

SUSTAINABILITY REPORT N°2

Museo de
Historia Natural
de Valparaíso

2023



MUSEO DE HISTORIA
NATURAL DE VALPARAÍSO



Sustainability Report N°2

Museo de Historia Natural de Valparaíso, 2023

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Prologue

In its first sustainability report, the Museo de Historia Natural de Valparaíso described a journey of exploration, experiences and learnings. It identified that, in order to move forward and continue on solid ground, it is necessary to relate to and coexist with other organisms. This connection helps empower and inspire organizations to take actions that incorporate the pillars of sustainability, especially in the context of the current climate crisis we are facing.

In this way, it compels us to transform into resilient spaces and societies that take into account the social, environmental, cultural, and economic aspects as fundamental to adapting to new ways of co-evolving with our environment.

In this second edition of our sustainability report, and in the relentless pursuit of support and coexistence, we found *Amomi Editorial*, who agreed to take part in this important work and challenge.

Through this report, an alliance is formed, one represents and identifies us with the concept of mutualism, which science describes as: “a biological interaction, between individuals from different species, in which both of them get benefits and improve their biological aptitudes.”¹

This definition resonates with us in the sense of bringing important information and promoting closer and promoting it, with the aim of inviting and motivating others to join and take action from a sustainability point of view. This, in turn, drives us to be conscious and responsible decision-makers at organizational, community, and personal levels.

Amomi is a publishing house that seeks to foster environmental care and heritage education through the creation and editing of different content and publications. Its goal is to generate a positive impact on the community and, in doing so, set a precedent in environmental education in Chile.

Cinthia Mora Troncoso, Environmental Engineer. In charge of MHN's Environmental Management.

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¹ MMA – UN Environment Programme – SEREMI MA RMS (2022). *Supporting Guidance for Teaching on Biodiversity*. Santiago: Fagus del Sur Ediciones.

Introduction

World Environment Day is celebrated annually on June 5th and it is led by the United Nations Environment Programme (UNEP). This day was first designated by The United Nations General Assembly in 1972, half a century ago.

Over the last 50 years, this day has become one of the most far-reaching global platforms, issuing an urgent call is made to address environmental issues.

As a museum team, we are aware that we are facing a climate emergency and at the same time, we recognize the need to develop strategies to stop contributing to rising temperatures through the generation of greenhouse gases. We are convinced that part of our role is to respond to climate change with concrete actions.

Ecosystems around the world are in danger. Chile is no exception, our forests, wetlands, rivers, lakes, ocean, desert, and glaciers, all the natural areas we depend on for our survival, are reaching a point of no return. The information we encounter daily is alarming and disheartening. However, we believe that our actions can influence the community and encourage collaboration and mutual support to confront the consequences of climate change. Even in this devastating context, we can find opportunities to reconnect with one another and with nature, and to recognize ourselves as part of it.

We strongly believe that public servants face a great challenge in this crisis. If we all align our efforts so that our institutions incorporate sustainability into all their processes, we can create meaningful change. This will enable us to make decisions and act more efficiently, ultimately reducing the negative impacts and carbon footprint that harm the planet.

This second sustainability report presents the structure of the museum team, their scope, specializations, and assignments, incorporating the environmental factor into all daily tasks.

The motto “working for a sustainable museum” holds deep meaning for each and every member of the museum team. This is reflected in the progress made toward the 17 Sustainable Development Goals (SDGs), which—directly or indirectly—promote actions related to quality education, responsible consumption and production, climate action, life below water, life on land, and partnerships for the goals.

Certainly, the museum's progress in positioning itself more strongly on these issues is the result of numerous collaborations with organizations, foundations, NGOs, academic institutions, companies, the Red ViVa de Museos*, and other public institutions.

* *Red ViVa de Museos* is an association of museums located in Viña del Mar and Valparaíso. It aims to serve as a platform for the promotion of the following institutions: Museo Marítimo Nacional, Casa Mirador de Lukas, Museo de Historia Natural de Valparaíso, Artequin Viña del Mar, Museo de Bellas Artes de Valparaíso, Museo Fonck, Museo de Artes Decorativas Palacio Rioja, and Museo Histórico de Placilla.

In the following chapters, we present the Environmental Management Plan and its results, which demonstrate both significant progress and the achievement of increasingly ambitious goals. This is reflected in the museum's attainment of the Intermediate Level of Accreditation earlier this year, a milestone that will allow us, in the near future, to apply for the Excellence Level of Accreditation under the *Oficina Verde* program (formerly known as *Green State*) of the Ministry of the Environment.

Finally, we highlight some of the activities and events focused on local and global issues, such as *Refugio Climático Urbano*, *Museo se viste Sostenible*, *Perspectiva de Equidad de Género*, *Día de los Patrimonios*, *Concurso Escolar de Innovación*, *Ciencia y Tecnología*, *Taller Internacional SPLOSH*, among others. These initiatives aim to disseminate essential information and provide tools for adapting and living in a more balanced and harmonious way with our planet.

Finally, we released public access to the second edition of *Sustainability Memories* on World Environment Day, aiming to make its digital format easy to share and download. Through its reach, impact, and distribution, we hope to help drive the meaningful changes our planet urgently needs.

We Are Museum

The Valparaíso Museum of Natural History is a public institution owned by the National Monuments Council and linked to the Chilean government through the Ministry of Culture, Arts, and Heritage.

From a local perspective, the museum is affiliated with the Valparaíso Regional Office of the same council, located in the Palacio Lyon, a building declared a National Monument in 1979. The institution holds an important collection of approximately 80,000 museological items related to natural sciences, history, archaeology, and anthropology.

Mission

To preserve, research, and share our national heritage—from both biological and cultural perspectives, promoting positive change in public awareness, care, and protection. Our work aligns with international agreements on the management and protection of biodiversity, ensuring the proper safeguarding of regional flora and fauna, as well as the archaeological and historical legacy of Valparaíso.

We also serve as a Legal Deposit and official entity in the Valparaíso Region, safeguarding heritage items originating from discoveries, archaeological sites, or donations resulting from administrative and legal mandates, in accordance with National Monument legislation².

Vision

To work towards a sustainable museum, fostering a supportive and inclusive spirit within the community, and acting as an intermediary between government cultural and social policies. We aim to share the value of our cultural and natural national heritage by promoting research, conservation, and its educational dissemination.

During 2023, the Museo de Historia Natural de Valparaíso was composed of a team of 25 public servants, organized into 10 work areas: Management Administrative Area (Secretariat and Document Management), Operations, Department of Scientific

² Law N°17.288 (February 4, 1970), which regulates National Monuments. Issued by the Ministry of Public Education.

research, Environmental Management Area, Education, MuseumLAB–Learning Department (formerly MuseoLAB-Aprendizaje), John Juger Silver Scientific Library, Communications and Outreach, and Security and Surveillance.

Under the leadership of Director Sergio Quiroz Jara, a new space was created during this period, dedicated to learning and experimentation in various scientific disciplines: MuseumLAB–Learning. This area offers access to an extensive bibliography, including specialized works in science, heritage collections, and publications suitable for both academic research and public distribution, aimed at researchers and the general public.

MuseumLAB–Learning seeks to build a network for the exchange of knowledge with educational, scientific, artistic, and/or cultural institutions in the region. Its goal is to facilitate public access and equitable use of materials and spaces, as well as participation in the various activities carried out, always recognizing community needs and promoting inclusive engagement.

Areas and Departments

- Environmental Management Area
- Document Management Secretariat
- Department of Science and Research
- Museum LAB
- Education Department
- Communication and Outreach
- Operations Area
- Security and Surveillance
- Scientific Library Section
- Directorate

For the Museo de Historia Natural de Valparaíso and its various teams, the continuous integration of environmental considerations into internal processes has been fundamental. A key milestone in this effort has been the creation of our Environmental Self-Management Policy, which provides guidelines for all institutional activities, ensuring its application from the earliest stages of project development through to implementation and evaluation.

