

ALL THE PATHS THAT LEAD TO THE MUSEUM OF ZOOLOGY OF THE UNIVERSITY OF SÃO PAULO

Maria Isabel Landim, Talita Roell, Márcia Fernandes Lourenço, Felipe Alves Elias,
Rosângela Celina Cavalcante

(Division of Cultural Diffusion, Museum of Zoology of the University of São Paulo)

ABSTRACT

What characterizes the role of the Museum of Zoology of the University of São Paulo (MZUSP) in the cultural and educational landscape of São Paulo, and of Brazil, is its Institutional Communication Program, centered on promoting interaction between visitors, the museum's collections, and the university's qualified human resources integrating knowledge production, teaching, and communication in all its activities. The organic engagement among the museum's various divisions has fostered the continuous development of public programs, increasingly connecting its research and teaching activities with its extension and curatorial practices. As a result, the museum offers to its students a comprehensive formative environment that goes beyond academic training and scientific qualification, also encouraging reflection on the role of science in society and of society in science. For visitors, it offers an inviting and inspiring environment, where interaction with the collections mediated by the university community constantly creates opportunities for new discoveries. The communication program encompasses a wide range of activities aimed at diverse audiences and it is always open to new partnerships. The museum seeks to innovate by listening attentively to the communities around it, transforming its own traditions and opening new paths that lead to the museum..

KEYWORDS: Museum of Zoology of the University of São Paulo; University Museums; Museum Communication; Museum Education; University Extension; Biodiversity.

INTRODUCTION

The Museum of Zoology of the University of São Paulo (MZUSP) houses a century-old collection comprising around 13 million specimens. Its focus on Brazilian and Neotropical fauna places it among the major zoological collections of the world, alongside renowned North American and European museums. This traditional São Paulo research institution (Landim 2011) became part of the University of São Paulo in 1969, introducing a new line of evolutionary studies under the direction of Dr. Paulo Emílio Vanzolini, also well known for his musical compositions.

The scientific output of MZUSP stands out within USP, in Brazil, and internationally. Its laboratories undergo constant modernization and expansion, such as the new Museomics Laboratory for ancient DNA extraction, which will enable genetic studies on specimens deposited in the museum long ago. Its computed tomography scanner (CT-Scan) and low-vacuum scanning electron microscope allow minimally invasive examination of rare or unique specimens.

MZUSP is a highly dynamic academic environment and hosts two graduate programs: one in Systematics, Animal Taxonomy, and Biodiversity (STBio), and another Program in Museology (PPGMus), shared among USP's four statutory museums - the Museum of Contemporary Art, the Museum of Archaeology and Ethnology, the Paulista Museum, and the Museum of Zoology. As a result, the museum has become a transdisciplinary unit, where students and professionals from the biological sciences work and interact with those from the humanities. University outreach is an integral part of both student training and the professional trajectory of the museum's faculty.

The Scientific Division (DC) encompasses the laboratories and extensive collections devoted to biodiversity research with a focus on zoology. The Division of Cultural Diffusion (DDC), with a collection of about 6,000 specimens, is dedicated to research in museum communication and institutional history, and has as its primary mission to design forms of articulation between the museum's research, teaching, and outreach activities. The establishment of a research line in museology with the creation of the Program in Museology in 2012 represented a major innovation for an institution traditionally linked to the field of biodiversity, engaging it in critical reflection on contemporary social issues concerning museums.

The Division of Cultural Diffusion is responsible for coordinating the museum's Institutional Communication Program (PCI), its conception, participatory implementation, and periodic updates. The DDC team includes a professor with PhD in Zoology and specialized in museum communication, an educator with a PhD in education, a professional with a master's degree in museology and paleontology, a biologist, a technical specialist in specimen preparation and conservation, and an administrative secretary. Recently, MZUSP was granted a new faculty position under the designation of "merit in culture and extension." An entomologist with pedagogical and outreach experience now reinforces the division's initiatives. This hiring is considered particularly innovative, as it breaks traditional barriers between the museum's divisions by embedding transversality and collaboration within the very structure of the academic career.

Although Brazil is a megadiverse country, it faces severe impacts from climate change, which exacerbate the biodiversity crisis both *in situ* and *ex situ* (Landim 2018). Institutions dedicated to science and culture share a responsibility to produce knowledge and to foster public awareness of conservation, linking scientific research to educational and communicational actions aimed at mobilizing society around the values of biological diversity.

In this regard, MZUSP aligns itself with the principles of the United Nations 2030 Agenda for Sustainable Development, particularly Sustainable Development Goals 4, 13, 14, and 15, which emphasize quality education, climate action, and the protection of life in terrestrial and aquatic ecosystems. The museum thus reaffirms its role in building a sustainable future.

The preservation mission that guides the Museum of Zoology of the University of São Paulo is grounded in the inseparability of teaching, research, and outreach. Only through the qualified articulation of these dimensions can the museum effectively promote the conservation of the natural and scientific heritage under its care.

THE INSTITUTIONAL COMMUNICATION PROGRAM (PCI): A MUSEUM THAT SPEAKS WITH MANY VOICES IN UNISON

The Institutional Communication Program (PCI) of the Museum of Zoology of the University of São Paulo (MZUSP) was established to ensure a coherent institutional discourse across all outreach activities, around shared objectives, while giving voice to its many actors. In defining its foundations, the museum community engaged in a collective reflection on its institutional mission, identity, values, available resources, and its distinguishing features in relation to other institutions of the same nature.

Table 1. Distribution of MZUSP staff by area of activity in 2014 (the year the Institutional Communication Program was first developed) and in 2025..

SECTION	YEAR	2014	2025
Scientific Division (DC)		47 (45%)	42 (52,5%)
Division of Cultural Diffusion (DDC)		6 (6%)	6 (7,5%)
Support Services		51 (49%)	32 (40%)
Total		104 servers	80 servers

The PCI was collectively developed in 2014, when members of the museum came together to redesign its permanent exhibition. The process involved professors, staff members, outsourced professionals, and students, and was coordinated by the Division of Cultural Diffusion (DDC). This participatory effort resulted in a comprehensive institutional vision shared among its members and in a unified program aligned with the museum's mission, values, and most significant resources.

The existence of a collectively developed PCI ensures greater agility in decision-making within the Division of Cultural Diffusion, without the need to consult

multiple collegiate bodies each time new activities are proposed. It guarantees coherence, transparency, and efficiency in all communication actions.

The PCI defines the overall scope of the museum's communication with society, anchored in the long-term exhibition "Biodiversity: Knowing to Preserve", which serves as the program's structural axis. From this central foundation, diverse complementary strategies unfold. The main objective is to establish transversal connections among the activities developed at the museum, prioritizing communication and engagement with society through its collections and research.

Given budgetary constraints and the museum's mission, which prioritizes the collections themselves, the PCI initially opted to avoid the use of technologies likely to become obsolete or costly to maintain over time. As the exhibition is entirely free of charge, the project was designed to be functional and welcoming without placing undue financial burden on the museum's budget.

