GRUPO AEROPORTUARIO
DE LA CIUDAD DE MÉXICO

# Report 7
## 30.June.2018

# Mexico City Airport Trust
# NAICM Green Bond Reporting

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NAICM
AIRPORT PROGRAM
PARSONS PROJECT MANAGEMENT OFFICE

## 1. Introduction

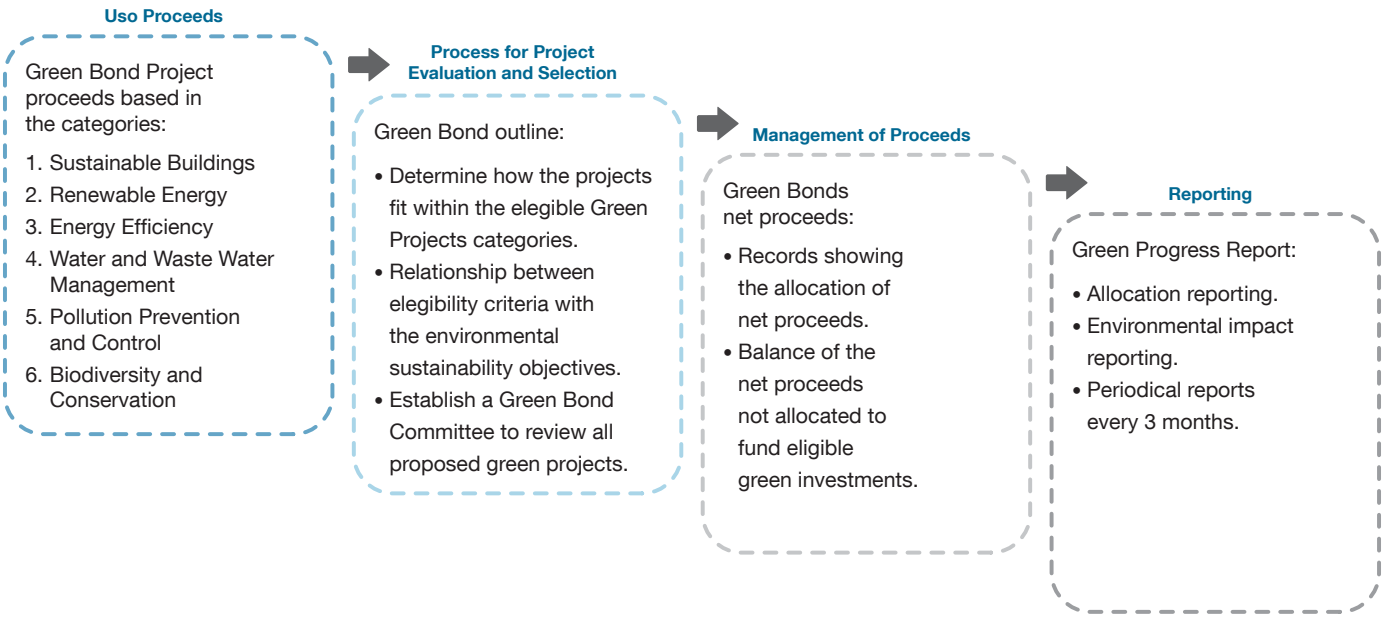
Grupo Aeroportuario de la Ciudad de México, S.A. de C.V. (GACM) is responsible for the preparation and providing a fair representation of this Green Bond Framework as of September, 6th 2016, which will cover the issuance of Green Bond from Mexico City Airport Trust.

For each Green Bond issued by the Mexico City Airport Trust, GACM management asserts that it will adopt the use of the proceeds eligibility criteria and processes and policies as set out in the Mexico City New International Airport (NAICM by its Spanish acronym) Green Bond Framework as outlined in Figure 1.

This report describes an outline of the green works that are currently underway for the Airport program development paying particular attention to currently designed elements and the initial construction and site preparation activities.

This report will be updated quarterly to report on specific activities which have occurred in the report time-frame and to show development of the performance indicators.

Figure 1 - NAICM Green Bond Framework



## 2. Green Bond Eligibility Categories

The eligibility categories are focused in the planning, design and construction of the NAICM project according to green building & environmental best practices standards.

Six categories were selected to describe the different areas of sustainability focus for the project scope. These are described below:

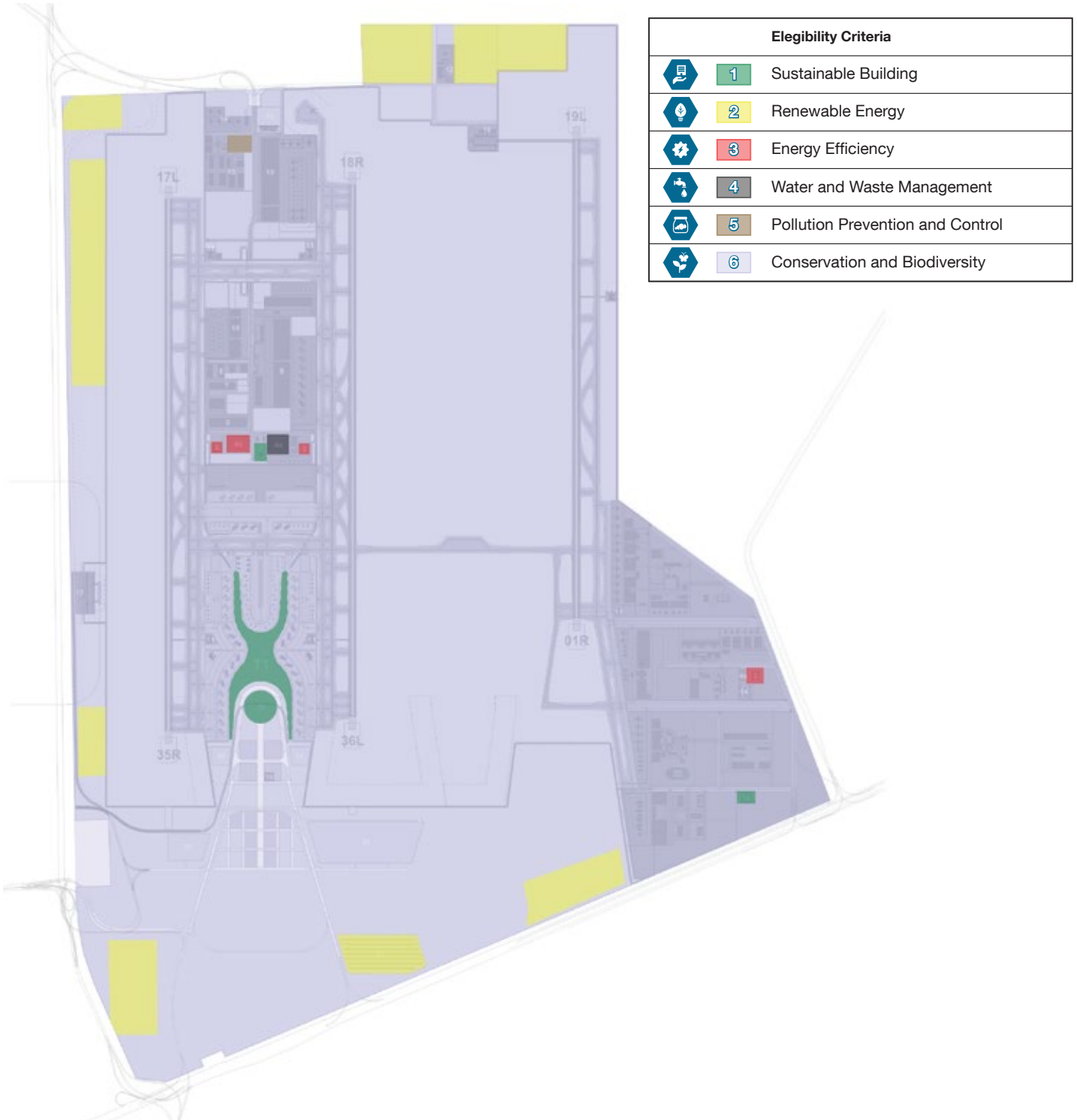
- **Eligibility Categories**

1. Sustainable Buildings
2. Renewable Energy
3. Energy Efficiency
4. Water and Wastewater Management
5. Pollution Prevention and Control
6. Conservation and Biodiversity


The project is utilizing the rating system Leadership in Energy and Environmental Design version 4 (LEED v4). The rating system seeks to enhance architectural and engineering designs and construction processes to reduce the environmental impacts of the building and its occupants, improve the indoor environmental quality and minimize changes to natural systems. Four of the airport buildings on the site are being designed and constructed to meet these LEED requirements, in particular the 743,000 $m^2$ Passenger Terminal Building.

The project undertook Environmental Impact Assessment, commonly known in Spanish as *Manifestación de Impacto Ambiental* (MIA-R), as it is required for all new major projects in line with SEMARNAT (*Secretaría del Medio Ambiente y Recursos Naturales*) requirements. The MIA is an instrument of environmental policy that is required to present all information about the environmental conditions of the site and analyze and outline requirements for the works and activities that could cause environmental or ecological imbalance.

Figure 2 - Site polygon showing location of main program elements per eligibility criteria.



### 2.1. Categories Description

The project must meet one or more of the following eligibility criteria:

1. Sustainable Buildings:
   Any project for an existing or new building;
   (i) that has received, or expects to receive based on its design, construction and operational plans, rating according to third party verified green building standards such as LEED Silver or higher, or an equivalent rating scheme; and
   (ii) that has achieved, based on third-party assessment, a reduction in energy consumption of at least 15% relative to industry standards and benchmarks such as ASHRAE 90.1 or equivalent.

2. Renewable Energy:
   Development, construction, installation, operation and upgrades of;
   (i) equipment or facilities wholly dedicated to renewable energy generation; or
   (ii) wholly dedicated transmission infrastructure for renewable energy generation sources.

