

SAMARCO IN ACTION

BIODIVERSITY REPORT



DEVELOPED BY:



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MESSAGE

from the organizers



The protection and conservation of biodiversity guide our actions and decisions. In a territory recognized for its ecological relevance, we are committed to conducting our activities responsibly, integrating biodiversity management into the planning, execution, and continuous improvement of our operations.

This Compendium was organized with the purpose of gathering, systematizing, and communicating the main initiatives, programs, and projects that make up Samarco's biodiversity agenda. By sharing this set of information, we seek to strengthen knowledge management, increase transparency, and contribute so that different audiences can clearly and accessibly understand how our actions connect to conservation, impact mitigation, and ecosystem recovery.

Throughout these pages, the reader will find concrete examples of monitoring, applied research, best practices, restoration initiatives, conservation actions, and innovation projects, organized by thematic axes. We invite you to explore this material and understand how biodiversity guides technical priorities and choices in our daily routine, reinforcing our commitment to the permanent evolution of environmental management and to building a positive legacy in the territories where we operate.



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Protecting and conserving biodiversity guide our actions. **We adopt an approach that integrates mining activity with respect for biodiversity and care for people**, guiding the planning, execution, and management of our operations.

We are a privately held mining company, and our activity is the production of iron ore pellets, an essential input for the manufacture of steel used in construction, equipment, and everyday products. We operate in Brazil, in the states of Minas Gerais and Espírito Santo, with operations primarily located in the Atlantic Forest biome, interfacing with the Iron Quadrangle Rupestrian Grasslands (MG) and coastal ecosystems such as the Restinga (ES).

Minas Gerais (MG) Germano Complex

Location: Mariana and Ouro Preto

- Iron ore extraction
- Processing (concentration)
- Tailings and waste rock disposal
- Operational support infrastructure

400 km slurry pipeline

Location: from the Germano Complex (MG) to the Ubu Complex (ES)

- Iron ore pulp transport
- Integrated mine-to-port logistics, reducing road transport impacts

Espírito Santo (ES) -

UBU Complex

Location: Anchieta

- Iron ore pelletizing
- Product storage and handling
- Port operation and shipping

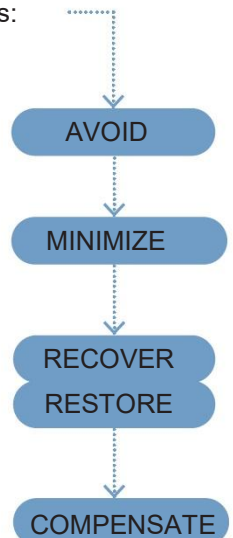
- 1 **PREVENT** NEGATIVE IMPACTS WHENEVER POSSIBLE
- 2 **MINIMIZE** IMPACTS THAT CANNOT BE AVOIDED
- 3 **RESTORE** DEGRADED AREAS
- 4 **COMPENSATE** FOR ANY RESIDUAL IMPACTS
TRANSPARENTLY AND EFFECTIVELY, WHEN NONE OF THE
PREVIOUS APPROACHES COULD BE APPLIED

We recognize that our activities maintain a direct interface with biodiversity and ecosystem services. Therefore, we have set the ambition to achieve No Net Loss of biodiversity and leave a positive legacy in the territories where we operate. In this context, “Biodiversity and Ecosystems” are material topics for us and are part of our 2023-2032 Sustainability Strategy.

To turn this ambition into practice, we adopt the Mitigation Hierarchy as an institutional guideline, aligned with international best practices in the mining sector, as per the guidelines of the International Council on Mining and Metals (ICMM).

In simple terms, the logic is:

Our operations are conducted in an integrated manner with environmental licensing; that is, it meets legal requirements, incorporates conditions, and uses studies and monitoring as a basis for decisions and continuous improvements, in addition to advancing voluntary conservation actions.



In order to strengthen consistency and transparency, we aligned our strategy with references from the mining sector and the global biodiversity agenda, such as Towards Sustainable Mining (TSM), the United Nations Sustainable Development Goals (SDGs), the Global Biodiversity Framework (GBF) of the Convention on Biological Diversity (CBD), and the National Biodiversity Strategy and Action Plan (NBSAP). We also use the guidelines of the Taskforce on Nature-related Financial Disclosures (TNFD) as a structuring reference for the evolution and systematic reporting of our most material nature-related issues.

Learn about the ICMC principles and SDG goals to which we contribute through our operations:

ICMM



SDGs



Learn more at:
<https://www.icmm.com/>
<https://odsbrasil.gov.br/>
<https://gtagenda2030.org.br/ods/>

In practice, this approach translates into concrete results. We conduct systematic monitoring of fauna and flora in our areas of influence, develop research initiatives focused on the conservation of threatened, rare, and endemic species, and maintain a proportion of preserved areas four times larger than our operational area.

Restoration of degraded ecosystems is also a structural pillar of our



operations, being extremely important in offsetting our impacts, rebuilding biodiversity, and promoting ecosystem balance.

This publication brings together dozens of programs and projects, in different stages of development, which evidence how technical knowledge, continuous learning, and territorial experience guide our priorities and decisions over time.

These initiatives are organized into eight major axes:

1. How we monitor biodiversity;
2. Avoiding impacts: planning and conservation;
3. Best practices to minimize impacts;
4. Restore and recover degraded ecosystems;
5. Offset impacts and create socio and environmental value;
6. Environmental education and dialogue with territories;
7. Research, development, and innovation for biodiversity;
8. Strategic initiatives that drive the biodiversity agenda.

Monitoring of the threatened species, *Hydromedusa maximiliani*



Imagem 03

Popularly known as the Maximilian's snake-necked turtle or mountain turtle, *Hydromedusa maximiliani* is a freshwater chelonian species endemic to Brazil, occurring mainly in the Atlantic Forest and showing a strong association with specific environments, such as streams with conserved forest. It is currently classified as "Vulnerable" by the IUCN Red List and the Minas Gerais State List (COPAM, 2010), due to habitat loss and degradation, water pollution, and fragmentation of the aquatic environments where it occurs.

The Monitoring of *Hydromedusa maximiliani* integrates Samarco's set of biodiversity actions with the objective of monitoring the population health of the species in the project's area of influence, aiming to support strategies for the conservation of these populations and the ecosystems they inhabit. This is carried out through

the assessment of the species' distribution along the spatio-temporal gradient in the Germano Complex areas and the differences observed between areas affected and not affected by the company. Because it is associated with well-preserved aquatic environments and is recognizably sensitive to habitat changes, the species serves as a relevant biological indicator, helping to signal environmental trends and guide mitigation and conservation priorities over time.

Monitoring is conducted through standardized and periodic campaigns in watercourses within the Germano Complex's area of influence, using a specific methodology for *Hydromedusa maximiliani*. In the field, funnel-type aquatic traps (fyke nets) are used, with biometric recording of individuals (size and mass measurements) and individual marking, which allows for the monitoring of

recaptures, inferring residency patterns, and building a consistent historical series. Based on these data, consolidated capture–mark–recapture approaches are applied, enabling population estimates and interpretation of occurrence variations based on comparable indicators. In practical terms, this means moving beyond the traditional assessment limited to “presence or absence” and advancing toward a trend-based reading, with greater capacity to differentiate natural fluctuations and signal detection variations that demand a management response.

Monitoring of the threatened species, *Hydromedusa maximiliani*



24
CAMPAIGNS



144
RECORDS



72
DISTINCT
INDIVIDUALS

A distinguishing feature of this program is the structured cycle of learning and improvement. Over the years, the sampling design and field effort have been adjusted to increase the reliability of results, enhancing the robustness of the historical series and reducing uncertainties typical of monitoring a species with low detectability. This methodological refinement translates into greater security for assessing trends, comparing results over time, and supporting evidence-based decisions. The results themselves, such as the history of records and recaptures, feed interpretations regarding population size, habitat fidelity, environment use patterns, and longevity.

Over eight years of monitoring (2017-2025), 24 campaigns were conducted, obtaining 144 records of 72 distinct individuals of *Hydromedusa maximiliani* through the use of the aforementioned aquatic traps.

As a complementary front to monitoring, Samarco also conducts an applied research initiative linked to licensing in partnership with the National Action Plan (PAN) for the Conservation of

structured cycle of learning and improvement

Herpetofauna of the Serra do Espinhaço (MG) and academic institutions. The focus is to reduce uncertainties regarding

the distribution and population structure of *Hydromedusa maximiliani*, strengthening the technical basis for conservation decisions and improving the interpretation of monitoring data over time.

Thus, the program's value for Samarco's biodiversity management lies in the bridge between data interpretation and decision-making. The integrated analysis of the historical series supports recommendations on maintaining field sampling effort, prioritizing areas, and monitoring the system's response to implemented environmental measures. As such, the *Hydromedusa maximiliani* Monitoring operates as a strategic initiative for the company: **it combines technical rigor with management language, generates clear and comparable indicators, and feeds back into the continuous improvement of mitigation, conservation, and environmental management practices at Samarco.**



Puma concolor Monitoring Subprogram



From 2017 to 2025, 24 campaigns were executed in the Germano Complex's area of influence across 14 areas located in the municipalities of Mariana and Ouro Preto, MG, during both the project's suspension and operation phases. As a result, 525 records of *Puma concolor* were obtained, evidencing continuous presence and wide spatial distribution of the species within the monitored territory.

Overall, field data translate into: presence or absence per sampled area (occupancy indicators), recording rates over time (to identify variations and trends), spatial patterns of use (heat maps showing areas of higher concentration and priority zones), and daily activity patterns (from the time of records), which help interpret how the species utilizes the environment. Together, these indicators make management more objective: they show “where,” “when,” and “how often” the species is using the landscape, and allow for comparisons between different periods and contexts.

The *Puma concolor* Monitoring Subprogram integrates Samarco's fauna monitoring portfolio with the objective of continuously monitoring a highly mobile, high-ecological-value key species, using its patterns of presence and landscape use along a spatio-temporal gradient as a “signal” of environmental integrity and habitat connectivity. As an apex predator requiring vast areas, the puma is especially useful for guiding management decisions, as changes in its records can signal alterations in habitat quality, increased pressures (such as fragmentation and disturbance), or a higher probability of conflict.

Monitoring is structured into periodic and standardized campaigns designed to generate a comparable historical series over time. The methodology primarily combines active search on trails and transects (sightings, scat, tracks, etc.) and camera traps, increasing the detection probability of a naturally discreet species and providing complementary evidence. This design allows field observations to be transformed into consistent information with quality and repeatability, avoiding conclusions based on isolated records and strengthening trend-based interpretation.

The program's main differentiator is closing the cycle

MONITOR > INTERPRET > DECIDE > IMPROVE

Results are not restricted to reports: they are used as inputs to guide priorities and adjustments in the company's environmental management. When data point to stability in occupation and maintenance of high-use areas over time, it indicates the effectiveness of the environmental practices and controls already adopted, supporting the continuity of what works well.

Thus, the *Puma concolor* Monitoring Subprogram constitutes a practical, evidence-based environmental

management tool, combining robust methodology and management language, delivering trackable indicators, supporting decision-making, and strengthening the continuous improvement of mitigation and conservation strategies. Over time, this monitoring consolidates applied knowledge about the species and the landscape, increasing the capacity to anticipate risks, direct environmental investments, and demonstrate results with consistency and transparency.