Thus, the exhibition invites the public on a journey through animal diversity in space and time, presenting the richness of the scientific collections from an integrative perspective. Without resorting to screens or digital media, the museum emphasizes direct contact with real specimens that bear witness to the evolutionary history of life on Earth reinforcing its institutional identity.

The exhibition also highlights the aesthetic and symbolic dimensions of biodiversity, which stimulate visitors' imagination and sensibility. The forms, colors, and life histories of animals inspire cultures, narratives, and technologies, revealing the depth of human relationships with the natural world. Many species carry identity and cultural meanings attributed by different communities, and this multiplicity of values broadens the relevance of natural heritage, reinforcing educational actions dedicated to preservation and to recognizing the many connections between people and nature.

In this way, what began as a budgetary limitation has become an intentional curatorial choice especially in the post-pandemic context of screen saturation: to privilege in-person interactions within the museum.

In addition to the central themes related to biodiversity, the PCI is guided by the concept of "Dynamics", referring both to biodiversity itself and to the museum as an evolving

institution. This concept shapes the tone of the project and its future updates and expansions. The PCI also defines priority audiences (Table 1) and outlines complementary programs to serve them effectively through short, medium, and long-term strategies.

Complementary programs to the permanent exhibition (Table 2) were conceived to enhance and diversify the museum's communication actions, reaching broader audiences despite the challenges of a small team and limited resources, even within a large research and educational institution. Many of these programs evolved from initiatives already in place before the museum's reopening in 2015, while others were—and continue to be—created to respond to new contexts.

Some strategies were easier to implement. For example, the exhibition now includes English translations of the main panels to accommodate the growing number of foreign visitors. Similarly, the museum began its building accessibility project with the installation of a new access ramp. This was a complex step, since, although the building itself is not heritage-listed, it is located within a protected area, and any modification to the façade requires approval by heritage authorities.

Traditional educational activities, previously handled exclusively by the museum's education team, have been reinforced and now form part of an institutional project. These initiatives have gained new collaborators, who helped design and implement actions within the Division of Cultural Diffusion, fostering new partnerships with the Scientific Division.

Other activities that rely on collaboration among faculty, students, and staff have continued to develop over time, as initially envisioned. A recent example of the museum's commitment to transversality in its actions is the creation of a graduate-level course focused on pedagogical training, aimed at preparing students to engage effectively in outreach and extension activities.

The following sections present the museum's main areas of activity, organized into four major strands: *The Museum Welcomes* – activities carried out at MZUSP's headquarters; *The Museum as a School* – how formal education is integrated into the museum's research and extension routines; *The Museum Goes to School* – resources that teachers can request and use in the classroom; and *The Museum Beyond the School* – the museum's virtual and digital outreach dimension.

Chart 1. Main components of the Institutional Communication Program of the USP Zoology Museum – Themes, Generating Concept, Priority Audiences, Strategies.

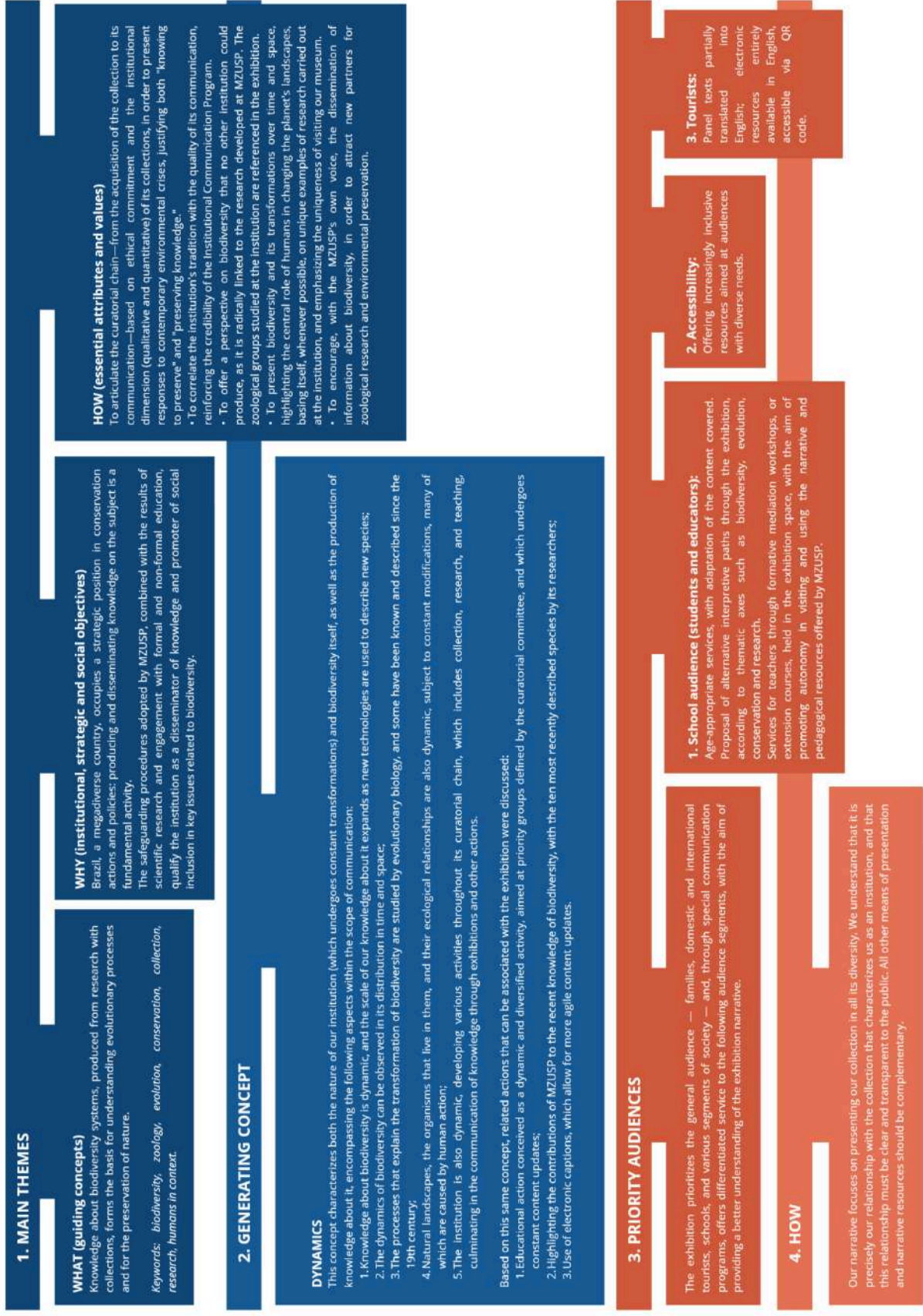


Chart 2. Main complementary communication programs of MZUSP, priority audience and frequency.