Additionally, the use of the Dragon Dreaming methodology³, which involves dreaming, planning, doing, and celebrating, implemented in various workshops, has shown that collaboration is essential for the successful development of processes. It also highlights the importance of generating mutual benefits, both among participants and in relation to the surrounding environment.

Among the various actions implemented by the teams to promote a sustainable value chain, the following stand out:

Procurement decisions consider the product life cycle, paying attention to energy efficiency labeling, types of materials, product durability, final disposal of supplies, and prioritizing local businesses. This approach aims to foster a circular economy and reduce the carbon footprint associated with transportation.

In some public tender processes for service providers, it is explicitly stated in the requirements that sustainable actions must be carried out. These are expected to generate a positive impact on environmental, social, and/or economic aspects, thereby expanding ethical practices into a new sphere of institutional management.

In some tender processes for companies applying to provider services, it is explicitly expressed within the requirements that sustainable actions should be carried out, promoting a positive impact on the environmental, social, and/or economical aspect, which expands the ethical practices to a new management ring.

Another fundamental aspect of the museum team's approach is that every time a new activity, workshop, or project is developed, the different areas and departments promote waste reduction, recycling, and material reuse. They also encourage the consumption of healthy foods and the support of local entrepreneurs during coffee breaks and similar instances.

Despite existing limitations in public institutions, there remains a long road ahead and numerous actions to optimize. Therefore, all members of the museum team are invited to move forward synchronously and harmoniously. In doing so, they will be better equipped to rebuild and adapt in the face of challenges and obstacles—and ultimately, to achieve results that benefit not only the museum's work but also the community and the environment.

³ Dragon Dreaming Metodology. Available online at <https://dragondreaming.org/> [Access date: 08.04.2024].

Sustainable Development “Working Toward a Sustainable Museum”

We often hear two concepts that may sound similar but whose meanings are not equivalent: Sustainable development or Sustainability?

Our vision of sustainability is the process through which natural resources are preserved, conserved, and protected for the benefit of present and future generations, without necessarily considering the social, political and cultural needs of humankind. The key difference lies in the word “development”. Sustainable development takes into account the economic, social, and cultural diversity of human needs while also ensuring a healthy environment for our generation, without compromising the ability of future generations to meet their own needs.

In line with this vision, the institution has adopted and upheld the motto ‘Working Toward a Sustainable Museum,’ which faithfully reflects the range of actions and practices implemented in the short, medium, and/or long term. These efforts aim to leave a meaningful legacy and a clearly defined path for future generations of museum professional, encouraging them to continue working with a comprehensive, evolving, and challenging mindset. This internal commitment also seeks to inspire other institutions within the National Cultural Heritage Service, while actively engaging the diverse communities and audiences that visit us throughout the year.

These ongoing challenges inspire us to become a model platform within the territory we inhabit.

The Museum and the Sustainable Development Goals

The climate crisis is real and already upon us. We are witnessing several consequences that are clearly visible in different ecosystems, which have experienced sustained temperature rises, more frequent heatwaves, rising ocean wave heights, food insecurity due to changes in land use, and, consequently, forced migrations, among other impacts. These changes have undoubtedly threatened endemic and native species, affecting the quality of life of communities that are part of the Chile’s central biodiversity regions.

As a museum, we firmly believe that public spaces must play a role in supporting the 17 Sustainable Development Goals (SDGs), promoted by the United Nations (UN)⁴, which aim to address the most urgent global challenges and to foster a more prosperous, equitable, and sustainable world for future generations.

Pillars of Sustainable Development

Below, there is a detailed outline of the Sustainable Development Goals (SDGs) in which the museum carries out actions with direct and indirect impact.

4.7 By 2030, ensure that all students acquire the theoretical and practical knowledge needed to promote sustainable development through education for sustainable development and sustainable lifestyles, universal human rights, gender equality, the promotion of peace and a non-violent culture, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development, among other things.

11.4 Increase efforts to protect and preserve the world's cultural and natural heritage.

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, and the management of municipal and other types of waste.

11.7 By 2030, provide universal access to safe, inclusive, and accessible green and public spaces, particularly for women and children, older people, and persons with disabilities.

11.b Substantially increase the number of cities and human settlements that adopt and implement integrated policies and plans aimed at promoting inclusion, efficient use of resources, climate change mitigation, adaptation, and resilience to disasters. Also, develop and implement holistic disaster risk management in line with the Sendai Framework for Disaster Risk Reduction 2015-2030.

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse.

⁴ Sustainable Development Goals, United Nations. Available online: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
[Accessed on: August 4, 2024]

12.7 Promote sustainable public procurement practices, in accordance with national policies and priorities.

12.a Support developing countries in strengthening their scientific and technological capacities to move toward more sustainable patterns of consumption and production.

13.2 Incorporate climate change measures into national policies, strategies, and planning.

13.3 Improve education, awareness-raising, and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning.

14.2 By 2030, ensure the sustainable management and protection of coastal and marine ecosystems to avoid significant adverse impacts, while strengthening their resilience and taking measures to restore them in order to reestablish ocean health and productivity.

14.3 Minimize and address the effects of ocean acidification, including through enhanced scientific cooperation at all levels.

15.2 By 2030, promote the sustainable management of all types of forests, to put an end to deforestation, restore degraded forests, and increase afforestation and reforestation globally.

15.4 By 2030, ensure the conservation of mountain ecosystems, including their biological diversity, in order to enhance their capacity to provide essential benefits for sustainable development.

17.16 Strengthen the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and exchange knowledge, technology, and financial resources to support the achievement of the Sustainable Development Goals in all countries, particularly developing countries.

17.17 Encourage and promote effective partnerships in the public institutions, the public-private sector, and civil society, drawing on the experience and resource mobilization strategies of successful collaborations.

The museum promotes a variety of actions which respond directly and indirectly to the 17 SDGs, generating both internal and external impact.

The following are some activities carried out by the institution during 2023 that contribute to the SDGs.

First, in relation to the Goal 4: Quality Education, it is important to highlight the work led by the Education Department team through workshops, educational talks, thematic tours, and guided educational interactions. These activities aim to encourage citizen participation and reflection, with content related to natural and cultural heritage from a socio-environmental perspective. The objective is to foster positive changes in people's perception, appreciation, and protection of their environment.

Furthermore, the museum emphasizes the incorporation of content and corresponding workshops associated with the marine environment, underwater heritage, local historic heritage, and reading promotion, approached from an educational perspective as a tool for scientific and heritage dissemination. These activities target both school and non-school groups and adopt a cross-cutting and inclusive approach to accommodate the diverse audiences that visit the museum: early childhood, elementary school, high school students, undergraduate, and postgraduate students, senior citizens, and members of diverse communities, including people who are blind, deaf, have intellectual disabilities, ADHD, or autism. Finally, it is important to emphasize that each activity was designed in line with the permanent exhibition and the collections safeguarded by the museum, as well as with the 2023 editorial *Ciencia y colecciones*.

In relation with the 11th goal "Sustainable Cities and Communities", it is essential to highlight the educational mediations carried out by the Education Department and other areas of the museum through the permanent exhibition titled "Biodiversity of The Valparaíso Region", which presents the natural heritage of the territory, its geographic characteristics, and the diversity of habitats including flora, fauna, and fungi. Moreover, numerous activities were carried out throughout the year to highlight or specifically address certain topics, making knowledge more accessible and promoting care and protection. These activities included: Wetlands Day, Whale Day, Ocean Day, Recycling Day, among others, with a focus on safeguarding cultural heritage. Specifically, in May, within the framework of Cultural Heritage Day, activities such as book fairs featuring local and central region publishers were held. In September, a discussion panel and photography exhibition were organized for "Traditional Chilean Circus Day." Throughout the year, temporary exhibitions were also showcased, including: *Bailes Chinos of Aconcagua* (a traditional religious dance in Chilean culture) and *Hablemos de lo Nuestro*, a project developed by the museum to honor the past and the experiences of older adults through the analysis of memories and tangible objects, delving into the themes of memory and shared experiences.