Monitoring, Preservation, and Knowledge Expansion Subprogram for the Critically Endangered Species *Sphaenorhynchus canga*



Image 06

Sphaenorhynchus canga (canga treefrog) is a small hyliid anuran typically associated with temporary water bodies in marshy areas

located in high-altitude rupestrian grassland phytophysionomies. It is endemic to the Atlantic Forest, and its distribution is considered extremely restricted, being recorded in a few locations in the Iron Quadrangle (Mariana, MG) and at an isolated point in the Serra da Mantiqueira (MG).

It is currently classified as “Critically Endangered” by the National List (MMA, 2022) due to this restricted distribution, the reduced number of known populations, the absence of records in protected areas, and because its areas of occurrence are near or within areas of interest for commercial activities, such as mining, which consequently threaten the environments and the few known populations of the species.

With the objective of developing and implementing effective mitigation strategies, Samarco instituted the Monitoring, Preservation,

and Knowledge Expansion of the Critically Endangered Species *Sphaenorhynchus canga*, as part of its environmental management measures, aiming to support possible in situ conservation actions and adaptive management of the natural environments in which the species occurs.

The subprogram is structured into two main axes, namely:

1. Monitoring of lagoons with confirmed records of the species to evaluate population dynamics and possible variations in the environmental parameters of these habitats.
2. Prospecting for new areas of occurrence for the species aiming to expand knowledge about its spatial distribution.

Different methodological procedures were implemented for each of the axes:

3. Monitoring is conducted annually during the months of November and December, and each campaign spans six non-consecutive days. In each sampled area (lagoon), the Time-Limited Search methodology is adopted, where all visualized individuals are counted in the samplings. Climate data regarding the field days was also recorded.
4. To identify new populations of *Sphaenorhynchus canga*, Active Search was implemented, consisting of moving through an area with the objective of locating the target species.



Image 07



Image 08

Biodiversity – Samarco in Action

In a complementary manner to the described actions, Samarco included *Sphaenorhynchus canga* in the “Action Plan for the Biodiversity Conservation of Rare Amphibians in the Iron Quadrangle” (page 17) and in the ‘Subprogram for Expanding Knowledge on Anuran Species of Interest’ (page 32).

These initiatives expand the scope of monitoring and research actions, contributing to the consolidation of information on the species' ecology, distribution, and population dynamics. This set of efforts seeks to strengthen the technical basis necessary to support environmental management decisions and support more effective conservation strategies for *Sphaenorhynchus canga*.

Monitoring Program for the newly discovered species, *Agalinis sp. nov.*

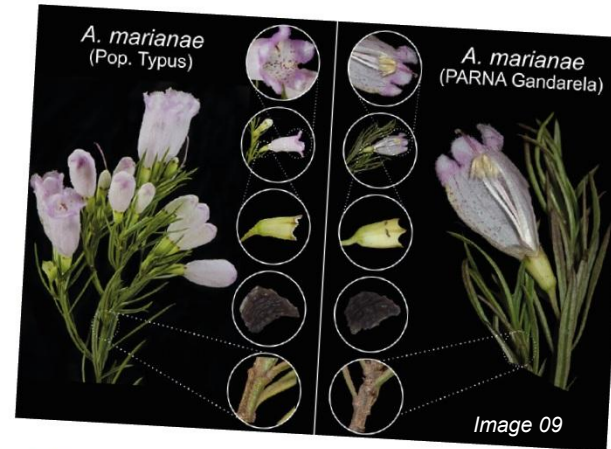


Among the plant species listed in the environmental diagnosis of the Germano Complex Integrated Environmental Impact Assessment (EIA), a plant species of special interest was identified, categorized at the time as potentially new to science. Given this record, Samarco, in partnership with the Federal University of Minas Gerais and its researchers, performed phylogenetic and morphological analysis of the species' individuals, and this hypothesis was confirmed, with the species subsequently described as *Agalinis marianae* V.C.Souza.

In view of this record, the Prospecting and Distribution Assessment Program for Species of Special Interest (PCA, 2018) was proposed, aiming to determine the distribution of this species within the Germano Complex area of influence and in other areas with occurrence potential in Minas Gerais. Another prospecting front, still ongoing, was conducted by the Instituto Rupestris, using a new approach for modeling potential occurrence areas. Results have proven positive, with several new populations already mapped within the Serra do Gandarela National Park (PARNA).

Due to this context, the *Agalinis marianae* monitoring program aims to ensure the conservation of this newly discovered species. Actions take place in the municipalities of Mariana and Ouro Preto (MG), covering areas of ferruginous rupestrian grasslands (canga) and anthropized zones, including the vicinity of the Serra do Gandarela National Park. The relevance of this program is emphasized, as knowledge about the distribution of the new species is restricted and there are environmental threats associated with iron mining, requiring the expansion of information to support conservation actions.

The program's scope includes prospecting for new individuals, geographical distribution assessment, genetic characterization, phenology studies, seed germination and longevity tests, in addition to seedling production in nurseries. The program's exclusive focus is *Agalinis marianae* (*Orobanchaceae*), an herbaceous, facultative hemiparasitic species micro-endemic to the ferruginous rupestrian grasslands of Minas Gerais. The species was recently described as new to science and is considered rare, requiring specific strategies for its conservation in the face of extinction risks.



13
CAMPAIGNS
(2020-2022)



14
CAMPAIGNS
FROM 2025
ONWARDS



154
INDIVIDUALS

From this program, it was possible to carry out a series of actions that consolidate advancement in the species' monitoring, such as:

- Execution of 13 field campaigns in the second stage (2020-2022) and a forecast of 14 additional campaigns starting in April 2025 to search for new populations.
- Continuous monitoring of three main populations, highlighting the record of 154 individuals in Population 1 (Quadrado Area) in September 2023 and the discovery of new individuals in 2025.
- Development of Habitat Suitability Models (HSM) with high accuracy, used to direct the search for new specimens in potential areas.
- Establishment of effective in vitro germination protocols using modified MS/2 culture medium, in addition to the successful acclimation of seedlings in greenhouses using shade cloth and nutrient solution.

Terrestrial and Aquatic Fauna Monitoring Program



The Fauna Monitoring Program was structured as a permanent environmental management instrument to monitor the effects of the resumption of mining activities at the Germano Complex. Its central role is to continuously understand the interactions between the project and local ecosystems, assessing the compatibility of operations with the maintenance of the ecological integrity of the area of influence.

The monitoring covers multiple faunal groups, including vertebrates, invertebrates, and aquatic communities, selected for their sensitivity to environmental changes and, therefore, for their value as bioindicators. This multi-group approach allows for expanding knowledge on local biodiversity while continuously improving sampling strategies by adjusting protocols and monitoring efforts to the environmental conditions observed in the field.

As consolidated in the 7th Annual Monitoring Report, since 2017 the Program has already assessed 2,231 vertebrate taxa (mammals, birds, reptiles, and fish) and 299 insect taxa (bees and mosquitoes), in addition to

aquatic communities with approximately 568 periphytic taxa, 412 phytoplanktonic taxa, 227 zooplanktonic taxa, and 175 benthic macroinvertebrate taxa.

Based on systematic terrestrial and aquatic fauna surveys, the Program has generated consistent information on the composition, distribution, and dynamics of biological communities over time. These data allow for the identification of relevant environmental changes, support the adoption of mitigation measures, and anticipate ecological responses to different pressures, strengthening evidence-based planning and decision-making capacity.

The results accumulated throughout the monitoring campaigns indicate the maintenance of occurrence patterns for several sensitive species and the expansion of knowledge on regional biodiversity, including areas near the project and zones of higher environmental value. This historical data has also contributed to qualifying temporal trend analysis and reducing uncertainties associated with the interpretation of natural variations and potential anthropogenic influences.

Set within a regional context marked by high pressure on the Cerrado and Atlantic Forest biomes, the Program takes on a strategic character for the conservation of biodiversity and ecosystem services. By transforming monitoring data into technical inputs for impact assessment and the effectiveness of adopted measures, the Program contributes to transparent environmental management aligned with the conservation of natural resources at different spatial and temporal scales. As a result of this effort, part of the findings was systematized and released to the public in the book “A Fauna do Complexo Germano” (The Fauna of the Germano Complex) (Page 33), reinforcing the commitment to transparency and the communication of data to society.



Image 11



Image 12



Image 13

Bioacoustics Monitoring Program



Image 14

The adoption of bioacoustic monitoring expanded the capacity to monitor biodiversity within the Germano Complex area of influence (Mariana and Ouro Preto-MG), representing a strategic advancement for biodiversity conservation. Based on the results already obtained at the Germano Complex, bioacoustic monitoring was also incorporated into the Integrated Biodiversity Monitoring Program at the Serra do Gandarela National Park (PARNA), expanding its territorial scope and strengthening the information base for the management of the protected area.

The introduction of bioacoustic monitoring generated a significant increase in the quality and robustness of biodiversity data. In bat monitoring, the method was responsible for an increase of approximately 50% in the species richness recorded for the project area. A total of 4,714 bat passes were counted, allowing the identification of 24 distinct taxa solely through their ultrasonic calls. The new protocol provides for the installation of recorders for 10 consecutive days, capturing data from dawn to dusk to create a robust ecological baseline.



CURIOSITY

The *Artibeus lituratus*, popularly known as the great fruit-eating bat, performs a vital regulatory and support ecosystem service: as it feeds, it acts as an efficient seed disperser, being fundamental for natural regeneration and the maintenance of plant diversity in the region's forests.



Image 15

The main benefit of this technology is the ability to record fauna autonomously and non-invasively. By using recorders that operate continuously, including during nighttime periods and in hard-to-reach locations, the program is able to detect "sentinel" and bioindicator species that are naturally rare or elusive. In addition to inventorying species, the project aims to map the soundscape and evaluate whether noise from mining operations affects the behavior and occurrence of wildlife.

Acoustic technology also enabled the recording of faunal groups that avoid traditional capture methods. Among flying mammals, the Molossidae and Emballonuridae families were detected exclusively through their ultrasonic calls. With the program's expansion to the Serra do Gandarela National Park (PARNA) and the Long-Term Expansion Project, monitoring now also covers avifauna and herpetofauna (amphibians), using specialized software to identify threatened, rare, and endemic species from their vocalizations.

Integrated Biodiversity Monitoring Program at the Serra do Gandarela National Park (PARNA)



generate consistent, comparable, and traceable information

The Integrated Biodiversity Monitoring Program at the Serra do Gandarela National Park (PARNA) was structured

to monitor bioindicators and evaluate potential synergistic effects associated with flow reduction and increased noise and dust in areas potentially impacted by Samarco's Long-Term Project, as well as in areas within Serra do Gandarela National Park (PARNA) itself. The initiative will also seek to expand and qualify the monitoring network already existing at the Germano Complex, strengthening support for the management and conservation of the Protected Area and its surroundings.

The Program will aim to generate consistent, comparable, and traceable information regarding the biodiversity response to these pressures, distinguishing natural variations from changes potentially associated with anthropogenic intervention and supporting management, conservation, and impact mitigation decisions. To this end, the program will rely on periodic campaigns with standardized protocols, structured within a sampling network

of pressure, unobjectively potentializing representative of different environments and designed to allow comparisons between reference areas and areas of pressure, unobjectively potentializing management questions (whether there was change, where it occurred, what the intensity was, and which factors may be associated).