ACTIVITY	FORMAT	AUDIENCE	MINISTER	PERIODICITY	PURPOSE
<i>Educational Possibilities at MZUSP</i>	Extension course.	Educators; Cultural agents; Various interested parties.	DDC Team.	2 full editions of 30 hours each; 2 condensed editions of 16 hours each.	To introduce the museum and equip educators to develop independent guided tours and educational projects.
<i>Guided visits</i>	Guided tours of the exhibition and behind-the-scenes access to the museum.	Schools; Universities; Organized groups.	DDC Team; PROIAD fellows.	Tuesdays to Fridays, in 1-hour intervals (exhibitions); and up to 3 hours (backstage areas).	To address the importance of Brazilian biodiversity, as well as the role of museums and their collections in producing knowledge on the subject.
<i>Animal Interaction</i>	Guided workshops, chats with researchers, recreational activities, among others.	All audiences.	DDC Team; PROIAD fellows; Students and staff of MZ; External guests.	Weekends and school holidays. The duration of activities varies.	To promote different forms of dialogue between visitors, the collection, and the researchers at the MZ, encouraging deeper perspectives and engagement with topics related to biodiversity.
<i>The Museum Hunt</i>	Exploratory tour.	All audiences.	DDC Team; PROIAD fellows.	Weekends and school holidays. The duration of activities varies.	Explore the galleries and collection of the MZ from different perspectives, through guided tours and questions.
<i>Topics in Zoology / Infinite Forms</i>	Lectures.	All audiences.	Students and staff of MZ.	Once a month, always on Saturdays, lasting 1 hour and 30 minutes.	To explore zoological diversity and its different manifestations, as well as the research projects developed at the MZ.
<i>MZ 60+</i>	Talks, recreational activities, and guided tours.	60+ audience.	DDC Team.	Once a month, lasting 1 to 2 hours.	To welcome and engage the 60+ audience with the spaces and opportunities offered at MZUSP.
<i>Darwin Day</i>	Lectures, workshops, games, artistic performances, among others.	All audiences.	DDC Team; PROIAD fellows; Students and staff of MZ; External guests.	Once a year, in the month of February. The duration of the activities varies.	To explore the various aspects of evolutionary theory and its connections to current issues.
<i>Education kits loan</i>	Educational materials available for loan.	Educators; Higher Education Students.	DDC Team.	Available year-round. Loan duration is 7 to 10 days.	To provide educators with tools for use in practical classes, science fairs, and other activities.

THE MUSEUM WELCOMES: *EXPERIENCES THAT BRING PEOPLE AND COLLECTIONS TOGETHER*

Exhibitions represent the most visible outcome of the museum communication process. Their diverse formats, permanent, temporary, traveling, virtual, among others correspond to different communication strategies and, consequently, to distinct curatorial approaches. Traditionally, MZUSP has worked with a variety of on-site exhibition formats (Cavalcante, Elias, Landim 2012; Landim and Elias 2012) and has been expanding the scope and potential of its exhibition repertoire.

The FINEP project (2025–2028) titled *ANIMAR – Animals Come Out of the Cabinet: What They Reveal About the History of the Museum of Zoology's Exhibition Collection*, coordinated by the Division of Cultural Diffusion (DDC), is currently aimed at renewing the museum's research equipment and storage facilities, as well as creating smaller galleries that will allow for new formats of temporary exhibitions.

The Museum on Stage: *Ways of Telling, Seeing, Feeling, and Understanding Life*

With a main gallery of approximately 600 m², the long-term exhibition *Biodiversity: Knowing to Preserve*, inaugurated in 2015, offers a concise introduction to the museum's field of research and its intersections with contemporary key issues—climate change, biodiversity loss, zoological research, and the role MZUSP plays in these debates (Fig. 1). We conceived the exhibition as a text filled with “hyperlinks”—each one leading to complementary programs and further exploration.

In the exhibition space, visitors are encouraged to explore and discover. Activities developed by the DDC team promote multiple forms of interaction and learning, turning each visit into a participatory experience. One example we particularly value is *The Museum Hunt*. Within the program *Animal Interaction* (Table 2), this activity presents challenges in the format of a scavenger hunt, inviting visitors to investigate aspects of biological diversity displayed in the museum in a playful and collaborative way through various themes.

It is important to note that *The Museum Hunt* emerged as a direct response to comments recorded in the museum’s visitor book, in which many visitors expressed disappointment at the brevity of their visit and a desire for “more”. Although the exhibition contains a considerable density of information and countless interpretive possibilities, this activity became a quick and low-cost solution—based simply on printed paper and pencils—to offer alternative interpretive routes inspired by the museum’s own suggestions. Such actions spark curiosity, sharpen observation, encourage dialogue between generations, and, most importantly, extend the time visitors spend in the gallery.

Table 1. Staff distribution at MZUSP by area of activity in 2014 (marking the development of the Institutional Communication Program) and in 2025.



Source: Felipe Alves Elias.

Temporary exhibitions serve to continually renew the museum’s space and to address topics not covered in depth in the long-term exhibition. They also create opportunities for special partnerships with the museum’s various laboratories and with external institutions.

In 2023, MZUSP inaugurated a dedicated temporary exhibition gallery, enabling projects that include a greater volume of specimens and more diverse display resources. The first exhibition presented was the result of a partnership with the Ichthyology Laboratory and a FAPESP Thematic Project on electric fishes, titled *The Secret Life of Electric Fishes* (Fig. 2). For this exhibition, MZUSP established a collaboration with the São Paulo Aquarium, which made it possible to present live electric fish within the gallery. The exhibition concluded its run at MZUSP in July 2025, after which it was made available as a virtual tour on the museum's website..

MZUSP also participated in the curatorship of the exhibition *4 in 1 – USP Museums*, which resulted from another FAPESP Thematic Project, *Collecting, Identifying, Processing, and Disseminating: The Curatorial Cycle and the Production of Knowledge*. This exhibition was held at the Museum of Contemporary Art of the University of São Paulo (MAC USP) from May 2023 to February 2024 (Fig. 2).

At present, the museum is producing an exhibition on the Amazon, which seeks to present the lesser-known diversity of animals from that region, telling big stories through small creatures. This project is supported by funding from the USP Rector's Office and involves collaboration among all the museum's laboratories—a coordination effort comparable in complexity to the development of a long-term exhibition.

Guided Visits – *Dialogue with the Public on Stage*

Visits by schools and organized groups represent the second most common form of visitation at MZUSP, surpassed only by spontaneous visits. Scheduled visits are offered in two modalities: guided visits, conducted by an educator from the museum, and self-guided visits, without direct mediation by the educational team.

MZUSP welcomes visitors ranging from elementary school students to university undergraduates, as well as teachers and professionals in training. Guided tours are conducted by the team of the Division of Cultural Diffusion and by interns from USP's Teaching Initiation and Improvement Program (PROIAD) (Fig. 3).

Figure 2. Temporary exhibitions carried out with funding from the São Paulo Research Foundation (FAPESP) under Thematic Research Projects: (A) *The Secret Life of Electric Fishes*; (B) *4 in 1: USP Museums*.



Sources: MZUSP archives.

During the visits, educators address the conceptual axes established in the museum's Institutional Communication Program—biodiversity, evolution, sustainability, and the human presence within this context—tailored to each group's profile. At the end of the visit, various collection objects are presented for hands-on exploration, allowing participants to observe different specimen preparation techniques, key morphological structures, and other relevant aspects.

