where remnants were minimal, historical imagery and elevation models derived from LiDAR were used to infer original layouts, ensuring spatial accuracy and temporal consistency.

To complement polygon mapping, we integrated 3D modeling workflows for selected structures at these nine sites. Portable LiDAR scans were captured using an iPad Pro equipped with Scaniverse, providing detailed measurements of standing remains. These LiDAR models help complementing the drone-based orthophotos and processed in ArcGIS Online Scene to create volumetric reconstructions. This integration of photogrammetry, LiDAR, and archival data allowed us to validate the historical 3D reconstruction of the wartime complex and illustrate contrasts between original architecture and current archaeological condition. The combined dataset supports spatial analysis, heritage documentation, and future interpretive applications, forming a robust methodological framework for digital archaeology in remote island environments.

Data analysis, covering historical research, geospatial data processing, digital rendering, map generation, and creation of educational and outreach materials, was conducted at GEOcentro USFQ and the Archaeology Laboratory at USFQ, and it included levels of validation from the geographical and historical perspectives.

4. Relevance

Contemporary human history of the Galápagos Islands remains under-studied. The few known historical sites in the archipelago relate to sporadic 18th-century occupancies or the earliest permanent colonies established in the 1830s. Since 1946, the material remains of the U.S. base on Baltra have been neglected and looted, destroying much of their tangible evidence and risking the complete loss of memory associated with the site.

Our project is significant for several reasons, recognizing the needs to: (1) assess the current state of preservation and the observable risks to the site. (2) evaluate the scale of human impact on Baltra Island. (3) suggest to opening potential new visitor attractions in Galápagos related to its human history and culture, and (4) produce historical documentation and dissemination materials to enrich understanding of modern human history in the Galápagos Islands.

5. Results

Our results show a vast occupation of the island during the time when the Baltra Base was active. The multitemporal comparison of remote sensed imagery covered the years 1959, 1963, 1982, 1992, 2007, 2021, 2024 and 2025. The total mapped infrastructure covered an area of 616,087 m^2 with 660 individually mapped areas for the base map of 1959, including the two main runways (*min*. 5 m^2, *max.* 223,589 m^2, *mean* 852 m^2). Out of these, only 18 (2.7%) had a visible rooftop remaining. Nevertheless, we calculated that 601 (91%) had a rooftop when the base was active up until 1949.

This basemap not only documents the dismantling and reuse of abandoned buildings by local communities in Santa Cruz and San Cristóbal Islands but also represents a unique opportunity to travel back in time through historical aerial photography. The 1959 USAF (United States Air Force) mission imagery provides a rare visual record of the island just over a decade after the U.S. military withdrawal, capturing the spatial footprint of the original base before modern infrastructure started to reshape the landscape, particularly the section of the current touristic airport. By georeferencing and analyzing these photographs, we reconstructed the distribution of roads, runways, and building foundations, offering insights into the operational scale of the wartime complex and its subsequent transformation (Figure 2).

The changes are consistent over the years, although the last two decades have seen a major development. By 2021, we registered 776 areas of infrastructure in an area of 562,904 m^2 (*min*. 5 m^2, *max.* 223,589 m^2, *mean* 804 m^2), registering 126 rooftops (33,671 m^2), showing the current use of the island by the Seymour Galapagos Ecological Airport (IATA: GPS) and the Ecuadorian Air Force Base (*Base Area Galapagos* BAGAL).