The collected data will be converted into clear and monitorable indicators (occurrence and diversity patterns, recording trends, and early warning signs of environmental change), including metrics derived from bioacoustics (e.g., variations in the sound activity of bioindicator groups and in the acoustic complexity of the environment) and other indicators sensitive to the assessed pressures. The Program will also include the Telemetry Monitoring of the puma (*Puma concolor*), with the capture and installation of radio collars to monitor displacements and space use within the National Park and its surroundings, allowing for the assessment of occupancy patterns and potential behavioral responses relative to the noise gradient. Additionally, it will include the

specific monitoring of *Pareiorhaphis scutula* (*neoplecostomine catfish*), as a targeted component of aquatic monitoring, associated with flow variations and the environmental conditions of watercourses.

The Program's management will be results-oriented, with reports, annual consolidation, and periodic evaluations for focus review and methodological adjustments, characterizing an adaptive management process: monitor, interpret, decide, and improve. As a result, the expectation is the consolidation of an integrated and transparent baseline for the Serra do Gandarela National Park (PARNA) and its surroundings, the generation of consistent data to guide conservation priorities and the application of the mitigation hierarchy, strengthening the dialogue with the protected area management and technical-scientific partners.



Image 16



Image 17

Biomonitoring of atmospheric contaminants using stingless bees



The Pelletizing Plant at the Ponta Ubu Complex is located in the municipality of Anchieta, on the southern coast of Espírito Santo (Anchieta City Hall, 2026), in a transition region between coastal environments and Atlantic Forest remnants. The territory is marked by its proximity to the ocean, restinga areas, mangroves, and forest fragments, composing a sensitive, biodiverse ecosystem directly influenced by atmospheric and maritime dynamics (MapBiomass, 2026).

This environmental configuration requires continuous and technically robust monitoring, capable of capturing variations in environmental quality and supporting the management of potential impacts associated with industrial activities. In this context, Samarco monitors the deposition

of atmospheric particulates using stingless bees as natural samplers.

Biomonitoring of atmospheric contaminants using stingless bees aims to characterize and quantify concentrations of major chemical elements and trace elements through the analysis of pollen stored in Jataí bee nests (*Tetragonisca angustula*) and the settleable dust deposited in collectors. Thus, it contributes to better management of impacts generated by atmospheric particulate emissions from the plant operations in Ubu.

To enable this monitoring, 14 Jataí beehives were installed around the plant, and for each hive, a settleable dust collector in the model defined by the State Institute for the Environment and Water Resources (IEMA-ES), allowing for the integrated comparison between biomonitoring data and physical measurements of atmospheric deposition.

The program began in 2025 and will be conducted until 2027. Collection campaigns are planned until December 2026, followed by the consolidation, analysis, and interpretation of data throughout 2027.

It is expected that the biomonitoring will provide an integrated view of atmospheric particulate deposition around the Pelletizing Plant, highlighting spatial and temporal patterns of concentration and elemental composition along a distance gradient from the emission source and in compliance with the collector model.

The results should allow for the identification, when technically feasible, of the main emission sources through tracing techniques, as well as an understanding of the influence of meteorological conditions, especially wind speed and direction, on the dispersion of elements. Additionally, it is expected to establish consistent relationships between the observed variations and the operational activities of ore processing, such as processed volumes and inputs used.

These learnings should generate technical inputs for decision-making, supporting the improvement of control, prevention, and impact mitigation strategies associated with atmospheric emissions at the Pelletizing Plant in the Ponta Ubu Complex.



Image 18

Monitoring

Marinho - UBU



+95%

GUIANA
DOLPHIN

The Ubu Maritime Terminal (TMU), located in the municipality of Anchieta, Espírito Santo, resumed its activities in 2020 and is situated in a region of high ecological relevance, characterized by the presence of diverse marine ecosystems and high biodiversity (Pinheiro et al., 2010).

In the coastal-marine system, a mosaic of habitats is observed, including sandy beaches, mangroves, restingas, rocky shores, coral reefs, among others. These environments support significant diversity of fish, marine invertebrates, and planktonic organisms, in addition to playing a strategic role as feeding and breeding areas and migratory routes for marine species, including cetaceans and chelonians.

Aware of the relevance of this context, Samarco develops integrated environmental monitoring and assessment programs, focusing on the production of qualified data for managing the impacts associated with its port activities. Among the monitored groups are: cetaceans, sea turtles, marine macroinvertebrates, and the planktonic community (phytoplankton, zooplankton, and ichthyoplankton). In addition, the following are conducted: physicochemical monitoring of water and sediment, and ecotoxicological monitoring in the marine region adjacent to the terminal.

+82%

FRANCIS
CANA
DOLPHIN

The Cetacean Occurrence Assessment monitoring project in the Ubu Maritime Terminal (TMU) area of influence aimed to characterize the richness and distribution of cetacean species in the TMU area of influence, estimate the density and abundance of the most common species, and identify the habitat use of these cetaceans.

For the execution of the monitoring, a sampling area was defined covering the entire marine area used by Samarco for production outflow activities at the TMU, totaling approximately 235 km². Density and abundance estimates were performed using the distance sampling method, complemented by mark-recapture analyses based on photo-identification. Monitoring campaigns occurred monthly over a one-year period, and the occurrence of four species of whales and dolphins was identified in the region. Additionally, interviews were conducted with communities

+95%

HUMPBACK
WHALE

located around the Port of Ubu, with the objective of evaluating aspects related to fishing activity and local knowledge regarding the occurrence of cetaceans. The interviews were conducted individually, applying structured questionnaires, presenting a cetacean identification guide, and using maps of the region's fishing areas. As main results regarding odontocetes, the “Guiana dolphin” (*Sotalia guianensis*) was considered the most well-known species, cited in 95.65% of the interviews, followed by the “franciscana dolphin” (*Pontoporia blainville*) mentioned in 82.60% of the reports. This denomination may be associated with the species *Tursiops truncatus*, *Steno bredanensis*, and *Stenella* sp., due to morphological similarities and the occurrence of these species in the region. The presence of an entirely spotted dolphin was also mentioned in some reports. In the mysticete group, the humpback whale (*Megaptera novaeangliae*) was the most well-known species, also cited in 95.65% of the interviews.



Monitoring

Marinho - UBU



Image 19


187
NESTING


17k
RELEASE
INTO THE
SEA

Regarding chelonians, Sea Turtle Monitoring is conducted in the Anchieta and Guarapari (ES) region, led by the Institute for Marine Research and Conservation (IPCMar). The monitoring covered a coastline of approximately 24 km, traveled daily by field monitors, on foot or by bicycle, over a one-year period. The main objective was to identify and record sea turtle strandings and other marine animals, as well as to locate and protect nests throughout the monitored area.

The beaches included in the monitoring were Meaípe, Falésia, Além, Guanabara, and Castanheiras. Throughout the 2024 and 2025 period, 187 nests were recorded, resulting in the protection and release into the sea of 17,000 hatchlings, 14,041 being loggerhead turtles (*Caretta caretta*) and 2,959 of another unidentified species. The average hatching rate was 71.97%, considered satisfactory for the

regional patterns. A total of 302 strandings were also recorded, of which only eight individuals were found alive. Of the total records, 97% referred to the green turtle (*Chelonia mydas*).

Finally, the Environmental Quality Monitoring Program includes physicochemical and biological monitoring of water and marine sediment around the TMU. Between 2018 and 2025, 23 monitoring campaigns were conducted in the marine region adjacent to the terminal, with collection points distributed across Mãe-Bá, Além, Ubu, and Meaípe beaches.



23
CAMPAIGNS
(2018-2025)

97%
GREEN
TURTLES

+14k
LOGGERHEAD
TURTLE

+2k
UNIDENTIFIED
SPECIES

+71%
HATCHING
AVERAGE

As a result of the last campaign conducted in 2025 and in comparison with previous campaigns, physicochemical, geochemical, and biological variations were evidenced relative to previous periods, with an overall reduction in temperature, salinity, and dissolved oxygen in the seawater, which can be considered a normal fluctuation due to the time of collection or time of year. Occasional exceedances of arsenic, mercury, and nickel were recorded in marine sediments, in addition to the occasional detection of Total Petroleum Hydrocarbons (TPH) and Unresolved Complex Mixture (UCM). Benthic and planktonic communities maintained recurrent dominance patterns, with no records of invasive species. Ecotoxicological analyses and the Sediment Quality Triad indicated toxicity at some points, however, without prejudice to the biodiversity of the analyzed environments, reinforcing the need for continuous monitoring.

Action Plan for the Biodiversity Conservation of Rare Amphibians in the Iron Quadrangle

SPECIES COVERED BY THE PLAN:

Bokermannohyla martinsi, *B. feioi*, *B. alvarengai*,

Hylodes uai, *Bokermannohyla* gr. *izecksohni*,
Physalaemus erythros, *Ischnocnema* gr. *parva*,

Ischnocnema gr. *guentheri*, *Ischnocnema* gr. *lactea* 1,
Sphaenorhynchus canga, *Scinax* aff. *machadoi*.



Structured in late 2025, the Biodiversity Conservation Plan for Rare Amphibians in the Iron Quadrangle now serves as an important preventive pillar, aligned with the 'Avoid' stage of the mitigation hierarchy. In a region recognized for its high ecological uniqueness, endemism, occurrence of rare species, and strong anthropogenic pressure, the plan aims to anticipate risks and guide territorial planning by prioritizing critical areas for protection, connectivity, and amphibian conservation before impacts materialize.

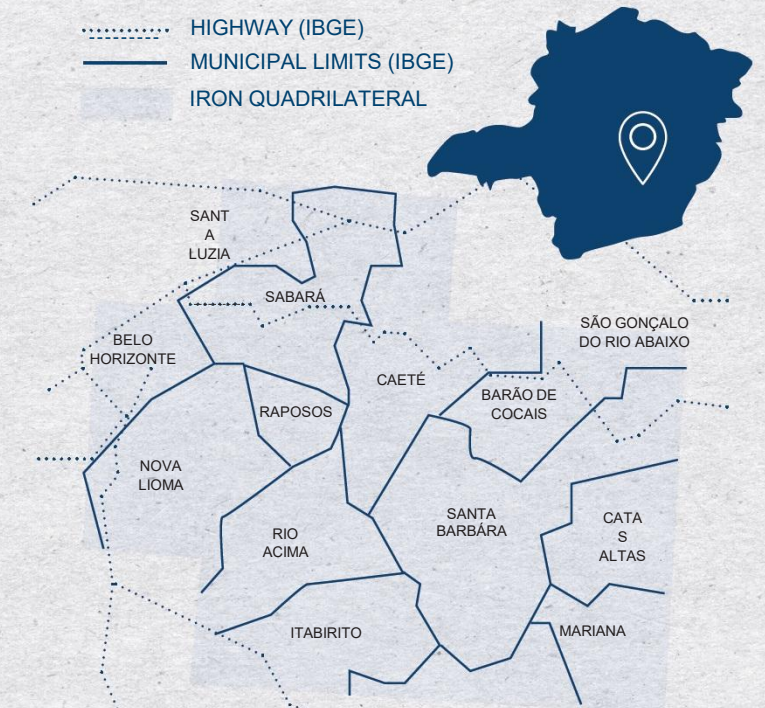
The program was structured to integrate available knowledge and new field evidence, deepening the understanding of spatial, taxonomic, and genetic patterns of rare and endemic species. In practice, this means transforming data (results from habitat suitability modeling and integrative taxonomy) into technical inputs for conservation and environmental management, guiding the identification of areas with higher ecological sensitivity, the prioritization of strategic zones for connectivity, and the allocation of land use in less vulnerable areas, in a preventive manner and aligned with the mitigation hierarchy.