Another project aligned with the 11th goal about "Sustainable Cities and Communities" was *Plaza Verde entre muros*, an initiative launched by the museum, created in 2022, which continued in 2023. This project aimed to transform the museum's

courtyard into an ecosystem open to the community, featuring green areas, native plants to attract insects and bird species, and the development of workshops ranging from arts to science, all within a recreational, wellness-oriented, and restful environment.

Additionally, in December, within the framework of the *Programa Estado Verde*, the museum became the first institution under the jurisdiction of the *Dirección Regional de Valparaíso del Servicio Nacional del Patrimonio Cultural* to commit to addressing climate change and declares itself as a “Public Climate Shelter”, a safe and freely accessible space designed to protect the community from adverse climatic events that could cause dehydration and fatigue during days of high temperature.

As part of the 11th goal about “Sustainable Cities and Communities” and 12th goal, “Sustainable Consumption and Production”, the museum implements on-site waste management, classifying materials through a recycling station and enabling the ongoing reuse of PET1, HDPE and PP5 Plastics, small electronic waste, clothing, and books.

In addition, the museum internally collects and recycles materials such as cardboard, printed paper, used vegetable oil, scrap metal, and other items, helping to reduce the amount of waste sent to the city's landfill.

Likewise, the museum has a sustainable procurement protocol and actively promotes the circular economy, integrating it into its internal practices. Priority is given to local suppliers, local businesses and small businesses when acquiring materials, with the aim of reducing its carbon footprint. Catering services are also selected based on their use of seasonal products that support healthy eating.

It also promotes the development of Science, Technology, and Innovation through a School Competition aimed at elementary school, middle school, and high school students.

This year marked the eighth edition of the competition, with a high number of participants from across Chile. The winning projects have the opportunity to publish their work in the youth science bulletin, which is part of the *Anales* journal. Additionally, Vivian Cordero Peñafiel, head of the library, developed digital tools to facilitate and guide the drafting of scientific texts.

Finally, in relation to the 17th goal “Alliances to achieve goals”, the museum is an institution that continuously expands its territorial networks year after year. It actively engages with various stakeholders, highlighting alliances with educational

institutions, non-governmental organizations, and private sector companies as a way to combine efforts and resources for the benefit of individuals, communities, and the environment.

Annual Environmental Management Plan

After a two-year process of internal and collaborative work between different areas of the institution, the Museo de Historia Natural de Valparaíso was accredited at an intermediate level in the *Programa Estado Verde* supported by the Ministry of the Environment. This recognition highlights the museum as a model for environmental management, being the first state-run museum in Chile, and with the National Service for Cultural Heritage, to achieve this level.

Estado Verde is an environmental self-management strategy that aims to implement environmental care policies and principles, as well as promote resource conservation, within the physical facilities and administrative processes of various public services

Sergio Quiroz, director of the museum, appreciates the institution's sustainable work and paradigm shift.

“After two years of hard work, we created a nationwide opportunity to establish an environmental management area in a museum, as well as the chance to initiate a collaborative process where every employee contributed to the sustainable development (...) changes in habits and a commitment to a novel environmental management policy in the heritage sector were promoted. At the museum, we have adopted a national commitment, based on the United Nations Sustainable Development Goals (SDGs) of the United Nations. This is the beginning of a long road toward achieving excellence. This year, we aim to measure the carbon footprint generated by each of our activities in the museum, as well as continue strengthening collaborative interaction, for example, with the academia and scientists associated in climate action,” he stated.

Considering this background, the museum presents a *Plan de Gestión Ambiental*, which was approved by the Comité Estado Verde. In 2023, various environmental measures were implemented, incorporating social, cultural, and circular economy aspects.

Environmental Aspects

Resources Consumption

Within the museum's consumption operations, we identified three key environmental aspects, each with their own objectives, goals and measures aimed at controlling and/or reducing resource use.

1. Paper Consumption

- Objective: Maintain efficient and responsible use of paper.
- Goals: Ensure that 100% of the paper used comes from sustainable sources - Limit paper use to one ream per year - Incorporate another SERPAT institution into recycling.
- Timeframe: Annual.
- Compliance Status: 100%

2. Energy Consumption

- Objective: Maintain efficient and responsible use of electricity and improve thermal performance in museum facilities.
- Goals: Monitor energy use twice per year - Reduce energy consumption by 10% compared to previous years – Measure energy consumption of at least one temporary exhibition – Install high energy-efficiency air units in offices and scientific library (covering at least six rooms in the Porter building.)
- Timeframe: Annual.
- Compliance Status: 100%

3. Water Consumption

- Objective: Maintain efficient and responsible water consumption.

- Goals: Verify the proper functioning of all equipment in museum buildings and prevent water misuse - Conduct a water study to project summer consumption based on increased visitor numbers - Provide the access to drinking water during heatwaves (Climate Shelter initiative).
- Timeframe: Annual.
- Compliance Status: 100%

Emissions

There are four sources of emission generation within the museum which, like consumption, have their own objectives, goals, and action measures for their control.

1. Waste Generation

- Objective: Value materials by promoting recycling.
- Goals: Raise awareness about the value of waste among the museum team - Conduct three recycling campaigns per year - Coordinate five pick-ups per year for recycling - Quantify waste generated annually and manage its removal once near full capacity - Organize at least one activity on Recycling Day.
- Timeframe: Annual.
- Compliance Status: 100%

2. Includes decommissioned real estate management

- Objective: Avoid waste generation and extend the life cycle of materials or artifacts in decommissioned real estate.
- Goals: Manage at least one donation of decommissioned real estate - Ensure that decommissioned assets are recycled and not destroyed.
- Timeframe: Annual.
- Compliance Status: 100%

3. **Transport Gas Emissions**

- Objective: Reduce the carbon footprint and promote practices related to physical well-being and mental health.
- Goals: Maintain a bicycle parking area for museum employees and external staff attending meetings - Design at least one informative poster and distribute it to the museum team.
- Timeframe: Annual.
- Compliance Status: 100%

4. **Huella Chile (Carbon Footprint)**

- Objective: Implement carbon footprint measurement.
- Goals: Quantify the 2022 carbon footprint through Huella Chile platform.
- Timeframe: Annual.
- Compliance Status: 100%

5. **Noise Generation**

- Objective: Implementation actions to prevent noise exposure that could cause occupational diseases in employees.
- Goals: Conduct at least one noise measurement in the science lab.
- Timeframe: Annual.
- Compliance Status: 100%

Sustainability

Sustainability is an essential pillar in the administrative and functional management implemented by the museum, this is why objectives and goals are identified and established for five aspects to control and promote sustainability.

1. Internal Policy on Environmental Self-management

- Objective: Ensure environmental considerations are included in all work processes.
- Goals: Implement components of the environmental policy in at least one department or area of the museum - Continuously update the Estado Verde banner with relevant information - Keep environmental policy visible on the access screen throughout the year - Disseminate through the museum's sustainability report.
- Timeframe: Annual.
- Compliance: 100%

2. Promote SDGs

- Objective: Identify Sustainable Development Goals (SDGs) that are developed in the museum.
- Goals: Carry out at least 4 activities that respond to climate action or are related to the identified SDGs.
- Timeframe: Annual.
- Compliance: 100%

3. Community

- Objective: Promote the permanent valorization of natural and cultural heritage.
- Goals: Carry out a minimum of two activities outside the museum.
- Timeframe: Annual.
- Compliance: 100%

4. Sustainable Purchasing and Circular Economy

- Objective: Promote sustainable purchasing and the circular economy.
- Goals: Implement the sustainable procurement protocol in at least one museum department - Conduct at least three activities with local businesses to promote the circular economy.- Ensure at least 80% of procurement activities carried

out during the year that avoid the purchase of single-use packaging. – Prevent recyclable and reusable waste from being sent to landfills.