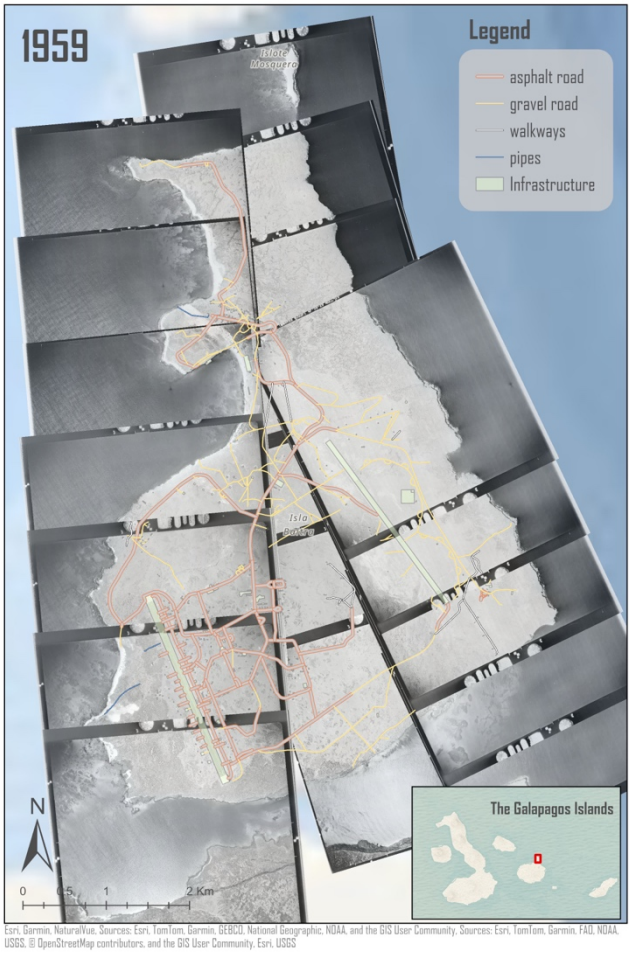

Figure 2. Digital map of Baltra Base infrastructure based on aerial photographs of the island taken in 1959 by the USAF mission, acquired and georeferenced for our study

Figure 3. Current map, as of 2025, of the infrastructure in Baltra Island, based on a combination of aerial photography and satellite imagery, highlighting the concentration of modern infrastructure around the Seymour Galápagos Ecological Airport (GPS) and the Ecuadorian Air Force Base (BAGAL).

In terms of roads, the original setup of the Baltra Base gave us a total of 82,427 m of built-up roads. These were mapped in our 1959 base map, and result of a combination of asphalt and gravel roads, and the tarmac of the two runways. Most of these roads have remained visible, some even usable, throughout the eight decades since they were built, even though most of them are not in proper use. In fact, the total road length for 2025 is 87,184 m, which only adds up 4,757 m of roads, which are mostly observed since 1982 when the airport was already in use. The construction materials for the 1940s infrastructure were likely locally sourced, since we observe a few mining areas that were also mapped. However, the wood and other materials for the housing infrastructure were brought in, directly from the US.

The 2025 map of the infrastructure in Baltra Island (Figure 3) reveals a clear concentration of modern infrastructure in and around the Seymour Galápagos Ecological Airport (GPS) and the Ecuadorian Air Force Base (BAGAL). These facilities show the current island's human footprint, representing its transformation from a WWII military outpost into a strategic hub for civil aviation and national defense of Ecuador. The airport complex includes runways, taxiways, and terminal buildings constructed with asphalt and reinforced concrete, while the BAGAL base occupies adjacent areas with administrative and operational structures. This clustered infrastructure contrasts sharply with the dispersed layout of the original wartime base, that practically covered the whole island area, highlighting the spatial reorganization that has occurred over eight decades, and the conservation efforts that the Galapagos National Park leads.

Outside the airport zone, additional modern features were identified, including electric towers and poles connecting Baltra to Santa Cruz Island, as well as renewable energy installations such as solar panels and wind turbines. These elements were mapped using high-resolution natural color imagery and corroborated during field visits, allowing precise classification of materials and structural types. The integration of sustainable energy systems alongside aviation infrastructure underscores the island's dual role as a gateway for tourism and a site for ecological innovation. Our spatial analysis highlights how contemporary development has concentrated in a single operational core, while much of the surrounding landscape remains dominated by abandoned WWII-era remnants, creating a layered historical and functional geography that is unique within the Galapagos archipelago.

As described in the previous section, our complete and comprehensive 3D model of the original Baltra Military Base, integrates archival data, aerial photography, and field-collected measurements into a unified spatial environment. This digital reconstruction restores the spatial layout and architectural configuration of the complex as it existed during its operational years, revealing the full extent of the base with 601 roofed structures identified. The model incorporates the main landmarks that defined strategic operations, including the two runways, control tower, hangars, officers' club, theatre, medical facilities, and barracks. Each element was georeferenced and modeled to

reflect its historical dimensions and relative positioning, enabling accurate visualization of the base's functional organization (Figure 4).