Execution is planned in integrated phases:

- 1 The first phase consolidates and qualifies existing knowledge (records, literature, and environmental databases) and translates it into habitat suitability models and sensitivity maps, indicating potential areas of occurrence and priority zones for conservation.
- 2 The next stage validates and refines these hypotheses with targeted campaigns during periods of higher amphibian activity, combining complementary field detection and recording methods. When necessary, the program provides for integrative taxonomy, gathering morphological, bioacoustic, and genetic evidence to reduce identification uncertainties and refine occurrence limits.
- 3 In a subset of species, population genetics analyses will support the definition of management units and the identification of key areas for maintaining connectivity and biological integrity.

LOCATION MAP IRON QUADRANGLE (MG)

..... HIGHWAY (IBGE)
— MUNICIPAL LIMITS (IBGE)
IRON QUADRILATERAL



The main expected output is the transformation of this technical base into clear territorial ordering rules: definition of protection areas and buffer zones for reproductive sites and wetlands, scheduling (avoiding critical periods), in addition to recommendations for maintaining or recovering natural corridors (especially riparian ones) that support dispersal and gene flow. The plan also guides how to integrate and leverage existing territorial assets, such as conservation units, Legal Reserves, protected areas, and areas under Samarco's management, seeking to increase connectivity and resilience of the mosaic.

Wildlife Deterrence and Rescue Program



The implementation of projects involves direct interventions in the territory, such as the clearing of different vegetation formations and the installation of operational structures, which can generate significant impacts on local fauna. Vegetation clearing, interference with watercourses, and increased traffic of people, equipment, and machinery elevate the risk of wildlife-vehicle collisions, forced displacement, and mortality of individuals. In this context, the Wildlife Deterrence and Rescue Program is fundamental to mitigating these impacts and, to that end, organizes and standardizes preventive wildlife deterrence, rescue, and proper handling and release actions for animals, reducing direct interference with species and contributing to the responsible environmental management of the project's activities.

Generally, this program possesses an important methodological systematization involving:

- Planning of wildlife deterrence, rescue, and handling and release activities related to the program;
- Team training;
- Inspection and survey of the area to be cleared;
- Wildlife deterrence during vegetation clearing;
- Wildlife rescue during the implementation of waste rock piles;
- Handling and release of rescued wildlife;



Image 23

Rescued animals are sent to previously defined release areas (selected based on ecological criteria such as the species' geographic distribution, habitat similarity of environmental quality, resource availability, and low human interference) or screened at the CEDASF Provisional Wildlife Rescue Base. Individuals in good health will be released, while those injured or lacking conditions for immediate release will receive veterinary care at a partner clinic until they are

fit for reintroduction into the wildlife. Occasionally, in cases of death, specimens are destined for biological reference collections, contributing to scientific enrichment and the generation of voucher specimens.

It should be noted that, for the different wildlife groups (e.g., mammals, birds, amphibians, reptiles, native bees, stinging bees, wasps, and hornets), specific rescue and management techniques are applied, prioritizing the safety of the teams and, above all, the rescued animals. Thus, the present program is structured to ensure the proper handling and release of the animals found, prioritizing the maintenance of life in natural conditions, as well as the prevention of accidents with wildlife and the reduction of wildlife-vehicle collision risks or inappropriate interactions through worker guidance actions.

Flora Germplasm Rescue and Salvage Program

100%
RELOCATION OF
RESCUED VIABLE
MATERIAL

Just like the wildlife deterrence and rescue program, the Flora Germplasm Rescue and Salvage Program also operates in project intervention areas where vegetation clearing will occur and in adjacent areas destined for replanting (such as Legal Reserves and Permanent Preservation Areas - APPs). The main objective of this program is to mitigate the loss of vegetation cover by preserving the genetic integrity of the local flora. Actions aim to collect seeds, seedlings, and propagules before and during vegetation clearing for subsequent transplantation or seedling production, ensuring the biological enrichment of remaining forests and the maintenance of local diversity.

WHAT ARE GERMPLASM BANKS?

They are organized collections of living biological material, such as seeds, pollen, tissues, or cultivated individuals, intended for the conservation of the genetic diversity of plant species, and can be used for both immediate use and future preservation and applications.

The program provides for the rescue of genetic material from 100% of the target species (those of greatest conservation interest) and from 60% of the identified non-target species. The program is committed to the relocation of 100% of the rescued viable material, including epiphytes (plants that live on others) and hemi-epiphytes (epiphytes that may develop roots and fix themselves in the soil). Furthermore, all rescued material that does not present viability for immediate relocation will be destined for institutions for deposit in scientific collections, contributing to regional botanical knowledge.

The salvage focus falls on endemic, rare, or threatened species, as well as those of scientific or economic interest. Relocation prioritizes botanical groups more resistant to transplantation, such as orchids, bromeliads, cacti, aroids, and palms. A specific strategy includes the rescue of epiphytes present in the tree canopies, which are collected along with the section of the branch where they are fixed, aiming to increase the chances of survival when taken to new environments.



Wildlife-Vehicle Collision Monitoring Program



Preventive actions are implemented

The Wildlife-Vehicle Collision Monitoring Program has been structured to prevent and manage risks to biodiversity associated with increased vehicle and machinery traffic, especially during the company's implementation and operation phases. The program responds to direct pressures on biodiversity, such as wildlife mortality from vehicle collisions, habitat loss, alteration, and fragmentation, and the intensification of anthropogenic disturbances associated with traffic and the circulation of vehicles and machinery within the roads' areas of influence. The initiative combines operational best practices, aimed at reducing the probability of these events occurring, with evidence-based monitoring that allows for identifying patterns, prioritizing responses, and continuously improving the measures adopted, contributing to the protection of local fauna and also reinforcing the safety of people traveling on the roads. It also includes the proposal of environmental education and social communication actions, such as awareness campaigns and the distribution of educational materials, to encourage behavioral changes and increase community awareness. Preventive actions are implemented before and during the Implementation Stage, as well as during the Operational Stage, including warning signage,

clear communication about areas with a higher probability of wildlife crossing, integration of the topic into safety dialogue

routines, as well as reinforcement of speed limits and enforcement. Among the signaling measures, signs were installed to alert about the presence of wildlife on the roads and inform the speed limit, with positioning prioritized in critical sections (e.g., high-traffic regions and locations with evidence of fauna passage). The objective of the measures is to act at the source of the risk by influencing behaviors, promoting defensive driving practices, increased attention during critical times, standardized conduct when sighting animals, and agile activation channels for the responsible teams.



Image 27

Monitoring is conducted in a standardized and recurring manner on roads and accesses, with georeferenced records and photographic documentation, allowing for an understanding of which species are affected, how often, and where events tend to concentrate. An important differentiator of the program's design is the attention to the quality of the evidence generated: the methodology incorporates procedures to handle typical biases in this type of monitoring, such as imperfect detection and carcass removal by scavengers. To estimate the magnitude of fatalities, detection and removal test data will be used, with estimates performed in the GenEST software, integrating observed records, detection/removal estimates, the sampling schedule, and the observed area, generating more reliable estimates with associated uncertainty. Thus, the values obtained will be more reliable and comparable over time, supporting the continuous improvement of mitigation measures.



Image 28

Based on the results, management can be more precisely guided: when there is an indication of event concentration, critical zones will be identified and measures compatible with the type of fauna most impacted will be prioritized. The program also connects to other environmental and operational fronts, such as fauna management, wildlife deterrence and rescue, vegetation clearing, environmental management, and communication, ensuring a coordinated and coherent response in the territory.

Wildlife Management Program



guide and execute management, salvage and handling and release actions for fauna

Mining and infrastructure implementation activities, by their very nature, involve risks

to wildlife, as they modify the dynamics of the territory and ecosystems. In this context, the Wildlife Management Program emerges as a preventive and integrated response for managing these risks, focusing on reducing accidents, protecting biodiversity, and safe coexistence between operations and the surrounding ecosystem, in an ethical and responsible manner.

The objectives of this program consist of guiding and executing management, salvage, and wildlife handling and release actions during the company's implementation and operation phases, aiming to reduce direct impacts on wildlife and, simultaneously, minimize safety risks to employees and the local community. Actions include continuous guidance for employees, service providers and surrounding residents regarding

safe coexistence with wildlife, through environmental education initiatives, in addition to registration

and systematic reporting of occurrences. The program relies on a specialized and qualified team for animal rescue and release, which remains available full-time at the Fauna Support Base, located at Samarco's Center for Environmental, Social, and Forestry Development, CEDASF.

The program's effectiveness is evaluated by indicators such as the number of individuals deterred, rescued/captured, treated, and properly placed, as well as the number of records of injured or dead fauna and specimens sent to breeding centers or scientific institutions, when applicable.



Image 29



Image 30

Sun Coral Removal Services at the Ubu Maritime Terminal



The port and coastal structures associated with the Ubu Maritime Terminal (TMU) in Ponta Ubu (Anchieta/ES) may face environmental pressure related to the introduction and establishment of invasive exotic species, favored by the presence of artificial substrates, the port's operational dynamics, and the high dispersal capacity of these organisms. Among these species, the sun coral stands out, a common name attributed to species of the genus *Tubastraea* (Cnidaria, Anthozoa). It is an azooxanthellate cnidarian, a producer of a calcareous skeleton, originating from the Pacific and Indian oceans. In Brazil, this genus is mainly represented by the species *Tubastraea coccinea* and *Tubastraea tagusensis*.

The main competitive advantage of this invasive organism is associated with the absence of a natural predator in the invaded region and its resistance to limiting environmental factors, such as variations in light, pH, salinity, and dissolved oxygen, in addition to tolerance to environmental stress, which favors its permanence and proliferation in the environment. In this scenario, the precautionary principle and the need for management and containment actions during removal are applied.

As a response, a service was structured to promote the removal of sun coral colonies from the pier's 252 piles and 2,100 m of riprap at the TMU. The initial stage includes visual sweep sampling with image recording by a high-definition underwater camera (1080p and 60fps), handled by divers or an ROV (remotely operated underwater vehicle), with specialized technical supervision. After identifying the affected areas, the manual removal procedure was initiated (e.g., spatulas and scrapers), based on mechanical biofouling removal studies.

The adopted methodology and the validation process by ROV establish a consistent technical base for the future monitoring and management of the sun coral's presence on the terminal's structures. This design allows for subsequent evaluations of recurrence, the need for new interventions, and the improvement of management strategies, strengthening the preventive response to the pressure from invasive exotic species.



Image 31



Image 32

Spring and Deforested Area Recovery



Spring and Deforested Area Recovery is established as a direct response to the pressure on biodiversity associated with vegetation clearing, degradation of riparian areas, and the reduction of water quality and availability in the operating region, being important for the mitigation hierarchy.