The projects must meet the definitions of renewable energy outlined in Mexico's Energy Transition Law (Ley de Transición Energética) and may include wind, solar, tidal, geothermal, biomass and run-of-river hydro projects.

3. Energy Efficiency:
   Development, construction, installation, operations and upgrades of any projects (products or technology) that reduce energy consumption or improve resource efficiency in airport management and operations, including but not limited to;
   (i) projects that enable energy performance monitoring and modelling such as design and installation of computer controls, sensors, or building information systems; or
   (ii) projects that optimize the amount and timing of energy consumption and minimize peak loads such as design and installation of metering, peak load shedding, or fuel switching systems;
   (iii) projects that involve installation, maintenance or replacement of energy efficient heating, ventilation, air-conditioning, cooling, lighting and electrical equipment.

**4. Manejo de Aguas y Residuos:**

Desarrollo, construcción, instalación, operación y mejoras de cualquier proyecto (producto o tecnología) que reduzca el consumo de agua o mejore la eficiencia de los recursos en la gestión y operación del aeropuerto, incluyendo pero no limitado a;

(i) instalaciones nuevas o existentes que sean usadas para recolectar, tratar, reciclar o reusar el agua, agua de lluvia o aguas residuales;

(ii) infraestructura para la prevención y protección de inundaciones, manejo de aguas pluviales como humedales, bermas de retención, embalses, lagunas, sistemas de drenaje, túneles y canales.

**5. Prevención y Control de Contaminación:**

Desarrollo, construcción, instalación, operación y mejoras de cualquier proyecto (producto o tecnología) que reduzca y maneje los residuos generados en la gestión y operación del aeropuerto, incluyendo pero no limitado a;

(i) instalaciones nuevas o existente, sistemas y equipo que sean usados para recolectar, tratar, reusar o reciclar desechos sólidos, residuos peligrosos o suelo contaminado; o

(ii) instalaciones nuevas o existentes, sistemas y equipo que se utilicen para evitar el depósito de residuos en tiraderos y reducir las emisiones por transporte de residuos.

**6. Biodiversidad y Conservación:**

Cualquier proyecto para;

(i) reforestación y restauración ecológica; o

(ii) creación y protección de bosques y humedales; o

(iii) monitoreo y mitigación de impactos adversos en la flora y fauna, tales como impactos potenciales por la contaminación del ruido y la construcción.

## 3. Use of Proceeds Summary

| Description | Amount USD |
|---|---|
| **Net Proceeds from Green Bonds** | **$5,764,394,697** |

| Allocated Amount to each Eligible Category (USD) | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | 1 | 2 | 3 | 4 | 5 | 6 |
| **USD** | **Sustainable Buildings** | **Renewable Energy** | **Energy Efficiency** | **Water and Waste Water Management** | **Pollution Prevention and Control** | **Conservation and Biodiversity** |
| Disburse Amount | **$705,976,037.81** | **$420,133.53** | **$13,264.49** | **$19,753,716.15** | **$47,153,312.39** | **$28,539,895.29** |
| **Total** | **$801,856,359.66** | | | | | |

| Description | Amount |
|---|---|
| **Amount Available for Allocation** | **$4,962,538,337.34** |

Note: Values are shown in dollars. The exchange rate used from MXN to USD is the applicable rate at the time for each disbursement being paid.

## 4. Case Study: Care and Protection of the Biodiversity of the NAICM

### 4.1. Introduction

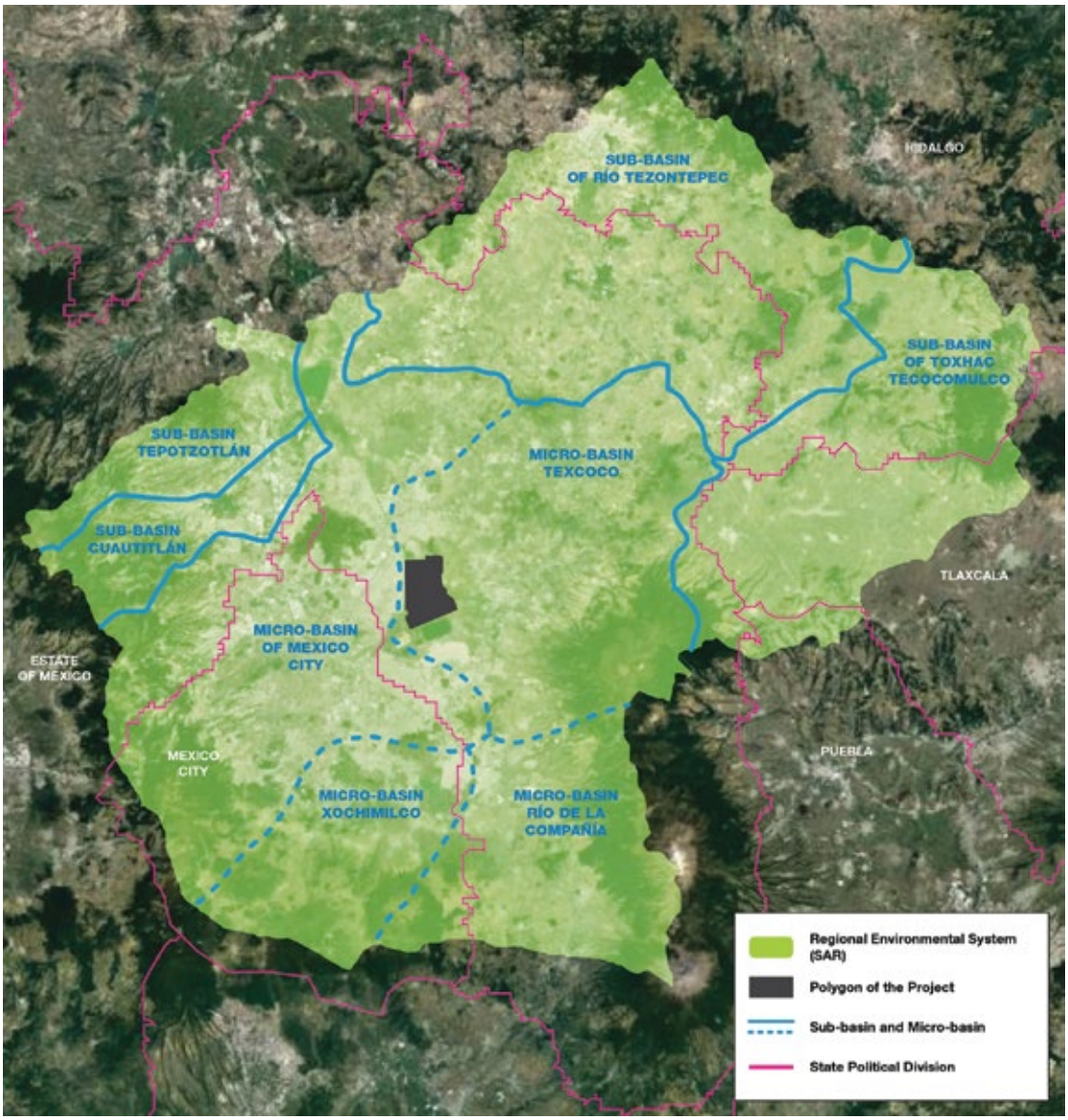
The activities for handling and protecting natural resources inside the NAICM polygon and surrounding areas are part of the commitments of the Project within the required environmental Normativity. These commitments seek to mitigate the effects associated with the construction and operation of the Airport, and implement environmental strategies focused on the conservation of natural resources and minimize the environmental impacts. These strategies were defined by the NAICM Environmental Impact Regional Assessment (MIA-R in Spanish acronym), through different conditions and mitigation measures that are applicable through the phases of the project. This report's purpose is to present the compliance status of one of the conditions addressed by the environmental regulation framework within the Flora and Fauna Regulation Programs. This case study describes the activities related to the eligibility Green Bond category 6) Biodiversity and preservation.

### 4.2. NAICM Landscape Context

The environmental characteristics of the region where the Project is located, and the anthropogenic activities defined decisive in the composition of the ecosystem found within the Polygon. The main human impacts found in and around the Polygon are associated within deforestation, excessive and intensive agricultural production systems, desiccation, pollution, sedimentation, industrial and urban developments while natural disturbances are mainly seen through damage by flooding and droughts.

The vegetal and terrestrial fauna analyses were conducted using the boundary of the Area of Influence of the Project, also known as Regional Environmental System (SAR). The SAR area covers the Polygon of the Project and stretches throughout the Basin of Mexico, four sub-basins and four micro-basins; among those we find the ones corresponding to Texcoco where the former Lago de Texcoco Federal Area is located (see figure 3).

Figure 3 - Basins and Microwatersheds



### 4.2.1. Background Information

Since the XVI century, the former Lago de Texcoco was physically isolated by pre-Hispanic engineering works and, during the conquest period, a drainage system was constructed to control flooding in the Ecatepec, Huehuetoca and Nochistongo regions. Afterwards, various hydraulic works were conducted for controlling flows from the western area of Mexico City and draining the Tlalnepantla and Los Remedios rivers, as well as installing pumping plants to elevate waters to the Gran Canal level and expand the Network of Collectors. The intervention in different periods contributed to the drying out of the lake, deforestation and the increase of salinity of the soil, thus impacting the ecological and hydraulic balance in the Former Lago de Texcoco area.

Desiccation of the lacustrine area of the lake had influence in modifying the ecosystem and climate characteristics. This alteration to the landscape alteration caused a dust storms during the dry seasons, which affected health condition of inhabitants of Mexico City Metropolitan Area. To solve this problem, diverse studies and projects were proposed during the sixties to last century, and authorities started introducing vegetation with the purpose of minimizing impacts and improve the quality of the habitat.