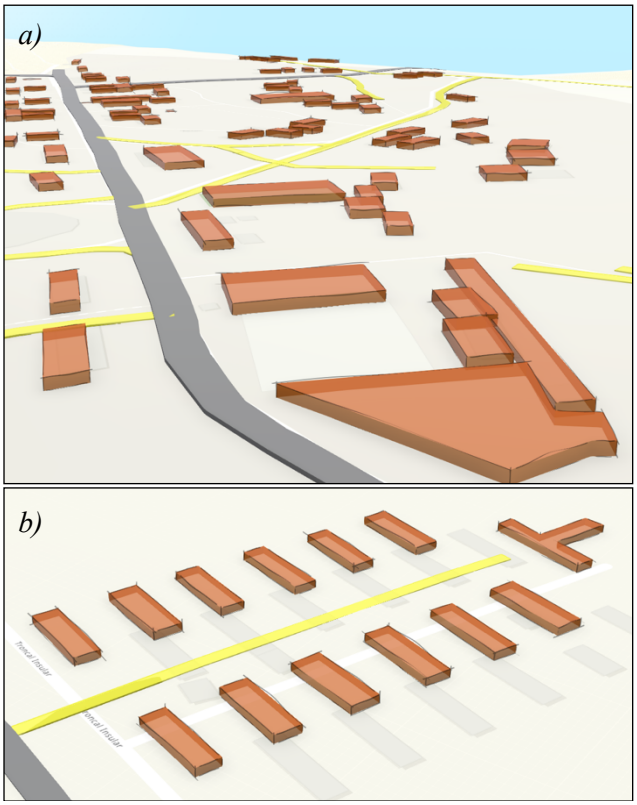

Figure 4. Close-up views of the 3D reconstruction model of buildings that once existed at Baltra, showing *a)* the main administrative complex and barracks with the main asphalt road that connects them, and *b)* residential areas, possibly for officers. A public interactive app can be accessed in https://shorturl.re/baltrabase3d

Beyond its technical achievement, the 3D reconstruction provides a unique opportunity to explore the historical geography of Baltra Island. By virtually reinstating structures dismantled or lost over time, the model allows researchers and the public to "travel back" to the 1940s and experience the spatial scale of a wartime outpost in the Galapagos. This immersive representation highlights, once more, the distinctions between the original dispersed layout and the concentrated modern infrastructure observed in 2025, offering insights into how military imperatives shaped the landscape of the island.

The satellite imagery corroborated what we can observe in the aerial photos, and it helped to build a more detailed digital three-dimensional model of the structures in the ground. The drone missions yielded images and videos that allowed us to identify, locate, and digitally reconstruct several of the standing concrete structures and buildings: the officers' casino (locally known as *Casa de Piedra*), an automotive mechanics, a machinery room, the main powders keg, the main runaway and taxy lines, four anti-aircraft batteries, two water reservoirs, several bunkers, and two gun emplacements.

The archaeological exploration aimed to identify activity areas within the base. We documented fragments of diagnostic material culture on the surface and compared the layout of material remains and concrete platforms with the few available historical photographs of the base. Using this method, we identified the areas corresponding to the medical buildings, the control tower and terminal, a complex of habitational barracks and villages, the administration offices, communal bathrooms, and the theater.

The 3D LiDAR models allowed for a detailed measurement of the remaining infrastructure. The rectangular structures, ranging from 15-20 m in length and 6-8 m in width, have been interpreted as habitational barracks. Other structures were individually modelled based on measurements of individual concrete platforms and historical photographs (Figure 5).