This initiative integrates the Environmental Education Program (PEA) of Santa Rita Durão, Antônio Pereira, and Camargos in Minas Gerais. In practice, it works on the identification and prioritization of areas with occurrences of springs and deforested riparian forests suitable for recovery, defining focus areas and execution planning to then perform the planting of native species seedlings and the protection of springs through fencing and signage. The activities occurred with community participation, with informative and educational actions carried out in parallel with the planting, reinforcing awareness regarding the preservation of springs and riparian forests.

As support, Samarco integrates restoration with germplasm rescue and salvage actions, reinforcing the ecological quality and genetic integrity of the material used. The germplasm program

prioritizes plant species of greater conservation relevance (rare, endemic, or threatened), performs seed and vegetative material collection, and provides a provisional nursery structure to reduce stress and increase survival until relocation, directing the material, preferably, to nearby fragments and to recovery areas, permanent preservation areas (APPs), and authorized Legal Reserves. This relocated material is monitored and managed against common field risks (e.g., leaf-cutter ants, water deficit, and competition with grasses), strengthening restoration performance and expanding technical learning for subsequent cycles.

The program conducted the monitoring and maintenance of the recovered sites, with monitoring and evaluation guided by indicators and the governance of the Environmental Education Program (PEA) management group, allowing for adjustments and course changes when necessary, according to the progress of the actions.

As an execution reference in community initiatives, 1,750 seedlings of native species were planted across the three communities in prioritized areas, reinforcing that restoration is managed with targets, governance, and monitoring.



PLANTING OF
1,750
SEEDLINGS

contributing to the restoration of native vegetation

The Degraded Area Recovery Program (PRAD) integrates Samarco's set of initiatives aimed at promoting sustainability and socio-environmental responsibility. Through this program, areas impacted by past and/or planned interventions during implementation and operation are recovered in a planned manner, seeking to reestablish native vegetation, aligning with the valuation of natural capital. The program aims for the ecological rehabilitation of areas that had their vegetation cover removed or modified, seeking to reestablish the physical and biotic stability of the environments and promote their reintegration into the local landscape.

The Degraded Area Recovery Program (PRAD) covers the Germano Complex's areas of influence, specifically focusing on sites impacted by vegetation clearing, opening of access roads, borrow areas (e.g., clay and gravel pits), and the implementation of operational and support structures (e.g., yards, construction sites, and surplus material disposal areas, when applicable). The program's operations are coordinated with other environmental management instruments, such as the Operational Vegetation Clearing Program, the Terrestrial Fauna

and Aquatic Biota Community Monitoring Program, the Flora Germplasm Rescue and Salvage Program, and the Environmental Education Program, in addition to maintaining interfaces with environmental agencies and research institutions.

Actions integrate physical interventions, such as land remodeling and drainage systems, and biological interventions focused on revegetation, with the intent of controlling erosion processes and favoring ecosystem recovery. Established targets include the restoration of native vegetation cover, effective control of invasive species, and the return of fauna to the restored areas. The PRAD performance is measured by indicators such as the abundance and frequency of spontaneous native species, biomass production, regeneration of the plant structure, and the increase in local diversity. Monitoring is continuous, providing for maintenance such as replanting if the seedling mortality rate exceeds 20%.

The revegetation strategy prioritizes the use of regional native species, combining plants from different successional stages (pioneers and secondary) and fruiting species to attract

seed-dispersing fauna. Techniques such as nucleation and the installation of artificial perches are used to accelerate natural regeneration and stimulate fauna-flora interactions, favoring ecological succession. Interventions are conducted considering the environmental characteristics of each area and its specific limitations, such as in sensitive formations (e.g., Rupestrian Grassland areas), where the use of topsoil is recommended and fertilization is avoided to not favor invasive species.

The PRAD consolidates a planned and continuous approach to the recovery of degraded areas at the Germano Complex, contributing to the restoration of native vegetation, environmental stability, and the reintegration of these areas into the local landscape throughout the project's implementation and operation phases, with execution planned for at least two years and monitoring of the recovered areas for at least another four years.



Image 34

CEDASF Seedling Nursery

The implementation and operation of mining projects may involve direct interventions on native vegetation, especially in contexts of opening new areas or installing structures, such as dikes, dams, and containment areas. Vegetation clearing associated with these activities can result in local changes, such as biomass reduction and shifts in habitat connectivity.

Biodiversity management, guided by a strategic vision of the territory, proposes to reframe our understanding of native vegetation: no longer seen as an operational hurdle, but as a fundamental natural capital element for planning, impact mitigation, and the long-term sustainability of operations. This guideline translates, in practice, into the actions carried out by the Center for Environmental, Social, and Forestry Development (CEDASF), the structure responsible for the large-scale production of seedlings for habitat restoration and for environmental

offsets arising from unavoidable impacts. The CEDASF nursery was created with the objective of producing seedlings for compensatory plantings, in compliance with the commitments established in Samarco's current licenses.

The CEDASF centralizes the receipt of seeds, fruits, seedlings, and epiphyte specimens collected in the field. In the nursery, this material is cataloged, separated into batches, and stored in brown paper bags to ensure its conservation. In addition to seedling production, CEDASF also enables socio-environmental activities, both voluntarily and linked to environmental education program conditions. These actions contribute to strengthening relationships with relevant stakeholders, such as municipal administrations and environmental institutions, which request seedling donations for events and environmental education initiatives, expanding the reach of these actions within the local population.

The adopted management considers the biological particularities of each plant species, applying specific dormancy-breaking techniques, such as immersion

 **200k**
SEEDLINGS/ YEAR

in water, thermal shock, or scarification, according to the needs of each plant, with special attention to pioneer species, which require light for germination. The process involves sowing in suitable substrates and the development of seedlings until the final stage in seedling tubes, ensuring quality and viability for their application in restoration actions.

Another central aspect of CEDASF is the support for Flora Rescue activities, provided for on a recurring basis in Samarco's current licenses. Seeds and seedlings collected in the field, including materials associated with rupestrian grassland environments, are received and screened at CEDASF and, when applicable, destined for reintroduction into natural and/or restoration areas.

This set of practices is supported by a structure dedicated to the production of native seedlings, among other activities.

CEDASF has a production capacity of up to 200,000 native seedlings per year. In 2025, it also began to meet demands linked to Samarco's Reparation areas, significantly expanding the planting areas and, consequently, the need for seedlings for these new fronts.

To ensure planting viability, the program adopts rigorous asepsis protocols to eliminate fungi and bacteria from the seed surfaces. Cultivation success is ensured by the use of balanced substrates (topsoil, coconut fiber, and sand) and by constant monitoring of irrigation and fertilization throughout the seedlings' development.

Biodiversity – Samarco in Action



Image 35



Image 36



Image 37

Rupestrian Grassland
Recovery and
Conservation Plan



Recognized as ancient and extremely complex ecosystems, Rupestrian Grasslands occur predominantly on mountain tops and rocky outcrops, concentrating high biodiversity and a large number of endemic species. Interventions in these environments can compromise fundamental ecological processes, such as connectivity between rare populations and the maintenance of ecological processes. The Rupestrian Grassland Recovery and Conservation Plan covers intervention areas at the Germano Complex (Mariana and Ouro Preto, Minas Gerais), including ferruginous and quartzitic Rupestrian Grasslands, aiming to enable the project.

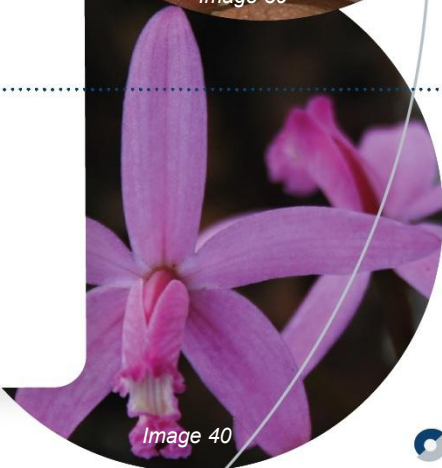
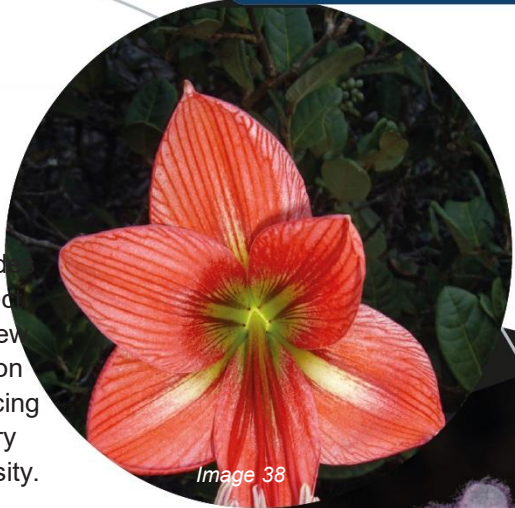
The core objective is to mitigate the impacts associated with vegetation clearing through flora rescue, ex-situ conservation (off-site), and reintroduction of species in the company's preserved areas, such as the Areião and Horto Alegria Farms.

These actions aim to safeguard genetic material, ensuring the maintenance of genetic diversity and the evolutionary resilience of species over time.

To this end, the program establishes germplasm salvage targets based on previous diagnoses, which have already accounted for hundreds of priority individuals for rescue. Among the records, 396 specimens of *Cattleya caulescens* and 228 of *Dyckia rariflora* stand out. One of the plan's innovations is the use of topsoil (transposition of the surface soil layer, rich in seeds and microorganisms) and the experimental application of biocementation techniques to recreate the physical conditions of the ferruginous canga, essential for the establishment of native vegetation.

As support for these strategies, the CEDASF nursery was expanded and equipped with a cold chamber to house a Germplasm Bank, ensuring seed preservation in the

long-term. The plan also provides for actions to monitor and protect *Agalinis marianae*, a species new to science, endemic to the region and recently described, reinforcing the commitment to the discovery and protection of local biodiversity.



396
CATTLEYA
CAULESCEN
S

228
DYCKIA
RARIFLOR
A

Forest Compensation and Permanent Preservation Areas Recovery Program



Image 41

The maintenance of connectivity between forest fragments is one of the main challenges of territorial management in areas subjected to anthropogenic interventions. In this scenario, Permanent Preservation Areas (APPs), especially riparian forests along watercourses, play a strategic role by functioning as natural ecological corridors that allow for fauna movement and seed dispersal.

In mining activities, the vegetation clearing required for project implementation and operation can intensify habitat fragmentation processes, resulting in the isolation of fauna and flora populations and the expansion of the edge effect, characterized by microclimatic alterations at the margins of forest fragments. **Samarco's Forest Compensation and Permanent Preservation Areas Recovery Program constitutes a management instrument**

aimed at preserving areas in perpetuity, land tenure regularization in Protected Areas, restoration of native vegetation, and the reestablishment of essential ecological functions.

The Program covers the project's direct area of influence and its central objective is to promote ecological balance in the face of vegetation clearing associated with the project's activities. Actions aim to promote area conservation and the restoration of native vegetation, focusing especially on connectivity between remaining forest fragments and the creation of new habitats. The definition of offset areas prioritizes locations within the same hydrographic sub-basin or inside Protected Areas, ensuring that the ecological gain occurs within the affected region itself.

Action planning is based on detailed land use and cover mapping, quantifying the affected physiognomies (especially those in medium and advanced stages of regeneration). **The program's effectiveness is measured by meeting 100% of the actions established in the Commitment Agreements signed with FEAM.** Restoration success is evaluated beyond the initial planting; monitoring the recovery of areas for a minimum period of five years is mandatory to ensure the establishment of vegetation and the full performance of its ecological functions.



