



Our Commitment to Biodiversity 2023



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INTRODUCTION

Corporación Aceros Arequipa S.A. (CAASA), headquartered in the district of Paracas, province of Pisco, department of Ica, is located at more than 2 kilometers from the Paracas National Reserve (PNR), which is designated as a Natural Protected Area (NPA). The Paracas National Reserve, which covers an area of 335,000 hectares, is subject to a zoning plan aimed at regulating the activities allowed in its territory and has a buffer zone that, although not an integral part of the Natural Protected Area, fulfills the function of safeguarding it from direct impacts. This buffer sector is subject to periodic evaluation and updating every five years, through the preparation of the “Natural Protected Areas Master Plan”.

Only CAASA’s operations in Pisco are developed within the buffer zone of the RNP (Panamericana Sur km241), which includes the Steel Complex and the former San Juan de Buenavista farm, specifically the Industrial and Reprocessable Materials Storage Yard. All the activities carried out in these facilities have the environmental certification issued by the competent authority, which implies the prior completion of an Environmental Impact Assessment supported by the National Service of Natural Areas Protected by the State. This evaluation considers the diversity of aspects, including the biological environment, and is evaluated and classified as having a “non-significant” impact.

The scope of this report contemplates the operations of CAASA's headquarters in Pisco, since it is the only facility close to a natural protected area, we share our environmental policy and commitment to the biodiversity of this area. It also details the findings of the risk assessment carried out, identifying the risks and species that inhabit the CAASA perimeter live fence. It is worth noting that these species are subject to monitoring and evaluation every semester by experts and are not part of any category of conservation or threat, according to current environmental regulations in Peru. It also details the commitments, interactions with stakeholders, outreach actions, activities and joint efforts with local and authorities to preserve the biodiversity of our perimeter live fence in the face of the identified risks.



1

ENVIRONMENT



Natural Protected Areas (NPAs)

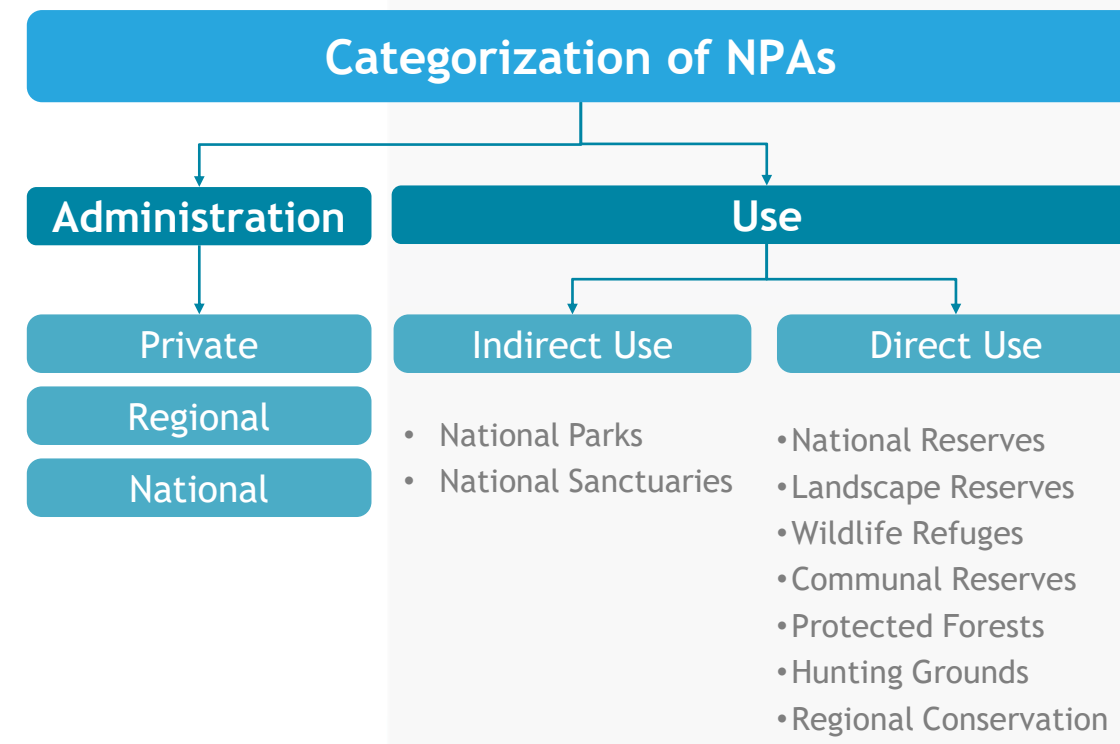
Natural Protected Areas (NPAs) represent continental and/or marine territories formally identified, designated and legally protected by the State for the purpose of conserving biological diversity and other associated values, such as cultural, scenic and scientific interest, as well as for their contribution to sustainable development. According to the Law of Natural Protected Areas (1997), the ANPs, together with their different categories and zonings, constitute a patrimony of the Nation. Its natural state is required to be preserved in perpetuity, allowing in some cases the regulated use of the area and the extraction of resources, with due restrictions to guarantee its long-term protection.

Categorization

They can be classified according to their management, use, and zoning. Depending on their administration, they can be private conservation or in the public domain at the national or regional level. If they cover privately owned land, restrictions are established on the use of such land, as well as compensatory measures to preserve the biodiversity of the area.

Depending on their use, they can be indirect or direct. Indirect use NPAs are spaces designated and managed specifically for non-manipulative scientific research, recreation and tourism. These

areas are forbidden for the extraction of natural resources and any kind of modification of the environment natural. Examples of such areas include National Parks, National Sanctuaries, and Historic Sanctuaries. Direct-use NPAs are those that allow the use or extraction of resources, primarily by local populations, in those areas and places and for those resources defined by the area's management plan, such as National Reserves, Landscape Reserves, Wildlife Refuges, among others [\(Annex 1\)](#).



Zoning

Each NPA is zoned according to its requirements and objectives, so the buffer zones, adjacent to the NPAs, due to their nature and location, require special treatment to ensure the conservation of the protected area [\(Annex 2\)](#). The activities carried out in the buffer zones must not jeopardize the fulfilment of the purposes of the NPA. Ecotourism is usually promoted; the management or recovery of flora and fauna populations; the recognition of private conservation areas, conservation and environmental services concessions, research and recovery of habitats, development of agroforestry systems, among other activities that preserve the NPA.

National System of Natural Areas Protected by the State

The group of NPAs constitutes the National System of Natural Areas Protected by the State (SINANPE), managed by entities including public institutions of the central and regional governments, municipalities, as well as the private sector and local communities.

The policy and strategic planning guidelines of the NPAs are defined in a document called the "Master Plan for Natural Protected Areas". This plan is prepared and reviewed through a participatory process and includes the conceptual framework for the constitution and long-term operation of the SINANPE NPAs, as well as the analysis of the System's habitats and the measures to conserve and complete the required ecological cover. The Master Plan is the highest-level planning document, developed through participatory processes, reviewed every 5 years, and defines the zoning, strategies and general policies for the management of the area, as well as the organization, objectives, specific plans and management programs. It also establishes the frameworks for cooperation, coordination and participation related to the area and its buffer zones.



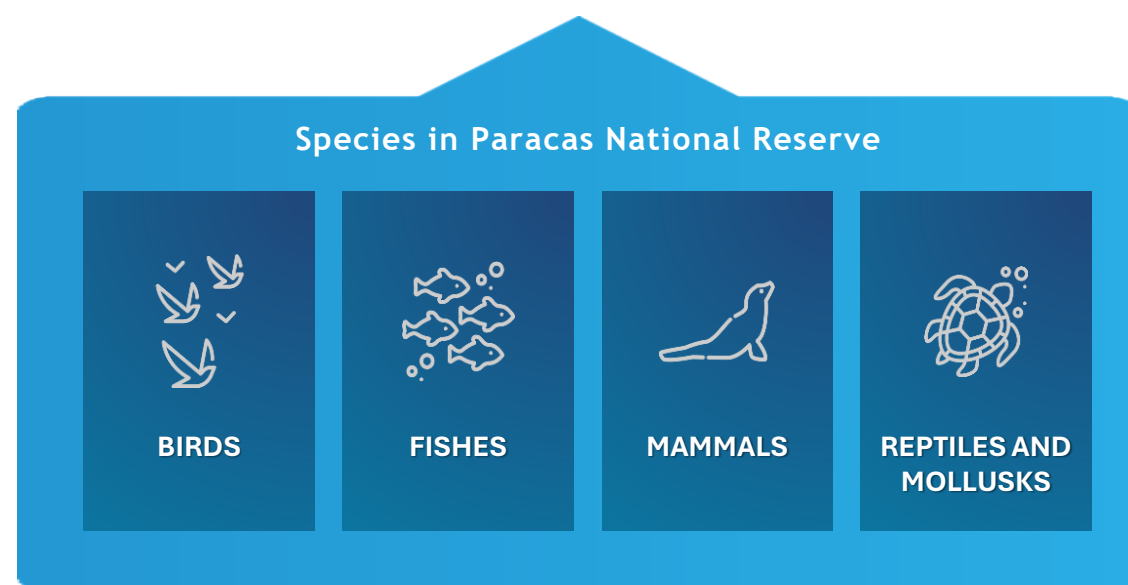
NPA in the Peruvian Amazon

The Paracas National Reserve (PNR)

The Paracas National Reserve (PNR), designated as a Natural Protected Area (NPA) in Peru, is in the province of Pisco, in the department of Ica. Its establishment dates to September 25, 1975, with the primary purpose of safeguarding a characteristic portion of the country's maritime and desert environment, seeking the preservation of the diversity of species of wild flora and fauna that coexist there.

This preserves a representative sample of the marine ecosystems belonging to the cold sea of the Peruvian Current or Humboldt Current, identified by experts as one of the most productive on the planet. It also provides crucial habitats for a diverse range of migratory species, which use the area to feed and shelter during their extensive annual journeys.

The Paracas National Reserve presents optimal conditions in its coastal zone for the conservation and quiet reproduction of numerous species of resident and migratory birds, fish, mammals, reptiles, mollusks, among others ([Annex 1](#)).



Paracas National Reserve Master Plan

Like any Protected Area, PNR has a master plan approved on January 29, 2016, by Presidential Resolution No. 020 - 2016 - SERNANP, and has 9 objectives:

1. Maintain the conservation status of the wetlands of Paracas Bay, Lagunilla Bay and Independencia Bay, in their current condition, guiding a trend of progressive improvement.
2. Conserve the ecosystems of Islands, Islets, Points and Cliffs, available as reproduction, feeding and resting areas for threatened wildlife.
3. Conserve the marine ecosystem (with depths up to 50 mbnm), for the preservation of the natural banks of marine invertebrates, the macroalgae meadows and seagrasses that are distributed in this area
4. Monitor the conservation status of the marine ecosystem at depths greater than 50 mbsl. and its biological diversity.
5. Maintain the coverage of the coastal desert, the hills and the sofaique forest.
6. Promote the sustainable use of natural resources within the NPA.
7. Promote the sustainable use of the cultivation of the fan shell crop within the PNR.
8. Promote sustainable tourism and facilitate the diversification of PNR's tourism offer.
9. Promote the Participatory Management of the PNR.

Ecosystems of the Paracas National Reserve

The Paracas National Reserve covers 5 types of ecosystems:

1	Wetlands
2	Islands, islets, points and cliffs
3	Coastal Desert (Coastal hills, sofaique forest and breeding area of the Peruvian tern)
4	Marine ecosystem (Depths of 0 to 50 mbsl)
5	Marine ecosystem (Depths of 0 to 50 mbsl)

Source: Presidential Resolution N° 020-2016-SERNANP (2016).

