



BIODIVERSITY

GUIDE IN ACEROS AREQUIPA



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INTRODUCTION

Biodiversity encompasses the variety of living organisms and their mutual relationships with the environment, representing an invaluable property in each place. At Aceros Arequipa, the conservation of biodiversity is one of the axes of action of our Environmental Policy, for this we evaluate the impact on biodiversity in our current and future areas of operation, as necessary according to their location. When areas with important biodiversity are identified at a global or national level, we apply the mitigation hierarchy focused on avoiding, minimizing, restoring, and compensating.

Our main production headquarters is the Steel Complex, located on the Panamericana Sur Km 241, district of Paracas, province of Pisco and Ica region, it has an area of 322.2 Ha (including the former San Juan de Buenavista farm, where “Storage Yard for Industrial and Reprocessable Materials” is developed).

All our operations are carried out in zoning compatible with our activities, with the Steel Complex being the only headquarters that is close to a Protected Natural Area (PNA), for this we have applied the following mitigation hierarchy: **Avoid** (through site selection) - our operation is located outside the Paracas National Reserve, more than approximately 2.16 km; **Minimize** (through operational and reduction controls) - we forbid the hunting of animals in our facilities, we train our transport suppliers and our collaborators; our fixed sources of emissions have smoke treatment systems that comply with the maximum permissible limits and even with commitments more rigorous. Also, we have a domestic wastewater treatment system that allows us to use it in our green areas.

Additionally, as a net improvement, we have more than 10 km of perimeter living fence, which serves as a habitat for various species of flora and fauna that coexist with our steel activity. Within our Biodiversity Conservation Program, we have been developing biological monitoring on a semiannual basis. These results have served as input for the preparation of this document which aims to document and disseminate the diversity of species present in the Steel Complex, their characteristics and possible threats that may entail a risk of extinction, delimited by the area of direct influence of our operations.



1. CAASA ECOSYSTEM

The Aceros Arequipa Steel Complex is in a coastal area that is part of the Peruvian desert. This desert was created by a combination of factors, the main one being the icy Humboldt Current that runs from Antarctica northward along the coast of Chile and Peru. The cold sea off the Peruvian coast directs the coastal winds towards the east, towards the Andes barrier. On the other hand, the Andes block the arrival of rains from the Amazon.

Climatic characteristics vary depending on the season. In summer, relatively little sea humidity is dispersed by the wind and is lost as air is pushed upward by heat. In winter, humidity arrives as mist that then dissipates. The South Pacific high-pressure system completes the effect of 'locking' the climate in this area, thus producing one of the driest deserts in the world (Whaley et al., 2010).

Despite the exceptional climatic conditions of the area, the flora in Ica is diverse since the presence of groundwater from the catchments of the Andes has allowed certain plants to thrive in specific areas, such as riverside oases. The plants of Ica have links with those of the dry valleys of the eastern mountain range of Bolivia and the arid areas of the Chaco, which were contiguous or connected before the Andean orogeny.

In this way, various vegetation units are formed in the area, two of which can be found within the operation: coastal agriculture and plain areas. Coastal agriculture or cultivation areas corresponds to all areas where agricultural activity is carried out, currently active and resting, located in all the valleys that cross the extensive coastal desert. On the other hand, the vegetation unit described as desert plains and slopes with sparse vegetation presents vegetation that appears sporadically and in low density circumscribed in the coastal desert. Usually, this type of vegetation is found along ephemeral streams.

2. BIOLOGICAL MONITORING METHODOLOGY

Under the support of SGS of Peru's company, biological monitoring has been carried out every six months since 2019. Its methodology consists of a field and post-field stage for the taxonomic determination of the species found.

Flora species

To evaluate the flora at the monitoring points, they carried out tours recording all the species observed and their morphological characteristics qualitatively. Likewise, a quantitative record was carried out to identify the quantities of species in 30 meters of transect, according to the methodology of Maulucci, S. & Colma (1982).

Fauna species

For the quantitative evaluation of birds, they used the point counting method (Bibby et al. 2000). At each station, 10 counting points were established, spaced 100 meters apart to avoid recounting. The bird censuses lasted 10 minutes. In the case of amphibians, the evaluation was using the Visual Encounter Recording (VER) method, where searches were carried out by free walks within a single type of plant formation, for the same time interval (Dixon et al. 1975).



Effort made

Subgroup	Methodology	Evaluation unit	Total sample	Evaluation schedule
Flora	30 x 1m transects	4 transects of 30x1m	4 transects	diurnal
Birds	counting points	10 counting points per station	40 counting points	diurnal
		10 minutes per counting point	400 minutes	
Amphibians	counting points	03 VER	12 VER	diurnal
		20 minutes per VER	240 minutes	

Prepared by SGS of Peru

Subsequently, the determination of the flora and fauna species observed in the field and identified under bibliographic reference, such as guides, lists, books and reports, was carried out.



FLORA

Near Threatened (NT) Category

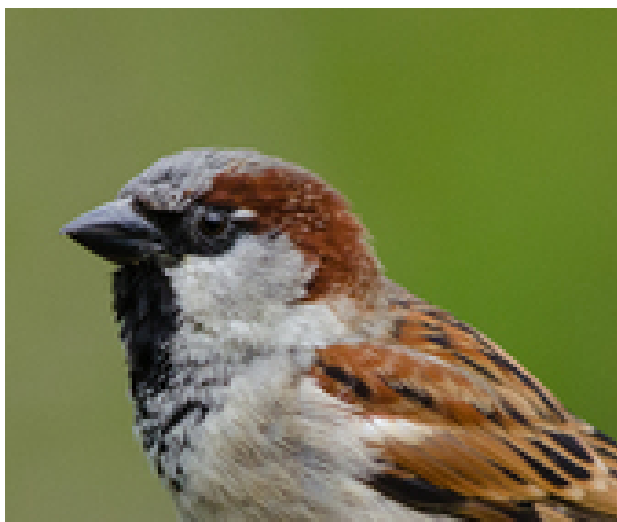
1. *Pluchea chingoyo* DC

Least Concern (LC) Category

2. *Acacia karroo* Hayne
3. *Eucalyptus globulus* Labill.
4. *Encelia canescens* Lam.
5. *Sesuvium portulacastrum* (L.) L.
6. *Bougainvillea glabra* Choisy
7. *Tamarix aphylla* (L.) H. Karst.
8. *Phoenix canariensis* H. Wildpret
9. *Heliotropium curassavicum* L.
10. *Distichlis spicata* (L.) Greene

No threat category

11. *Sonchus oleraceus* L.
12. *Amaranthus hybridus* L.
13. *Setaria verticillata* (L.) P. Beauv



FAUNA

Least Concern (LC) Category

14. *Pygochelidon cyanoleuca*
15. *Cruzian columbina*
16. *Mimus longicaudatus*
17. *Zenaida melody*
18. *Zonotrichia capensis*
19. *Passer domesticus*
20. *Zenaida auriculata*
21. *Microlophus peruvianus*
22. *Troglodytes aedon*
23. *Metriopelia ceciliae*
24. *Cathartes aura*
25. *Volantinia jacarina*
26. *Conirostrum cinereum*
27. *Amazilis amazilia*
28. *Molothrus bonariensis*
29. *Bubulcus ibis*

The fauna species (birds) considered for this document were the most representative of the results of biological monitoring from 2019 to 2023. During this time, the relative abundance accumulated by each species was calculated, those that exceeded 1% and those that were observed for a period of more than one year, to form part of this document.