Image 42

Environmental Education Program



Image 43



Image 44



Image 45

The Germano Environmental Education Program was structured as a support instrument for the project's socio-environmental management and seeks to promote continuous processes of environmental awareness, information, and training, contributing to the strengthening of social participation, impact prevention, and the consolidation of an environmental culture both in the territory and within the corporate environment.

The adopted approach includes two fronts of action, one directed at the external audience and the other at the internal audience, which, in an integrated manner, reinforce transparency and contribute to a culture of valuing biodiversity.

Environmental Education with Communities – External Audience (PEA)

The Environmental Education Program (PEA) directed at the external public includes actions with communities within the mining company's Direct Area of Influence (AID), such as Santa Rita Durão, Camargos, and Antônio Pereira. The actions are structured with a focus on mitigating impacts associated with

the operational activities and in promoting sustainable development at the local level.

Among the main initiatives carried out are educational workshops on compensatory plantings, water resource management, sanitation, and recycling, as well as activities related to World Water Day and Arbor Day, including the donation of native seedlings. Specific actions were also developed, such as the "Foto na Lata" Workshop, which encouraged circular economy practices and creativity, strengthening community engagement with environmental themes; the Fire Protection Campaign; and the Biopackaging Workshop, held in partnership with the Apicrim project of the Federal University of Ouro Preto (UFOP), expanding the integration between environmental education, innovation, and the promotion of sustainable solutions.

Action with communities through educational activities aimed at mitigating impacts associated with the company's activities and promoting local sustainable development. Initiatives include workshops, lectures,

short courses, guided tours, awareness drives, environmental campaigns, and other activities focused on topics such as water resources, fauna, flora, recycling, fire prevention, and the preservation of natural and cultural heritage.

Activities are planned to engage with the local context, stimulating community participation, knowledge exchange, and the strengthening of sustainable practices. Actions focused on circular economy and creativity are also promoted, encouraging material reuse and the adoption of environmentally responsible behaviors.

In addition, preventive communication campaigns are carried out with a focus on environmental conservation and the protection of natural areas, highlighting the importance of fire prevention and care for ecosystems

Environmental Education Program



Environmental Education with Workers – Internal Audience (PEAT)

The Environmental Education Program for internal audience (PEAT) aims to strengthen the corporate environmental culture through structured training and continuous communication and awareness actions, covering both own employees and third parties. The initiative promotes alignment with the Environmental Management System (EMS) guidelines and Samarco's socio-environmental responsibilities, encouraging the adoption of preventive practices and the mitigation of environmental impacts in operational routines.

In this context, the New Employee Integration training presents the company's EMS, providing guidance on the behaviors and procedures necessary to minimize impacts in the work environment. The training also addresses legal aspects related to environmental legislation, including responsibilities and penalties resulting from inappropriate conduct and potentially harmful activities to the environment,

covering topics such as water resources, air quality, fauna, flora, archaeology, and cultural heritage.

Additionally, the Environment Dialogue consists of a continuous internal communication initiative, structured through informative materials and awareness campaigns on the environment, contributing to the consolidation of these topics in the organizational culture and the strengthening of environmentally responsible behaviors.

Environmental campaigns aimed at employees aim to reinforce the company's priority topics and encourage the adoption of socio-environmental best practices. Actions address guidelines related to operational activities, impact prevention, and the conscious use of resources, while simultaneously encouraging sustainable attitudes in daily life, such as water and energy savings, proper waste disposal, and fire prevention, promoting the multiplication of this care in the domestic environment as well.



Image 46



Image 47



Image 48



Image 49

Taxonomic
revision **project**
for the mountain
keel-backed turtle
Hydromedusa maximiliani

This research project was structured in partnership with the National Action Plan (PAN) for the Conservation of the Herpetofauna of the Serra do Espinhaço (MG), with the objective of revising the taxonomy of *Hydromedusa maximiliani* through morphological and genetic tools, strengthening the scientific base that supports conservation and monitoring decisions.

The initiative aimed to reduce critical uncertainties regarding the identity and distribution of the mountain keel-backed turtle, especially in a scenario where populations may present isolation and low connectivity, with the potential for differentiation between lineages throughout the territory. Should the revision confirm the existence of distinct evolutionary units (or even a species complex), the results could impact how the species is assessed and prioritized in terms of conservation and management, with practical implications for territorial planning, the definition of priority areas, as well as mitigation strategies.

The project's credibility is anchored in the institutional partnership with the National Action Plan (PAN) and in scientific governance with universities and specialists; the project provides for an agreement with the Federal University of Viçosa (UFV), under the coordination of Prof. Dr. Felipe Sá Fortes Leite (executive coordination of the PAN), with the participation of researchers from other federal institutions. This structure ensures methodological rigor, adherence to PAN guidelines, and the capacity to deliver robust technical products.

The methodological design combines three complementary fronts.

- 1 First, a stage of compilation, qualification, and mapping of records, including distribution modeling to refine knowledge gaps and guide sampling.
- 2 Subsequently, genetic sampling along the species' known distribution, integrating material from scientific collections and targeted field campaigns, to evaluate population structure (including genetic diversity and historical demography) and differentiation patterns.
- 3 Finally, morphological and morphometric (comparative) analyses seek to verify if there is diagnostic evidence supporting the clusters indicated by genetics, strengthening the taxonomic delimitation.



Image 50



Image 51

The project should generate (i) refined distribution and potential area maps, (ii) evidence of genetic structure and connectivity between populations, (iii) a comparative morphological diagnosis, and (iv) a technically grounded taxonomic proposal, accompanied by conservation recommendations. In terms of generated value, it is applied science that increases monitoring precision, qualifies area prioritization and

sensitive populations and strengthens the credibility of biodiversity management by aligning the company's actions with an official public policy instrument (PAN) and recognized scientific institutions.

The neoplecostomine catfish
Pareiorhaphis scutula (Siluriformes,
Loricariidae): Geographic
distribution **update** and
considerations on
conservation status



The present action, focused on the neoplecostomine catfish (*Pareiorhaphis scutula*), is part of the agenda of the Terrestrial Fauna and Aquatic Biota Monitoring Program – Germano Complex Unit. Within this program, objectives were established for the species, specifically the evaluation of its populations (structure) and the possible impacts affecting them.

Pareiorhaphis scutula is endemic to Brazil and known in the Piracicaba river sub-basin and the Doce river basin, Minas Gerais, where it typically occurs in streams and waterfalls with rocky substrates. Despite presenting a restricted distribution and the impacts identified in the basin where it occurs (such as mining and hydroelectric plants), the species is frequent and abundant. Furthermore, considering that there are no signs of extinction risk in the near future, this neoplecostomine catfish is currently categorized as Least Concern (LC) on the IUCN (2026) and MMA (2022) lists.

The initiative is anchored in a robust long-term monitoring database

of ichthyofauna, built during systematic campaigns with technical execution supported by specialized consultancies and alignment with licensing requirements, strengthening the credibility and traceability of the results obtained.

In practice, continuous monitoring of the species is conducted as a sensitive indicator of habitat quality in the lotic environments (streams and river stretches) where it lives. The approach combines recurring sampling at fixed ichthyofauna points, standardized occurrence and abundance records, and evaluation of individual condition (biometrics and allometric relationships), with capture, marking (with fluorescent tags), and release at the same site — a design that allows for understanding population trends and, at the same time, transforming data into management.

Throughout the monitoring, *P. scutula* has consolidated itself as a key species, as it was present in all campaigns and showed a trend of increasing numbers of captures, with higher abundance during the operation period, with no evidence

of negative effect on the growth pattern/body condition observed between project phases.

The “territory expansion” component materializes in the expansion and refinement of the spatial understanding of the species within the sampling network: records were concentrated in six points (*BA01*, *BA02*, *BA03*, *BA04*, *BA06*, and *BA09*), with occurrences appearing at points that only began recording the species in the most recent campaigns, indicating an expansion of occupation/habitat use within the monitored area. This result gains strength when connected to the logic of continuous improvement stemming from environmental control measures and upstream sediment management (including sedimentation basins, complementary drainage, and slope revegetation), which were associated with significant reductions in turbidity in the monitored watercourse, accompanied by a relevant increase in the species' abundance and the return of records at a point previously without captures during the shutdown.

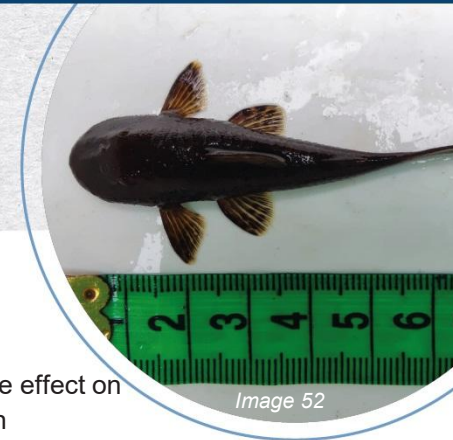


Image 52

By connecting monitoring, environmental control, and biological response, the program generates value on two fronts:

- 1 conserves an endemic species through concrete evidence of its local dynamics and distribution and,
- 2 transforms biodiversity into decision-making, prioritizing interventions where data indicates higher habitat sensitivity, reducing risks, and reinforcing transparency before environmental agencies and stakeholders.



Image 53

Subprogram for expanding knowledge on species of interest of the Anurofauna

Target species of the subprogram:

- Ischnocnema* aff. *Parva*
Ischnocnema gr. *guentheri*
Ischnocnema gr. *Lactea*
Ischnocnema *izecksohni*
Thoropa miliaris
Aplastodiscus arildae
Aplastodiscus cavicola
- Bokermannohyla alvarengai*
Bokermannohyla martinsi
Bokermannohyla feioi
Scinax aff. *machadoi* *Scinax* aff. *perereca*
Scinax *Curicica*
Scinax tripui
- Sphaenorhynchus canga*
Hylodes uai
Leptodactylus cunicularius
Physalaemus erythros
Phasmahyla jandaia
Pithecopus ayeaye



In this context, the subprogram aimed to search for new populations, obtain morphological and bioacoustic data, and expand the knowledge of the distribution of species in the Iron Quadrangle of interest to conservation and science (according to the target species list).

The initiative relied on a consolidated long-term monitoring base, built with recurring campaigns and the application of active searching (without standardized sampling effort), allowing the sampling to cover a larger number of points, wider areas, and a greater diversity of habitats and reproductive environments and, consequently, record more species.

As a result, during the field campaigns of this subprogram, a total of 567 individuals belonging to 55 herpetofauna species (29 amphibians and 04 reptiles) were recorded, considering tree frogs, frogs, snakes, and turtles.

Of these records, 15 species are targets of the subprogram (according to the list presented). Among the target species recorded, the following stand out:

- 1 two with uncertain identification: (*Scinax* aff. *machadoi* and *Ischnocnema* gr. *lactea*);
- 2 three classified as Data Deficient (*Ischnocnema* *izecksohni*, *Physalaemus* *erythros*, and *Hylodes* *uai*);
- 3 one endangered (*Pithecopus* *ayeaye*) and;
- 4 one species classified as Near Threatened (*Bokermannohyla* *martinsi*).