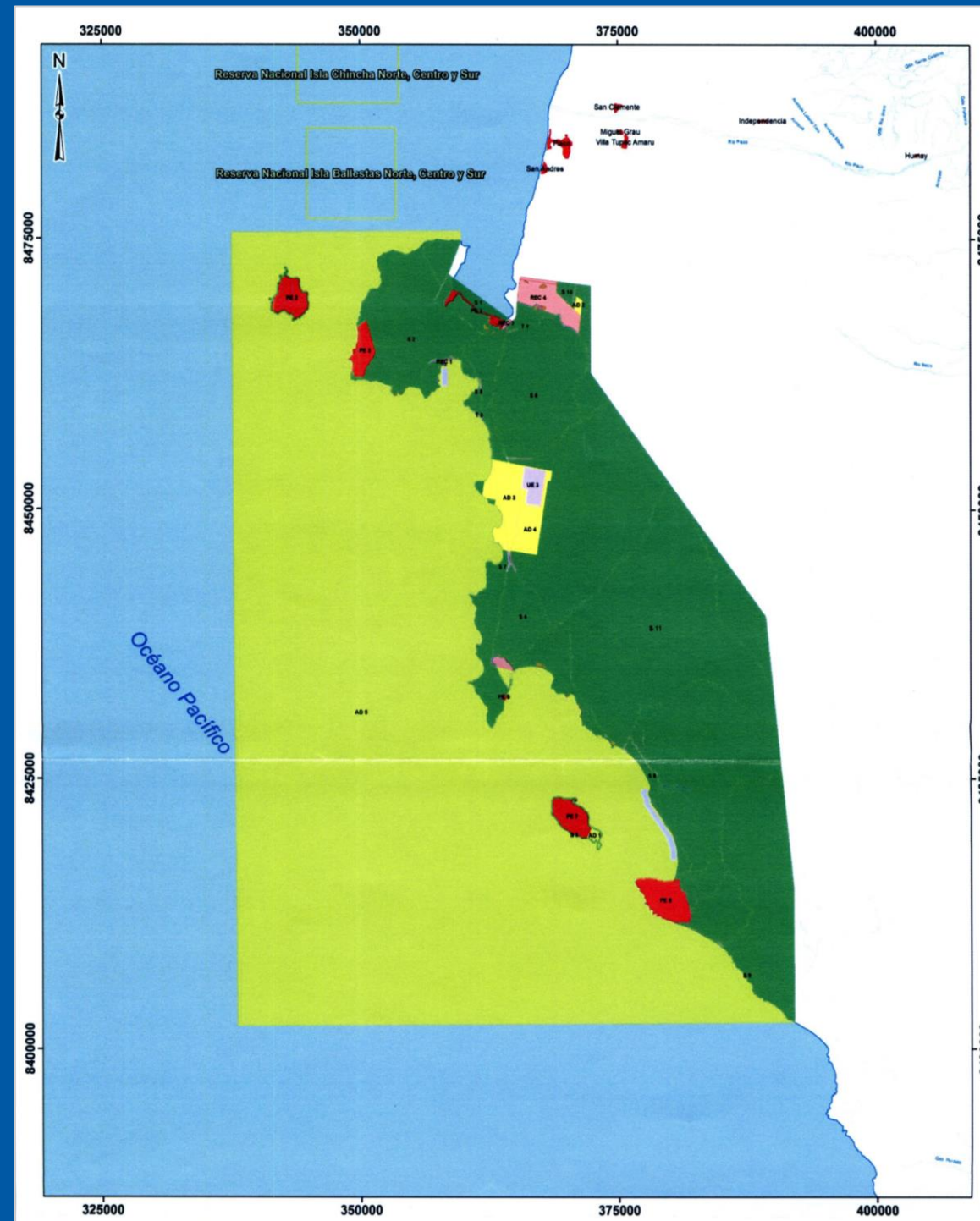


Zoning of the Paracas National Reserve

RNP's Master Plan groups the sectors for each type of zone and sets out conditions for maintaining the area and rules of use. For this case, identify 7 zones ([Annex 3](#))

AREAS

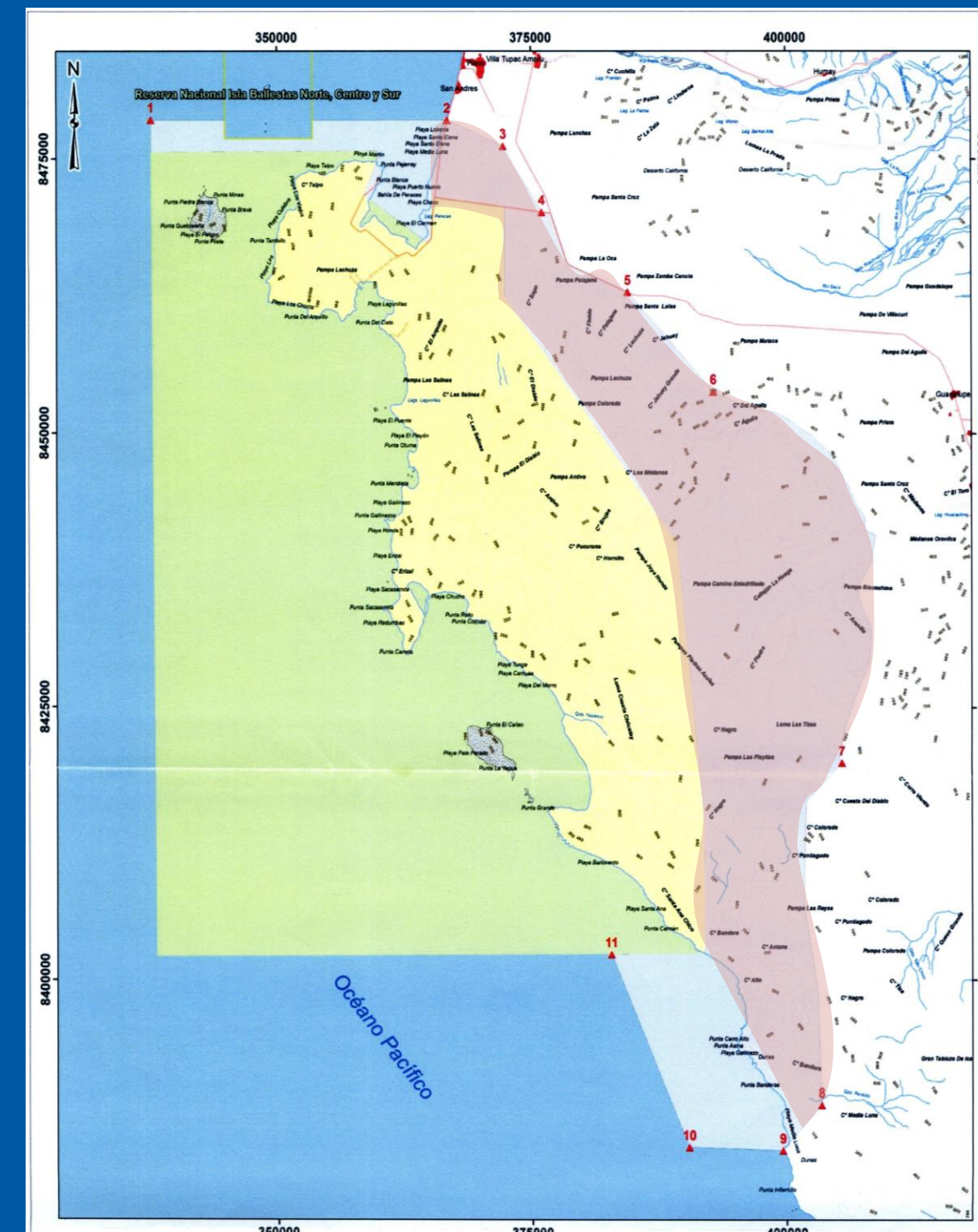
- Historical and Cultural
- Wild
- Direct Harvesting
- Strict Protection
- Recovery
- Special Use
- Tourist and recreational use



Source: Presidential Resolution No. 020-2016-SERNANP (2016).

Buffer zone of the Paracas National Reserve

It covers the areas adjacent to the NPAs of SINANPE, they require special treatment to guarantee conservation, which is why the activities carried out in this area should not put the NPA at risk. The buffer zone was modified by having the following 11 georeferenced points ([Annex 4](#)).



Source: Presidential Resolution No. 020-2016-SERNANP (2016).

- Georeferenced points
- Buffer zone

2

ABOUT US



OUR ENVIRONMENTAL POLICY

Since 2020, at Aceros Arequipa we have been creating sustainable value through our Corporate Environmental Policy, which covers the 8 priorities of the organization's environmental management. We guarantee the establishment of controls that preserve the environmental components in the design of each of our projects, based on the sustainable use of natural resources, compliance with legal requirements, care for biodiversity, and focusing on climate change adaptation and mitigation measures. In turn, these priorities are governed by guidelines, in the case of the priority "Biodiversity Conservation" has nine guidelines.

8
ENVIRONMENTAL
POLICY PRIORITIES

Circular Economy

Biodiversity Conservation

Resource Efficiency

Environmental Awareness

Actions against Climate Change

Management Solid Waste & Industrial By-products

Pollution Control

Normative Compliance

Applying Our Control Hierarchy

All our operations are developed in zonings compatible with our activities, with the Steel Complex being the only headquarters that is close to a Natural Protected Area (ANP). For this, we have applied the following mitigation hierarchy (Annex 5)

Preventive Measures

AVOID

MINIMIZE

Corrective Measures

RESTORE*

COMPENSATE

Guidelines Biodiversity Conservation



Comply with local, regional and national **legal requirements** on land management and biodiversity protection. **Not operate in areas designated as world heritage** or in protected areas categorized as I-IV by the IUCN(1).



Assess the impact on biodiversity in our current and future areas of operation, **applying a mitigation hierarchy: avoid, minimize, restore (2), and offset** in areas with biodiversity at the global or national level. Implement measures to **minimize the impact** on biodiversity in CAASA's current projects.



Develop **management plans** to promote the importance of biodiversity, **prioritizing the conservation of keystone**, special conservation status, historical species of value to local communities.



Collaborate with **stakeholders** to ensure the conservation of native species in our catchment area, working with external partners from the **public and private sector** to deliver on our commitment to biodiversity conservation.



Identify and define **action plans to avoid net losses (3) of biodiversity** in important habitats that are close to our operations. Promote the collection, analysis and improvement of biodiversity information and knowledge in collaboration with experts



Acquire, develop and apply **systems and technologies** to reduce impacts on biodiversity.



To avoid deforestation as a result of CAASA's activities, and if necessary, to **compensate for any negative impact** with afforestation programs, maintaining our operations with **zero deforestation**.

(*) Restore includes regeneration measures.

(1) The IUCN Protected Area Management category system creates a common understanding and international framework of reference for protected areas both between and within countries, classified as: Category I (Strict Protection), Category II (Conservation and Protection of the Ecosystem), Category III (Conservation of Natural Features), Category IV (Conservation through Active Management), Category V (Conservation of landscapes and seascapes and recreation) and Category VI (Sustainable use of natural resources).

(2) Restore includes regeneration measures

(3) The principle of no net loss of biodiversity or net gain of biodiversity refers to offsetting that is designed and implemented to achieve measurable in situ conservation outcomes, which can reasonably be expected to result in no net loss.

3

METHODOLOGY



Phases of methodology:



Identification

Consider the **location** of the study area to distinguish **impact** and **dependency** risks.



analysis and Assessment

Consider the level of **criticality** of the risk, the level of **impact** and the level of **probability**.



Response Plan

After the risk assessment, the **response strategy** is formulated considering the **current controls**.



Tracking

It considers the **continuous evaluations** and timely **communication** of results.

Identification

The first step lies in the correct identification of:

Location and instruments

Definition of the place or area of study and the applicable environmental management instruments in force

Risk Identification

Risks can be of impact or dependence. Impact risks are related to a company's positive or negative contribution to the state of nature. For example: air, water, soil pollution; the fragmentation or alteration of natural systems and habitats; and the alteration of ecosystems. Dependency risks relate to the aspects of nature's contributions on which a dependent person or organization depends to function. For example: the regulation of water flow and quality; regulation of hazards such as floods and fires; pollination; and carbon sequestration.



Analysis and Assessment

It considers the levels of risk criticality is defined according to the Level of Impact and Probability. The interaction of the different levels of the two factors defines the criticality of each risk.

Impact Level

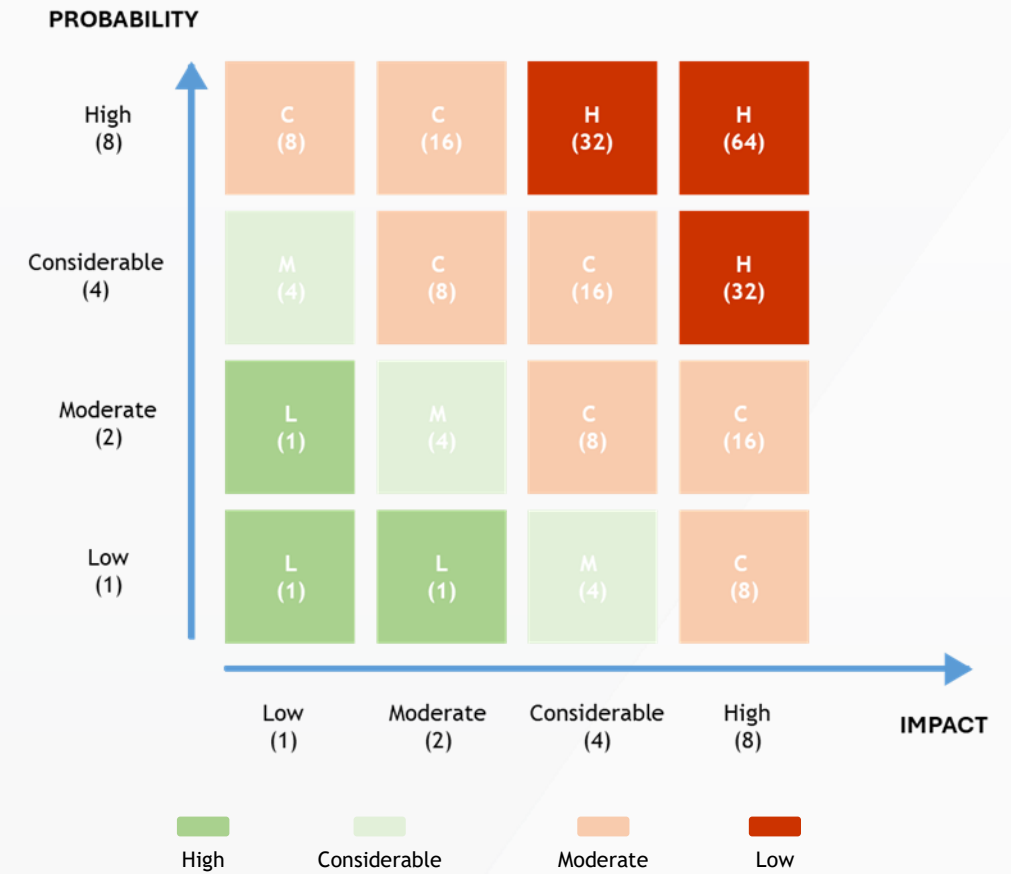
The level of impact assesses the degree of change or effect that a risk may have in the face of a scenario on an economic factor, continuity of operations and systems, information security, reputation and image, regulatory compliance, ethical management, environment or occupational health and safety. Because they are risks related to biodiversity, the chosen scenario is the "Environment". Next, the methodologies that apply to define the equivalences of the level of impact are evaluated, considering those that are accepted, standardized and/or recommended by the competent environmental authority. Some of them can be considered:

Leopold's methodology

It assigns a relative value to the impact according to its nature, probability of occurrence, magnitude, and importance of each activity of the process on the environmental components defined in the applicable environmental management instruments, providing a rating of significance of the impact.