3. HOW TO USE THIS DOCUMENT

This document is composed of scientific information on each of the species of flora and fauna found in the Steel Complex. In the case of flora species, each sheet descriptively contains the following aspects:

Scientific name of the species

Taxonomic classification and growth

IUCN threat category

Map of the Steel Complex and its monitoring points biológico


Geographic coordinates of each monitoring point

Photograph of the species

Identification of the vegetation units where the species is found

Information on the uses that the species could have

Information on changes in the genetics of the species to adapt



Pygochelidon cyanoleuca

Common name: Blue-and-white Swallow


Order: Passerines

Family: Hirundinidae


Threat levels according to IUCN

EX EW CR EN VU cd nt **lc**

least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

Open fields, moors, agricultural areas, rural and urban populations, preferably near bodies of water.

Behaviors

It stands out for being a sociable bird that forms large flocks to feed and sleep. It feeds on insects that it hunts in mid-flight. Highly adapted to the presence of man, so they can be observed in cities, in inns on power lines.

Geographical distribution

It is found nationwide, from areas at sea level to 4200 meters. The Amazonian populations are southern migrants who stay in Peru during the months of April to October. It also occurs in Colombia, Ecuador, Brazil and Bolivia(1).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372825
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The indiscriminate use of pesticides due to intensive agricultural practices reduces the number of insects it feeds on, impacting the population; Likewise, the possible side effects of exposure to these chemicals cause a reduction in their reproductive potential. Another threat is the deliberate elimination of nests(2).

If there is an event of any danger that threatens this species, contact the environmental area.

Salinas, L., Arana, C., Pulido, V. (2007). Diversidad, abundancia y conservación de aves en un agroecosistema del desierto de Ica, Perú
Linck, E., Huber, H., Greeney, H., Sheldon, K. (2019). NESTING BIOLOGY OF THE BLUE-AND-WHITE SWALLOW (PYGOCHELIDON CYANOLEUCA) IN NORTHEASTERN ECUADOR

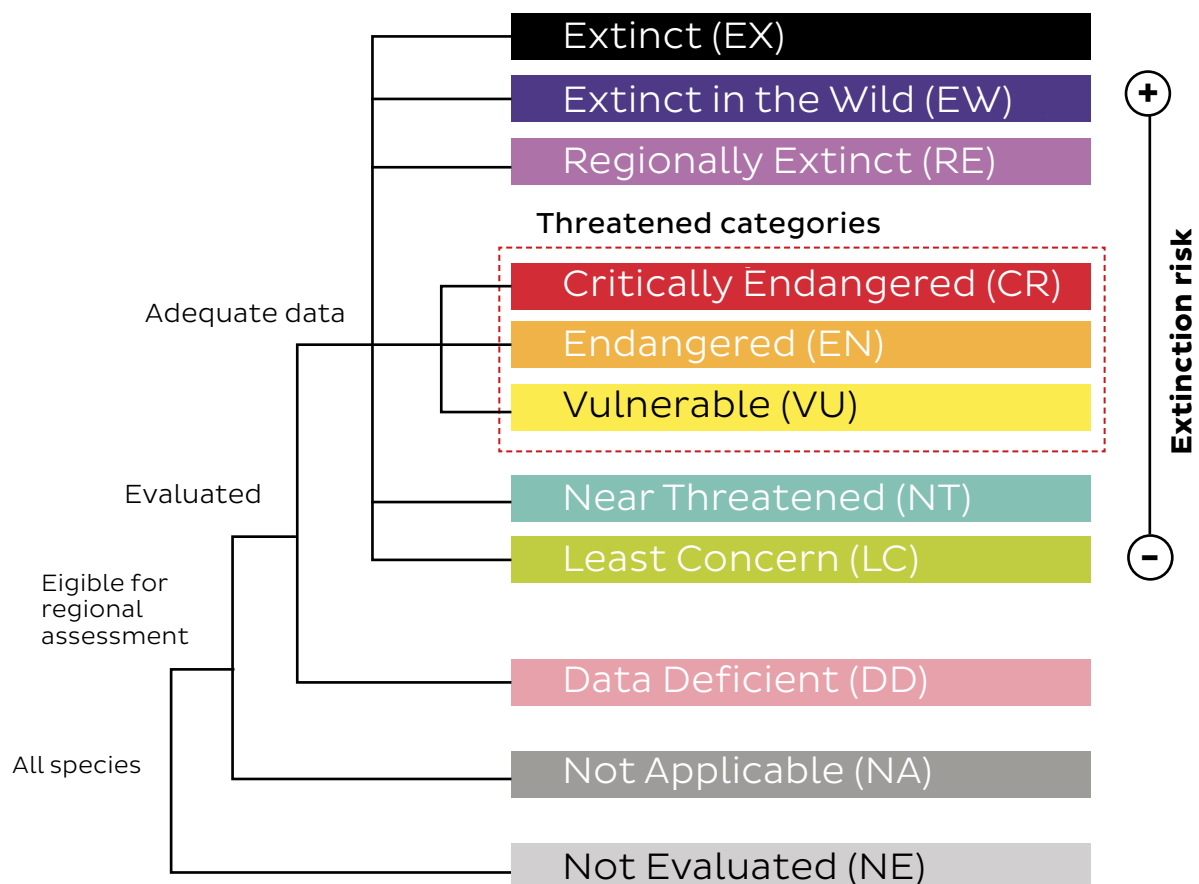
Bibliographic references used

For identification sheets for fauna species, each sheet has the following aspects:



4. THE IUCN RED LIST CATEGORIES

The categories used in this guide are based on the criteria system for the categorization of wildlife at the International Union for Conservation of Nature (IUCN) global level.



Categories used by the IUCN for the categorization of wild flora and fauna worldwide (IUCN Red List Category and Criteria: version 3.1).



FLORA

Common name: Tasmanian bluegum

Family: Myrtaceae

order: Myrtle

Habit: arboreal (growth greater than 5 meters)

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

There are studies which mention that the oil extracted from the leaves is used to make infusions to treat throat and bronchial conditions. This oil can also be used in various industries, such as food, perfume, and mining as a flotation agent. Likewise, it functions as a wind barrier and protection belts along orchards, pastures and roads (1).

Adaptation strategy

The species presents sufficient variability and plasticity of acclimatization to water stress so that it adapts and becomes resistant to drought as it reproduces (2).

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Phenotypic plasticity

Low temperatures condition the growth pattern and biological rhythms since air temperatures below -5°C cause up to 50% of leaf tissue mortality. In the same way, water supply and nutrient supply are also growth limitations for this species as it becomes vulnerable to pest attack.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Portal of the Integrated Agrarian Statistics System of the Ministry of Agriculture and Irrigation (2) Alesso, P., Fernández, M., & Tapias, R. (2010). adaptation to drought and water needs of *Eucalyptus globulus* labill.

Common name: Chingoyo

Family: Asteraceae

order: Asterals

Habit: shrubby (growth greater than 1.5 meters and less than 5 meters)

Threat levels according to IUCN



near threatened (NT) according to the IUCN Red List.



Production Plant Layout



Potential uses

It is a honey plant (nectar and pollen producer) used in beekeeping. It is considered one of the main plants of importance for the Arica hummingbird (*Eulidia yarrellii*), classified as a critically endangered species. It is also given medicinal use as an anti-flu and antipyretic.(1).

Adaptation strategy

Because it is often found in coastal and saline areas, it is tolerable to salinity. Additionally, it could have the ability to adapt to a variety of substrates, allowing it to grow in diverse soils, from sandy to clay.

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Phenotypic plasticity

It has a high resistance to drought conditions in tropical and subtropical regions since it could have developed adaptations that allow it to conserve water, such as deep roots or specialized structures in the leaves.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Cruz M., Gustavo; Estades M., Cristian; Gallardo O., Mario (2013). Forestry strategies to increase the supply of chañar nectar (*Geoffroea decorticans*), for feeding the Arica hummingbird (*Eulidia yarrellii*) and the development of local beekeeping in the Arica and Parinacota region.