The Polygon of the Project was subject to an intensive planting program that after 30 years established the halophile grassland. Three species of halophile grassland that were introduced and survived are *Distichlis spicata*, *Sporobolus pyramidatus* (whorled dropseed or foxtail) and *Paspalum virgatum* (seashore dropseed). Some tree species were also able to adapt to these very high-salinity soils, specially *Tamarix chinensis* and *Tamarix aphylla* (native species from Asia and China). The two *tamarix* species proposed in the planting programs were the most successful ones. Their capacity to adapt to salty soils allowed to minimize the impacts of dust storms and fulfill the environmental function in the generation of niches for other flora and fauna species.

### 4.2.2. Flora Characteristics

The vegetative analysis was conducted in the boundary of the Area of Influence of the Project, also known as Regional Environmental System (SAR). The hydrological, geological and topographical characteristics of the Texcoco micro-basin part of the SAR, give rise to saline soils that allow for the establishment of habitats with high contents of salt and the respective organisms dwelling there, which are known as halophile habitats. Among the halophile communities the rhizomatosa and succulent grassy plants prevail.

Inside the NAICM polygon, 42 areas were identified containing consolidated halophile grasslands listed in the National Forestry Inventory. Halophile grassland is the best-distributed vegetation in the polygon of the project thanks to its tolerance to soil salinity and to frequent floods. Currently, the vegetation integrates five dominant species: *Tamarix chinensis* and *Tamarix aphylla* that are part of the arboreal and shrub stratum, and *Distichlis spicata*, *Eragrostis obtusiflora* and *Hordeum jubatum*, which are classified in the great extensions of halophile grassland. The survival and propagation of vegetation has allowed for the establishment of different fauna species, thus giving rise to new local ecosystem.

### 4.2.3. Fauna Characteristics

The SAR has 208 terrestrial fauna species, 9 of them are endemic species, 6 are cataloged as species subject to Special Protection, 12 as threatened species, 1 is considered endangered species and 1 is likely to be extinct in the wild. The identification of fauna was made based on the biogeographical ecoregions integrating the SAR.

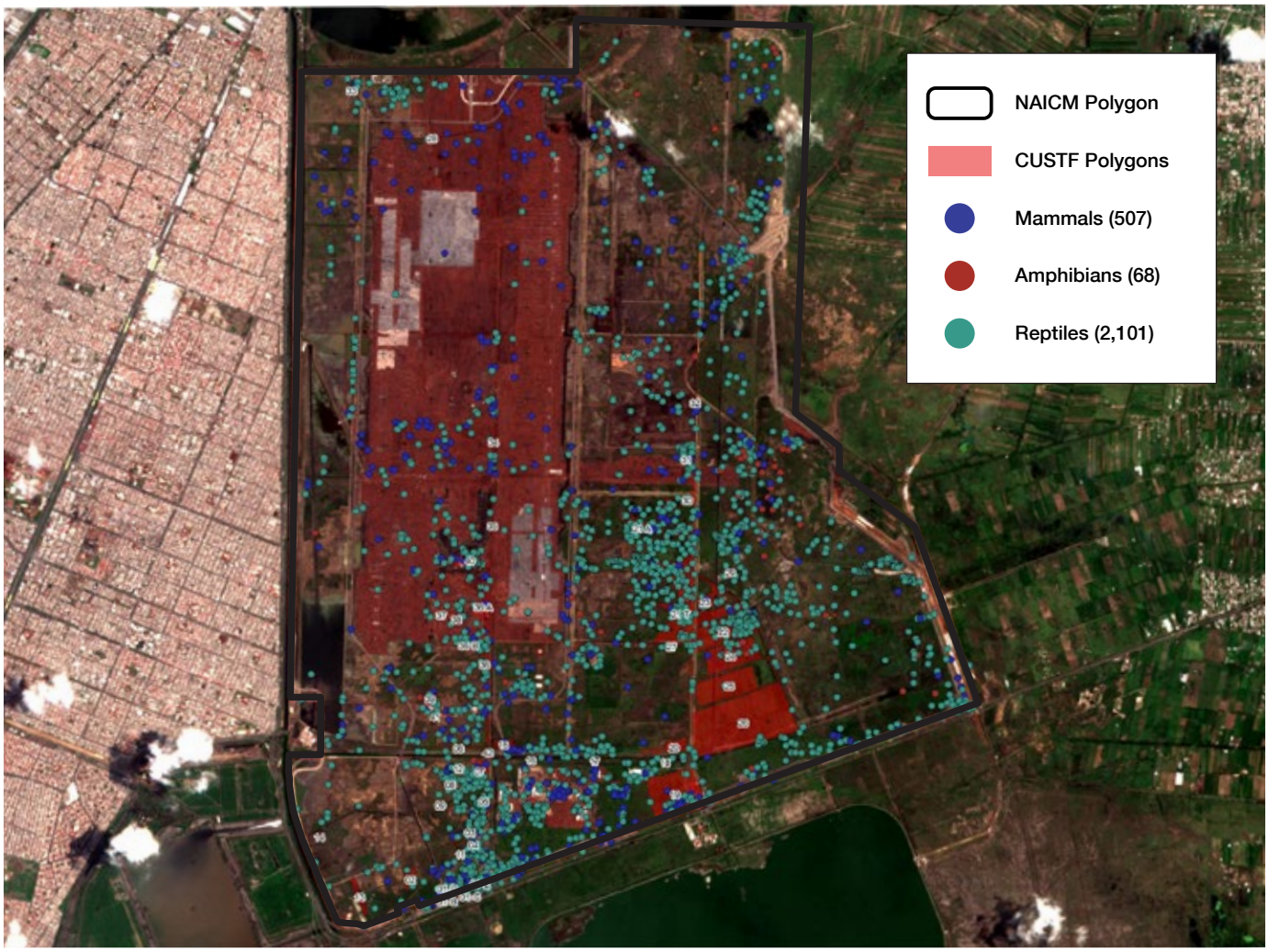
- Sierra Madre Oriental
- Volcanic Transversal Axis
- Valley of Mexico

The fauna species found in the SAR are divided into three groups. Below is specified the total number of species found per group, along with those identified in the categories of Official Standard NOM-059-SEMARNAT-2010.

- Mammalian fauna: out of the 208 species listed in the Standard, 19 mammal species considered as minor, were found in the SAR.
- Herpetofauna: the existence of 44 reptile species and 27 amphibian species was reported in the SAR. In accordance with the Standard, 2 of these reptile species are endemic, 14 are species subject to Special Protection, 12 are threatened species and 1 species is endangered. While 10 amphibian species are endemic, 6 amphibian species are subject to Special Protection, 4 species are threatened, and 2 species are endangered.
- Ichthyofauna: in the SAR, it is represented by 38 fish species and, in accordance with the Standard, 5 species are endemic, 2 are reported as threatened species and 3 are endangered species.

A bibliographic analysis was conducted to evaluate the distribution of minor fauna in the SAR, and sampling units were identified inside the polygon. Transect walks were charted from each unit, which served as basis for establishing the radius of the area subject to exhaustive review, with geographical locations within and around the area of the Project (see figure 4).

Figure 4 - Radio Subject Area to Wildlife Rescue



### 4.3. Strategies and Follow-up of the Flora and Fauna Rescue

For the approval of the project the, Ministry of Environment and Natural Resources (SEMARNAT) through the DGIRA (General Direction of Environmental Impact and Risk) issued the MIA-R Project Resolution, by means of which Grupo Aeroportuario de la Ciudad de Mexico (GACM) is requested to comply with 20 conditions and 58 mitigation measures. The flora and fauna rescue programs are in line with condition 7, whose purpose is to preserve the biodiversity existing in the Project. The rescue of flora and fauna programs allows the management of actions and strategies for preserving natural resources and minimizing environmental impacts.

#### 4.3.1. Procedures for the Flora Rescue Program

The Program consists in identifying, evaluating, rescuing and relocating defined flora species, in accordance with the conservation criteria. These criteria are based on the requirements of the MIA-R and strive for compliance with condition 7 of the Resolution, as well as with the provisions of Term VIII of the authorization for Land Use Change of Forestry Lands (CUSTF).

Arboreal vegetation in the land of the Project is mainly constituted by *Tamarix Chinensis* and *Tamarix Aphylla* trees which reach their maximum development over the irrigation channels' edges. This is due to the availability of water that allows to lower the effects created by salty soil and gives a moisture reservoir during the dry season.

The vegetation samplings in the polygon developed for the MIA-R study, reveal that the *Tamarix Aphylla* and *Tamarix Chinensis* are the species presenting the highest values in the importance value rate. This range considers the ecological conditions currently present in the former Lago de Texcoco where the salinity is a determining factor for the survival of trees species. From the evaluation, it was concluded that only these two species can tolerate the high levels of salinity and survive under these circumstances.

The *Tamarix Chinensis* species presents resistance to the saline conditions other soil in the area, demonstrating its adaptability to surfaces devoid of vegetation, its branched development and annual foliage favors the incorporation of organic material into the soil and the establishment of secondary herbaceous species, thus generating a natural dynamic in the formation of vegetative grouping in high-salinity soils.

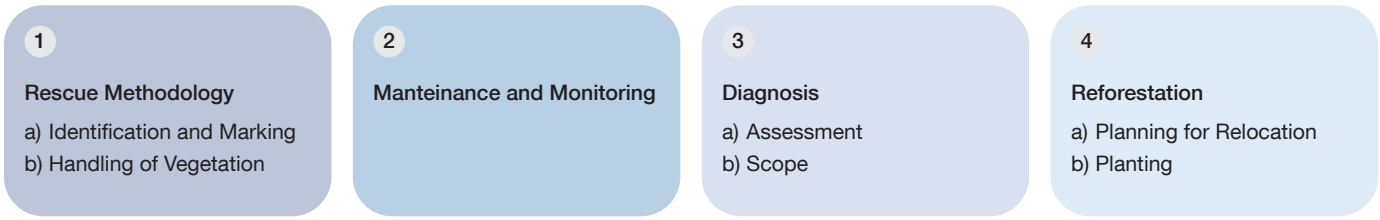
In addition to halophile grassland, there are other species, some of them are exotic species with tolerance to salinity, which were previously introduced through CONAGUA's reforestation programs. These species were identified as a result of the sampling and characterization activities concerning the vegetation found in the polygon. The 24 arboreal-shrub species in table 1 represent vegetation with the strongest presence in the polygon.

