Report on the work carried out at the “Swedish hut” on Snow Hill Island (HSM Nr. 38)

English version provided by the authors

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***Information paper submitted by Argentina and Sweden***

Summary

This document describes the activities carried out by the Argentine Antarctic Program during the last Antarctic campaign to carry out conservation and upkeep works on the HSM 38 "Swedish hut" on Snow Hill Island.

Introduction

In 1903 the Swedish Antarctic Expedition of Dr. Otto Nordenskjöld built the “Swedish shelter” as a winter station. It was used by Nordenskjöld and four other Swedish expedition members, and also the then Argentine Navy ensign José María Sobral, until they were rescued by the Argentine Navy corvette ARA Uruguay.

The “Sweden Shelter” is protected by the Antarctic Treaty System as Historic Site and Monument No. 38, as well as by Argentine legislation that designates it as a National Historic Site. It is one of the few Antarctic shelters of the "heroic era" in which the original structure still remains, being central to the study and exploration of Antarctica. Therefore, as administrators of the HSM, ensuring its preservation for future generations is an important responsibility.

Background

On the fiftieth anniversary of the rescue, in 1953, the Argentine Republic committed itself to the management of the refuge and in 1980 the National Antarctic Directorate (DNA) and the Argentine Antarctic Institute (IAA) began the recovery of the refuge, with archeological and conservation works.

In 2002, the DNA-IAA officially inaugurated it as a museum and the remains of the geomagnetic and astronomical observatories were recovered and preserved.

In the last thirty years, Argentine researchers have had to redouble their efforts to keep the refuge standing, through shoring works in addition to conservation work, since the permafrost soil (composed of rock, ice and sediment) on which the house is built has eroded considerably due to the effects of climate change. Currently, the Coordination of Social Sciences and Humanities of the Argentine Antarctic Institute continues to carry out conservation work at the site, dedicated to saving this unique piece of Antarctic heritage within the framework of the Historical Heritage Project.

During the summer 2019/20 Swedish scientists from KTH Royal Institute of Technology, Gothenburg University, and Luleå University of Technology participated in the DNA-IAA Historical Heritage Project, surveying the site and installing sensors, 3D laser scanning at the subliminal level of the shelter, and mapping the terrain with laser contour lines and drone flights with a 3D model. This experience resulted in a joint publication on the surviving Antarctic heritage of the Nordenskjöld expedition.

As one of the few surviving shelters from the heroic era of Antarctica (1895-1920), the site is also of tourist interest. Last summer it was visited by thirteen cruise ships during the two months on which the Argentine camp was set up.

Work carried out during the summer 2022/23

In order to fulfill the objectives set out in the DNA-IAA Historical Heritage Project, and to protect the value of the heritage from the "Heroic Era", the HSMS was located, surveyed, studied, conserved, signaled and disseminated, and a systematic survey of documentary sources was made.

Measurements were taken with laser level of the inclination of the house on the outside and in each room to calculate the possible increase in the inclination of the shelter and the deformation of its structure. A tensioning system was installed inside the loft to avoid the increase in the separation of the east and west walls of the shelter.

Due to the fact that the west wall of the shelter had considerable cracks, the ruberoid was replaced. The tank (a replica of the toilet located 50 meters north of the shelter) was leveled and its base was consolidated, and the mast located north of the house was repaired. On the other hand, waterproofing sealant was applied to the roof of the shelter due to leaks detected during rainy days.

As a result of the lowering of the access level to the moraine of the shelter due to the erosion of the permafrost, the railing that supports the ascent of the ladder covered only one third of the ascent, so it was extended downwards by three times its length. This is necessary to avoid the erosion of the east slope due to traffic on it, concentrating the circulation of visitors on the stairway. For its extension, we followed the design of the one installed in the nineties, using cement, sand and stones from the basalt dykes of the place.

Historical objects collected on the surface in the north landfill were added to the technical reserve of the shelter. Also, glass fragments, remains of batteries, bottles and cans were separated and folded as duly classified waste.

The data obtained from the permafrost and battery measurement sensors, the shelter's humidity and temperature sensors, and the automatic weather station's memory were downloaded.

With regards to outreach, signs were installed on the exterior with information in English and Spanish about the history of HSM38, the expedition and the refuge, and the heritage rescue work carried out by DNA-IAA since 1980. Likewise, signs were put up indicating "no entry" areas such as the storage area or "no trespassing" areas due to the presence of archaeological remains and the remains of the magnetic and astronomical observatories. A new sign was installed on the first terrace of the ascent route for tourists indicating not to approach the edge of the terrace because of the danger it poses due to the constant landslides on its edge.

Inside the refuge, the site's visitors' guidelines were put next to the visitors' book, laminated and ringed in the four languages of the Antarctic Treaty, and a laminated bilingual Spanish-English triptych brochure on the refuge and the conservation work with QR code and copies of the triptychs were left for tourists to pick up.

In each room historical photos were installed showing the state of the refuge during the expedition, plus a photo of each of the wintering people in the refuge in 1902. Also, a general photographic survey of the refuge was made.

During the visit of various tourist ships, a record of them was kept and their compliance with the guidelines was checked remotely, coordinating the activities with their guides by handy.

Future plans

In accordance with the work initiated within the framework of the Historical Heritage Project of the Coordination of Social Sciences and Humanities of the Argentine Antarctic Institute, Argentina plans to incorporate personnel from the National Institute of Industrial Technology for permafrost soil consolidation works.

Continuing with what was developed in IP 112 Rev1 "Current situation of the impact of climate change on the Sweden Shelter on Snow Hill Island (HSM No. 38)", presented at the RCTA XLIV, the work carried out will be used as input for the conservation plan under development as, due to the effects of climate change, the strong erosion of the small plateau on which the house is located presents a high risk for it. The intervention project is expected to be carried out in the summer of 2024/2025.