Common name: Common sow-thistle

Family: Asteraceae

order: Asterals

Habit: herbaceous (growth less than 1.5 meters)

Threat levels according to IUCN

Does not apply



Production Plant Layout



Potential uses

It can be used as food since its young leaves are edible. It is attributed diuretic properties and has also been used in popular medicine for digestive problems. (1). On the other hand, in some regions, cerraja can be used as fodder for livestock, since it is consumed by some animals.

Adaptation strategy

This species produces a large number of seeds, which increases the chances of germination. This strategy is common in plants that quickly colonize disturbed or changing areas demonstrating a high level of resistance to adverse soil conditions. Besides, the *Sonchus oleraceus* L. It has toothed and lobed leaves that allow it to maximize the collection of sunlight for photosynthesis

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Phenotypic plasticity

Faced with adverse conditions, such as droughts or poor soils, this species can show flexible responses in its physiological characteristics to minimize water stress without affecting its growth potential. This could include changes in transpiration rate or water and nutrient use efficiency.(2).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Jie Yin, Gu-Joong Kwon and Myeong-Hyeon Wang (2007). The antioxidant and cytotoxic activities of *Sonchus oleraceus* L. extracts (2) Hafiz, Ali; Lynder, Kebaso; Sudheesh, Manalil & Bhagirath, Chauhuan (2019). Emergence and germination response of *Sonchus oleraceus* and *Rapistrum rugosum* to different temperatures and moisture stress regimes

Common name: Sea Purslane

Family: Aizoaceae

order: Caryophyllales

Habit: herbaceous (growth less than 1.5 meters)

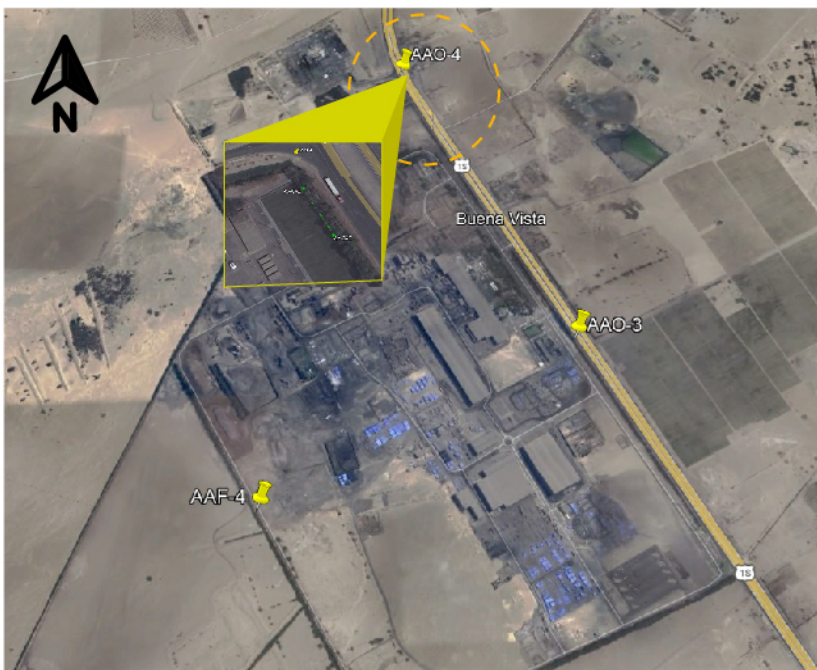
Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

In some places, it has been used for erosion control. Likewise, it has been attributed medicinal properties to treat conditions such as gastrointestinal and skin problems.

Adaptation strategy

The plant produces a large number of seeds, which increases the chances that some of them will find suitable soils to germinate and establish new plants. In addition, it has fibrous roots that allow it to absorb water and nutrients efficiently, even in poor and saline soils. This adaptation contributes to their ability to thrive in coastal environments.(1).

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Phenotypic plasticity

It has an excellent capacity for development and growth in saline soils and environments with coastal characteristics, such as strong winds and high temperatures. This could make it useful in coastal area restoration projects or in the phytostabilization of saline soils.(2).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Lonard, R.I., & Judd, F.W. (1997). The Biological Flora of Coastal Dunes and Wetlands. *Sesuvium portulacastrum* (L.) L. (2) Vinayak H., Sudhakar, Vika., Patade, Sanjay, RD Tripathi, TD Nikam, P. Suprasanna (2011). Investigation of arsenic accumulation and tolerance potential of *Sesuvium portulacastrum* (L.) L.

Common name: Amaranth

Family: Amaranthaceae

order: Caryophyllales

Habit: herbaceous (growth less than 1.5 meters)

Threat levels according to IUCN

Does not apply



Production Plant Layout



Potential uses

This species can be used as forage for animals, or as an input in agricultural practices to improve soil quality and reduce erosion. Likewise, its seeds are rich in proteins and other nutrients.

Adaptation strategy

It produces a large number of seeds and has a relatively high growth compared to other species, increasing its possibilities of propagation. Some species of amaranth can exhibit polyploidy, meaning they have more than two sets of chromosomes, allowing their ability to adapt to different environmental conditions.(1).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
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Phenotypic plasticity

The rate of growth and development of *Amaranthus hybridus* adapts to external conditions. In high-density situations, plants may show vertical growth to compete for light, while in low-density conditions, they may branch more laterally. Likewise, the relationship between the root system and the stem can be adjusted in response to water and nutrient availability. In drought conditions, the plant may develop a more extensive root system to search for water deeper in the soil (2).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Reizerstein, EJ, & Poggio, L. (1992). Cytogenetic studies of six interspecific hybrids of *Amaranthus* (Amaranthaceae) (2) Casa, C., (2017). Evaluation of agronomic performance with the use of organic growth biostimulators in two varieties of amaranth (*amaranthus* spp)

Common name: Bungavilia

Family: Nyctaginaceae

order: Caryophyllales

Habit: shrubby (growth greater than 1.5 meters and less than 5 meters)

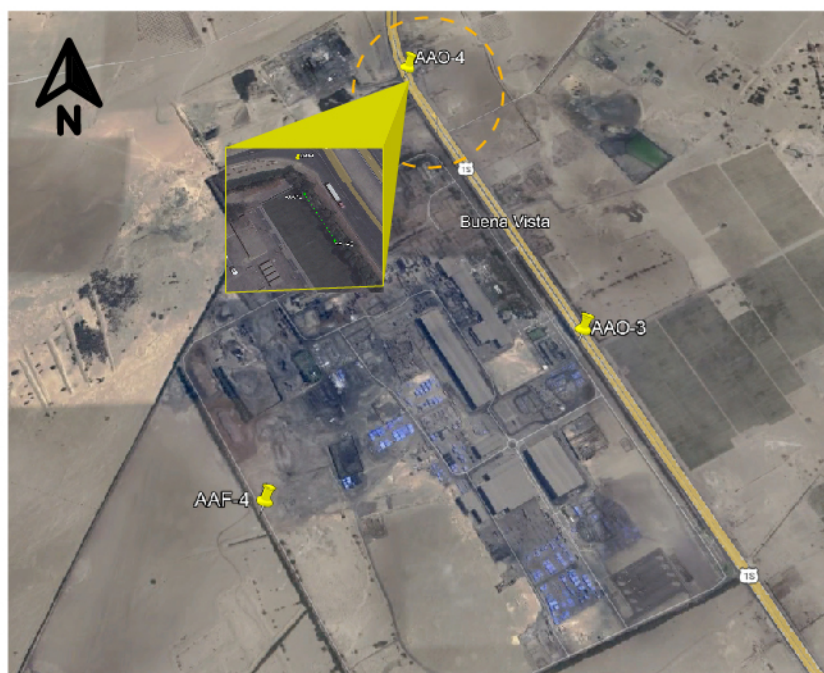
Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

It is mostly used as an ornamental plant due to its striking colors and as an indicator of air pollution control in large cities.(1) . However, its extensive root system and vigorous growth can also help in preventing soil erosion. In traditional medicine, it is given beneficial properties to treat gastrointestinal and respiratory problems, mainly(2); However, more scientific support is required to validate these uses.