- Timeframe: Annual.
- Compliance: 100%

5. **Environmental Education**

- Objective: Facilitate knowledge and practices related to sustainability.
- Goals: Encourage staff participation in at least four lectures or training sessions per year- Create at least four digital posters or infographics annually.
- Timeframe: Annual.
- Compliance: 100%

6. **Green Infrastructure**

- Objective: Enhance and transform museum spaces into green areas.
- Goals: Carry out an activity that promotes the creation of green areas within the museum.
- Timeframe: Annual.
- Compliance: 100%

7. **Comité Estado Verde**

- Objective: Maintain the formal operation of the *Comité Estado Verde*.
- Goals: Hold at least three meetings per year - Establish democratic decision-making processes with member participation.
- Timeframe: Annual.
- Compliance: 100%

8. Gender Equity Perspective

- Objective: Carry out activities that incorporate gender equity among museum staff in the short, medium and long term.
- Goals: Conduct at least four actions that promote gender equity.
- Timeframe: Annual.
- Compliance: 100%

9. Communication Campaign

- Objective: Keep staff and visitors informed about ongoing processes and upcoming challenges.
- Goals: Carry out a minimum of four actions to raise awareness and promote information on native vulnerable species - Publish at least four updates annually on the MHNV banner and official website.
- Create at least four digital posters or pieces of environmental signage.
- Timeframe: Annual.
- Compliance: 100%

10. Buen Vecino Policy

- Objective: Establish environmental management agreements in the short, medium and long term, aligned with the museum's specific activities.
- Goals: Carry out at least three community-oriented activities linked to the museum's work.
- Timeframe: Annual.
- Compliance: 100%

11. Healthy Life and Workplace Well-Being

- Objective: Facilitate and promote information about a healthy lifestyle during working hours and implement actions that contribute to a positive work environment.

- Goals: Carry out at least one action that promotes healthy living both inside and outside the workplace.
- Timeframe: Annual.
- Compliance: 100%

12. **Public Account on Environmental and Sustainable Materials**

- Objective: Share the museum's actions that had both internal and external impact during 2022.
- Goals: Publish the first sustainability report in a downloadable format – Report on the museum's actions that connect with the community.
- Timeframe: June to October 2023.
- Compliance: 100%

Result Status of The Environmental Management Plan

Hydro Management

During 2023, the museum's *Estado Verde* committee, through its technical coordinator, suggested conducting a study on water use. The condition of public restrooms and the state of faucets and toilets in both buildings were inspected. The study was complemented by an analysis of historical water consumption (bills from previous years) and visitors' statistics, with the goal of generating educational material for public awareness throughout 2024.

The results showed inefficient water use, with several bathroom fixtures not functioning properly.

When comparing 2022 and 2023 water consumption, there was a 68% increase, attributed mainly to poor condition and use of bathroom fixtures, as well as a 97% increase in visitor numbers compared to the previous year.

Therefore, it is concluded that, in 2024, it will be essential to implement actions to improve the condition and usage of sanitaryware, and to provide educational information to both museum staff and visitors about water efficiency and its importance for ecosystems.

Electric Energy Consumption

Since 2022, the museum has implemented a pilot energy efficiency plan, which involves reviewing staff habits through a checklist administered twice a year in the workplace.

The following habits are evaluated using a YES/NO format:

- Hallway lights are left on when no staff are present.
- Office lights are left on when no staff are present.
- Computer screens are left on when no staff are present.
- Electronic devices in the workspace (computer, printer, heater, etc.) are unplugged by employees before leaving.
- Office lights are observed to be on unnecessarily during daylight hours.
- Windows are clean and allow for natural light.
- The central hall lights are observed to remain on, as necessary, depending on the season (autumn, winter, spring, or summer) and environmental conditions such as coastal fog.
- In the kitchen and dining area, electrical appliances (microwave, coffee maker, etc.) are typically unplugged at the end of the workday, with the exception of the refrigerator.

The results of this evaluation indicate the continued need to reinforce responsible and conscious energy habits, specifically, turning off hallways and office lights when not in use, and unplugging kitchen appliances at the end of the day. In the medium term, it is advisable to implement technologies such as motion sensors in hallways to prevent lights from remaining on when no staff are present.

Regarding overall electricity consumption, a significant reduction was observed when comparing the periods 2018–2019 and 2022–2023 (note: no data was collected for 2020 and 2021 due to the pandemic.) In the Porter building, electricity consumption decreased by 34%, and in the Palacio Lyon, the reduction was 54%. Combined, both buildings showed a total reduction of 51% over the same periods.

Waste Management

With the aim of promoting reuse, a circular economy, and a culture of recycling, the museum has established partnerships and sustainable alliances with organizations dedicated to repurposing waste. To facilitate this process, recycling containers have been installed in strategic areas. In this regard, the joint effort and collaborations with EcoAndes, Museo Marítimo Nacional, Green Libros, Asociación Sembra, Entel, and Midas have been crucial.

The types of waste recovered include:

- Plastics: PET 1, HDPE and PP5.
- Textiles: Second-hand clothing
- Electronic waste
- Books in good condition for reuse
- Used vegetable oil
- Printed paper
- Printed documents
- Cardboard
- Wood
- Iron/Scrap metal

In 2023, a total of 914.6 kg of waste was recycled, collected by museum staff and visitors. The breakdown is as follows:

Clothing (11%)

Electronic waste (2%)

Cardboard (9%)

Printed documents (43%) Educational textbooks, magazines, receipts, and brochures.

White printed paper (11%)

PET 1 plastic (7%)

HDPE plastic (7%)

Scrap metal (7%)

Wood (3%)

Iron (1%)

Plastic bottle caps (11%)

Books, brochures, and magazines represented the highest volume of waste received, accounting for 43% of the total. Cardboard and printed materials made up 18%, while PET1, HDPE, and PP5 plastics represented 21%. Textiles accounted for 11%.

Decommissioned Goods

The term “assets” refer to materials acquired for workspaces with government funding, such as office supplies, desks, shelves, chairs, computers, printers, and more.

In response to this issue, and within the framework of sustainability, the museum developed an internal protocol to ensure that items in good condition, but no longer in use, can be reused or donated, thus preventing their destruction and subsequent disposal in landfills.

Thus, some decommissioned assets that were still functional or repairable were donated to Fundación Circo Museo, with the aim of extending their useful life.

In addition, in 2023, numerous non-functional and obsolete electronic devices were written off, with the objective of being properly recycled in 2024.

Carbon Footprint

Since 2021, the museum has carried out actions and implemented measures aimed at reducing its carbon footprint. In 2023, as part of its strategy to advance these efforts, the museum measured the organizational footprint for the year 2022, becoming the first state-run museum in Chile to carry out this important task.

What is the Carbon Footprint?

According to the Ministry of the Environment, the carbon footprint can be defined as: “The set of greenhouse gas emissions produced, either directly or indirectly, by people, organizations, products, events, or geographical regions, expressed in terms of CO2 equivalents. It serves as a useful management tool to understand the practices that are contributing to increasing our emissions, how we can improve them, and how to use these resources more efficiently.”⁵

To carry out this process, the museum’s environmental management officer undertook an initial survey of museums worldwide that had measured their carbon footprint and the strategies they adopted. In a second phase, the museum participated in training sessions from the Huella-Chile⁶ program, an initiative of the Ministry of the Environment that seeks to voluntarily engage both public and private sectors in the climate change mitigation commitments outlined in Chile’s Nationally Determined Contribution (NDC). In the third phase, the inventories were collected to proceed with quantification.

This process included both direct and indirect sources, such as: electricity and water consumption, staff transport and business travel, waste treatment and disposal, surveys on commuting habits, among other variables. Once verified by a third party, this

⁵ Carbon Footprint, Ministry of the Environment. Available online at <https://mma.gob.cl/cambio-climatico/cc-02-7- huella-de-carbono/> [Accessed 10.04.2024].

⁶ HuellaChile Program, a carbon management program of the Ministry of the Environment. Available online at https://huellachile.mma.gob.cl/wp-content/uploads/2022/04/HChile_Procedimiento-Resumen_20220404.pdf [Accessed 10.04.2024].

measurement will: enable the museum to apply for the Sello de Cuantificación de Huella Chile, support the implementation of further actions to reduce greenhouse gas emissions of (GHG) in the coming years.