Animal Interaction – Discovering (in) the Museum: Curiosity as a Path

This activity—one of the most valued initiatives offered at MZUSP—takes place on weekends and during school holidays. It consists of diverse interactive workshops focused on zoological themes. With the renovation of the permanent exhibition in 2015, *Animal Interaction* gained a dedicated space or Discovery Room (Fig. 4), which simulates the organization and activities that take place behind the scenes of the museum. In some cases, workshops are also offered in the auditorium.

Figure 3. Guided visits conducted by interns from the University of São Paulo Program for Initiation and Improvement in Teaching (PROIAD) interns Táríky Meirelles Rocha (A) and Alexandre Marques Oliveira (B).



Source: Márcia Fernandes Lourenço.

The activities are led by the MZUSP team, composed of staff members, students, and postdoctoral researchers. The main goal of *Animal Interaction* is to foster encounters and exchanges of experience between visitors and the museum team through guided observation of collection items. The workshops present techniques and tools used by MZUSP researchers in their daily work, emphasizing the importance of scientific research and the collections, always adapting the content to visitors' interests.

Figure 4. *Animal Interaction Program* in the Discovery Room.



Source: Talita Roell.

Behind-the-Scenes Visits – *Where the Stories of Biodiversity Are Born*

The Behind-the-Scenes Visit program is designed for special groups, ranging from undergraduate students to senior visitors (60+). Its aim is to highlight the importance of collections for research and biodiversity conservation, illustrating aspects of curatorship in natural history museums. Due to the safety protocols required to move through different sections of the museum, these visits are restricted to small groups and are offered primarily to university students and adults.

As participants move through the laboratories and explore part of the collections, they observe ongoing research activities and often have the opportunity to interact directly with researchers, who explain the preparation and conservation of specimens and share the stories of their discoveries (Fig. 5).

Figure 5. Behind-the-Scenes Visit guided by educator Márcia Fernandes Lourenço.



Source: Talita Roell.

Darwin Day – *Celebrating Science, Diversity, and Free Thought*

Celebrations of Charles Darwin’s (1809–1882) ideas and the theory of evolution have taken place—though informally—since the publication of *On the Origin of Species* in 1859. More recently, efforts have been made to establish Darwin’s birthday, February 12, as a symbolic date to celebrate science, secular humanist values, and diversity through public events promoting science education and communication. The first official *Darwin Day Celebration* was held at Stanford University (USA) in 1995. Since then, the movement has grown and spread worldwide.

In 2005, the Museum of Zoology of the University of São Paulo became the first Brazilian institution to incorporate *Darwin Day (Dia de Darwin no MZ)* into its annual calendar. Initiated by a group of graduate students, the celebration soon became part of the museum’s official programming. Since then, MZUSP has hosted dozens of activities—lectures, workshops, plays, musical performances, film screenings, carnival parades, exhibitions, and institutional partnerships (Fig. 6).

Over time, *Darwin Day* at MZUSP expanded: it became the Darwin Week in partnership with the Catavento Cultural and Educational Museum (Fig. 7) in 2012, 2013, and 2014; then the Darwin Month, and eventually, in 2018 and 2025, the Darwin Year! For MZUSP, *Darwin Day* is a particularly meaningful opportunity for interaction between the academic community and museum visitors. The celebration has also enabled collaborations with several other institutions that share its mission.

Figure 6. *Darwin Day*: Activities promoted in partnership. On the left, detail of a display case and artwork promoting the traveling exhibition about Charles Darwin in partnership with the Unicamp Exploratory Science Museum. On the right, artwork and image of the exhibition in partnership with Catavento.



Sources: Unicamp Archive; Catavento Archive.

Figure 7. *Darwin Day*: promotional posters for activities held in 2016, 2017, and 2025.



Source: MZUSP archives.

Program 60+ – The Silver Future: *Reconnecting Knowledge and Generations*

In 2017, Brazil’s Statute of the Elderly included in its Article 25 the following clause: *“Institutions of higher education shall offer older adults, from the perspective of lifelong learning, extension courses and programs—either in-person or online—consisting of formal and non-formal activities,”* in accordance with the rights to education, culture, sports, and leisure (Brazil, 2003).

At the University of São Paulo, the initiative to welcome visitors aged 60 and over began in 1994, with the goal of providing this public with access to new fields of knowledge and cultural participation. The program originally called “University Open to the Third Age” evolved over time and was renamed “USP 60+” in 2020 (USP PRCEU, 2025).

At the Museum of Zoology, several activities are now developed under the USP 60+ Program, including guided exhibition tours and conversation circles. The museum aims to further enhance the participation of older adults, creating spaces for dialogue and diverse experiences, and to this end, it has sought strategic partnerships.

A collaboration with the Nossa Senhora Auxiliadora do Ipiranga Foundation (FUNSAI) led to the creation of the activity “Tea time with Darwin” (Fig. 8), which

introduced this audience to the museum through informal dialogue and conviviality. The activity is now part of the museum’s special programming for the 60+ audience.

Figure 8. Program 60+ “Tea time with Darwin,” in partnership with FUNSAI – promotional post from MZUSP’s Instagram.



Source: MZUSP archives.

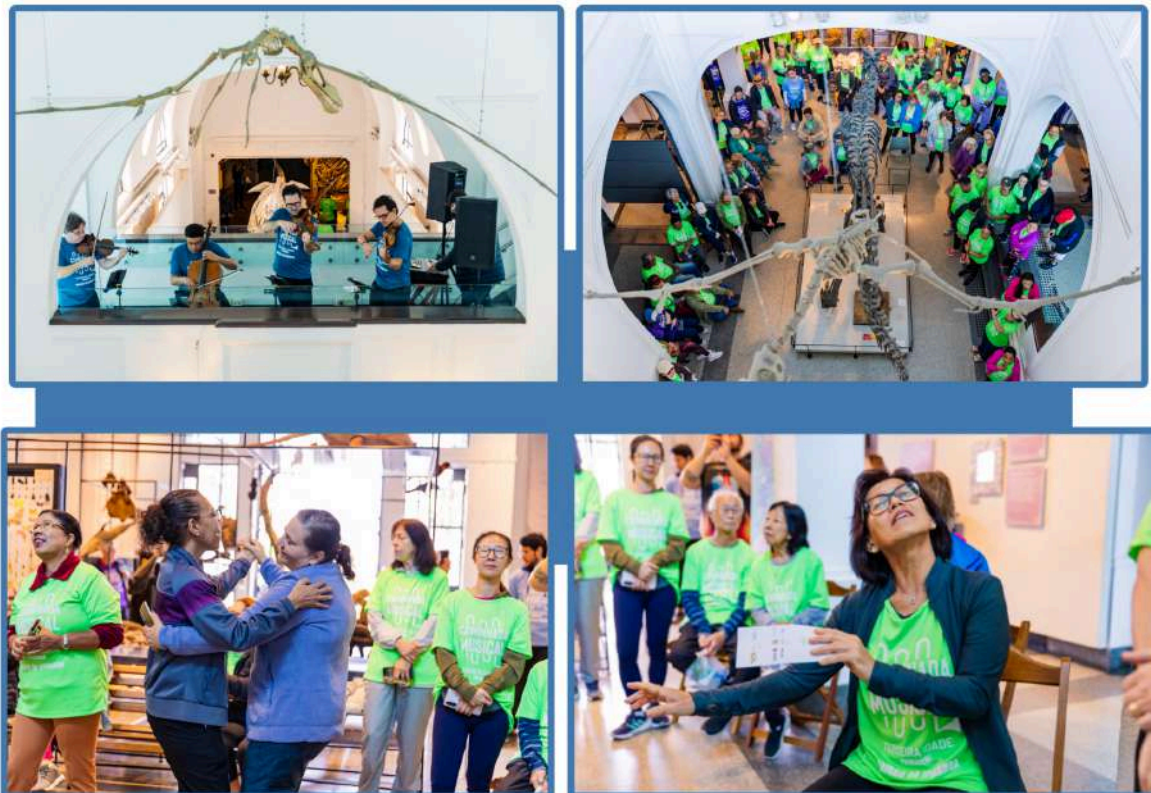
Another successful partnership was the hosting of one stage of the Musical Walk for the Elderly at MZUSP in 2025 (Fig. 9). The *Musical Walk* is a free project, approved under Brazil’s Rouanet Cultural Incentive Law, which since 2023 has promoted a cultural, inclusive, and welcoming experience for older adults, combining physical activity, live music, and social engagement. During the *Museum of Zoology stage*, participants enjoyed a unique “dancing visit” through the museum’s galleries.