Adaptation strategy

Its roots are capable of extending in search of water and nutrients. Additionally, its ability to branch extensively allows it to colonize and cover larger areas. The brightly colored bracts surrounding its small flowers can help protect the plant from excessive solar radiation by reflecting some of the light. In addition, they can easily attract pollinators such as bees and butterflies. This contributes to their reproductive success(3).

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Phenotypic plasticity

The plant exhibits plasticity in its growth and branching pattern, adjusting its size and the shape of its leaves, in order to optimize light capture. Phenotypic plasticity is also manifested in the production of flowers and bracts. The quantity and color of these can vary in response to factors such as water availability, temperature and soil quality. Likewise, under conditions of water stress, the plant can reduce its growth rate to conserve resources.(4).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Ornelas, I., Guerrero, A., Avelar, F., Chávez, N., Gutiérrez, D. (2023). Bougainvillea glabra Choisy (Nyctaginaceae): review of phytochemistry and antimicrobial potential. (2) Hammad, S., Atif U., Mohamad, M. & Nafees, A. (2021). A comprehensive review on botany, traditional uses, phytochemistry, pharmacology and toxicity. (3) Jaramillo, C., Armijos, JC, Cedeño, R., Campo, M., & de Astudillo, LR (2021). Comparison of the relationship of total phenolics, flavonoids and antioxidant capacity in bracts of two varieties of Bougainvillea glabra choisy (4) Orantes, JDCR, Sánchez-Cartela, SA, Gutiérrez-Sarmiento, W., Farrera-Sarmiento, O., & de la Mora, MP (2023). Ethnobotany of Medicinal Plants Used in the Chol Ethnic Group from Tila, Chiapas, Mexico.

Common name: Athel pine

Family: Tamaricaceae

order: Caryophyllales

Habit: arboreal (growth greater than 5 meters)

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

It is a species widely used as shade and windbreak barrier. The wood of *Tamarix aphylla* can be used as firewood and fuel; As well, it can be useful for the manufacture of plows, wheels, among others. It is a rich source of tannins for dyeing(1). Additionally, it is used to help prevent soil erosion, especially in areas affected by wind or water(2). In medicine its leaves are used as an astringent.

Adaptation strategy

It is an aggressive colonizer that adapts to a wide variety of climatic conditions. It grows best in alkaline soils, but tolerates salinity and acidity. Adult plants can tolerate desert heat, freezing temperatures, periodic flooding, drought and burning.

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Phenotypic plasticity

It can adjust its rate of growth and development based on factors such as the availability of water and nutrients in the soil. In saline soils, roots can develop more efficiently to tolerate and extract nutrients under these conditions. Their phenotypic plasticity may also be manifested in their ability to tolerate various abiotic stresses, such as high temperatures and strong winds.(3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) INECC (National Institute of Ecology). (2009). Evaluation of the ecological impact caused by the *Diorhabda elongata* beetle on flora and fauna species in some sites on the northern border of Mexico. (2) Mantanis, G.I. & Birbilis, D. (2016). Physical and mechanical properties of athel Wood (*Tamarix aphylla*). (3) CABI. (2008). *Tamarix aphylla*. In: Invasive Species Compendium.

Common name: Canary Island date palms
Family: Arecaceae
order: Arecales
Habit: arboreal (growth greater than 5 meters)

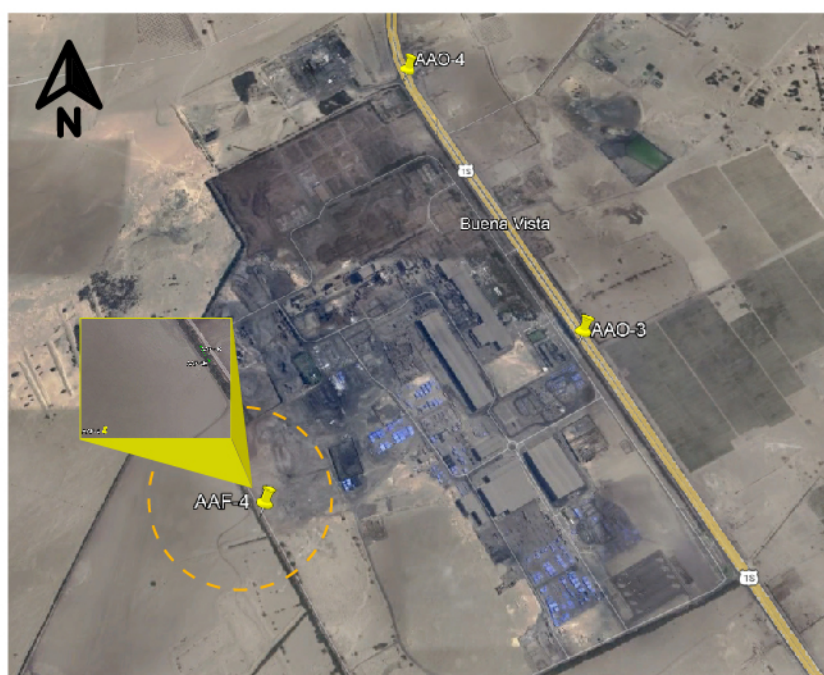
Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

The Phoenix canariensis is widely used as an ornamental plant in landscaping. In addition, its sap can be extracted to make palm honey.(1).

Adaptation strategy

The height and strength of the trunk contributes to its ability to capture sunlight in environments with significant competition; Likewise, its trunk stores water which allows it to tolerate periods of drought without difficulty. The fan morphology of its leaves allows it to resist strong winds. Regarding tolerance to salinity levels, this palm is suitable for growing in coastal areas where the groundwater may have a certain salinity.(2).

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Phenotypic plasticity

The shape and size of the leaves can vary depending on the availability of water and light. Additionally, the density and arrangement of leaves in the crown can be adjusted based on the amount of sunlight available. Phenotypic plasticity is also observed in the root system of the Canary Island date palms. It can adjust root development and length based on water and nutrient availability in the soil(3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Sosa, P. & Gonzáles, M. (2015). Genetic Variability and Pollen Dispersal of the Canary Islands endemism Phoenix Canariensis (2) AFPD African Flowering Plants Database. (2008). Base from Donnees des Plantes to Fleurs D'Afrique. (3) Sar, I., García-Verdugo, C., González-Pérez MA, Naranjo A., Santana P. (2018). SosaGenetic structure of the Canarian palm tree (Phoenix canariensis) at the island scale

Common name: Salt heliotrope
Family: Boraginaceae
order: Lamiales
Habit: herbaceous (growth less than 1.5 meters)