CONESA Methodology

Analytical method, by which the importance can be assigned to each possible environmental impact of the execution of a Project each of its stages, defining a level of significant or non-significant impact.



Risk Criticality - Integrated Risk and Opportunity Management Methodology

IROM Methodology

The Integrated Risk and Opportunity Management Methodology established by CAASA, which establishes the level of risk criticality based on a level of impact and probability rating as low, moderate, considerable and high ([Annex 6](#)).

Probability Level

Related to the number of times the risk could materialize considering the estimation of the occurrence, exposure, historical frequency and criteria of the levels of impact and probability.

Response Plan

After the risk assessment, considering the criticality, the response strategy is formulated considering the controls in force related to that risk.

Tracking

The monitoring is part of our Business Policy of Internal Control and Comprehensive Risk Management. Ongoing assessments (ISO audits, Legal Compliance Audits, product quality controls, budget control, occupational health and safety supervision, environmental inspections), independent assessments (internal and external audits), or a combination of both, are used to determine whether each of the components of internal control and controls to comply with the principles of each component, they are present and functioning properly. The principles of this component are:

- **Evaluation:** Development and execution of continuous and/or independent evaluations to determine whether the components of the internal control system are functioning.
- **Communication:** The results of the evaluations are communicated to us in a timely manner for corrective action.
- **Three-line model:** Periodically the defense is reviewed by external audits and regulatory oversight.
 - *First line:* process owners in charge of maintaining an effective risk management system in their areas.
 - *Second line:* support areas in charge of providing methodology, management support and monitoring the effectiveness of controls.
 - *Third line:* internal audit in charge of objective and independent supervision with reporting to the Board of Directors and the Audit and Risk Committee.



Administrative Offices - Pisco

4

BIODIVERSITY RISK ANALYSIS





Identification

Location

Instruments

Risks



Location

The Steel Complex of the operations of Corporación Aceros Arequipa (CAASA) has an area of 220 ha. and adjoins the former Farm San Juan de Buenavista in which the project "Storage Yard for Industrial and Reprocessable Materials" is being developed in an area of 102.2 ha. The total area of operations of CAASA is 322.2 ha ([Annex 7](#)). According to the Master Plan (2016 - 2020) of the Paracas National Reserve (PNR), the former San Juan de Buenavista is located the buffer zone, but not in the Reserve, thus it is also identified that the nearest vertex of the property is located approximately 2.16 km from the Paracas National Reserve ([Annex 8](#)). Likewise, according to the Zoning Map of the Paracas National Reserve, CAASA's activities are located near the areas of Wildlife (not critical biodiversity), Direct Use and Recovery of the PNR, requiring special treatment to guarantee the conservation of the Natural Protected Area (NPA) and its biodiversity.

Instruments

The applicable environmental management instruments in force in the compromised areas

- Steel Complex "Update of the Environmental Management Plan of the Environmental Adequacy and Management Program (PAMA)" approved on July 4, 2016 by the Ministry of Production with Directorial Resolution No. 308-2016-PRODUCE/DVMYPE-I/DIGGAM
- Ex Fundo San Juan de Buenavista: "Declaration of Environmental Adequacy (DAA)" of the Storage Yard for Industrial and Reprocessable Materials, approved on January 15, 2017 by the Ministry of Production with Directorial Resolution No. 015-2017-PRODUCE/DVMYPE-I/DIGGAM

It is worth mentioning that in the two environmental management instruments, the impacts on the biological environment were evaluated and these were considered "Not significant".

Risks

According to the IROM - Integrated Risk and Opportunity Management Methodology established in our Corporate Policy on Internal Control and Comprehensive Risk Management, the impact and dependency risks were identified:

Impact Risk

Deterioration of the habitat of the Perimetric live Fence, due to the increase in atmospheric emissions from the Steel Complex.

Risk of Dependency

Interruption of natural pollination in the Perimetric live Fence, due to the operations of the Steel Complex.





Analysis and Assessment

Impact Level and
Probability

Risks



The process of selecting the impact assessment methods considered as the main criterion the use of methodologies accepted, standardized and/or recommended by the competent environmental authority

Impact and Probability

To evaluate the impact level, the Leopold Methodology of the Environmental Management Plan of the Environmental Adequacy and Management Program of CAASA's Headquarters No. 2 was considered, which distinguishes significant levels with ranges between 0-20 from Not significant to highly significant. CONESA's methodology was also considered, considering the Environmental Adequacy Declaration (EAD) of the Industrial and Reprocessable Materials Storage Yard; Assign levels of significant or non-significant impact. Likewise, the Integrated Risk and Opportunity Management Methodology (IROM) was applied, considering the levels of low, moderate, considerable and high impact [\(Annex 9\)](#).

Finally, a comparison of the equivalences was made according to these methods, opting for Leopold's quantitative methodology, to identify and assess the impact on each component or environmental factor that could be caused by any type of activity, as well as to define the qualitative or quantitative interrelations of the current activities of the operation of the steel complex. The cause-effect analysis of the interaction of the activities of the stages of the activity versus the environmental components allowed the identification of direct and indirect environmental impacts and their positive or negative condition.

Leopold Quantitative Methodology	CONESA Methodology	IROM Methodology
Non-significant (0 - 20)	Low or Mild (I < 25)	Low (1)
Not very significant (21 - 40)		
Moderately Significant (41 - 60)	Moderate (25 ≤ I < 50)	Moderate (2)
Significant (61 - 80)	High (50 ≤ I < 75)	Considerable (4)
Highly Significant (81 - 130)	Very High (75 ≥ I)	High (8)

Risks

Finally, a comparison of the equivalences was made according to these methods, opting for Leopold's quantitative methodology, to identify and assess the impact on each component or environmental factor that could be caused by any type of activity, as well as to define the qualitative or quantitative interrelations of the current activities of the operation of the steel complex. The cause-effect analysis of the interaction of the activities of the stages of the activity versus the environmental components allowed the identification of direct and indirect environmental impacts and their positive or negative condition.

From the assessment of impact on the biological environment in the Steel Complex, a rating of 22.9 was obtained, being considered as a "not significant" impact. This result is also supported by a series of Environmental Management Instruments (EIAs) and assessments carried out in recent years of flora and fauna [\(Annex 10\)](#).

In 2016, according to the Legal Technical Report No. 802-2016-PRODUCE/DVMYPE-I/DIGGAM-DIEVAL it is described that the area is free of vegetation, with respect to flora and fauna, few species were identified and none in any conservation category. In 2018, according to the Environmental Management Instrument: "Supporting Technical Report for the Modernization Project of the Steel Plant of Headquarters No. 02" which was approved by Directorial Resolution No. 262-2018-PRODUCE/DVMYPE-I/DGAAMI (09/28/2018), the biological environment was evaluated with CONESA methodology, resulting in an impact of "low importance". For the Industrial and Reprocessable Materials Yard, there is the Legal Technical Report No. 0015-2017-PRODUCE/DVMYPE-I/DIGGAM-DIEVAL (which recommends the approval of the IGA) describes that the impact with a little significant magnitude, since according to the baseline evaluation, within the area there is no vegetation cover, nor significant presence of fauna. This impact has been described as low or slight magnitude.

Finally, considering the level of impacts of the studies carried out and considering their equivalence with the level of impact of the GIRO methodology, obtaining a low criticality.

Risk	Analysis	Probability	Impact	Level
Degradation of the Perimeter Live Fence habitat due to the increase in atmospheric emissions from the Steel Complex.	"Our Steel Complex's Perimeter Live Fence has a length of 5.8 km, and an additional 4.2 km of live fence was planted around the perimeter of the former San Juan de Buenavista estate. Currently, the fence serves as a habitat for more than 12 species of flora (eucalyptus and acacia) and fauna (birds and reptiles), which have been monitored every six months since 2019. While the presence of flora and fauna in our Perimeter Live Fence demonstrates the possibility of coexistence with steelmaking activities, we have identified the need for its conservation considering the organization's growth.	Moderate (2)	Low (1)	Low (2)
Interruption of natural pollination in the Perimeter Live Fence, due to the operations of the Steel Complex	Our Live Fence was planted over 30 years ago with only eucalyptus and acacia, and its habitat depends on natural pollination that occurs with other ecosystems in the area. Therefore, we have identified that our Perimeter Live Fence depends on the conservation of ecosystems adjacent to the Steel Complex.	Moderate (2)	Low (1)	Low (2)



Response Plans

01

Preserving the biodiversity that coexists with our steelmaking activity as a result of the implementation of the perimeter live fence

02

Promoting the importance of biodiversity in collaboration with stakeholders to ensure the long-term conservation of native species in the influence area of our operations

03

Promote the gathering, analysis, and enhancement of information and knowledge about biodiversity in collaboration with experts



01

Preserving the biodiversity that coexists with our steelmaking activity as a result of the implementation of the perimeter live fence

Perimeter Live Fence Extension Program

The area in which the Steel Complex is established is considered "desert", however, we have built a Perimeter Live Fence around it, composed of two lines of aramo and one of eucalyptus. Since 2018 we began to expand our perimeter Live fence, going from 5.8 km to 10 km of eucalyptus and arame plantations. Continuing with our net improvement, since 2021 we have begun to plant eucalyptus trees as a perimeter live fence in the storage of industrial by-products, which in approximately 2026 will add an additional 0.95 km to our live fence. By the end of 2023, it has reached an average height of 10 meters.

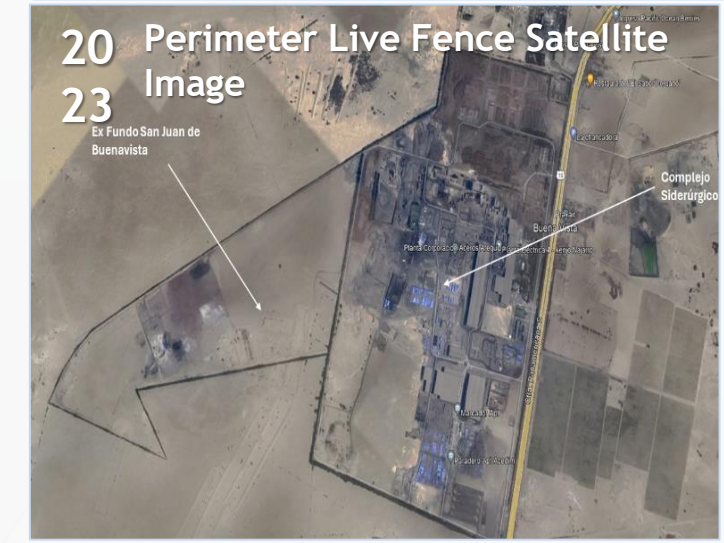
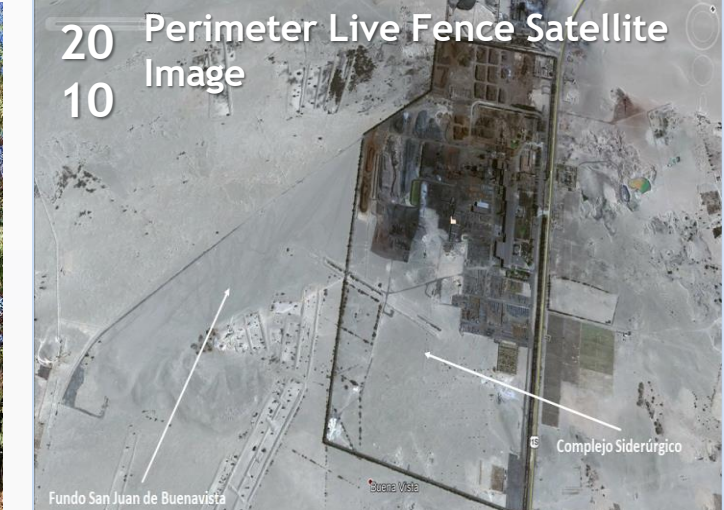
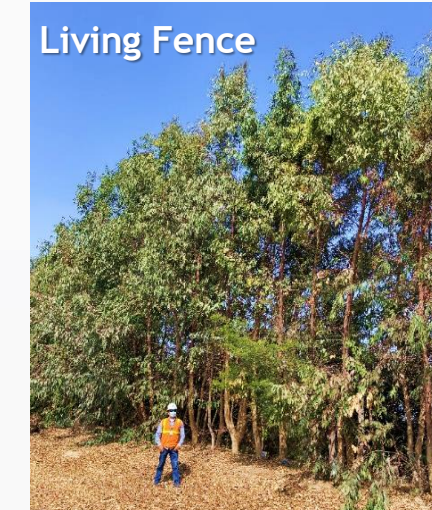
This project is considered a "forestation" project because plantations are established in areas where there was no tree cover, serving as a habitat for 16 species of animals in the area (including birds and reptiles) and a resting space for migratory birds. These species of flora and fauna are monitored biannually ([Annex 10](#)).