THE MUSEUM AS A SCHOOL: *LEARNING, TEACHING, AND TRANSFORMING TEACHERS, STUDENTS, AND VISITORS*

The Teaching Initiation and Improvement Program (PROIAD), conceived and coordinated by University of São Paulo’s Office of Undergraduate Studies, provides a space for teacher training across seven different strands: linguistic education, school education, museum education, hospital education, science and mathematics education, education in

exhibitions, laboratories, and science centers, and environmental education. With annual calls for applications, USP undergraduate students may enroll in one of these strands and, if selected, are granted a scholarship requiring 20 weekly hours of activities in their unit of interest (USP, 2025).

Figure 9. Program 60+ “Musical Walk” in partnership with ArteMatriz Cultural Solutions.



Source: ArteMatriz Soluções Culturais.

Undergraduate Students in Service to Society – *University’s Standard of Quality and Social Commitment*

Since 2023, MZUSP has welcomed scholarship students from USP’s Teaching Initiation and Improvement Program (PROIAD). Candidates are selected and supervised by the Division of Cultural Diffusion (DDC) to develop various activities, especially educational engagement with school groups and the general public during exhibitions. In addition, they participate in weekend and holiday activities, assist in teacher training courses, develop pedagogical materials, take part in USP calendar events, and design inclusive educational

projects for diverse audiences. Each year, ten students from different undergraduate programs are selected.

The work of these fellows has been essential to meet the growing demand from schools for guided visits. This expansion enabled MZUSP to increase its educational service capacity and, from the second semester of 2025, to offer new time slots for school visits. With the support of the PROIAD fellows, the museum was able to host two major projects of São Paulo's Municipal Department of Education in 2024 and 2025: "*Recreio nas Férias*" (*Vacation Recess Program*) and the *Full-Time Education Program of the Municipality of São Paulo*.

The *Recreio nas Férias* program (Fig. 10) takes place in January and July, bringing pre-scheduled school groups supported by the São Paulo City Government, which provides transportation and meals. At MZUSP, students are welcomed and offered guided visits followed by interactive activities.

Figure 10. Participation of fellows from the University of São Paulo Program for Initiation and Improvement in Teaching (PROIAD).



Source: Talita Roell.

The *Full-Time Education Program of the Municipality of São Paulo* (Fig. 12) aims to serve children and adolescents in Basic Education through full-day schooling, combining academic instruction with complementary activities that foster the students' overall development. The program's coordinators identified MZUSP as a key learning environment for these goals.

Beyond these educational visits—which are a key component of practical training for future teachers—the fellows are encouraged to develop individual or small-group projects, creating new educational approaches for visitors and producing workshops or resources that support the museum's educational actions.

The outcomes of several of these projects have been presented at the USP Undergraduate Congress. One highlight was the project “*An Adventure Through the Secrets of Fossils: Touch the Present and Discover the Past*” (Fig. 12). The activity invited participants to use touch to explore aspects of biodiversity. The fellow designed a closed box containing objects such as fossils, shells, animal skins, and teaching models to be explored by hand. The idea was to engage senses other than sight in accessing and learning from the collection, evoking visual memories and creating tactile ones—especially for visitors with visual impairments.

Another notable project, titled “*Shadow Theater: Exploring the Charms and Mysteries of the Forest*” (Fig. 13), adapted fables by Kaká Werá Jecupé, an Indigenous author of the Tapuia people, and Daniel Munduruku, writer and activist of the Munduruku people. Both works were chosen based on criteria that prioritized Indigenous authorship, Brazilian fauna as protagonists, and the connection with the museum's collection. The fellows developed the concept, crafted the characters using recycled materials, and created sound and lighting effects for their performances, which were presented in multiple sessions for museum audiences.

Figure 11. Fellows from the University of São Paulo Program for Initiation and Improvement in Teaching (PROIAD) assisting groups from the *Full-Time Education Program of the Municipality of São Paulo*.



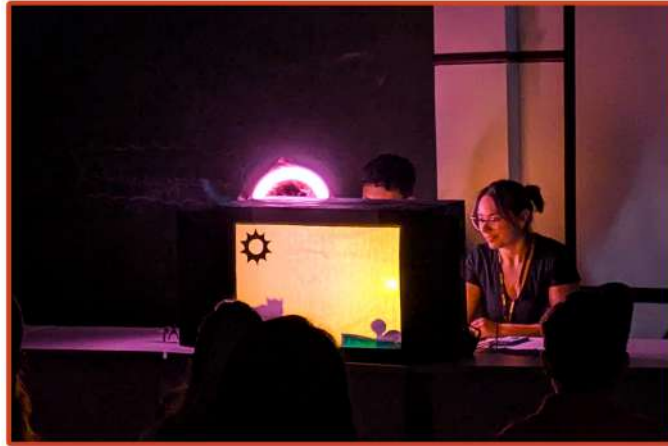
Source: Talita Roell.

Figure 12. Undergraduate fellow Tatiana Martinez Moreira (Geosciences) applying her activity “*An Adventure Through the Secrets of Fossils: Touch the Present and Discover the Past.*”



Source: Talita Roell.