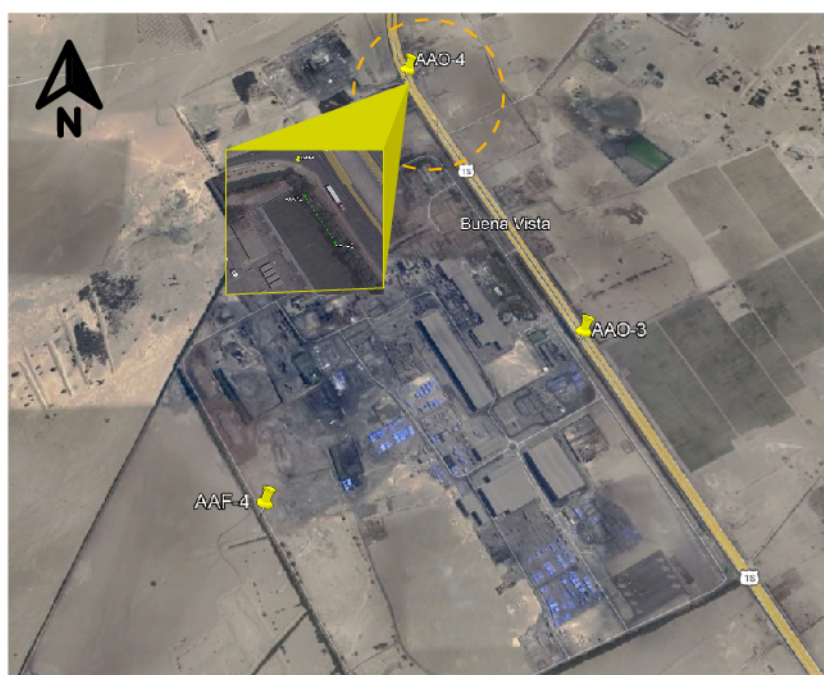
Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

In some cultures, the *Heliotropium curassavicum* It has been used in traditional medicine to treat various conditions or as an alternative phytoremediation for contaminated soils. However, more research is needed to evaluate the efficacy of these plant species against other microbes in different agroecological environments, as well as their safety levels and phytochemical compositions.(1).

Adaptation strategy

This species has developed various strategies to adapt to coastal environments, such as their mechanisms to tolerate salinity as they excrete excess salt through glands in their leaves. Additionally, they have developed structural adaptations that help reduce water loss and resist dehydration during droughts. The plant may have early flowering and fruiting cycles to take advantage of the most favorable conditions in coastal environments.(2).

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Phenotypic plasticity

In response to different environmental conditions, phenotypic plasticity can influence plant size in response to water and nutrient availability; this response can also be observed in root development. In saline soil conditions, the plant could develop more specialized root systems for the absorption of water and nutrients.(3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Syed, W.; Shamy, M.; John, J.; Ahmed, Z. & Meena, R. (2023) Evaluation of bioactive compounds as antimicrobial and antidiabetic agents from the crude extract of *Heliotropium curassavicum* L. (2) Roy, J., Mooney, HA (1982). Physiological adaptation, and plasticity to water stress of coastal and desert populations of *Heliotropium curassavicum* L. (3) D. Schlichting, A. Levin (1984). Phenotypic plasticity of annual *Phlox*: Tests of some hypotheses

Common name: Salt grass

Family: Poaceae

order: Poales

Habit: herbaceous (growth less than 1.5 meters)

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

The main uses given to this plant will depend on the specific conditions of the environment. In the case of saline and alkaline soils, *Distichlis spicata* can be useful to achieve the stabilization of these soils. In addition, its roots help prevent erosion. So it can be used to restore vegetation in places with saline and eroded soils; It can also be used in soil phytoremediation, helping to reduce the concentration of salts.(1).

Adaptation strategy

It easily adapts to high levels of salinity in the soil due to biochemical and physiological mechanisms that allow the plant to accumulate salts in its tissues or secrete them through specialized glands. In this way, the plant accumulates osmoprotective solutes, such as glycine-betaine, which help maintain cell turgor and protect cellular structures from the harmful effects of salinity. In addition, it has a high regeneration capacity after disturbances, such as floods or extreme weather events(2).

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Phenotypic plasticity

The ability to propagate vegetatively through rhizomes contributes to the phenotypic plasticity of *Distichlis spicata*. This allows the plant to colonize new areas and recover after environmental disturbances. That said, the plant can adjust its life cycle in response to environmental conditions, such as water availability and soil salinity. Can modulate flowering timing and seed production based on local conditions(3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Pessarakli, M., Marcum, K.B. (2013). *Distichlis Spicata* – A Salt- and Drought-Tolerant Plant Species with Minimum Water Requirements for Sustainable Agriculture in Desert Regions and Biological Reclamation of Desert Saline Soils. (2) Marcum KB, Yensen NP, Leake JE. (2007). Genotypic variation in salinity tolerance of *Distichlis spicata* turf ecotypes. (3) Miller DL, Smeins FE, Webb JW (1998) Response of a Texas *Distichlis spicata* coastal marsh following lesser snow goose herbivory.

Common name: hooked bristlegrass

Family: Poaceae

order: Poales

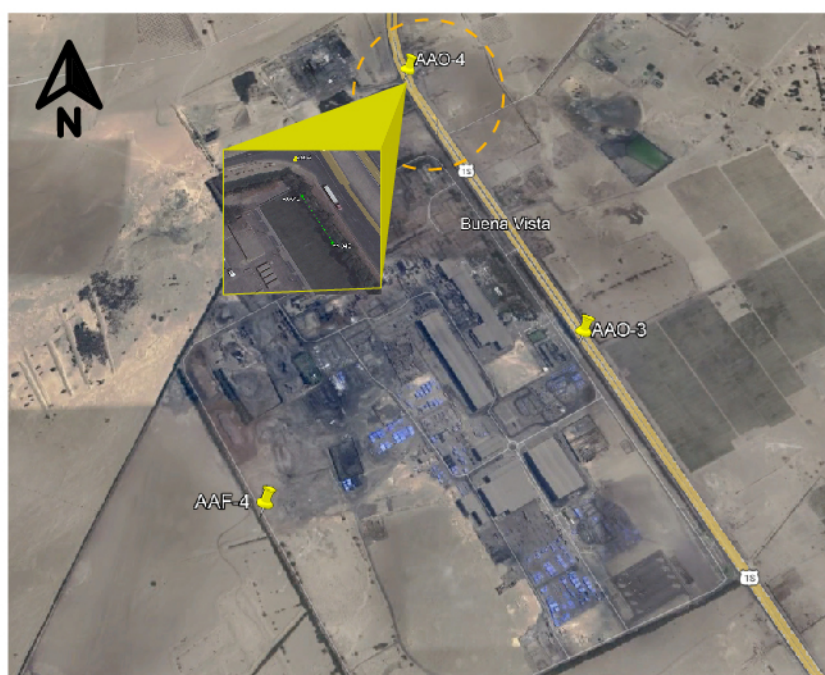
Habit: herbaceous (growth less than 1.5 meters)

Threat levels according to IUCN

Does not apply



Production Plant Layout



Potential uses

This plant can be used as fodder for livestock taking into account the nutritional quality and suitability as animal feed. In addition, because it has dense and rapid growth, it allows it to be useful in controlling soil erosion in vulnerable areas.

Adaptation strategy

This plant has the ability to grow quickly, allowing it to colonize areas efficiently and compete with other plants. Additionally, it can adapt to a variety of soil conditions, from poor soils to richer soils; as well as adapt to drought conditions. It can survive in areas with irregular rainfall or during prolonged periods without rain(1).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Phenotypic plasticity

Within phenotypic adjustment strategies, it is considered that the plant can adjust its height and structure in response to competition for sunlight. Additionally, root architecture and length can be adjusted to suit soil conditions, whether in terms of salinity, nutrient availability or water levels; It should be noted that this can vary between different populations of the same species and depending on environmental variability. Likewise, phenotypic plasticity could influence the life cycle of Setaria verticillata, allowing you to adjust flowering time and seed production in response to changing environmental conditions(2).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Koiou, K., Vasilakoglou, I., & Dhima, K. (2020). Herbicidal potential of lavender (Lavandula angustifolia Mill.) essential oil components on bristly foxtail (Setaria verticillata (L.) P. Beauv.) (2) Farago, M.; Parsons, PJ (1985). The effect of platinum, applied as potassium tetrachloroplatinate, on setariaverticillata (L) P. Beauv., and its growth on flotation tailings.