On November 2, 2021, the National Society of Industries (SNI) participated in the 26th United Nations Climate Change Conference (COP26) in the panel "The experience of the private sector Permanent Steering Group to accelerate climate actions with a focus on Nature-Based Solutions (NBS) in Peru", exposing the implementation of the live fence as a good practice ([Annex 11](#)).

Likewise, there is a plan of activities aimed at the preservation of the fence from 2021 to 2026 that it contemplates. It also has an annual maintenance program to achieve a net improvement in the biodiversity of the area through its expansion. This maintenance program includes the cleaning and pruning of trees, the revision of the irrigation system and the change of any accessories as necessary for the maintenance of the live fence.

Activity Plan

Activities	2021	2022	2023	2024	2025	2026
Additional planting of the perimeter live fence in the storage of industrial by-products (SPIs).	X	X				
Irrigation and maintenance of all live fence including planting of live fence from SPIs storage.		X	X	X	X	X
Biological Monitoring of Wild Flora and Fauna		X	X	X	X	X
Preparation and publication of the Biodiversity Guide in CAASA.		X	X			
Biodiversity Conservation Signage	X	X	X	X	X	X





Signage and Awareness of Biodiversity Care

There are signs prohibiting hunting and the use of horns unnecessarily in different areas, as well as speed limits. In addition to this, murals will be implemented with the most representative species that inhabit the live fence so that collaborators and visitors can get to know them. CAASA's Environmental Awareness Programme addresses the importance of biodiversity conservation.



Signage



Promoting the importance of biodiversity in collaboration with stakeholders to ensure the long-term conservation of native species in the influence area of our operations

Our Biodiversity Guide

Within our Biodiversity Conservation Program, we have been developing biological monitoring on a biannual basis, these results have served as an input for the preparation of the "CAASA Biodiversity Guide" that aims to document and disseminate the diversity of species present in the Steel Complex, as well as their characteristics and the possible threats that may entail a risk of extinction at the limits of direct influence of our operations.

The guide contains scientific information on the species of flora and fauna found in the Steel Complex. There are files for the different species describing their taxonomic qualification, threat category, among other characteristics that allow us to know them more and that can serve as a source of research when making inventories or sightings.

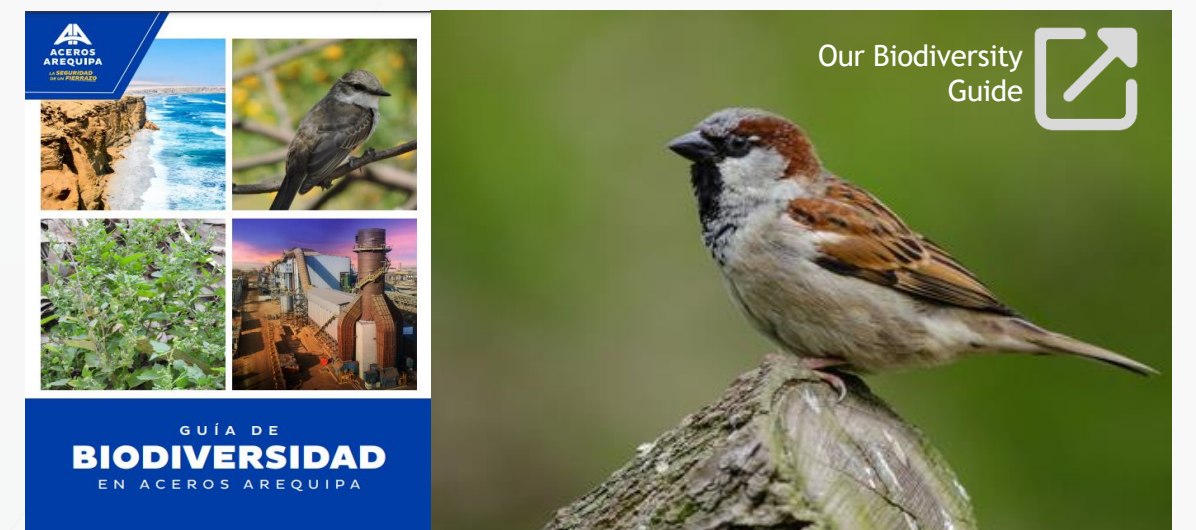
Likewise, dissemination actions have been developed for our stakeholders such as collaborators and suppliers available on our YouTube channel.



YouTube Video: Biodiversity Conservation in CAASA



YouTube Video: Let's Preserve the Paracas National Reserve



Our Biodiversity Guide



Participation in the Municipal Environmental Commission of Pisco

Within the framework of Law No. 28611, General Environmental Law, regulates in its article 62, local governments must implement a Local Environmental Management System, integrating public and private entities that perform environmental functions or that affect the quality of the environment, as well as civil society. Therefore, according to Ordinance No. 002-2016-MPP, the Local Government of the Provincial Municipality of Pisco in 2019 updated and reactivated the Municipal Environmental Committee of Pisco.

The Municipal Environmental Committee of Pisco has a multisectoral character, it is the environmental management body, in charge of coordinating and agreeing on the Municipal Environmental Policy. They promote dialogue and agreement between the public, private and civil society sectors to bring environmental management to a level of real effectiveness, and to solve environmental problems, which can only be faced through cross-sectoral and participatory mechanisms

The General Assemblies of the Municipal Environmental Committee Pisco are ordinarily held once a month, the Municipal

Environmental Commission of Pisco fulfills its functions with the support of Local Technical Groups at the proposal of the members and approved by the Municipal Environmental Committee - MEC of Pisco.

The local technical groups are bodies for the discussion, analysis and search for technical agreements and mechanisms required to operationalize environmental management instruments, propose alternative solutions to environmental problems, generate proposals and projects, as well as diagnose, design, execute and evaluate local environmental policies.

The Municipal Environmental Committee of Pisco it is made up of more than 37 representatives of public and private entities, one of them being CAASA as other expert groups and specialists from institutions such as the Civil Association of Peruvian Bird Group-GAP, Coastal Areas and Marine Resources -ACOREMA, among others.

The Civil Association of the Bird Group of Peru has been developing various activities of observations of flora and fauna of the wetlands of Pisco. Likewise, Coastal Areas and Marine Resources -ACOREMA, is dedicated to research and conservation

of marine biodiversity, with emphasis on the study of threatened species (cetaceans, sea turtles, Humboldt penguin, sea otter, sharks). It develops initiatives of education, awareness, communication and environmental interpretation, to promote awareness and participation of the population in actions in favor of marine-coastal resources and a better quality of life. CAASA's participation in this committee provides a valuable platform for input together with these organizations and experts for the development and collective preservation of biodiversity.

Technical Committee on Wetlands and Marginal Belt

Resolution No. 459-2019-MPP-ALC, on August 19, 2019, formed the Technical Group on Wetlands and Marginal Belt in which CAASA actively participates to date. Especially, during 2020, the sessions were aimed at identifying and analyzing activities that put the state of the wetlands of the province of Pisco at risk. As a result of these analyses, it was identified that the presence of deforestation, invasion of livestock activity, planting of palm trees, presence of domestic animals and burning of waste in the area, opening the way to local initiatives to meet these needs, the main one being the formulation of the Integrated Management Plan of the Marine-Coastal Zone.



03 

Promote the gathering, analysis, and enhancement of information and knowledge about biodiversity in collaboration with experts

Proposal for an Integrated Management Plan for the Coastal Marine Zone of Pisco - Paracas (IMPCMZP)

It is a planning instrument that contains the results, products and activities that together allow achieving the desired change in Coastal Marine Zones (CMZs) associated with the conservation of ecosystems and their services. The need for this plan was born as a matter of provincial interest declared on November 30, 2020 (Ordinance No. 018-2020-MPP). Subsequently, during 2020 and 2021, advisory sessions were held with the Ministry of the Environment and on April 15, 2021, through Decree No. 002-2021-MPP, the Local Management Committee for the Integrated Management of the Pisco - Paracas Coastal Marine Zone was formed, made up of 42 representatives, including representatives of the Technical Committee of Marginal Belt Wetlands, of which CAASA is an active member.

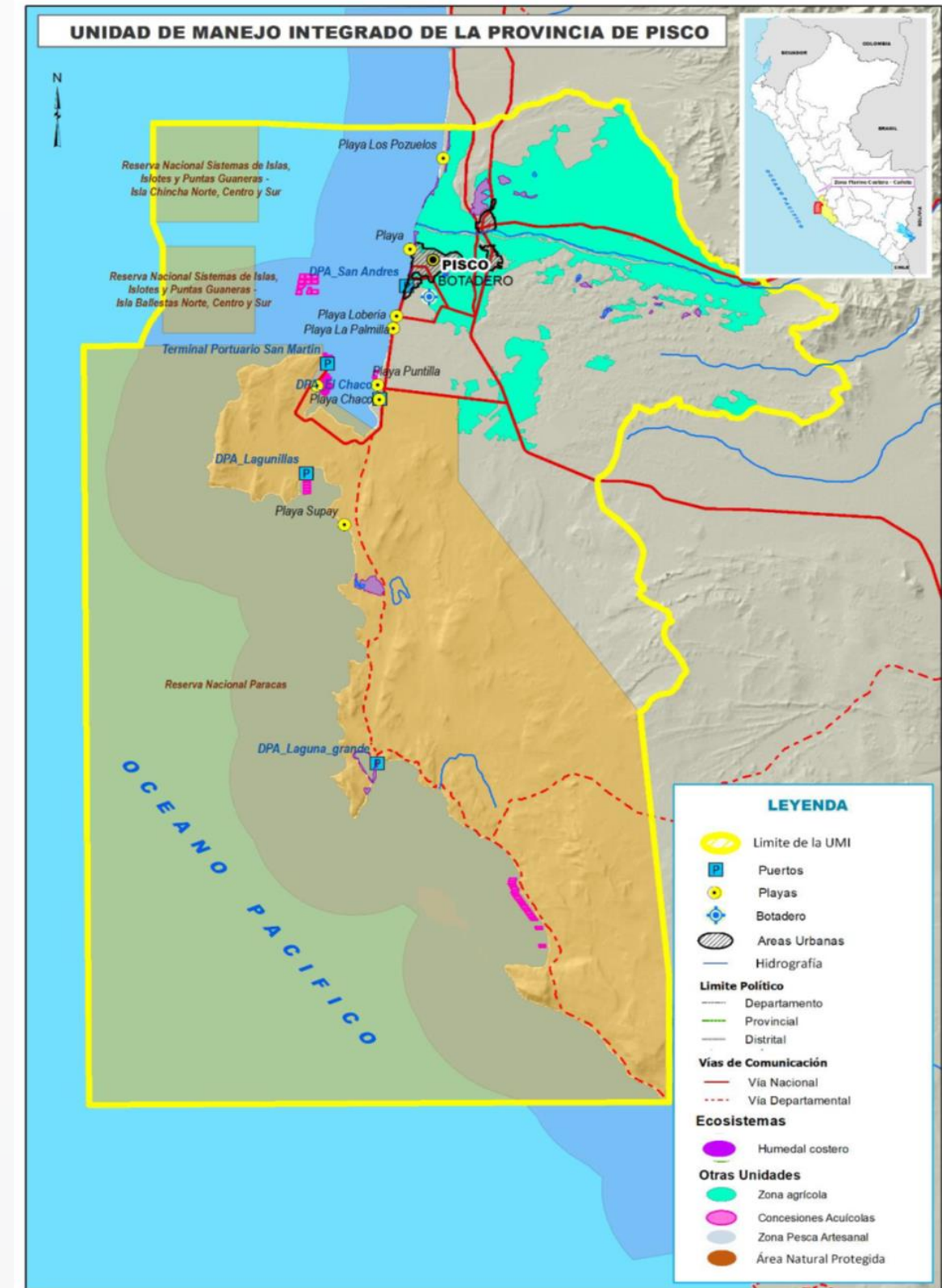
This committee developed different working sessions to formulate the plan following a methodological route of three phases: preparation (establishment of enabling conditions), planning

(analysis of the problematic situation and definition of a proposal for. Having followed this methodological route, in May 2021 the preparation of the "Proposal for the Integrated Management Plan of the Pisco - Paracas Coastal Marine Zone" was completed.

The Integrated Management Plan for Coastal Marine Zones of Pisco- Paracas (IMPCMZP) is a planning instrument resulting from an effort and commitment of public and private institutions, at the regional and local levels, representatives of organized civil society, technical groups and work teams such as the Regional Technical Group (RTG) and the Local Management Committee (LMC). that with the technical assistance of the Ministry of the Environment (MINAM) and the support of the EbAMar project "Ecosystem-based adaptation measures for the integrated management of marine-coastal zones" and the leadership of the Provincial Municipality of Pisco, it has managed to prioritize measures and actions to improve the quality of life of the population and their livelihoods, through the recovery and maintenance of the ecosystem services of the CMZs.

Este plan se elaboró de manera participativa con los integrantes del Local Management Committee mediante la asistencia técnica de la Dirección General de Ordenamiento Territorial Ambiental del MINAM y la conducción de la Gerencia de Servicios a la Ciudad, Ambiente y Seguridad Pública de la Municipalidad Provincial de Pisco y el apoyo de la Gerencia de Recursos Naturales y Gestión del Medio Ambiente del Gobierno Regional de Ica ([Annex 12](#)).

It also includes a current regulatory framework, the methodological route, the analysis of the Integrated Management Unit and the proposal for change. In the latter, the desired change is defined, the problems are analyzed, the change path and the planning matrix are developed. In this way, twenty-six (26) problems were identified and prioritized through structural analysis, where it is considered to generate true articulation mechanisms in the key points.