Figure 13. Undergraduate fellows Júlia de Carvalho Rigolon (Literature) and Victor da Cruz Falciorli (History) performing their activity “*Shadow Theater: Exploring the Charms and Mysteries of the Forest.*”



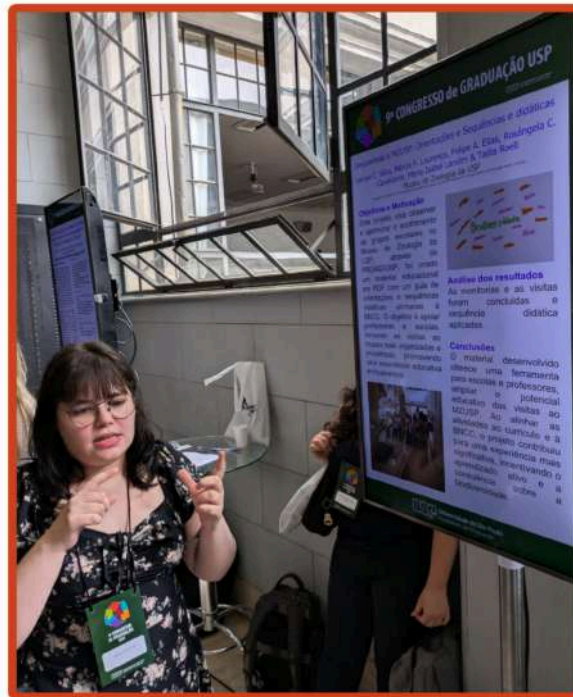
Source: Talita Roell.

To further strengthen the relationship between schools and the museum, two projects were developed: “Immersive Visit Guides for Children Aged 4 to 8 at the Museum of Zoology of the University of São Paulo” and “*Discovering the Museum of Zoology: Guidelines and Didactic Sequences*” (Fig. 14). The museum now aims to expand these initiatives, deepening partnerships with schools to create more targeted visit guides for different levels of Basic Education and to provide curricular resources that can be explored across disciplines.

Teaching and Learning Strategies in Natural History Museums – *Graduate Education Shaping Educator-Researchers*

The relationship between knowledge production and dissemination plays an increasingly central role in academia, as universities seek to promote reliable information capable of raising public awareness about the importance of investing in science and technology (Queiroz 2020). At the same time, establishing a dialogic and collaborative relationship between universities and society, welcoming diverse perspectives, experiences, and knowledge, is an essential principle of the inseparability of teaching, research, and outreach (Deus 2020).

Figure 14. Undergraduate fellow Larissa Cunha da Silva (Natural Sciences) presenting her project “*Discovering the Museum of Zoology: Guidelines and Didactic Sequences*” at the IX USP Undergraduate Congress.



Source: Talita Roell.

Within this context, higher education institutions require their faculty to develop expanded communication skills to engage with diverse audiences. University museums thus constitute privileged environments for developing integrated actions that interconnect teaching, research, and extension in a direct and tangible way. By providing such experiences to students, MZUSP seeks to contribute to the formation of professionals committed to knowledge production, critical science communication, and active listening to societal needs.

The graduate course MZP5044 – *Teaching and Learning Strategies in Natural History Museums: Pedagogical Preparation*, offered jointly by three MZUSP professors within the Graduate Program in Systematics, Animal Taxonomy, and Biodiversity, aims to emphasize the crucial role of natural history museum collections in the construction and transmission of knowledge. The course approaches pedagogical preparation in a broad and integrated manner, training researchers who work in such spaces also as science communicators and educators.

In addition to promoting discussions on transversal themes related to research, teaching, and outreach in museums, the course includes a practical pedagogical component, in which graduate students design and implement educational activities for MZUSP visitors. This experience contributes directly to their teaching development, immersing them in real contexts of communication and scientific mediation.

The first edition of the course was offered in the second semester of 2025 and included 21 students, who actively participated in discussions and contributed to improving the proposal. As a result, they developed interactive workshops for museum visitors titled “*A Dive into the Tietê River: From Source to Mouth,*” “*Run! Who Swims, Who Flies: The Secret of Vertebrate Movement,*” “*The Childhood of Insects: Discovering Nymphs and Larvae*” (on Children’s Day), and “*On the Wings of Evolution*” (Fig. 15).

Through these activities, graduate students expanded their research perspectives into the realm of university extension, engaging with the curiosity of visitors and traditional knowledge in a dialogue on evolution and biodiversity conservation.

Figure 15. Promotional material for the workshops offered by students of the graduate course MZP5044 – *Teaching and Learning Strategies in Natural History Museums: Pedagogical Preparation, 2025.*



Source: MZUSP archives.

Educational Possibilities at MZUSP – *The Extension Course as a Bridge Between the Museum and the School*

The Teacher Training Program of MZUSP is offered as a university extension course at USP. Its purpose is to equip education professionals, cultural agents, and undergraduate students in teacher education to reflect on the role of natural history museums in general and of MZUSP in particular. The program aims to develop partnerships that encourage autonomous visits to the museum and strengthen interaction between the museum and schools. Four editions are held annually, taught by MZUSP faculty and staff from the Division of Cultural Diffusion (DDC) — two condensed editions (16 hours) and two expanded editions (30 hours).

The condensed editions are part of the Brazilian Institute of Museums (IBRAM) program during the *National Museum Week* in May and the *Spring of Museums* in September. These events aim to promote and enhance the visibility of museums, expand their audiences, and strengthen communication with society. The expanded editions take place within the USP–School Program, organized in partnership with the Association of Public School Teachers (APEP), held in January and July during the school vacation period (Fig. 16). This event promotes continuing education for teachers through courses, lectures, and workshops in various fields of knowledge.

Figure 16. *Educational Possibilities at MZUSP course, expanded format – January 2025 cohort.*



Source: Márcia Regina dos Santos Galdino.

The course “*Educational Possibilities at MZUSP*” addresses themes such as the history of natural history museums, the importance of biological collections and their relationship to education, the role of museum education, the use of fossils as tools for understanding current biodiversity, and evidence related to climate change, among other topics. Its methodology includes interactive lectures, presentations, visits to exhibitions and scientific collections, exercises, workshops, the presentation of educational materials, and group work (Fig. 17).

Figure 17. *Educational Possibilities at MZUSP* course, practical activities: Workshop “*Your Time Is Up*” (A) and diorama assembly (B).



Source: Márcia Fernandes Lourenço.

The course has served a wide range of participants, including teachers, museum professionals, graduate and postdoctoral students, tour guides, and secondary and undergraduate students from diverse fields, as well as members of the general public interested in learning more about the museum. Most participants reside in the State of São Paulo, from cities such as São Paulo, Mogi das Cruzes, Ribeirão Preto, Poá, and Sorocaba,

although the course—despite being in-person—has also welcomed participants from other states, including Rio de Janeiro, Piauí, Minas Gerais, and the Federal District.

In 2018, an informal evaluation questionnaire was introduced for participants to complete. Analysis of the responses has allowed the team to adjust content, refine methodology, and improve the organization and duration of the course. The evaluations have also provided valuable insights into participants' expectations, needs, and the applicability of the course content within their professional contexts..

THE MUSEUM GOES TO SCHOOL: A TRAVELING AND INSPIRING COLLECTION

As part of its outreach initiatives, MZUSP maintains an *Educational Material Loan Program*, through which the museum produces, maintains, and lends kits containing original animal specimens, models, and replicas. These kits are loaned free of charge to the community and can be used in various educational activities, fostering integration between the museum and schools at different educational levels. Established in 1999, the program has reached over 200,000 people, including students, teachers, and members of the general public.

Educational Kit Loans – *The Museum in the Teacher's Suitcase*

Currently, 50 kits are available, containing specimens of insects, arachnids, birds, mammals, fish, and aquatic invertebrates, as well as didactic models and other materials (Fig. 18). Since the beginning of the program, the most frequently requested kits have been those featuring insects and venomous arachnids.