This subprogram is part of the Terrestrial Fauna and Aquatic Biota Monitoring Program of the Germano Complex and was structured to generate value beyond routine monitoring, connecting applied science, methodological innovation, and conservation. The focus is, as the name implies, to expand the knowledge of amphibian species considered relevant for conservation (e.g., threatened, rare, of uncertain taxonomy, poorly known geographic distribution) and thus **reduce uncertainties that, in practice, limit risk assessments and the prioritization of mitigation measures.**



Book

A Fauna
do Complexo Germano (The
Fauna
of the Germano Complex)



Image 57

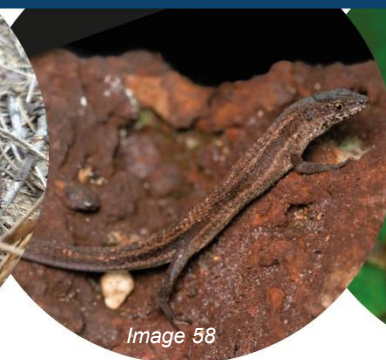


Image 58



Image 59

This book presents a broad and consistent portrait of the fauna associated with the Germano Complex, located in the municipalities of Ouro Preto and Mariana (MG), in the heart of the Iron Quadrangle region. The work is the direct result of a strategic coordination between Samarco Mineração S.A., Sete Soluções e Tecnologia Ambiental, and Gaia Cultural, materializing an effort of production, data systematization, and dissemination of technical-scientific knowledge applied to environmental management.

Based on five years of systematic fauna monitoring, conducted through standardized methodologies and specialized technical teams, the study recorded 856 animal taxa, including species of bees, vector mosquitoes, amphibians, reptiles, birds, and mammals. In addition to recording local biodiversity, the publication transforms field data into applicable knowledge, reinforcing transparency and the commitment to evidence-based environmental

management. By consolidating historical series and results by faunal group, the book supports the identification of sensitive areas and species, guides the improvement of control and mitigation measures, and strengthens the planning of conservation actions in the Germano Complex territory and its surroundings.

The book contextualizes the Germano Complex, a territory entirely within the Atlantic Forest biome, which possesses a very rich and diversified fauna. The area is located in the "buffer zone" of the Atlantic Forest and Serra do Espinhaço Biosphere Reserves, integrates two priority areas for the conservation of biological diversity, and is part of the South Environmental Protection Area of the Belo Horizonte Metropolitan Region, as well as the Ouro Preto/Mariana Special Protection Area (APE). In the project's surroundings, important Protected Areas stand out, such as the Serra do Gandarela National Park, the Caraça Sanctuary Private Natural Heritage

Reserve and the Horto Alegria Private Natural Heritage Reserve, forming a mosaic of protected areas.

Throughout the chapters, it is demonstrated how fauna monitoring generates fundamental data for understanding ecological patterns, supporting territorial management decisions, and strengthening conservation strategies. This continuous monitoring allows Samarco to evaluate the richness, composition, and abundance of species present in its area of influence, providing subsidies for assessing how operational impacts affect fauna over time and, therefore, how control and mitigation measures can be improved to become more effective.



Image 60

By making data collected based on the Biodiversity Plans for the Germano Complex publicly available, Samarco seeks to contribute to the knowledge and consequent better management of the territory, as well as to provide society with transparency regarding our operations.



856
TERRESTRIAL
ANIMAL
TAXA

As a way to reaffirm its commitment to sustainable growth, Samarco has structured an innovative approach to biodiversity management based on immersive technology and applied science. The Green Cubes platform, developed in strategic partnership with Hexagon, consists of an immersive digital reality dashboard that operates as a digital twin of the natural environment and assists in the multidimensional mapping of areas undergoing recovery and restoration associated with mining activities.

The solution allows for transforming qualitative field data into verifiable and data-driven metrics, enabling immersive management based on daily monitoring and change detection of biodiversity assets, providing subsidies for Samarco to mitigate impacts, restore biodiversity, and ensure transparent reporting.

The Green Cubes methodology is aligned

with the Nature Positive Initiative (NPI) metrics, recognized by the TNFD as the main guiding metrics for assessing impacts and managing nature-related risks, with emphasis on species extent, condition, and state. The implementation of the platform occurs in stages. To activate the Green Cubes Experience, data collected through drones, 3D scanning, and flora and fauna sensors (360° cameras, camera and audio traps, and LiDAR technology) are integrated, ensuring precision in environmental characterization through immersive visualizations and analysis supporting reporting and restoration science.

This structure was initially applied as a pilot through Phase 1 (Slice 1), completed in October 2025. The stage was applied at seven Experience Points (XP) located in the Gaio and Horto Alegria areas, strategic environmental offset zones surrounding the Germano Mine, in addition to an additional XP developed at Germano. The results allowed for the 3D immersion of stakeholders in Samarco's environmental activities and confirmed the presence of several bird and mammal species, including native and invasive ones.

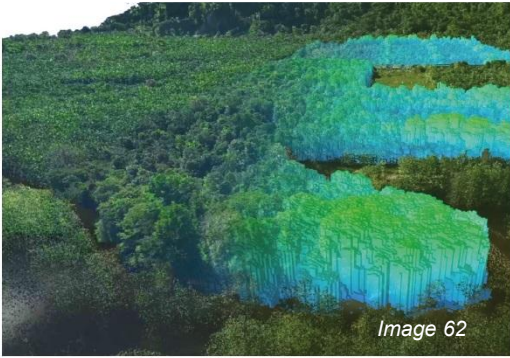
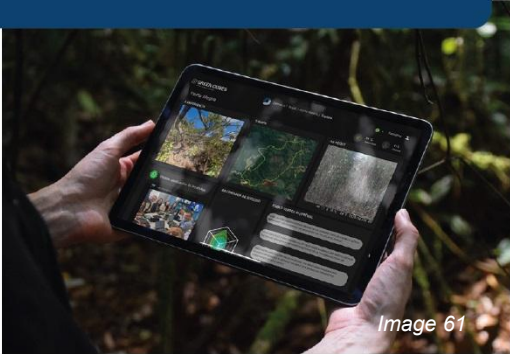
In addition to demonstrating the platform's technical viability, Phase 1 consolidated a solid proof of concept for the scalable environmental monitoring of Phase 2 (Slice 2). This next stage is described as a scientifically rigorous and repeatable monitoring structure, expanding ecological coverage and ensuring methodological reproducibility. The expectation is to generate comprehensive and comparable biodiversity data, which will be used as inputs for impact assessments and reliable reports of nature-positive impacts.



By incorporating advanced digital technology into environmental management, Samarco advances in consolidating a new standard for mine closure and recovery, actively contributing to nature restoration and data-driven decision-making.

In addition to supporting restoration and monitoring, Green Cubes is presented as a "digital window into nature," strengthening transparency and communication regarding environmental actions, while simultaneously supporting corporate needs such as reporting and licensing processes, as well as structuring a natural capital vision within Samarco's context.

As an evolutionary perspective, the initiative is described with the potential for expansion into more scalable environmental monitoring, with change detection and daily monitoring, in addition to a vision of large-scale expansion for monitoring, including the Rio Doce corridor.



The TNFD is an international initiative that guides companies and financial institutions in identifying, assessing, managing, and disclosing nature-related dependencies, impacts, risks, and opportunities. Inspired by the TCFD structure, but with an expanded focus on natural capital, biodiversity, and ecosystem services (ESs), it seeks to integrate the nature variable into strategic, financial, and corporate governance decisions. The proposed methodological framework establishes 14 reporting recommendations, organized into four pillars: governance, strategy, risk and impact management, and metrics and targets, promoting greater transparency and standardization in the reporting of interactions between organizations and nature.

With the objective of internalizing these recommendations and advancing its nature strategy, Samarco conducted a Pilot

TNFD (2024-2025). To this end, it applied the proposed LEAP approach regarding the stages: Evaluate, Assess, and Prepare, which strengthened the process of incorporating the nature agenda into the business management model.

The Evaluate stage corresponded to the technical consolidation of interactions between business operations and nature, transforming spatial mapping into the structured measurement of dependencies and impacts. In this phase, impacts on biodiversity resulting from the company's activities were analyzed, focusing especially on the use and alteration of terrestrial, aquatic, and marine ecosystems, climate change, pollution, overexploitation of resources, and invasive exotic species. Furthermore, Samarco's dependencies on biodiversity and ecosystem services (ESs) were assessed.

The operationalization of this stage was structured based on the preparation of three studies:

- 1** Materials associated with direct operations (Germano Complex, slurry pipeline, and Ubu), integratedly assessing the five main pressures on biodiversity: use and alteration of terrestrial, aquatic, and marine ecosystems, climate change, pollution, overexploitation of resources, and invasive exotic species, combining landscape ecology analysis.
- 2** Qualitative Diagnosis of Dependencies: identified and prioritized the three most material ecosystem services for operations: regulation of water flow; freshwater provision; and soil and sediment retention, with subsequent monetary valuation.
- 3** Corporate Biodiversity Footprint: analyzed and quantified pressures associated with the use and alteration of terrestrial, aquatic, and marine ecosystems, climate change, and pollution, combining ecological analysis with life cycle assessment through the I Care tool and the **Iceberg Data Lab Corporate Biodiversity Footprint (CBF)**, which measures the company's total biodiversity footprint using the $\text{km}^2 \cdot \text{MSA} \cdot \text{year}$ metric (where MSA is Mean Species Abundance).



Valuation of Ecosystem Services

As a development of the Qualitative Diagnosis of Dependencies, the Valuation of ESs aimed to quantify the prioritized ESs in the study using the InVEST software at a hydrographic basin scale. The adopted approach followed the Natural Capital Protocol guidelines, focusing on the business perspective, and utilized the value transfer methodology, adapting consolidated economic values to the reality of the analyzed basins.

- 1 For regulation of water flow, it was based on water use charges and permits, reflecting the cost associated with water availability regulated by ecosystems.
- 2 For soil and sediment retention, the avoided cost approach was employed, considering expenses associated with dredging, reservoir maintenance, and infrastructure depreciation.
- 3 For freshwater provision, baseflow and water quality were integrated, using avoided costs in treatment for nitrogen, phosphorus, and turbidity removal as a reference.

Valuation does not represent the 'pricing of nature,' but rather an instrument for translating ecological value into economic and financial language. By monetizing ecosystem contributions, the magnitude of the company's operational dependency on natural services is evidenced, strengthening the double materiality analysis and supporting the strategic evaluation of risks and opportunities.

In the following stage, Assess, risks and opportunities were evaluated from Samarco's financial and strategic perspective. The analysis considered physical and transition risks, assessed under three scenarios: the optimistic No Net Loss – Nature Positive; the trend-based Business as Usual; and the pessimistic Sand in the Gears, for the time horizons 2025,

2026-2030 and 2031-2050. The combination of magnitude and probability was considered, incorporating additional criteria such as severity for nature, organizational sensitivity, and the speed of manifestation of risk effects, if materialized. Social license to operate, water scarcity, regulatory compliance, and dependency on ecosystem services stood out as material topics. In parallel, material opportunities were identified, linked to the strengthening of the social license, strategic brand positioning, efficiency in resource use (water), and innovation in tailings management and disposal and ecological restoration.

Finally, the Prepare stage institutionally consolidates the nature agenda, closing the LEAP cycle and establishing the foundations for defining metrics and targets, integration into decision-making processes, and structured reporting on nature-related dependencies, impacts, risks, and opportunities. This closure also marks the consolidation of the Biodiversity Management Plan, with the preliminary definition of guidelines, priorities, responsibilities, and monitoring mechanisms, establishing the foundations for the operationalization of metrics and targets.