Source: Local Management Committee for the Integrated Management Plan for the Coastal Marine Zone of Pisco - Paracas

The objective of the Pisco - Paracas PMIZMC is to contribute to improving access to and use of the resources contained in the CMZs through an ecosystem approach, promoting the governance of the marine-coastal zone of Pisco. Likewise, it guides local management taking as a reference the information of the development plans and Master Plans of the Paracas National Reserve and the National Reserve System of Islands, Islets and Guano Points in force, which constitute a contribution to the development of the marine-coastal zone.

The strategic objectives identified for the Integrated Management Unit of Pisco - Paracas are: (1) To promote the conservation of ecosystems and their biodiversity (wetlands, islands, beaches) of the Pisco CMZ, (2) To strengthen governance for the proper management of the CMZ, (3) To improve the final disposal of solid waste in the CMZ, (04) To increase and improve the coverage of wastewater in the ZMC, (05) Improving sanitary conditions of Lagunillas, Laguna Grande and San Andrés, (06) Strengthen local

governments in the management of public and private investment projects in environmental issues, (07) Reduce inadequate urban and road expansion in the Pisco CMZ and (08) Increase the awareness of the population in the care of the ecosystems of the Pisco CMZ.

Approval of the Integrated Management Plan for the Coastal Marine Zone of Pisco - Paracas (IMPCMZP)

On June 21, 2021, the General Directorate of Environmental Territorial Planning of the Ministry of the Environment, issued its report and in which it concluded that the proposal for the Integrated Management Plan of the Pisco - Paracas Coastal Marine Zone complies with the technical considerations for the planning preparation phases that include the determination and characterization of the integrated management units, the analysis of obstacles, the definition of the desired change, the construction of the change path, the definition of indicators and the planning matrix; and for the approval phase, therefore, it issues the

favorable opinion to continue with the respective technical approval as established in the corresponding regulatory framework. On September 30, 2021, through Ordinance No. 014-2021-MPP, the Plan for the Integrated Management of the Pisco Coastal Marine Zone was approved. Subsequently, in December 2021, a session of the Management Committee of the Pisco IMPCMZP was held again to review the action plan to give continuity to the joint actions and initiatives.

During 2023, CAASA developed activities and fairs for training and relationship with the Pisco community, beach cleanup activities and workshops for Environment Day. Likewise, guided tours of the Pisco Wetlands were carried out together with primary school children.



CAM Pisco Awareness Activities (2023)





Tracking

Scope

Methodology

Results and
conclusions



01

SCOPE

As the main monitoring measure, the biannual biological monitoring of Wild Flora and Fauna (Flora and Avifauna) has been established, quantitatively and qualitatively, within the area of influence of Corporación Aceros Arequipa S.A. (CAASA) to estimate the diversity indices and identify if there is any species that is in the category of conservation or threat in accordance with current regulations.

This monitoring plan has strategic objectives: to describe the life zones present in the project area, according to the map of life zones established by Holdridge, as well as the description of the plant formations and flora species reported in the study area.

It also contemplates preparing a list of fauna species (ornithofauna and herpetofauna), characterizing in terms of composition, richness and abundance, the biological communities present in the Project area, estimating the alpha and beta diversity indices of the biological communities, based on the information recorded during the field stage. Finally, it aims to draw up the list of species of flora and fauna indicating the category of conservation or threat in accordance with current regulations.

02

METHODOLOGY

Expert advice and validation

The monitoring program was worked on in conjunction with the company SGS of Peru, which has professionals in biology. Sampling stations were defined to measure the impact and performance of the risk control measures identified in the areas of Plains and desert slopes with scarce vegetation and cultivation areas ([Annex 13](#)). The phases of this monitoring are divided into the Field and Post Field Phase.

Field Phase

In the fieldwork phase, the flora was evaluated through the qualitative method of general collections and the quantitative method of transects. The general collection method consists of touring the different plant units recording the species observed

and photographing those that are difficult to determine in the field, noting their relevant morphological characteristics, to be determined with specialized bibliography and specialists.

To quantify the components of the flora, the quantitative methodology of transects was used, in accordance with the MINAM Flora and Vegetation Inventory Guide (2015), a methodology proposed by Mateucci S. & S. Colma, 1982. The method consists of drawing a straight line stretched with a tape measure on which the presence of species and the number of times they touch a rod every 01 meter will be recorded. The present study used a 30-meter-long tape measure considering at least one transect for each designated station according to a duly georeferenced plant unit. Likewise, in the case of fauna, it is contemplated to evaluate the fauna with a focus on ornithofauna (birds) and herpetofauna (amphibians and reptiles).

Ornithofauna

Ornithofauna is developed by combining two methods with the purpose of maximizing accuracy in the recording of diversity. First, the non-distance-constrained counting points (Reynolds et al. 1980, Buckland 1987, Bibby et al. 2000). and for data collection and bird census, all plant formations specified in the Baseline will be examined. In each of these areas, a sampling transect will be established consisting of 10 substations or counting points, thus totaling 10 counting points, separated by a minimum distance of

	FIELD	POST FIELD
FLORA	Qualitative: General collections Quantitative: Transects	
FAUNA	Quantitative: Counting points not limited to distance and Transects Qualitative: Survey by Visual Encounter	Qualitative: National and international protected lists Quantitative: Density, alpha and beta diversity

Prepared by the author.

100 meters along the predetermined transect. For bird watching, the use of binoculars is proposed, and for species identification, the field guides of Schulenberg et al. (2007) and Clements and Shany (2001) and the taxonomic classification of the South American Classification Committee (2011) will be consulted. Sampling takes place between 05:30 and 09:30 hours, since after that the vocal activity of the birds decreases. During the censuses, bird species detected through visual and auditory observation will be recorded, in addition to considering indirect evidence such as footprints and nests.

Herpetofauna

For the study of herpetofauna, the "Visual Encounter Survey" (Crump & Scott, 1994) is applied, based on the standardized evaluation by search time (20-30 minutes), samplings can be carried out during the day or at night (Córdova et al., 2009), allowing to locate those found in low vegetation. The pace of observer movement is slow and steady, with special attention to adjacent vegetation and various factors that provide refuge for specimens within a given habitat. The sample units shall be separated by at least 50 metres from each other.

Postfield Phase

The field data was processed based on indexes, parameters and lists to define actions. One of the parameters applied is population density. The calculation of density - D (number of individuals in an area); and the Relative density - Dr (Absolute density of a species or family / Density of all species or families) x 100).

Diversity Indices

Diversity can be analyzed through alpha diversity, which is the quantity, number of species present in a habitat, as well as the abundance of each species. The direct calculation gives rise to the indicator of Dominance by a species and indices such as:

Alpha Diversity Indices

Alpha diversity is the quantity, number of species present in a habitat, as well as the abundance of each species. The calculation gives rise to the indicator of dominance by a species and indices such as:

- **Shannon-Wiener Diversity Index:** It considers the number of species and equity, as the uniformity of the distribution of the number of individuals of each species. A greater number of species increases diversity and greater uniformity will also do the same.
- **J Equality Index - Pielou Index:** It measures the proportion of observed diversity in relation to the maximum expected diversity. Its value ranges from 0 to 0.1 so that 0.1 corresponds to situations where all species are equally abundant.

Beta Diversity Indices

Beta diversity is the variation in the number of species between habitats within the same ecosystem and is assessed by using indices of similarity and dissimilarity between samples. These indices are calculated from qualitative data, which indicate the presence or absence of species, or quantitative data, which reflect the proportion of abundance of each species. Among the most used indices are:

- **Jaccard's Similarity Coefficient:** It expresses the degree to which the two samples are similar in the species present in them. The values range from 0, when there are no species shared between the two sites, to 1, when the two sites have the same species composition.
- **Morisita-Horn Index:** It is based on abundance and is not influenced by sample size (Moreno, 2001; Ramírez, 2005; Wolda, 1981), but it is very sensitive to the most abundant species. The values vary from 0 when there is no similarity, to 1 when there is similarity. This parameter allows the diversity values of one site to be compared to another, to zone areas with certain valores de potencial bioecológico.



Protected species

The list of species of flora and fauna (mammals, birds, amphibians, reptiles and insects) registered in the evaluation areas was contrasted with the national and international lists of species in the conservation category:

National lists

- Supreme Decree No. 004-2014-MINAGRI - Update of the Categorization List of Legally Protected Endangered Species of Wildlife.
- Supreme Decree No. 043-2006-AG - Categorization of Legally Protected Endangered Species of Wild Flora.

International Lists:

- International Union for the Conservation of Nature (IUCN 2020-1) - The IUCN Red List of Threatened Species (Searchable Database).

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2019). Appendix I of the convention includes the species that face the greatest degree of danger. Appendix II includes species that are not necessarily threatened with extinction but could become so if their trade is not controlled. Appendix III lists species listed at the request of a member country that already regulates trade in that species and needs the cooperation of other countries to prevent unsustainable or illegal exploitation of the species.
- Convention on Migratory Species (CMS 2018). Appendix I of this convention lists endangered species and Appendix II contains species that should be the subject of international agreements that promote their conservation. Both appendices include species that migrate to Peru.

Monitoring results

As a result of the monitoring in the desert plains and slopes with scarce vegetation of the four sampling stations, the findings detailed in the following tables were obtained for flora, ornithofauna and herpetofauna. There is also a photographic file of the monitored flora and fauna ([Annex 14 -15](#)).

Sampling Stations (Annex 15)	
AAF-4 Control	Desert plains and slopes with sparse vegetation
AAO-4 Impact	Desert plains and slopes with sparse vegetation
AAO-3 Impact	Cultivation Areas
MB-1c Control	Cultivation Areas

MONITORING RESULTS BY FLORA 2023

Registered species

Richness per unit of vegetation

Indices of diversity

Species within of Least Concern Categories

CITES Appendices Species (*)

Species Endemic

	FIRST SEMESTER 2023	SECOND SEMESTER 2023
Registered species	13 species of vascular plants distributed in 02 classes, 06 orders and 10 botanical families	12 species of vascular plants distributed in 02 classes, 07 orders and 10 botanical families
Richness per unit of vegetation	Plains, desert slopes and cultivation areas: 09 species distributed in 09 genera and 08 families.	Desert plains and slopes: 9 species distributed in 09 genera and 07 families. Cultivation areas : 07 species distributed in 07 genera and 07 families
Indices of diversity	LOW for all stations evaluated Shannon-Wiener index: 0.66 and 0.68 bits/ind Highest Value: 0.68 bit/ind at the AAO-3 station	INTERMEDIATE for all stations Shannon-Wiener index: 1.40 and 1.77 bits/ind Highest Value: 1.77 bit/ind at station AAO-4
Species within of Least Concern Categories	06 species	07 species
CITES Appendices Species (*)	Not applicable	Not applicable
Species Endemic	Not registered	Not registered

Prepared by the author

(*) Appendix II includes species that are not necessarily threatened with extinction but could become so unless trade is strictly controlled.

MONITORING RESULTS OF ORNITHOFAUNA 2023 (birds)

	FIRST SEMESTER 2023	SECOND SEMESTER 2023
Registered species	14 species of birds, distributed in 06 orders and 12 families. Best Represented Order: Passerines (50%)	19 species of birds, distributed in 07 orders and 16 families. Best Represented Order: Passerines
Taxonomic families	Family Columbidae: 21%	Family Columbidae: 16%
Diversity values obtained	<p>Growing areas in station of: MB-1 control registered 11 species and 99 individuals AAO-3 impact registered 08 species and 35 individuals Plains and slopes in station of: AAO-4 impact registered 07 species and 47 individuals AAF-4 control registered 05 species and 26 individuals</p>	<p>Growing areas in station of: MB-1 control registered 11 species and 48 individuals AAO-3 impact registered 08 species and 42 individuals Plains and slopes in station of: AAO-4 impact registered 08 species and 15 individuals AAF-4 control registered 06 species and 41 individuals</p>
Most abundant species	The Blue and White Swallow (28%) <i>Pygochelidon cyanoleuca</i>	Melodic turtledove (20%) <i>Zenaida meloda</i>
Diversity indices	<p>AAO-3 station: more diverse, intermediate level (Shannon-Wiener ind.: $H' = 1.91$ bits/ind) AAF-4 station: less diverse, intermediate level (Shannon-Wiener ind.: $H' = 1.51$ bits/ind)</p>	<p>AAO-3 station: less diverse, intermediate level (Shannon-Wiener ind.: $H' = 2.10$ bits/ind) AAF-4 station: more diverse, intermediate level (Shannon-Wiener ind.: $H' = 2.94$ bits/ind)</p>
Species within categories/lists	All species fall into the Least Concern (LC) category, indicating that none of the species is endangered.	All species are in the Least Concern (LC) category, except for the Blue Seedling (<i>Xenospingus concolor</i>) which is in the near-dawn (NT) category.
CITES Appendices Species (*)	American Kestrel (<i>Falco sparverius</i>) and Rufous-bellied Hummingbird (<i>Amazilia amazilia</i>)	Peruvian fairy hummingbird (<i>Thaumastura cora</i>), the Rufous-bellied hummingbird (<i>Amazilia amazilia</i>), the ashy sparrowhawk (<i>Circus cinereus</i>) and the American Kestrel (<i>Falco sparverius</i>)
Endemic species	"Peruvian Miner" <i>Geositta peruviana</i>	"Peruvian Miner" <i>Geositta peruviana</i>

Prepared by the author

(*) Appendix II includes species that are not necessarily threatened with extinction but could become so unless trade is strictly controlled.