Table 1 - 24 Species

| Family | Genus | Species | Life Form |
|---|---|---|---|
| Fabaceae | *Eysenhardtia* | *polystachya* | Bush |
| Solanaceae | *Nicotina* | *glauca* | Bush |
| Euphorbiaceae | *Ricinus* | *communis* | Bush |
| Asteraceae | *Gnaphalium* | *chartaceum* | Herb |
| Poaceae | *Melinis* | *repens* | Grass |
| Poaceae | *Distichlis* | *spicata* | Grass |
| Poaceae | *Eragrostis* | *obtusiflora* | Grass |
| Solanaceae | *Solanum* | *nigrum* | Herb |
| Papaveraceae | *Argemone* | *mexicana* | Herb |
| Cactaceae | *Opuntia* | *sp* | Bushy |
| Anacardiaceae | *Schinus* | *molle* | Tree |
| Tamaricaceae | *Tamarix* | *aphylla* | Tree |
| Tamaricaceae | *Tamarix* | *chinensis* | Tree |
| Malvaceae | *Anoda* | *cristata* | Herb |
| Asteraceae | *Sonchus* | *oleraceus* | Herb |
| Asteraceae | *Bidens* | *alba* | Herb |
| Polygonaceae | *Rumex* | *crispus* | Herb |
| Casuarinaceae | *Casuarina* | *equisetifolia* | Tree |
| Poaceae | *Hordeum* | *jubatum* | Grass |
| Chenopodiaceae | *Chenopodium* | *fremontii* | Herb |
| Amaranthaceae | *Amaranthus* | *sp* | Herb |
| Brassicaceae | *Lepidium* | *virginicum* | Herb |
| Phytolaccaceae | *Phytolacca* | *icosandra* | Herb |
| Chenopodiaceae | *Suaeda* | *nigra* | Herb |

Since 2015, monthly activities are being conducted in the areas intended for rescue aimed for complying with the requirements set by the environmental regulation entities. In order to explain the rescue and relocation procedure for the selected vegetation, the four general activities constituting the process are described in this section (see figure 5).

Figure 5 - Procedure




1. Rescue Methodology

The rescue procedure includes different activities starting with field tours aimed to locate the vegetation intended for rescue and ending with the admission of every plant into the nursery. The rescue of species occurs simultaneously with activities for the removal and clearing of vegetation on site. This stage of the process is divided into the two phases described below:

a) Identification and Marking

- Identification: internal tours are conducted to locate specimens.
- Quantification: estimation of the number of organisms to be rescued.
- Assessment: organisms carrying plague or pests are identified and put forward for disposal.
- Marking: color tags are assigned to rescued specimens with the purpose of providing follow-up of said specimens from the site, passing through the handling or preservation in the nursery, until their final relocation in the ecological restoration area.

b) Handling of Vegetation

- Intervention: conduction of phytosanitary trimming activities and application of treatment to the specimens selected for rescue.
- Formation of root ball: a trench is cut open to remove the specimen, in accordance with the measurements of diameter at breast-height (DAP) established by SEMARNAT.
- Transport: specimens are transported on the bed of vehicles and the roots and root ball are covered with a shade net to avoid desiccation of the rescued organisms.
- Admission: dynamic data and characteristics of every specimen sheltered in the nursery.

2. Maintenance and Monitoring

After each plant enters the nursery, actions are required to monitor the stress phase an organism goes through after being rescued. Below are described the measures implemented to ensure survival of the specimens.

- Treatment: each rescued organism is kept in observation for monitoring its stress phase and applying the phytosanitary treatment.
- Care: an irrigation and fertilization scheduling program is implemented.
- Control: application of fertilizers, as well as extracts on foliage, branches and trunk of the tree as a preventive measure.

3. Diagnosis

There are tracking indicators to evaluate the efficiency of rescuing flora, whose purpose is estimating survival rates, evaluating sanitary status and estimating vigor of the planting and of specimens in the nursery.

a) Assessment

- Follow-up: the production and egress of plants is registered in a logbook.
- Supervision: a quantitative estimation of the success in handling plants is conducted to obtain indirect parameters of quality in the on-site rescue process.
- Phytosanitary evaluation: the proportion of healthy trees is calculated with regards to the total number of living trees.

b) Scope

- Estimation: the number of rescued specimens is calculated.
- Production: the number of produced and rescued specimens per species (goal 53,401 rescued organisms and 202,800 organisms through vegetative propagation (asexual reproduction) in the nursery.

4. Reforestation

This is the final stage of the process, in which activities are conducted for the relocation of vegetation that was treated in the nursery, into the areas appointed for reforestation. Before reforesting, it is necessary to find a site with similar environmental conditions for relocated vegetation to have higher probabilities to survive.

a) Planning for Relocation

- Location: areas with similar characteristics are sought for the relocation of rescued specimens.
- Feasibility: a relocation proposal is presented, which may be modified by the East Area Development Master Plan, which determines the use and intent for federal-property plots.
- Relocation: it considers minimum spacing between organisms, distributing specimens with separations of 10m x 10m, forming triangles.

b) Planting

- Preparation: weeds are removed from the area to clear the transplant site and prevent the competition for space, nutrients, water and light.
- Conditioning: the fertilization, total insolation of plants and alternate irrigation is suspended a month before they are transferred to the planting site.
- Selection: vigorous plants that are plague and illness-free are selected.
- Projection: the plantation layout is made, and rootstocks are opened to place the root ball.
- Transplant: organisms are transported and placed into the rootstocks.

### 4.3.2. Quantification of Rescued and Reforested Flora Species

These section presents the progress made in rescuing vegetation removed inside the NAICM Polygon. Table 2 shows the recovered surface and the number of organisms rescued, based on the objectives requested by the environmental regulation instruments.

Table 2 - Compliance Progress

| Activity Requested by the Environmental Regulation Instrument | Objective Requested | Current Situation | Progress Percentage |
|---|---|---|---|
| Total recovered surface | 4,968.57 ha | 4,448.03 ha | 90% |
| Rescued organisms | 264,830 | 284,187 | **107%** |
| Organisms through vegetative propagation | 202,800 | 202,800 | 100% |

Rescued flora is classified into three types: grassland, arboreal-shrub and conifers. In Table 3 the number of rescued organisms is disaggregated per type.

Table 3 - Types of Vegetation

| Types of Vegetation | Quantity Rescued Organisms |
|---|---|
| Halophile grassland | 185,322 |
| Arboreal-shrub | 68,855 |
| Coniferous | 30,000 |
| **Total** | **284,187** |

Figure 6 shows rescue areas with the presence of halophile grassland up until April 2018.

Figure 6 - Rescue of Halophile Grassland

24 arboreal-shrub species were identified within the NAICM Polygon; 16 of these species were prioritized for rescue (see table 4). The species selection process was conducted based on indicators of environmental value, survival and preservation status. Finally, it was determined to rescue 16 arboreal-shrub species with better adaptive capacity.