Finally, the museum concludes that it is essential to continue promoting measures aligned with this effort, including: efficient use of electric energy and printing paper, adoption of sustainable workplace habits, organizing recycling campaigns for staff and visitors, and maintaining procurement protocols that prioritize local businesses. Thus, supported by the ongoing review and updates of our environment self-management policy, we will continue along this challenging path, one that has led us to become the first state museum to measure its carbon footprint and plan corresponding actions for the upcoming 2023 and 2024 periods.

Gender and Inclusion Diagnostic

To address the challenges of the 17 Sustainable Development Goals (SDGs), the 2023 Museum Environmental Management Plan included actions not only from an environmental perspective but also incorporating social, circular economy, and cultural dimensions.

Thus, in collaboration with Middlebury College, a university in Vermont, United States, a gender diagnostic survey was conducted to start a permanent work plan to be implemented in the mid and long term.

This first questionnaire provided essential insights into gender dynamics within the museum, allowing civil servants to assess their knowledge of relevant policies and important issues such as harassment and discrimination.

Additionally, open-ended questions were included to encourage participants to share their experiences and thoughts, gathering valuable qualitative feedback. The questionnaire was structured into categories such as training, harassment, and discrimination, salary and promotion, the museum's role as a public service, hiring and resignation, positions of power, and work-life flexibility.

The recommendations derived from the diagnosis focus on:

- Expanding and improving training sessions by increasing their scope and quality, focusing on diversity and inclusion.
- Facilitating accessibility for individuals with disabilities by improving infrastructure and providing adequate training.

- Strengthening the prevention of and response to harassment and discrimination through more effective protocols and by promoting a culture of openness.
- Encouraging spaces for reflection and dialogue within the work community, fostering open conversations and early problem-solving.

“Undoubtedly, the outcomes provide a basis that will guide our work, assessing our weaknesses, problems, and successes. We consider this document our first great action, as it sheds light on our previous situation and allows us to create the work plan henceforth.” Sergio Quiroz Jara, MHNV director.

Environmental Management Plan Activities and Community Engagement

Among the environmental activities carried out in 2023, in alignment with the goals of the Annual Environmental Management Plan, there was significant community engagement. Notable actions included the improvement of the museum building by incorporating features as a “climate shelter”, and the initiative titled *Museo se viste sostenible: promoviendo la economía circular local desde una mirada consciente y responsable*, along with other environmental efforts developed throughout the year to raise environmental awareness, as detailed below.

Building Improvement: Climate Shelter

To enhance the public service area and preserve the museum’s collections, in October 2023, the Museo de Historia Natural was awarded the project: *Mantenimiento y Reparación de las Cubiertas del Museo de Historia Natural de Valparaíso* (Roof Maintenance and Repair of the Museo de Historia Natural de Valparaíso), through the Departamento de Proyectos de Inversión del Servicio Nacional del Patrimonio Cultural (Investment Projects Department of the Chilean Cultural Heritage Service.)

Previously, the museum faced significant issues with its roof, suffering from rainwater leaks into the interior. According to the museum’s curatorial and scientific staff, “the museum showed considerable deterioration of the collections due to the humidity generated, causing irreparable loss of heritage assets of high scientific value.”

For this reason, the management efforts led by the museum’s professionals to take responsibility for the project generated great satisfaction and pride within the team. This is because most of the exhibited collections are part of the legal deposit that preserves and protects important pieces under Chilean National Monuments Law (Law N° 17.288). Indeed, the law protects valuable archaeological, ethnographic, textile, biological, and bioanthropological collections with significant historical and heritage value.

The project included various improvements, such as the repair and maintenance of the roofs throughout Palacio Lyon, the replacement of gutters, and the repainting of the facades of both the Palacio Lyon and Carlos Porter buildings. Additionally, the modernization of windows with UV filters in the central hall “Nina Ovalle” was carried out. These measures aim to protect the collections displayed in temporary exhibitions, regulate the hall’s temperature to meet conservation requirements, maintain optimal climatic conditions to preserve the collections, and ensure the comfort and well-being of visitors.

As part of this renovation, the museum also took on the important mission of protecting the community from extreme weather events that may cause dehydration and fatigue during high-temperature days. Thus, the museum embraced the role of becoming an Urban Climate Shelter.

What is a Climate Shelter?

A climate shelter is a natural or urban area designed to protect different species—including humans—during adverse weather events, such as high temperatures, water scarcity, or heavy rainfall.

In recent years, it has become evident that the occurrence of heat waves has increased significantly over the past century worldwide. This rise poses serious threats to human health, agriculture, and the natural environment. In Chile specifically, during the last decade, the number of heat wave events has surged. In the central-southern zone, up to 50 heat waves were recorded between 2020 and 2021, with absolute maximum temperatures ranging from 86°F to 98.6°F. Meanwhile, in the southern zone⁷, 49 heat waves were recorded between 2021 and 2022, with the highest temperature during a heat wave reaching 92.48°F.

⁷ Annual Report on Climate Trends in Chile, 2022, Chilean Meteorological Directorate (DMC).

What is a Heat Wave?

A heat wave is an event in which temperatures exceed an extreme threshold for several consecutive days. These events can have serious effects on human health, particularly for vulnerable populations, and may also trigger severe environmental emergencies.

On the other hand, urban heat islands are characterized by a rise in temperature at the city's core. This phenomenon is caused by the concentration of buildings, infrastructure, asphalt surfaces, polluting transportation, and atmospheric pollution. In turn, global warming intensifies the effect of heat islands, turning some cities into increasingly uninhabitable places during the summer months⁸.

Museum as an Urban Climate Shelter

The Museo de Historia Natural de Valparaíso is not immune to the climate crisis, the presence of the El Niño phenomenon, and the potential heat waves that occur each summer. In fact, the museum is distinguished by its solid infrastructure, which includes spacious areas and high ceilings, features that contribute to a lower indoor heat index compared to outdoor conditions.

As an urban climate shelter, the museum offers visitors a place to take refuge from high temperatures, refill bottles with fresh drinking water, and explore the various permanent and temporary exhibitions that have been prepared for the community. Additionally, as part of its outreach and community engagement efforts, the museum has used its communication platforms and social media to provide educational content and preventive tips to help the public better prepare for forecasted heat waves during the summer:

1. Stay hydrated constantly and always carry a reusable water bottle.
2. Use high-protection sunscreen (SPF 50+) and reapply at least every two hours.
3. Avoid outdoor activities during peak temperature hours.
4. Wear lightweight clothing that covers a large portion of the skin.

⁸ Technical Report – *Heat Waves in Chile: A New Methodology for the Study and Monitoring of High-Temperature Events*, 2020, Meteorological Service of Chile.

5. Opt for light, balanced, and fresh meals, and include fruits and vegetables in your daily diet to help replace salt lost through sweating.

In this way, as a museum, we believe it is essential that other public spaces join the initiative and declare themselves Urban Climate Shelters, especially considering that Valparaíso lacks green areas and trees, which are crucial for reducing extreme temperatures.

The Museum Dresses Sustainably

Promoting the Local Circular Economy from a Conscious and Responsible Perspective

The Museo de Historia Natural de Valparaíso is currently the only institution within the Cultural Heritage Service, with presence from Arica and Parinacota to Magallanes, that has a specialized environmental management area. Thanks to this area, and following its integration into the Green State program, the museum conducted a diagnostic assessment that led to the creation of an Environmental Self-Management Policy in 2021, as well as an Environmental Management Plan with ongoing measures and goals since then.

This chapter will explore the various sustainable activities promoted by the museum over the past year, considering social, environmental, cultural, circular economy, and local entrepreneurship aspects.

Undoubtedly, the museum has made significant progress in identifying and recognizing new issues that must be urgently addressed, given the current global context.

In this light, in January 2023, the museum hosted an unprecedented event in the Valparaíso Region: “Museo se viste Sostenible” (“The Museum Gets Dressed Sustainably”), aimed at promoting and disseminating the work of national creators and entrepreneurs, with a focus on the sustainable development of their products and their contribution to the circular economy.