MONITORING RESULTS OF HERPETOFAUNA 2023 (amphibians and reptiles)

	FIRST SEMESTER 2023	SECOND SEMESTER 2023
Registered species	01 species of reptile, belonging to the order Squamata and the family Tropiduridae	01 species of reptile, belonging to the order Squamata and the family Tropiduridae
Taxonomic families	Family Columbidae: 21%	Desert plains and slopes: 9 species distributed in 09 genera and 07 families. Cultivation areas : 07 species distributed in 07 genera and 07 families
Diversity values obtained	Greater wealth and abundance in: Plains and slopes in station of: AAF-4 control registered 01 species and 04 individuals Growing areas in station of: MB-1 control registered 01 species and 02 individuals	Greater wealth and abundance in: Plains and slopes in station of: AAF-4 control registered 01 species and 06 individuals Growing areas in station of: MB-1 control registered 01 species and 03 individuals
Most abundant species	The Beach Lizard (100%) Microlophus peruvianus	The Beach Lizard (100%) Microlophus peruvianus
Diversity indices	They could not be calculated due to only one species being recorded at stations AAF-4 and MB-1c. Stations AAO-4 and AAO-3 did not record any species	They could not be calculated due to only one species being recorded at stations AAF-4 and MB-1c. Stations AAO-4 and AAO-3 did not record any species
Species within categories/lists	Beach lizard: not on the MINAGRI list, and if they are within the Least Concern (LC) category	Beach lizard: not on the MINAGRI list, and if they are within the Least Concern (LC) category
CITES Appendices Species (*)	Not applicable	Not applicable
Endemic species	Not registered	Not registered

Prepared by the author

(*) Appendix II includes species that are not necessarily threatened with extinction but could become so unless trade is strictly controlled.

CONCLUSIONS



CAASA's steel activity is carried out more than 2 km from the Paracas National Reserve, and the Industrial and Recyclable Materials Storage operation is located in the buffer zone, but not close to the critical diversity, developing an activity compatible with the zoning and with an evaluation of "non-significant impact on the biological environment."



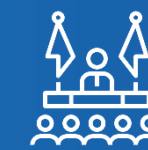
Two biodiversity risks were identified, one of impact "Deterioration of the habitat of the Perimeter live Fence, due to the increase in atmospheric emissions of the Steel Complex" and another of dependence "Interruption of natural pollination in the Perimeter live Fence, due to the operations of the Steel Complex", both of which were analyzed and classified as "Low Level" risks.



The environmental impact assessment required fieldwork, identifying species that live adjacent to the steel activity and that were attracted due to the planting and maintenance of the live Fence. Biological monitoring is carried out every six months with the help of experts to identify the species that coexist with our activity (none is in the conservation or threat category according to regulations).



Our net biodiversity improvement project has progressed by 50%, due to the increase in the Live Fence in the industrial byproduct storage area, with eucalyptus trees reaching an approximate height of 10 meters.



CAASA has participated in the Municipal Environmental Commission of Pisco for the formulation of the proposal for the Integrated Management Plan for the Coastal Marine Zone of Pisco - Paracas (IMPCMZP) which had a favorable technical opinion by the Ministry of the Environment and was approved by the Provincial Municipality of Pisco on September 30, 2021, being a great achievement for the community and evidence of the multidisciplinary work of the public and private sectors.



We have published our "Biodiversity Guide to Aceros Arequipa" that allows us to disseminate and learn about the species that inhabit our live fence and coexist with our steelmaking activity.

5

TABLES AND ANNEXES



ANNEX 1.

Species in Paracas National Reserve

TYPES	SPECIES
Poultry	Pelican, the grey gull (<i>Larus modestus</i>), tendril (<i>Larosterna inca</i>), skimmer (<i>Rynchops nigra</i>), the arctic plover (<i>Pluvialis squatarola</i>), the chuita (<i>Phalacrocorax gaimardi</i>), the guanay (<i>Leucocarbo bougainvillii</i>), the condor, the Humboldt penguin (endangered) and flamingos (<i>Phoenicopterus chilensis</i>).
Fishes	Lenguado (<i>Etropus extenes</i>), toyo (<i>Mustelus whitneyi</i>), bonito (<i>Sarda chilensis</i>), tramboyo, raya, chita, sardina, anchovy (<i>Engraulis ringens</i>), pampanito, mero, corvina, lorna and other diverse species.
Squirrels	Sea lions (<i>Otaria byronia</i> and <i>Arctocephalus australis</i>), bufeo (<i>Delphinus delphis</i>) and the sea cat (<i>Lontra felina</i>) endangered.
Reptiles and molluscs	Turtles, reptiles such as lizards (<i>Microlophus</i> spp.), geckos (<i>Phyllodactylus</i> spp.), as well as mollusks such as octopuses, squid (<i>Loligo gahi</i>), clams and crustaceans such as carretero (<i>Ocypode gaudichaudii</i>), violaceous crab (<i>Platyxantus orbigny</i>) and muimuy (<i>Emerita analoga</i>), among others.

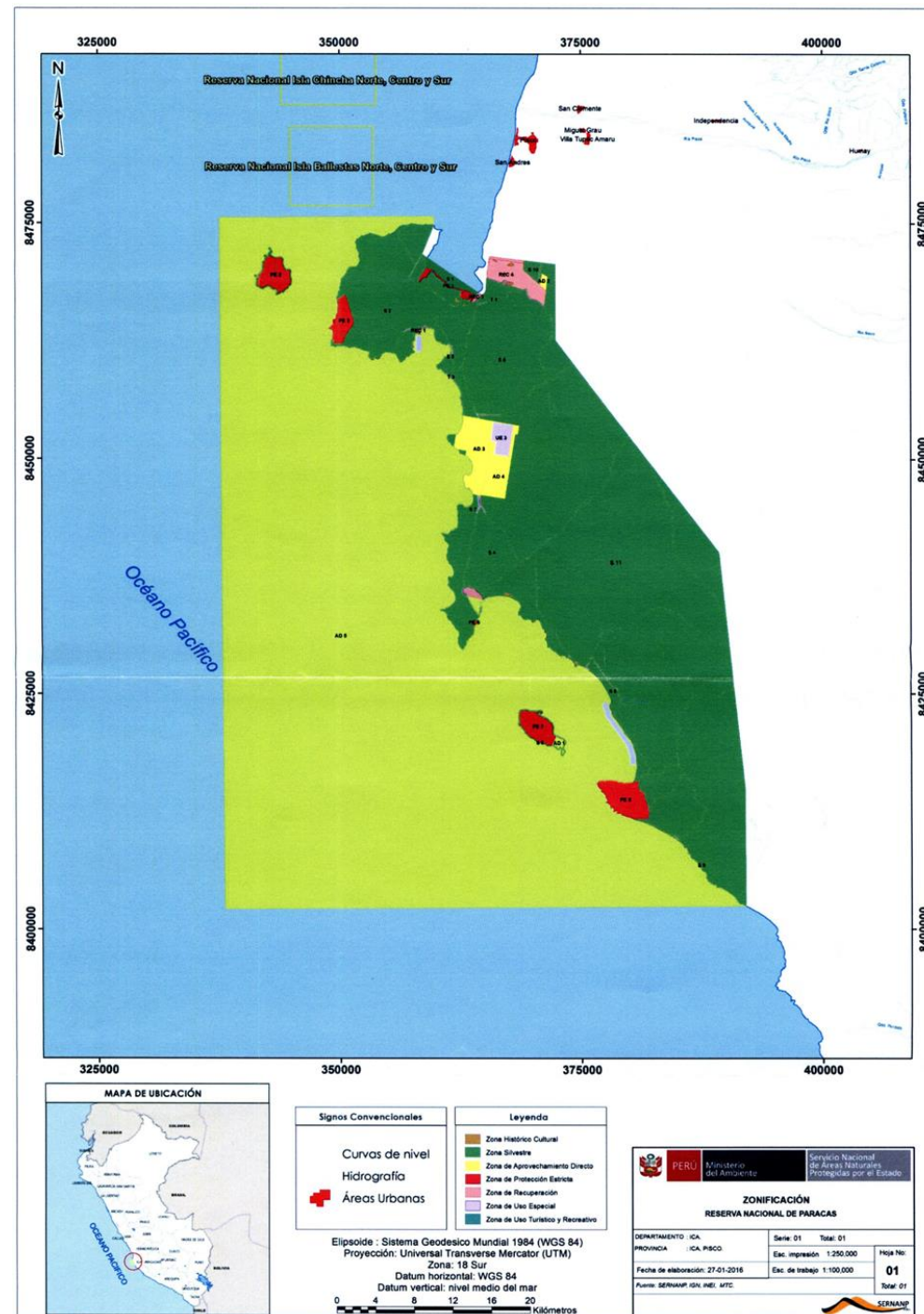
ANNEX 2.

Zoning of the Paracas National Reserve

ZONING	SECTORS
Strict Protection	Paracas Bay Wetland, Gran Gallan Island (land part) and surrounding islets, Cerro Lechuza, Punta Arquillo (Cliff and rocky intertidal zone), Flamingo Lagoon, Tres Puertas (Cliff), Independence Island (North Zone), Morro Quemado.
Wild	Paracas Bay (Marine and terrestrial part), Coastal Desert (Tern breeding area), 100 meters around San Gallan Island and Independencia, North Lagunilla - Red Beach, Yumaque, Cerro el maldito, Mendieta, Carhuaz and Tunga, Barlovento - el negro - Antana, Bosquecito (Zofaique), Coastal Desert, Punta Mendieta, Punta Sacasemita, Punta Cielo, Punta Prieta and cliffs Los Frailes, Santa María, La Esperanza.
Touristy	La Mina - Raspón, Lagunilla Sur, Catedral - Supay.
Direct Utilization (DU)	Independencia Island (southern zone) and Santa Rosa Island (Guano harvesting), Northern zone (Date palm harvesting), Otuma Concession (Salt harvesting), Beach areas for the passive collection of macroalgae, All marine area not contemplated in the other zones, Fte. To San Gallán (Surfing and wolf watching).
Recovery (REC)	Lagunilla Cove, Bahía Independencia Wetland (La Poza de LG and adjacent beaches: La Raya, Rancherío, Bocana), Santo Domingo Urbanization, Acquired Rights Zone (northeast limit of the ANP), Atenas
Special Use (SU)	Coastal desert, QUIMPAC (pools), Concessions for mariculture in Raspón and El Queso (Exploitation of fan shells).
Cultural history (CH)	Coastal desert (Archaeological zones).

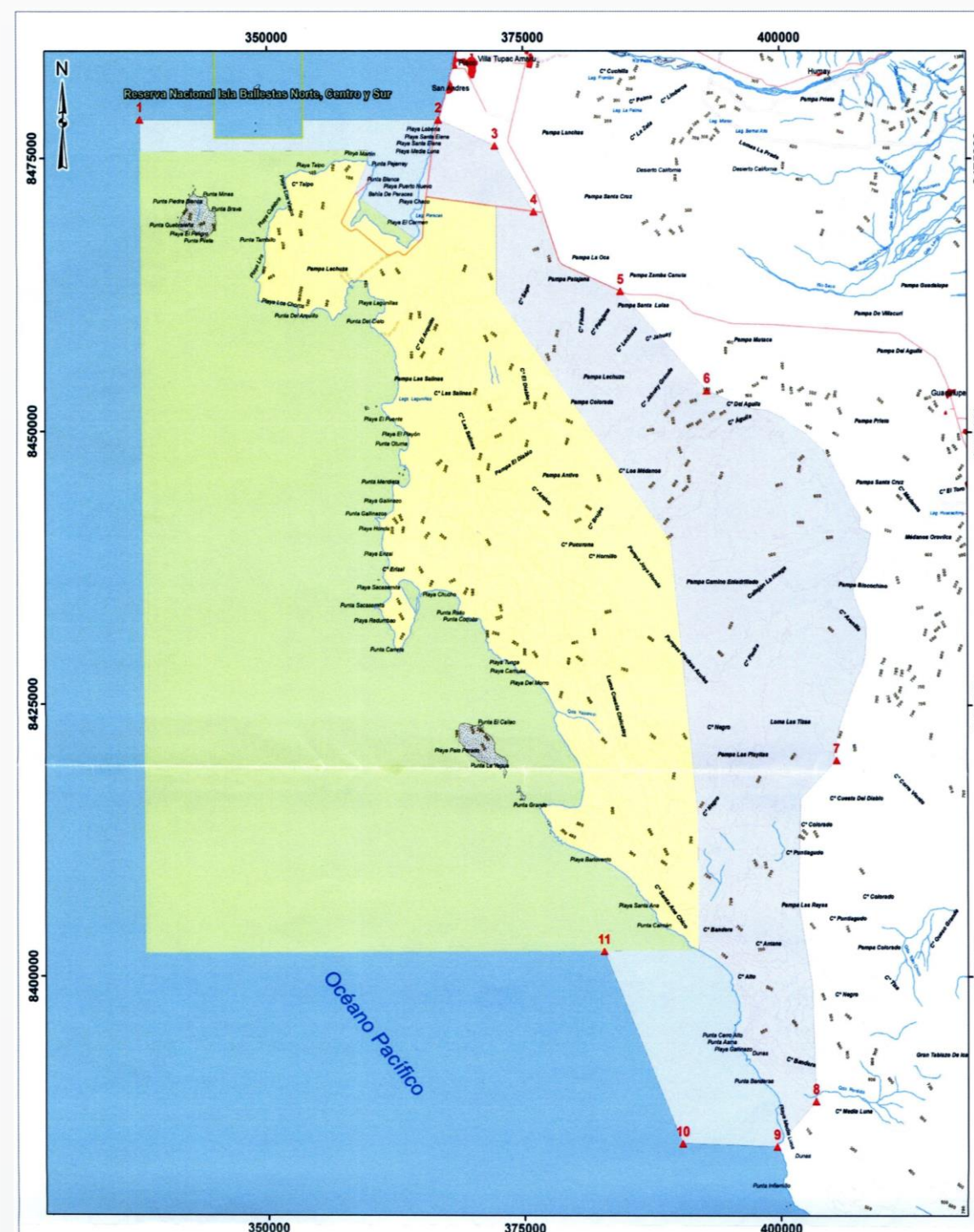
ANNEX 3.