Table 4 - Arboreal-Shrub Species

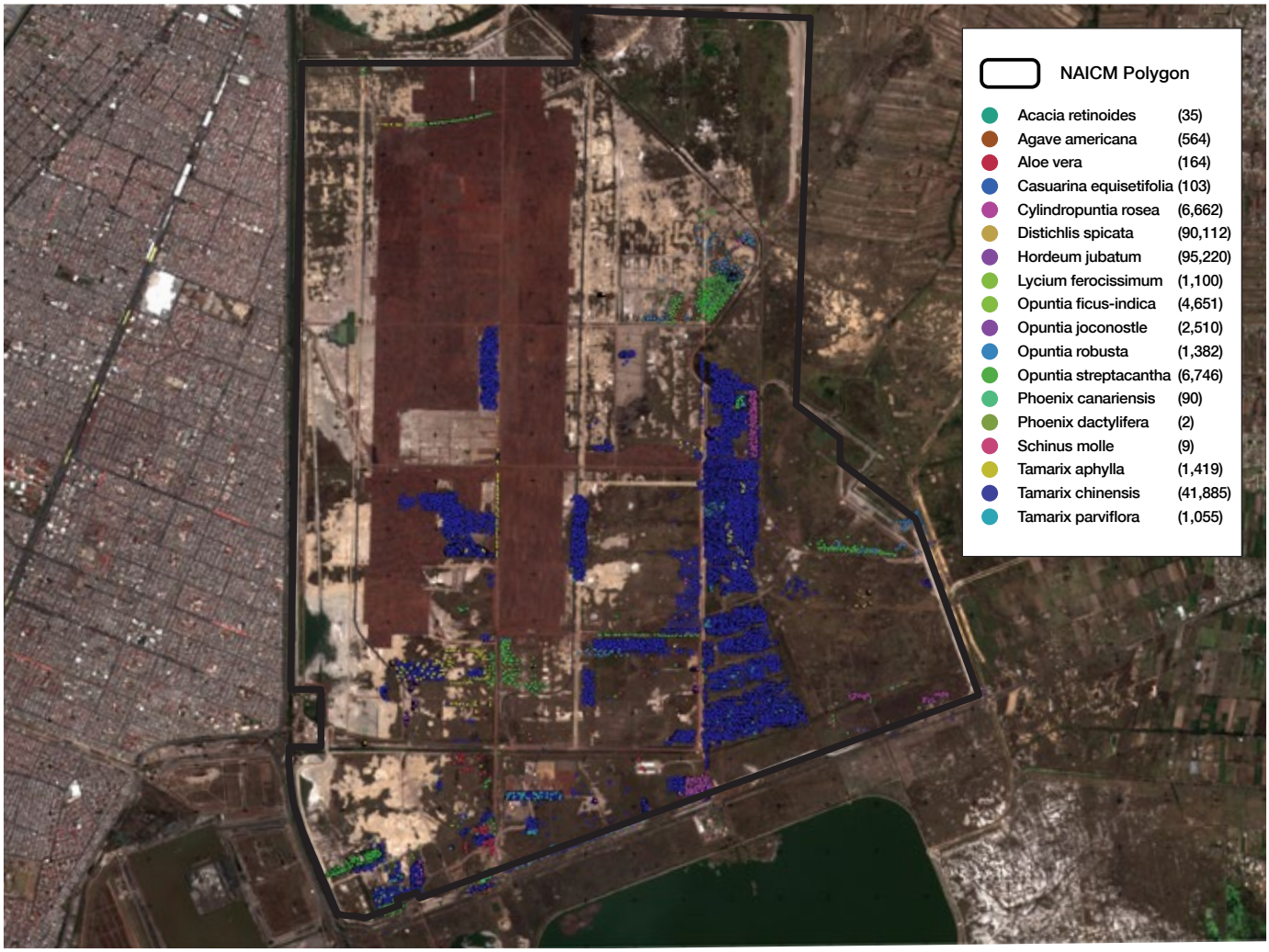
| Summary of Arboreal and Shrub Flora Rescue | | | |
|---|---|---|---|
| **No.** | **Scientific Name** | **Goal** | **Rescued Organisms** |
| 1 | *Tamarix aphylla** | 1,339 | 1,419 |
| 2 | *Tamarix chinensis** | 44,400 | 41,885 |
| 3 | *Tamarix parviflora* | 756 | 1,055 |
| 4 | *Casuarina equisetifolia* | 70 | 103 |
| 5 | *Lycium ferocissimum (invasora)*** | 281 | 1,115 |
| 6 | *Opuntia streptacantha* | 750 | 6,985 |
| 7 | *Agave americana* | 479 | 564 |
| 8 | *Cylindropuntia rosea* | 3,000 | 6,662 |
| 9 | *Opuntia ficus-indica* | 2,500 | 4,722 |
| 10 | *Phoenix canariensis* | 50 | 90 |
| 11 | *Phoenix dactylifera* | 2 | 2 |
| 12 | *Acacia retinoides* | 32 | 35 |
| 13 | *Schinus molle* | 8 | 9 |
| 14 | *Aloe vera* | 28 | 164 |
| 15 | *Opuntia joconostle* | 0 | 2,610 |
| 16 | *Opuntia robusta* | 0 | 1,382 |
| **Total** | | **53,695** | **68,855** |

***Lycium ferocissimum* is cataloged as quarantine weed listed by standard NOM-043-FITO-1999, thus an eradication procedure is applied.

The *Tamarix chinesis* and *Tamarix aphylla* species have demonstrated to be ideal for reforesting and give rise to local ecosystem in salty soils and minimizing impacts caused by dust storms. Unlike other natural contexts in which these species behave as invaders, in this soil their resistance to salinity allows them to spread in a controlled manner, thus favoring the establishment of other herbaceous species, integrating organic matter from branches and trunks, thus allowing the formation of local ecosystems for fauna.

Figure 7 shows the areas inside the NAICM polygon in which 284,187 organisms classified as arboreal and shrub have been rescued.

Figure 7 - Rescue Areas



All the rescued vegetation was transferred to the nursery for sheltering, phytosanitary treatment and propagation, among other activities. The nursery installed to the South of the property has the capacity to accommodate up to 370,000 organisms. Aimed for the preservation and reproduction of rescued specimens, the nursery is divided into different areas. Table 5 specifies the number of organisms treated in the different areas that were reported during the period between May 2017 and April 2018.

Table 5 - Organisms Treated in the Nursery

| Areas | Organisms |
|---|---|
| Cactaceae and agavaceae area | 12,122 |
| Reproduction area | 94,198 |
| Area for the reception and drying of opuntias | 22,361 |
| Area for the reception and care of grasslands | 310 |
| **Total** | **106,630** |

To comply with condition 7 of the MIA-R Resolution, it is necessary to ensure survival for 80% of the rescued vegetation specimens. As from November 2015, there is a monthly survival registry of the rescued specimens. At the closeout of the period between May 2017 and April 2018, the average survival indicator is 99.19%.

Figure 8 - Treatment of Species at the Nursery

*Opuntia* (nopal)

*Tamarix chinensis* (chinese tamarisk)

Thus far, 55,617 plants have been provided for the restoration site located in the Former Lago de Texcoco Federal Area to the South of the highway Peñon-Texcoco. The progress entails 50ha of grass restoration with species of *Distichlis spicata* and *Hordeum jubatum* distributed in polygons 1A, 1B, 2A, 3A, 4A, 4B, 5A, 5C, 6, 7C, 8D, 8E, PE2, as well as planting of *Opuntia streptacantha*.

Figure 9 - Reforested Areas

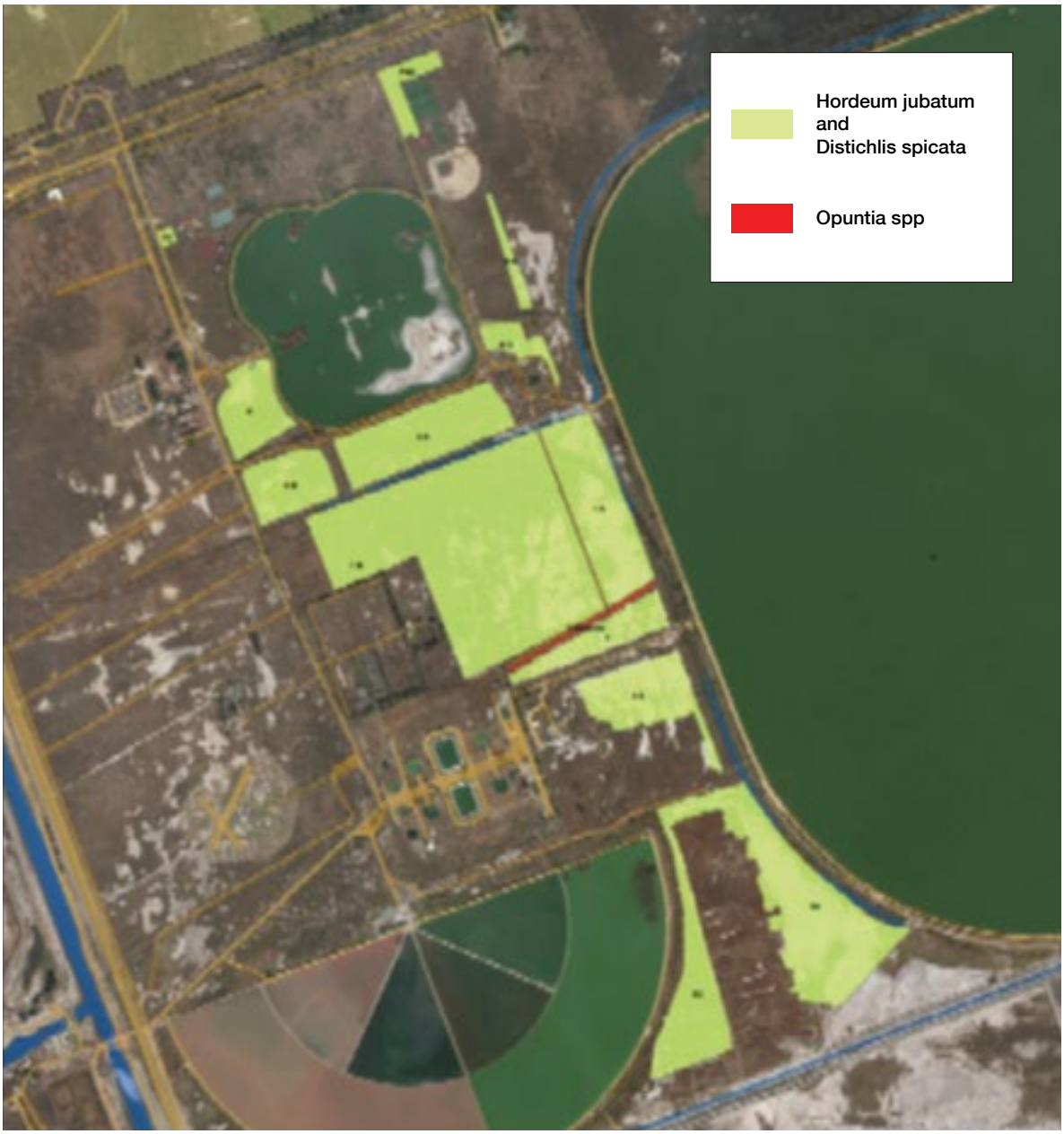


Table 6 - Reforestation Goal

| Activity Requested by the Environmental Regulation Instrument | Goal Requested | Current Situation | Progress Percentage |
|---|---|---|---|
| Reforested surface | 240.7545 | 193.73 | 85% |

### 4.3.3. Procedures for the Fauna Rescue Program

The intent of the Program is safeguarding species susceptible to be rescued within the area of the NAICM Project. This program addresses condition 7 of the MIA-R Resolution, which requests to be particularly cautious with species included in standard NOM-059-SEMARNAT-2010, titled “Environmental Protection - Wild flora and fauna native species of Mexico - Risks categories and specifications for their inclusion, exclusion or change - List of species at risk”.