Common name: Sweet thorn

Family: Fabaceae

order: Fabales

Habit: shrubby (growth greater than 1.5 meters and less than 5 meters)

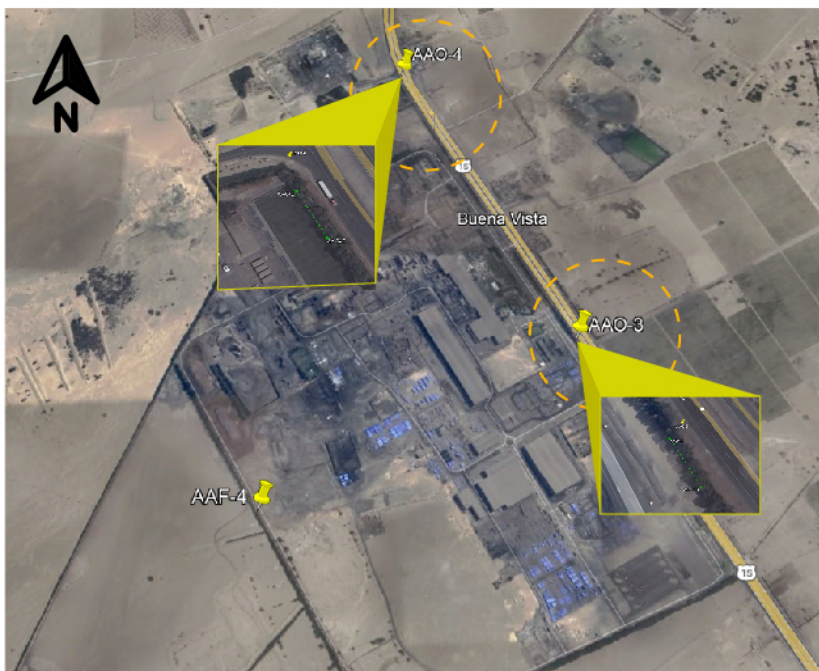
Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Phenotypic plasticity

The growth pattern and biological rhythms do not change due to water stress. The initiation, appearance and development of shoots and leaves adapt to environmental conditions in a variable environment. If there is not much shoot growth in the previous season due to lack of moisture, these plants can partially compensate by producing more leaves per unit of shoot until environmental conditions improve.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Maroyi, A. (2017). Acacia karroo Hayne: Ethnomedicinal uses, phytochemistry and pharmacology of an important medicinal plant in southern Africa (2) Kheloufi A. & Mansouri, H. (2018). Morpho-physiological Characterization And Photosynthetic Pigment Contents Of Acacia Karroo Hayne Seedlings Under Saline Conditions (3) WR Teague & BH Walker (1988). Growth patterns and annual growth cycle of Acacia karroo Hayne in relation to water stress I. Leaf and shoot growth.

Common name: Wild sunflower

Family: Asteraceae

order: Asterals

Habit: Herbaceous (growth less than 1.5 meters)

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Potential uses

According to popular medicine, the decoction of the leaves has properties for various ailments. It can be used for the treatment of lung diseases, for the relief of jaundice, as a diuretic input; as well as, as an input to relieve stomach pain (1); However, scientific foundation is required to corroborate these uses. On the other hand, it can be used as an ornamental plant due to its protuberant flowering (2).

Adaptation strategy

It is characterized by adapting to a variety of climates, from a very cold desert climate to moderate, dry and even very hot temperatures (3).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Phenotypic plasticity

This species has the ability to generate different metabolites as climatological factors vary. Being a deciduous tree, in drought conditions it forms greater leaf angles without altering its growth pattern, this as part of its strategy to reduce the energy load and the transpiration rate without stomatal closure; which allows it to maintain high rates of photosynthesis (4).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Girault, Louis (1987) Kallaway, itinerant healers of the Andes (2) Encyclopedia of Chilean Flora (3) Sepúlveda, R. (2007) Phytochemical and pharmacological study of Encelia canescens Lam. Asteraceae (4) Squeo Fa, Jr Ehleringer, N Olivares & G Arancio (1994) Variation in leaf level energy balance components of Encelia canescens along a precipitation gradient in north-central Chile



FAUNA

Common name: Blue-and-white Swallow

Order: Passerines

Family: Hirundinidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

Open fields, moors, agricultural areas, rural and urban populations, preferably near bodies of water.

Behaviors

It stands out for being a sociable bird that forms large flocks to feed and sleep. It feeds on insects that it hunts in mid-flight. Highly adapted to the presence of man, so they can be observed in cities, in inns on power lines.

Geographical distribution

It is found nationwide, from areas at sea level to 4200 meters. The Amazonian populations are southern migrants who stay in Peru during the months of April to October. It also occurs in Colombia, Ecuador, Brazil and Bolivia(1).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The indiscriminate use of pesticides due to intensive agricultural practices reduces the number of insects it feeds on, impacting the population; Likewise, the possible side effects of exposure to these chemicals cause a reduction in their reproductive potential. Another threat is the deliberate elimination of nests(2).

If there is an event of any danger that threatens this species, contact the environmental area.

Salinas, L., Arana, C., Pulido, V. (2007). Diversidad, abundancia y conservación de aves en un agroecosistema del desierto de Ica, Perú

Linck, E., Huber, H., Greeney, H., Sheldon, K. (2019). NESTING BIOLOGY OF THE BLUE-AND-WHITE SWALLOW (PYGOCHELIDON CYANOLEUCA) IN NORTHEASTERN ECUADOR

Common name: Turkey vulture

Order: Cathartiformes

Family: Cathartidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

It is a common bird in open countryside, subtropical forests, scrublands, deserts and the piedmont; It also inhabits grasslands, prairies and wetlands. It generally avoids densely forested areas; It is most common in relatively open areas with nearby forests for nesting (1).

Behaviors

This species is a skilled glider that uses thermal currents which allows it to stay in the air without flapping its wings. It feeds on dead animals, sterilizing its food with a unique digestive system. It lives in cooperative groups, shares information about food and can develop emotional bonds with people by following them on walks. Its reputation for regurgitating is false; he rarely does so, preferring defensive tactics such as feigning death or vomiting (2).

Geographical distribution

It is the most abundant vulture in America, and is distributed from southern Canada to Cape Horn in southern Chile.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

Populations appear to remain stable, and the threshold for listing as a threatened species has not been reached, which requires a decline of more than 30 percent in ten years or three generations (3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Kaufman, K. (1996). Lives of North American Birds (2) Pennycuik, C.J., Scholey, K.D. (1984). Flight behavior of Andean Condors Vultur gryphs and Turkey Vultures Cathartes aura around the Paracas Peninsula, Peru (3) BirdLife International (2012). "Cathartes aura." IUCN Red List of Threatened Species

Common name: Long-tailed Mockingbird

Order: Passerines

Family: Mimidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

Shrublands and dry forests, as well as in agricultural areas. It is also possible to find it in gardens and parks, sometimes accompanied by the black-eyed thrush (1).

Behaviors

The Long-tailed mocking has its head and body printed in shades of grey, brown, brown and black. He is relatively confident and a great singer. Tilts tail when on the ground. Juveniles are a dull version of the adults with pale, spotted underparts that are lost after the first molt at the end of the first year.

Geographical distribution

It is present throughout the Peruvian coast. In addition, it is the only mockingbird in its distribution area where it is also known as Zoña, Chisco or Chauco (2).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potenciales amenazas

Degradation and loss of natural habitats due to urban expansion, agriculture, forest clearing and other land use changes can reduce the areas available for feeding, nesting and shelter. Likewise, climatic factors can cause changes in migration patterns.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Schulenberg, T. (2010). Birds of Peru.