Organized by the museum, the event was made possible thanks to the collaboration and sponsorship of various individuals and institutions who believed in the urgency of such an initiative. Together, they helped shape a program that included several key components: a local entrepreneurship fair, a panel discussion on sustainable fashion and the circular economy, and a fashion show featuring national designers.

Local Entrepreneurship Fair

With the goal of promoting the local and circular economy while encouraging a more responsible and conscious approach to fashion consumption, “Museo se viste Sostenible” included a fair featuring 10 local enterprises, brought together by RetroCicla, a leading organization in the region. Founded and led by five women since 2021, RetroCicla connects various stakeholders working in circular fashion.

Among the featured ventures were: Eco Creative Arte, Textilera Indumentaria, Veso Upcycling, Vitaglamour, Precaria Textil, Espacio Zive, Pirinini, Mantel Vintage, Küi Taller de Artes, Farfiore Designs, and La Reparadora, which specializes in clothing repair, transformation, garment adjustments, and upcycling.

Panel Discussion

The event also included a panel discussion titled “The Social and Environmental Impact of the Textile Industry”, featuring speakers with extensive experience in environmental and social issues, circular fashion, and fair labor practices in garment production.

The panel discussion was composed by Sofia Calvo, journalist and director of *Quinta Trends*; Bastian Díaz, representative of the *Cámara Diseña Sustentable*; Sofia Lillo, from the sustainable fashion brand *Pagana Moda Circular*; and Erick Sepúlveda, social director of *R-acciona*, an organization that manages recyclable and construction waste. The discussion focused on the textile challenges specific to Chile and the complex dynamics of the global fashion industry. Topics included the import of industrial clothing produced in countries like Bangladesh, China, India, and Turkey—often under inadequate working conditions. The panel inevitably recalled the 2013 tragedy at the Rana Plaza industrial complex in Bangladesh, where 1,134 workers, mostly women and children, lost their lives. This incident remains a stark reminder of the human cost behind fast fashion and the urgent need for ethical reform. In this way, the panel shared experiences and perspectives to propose changes in consumer habits and

regulations in the textile industry. The discussion highlighted the need to address the labor and sanitary conditions of workers across the production chain, as well as the importance of quantifying and reducing the carbon footprint in the final stages of clothing production and disposal.

“We must invite people to question themselves and look into their wardrobes—everything they own—and understand the immense human, environmental, and economic resources involved. We need to start reflecting on how much use we give these resources, and how we can maximize their value,” said trend journalist and panelist Sofía Calvo, from Quinta Trends.

Sustainable Runway

The runway show took place in the museum’s central hall, “Nina Ovalle Escobar”, beneath the impressive skeleton of Minke the Whale, and was attended by more than a hundred people, who enjoyed the innovative designs presented by 32 models. The first collection was by Pagana, a circular fashion project led by women. The collection showcased two lines: one featuring upcycled garments made from repurposed denim, and another newly manufactured collection made with Lycra obtained from recycled PET bottles collected from the sea.

Next was renowned designer Juana Díaz, celebrated for pioneering a unique technique of deconstructing and reconstructing garments. Her collection featured avant-garde pieces that reflect her signature style, rooted in autochthonous and cultural heritage. She was followed by sustainable fashion designer Cris Miranda, finalist of the 2022 Redress Design Award, who presented collections made from recycled clothing. His work embodies circular production, positioning his creations as both sustainable and self-sustaining, with the goal of raising awareness about conscious consumption in Chile.

The event concluded with a collection from Ente Upcycling, a conscious fashion brand founded by designer Sebastián Román. His pieces stood out for their exclusivity and unique identity, where each garment invites the wearer to assign their own personal meaning. His designs aim to repair the harm caused by the textile industry, promoting a new way of consuming fashion—one that embraces fair, transparent processes rooted in social and environmental awareness.

Also featured was Anona, a footwear company that uses organic and repurposed materials. Their shoes complemented the runway looks of several designers, including Cris Miranda, Pagana, and Ente Upcycling.

The success of the show and its production was made possible thanks to the collective efforts of many individuals and institutions, whose support and collaboration we deeply appreciate:

- RetroCicla
- Pamela Díaz Caro Modeling School and its director, Roberto Coloma
- ERA Sustentable
- University of Valparaíso, through its Environment and Sustainability Unit (UMAS) and volunteer students from the International Business Engineering program
- AIEP Professional Institute, through its team of makeup artists
- Bidalkalin, bottled water from Limache, Valparaíso
- Circo Museo Foundation
- Eco Andes, recycling company
- Nicolás Stark Noé, for audiovisual support and promotion of the event
- Juan Morales, Tomás Pizarro, Rodrigo Prieto Díaz, Bárbara Núñez, and René Sierra, for their photography contributions
- AÓNIKEN, and DJs Aroldo Molina and René Carreño
- Cris Miranda and their production and modeling team
- Anona, for providing walnut-based footwear for the sustainable fashion show
- Pagana and their professional team
- Juana Díaz, designer and textile artist
- Telas del Futuro, and their assistant Lorena Lara
- Ente Upcycling, and their collaborator Juan Rojas
- Cámara Diseña Sustentable
- R-Acciona
- La Reparadora

“The ecological footprint of a garment is devastating. Today, 2 billion pairs of jeans are sold globally each year. Most of them are made of cotton, a crop that requires enormous amounts of water to grow. Producing just one pair of jeans uses approximately 8,000 liters of water. Additionally, cotton is by far the most polluting crop on Earth—it consumes 25% of the world's insecticides

while occupying only 2.4% of the planet's cultivated land. A single T-shirt requires 140 grams of pesticides and chemical fertilizers, and emits about 5.2 kg of CO₂, equivalent to a 27-kilometer airplane flight⁹.

“For this reason, it is crucial to engage the community not only with the problem but also with actions aimed at mitigating the negative impacts generated by the fashion industry and its consumption,” stated Cinthia Mora, Head of Environmental Management at the Museum. “In this sense, the installation of a textile waste container in the museum is a great contribution, and we hope to continue promoting and strengthening it as part of a broader culture of sustainability.”

Environmental Lecture Series

As part of the celebrations for the 145th anniversary of the Museo de Historia Natural de Valparaíso a series of environmental lectures was held, featuring educational and training sessions led by various experts. The talks focused on key topics such as marine ecosystems, waste management, and climate change.

On Friday, October 6, the lecture “Learning about Fisheries Inspection in Chile: How to Protect and Preserve Species Diversity” was delivered by Nicolás Pérez, a renowned science communicator and marine biologist, currently serving as Head of the Quota Control Unit at the National Fisheries and Aquaculture Service (*Servicio Nacional de Pesca y Acuicultura*).

The following week, on October 13, Aroldo Molina, an environmental engineer and project manager at *Comuna Limpia Quilpué*, gave the talk “Waste Recovery” (*Valorización de los Residuos*).

The cycle concluded with the lecture “Climate Change: A Global Perspective” (*Cambio Climático, una mirada global*), presented by Priscilla Berríos, an environmental engineer and mentor at The Climate Reality Project.

⁹ Roxana Alvarado, Communications Faculty of the Faculty of Communications, University of Chile. Available online at <https://uchile.cl/u182923> [accessed 04/08/2024].

World Energy Efficiency Day

On the eve of the World Energy Efficiency Day (March 5), the Museo de Historia Natural de Valparaíso hosted a special event titled “Presentation of Experiences in Public Service.” This event was attended by key representatives from the energy and heritage sectors, including: Arife Mansur, Seremi (Regional Ministerial Secretary) of Energy for the Valparaíso Region. Salvador Angulo Escuredo, Regional Director of the Valparaíso Heritage Service (*Servicio del Patrimonio de Valparaíso*). Carlos Campos, professional from the Energy Efficiency Division of the Ministry of Energy. Cinthia Mora, Head of Environmental Management at the museum

The conference addressed current and future strategies in public service regarding energy policy, highlighting tools and frameworks to improve energy efficiency in regional public institutions.