The existence of twelve species of mammals was confirmed, including some rodents, such as the *Peromyscus maniculatus* (deer mouse) and *Microtus mexicanus* (mexican vole). Some leporidae reported in the area include the *Lepus californicus* (black-tailed jackrabbit) and *Sylvilagus floridanus* (eastern cottontail). The identification of species also includes the canis domiciliaris (domestic dog) represented by at least five packs of feral dogs with six to eight individuals, each (see figure 10).

Figure 10 - Mammals Species Rescued

*Peromyscus maniculatus* (deer mouse)

*Microtus mexicanus* (mexican vole)

*Lepus californicus* (black-tailed jackrabbit)

*Sylvilagus floridanus* (eastern cottontail)

During the execution of field works at the NAICM polygon, it was possible to confirm the existence of six amphibian species, among which we can find: *Anaxyrus compactilis* (plateau toad), *Hyla eximia* (mountain treefrog), *Spea multiplicata* (spadefoot toad). See figure 11.

Figure 11 - Amphibian Species Rescued

*Anaxyrus compactilis* (plateau toad)

*Hyla eximia* (mountain tree frog)

*Spea multiplicata* (fake toad)

Twelve reptile species were identified in the field samples, some of them are the *Sceloporus scalaris* (bunch grass lizard), *Sceloporus grammicus* (mesquite lizard), *Pituophis deppei* (cincuate) and *Thamnophis eques* (mexican gartersnake). Among the flora and fauna species established in the category of risk by the Official Mexican Standard NOM-059-SEMARNAT-2010 we find the *Sceloporus grammicus*, which is under Special Protection. Similarly, *Thamnophis eques* and *Pituophis deppei* are in the category of threatened species, reported in the red list of the International Union for Conservation of Nature (UICN), and the *Sceloporus spinossus* is under the status of minor concern (see figure 12).

Figure 12 - Reptile Species Rescued

*Sceloporus scalaris* (bunch grass lizard)

*Sceloporus grammicus* (mesquite lizard)

*Pituophis deppei* (cincuate)

*Thamnophis eques* (mexican garter snake)

Rescue Methodology

The species identification and relocation procedures are different in the three groups. Although the techniques used vary in accordance with the characteristics of the groups. The methodology for rescuing specimens of each faunistic group is detailed below.

1. Mammals

- Sampling: they are identified through direct observation and through the registry of indirect traces such as footprints, feces and burrows, as well as the installation of traps for small and medium-sized mammals.
- Scaring-off: tours are made with sound instruments to scare away fauna and reduce the number of small and medium-sized organisms, as well as the removal of shrubs and weed that may serve as shelters for fauna,
- Capture: traps are placed on-site, every 50m as minimum, and on trails or wherever animal traces have been spotted. Capture tasks are performed for at least five consecutive nights before beginning with the clearing activities. In case any ill or injured specimens are found these are cared for by the specialized technician.
- Registry: information is collected and recorded in relation to the capture, spotting, traces, excretions, shelters, burrows, photo tramp, transfer and release of the specimen.
  Transport: specimens are put into traps, plastic or wooden boxes. Transporting time must not exceed 24 hours,
- Tracking: telemetry transmitters are placed on specimens, and these are registered in the monitoring logbook

2. Amphibians

- Sampling: the audible records technique is used in areas that use to support aquatic vegetation, in the shore of water-conducting channels or in bodies of stagnant water.
- Location: these are sought in areas near bodies of water, vegetated areas, around rocks and tree trunks.
- Capture: this is done using a long-handled aquatic net or directly by hand, preferably using safety gloves to prevent irritation caused by touching mucosa.
- Transport: specimens are placed in a container or plastic canister containing water or substrate from the place in which they were captured.

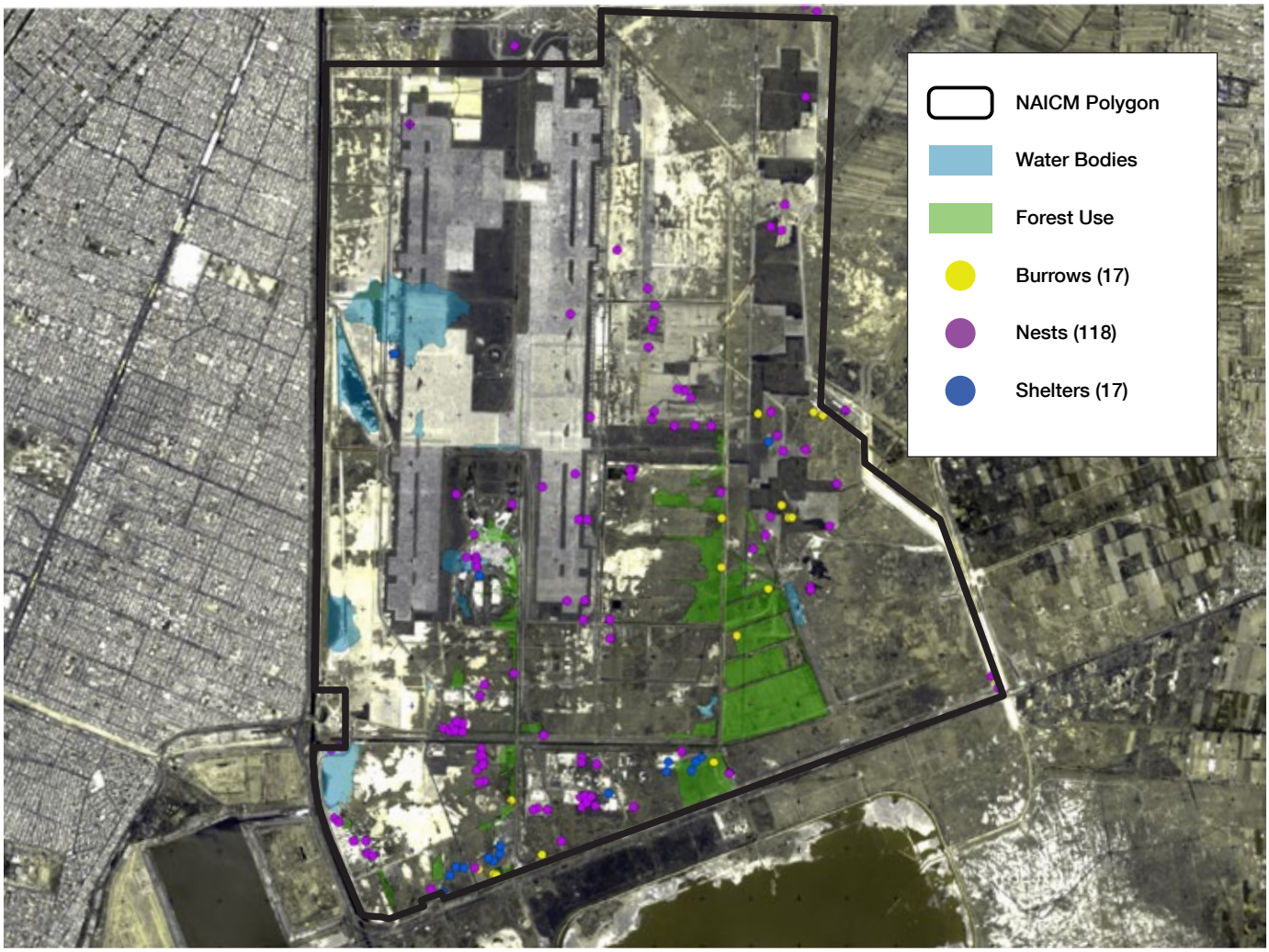
3. Reptiles

- Sampling: intensive searches are conducted on shafts, under dry tree trunks, abandoned pipes and pieces of tree bark.
- Scaring off: tours are made looking for shelters, weeds are cut, wood, waste and residue piles are removed, along with concentrations of rocks, trunks and wood scraps.
- Capture: this is done in a direct manual manner using a fishing rod or a rope, creating a sliding grip on its end, or with a long cane onto which the rope can be adjusted. Traps buried in the ground, hooks or herpetological tweezers are also used for handling snakes. In case any ill or injured specimens are found these are cared for by the specialized technician.
- Transport: the specimen is placed in a bag or container, depending on the size of the species.
- Tracking: Small-sized specimens are marked with orange paint, and medium to large-size specimens get telemetry transmitters.

### 4.3.4. Quantification of Rescued Fauna Species

During the period 33 species have been rescued of the three faunistic groups have been rescued. Figure 13 represents the identified shelters and burrows, as well as bodies of water where diverse species were captured.

Figura 13 - Location of Fauna Inside the NAICM Polygon



The results obtained from the fauna rescue and the dominance per species is presented below. Dominance is the representation of each species in a territory. In order to calculate dominance in the NAICM polygon it is necessary to divide the number of organisms found per species by the total number of organisms found in the three faunistic groups.