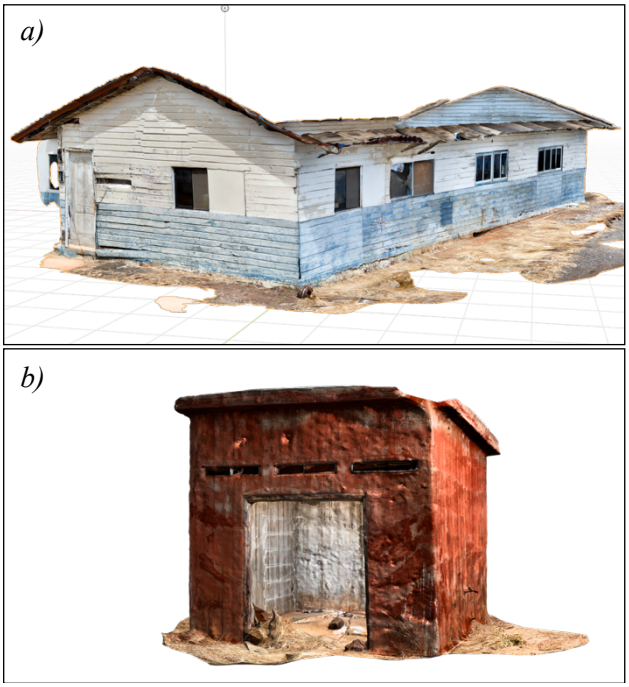

Figure 5. A couple of 3D LiDAR models of remaining infrastructure at Baltra Base, showing *a)* the detailed view a preserved original barrack near the modern BAGAL base, *b)* a small ammunition shelter located under a covered part south of the main runway

During fieldwork we evaluated the state of conservation of the material remains and the possible modern use of original military infrastructure. The results show that the majority of the 1940s infrastructure has been abandoned and is not usable anymore. Most of the original wooden walls, the electric wiring, and the water pipes have been removed from site over the years, and many paved roads are not transitable anymore due to the lack of maintenance and the overgrowth of vegetation. The few standing concrete building are instable and not usable anymore, except for a heavily reinforced concrete bunker currently empty. The few reused areas of the original infrastructure are *a)* the secondary runway of Baltra Base, which is currently the busiest civil airport of Galápagos; *b)* a two-line road that connects the airport terminal with the Itabaca Chanel. A section of this road is the E5 national highway (i.e. *Troncal Insular*) of Ecuador; *c)* three original wooden barracks that function as storehouses and a gym for the Ecuadorian airbase; and *d)* some areas of one of the original navy piers at Aeolian Cove.

Regarding human impact on ecosystems, we observed minimal effects on native and endemic fauna and flora outside the modern airport. Activities at the Ecuadorian air and naval bases are primarily administrative, focused on infrastructure maintenance and security surveillance on land and at sea, particularly in Puerto Ayora, approximately 30 km south of Baltra. Interaction with native fauna is limited to artisanal fishing along the island's northern limits.

The orthophotos generated from the drone imagery offer a precise and highly detailed view of the remaining physical traces of the former base, allowing a clear interpretation of key landmarks that have survived the passage of time. In particular, the Officers' Club (a.k.a. Casa de Piedra) is one of the most emblematic social and recreational structures of the base. It still stands out through their visible foundations, wall remnants, and surrounding spatial layout. The orthomosaic reveals the footprint and structural symmetry of the officers' club, including evidence of its multi-room configuration and the leveled platforms that once supported its roofed areas (Figure 6). Likewise, the theatre is identifiable by its elongated rectangular base and the alignment of surviving foundation lines that correspond to the entrance area and the main hall. By combining high-resolution orthophotos with the historical 3D reconstruction, these surviving features become essential anchors for validating the spatial accuracy of the model and for illustrating the contrast between the fully reconstructed wartime complex and the archaeological condition of the ruins that persist today.

Figure 6. Orthophoto of the Officers' Club (Casa de Piedra) clearly reading from above Galapagos Service Club, derived from 78 images taken at 65 m from the ground and mosaicked using Drone2Map.

We observed clear evidence of the regeneration of the ecosystem, with several and common encounters with the native yellow land iguana (*Conolophus subcristatus*), which became locally extinct on the island after WWII. The species was reintroduced in the 1990s, and today more than 3,000 individuals have been recorded (Hofkin et al., 2003). These iguanas have established new breeding sites on and beneath the concrete structures built during WWII, demonstrating a rapid resilience process (Figure 7).