Zoning Map of the Paracas National Reserve



ANNEX 4.

Map of Buffer Zone of the Paracas National Reserve



Point	East	North
1	337612	8478555
2	366740	8478548
3	372242	8476185
4	376044	8470181
5	384451	8462868
6	392854	8453790
7	405455	8419926
8	403412	8388742
9	399607	8384614
10	390387	8384898

ANNEX 5.

Application of the Control Hierarchy

Preventive Measures		Corrective Measures	
Avoid	Minimize	Restore*	Compensate
Through site selection: Our operation is located outside the Paracas National Reserve at more than 2.16 km approximately.	For operational and reduction controls: We prohibit hunting, we train our suppliers and collaborators. Our fixed sources of emissions have smoke treatment systems that comply with legislation and even more rigorous commitments. We have a domestic wastewater treatment system that allows us to take advantage of it in our green areas.	Due to the implementation of our preventive measures, we are not in the need to apply this corrective measure.	Due to the implementation of our preventive measures, we are not in the need to apply this corrective measure.

(*) Restore includes regeneration measures.

ANNEX 6.

Risk Assessment Criteria - Comprehensive Risk and Opportunity Management Methodology (1/2)

PROBABILITY	Low	Moderate	Considerable	High
Frequency	It has never happened. Less than 0.5% of cases/transactions.	During the last year the event has not occurred, but it has occurred before. Between 0.5% and 1% of cases/transactions.	During the last year the event has not occurred, but it has happened once. Between 1% and 5% of cases/transactions.	During the last year the event has not happened more than once. 5% of cases/transactions.
Exposition	Continuous exposure, below 50% of the acceptable limit.	Continuous exposure, between 50% and 75% of the acceptable limit.	Continuous exposure, between 75% and 100% of the acceptable limit.	Continuous exposure, above the acceptable limit.
Occurrence Estimation (Experience and professional judgment)	Low occurrence estimate.	Low occurrence estimate.	Estimation of considerable occurrence.	High occurrence estimation.

ANNEX 6.

Risk Assessment Criteria - Comprehensive Risk and Opportunity Management Methodology (2/2)

IMPACT	LOW	MODERATE	CONSIDERABLE	HIGH
Economic (Ut. Oper. > 50 MM) Applicable if the Average Operating Profit of the last 3 years is greater than 50 million soles	Less than 0.25% of the average Operating Profit of the last 3 years.	Between 0.25% and 0.5% of the average Operating Profit of the last 3 years.	Between 0.5% and 1% of the average Operating Profit of the last 3 years.	Greater than 1% of the average Operating Profit of the last 3 years.
Economic (Ut. Oper. < 50 MM) Applicable if the Average Operating Profit of the last 3 years is less than 50 million soles	Less than 250 thousand soles.	Between 250 thousand and 500 thousand soles.	Between 500 thousand and 1 million soles.	Greater than 1 million soles.
Impact on operations and information systems (qualitative)	Interruption of operations of less than 1 hour. The integrity and/or timeliness of the information is not affected.	Interruption of operations between 1 and 8 hours. The integrity and/or timeliness of critical information is affected.	Interruption of operations between 8 and 24 hours. Loss of non-critical information from CAASA or third parties that cannot be recovered.	Interruption of operations for more than 24 hours. Loss of critical CAASA or third-party information that cannot be recovered.
Impact on reputation and image (qualitative)	Minimal public knowledge and low or no liability of the company.	Moderate public knowledge. There may be liability.	Wide media coverage. Perception of responsibility of the company.	Massive public knowledge and wide frequency or permanence in the media. It receives political interest. Perception of the company's responsibility.
Regulatory and legal impact (qualitative)	It could lead to non-compliance with internal or legal, sectoral, labor or tax regulations.	It causes non-compliance with internal or legal, sectoral, labor or tax regulations, but does not generate the payment of penalties.	Failure to comply with legal, sectoral, labor or tax regulations determines the payment of penalties. Ethical misconduct that does not comply with internal regulations does not incur a crime.	Severe non-compliance with legal, sectoral, labor or tax regulations, determines the payment of penalties, could generate criminal sanctions for the entity or representative, and/or the intervention of the regulator. Ethical misconduct in a systematic way that does not comply with internal regulations and/or that a crime is incurred.
Environmental Impact (Nature of the event/affectation)	The scope of the impact is at the level of activity. Effects on the company's environments and infrastructure that are on the ground.	The scope of the impact involves the whole process. Affectation of 1 environmental factor (Air, Soil, Water, Flora and Fauna).	The scope of the impact implies other processes. Affectation of 2 or more environmental factors (Air, Soil, Water, Flora and Fauna).	The scope of the impact exceeds the limits of the company. Affectation to the sensitive natural environment or population (nature reserves).
Occupational Health and Safety (Nature of the incident and the damage)	Very minor injuries can cause discomfort or discomfort.	Minor injuries, without sick leave, without disability, could require first aid.	Temporary disability. Reversible health damage.	Total or partial permanent disability Irreversible/fatal damage.

ANNEX 7.

Location of the Evaluated Properties



ANNEX 8.

Location of CAASA in the Buffer Zone



ANNEX 9.

Impact evaluation methodologies

LEOPOLD METHODOLOGY	
Rank	Qualification
0 - 20	Not significant
21 - 40	Not very significant
41 - 60	Moderately significant
61 - 80	Significant
81 - 130	Highly significant

CONESA METHODOLOGY		
Importance Index	Level of Importance	
I < 25	Low or Mild	Non-Significant Impact
25 ≤ I < 50	Moderate Impact	
50 ≤ I < 75	High	Significant Impact
75 ≥ I	Very High	

GIRO METHODOLOGY	
Rank	Qualification
1	Low
2	Moderate
4	Considerable
8	High

ANNEX 10.

Flora and Fauna Identified in each EMI (Environmental Management Instrument)

Update	East	Norte
2015 - 2016 Update of the Environmental Management Plan of the Environmental Adequacy and Management Program	- Eucalyptus (Eucaliptus globulus). - Aromo (Acacia karroo Hayne).	- Gallinazo cabeza roja (Cathartes aura). - Agachona chica (Thinocurus rumicivorus). - Chisco (Mimus longicaudatus). - Gekko de Paracas (Phyllodactilus angustidigitus). - Lagartija peruana (Microlophus peruvianus).
2018 (ITS Modernization of the Steel Mill)	- Eucalyptus (Eucaliptus globulus). - Aromo (Acacia karroo Hayne).	- Gallinazo cabeza roja (Cathartes aura). - Agachona chica (Thinocurus rumicivorus). - Chisco (Mimus longicaudatus). - Buitre americano cabecirrojo (Cathartes aura). - Gorrión americano (Zonotrichia capensis). - Gekko de Paracas (Phyllodactilus angustidigitus). - Lagartija peruana (Microlophus peruvianus).
2015-2016 (Declaration of Environmental Adequacy of Industrial and Reprocessable Materials Storage Yard)	- Sesuvium portulacastrum. - Alternanthera halimifolia - Baccharis salicifolia - Heliotropium curassavicum - Opuntia ficus-indica - Casuarina quisetifolia - Salicornia fruticosa - Cressa truxillensis - Acacia macracantha - Phoenix canariensis - Distichlis spicata - Phragmites australis	- Cathartes aura (buitre americano cabecirrojo). - Chisco (Mimus longicaudatus). - Gorrión americano (Zonotrichia capensis) - Gekko de Paracas (Phyllodactilus angustidigitus) - Lagartija peruana (Microlophus peruvianus)

ANNEX 11.

Images of workshops held with MINAM Worktable

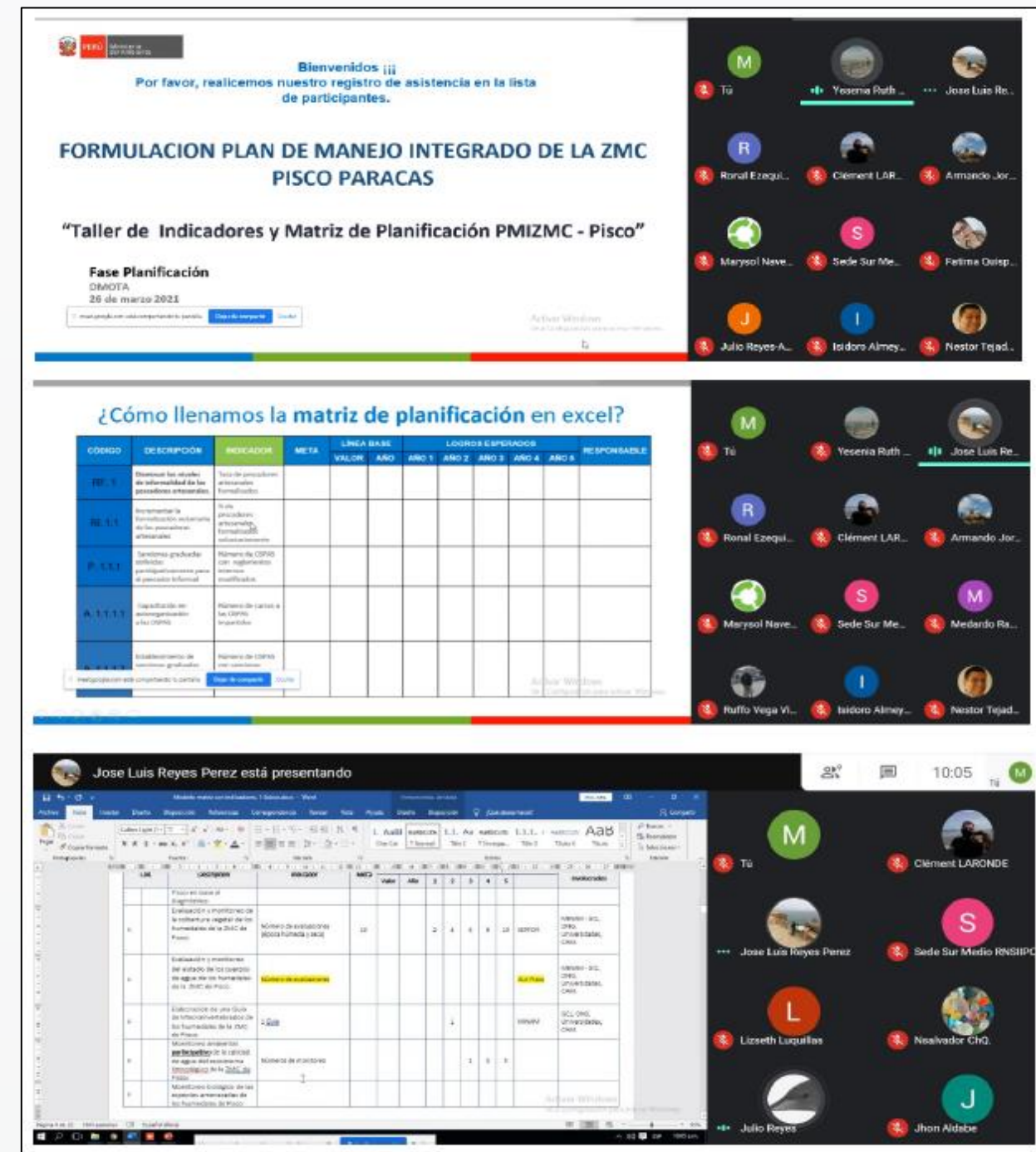


Publication of the National Society of Industries: https://www.linkedin.com/posts/sociedad-nacional-de-industrias_soluciones-basadas-en-la-naturaleza-activity-6865283013027213312-xEx?utm_source=linkedin_share&utm_medium=android_app

CAASA Publication: https://www.linkedin.com/posts/acerosarequipa_corporaci%C3%B3n-aceros-arequipa-en-la-cop26-activity-6863846672439611392-H6rY?utm_source=linkedin_share&utm_medium=android_app

ANNEX 12.

Images of workshops held for the Formulation of the Integrated Management Plan for the Coastal Marine Zone of Pisco - Paracas (IMPCMZP)



ANNEX 13.

Sampling Stations - Biological Monitoring

Code	Description	Geographical coordinates	
		North	East
AAF-4 Control	Desert plains and slopes with sparse vegetation	8474712	372925
AAO-4 Impact	Desert plains and slopes with sparse vegetation	8476389	373596
AAO-3 Impact	Cultivation Areas	8475342	374193
MB-1c Control	Cultivation Areas	8477574	372882

ANNEX 14.