Table 7 - Results of Rescued Mammals

| Common Name | Species | Rescued Organisms | Dominance (%) |
|---|---|---|---|
| Eastern cottontail | *Sylvilagus floridanus* | 147 | 5.49 |
| Black-tailed jackrabbit | *Lepus californicus* | 125 | 4.67 |
| Deer mouse | *Peromyscus maniculatus* | 79 | 2.95 |
| Mexican vole | *Microtus mexicanus* | 36 | 1.35 |
| Wood mouse | *Apodemus sylvaticus* | 35 | 1.31 |
| Southern pocket gopher | *Thomomys umbrinus* | 27 | 1.01 |
| Virginia opossum | *Didelphis virginiana* | 24 | 0.9 |
| Shrew | *Cryptotis parva* | 11 | 0.41 |
| Western harvest mouse | *Reithrodontomys megalotis* | 11 | 0.41 |
| Western spotted skunk | *Spilogale gracilis* | 5 | 0.19 |
| Mexican ground squirrel | *Spermophilus mexicanus* | 4 | 0.15 |
| Long-tailed weasel | *Mustela frenata* | 3 | 0.11 |
| **Total** | | **507** | **18.95** |

Table 8 - Results of Rescued Amphibians

| Common Name | Species | Rescued Organisms | Dominance (%) |
|---|---|---|---|
| Ridged tree frog | *Hyla plicata* | 29 | 1.08 |
| Mountain treefrog | *Hyla eximia* | 21 | 0.78 |
| Plateau toad | *Anaxyrus compactilis* | 12 | 0.45 |
| Montezuma leopard frog | *Lithobates montezumae* | 4 | 0.15 |
| Barking frog | *Craugastor augusti* | 1 | 0.04 |
| Leora's stream salamander | *Ambystoma leorae* | 1 | 0.04 |
| **Total** | | **68** | **2.54** |

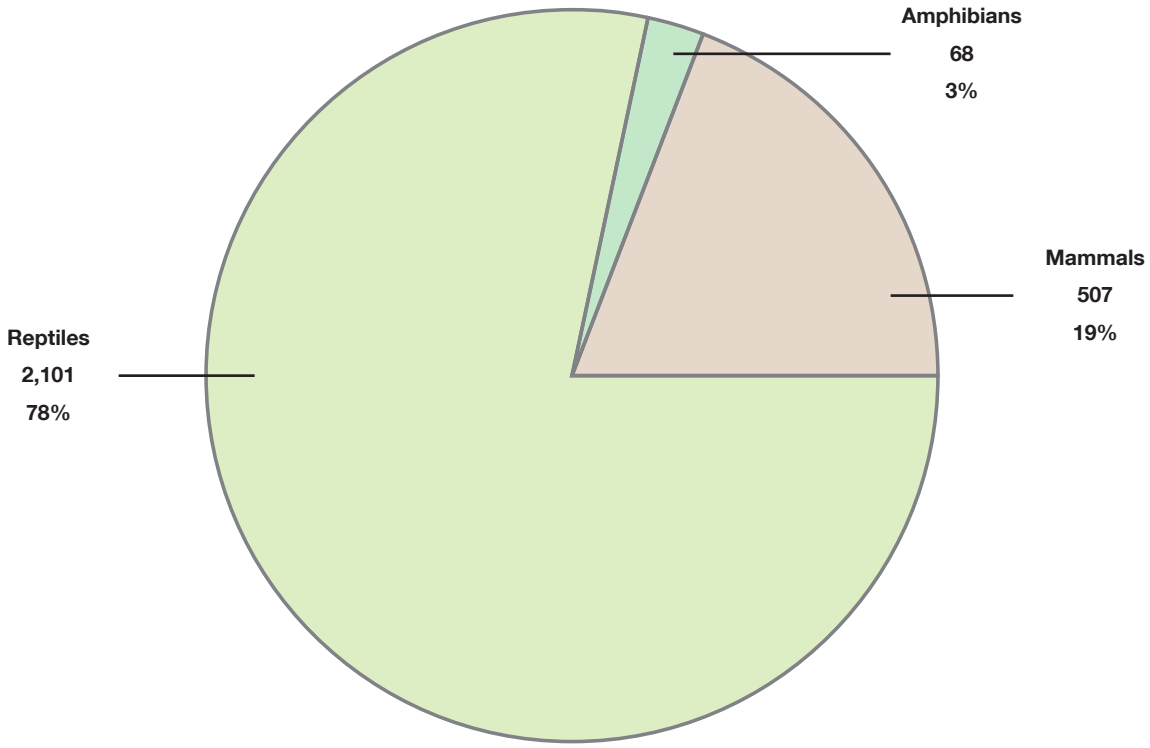
Table 9 - Results of Rescued Reptiles

| Common Name | Species | Rescued Organisms | Dominance (%) |
|---|---|---|---|
| Cincuate | *Pituophis deppei* | 523 | 19.54 |
| Mesquite lizard | *Sceloporus grammicus* | 331 | 12.37 |
| Barisia | *Barisia rudicollis* | 237 | 8.86 |
| Bunch grass lizard | *Sceloporus scalaris* | 200 | 7.47 |
| Imbricate alligator lizard | *Barisia imbricata* | 199 | 7.44 |
| Mexican mud turtle | *Kinosternon integrum* | 146 | 5.46 |
| Lined tolucan ground snake | *Conopsis lineata* | 120 | 4.48 |
| Baird's patched-nosed snake | *Salvadora bairdi* | 118 | 4.41 |
| Longtail alpine garter snake | *Thamnophis scalaris* | 54 | 2.02 |
| Short-tail alpine garter snake | *Thamnophis scaliger* | 53 | 1.98 |
| Mexican garter snake | *Thamnophis eques* | 40 | 1.49 |
| Rough-footed mud turtle | *Kinosternon hirtipes* | 28 | 1.05 |
| Blackbelly garter snake | *Thamnophis melanogaster* | 21 | 0.78 |
| Eastern spiny lizard | *Sceloporus spinosus* | 19 | 0.71 |
| Largenose earth snake | *Conopsis nasus* | 12 | 0.45 |
| **Total** | | **2,101** | **78.51** |

The 19 rescued species that prevail in the three faunistic groups are: the eastern cottontail (*Sylvilagus floridanus*), Lined Tolucan ground snake (*Conopsis lineata*), blacktailed jackrabbit (*Lepus californicus*), bunch grass lizard (*Sceloporus scalaris*), Deer mouse (*Peromyscus maniculatus*), Mexican vole (*Microtus mexicanus*), virginia opossum (*Didelphis virginiana*), mountain treefrog (*Hyla eximia*),wood mouse (*Apodemus sylvaticus*), eastern spiny lizard (*Sceloporus spinosus*), shrew (*Cryptotis parva*), largenose earth snake (*Conopsis nasus*), southern pocket gopher (*Thomomys umbrinus*), plateau toad (*Anaxyrus compactilis*), western harvest mouse (*Reithrodontomys megalotis*), western spotted skunk (*Spilogale gracilis*), mexican ground squirrel (*Spermophilus mexicanus*), long-tailed weasel (*Mustela frenata*) and the barking frog (*Craugastor augusti*).

Regarding the 2,676 rescued fauna organisms of the three groups, reptiles represent the group with the highest number of specimens, which is equivalent to 78%, mammals are second with 19% and amphibians represent the smallest group with only 3% (see figure 14). The most representative group is that of the reptiles, due to the dry climate in the NAICM polygon.

Figure 14 - Proportion of Rescued Organism



### 4.4. Success in the Relocation of Species

Before relocating fauna organisms, it is necessary to identify relocation areas. The criteria for defining appropriate areas for releasing rescued species and assuring their permanence are:

a) Water: vital liquid for the survival of all living beings.

b) Food: fundamental requirement for obtaining energy, which will allow them to fulfill their biological cycle.

c) Coverage: important condition for the protection, sheltering and attainment of food.

d) Space / Territory: geographic space required for freedom of movement, which is directly related to the population density in a determined area.

Rescued fauna inside the approximately 5 thousand hectares of the NAICM polygon have been relocated in Lago Nabor Carrillo, in an area of 3,168.77 hectares. It was necessary to conduct a load capacity analysis in the lake area since the total surface is minor than the NAICM's. Thanks to this analysis, the maximum population size the environment can support in a determined time period is estimated. The method for monitoring the presence of released species of the three faunistic groups consists in the following activities.

#### 4.4.1. Procedures

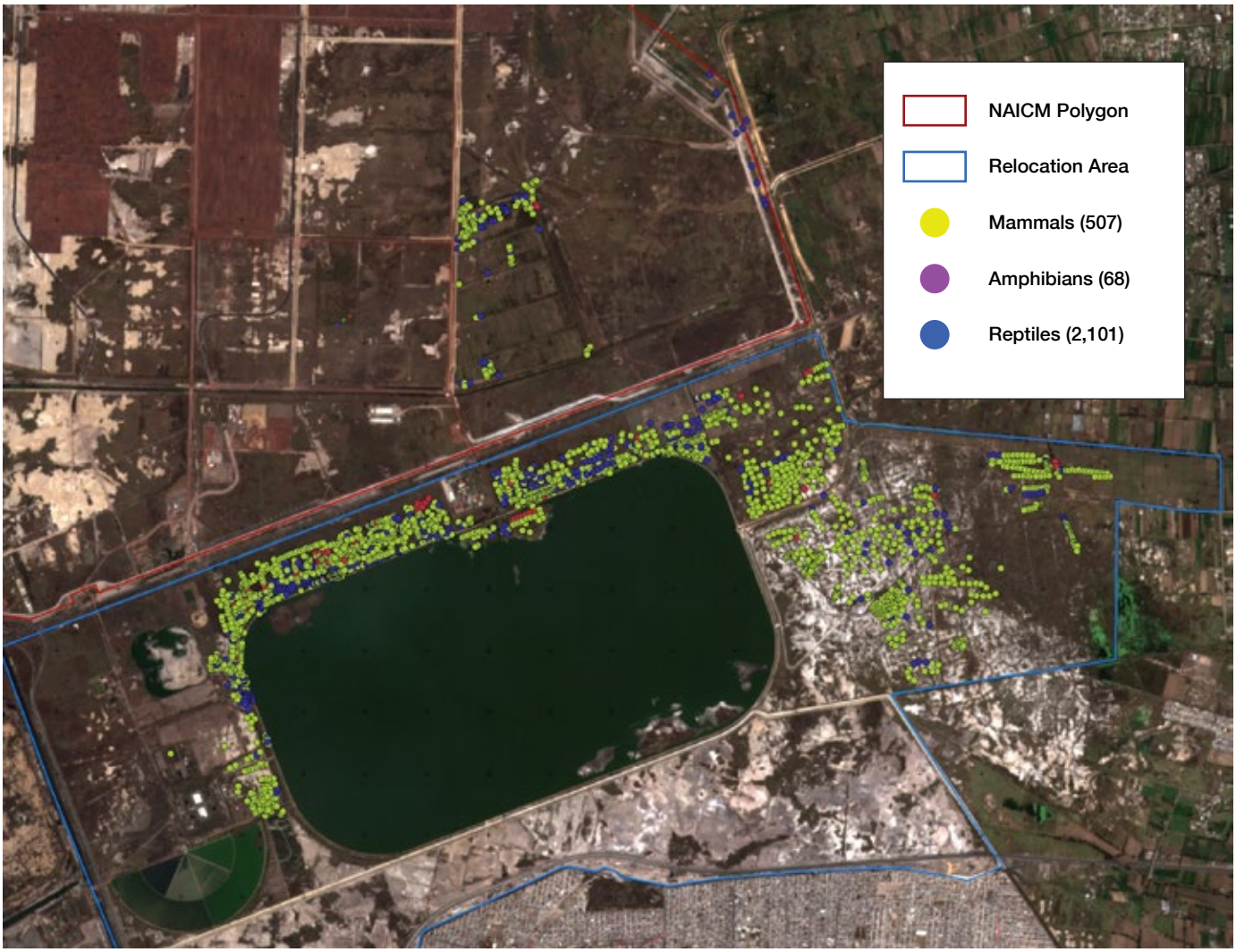
Fauna monitoring is intended to indicate if the relocation has been successful. This process is conducted by registering the mobility of selected species, as well as the collection of biometric data such as weight and size of the specimen.