Cinthia Mora presented the pioneering work carried out by the museum, detailing the development and implementation of its Environmental Management Policy, the first of its kind in an independently operated museum under the National Cultural Heritage Service (*Servicio Nacional del Patrimonio Cultural*). This initiative led to the museum joining the Green State Program (*Programa Estado Verde*), making it a pilot project in the Valparaíso Region and the first state-run museum in Chile to adopt concrete actions to reduce its carbon footprint.

“It has been an ongoing effort to promote a culture of sustainability within the museum,” she stated. “Environmental factors are integrated into all internal processes—ranging from the procurement of materials, the development of educational workshops and exhibitions, to planning for efficient use of electricity and water. We’ve also implemented internal training programs and ongoing communication to empower our team and embed sustainability into the core of our work.”

World Recycling Day

Since 2005, UNESCO (United Nations Educational, Scientific and Cultural Organization) has declared May 17 as International Recycling Day. The aim is to raise global awareness about the importance of collecting and transforming materials, and their contribution to protecting the environment.

In this context, and in a spirit of collaboration, the museum—together with the local company EcoAndes—held an educational lecture addressing the scope, challenges, and obstacles of recycling. The activity was aimed at the environmental brigade

students of Pablo Neruda School, located in Cerro Bellavista, and included the participation of approximately 20 students from 5th to 8th grade.

For teacher Lorena Arredondo, who leads the science group at Pablo Neruda School, initiatives like this are extremely valuable for the educational community—especially for the students involved in the science workshop—as they help instill a deeper understanding of the importance of recycling.

“It’s not the first time we’ve been here. We’ve often been invited to participate in various activities,” said the teacher. “As a school, we’ve always been eager to take part in opportunities like this. We’ve made an effort to raise awareness among children about waste and recycling.”

Literary donation to “Proyecto Libreleo”

A total of 50 books were donated to the “Libreleo” Project, which is carried out at the Valparaíso Penitentiary Complex. The books were collected from the museum’s recycling point and reutilization program.

The donation was delivered to Lucía Olmedo Durán, representative of Libreleo, who expressed gratitude toward the museum’s management and stated that the books would be added to the women’s module library, with the goal of promoting reading among the participating women.

World Whale Day

World Whale Day is commemorated on February 19. From a historical perspective, it is important to highlight that in 1986, the International Whaling Commission (IWC) banned industrial whaling worldwide, due to the near extinction of several species caused by indiscriminate commercial hunting. In 2008, Chile permanently prohibited the capture of all cetaceans in its territorial waters. Furthermore, all whales in Chile were declared Natural Monuments. The Cetacean Protection Law also designated all Chilean waters as whale sanctuaries, free from hunting activities. Later, specific regulations were added, including rules regarding the direction and speed of vessels approaching marine mammals, the care and observation of their behavior, particularly in the presence of calves, and other important considerations.

In this context, the museum commemorated World Whale Day with the launch of the book *"Los cetáceos y otros mamíferos marinos de Chile, guía ilustrada para la identificación y conservación de especies"*, published by Ediciones Libro Verde, a small publishing house that promotes bibliodiversity through the dissemination of knowledge and shared experiences.

The event also featured a musical performance by local singer-songwriter Leo Chiesa, who presented original compositions about Chilean biodiversity (flora and fauna) and interpreted classic pieces of Latin American folk music.

World Oceans Day

In June, the museum celebrated World Oceans Day by organizing an environmental fair in collaboration with various regional organizations. The event featured board games, audiovisual exhibits, and workshops for audiences of all ages.

Participating organizations included: Jauken, Pitra, Vamos a Volar, Pintarroja, Yaqupacha, Panthalassa, Mar y Ciencia, and Exploradores Marinos, among others.

One of the highlights was the premiere of the documentary *"The Future of the Ocean"*, produced by the Spanish Institute of Oceanography (IEO-CSIC). This audiovisual piece, part of the outreach initiatives of the UN Decade of Ocean Science (2021–2030), showcases the IEO's work in addressing the global challenges outlined by the United Nations.

In addition, Fundación Mar y Ciencia introduced the board game *"Heroínas Oceánicas"* (*Oceanic Heroines*), designed to spark curiosity, creativity, and critical thinking. The game highlights the achievements of women scientists, the protagonists of the game, while educating players about marine ecosystems, conservation, and scientific collaboration.

A Sustainable Museum Open to the Community

Throughout the year, the museum offers inclusive and diverse activities for all audiences—including children, adolescents, adults, seniors, and families. These initiatives are united by a shared goal: to raise awareness about the natural and cultural heritage of the region, promoting a sense of identity and belonging, and inspiring environmental stewardship.

This chapter highlights several of the interdisciplinary initiatives and activities carried out at the museum in 2023, many of which were developed in collaboration with external partners and institutions.

Women's Day Commemoration

In celebration of International Women's Day, the museum hosted a lecture titled “El patriarcado en el patrimonio” (*Patriarchy in Heritage*), led by Paloma Bravo Córdova. She is a feminist geographer with a master's degree in heritage, a member of the Asociación de Geógrafas Feministas de Chile, and currently serves as Head of the Development and Monitoring Section in the Protected Areas Department of the CONAF Regional Office.

Her presentation examined the concept of heritage in public spaces and the historical roles assigned to women. The discussion highlighted how the feminine image has been culturally constructed around notions of care, emotion, motherhood, and muse-like inspiration, whereas masculine roles are often associated with leadership, labor, war, and power.

One of the main takeaways from the session was the need to redefine monuments in collaboration with communities, aiming for inclusivity and gender parity in how we represent historical and cultural narratives.

“The cultural construction we create around men and women based on sex not only reveals our differences—which exist, as all human beings are different—but also results in social inequality. And this inequality becomes normalized. Throughout life, we absorb messages, behaviors, and language that shape this inequality into something we accept as natural. These patterns are so deeply rooted that they are difficult to dismantle, at least in the short term. We inherit them and, in doing so, become vectors for inequality, reproducing and sustaining it—often unconsciously—even before we are born¹⁰.”

National Circus Day

At the beginning of 2022, Chilean traditional circus received a significant cultural acknowledgment by being officially included in the Inventory of Intangible Cultural Heritage. This recognition, granted unanimously by the National Council of Culture, Arts, and Heritage, celebrates over 200 years of circus tradition in Chile, emphasizing its unique identity, aesthetic, and its itinerant nature, which allows it to reach even the most remote parts of the country.

¹⁰ Gender focus in museums: An exploratory study in museums of Chile, 2020, National Service for Cultural Heritage.

In this context, the Museo de Historia Natural de Valparaíso, in collaboration with the CircoMuseo Foundation, organized a roundtable discussion titled: “El Circo Chileno: Tradición, Cultura y Patrimonio” (Chilean Circus: Tradition, Culture, and Heritage). The event focused on the cultural and historical value of the circus as a deeply rooted artistic expression across Chile.

Panelists included:

- Pancho Bermejo – Photographer, filmmaker, and cultural manager, who shared his works “*Circo Hoy*” and “*El Circo en Rapa Nui*”.
- Luna Meza – Representative of the National Service for Cultural Heritage, and Regional Manager of Intangible Cultural Heritage in Valparaíso.
- Germán Aguirre – Founder of Golden Circus, and international representative of the Chilean circus.

Heritage Day

On Cultural Heritage Day, the Museo de Historia Natural de Valparaíso hosted the 4th Edition of the Book Fair, which this year focused on the scientific nature of the featured publications and research. The event served as a platform to recognize the critical role of science in understanding and preserving natural and cultural heritage.

Participating organizations included: Editorial RIL, Fungi Foundation, Libro Verde Bookstore, Ciencia Al Tiro, Aprende con Ciencia, CuentosEconscientes, Mairene Palacios, IlustraVerde. John Juger Silver Scientific Library. Additionally, lectures were held on various topics, including cetaceans and the fungi kingdom, alongside several other initiatives aimed at fostering environmental and scientific awareness.

School Contest of Innovation, Science and Technology

The School Contest of Innovation, Science and Technology celebrated its eighth consecutive year, continuing to promote scientific innovation and technological creativity among children, youth, and educators from the Valparaíso Region and across Chile.