(2) Arbogast, B., Drovetski, S., Curry, R., Boag, P., Peter G., Grant, B., Anderson, D. (2006). THE ORIGIN AND DIVERSIFICATION OF GALAPAGOS MOCKINGBIRDS "

Common name: West Peruvian Dove

Order: Columbiformes

Family: Columbidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

It is found in a wide variety of open and semi-open habitats from city streets and gardens to agricultural land and palm oases; It is rapidly expanding its range southward.

Behaviors

This species is characterized by emitting a fine nasal song that it performs without having to open its beak. The sound of its song has given rise to its common name. These birds are territorial and the males are usually aggressive during the mating season. It nests in early July in orange and olive trees and accepts man-made birdhouses, laying one to two eggs.(1).

Geographical distribution

It is found from southern Ecuador to western Argentina, passing through Peru and central Chile.(2).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

Exposure to pesticides, toxic chemicals and pollutants can affect your health. Likewise, changes in climate can affect migration patterns, food availability, and overall weather conditions.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) BirdLife International (2012). «Zenaida meloda». Lista Roja de especies amenazadas de la UICN (2) Vitale, S., Cockle, K., Bodrati, A., Ferrari, C., Roesler, I., Jordan E., y Ramos, D. (210). NIDIFICACIÓN Y DISTRIBUCIÓN DE LA TORCAZA ALAS BLANCAS (Zenaida meloda) EN ARGENTINA"

Common name: Rufous-collared Sparrow

Order: Passerines

Family: Emberizidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

It adapts well to urban and suburban environments, but is absent in heavily forested areas.

Behaviors

It is an intelligent bird that easily adapts to urban areas and interaction with humans. Its song varies depending on the area where it lives. It has a preference for walking alone, away from large bands that include other species.

Geographical distribution

This species is distributed throughout South America, including Tierra del Fuego and States Island, Central America, Aruba, Curaçao and the island of Hispaniola.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The indiscriminate use of pesticides due to intensive agricultural practices reduces the number of insects it feeds on; In addition, it has been threatened by parasitic birds, which decreases its population.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) BirdLife International (2012) Zonotrichia capensis; The IUCN Red List of Threatened Species. (2) Malaver, A. (2020) Initiation to sighting of the common tuft (Zonotrichia Capensis) as a teaching strategy to raise awareness among fifth-grade students at the Harvard Country High School about its care and conservation.

Common name: House Sparrow

Order: Passerines

Family: Passeridae

Threat levels according to IUCN

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lc

least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

The house sparrow lives in all types of humanized environments, although it prefers rural or urban areas close to agricultural land and open areas.(1).

Behaviors

It feeds on all types of seeds, fruits and berries. It often includes food of animal origin in its diet, especially insects that it collects on the ground.(2).

Geographical distribution

The house sparrow is possibly the most widely distributed passerine in the world, as it lives on all continents and much of the oceanic islands, where it has been involuntarily introduced by man.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The new buildings, lacking nooks and crannies in which to nest, make reproduction difficult. Likewise, higher concentrations of contamination affect clutches with fewer births and weaker specimens, increasing mortality rates. Excess light and noise in cities affects biological rhythms, and the use of pesticides has decreased the number of insects, and therefore, the protein contribution to the sparrows' diet.(3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) De Laet, J., Summers-Smith, J.D. (2007). The status of the urban house sparrow Domestic Passers in north-western Europe: a review. (2) Chamberlain, DE, Toms, MP, Cleary-McHarg, R. et al. (2007). House sparrow (Passer domesticus) habitat use in urbanized landscapes. (3) Shaw, L.M., Chamberlain, D. & Evans, M. (2008). The House Sparrow Passer domesticus in urban areas: reviewing a possible link between post-decline distribution and human socioeconomic status.

Common name: Eared Dove

Order: Columbiformes

Family: Columbidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

It can be found in open places and groves; However, it has managed to adapt easily in urban areas (1).

Behaviors

They make a very peculiar song and very different from other birds that they also use to call their young. The call to the pair is made by bending down, resting the crop on the ground and raising the tail, unfolding it and displaying its characteristic degraded fan of the rudder feathers (2).

Geographical distribution

It commonly lives in South America, with small colonies having appeared in Trinidad and Tobago and the Netherlands Antilles.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The eared dove faces threats such as habitat loss due to urban sprawl and deforestation, environmental pollution from pesticides, illegal hunting and trapping for the pet trade, predation by invasive species, and risks of collisions with human structures.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Bernis, F; De Juana, E; Del Hoyo, J; Fernández-Cruz, M; Ferrer, X; Sáez-Royuela, R; Sargatal, J (1998). Names in Spanish of the birds of the world recommended by the Spanish Society of Ornithology (Fourth part: Pterocliiformes, Columbiformes, Psittaciformes and Cuculiformes). (2) BirdLife International. 2018. IUCN Red List for birds.

Common name: Beach lizard

Order: Squamata

Family: Tropiduridae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

It inhabits rocky areas, mud cliffs, salt-crusted beaches, dunes and sand plains, with or without vegetation. It is usually found within 100 meters of water, but is also found in other inland habitats, in the desert, and in river valleys.

Behaviors

It exhibits diurnal and terrestrial behavior. It is omnivorous, feeding on insects, small vertebrates and vegetation. Their social behavior is manifested in the search for a mate and reproduction, using visual and chemical communication. It adapts its behavior to coastal and semi-desert habitats, basking in the sun to thermoregulate its body temperature (1).

Geographical distribution

Has a wide distribution in the Peruvian coastal area because it covers almost the entire coastline from Piura to Arequipa (2).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

Habitat loss due to urban expansion and human activity, as well as environmental pollution, represent significant risks. In addition, illegal hunting and trapping, the introduction of invasive species and climatic alterations also threaten this species endemic to the coastal region of southern Peru (3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Ramírez, C. (2017). Reproductive cycle of *Microlophus peruvianus* (Lesson, 1826) (Sauria, Tropiduridae) from the coast of Huaura, Lima (Peru) (2) Lundberg, M. and Catena-zzi, A. (2010). «*Microlophus peruvianus*». IUCN Red List of Threatened Species (3) Pérez, J. and Balta, K. (2007). Ecology of the diurnal saurian community of the Paracas National Reserve, Ica, Peru

Common name: House Wren

Order: Passerines

Family: Troglodytidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

It lives in grasslands, reed beds, home gardens, etc.

Behaviors

It is a restless bird with fast movements, it is usually always seen climbing, it does not fly long distances even if it is in danger. It feeds on insects and arachnids that it finds on plants or in the soil. It tends to make its nest with grass and feathers, which it places in holes in dry trees, roofs, pipes, etc. (1).

Geographical distribution

It is found in America from southern Canada to Tierra del Fuego. North American populations migrate south to Mexico in winter.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

Troglodytes aedon faces several threats in its environment. Such is the case of habitat loss and fragmentation due to urban expansion and deforestation, environmental pollution, as well as changes in climate patterns. (2).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Heppner, J. & Ouyang, J. (2021). Incubation Behavior Differences in Urban and Rural House Wrens, *Troglodytes aedon* (2) Fernández, G. & Carro, M. (2021). Alarm calls of southern house wrens, *Troglodytes aedon bonariae*, convey information about the level of risk

Common name: Spotted Dove

Order: Columbiformes

Family: Columbidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

The Spotted Dove is common in open and scrub habitats and on the western slope of the Andes and inter-Andean valleys at elevations ranging between 1700-4000 m.

Behaviors

They usually stop in pairs or flocks. It feeds on the ground, but perches on walls and prominent rocks; It is often not seen until it is startled from a short distance, when it flies away emitting a loud, high-pitched whistle.