Photo Gallery of the Biological Monitoring Program: Flora and Fauna

Flora

Picture 1

East	374193
North	8475342
Altitude	
Reference Place	AA-03
Scientific Name	-
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Cultivation Area



Picture 2

East	373596
North	8476389
Altitude	
Reference Place	AA-04
Scientific Name	-
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Cultivation Area



Picture 3

East	372925
North	8474712
Altitude	
Reference Place	AA-F4
Scientific Name	-
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Plain and desert slopes with sparse vegetation



Picture 4	
East	372882
North	8477574
Altitude	
Reference Place	MB-1C
Scientific Name	-
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 7	
East	373596
North	8476389
Altitude	
Reference Place	AA-04
Scientific Name	Vachellia karoo
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 5	
East	372882
North	8477574
Altitude	
Reference Place	AA-03
Scientific Name	Sonchus oleraceus
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Cultivation areas



Picture 8	
East	373596
North	8476389
Altitude	
Reference Place	AA-04
Scientific Name	Bougainvillea spectabilis
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 6	
East	374193
North	8475342
Altitude	
Reference Place	AA-03
Scientific Name	Delonix regia
D.S. 043-2006-AG	-
International conservation	IUCN - LC
Uses of the population	-
Plant Formation	Cultivation areas



Picture 9	
East	373596
North	8476389
Altitude	
Reference Place	AA-04
Scientific Name	Cenchrus echinatus
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 10	
East	372925
North	8474712
Altitude	
Reference Place	AA-F4
Scientific Name	Encelia canescens
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 13	
East	372925
North	8474712
Altitude	
Reference Place	AA-F4
Scientific Name	Distichlis spicata
D.S. 043-2006-AG	-
International conservation	IUCN - LC
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 11	
East	372925
North	8474712
Altitude	
Reference Place	AA-F4
Scientific Name	Pluchea chingoyo
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 14	
East	372882
North	8477574
Altitude	
Reference Place	MB-1C
Scientific Name	Sesuvium portulacastrum
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Cultivation areas



Picture 12	
East	372925
North	8474712
Altitude	
Reference Place	AA-F4
Scientific Name	Spilanthes leiocarpa
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Desert plains and slopes with sparse vegetation



Picture 15	
East	372882
North	8477574
Altitude	
Reference Place	MB-1C
Scientific Name	Alternanthera pubiflora
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Cultivation areas



Picture 16	
East	372882
North	8477574
Altitude	
Reference Place	MB-1C
Scientific Name	Prosopis limensis
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Cultivation areas



Picture 17	
East	372882
North	8477574
Altitude	
Reference Place	MB-1C
Scientific Name	Plantago major
D.S. 043-2006-AG	-
International conservation	IUCN - LC
Uses of the population	-
Plant Formation	Cultivation areas



Picture 18	
East	372882
North	8477574
Altitude	
Reference Place	MB1-C
Scientific Name	Nicandra physalodes
D.S. 043-2006-AG	-
International conservation	-
Uses of the population	-
Plant Formation	Cultivation areas



Fauna



Picture 1				
Scientific Name	Cathartes aura			
Common name	Gallinazo cabeza roja			
East	372882	North	8477574	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	MB-1c Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None	II		
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known

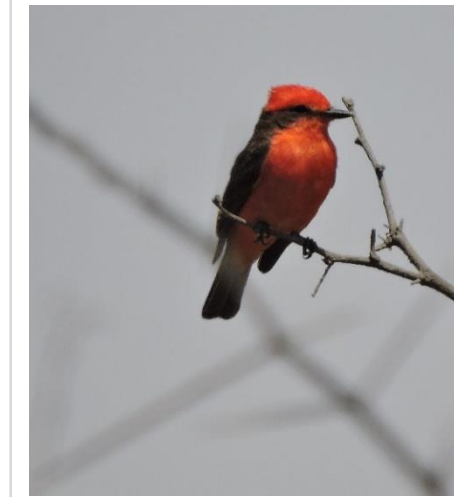


Picture 2				
Scientific Name	Tyrannus melancholicus			
Common name	Tirano tropical			
East	372882	North	8477574	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	MB-1c Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None	None		
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known

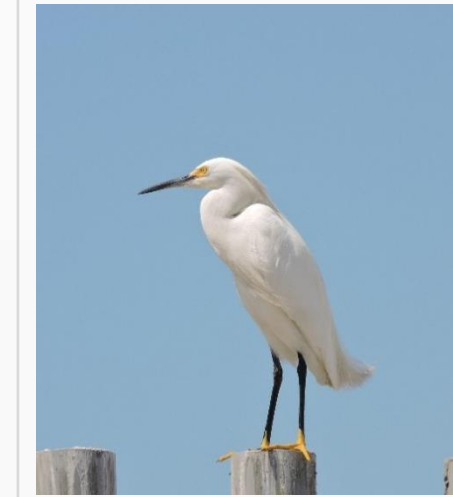


Picture 3				
Scientific Name	Columbina cruziana			
Common name	Tortolita peruana			
East	372882	North	8477574	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	MB-1c Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None	None		
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known

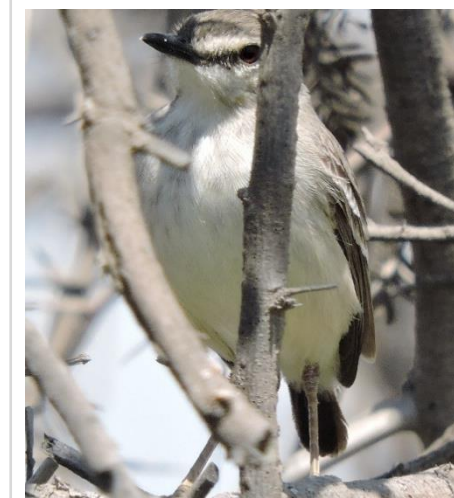
Picture 4				
Scientific Name	<i>Pyrocephalus rubinus</i>			
Common name	Turtupilin			
East	372882	North	8477574	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	MB-1c Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None			None
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known



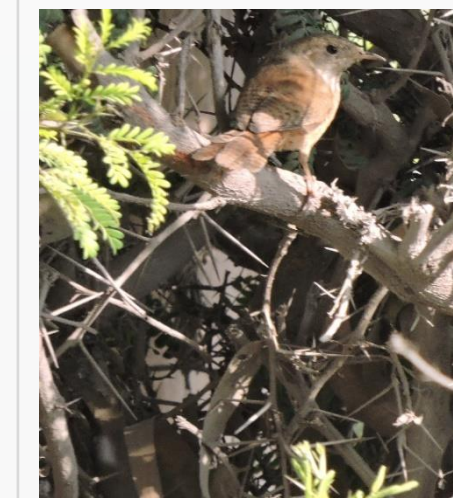
Picture 7				
Scientific Name	<i>Bubulcus ibis</i>			
Common name	Garza bueyera			
East	372882	North	8477574	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	MB-1c Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None			None
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known



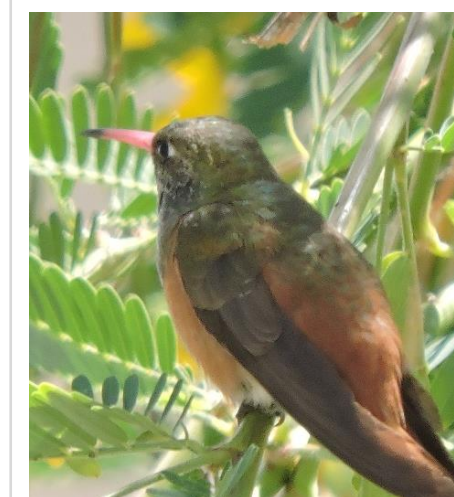
Picture 5				
Scientific Name	<i>Conirostrum cinereum</i>			
Common name	Pico de cono cinéreo			
East	372882	North	8477574	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	MB-1c Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None			None
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known



Picture 8				
Scientific Name	<i>Troglodytes aedon</i>			
Common name	Cucarachero común			
East	374193	North	8477342	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	AAO-3 Impact			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None			None
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known



Picture 6				
Scientific Name	<i>Amazilia amazilia</i>			
Common name	Amazilia costera			
East	372882	North	8477574	
Altitude	80 masl			
Vegetation Unit	Cultivation area			
Sampling Station	MB-1c Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None			II
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known



Picture 9				
Scientific Name	<i>Mimus longicaudatus</i>			
Common name	Chaucato			
East	372925	North	8474712	
Altitude	80 mas			
Vegetation Unit	Desert plains and slopes with sparse vegetation			
Sampling Station	AAF-4 Control			
Endemism	-			
National Conservation Categories(D.S. 004-2014 MINAGRI)	None			
International Conservation Categories	IUCN	CITES		
Category	None			None
Uses of the population	-			
Geographical distribution	Wide	Medium	Minor	Little Known



Picture 10	
Scientific Name	<i>Zenaida meloda</i>
Common name	Tórtola melódica
East	373596 North 8476389
Altitude	80 masl
Vegetation Unit	Desert plains and slopes with sparse vegetation
Sampling Station	AAO-4 Impact
Endemism	-
National Conservation Categories(D.S. 004-2014 MINAGRI)	None
International Conservation Categories	IUCN CITES
Category	None None
Uses of the population	-
Geographical distribution	Wide Medium Minor Little Known

Picture 11	
Scientific Name	<i>Cathartes aura</i>
Common name	Gallinazo cabeza roja
East	373596 North 8476389
Altitude	80 masl
Vegetation Unit	Desert plains and slopes with sparse vegetation
Sampling Station	AAO-4 Impact
Endemism	-
National Conservation Categories(D.S. 004-2014 MINAGRI)	None
International Conservation Categories	IUCN CITES
Category	None None
Uses of the population	-
Geographical distribution	Wide Medium Minor Little Known

Picture 12	
Scientific Name	<i>Mictolophus thoracicus icae</i>
Common name	Lagartija de los gramadales
East	372882 Norte 8477574
Altitude	80 masl
Vegetation Unit	Cultivation area
Sampling Station	MB-1c Control
Endemism	Perú
National Conservation Categories(D.S. 004-2014 MINAGRI)	None
International Conservation Categories	IUCN CITES
Category	Nonr None
Uses of the population	-
Geographical distribution	Wide Medium Minor Little Known

Picture 13	
Scientific Name	<i>Mictolophus thoracicus icae</i>
Common name	Lagartija de los gramadales
East	372925 North 8474712
Altitude	80 masl
Vegetation Unit	Desert plains and slopes with sparse vegetation
Sampling Station	AAF-4 Control
Endemism	Perú
National Conservation Categories(D.S. 004-2014 MINAGRI)	None
International Conservation Categories	IUCN CITES
Category	None None
Uses of the population	-
Geographical distribution	Wide Medium Minor Little Known

ANNEX 15.

Sampling Stations - Biological Monitoring 2023 (1/2)

MONITORING STATION: : AAO-3					
VEGETATION UNIT			Cultivation Areas		
EAST	374193	NORTH	8475342	ALTITUD (masl)	-
EVALUATION DATE			27/11/2023		
DESCRIPTION OF THE MONITORING STATION			Located on the east side of the plant, adjacent to the South Pan-American Highway; It consists of a live fence with tree and shrub plant species, these species serve as shelter and food for some species of birds and reptiles.		
BIOTIC INDICES					
Taxa	Flora	Birds	Reptiles		
Wealth (S)	9	10	1		
Abundance	59	42	1		
Shannon-Wiener (H')	2.51	2.82	0		
Simpson(1-D)	0.74	0.82	0		





MONITORING STATION: AAO-4					
VEGETATION UNIT			Desert plains and slopes with sparse vegetation		
EAST	373596	NORTH	8476389	ALTITUDE (masl)	-
EVALUATION DATE			27/11/2023		
DESCRIPTION OF THE MONITORING STATION			Located on the northeast side of the plant, close to a camp and sports field; It consists of a live fence with tree and shrub plant species, these species serve as shelter and food for some species of birds and reptiles		
BIOTIC INDICES					
Taxa	Flora	Birds	Reptiles		
Wealth (S)	8	14	2		
Abundance	58	91	3		
Shannon-Wiener (H')	2.36	3.46	0.92		
Simpson(1-D)	0.73	0.89	0.44		



ANNEX 15.

Sampling Stations - Biological Monitoring 2023 (2/2)

MONITORING STATION: AAF-4						
	VEGETATION UNIT		Desert plains and slopes with sparse vegetation			
	EAST	372925	NORTH	8474712	ALTITUDE (masl)	-
	EVALUATION DATE		27/11/2023			
	DESCRIPTION OF THE MONITORING STATION		Desert slope plain with sparse vegetation, close to the live fence of the plant located on the west side of it; This live fence serves as a refuge and food for some species of local fauna.			
	BIOTIC INDICES					
Taxa	Flora	Birds	Reptiles			
Wealth (S)	8	9	0			
Abundance	46	27	0			
Shannon-Wiener (H')	2.88	3.08	-			
Simpson(1-D)	0.85	0.88	-			

MONITORING STATION: MBA-1c						
	VEGETATION UNIT		Desert plains and slopes with sparse vegetation			
	EAST	372882	NORTH	8477574	ALTITUDE (masl)	-
	EVALUATION DATE		26/11/2023			
	DESCRIPTION OF THE MONITORING STATION		Located in a cultivation area surrounded by coastal desert with some vegetation units, the area is located outside the plant within the zone of indirect influence of the plant.			
	BIOTIC INDICES					
Taxa	Flora	Birds	Reptiles			
Wealth (S)	3	9	3			
Abundance	9	58	6			
Shannon-Wiener (H')	1.44	2.75	1.46			
Simpson(1-D)	0.59	0.53	0.61			

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