According to its official guidelines, the contest seeks to: “Establish meaningful connections with educational communities across the country, opening this cultural and educational space to contribute to the development of scientific knowledge

through student creativity. It promotes the authentic participation of children, teenagers, and teachers as protagonists of their own learning process, in a significant, real, and transformative context.”

For its 8th edition, all educational institutions nationwide were invited to participate. The contest recognized initiatives that stood out for their scientific and technological innovation, through the design and prototyping of solutions to everyday environmental issues.

A key milestone this year was the creation of the first Youth Scientific Bulletin, featuring the winning projects from both elementary and secondary school categories. This bulletin aims to highlight school-level scientific development and was published as part of Volume 35 of the Annals of the Museo de Historia Natural de Valparaíso.

Documentary Series: *Cruzando Miradas* (Crossing Glances) in collaboration with Insomnia Teatro Condell

“It is of utmost importance to establish ties with our neighbors. We are in a process of sustainability in which the territory and the neighborhood play a vital role in the development of our activities.” Sergio Quiroz, Director of the Museo de Historia Natural de Valparaíso

With this vision, the museum formed a strategic alliance with Insomnia Teatro Condell, launching the “Cruzando Miradas” (Crossing Glances) documentary series. The project integrates film appreciation with interdisciplinary perspectives, fostering dialogue, analysis, and reflection among participants.

Two documentaries were screened as part of this initiative: *“Memorias de los árboles: La princesa invisible”* (Memories of the Trees: The Invisible Princess) by Santiago Serrano, *“Mi último Kajef”* (My Last Kajef) by Carlos Reyes and Matías Bravo. Each screening was followed by a discussion panel moderated by experts, providing a space for critical exchange on the themes explored in the films.

Meeting with Andrés Jullian

Nationally renowned scientific and nature illustrator Andrés Jullian, with over 50 years of experience, visited the museum for a special conversation with Director Sergio Quiroz. He shared his journey, travels, and contributions to the field of illustration, particularly in relation to biodiversity and environmental education.

During the session, he discussed his self-publishing process, and generously donated his books: *“Hablan: El lenguaje de los pájaros” (Volumes I & II)* to the John Jugar Silver Scientific Library of the museum.

The event also featured Juan Francisco Bascuñán, a lawyer specialized in environmental law, writer, photographer, and director of Planeta Sostenible. He co-edited the book *“Chile Pájaros”*, a work dedicated to bird species in central and southeastern Chile. Together, the two guests highlighted the importance of producing and disseminating such publications to educate the public and foster biodiversity conservation, especially regarding avian species native to Chile. Together they discussed the importance of creating and spreading these types of content to educate and promote biodiversity conservation, especially regarding birds of the central and southeastern zones of the country. The text was brought by Paloma Gonzales Muños (biologist), accompanied by illustrations by Andrés Julián and photography by Juan Carlos Torres-Mura (biologist, zoologist specialized in vertebrates, and photographer).

“Tarde - Noches de Museos” (Late Nights of Museums) by Red Viva

For more than a decade, RedViva, an association of museums from Valparaíso and Viña del Mar, has celebrated this special day, giving visibility to the educational role of these important institutions through varied and attractive cultural activities.

On this occasion, the Museo de Historia Natural de Valparaíso organized an activity aimed at highlighting Intangible Cultural Heritage through a traditional circus performance staged by the Circo Museo Foundation.

For this new edition, there was a strong focus on environmental awareness and promoting sustainable living. Visitors were invited to bring clean plastic bottles for recycling.

Additionally, museums requested the collection of plastic bottle caps to be brought to each of the participating institutions, as part of their social commitment to support oncological treatments for children.

SPLOSH (Submerged Palaeolandscapes of the Southern Hemisphere) International Workshop

In 2005, a group of researchers from the Universidad de Chile and the Ocean, Heritage and Culture Millennium Nucleus (OHC) found remains of the terrestrial fauna that inhabited the Bay of Quintero 24,000 years ago, at the end of the last Ice Age. Among

the remains, bones were found from Camelidae, Cervidae, Equidae, Mylodontidae, Xenarthra, Canidae, Myocastorinae, and Octodontidae, among many others.

Therefore, the third version of this international SPLOSH workshop was organized by the Ocean, Heritage and Culture (OHC) Millennium Nucleus, with the support of the Museo de Historia Natural de Valparaíso (Submerged Palaeolandscapes of the Southern Hemisphere), from November 2 to 4, 2023.

The event was attended by prominent researchers such as Isabel Cartajena, director of the Ocean, Heritage and Culture Millennium Nucleus; Miguel Cheuquemán, from the Mapuche Territorial Identity Lafkenche Organisation; and Ingrid Ward, director of the SPLOSH network.

Exhibition: *Dinosaurios más allá de la extinción* (Dinosaurs Beyond Extinction)

Around mid-December, the incredible and fascinating temporary exhibition “*Dinosaurios más allá de la extinción*”, from the Museo Nacional de Historia Natural (National Museum of Natural History), arrived in Valparaíso and remained on display until March 2024.

This activity was part of the National Museum of Natural History's national tour and offered a fascinating journey through the history and evolution of dinosaurs, from more than 230 million years ago to their current descendants: birds.

During the months of the exhibition, workshops were held with specialist Pablo Jaramillo, biologist at the Technical Office of the National Monuments Council. He invited the public to discover prehistoric secrets, learn about different species, and immerse themselves in the story of these ancient giants.

Conclusion

In recent years, the museum has made significant progress along the path of sustainability, thanks to the tireless work of its teams. They have evolved from an initial exploratory phase to the present, where—after developing numerous initiatives—they have successfully built a strong foundation for continuous improvement.

Undoubtedly, everything achieved in this second sustainability report has been made possible through the collaborative and coordinated efforts of the museum's human and professional team. They have established valuable partnerships with individuals, organizations, universities, and companies—learning, advancing, and sharing convictions that are aligned with our mission and vision. This collaboration has generated a triple-impact benefit: for individuals, the community, and the environment.

Our sustainability approach includes addressing the 17 Sustainable Development Goals (SDGs), as we believe that, as a public space and Natural History Museum, it is essential to take a positive leadership role on these pressing global issues.

We also encourage the community, our neighboring museums, and other institutions within the National Heritage Service to take concrete actions and measures that benefit future generations and their ecosystems.

In this spirit, and through our Environmental Management Plan (PGA), we implemented various actions and measures with environmental, social, circular economy, and cultural focuses. All the objectives set were achieved, complying both with the PMG Green State System and with existing regulations such as: Law No. 19.300¹¹, Decree No. 148¹², Law No.21.305¹³, Law

¹¹ Law No. 19.300 (March 9, 1994) – *General Environmental Framework Law*, Ministry of the Environment.

¹² Decree No. 148 (June 16, 2004) – *Approves the Sanitary Regulation on the Management of Hazardous Waste*, Ministry of Health.

¹³ Law No. 21.305 (February 13, 2021) – *Law on Energy Efficiency*, Ministry of Energy.

No.21.455¹⁴, and Law No.20.920¹⁵,with the goal of reducing our organizational carbon footprint and minimizing negative environmental impacts.

As a museum, we are very satisfied and proud of our progress and of the pioneering initiatives within the National Cultural Heritage Service (Serpat), which have made us the first state museum in the country to quantify and measure our carbon footprint. This is undoubtedly a major step forward and allows us to continue developing similar reduction efforts. Additionally, in line with this progress, we have prioritized coordinating and managing an ongoing education and training plan for our staff on environmental topics, promoting sustainable practices among collaborators, and organizing educational workshops focused on care, protection, awareness, and reflection for museum visitors.

Finally, as mentioned earlier, this path toward sustainability is always aimed at continuous improvement—and there is still much to be done. What truly matters is that there is conviction, credibility, support, collaboration, and a growing number of public and private organizations joining this alliance.

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Working Toward a Sustainable Museum

In order to promote a culture of sustainability, this publication is available free of charge and in digital format on the Museum's website.

We recommend not printing it to help reduce the use of ink and paper.

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