The materials are prepared and packaged to ensure proper conservation and ease of transport. Each kit is accompanied by a short guide suggesting approaches to key biological topics. New kits and themes are continually added based on teacher requests and collection availability.

In 2024, a new request form was introduced, allowing the museum to analyze various parameters related to kit loans. This form made it possible to identify partner institutions and their educational projects, such as “*Prevention and Identification of the Dengue Mosquito,*” implemented at a municipal preschool (EMEI) in São Paulo, where children observed *Aedes aegypti* specimens and discussed disease prevention strategies. Another example, the “*Project on Butterflies and Insects in the School Garden,*” also carried out at a São Paulo EMEI, involved students investigating the presence of different insect species in their school gardens, using MZUSP materials for close observation and comparison.

Figure 18. Educational loan materials for teachers: Chagas Disease Vectors in Brazil kit (left); Yellow Quail kit (center); Venomous Arachnids kit (right).



Source: Rosângela Celina Cavalcante.

THE MUSEUM BEYOND THE SCHOOL: *DIGITAL CONNECTIONS, REAL EXPERIENCES*

Through its communication program, MZUSP also seeks to enhance the sensory and reflective dimensions of the museum experience in virtual form, countering the prevailing logic of speed and superficiality that characterizes the contemporary digital environment. In

doing so, it acknowledges the essential role of digital technologies as mediators in the relationship between the public and cultural heritage in a hyperconnected world.

The Virtual Sphere of a Traditional Museum – *Enter, Touch, Click*

The institutional website of MZUSP (www.mz.usp.br), last redesigned in 2019, serves as the museum's main portal for services and information. It plays a crucial role as both an administrative and academic interface, addressing the needs of multiple user profiles. Its main navigation segments include: i. an academic profile, aimed at students and researchers, providing access to laboratories, collections, curators, training programs, and internship and graduate opportunities; ii. an educational and service-oriented profile, through which users can freely download teaching materials or request educational loan kits for classroom use; and iii. a visitor profile, gathering information about exhibitions, opening hours, and group bookings.

Over time, however, websites have become limited by the high cost of maintenance and structural updates, as well as the constant need for data input. In a context where new generations prefer concise, visual, and interactive content with continuous updates, part of the website's information has migrated to social media platforms, without losing its institutional character. The website has thus been redefined to focus on stable and reference-oriented content, while social networks have taken on the role of immediate and interactive communication channels.

The Virtual Tour – *When the Collection Finds New Pathways*

The 2020 public health crisis prompted a major shift in this scenario. The development of the virtual tour of the long-term exhibition “Biodiversity: Knowing to Preserve” (<https://vila360.com.br/tour/mzusp/>) marked MZUSP's entry into a new sphere of communicational, aesthetic, and technological experimentation.

Created during the period of social isolation, the tour was initially conceived as a temporary solution to the impossibility of in-person visits. However, it quickly proved to be a valuable tool for cultural mediation, expanding the museum's dialogic repertoire and

integrating it into a hybrid communication ecosystem where digital and physical experiences intertwine.

While many platforms have evolved toward fully virtual museum environments built on immersive technologies such as augmented reality, photogrammetry, and 3D modeling, MZUSP chose to present high-resolution images of its real physical space and collections. Reinforcing its institutional mission of preserving and communicating scientific and cultural heritage, the virtual tour offers a 360° immersive experience, allowing visitors to navigate through rooms, objects, interpretive texts, and details of the museum's historic architecture.

Following this initiative, the museum adopted the practice of recording and publishing virtual tours of all temporary exhibitions, understanding this action as both a documentation strategy and an accessibility measure. This resource enables visits by audiences with limited mobility or geographic constraints, becoming both an inclusion tool and an educational instrument for teachers, who can integrate virtual visits into classroom projects or use them to prepare students for on-site experiences.

More than an emergency response, this experience demonstrated that, when planned with intentionality and accessibility, digital communication strengthens the educational and social mission of museums, promoting dialogue and inclusion beyond physical, economic, and health barriers. It has thus become a core component of MZUSP's institutional communication program.

Social Media – *Networks of Connection, Collecting Engagement*

In parallel with the institutional website and virtual tour, MZUSP has established an active presence on social media, transforming these platforms into key tools for communication and institutional engagement. Its official [Facebook](#) and [Instagram](#) pages have become privileged spaces for the dissemination of scientific and cultural content, updates on exhibitions and events, and interaction with the public.

Initially conceived merely as outreach showcases, these platforms took on a decisive role during the COVID-19 pandemic, when they became the museum's sole communication channel. Since then, MZUSP has adopted a continuous thematic curation strategy, with daily

posts exploring behind-the-scenes insights into collections, research highlights, historical narratives, and biodiversity themes, extending the museum’s educational and symbolic reach.

The collaborative nature of these platforms—through comments, shares, and suggestions—has strengthened community engagement and the participatory dimension of museum communication. Moreover, social media have become training spaces for USP students, who, as Unified Scholarship Program (PUB) fellows, actively contribute to content production, bringing their own perspectives and expressive languages. Figure 19 illustrates this with the graphic design created for *Darwin Day 2025*.

Mastering these new communication tools also led the museum to adjust its original long-term exhibition plan, which initially included a constantly updated showcase featuring species “brand new” to science—those recently described by MZUSP researchers. The idea proved unsustainable due to the costs and labor required for continual exhibit renewal. Since 2020, these updates have instead become part of the museum’s social media routine, where newly described species are now presented regularly to the public.

Not Every Net Catches Fish – *Building Digital Communities for Natural Heritage*

Facing the challenge of understanding the qualitative meaning of digital engagement with the museum—recognizing its inherent relativity—MZUSP strives to provide accessible and consistent platforms for interaction through its posts, as one of the ways to sustain continuous mobilization around biodiversity-related themes.

With a collaborative communication structure that enables users to comment, share, and suggest topics, MZUSP has sought, through its social media presence, to stimulate deeper public engagement with the institution’s work and with the heritage it safeguards. As a result, the museum’s online community has been in steady and organic growth, currently reaching around 12,000 followers on Facebook (facebook.com/mzusp) and over 81,000 on Instagram (instagram.com/museu_zoologia).

Figure 19. Graphic design used on MZUSP’s Instagram for *Darwin Day 2025*, created by the University of São Paulo Unified Scholarship Program (PUB) fellow Joana Christine Gallo, undergraduate student in History.



From a technical standpoint, a quick analysis of data extracted from the platforms’ insight tools (covering the period from September 22, 2022, to October 21, 2025—the post-pandemic phase) reveals distinct patterns of behavior and engagement between MZUSP’s two main platforms, Facebook and Instagram (Table 2).

The study of metrics demonstrates the organic and sustainable growth of MZUSP’s digital communities, with a strong geographical concentration in the São Paulo Metropolitan Region—a direct reflection of the museum’s physical location and its role as a neighborhood and community institution. This concentration points to a strategic challenge: to diversify regional and national presence, broadening the museum’s symbolic and educational reach across the digital network.