Minimal human interaction, abandonment of original infrastructure, and intentional protection practices by current military personnel have supported the recovery of this species and other endemic fauna, such as Galápagos finches (*Geospizinae* spp.), short-eared owls (*Asio flammeus galapagoensis*), and blue-footed boobies (*Sula nebouxii*).

Additionally, we were able to observe the regeneration of the native flora. In fact, over the past decade, the Charles Darwin Foundation, together with the Galápagos National Park have made remarkable progress in restoring Baltra Island into a functioning ecosystem. Beginning in 2013 with the planting of 200 Opuntia cacti (*Opuntia echios*) using water-saving technologies, the initiative expanded to include twelve key native species selected for their ecological importance. These species were nurtured in a nursery and then out-planted, wherein they faced harsh conditions like drought and herbivory, yet many survived and adapted (CDF, 2025). The imagery dataset collected for our project will be made available for potential use in ecosystem regeneration studies.

Figure 7. A local yellow iguana living among the remains of the Officers' Club at Baltra. This building was restored in the early 2000s but abandoned after a fire destroyed it. Today, this and two nearby building are among the few standing original buildings of the original U.S. Baltra Base in Galápagos (Phothos by the authors, October 2025).

These successful projects of rewilding the island validate the long-term restoration strategy previously laid out in the Action Plan for Baltra, signaling that ecological processes are reactivating and the island's resilience is being rebuilt.

On the other hand, our study suggests that some remaining buildings, such as the Officers' Club and the main bunker, could be reconstructed and opened to the public as an interpretive center to present the human history of Baltra, the island's occupation timeline, the ecological impacts of war, and the successful reintroduction of yellow iguanas. Visitors could walk among the abandoned structures to explore the scale of human impact on a previously uninhabited island and reflect on the importance of preserving unique ecosystems. However, significant limitations remain, including the complete lack of fresh water and power lines. Additionally, many roads would need to be fully reconstructed to ensure accessibility, particularly the road leading to the island's northern limits.

6. Conclusion

Our study demonstrates the enduring and evolving human footprint on Baltra Island, tracing its transformation from a strategic U.S. military base during World War II to its current role as the primary gateway for visitors to the Galápagos. Through multitemporal analysis of aerial photographs spanning from 1959 to 2025, we reconstructed the spatial organization of the original base and documented the persistence of its infrastructure. The 1959 USAF imagery provided a rare historical perspective, enabling us to visualize the island before modern development and to preserve the memory of a landscape shaped

by global conflict, even if it was happening on the other side of the world.

Despite decades of change and use, the built environment of the island has remained relatively stable in total area, while its functional organization has shifted dramatically. Modern infrastructure is now concentrated around the Seymour Galápagos Ecological Airport (GPS) and the Ecuadorian Air Force Base (BAGAL), contrasting sharply with the dispersed wartime layout. Renewable energy installations, electric connections to Santa Cruz, and sustainable aviation facilities underscore Baltra's dual role as a tourism hub and a site for ecological innovation. This spatial reorganization reflects broader trends in heritage management and environmental stewardship within the Galapagos archipelago.

The integration of archival data, drone-based photogrammetry, and LiDAR scanning allowed us to produce a comprehensive 3D digital reconstruction of the original Baltra Base, restoring its spatial layout and architectural configuration with more than six hundred roofed structures identified. Beyond its technical achievement, this model serves as a powerful interpretive tool for education, heritage conservation, and tourism planning. We foresee future applications including virtual tours, interactive platforms, and interpretation centers that enable visitors to "travel back in time" and explore the historical geography of Baltra, fostering awareness of the ecological and cultural impacts of war and the importance of preserving unique island ecosystems.

7. Acknowledgments

Research accomplished under DPNG Permit: N° PC-49-25. Drone flights were approved by the General Direction of Civil Aviation of Ecuador via permit number DGAC-DCAV-2025-3333-O and operated by qualified pilot Leo Zurita-Arthos, license number MDT-SCP-2023-0212. Our sincere acknowledgements to the Commander General of the Ecuadorian Air Force (FAE), Air General Mauricio Salazar Machuca, Colonel Romel Rivera and Major Andrés Cordoba of BAGAL. Research was funded by the Galapagos Grant 2024-2025 of the Galapagos Science Center of USFQ-UNC.

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