Adherence to the TSM Biodiversity Protocol



Towards Sustainable Mining (TSM) is an international program of excellence in socio-environmental performance, established by the Mining Association of Canada (MAC) in 2004, with the objective of driving continuous improvement in mining operations through clear, measurable, and auditable parameters. In Brazil, the Brazilian Mining Institute (IBRAM) adapted this framework to the country's regulatory and operational reality, consolidating it as a sectoral self-regulation instrument, strengthening governance, and building credibility with society and the market.

Regarding the topic of biodiversity, the TSM protocol offers an assessment tool structured into three indicators, which guide companies in qualifying their management practices and in the continuous improvement of their processes:

- 1 Corporate commitment to conservation, responsibility, and communication related to biodiversity;
- 2 Planning and implementation of biodiversity conservation policies at the facility level;
- 3 Reports on biodiversity conservation.

In this context, Samarco reaffirms its commitment to the continuous evolution of its biodiversity management, directing efforts to consistently strengthen the processes, practices, and evidence associated with each TSM indicator. More than a punctual result, the adopted approach seeks to consolidate a trajectory of permanent improvement, aligned with sectoral best practices and the integration of biodiversity into business management. In the independent audit conducted in 2025, operational, environmental, and compliance aspects related to the application of the protocol were evaluated.

The analysis contributed to highlighting progress, priorities, and fronts for strengthening management, with emphasis on initiatives and practices already underway, such as:

Indicator 1 – Samarco has been strengthening its institutional positioning by taking on relevant public commitments for the biodiversity agenda, such as the No Net Loss (NNL) prerogative and the adoption of the mitigation hierarchy (avoid, minimize, restore, and offset). This direction is complemented by the strengthening of partnerships with universities, environmental agencies, civil society organizations, and initiatives such as the National Action Plans (PANs), expanding the capacity for collaborative action and the technical consistency of the actions.

Indicator 2 - Samarco has expanded efforts to integrate biodiversity into operational practice through research initiatives, applied science, ecological restoration

and social engagement. These actions contribute to strengthening management at the facility level, promoting greater integration between planning, implementation, and follow-up, and demonstrating the company's intention to advance beyond compliance with legal requirements, focusing on progressively more structured and strategic management..

Indicator 3 – Transparency and the qualification of public communication have also been subject to continuous improvement. In this sense, the 2023 Sustainability Report, with external verification, represents an important effort to ensure greater credibility and consistency for the information disclosed. Furthermore, verification of the biodiversity management system contributes

to strengthen the traceability of practices and the reliability of internal processes, supporting the evolution of governance and accountability.

.....
Samarco's trajectory regarding the TSM protocol evidences a continuous movement of strengthening biodiversity management, focusing on qualifying processes, improving transparency, and engaging with relevant stakeholders. This direction reinforces the company's intention to consolidate biodiversity as a structural element of environmental management and long-term strategy, guided by continuous improvement and value generation in the territories where it operates.



Image 6464

In a context of growing global expectations for more responsible mining, Samarco consolidates strategic objectives aimed at the continuous strengthening of its biodiversity agenda. Throughout this Compendium, programs and initiatives are presented that demonstrate how the company has been materializing these directions in practice. The experience accumulated in recent years demonstrates the progressive advancement of nature integration into corporate decision-making, with the systematic incorporation of the management of impacts, dependencies, risks, and opportunities related to biodiversity and strategic business processes.

This work has been built upon an integrated territorial management approach, guided by the mitigation hierarchy and sustained by technical evidence, stakeholder dialogue, and long-term planning.

Monitoring constitutes the foundation of this management, by allowing for the understanding of ecological trends, the possibility of reducing uncertainties, and guiding decisions in the territory.

Samarco monitors bioindicator species, including terrestrial, aquatic, and marine fauna, as well as relevant environmental factors. This effort gathers robust historical series, with thousands of records and hundreds of evaluated taxa. Technologies such as bioacoustics have significantly expanded species detection in the field, and the generated data is systematically converted into indicators that support environmental management.

Based on this knowledge, Samarco acts preventively in territorial planning, using environmental data and field evidence to identify sensitive areas, establish protection rules, and **avoid or reduce** the probability of impacts before they occur. When interventions prove necessary, operational and environmental protocols aimed at **minimizing** impacts during implementation and operation are adopted.

Among these measures, wildlife deterrence and rescue actions, plant germplasm salvage, preventive species management, and management of

risks associated with vehicle traffic and the introduction of invasive species, stand out.

These practices are complemented by initiatives for the **restoration and recovery** of the ecological functionality of affected areas through the restoration of native vegetation, the recovery of springs and sensitive environments, the protection of riparian areas, and continuous technical management. The strengthening of landscape connectivity, environmental quality, and ecosystem resilience is supported by an in-house nursery, the use of local germplasm, and systematic monitoring over time, with established targets,

**avoid or reduce
the probability of
impacts before
they occur**

indicators and governance defined to ensure the effectiveness of the actions.

For residual impacts, Samarco implements forest **compensation** and Permanent Preservation Areas recovery actions, prioritizing the restoration of native vegetation in riparian forests and strategic ecological corridors. Areas are selected preferably within the same hydrographic sub-basin or inside Protected Areas, ensuring territorially coherent ecological gains. The effectiveness of these actions is guaranteed by detailed planning, full compliance with commitments made to environmental agencies, and monitoring of compensated areas.

Biodiversity management at Samarco is further sustained by integrated actions of **environmental education, applied science, and innovation**. Socio-environmental programs strengthen the engagement of communities and workers, promoting environmental culture, impact prevention, and social participation in the territory. The technical base is continuously expanded by research projects

aiming to leave a positive legacy in the biomes where it operates

developed in partnership with universities and research institutions, reducing uncertainties regarding species and ecosystems and qualifying decisions for conservation

and environmental management. Innovation complements this approach through the use of digital technologies and advanced monitoring systems, which integrate field data and recognized metrics, expanding transparency, reporting, and the effectiveness of actions.

It is from this already consolidated technical, institutional, and operational foundation that Samarco defines its ambition to **achieve No Net Loss of biodiversity** in the areas impacted by its operations, aiming to leave a positive legacy in the biomes where it operates. This ambition guides the progressive integration of biodiversity into the corporate strategy, directing the prioritization of future actions and the continuous improvement of management practices.

The company strengthens its convergence with the **recommendations of the TNFD**, by advancing in the integration of nature into corporate

strategy, governance and transparency; with the TSM Protocols, aimed at continuous improvement of environmental performance; and with the **ICMM sector principles and expectations**, which establish guidelines for responsible mining aligned with global demands.

By gathering results, lessons learned, and management instruments, this Compendium marks a point of consolidation for Samarco's trajectory in the biodiversity agenda. Based on this foundation, the company structures its next improvement cycles, reinforcing the commitment to the continuity of actions and the permanent evolution of biodiversity management in the territories where it operates.



AID – Direct Area of Influence (Área de Influência Direta). Area directly affected by the project's activities and where the most immediate environmental impacts occur.

APE – Special Protection Area (Área de Proteção Especial). Area with a specific environmental protection regime established by territorial management instruments.

APP – Permanent Preservation Area (Área de Preservação Permanente). Area protected by environmental legislation intended for the preservation of water resources, geological stability, biodiversity, and the landscape.

CBF – Critical Biodiversity Feature. Biodiversity element considered critical for conservation, generally associated with sensitive habitats or threatened species.

CBD – Convention on Biological Diversity. International treaty establishing guidelines for biodiversity conservation, sustainable use of its components, and fair sharing of benefits derived from the use of genetic resources.

CEDASF – Samarco Center for Environmental Development and Sustainability (Centro de Desenvolvimento Ambiental e Sustentabilidade da Samarco).

COPAM – State Environmental Policy Council (Conselho Estadual de Política Ambiental). Body responsible for the deliberation and formulation of environmental policies in the state of Minas Gerais.

EIA – Environmental Impact Study (Estudo de Impacto Ambiental). Technical study evaluating the environmental impacts of a project or activity and proposing mitigation, control, and compensation measures.

NBSAP (EPANB) – National Biodiversity Strategy and Action Plan (Estratégia e Plano de Ação Nacional para a Biodiversidade).

FEAM – State Environmental Foundation (Fundação Estadual do Meio Ambiente). Environmental agency of the state of Minas Gerais responsible for environmental licensing and environmental policy implementation.

GBF – Global Biodiversity Framework. Global framework for biodiversity adopted under the Convention on Biological Diversity, establishing targets and actions for biodiversity conservation by 2030.

IBRAM – Brazilian Mining Association (Instituto Brasileiro de Mineração). Representative entity of the mineral sector in Brazil.

ICMM – International Council on Mining and Metals. International organization composed of companies and associations from the mineral sector committed to responsible and sustainable practices.

IEMA – State Institute for the Environment and Water Resources of Espírito Santo (Instituto Estadual de Meio Ambiente e Recursos Hídricos do Espírito Santo).

IUCN – International Union for Conservation of Nature. International organization dedicated to nature conservation and the sustainable use of natural resources.

LEAP – Locate, Evaluate, Assess and Prepare. Methodological framework proposed by the Taskforce on Nature-related Financial Disclosures (TNFD) for assessing nature-related risks and opportunities.

MMA – Ministry of the Environment and Climate Change (Ministério do Meio Ambiente e Mudança do Clima). Federal government body responsible for the formulation and implementation of Brazilian environmental policy.

SDGs – Sustainable Development Goals. Set of global goals established by the United Nations to promote sustainable development by 2030.

PAN – National Action Plan for the Conservation of Endangered Species (Plano de Ação Nacional para Conservação de Espécies Ameaçadas).

PARNA – Serra do Gandarela National Park (Parque Nacional da Serra do Gandarela). Full protection conservation area category intended for the preservation of natural ecosystems of great ecological relevance.

PCA – Environmental Control Plan (Plano de Controle Ambiental). Technical document presenting measures to mitigate and control the environmental impacts of a project.

PRAD – Degraded Area Recovery Plan (Plano de Recuperação de Áreas Degradadas). Technical instrument establishing actions to restore areas impacted by anthropogenic activities.

EMS (SGA) – Environmental Management System (Sistema de Gestão Ambiental). Set of policies, procedures, and practices adopted by an organization to manage its environmental impacts.

TCFD – Task Force on Climate-related Financial Disclosures. International initiative developing recommendations for the disclosure of climate-related risks and opportunities.

TMU – Ubu Maritime Terminal (Terminal Marítimo de Ubu). Samarco port structure located in the municipality of Anchieta, Espírito Santo.

TNFD – Taskforce on Nature-related Financial Disclosures. International initiative aimed at integrating nature into risk management, opportunities, and financial decisions.

TSM – Towards Sustainable Mining. International socio-environmental performance program for the mining industry.

UBU – Ubu Industrial Complex (Complexo Industrial de Ubu). Samarco operational unit located in Anchieta, Espírito Santo.

UFOP – Federal University of Ouro Preto (Universidade Federal de Ouro Preto).

UFV – Federal University of Viçosa (Universidade Federal de Viçosa).

HPP (UHE) – Hydroelectric Power Plant (Usina Hidrelétrica).

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