Geographical distribution

From northern Peru to northern Chile and Argentina, commonly from 2000 to 4000 m altitude.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

Habitat loss due to the advancement of agriculture and urban development has resulted in the decline of the natural ecosystems in which the species inhabits. On the other hand, agricultural pollution also contributes to the gradual disappearance of this species, since the pesticides used in agriculture negatively impact its health and the quality of the habitat(1).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Osinaga, O. & Martin, E. (2018). Current state of knowledge of the birds of the Argentine Puna

Common name: Blue-black seedbed

Order: Passerines

Family: Thraupidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The blue-black seedeater faces threats such as habitat loss, fragmentation, capture for the bird trade and pollution. Effective conservation must address habitat protection, trade regulation, and the promotion of sustainable practices.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Ridgely, R & Tudor, G. (2009). Field guide to the songbirds of South America: the passerines. (2) De la Peña, M. (2019). Aves Argentinas: Descripción, Comportamiento, Reproducción y Distribución (Actualización). Mimidae, Sturnidae, Motacillidae, Thraupidae. (3) BirdLife International (2018). «Volantinia jacarina». Lista Roja de especies amenazadas de la UICN "

Habitat

This species is common in a variety of open grassland and human-occupied areas, savannahs and shrublands, being rarer where forests are predominant, mostly below 1000 m altitude, and in lesser quantities up to 2500 m (1).

Behaviors

It is a familiar bird, easily seen on the sides of the roads, generally in flocks outside the breeding season and frequently associated with other seedbeds. In the reproductive season, males sing visibly from a perch on fences or grass stems, making a short jump into the air and showing the white under their wings, to perch again in the same place (2).

Geographical distribution

It is widely distributed throughout Central America and South America. Also in the Caribbean, as a resident in Trinidad and Tobago and Grenada (3).

Common name: Cinereous Conebill

Order: Passerines

Family: Thraupidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

It is found in bushes, semi-open areas, low forests and gardens, especially in arid regions, but also in humid regions, mostly between 2500 and 4000 m altitude, but in Chile and Peru it is found up to sea level (1).

Behaviors

This species stands out for its behavior adapted to its diet of nectar and small insects. It actively forages in vegetation, emits vocalizations for social communication and shows cooperative behaviors in the search for food. Some species can migrate seasonally.

Geographical distribution

It is distributed along the Pacific slope of the Andes from northern Peru to northern Chile, and along the eastern slope from southeastern Peru to western Bolivia (2).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

This species stands out for its behavior adapted to its diet of nectar and small insects. It actively forages in vegetation, emits vocalizations for social communication and shows cooperative behaviors in the search for food. Some species can migrate seasonally.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) BirdLife International (2020). "Conirostrum cinereum". IUCN Red List of Threatened Species (2) Ridgely, R.; Tudor, G. (2009). Field guide to the songbirds of South America: the passerines.

Common name: Amazilia Hummingbird

Order: Apodiforms

Family: Trochilidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

This Hummingbird is common in coastal scrub and riparian forest edges west of the Andes.

Behaviors

This specie forages for nectar on a variety of plants with medium-length flowers. Males are territorial and defend feeding areas from other hummingbirds. In addition to nectar, it feeds on small insects and spiders (1).

Geographical distribution

From southern Mexico to western Venezuela and southwestern Ecuador until reaching the southern part of the Peruvian coast.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The felling of trees threatens the existence of this species by reducing its vital habitats. Deforestation fragments habitats and can isolate populations, making migration and reproduction difficult.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Weller, A.A.; Kirwan, GM; Boesman, P.F.D. (2021). "Amazilia Hummingbird (Amazilis amazilia)". Birds of the World.

Common name: glossy thrush

Order: Passerines

Family: Icteridae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

This species usually lives in ecotonal forests, shrub steppes and humid forest clearings. Likewise, in suburban and rural areas.

Behaviors

This abundant and gregarious species feeds primarily on insects and seeds, including rice and forage on the ground or perched on livestock.

Geographical distribution

The Glossy Cowbird is rare in the Amazon, but is common in the coastal region west of the Andes. Additionally, they are found in countries such as Bolivia, Ecuador, Colombia, Brazil and Chile.

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The shiny cowbird faces significant threats including nest parasitism, where it lays its eggs in other birds' nests, which can decrease the reproductive success of the host species. Furthermore, the negative perception of some people towards this species as an agricultural pest and the application of control measures contribute to the threats. Human intolerance, sometimes manifested in hunting or nest removal, also represents a challenge for the conservation of this species (1).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Villaneda-Rey, M. & Roselli, L. (2011). Abundance of the Parasitic Chamón (*Molothrus bonariensis*, Icteridae) in 19 wetlands of the Bogotá Savannah, Colombia

Common name: Cattle Egret

Order: Pelecaniformes

Family: Ardeidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

The habits of this egret are much less aquatic than those of other species in the group, since it usually frequents grasslands with abundant livestock, fields and crops when looking for food, although it is also found in flooded areas and shallow lagoons.

Behaviors

Quite an opportunistic and eclectic species, the cattle egret displays quite undemanding eating habits that are adapted at all times to the local or temporal availability of the environment. It is common for egrets to visit landfills attracted by the insects there (1). Additionally, during the breeding season, it frequently mixes with other herons and waders in noisy breeding colonies that can house several thousand pairs.

Geographical distribution

The species has a wide range of global distribution, as it extends through southwestern Europe, Africa, India, the American continent, Australia, New Zealand and the Hawaiian archipelago (2).

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The most important threats suffered by the species are the decrease in the quality of wetlands, the destruction of colonies due to human causes and the closure or changes in the management of urban solid waste landfills, on which some populations depend.

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Sánchez-García, I. (2011). Herpetophagous diet in a cattle egret (*Bubulcus ibis*). (2) Pulido, V., Olivera, E., Cano, D., Acevedo, J. (2020). 143 years after the migration of the cattle heron *Bubulcus ibis* (Linnaeus, 1758) from Africa to the Andes.

Common name: Croaking ground Dove

Order: Columbiformes

Family: Columbidae

Threat levels according to IUCN



least concern (lc) according to the IUCN Red List (2022-2).



Production Plant Layout



Habitat

Open fields and bush environments, arid or semi-arid areas; However, it can also be found in riparian areas near a body of water.

Behaviors

They are mainly terrestrial birds because they spend time searching for food on the ground and nesting. When they fly, their wings make a characteristic sound, which can help identify their presence. They are often found in pairs or small family groups. These doves are quite adaptable and can be found in urban and agricultural environments, where they find food readily available.(1).

Geographical distribution

It is present in several regions of Bolivia, adapting to environments ranging from low areas to higher altitudes. Likewise, it is found in various areas of Argentina, Peru and Chile, adapting to environments that include forested areas and semi-arid regions. This dove is also present in Paraguay, occupying varied habitats in this South American country.(2) .

Monitoring Point	UTM northing coordinates	UTM easting coordinates
MB-1c Control	8477574	372882
AAF-4 Control	8474712	372925
AAO-3 Impact	8475342	374193
AAO-4 Impact	8476389	373596

Potential threats

The destruction and fragmentation of natural habitats due to human activities can reduce the areas available for feeding, nesting and shelter. In addition, they are exposed to avian diseases that can affect bird populations.(3).

If there is an event of any danger that threatens this species, contact the environmental area.

(1) Baptista, L., Trail, H., Horblit, P., Boesman, E. de Juana, E. F. J. Garcia (2020). Croaking Ground Dove (Columbina cruziana), version 1.0. (2) Goodwin, D. (1983). Pigeons and Doves of the World. (3) Lack, P. (2003). Pigeons and Doves.



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**ACEROS
AREQUIPA**

**LA *SEGURIDAD*
DE UN *FIERRAZO***