- Sampling: All the organisms spotted will be registered in a line and spotted specimens to both sides. A thorough inspection will be conducted every 10m in the surrounding area.
- Species registry: Traces are registered, such as excreta and the remains of consumed preys, which will be georeferenced with the intent of developing distribution maps for each species.
- Tour thru transit areas/trails: tours are taken along trails or transit areas of the mammals identified for capture.
- Identification or signaling of sites where fauna has been registered: the fauna brigade identifies georeferenced wild fauna mobility transects, installs yellow signaling and demarcate the area where wild fauna sightings have occurred.

### 4.4.2. Relocation Success Results

Figure 15 represents Lago Nabor Carrillo and the release points for the fauna rescued from the NAICM polygon.

Figure 15 - Fauna Release Points




The monitoring of fauna population is fundamental for confirming whether the relocation actions have been successful. The verification procedure is conducted through the registration of mobility of the selected species and the attainment of long term biometric data.

*INFORMATIVE NOTE*

**Rescue of Dogs and Cats**

During the tours taken by the fauna brigades inside the polygon, the presence of feral dogs and cats was detected. It was observed that the presence of these species is detrimental to the wild fauna as both species are potential predators. With the intent of protecting the wild fauna, rescuing puppies and kittens was adopted as control measurement with their sheltering and donation through an Animal Protection Association. This action allowed to provide protection to domestic animals in accordance with the procedures indicated by the Wildlife Agency. Thus far, 27 dogs and 1 cats have been rescued in optimum conditions for donation.

**Conclusiones**

- The rescue of flora and fauna has been conducted in the NAICM polygon in 4, 448.03ha, which represents 90% of the MIA-R polygon.

- 106,630 tree and shrub specimens have been rescued, as well as 16 priority species for environmental compliance.

- The rescue and relocation program for species of biological interest has been implemented, giving priority to the rescue of native species such as: *Opuntia streptacantha* 6,985 specimens, *Opuntia ficus-indica* 4,722 specimens, *Cylindropuntia rosea* 6,662 specimens, *Opuntia joconostle* 2,610 specimens, *Opuntia robusta* 1,382 specimens, *Agave americana* 564 specimens, *Aloe vera* 164 specimens, *Esquinus mole* 9 specimens, and *Hordeum jubatum L*. halophile grass 95,220 root balls and 90,112 root balls of *Distichlis spicata*. These species mitigate soil erosion and favor the establishment of herbaceous and shrub strata, thus generating habitats for fauna species in the restoration area.

- In an attempt to assure the 80% survival rate indicated in the resolution, the selection criteria is applied for suitable candidate species for relocation and reproduction, as well as a biological treatment program to boost vigor in plants and inhibit the presence of plant pathogens and thus determine their phytosanitary conditions, obtaining in the period a survival indicator of 91.44%, indicator of phytosanitary status with no presence of plagues or illnesses 90.81%, and indicator of good vigor: 85.31%.

- 2,676 fauna specimens of 33 species have been rescued. As a dominant species we find the Cincuate (*Pituophis deppei*) with 523 specimens (19.54%); subdominant species are represented by the mesquite lizard (*Sceloporus grammicus*) with 331 specimens (12.37%); Barisia (*Barisia rudicollis*) with 237 specimens (8.86%); bunch grass lizard (*Sceloporus scalaris*) with 200 specimens (7.48%) and finally the imbricate alligator lizard (*Barisia imbricata*) with 199 specimens (7.44%). Recedent species are represented by the eastern cottontail (*Sylvilagus floridanus*) with 147 specimens (5.49%); Mexican mud turtle (*Kinosternon integrum*) with 146 specimens (5.46%); blacktailed jackrabbit (*Lepus californicus*) with 125 specimens (4.67%); lined Tolucan ground snake (*Conopsis lineata*) with 120 specimens (4.48%); and finally, the baird's patch-nosed snake (*Salvadora bairdi*) with 118 specimens (4.41%).

- Out of these 2,676 specimens, 14 species are in the preservation category by the NOM-059-SEMARNAT-2010 standard, and 19 species are in the UICN (International Union for the Conservation of Nature) Red List.

- The relocation of fauna will take place south of Carretera Peñon-Texcoco, near Lago Nabor Carrillo. We have satellite maps for specimens with telemetry chips, which allows to evaluate the proportion of organisms that remain in the receiving habitat from the date they are released until 45 days after that, thus recording a fauna survival rate of 98%.

- Reforestation activities have been conducted in 193.73 hectares, representing 85% of progress in terms of environmental compliance.

- Through these actions, GACM contributes to the compensation of the impacts on the flora and fauna, ensuring the conservation of the rescued species and improving the quality of the habitat in the areas surrounding the NAICM.

## References


- GACM, Manifestación de Impacto Ambiental Modalidad Regional del Nuevo Aeropuerto de la Ciudad de México, Estudio Elaborado por el Instituto Politécnico Nacional.
- GACM, Estudio Técnico Justificativo del NAICM, Estudio Elaborado por el Instituto Politécnico Nacional.
- GACM, Programa de Rescate de Flora, Instituto de Investigación y Capacitación para las Ciencias Biológicas.
- GACM, Programa de Rescate de Fauna, Instituto de Investigación y Capacitación para las Ciencias Biológicas.

## 5. Performance Indicators

Specific performance indicators are being developed for tracking through the on-going reporting in line with the Green Bonds framework.

### 5.1. Eligible Buildings

The Airport program is currently developing designs for LEED v4 ratings for the following buildings.

| Building | LEED v4 Rating Target |
|---|---|
| Passenger Terminal Building | Platinum |
| Ground Transportation Center | Gold |
| Air Traffic Control Center | Gold |
| Area Control Center | Gold |

In addition to the specific buildings undergoing the LEED rating process, there are impacts for other ancillary buildings and systems to achieve these targets.

The Central Utility Plants A & B (CUPs) are located in the West airfield and supply chilled water for cooling the Passenger Terminal Building (PTB) and Air Traffic Control Tower (ATCT), as well as facilities to the North within the Midfield area. The cooling systems are being designed to a high level of energy efficient performance.

The Ground Transportation Center will include a bus station and a metro rail station. A further bus station will be located to the North of the site for employees of the Midfield areas. Connectivity for the airport workers as well as passengers is critical for successful opening of the project and reducing car travel.

The project includes a dedicated Waste Water Treatment Plant. All black water from the initial phase of development will be treated to a high level to meet California Building Code requirements to provide a supply of treated water to airport buildings for lavatory flushing, irrigation and cleaning needs.

### 5.2. Energy and Water Consumption and Reduction Strategies

The MIA reviewed the currently observed values of water and energy consumption at the existing airport; based on these usages the new airport is targeting a reduction of around 70% in its use of potable water and 40% for energy usage.

All the buildings seeking a LEED rating are currently targeting a 50% energy cost reduction to meet the full points available. This 50% cost reduction is being designed through the following strategies:

- Implementation of Energy Conservation Measures (ECM's) within the building.
- Connection to a High Efficiency Campus Central Utility Plant.
- Power sourced from renewable energy sources.

Water consumption is being reduced through the following strategies:

- Dedicated on-site Waste Water Treatment Plant to provide a supply of treated water.
- Use of low flow fixtures for toilet flushing using treated water in buildings seeking a LEED rating.
- Use of low flow fixtures for lavatory fixtures using potable water in buildings seeking a LEED rating.

### 5.3. Greenhouse Gas Emissions

As laid out in the MIA the proposed building designs, boilers and power plants will reduce the Greenhous Gas emission by 50% compared to the current Mexico City Airport.

Reduction in Greenhouse Gas emissions aligns with the energy reduction strategies noted above for energy consumption.

Other opportunities which are being implemented or investigated at this time are as follows:

- Use of photovoltaic panels to provide site lighting and perimeter protection during construction.
- Provision of sufficient infrastructure to allow electric Ground Source Equipment (eGSE) for airlines and ground handlers to reduce non-aircraft airside air pollution.
- Identification of locations of natural resources and products to reduce pollution from transportation to the site.

### 5.4. Waste Reduction and Diversion from Landfill

LThe MIA outlines a range of reduction and recycling targets. Overall the new airport seeks a reduction of 10% to 30% in waste generation and an improvement of 10 to 30% in the amount to waste diverted to recycling facilities.

### 5.5. Energy Purchased or Generated On-site from Renewable Energies

The use of photovoltaics is currently being utilized for site lighting.

An extensive feasibility study is also currently in progress. This is to determine the best cost solution to meet the LEED demands of the project.