Thus, the institutional website, social media, and virtual tour together form an essential tripod of MZUSP’s digital presence. The website functions as an institutional and

reference channel; Facebook remains a broad informational platform; Instagram consolidates its role as the main engagement channel; and the virtual tour translates the exhibition experience into a tridimensional language. Combined, these fronts constitute a communicational ecosystem that reinforces the museum as a space of dialogue, research, and belonging.

Table 2. Comparative data on the reach and engagement of MZUSP’s social media platforms (2022–2025).

METRICS	FACEBOOK	INSTAGRAM
Followers	12.904	81.190
Distribution by gender	64,4% women 35,6% men	75,6% women 24,4% men
Total reach (unique accounts)	649.200	324.600
Interactions with content	8.800	45.100
Main Cities	São Paulo (39%); Rio de Janeiro (2,3%); São Bernardo do Campo (2%); Santo André (1,8%); Guarulhos (1,5%).	São Paulo (44,9%); Guarulhos (2,5%); São Bernardo do Campo (2,3%); Santo André (1,8%); Osasco (1,7%); Rio de Janeiro (1,6%).
Countries with a larger foreign presence	USA, Colombia, Portugal, Peru, Mexico, Spain, Argentina, Canada, Italy.	USA, Portugal, Argentina, Colombia, Spain, Germany, Peru, Italy, Mexico.
General observations	Moderate engagement, regional audience, and predominantly female.	High engagement, dynamism, and a predominance of female and regional audiences.

FINAL CONSIDERATIONS: *EVERY FINAL IS AN INVITATION TO A NEW BEGINNING*

Throughout its centenary history, the Museum of Zoology of the University of São Paulo reaffirms its ability to unite tradition and innovation. As part of one of Latin America’s most prestigious universities, MZUSP remains faithful to its original mission—to research, preserve, and communicate the zoological heritage of Brazil and the Neotropics—while continually renewing itself through institutional practices that integrate science, education,

and culture. This articulation between the biological and museological dimensions, consolidated through the Institutional Communication Program (PCI), embodies a contemporary conception of the university museum: a space of knowledge production and, at the same time, of encounter, dialogue, and belonging.

*“The museum is a place where families play together.” **

Over the past decade, MZUSP has transformed its relationship with its audiences, expanding both the physical and symbolic accessibility of its collections and fostering the active engagement of visitors, teachers, and students. This transformation is expressed through the consolidation of teacher training programs, the integration of university outreach as an essential dimension of academic careers, and the encouragement of educational practice among undergraduates and graduate students. The museum has thus become a formative environment par excellence, where scientific communication and cultural mediation are affirmed as instruments of human and social development.

*“It was such a wonderful day in my grandson’s life—he loved the museum!” **

Innovation at MZUSP extends beyond the adoption of new technologies. It manifests above all in the construction of participatory methodologies, the dialogue between traditionally separate fields, and the appreciation of sensory and emotional experience as essential elements of learning. The museum’s digital presence—structured through its website, virtual tour, and social media—now constitutes a legitimate extension of the museological experience, strengthening the dissemination of knowledge and broadening the museum’s social impact. These digital media complement, but do not replace, the tactile and in-person dimension of the collections, reaffirming the importance of direct contact with objects and with the scientific community that interprets them.

As a public and free institution, the Museum of Zoology remains committed to the democratization of access to science and culture. The promotion of diversity, the expansion of accessibility policies, and the provision of programs for audiences of different ages and social backgrounds reaffirm its role as an inclusive and educational space (Fig. 20).

The recognition expressed by visitors, students, and teachers demonstrates that the museum is perceived as a place of discovery and conviviality, where knowledge intertwines with emotion and curiosity, and where science becomes a shared experience.

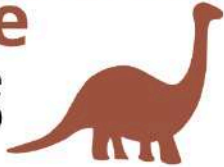
*“I felt so moved that I wanted to cry; I’ll keep this place in my heart with great affection, and when I grow up, I’ll bring my children here to see it.” **


Looking toward the future, MZUSP builds upon solid foundations and a critical, collaborative vision. Among its challenges and perspectives are: strengthening interinstitutional partnerships, advancing accessibility practices, expanding digital initiatives, and developing indicators to measure the social impact of its actions. Guided by the principles of “knowing to preserve” and “preserving to know,” the Museum of Zoology of the University of São Paulo continues to create traditions, opening new paths that lead to the museum reaffirming its relevance in the scientific and cultural landscape of Brazil and its vocation as an institution that transforms knowledge into a common good.

* Extracted from the museum’s visitors’ book.

Figure 20. *The Museu de Zoologia in Numbers: quantitative data from the various programs, January to November 2025.*

more than
250.000
people
visited the
MZUSP

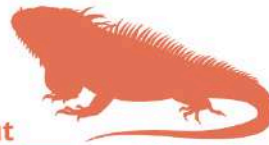


 **20.750**
people were served
in our guided tour program to the
exhibitions and backstage areas

approximately
1.500
people
celebrated *Darwin Day* with us



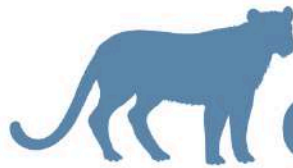
about
25.000
people participated
in our workshops, chats and
ludic activities at *Animal Interaction*



we are connected to more than
95.000
followers
in our social media



almost
900
people participated
in *The Museu Hunt*



we welcome
460
60+ visitors
in our special program



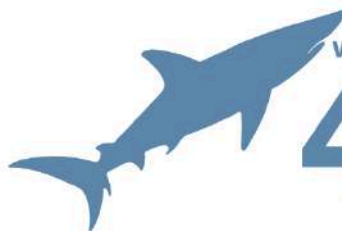
near
190
people
attended our lectures



we instrumentalize about
200
educators
in our training
courses



we took to almost
450
schools
a sample of Brazilian's
Biodiversity through our educational kits



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NOTA: A tradução acima foi produzida com o auxílio do **ChatGPT** a partir do seguinte prompt: *“Produza uma versão em inglês deste texto, mantendo o máximo possível a identidade, estrutura e intenção do original em português. Adapte o estilo para um inglês claro, fluente e profissional, adequado ao contexto acadêmico e museológico internacional. Preserve a voz institucional, o tom colaborativo e o vocabulário próprio do MZUSP, mas ajuste expressões, estruturas e referências culturais para que façam sentido para leitores de língua inglesa. Não acrescente novas ideias; apenas reformule quando necessário para garantir naturalidade, precisão conceitual e legibilidade na língua de chegada”* O texto produzido **foi lido e editado pelos autores** que reconhecem sua fidedignidade e aprovam a presente versão.

NOTE: The translation above was produced with the assistance of **ChatGPT**, using the following prompt: *“Produce an English version of this text while preserving, as much as possible, the identity, structure, and intent of the original Portuguese version. Adapt the style to clear, fluent, and professional English, appropriate to an academic and museological context. Preserve the institutional voice, collaborative tone, and MZUSP’s specific vocabulary, but adjust expressions, structures, and cultural references so they make sense to English-speaking readers. Do not add new ideas; reformulate only when necessary to ensure naturalness, conceptual precision, and readability in the target language.”* The resulting text was **reviewed and edited by the authors**, who acknowledge and approve this version.