BUTTERFLIES OF THE GARDEN: Sighting and Conservation

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ABSTRACT

The project "Butterflies of the Garden: Sighting and Conservation," carried out by sixth and seventh-grade students of Primary School 1345 in Pujato (Argentina), is part of the International Collaborative Project "Butterflies and Environmental Variables," in which schools from Uruguay, Peru, and Argentina participate.

The objective is to relate the presence of butterflies at the study site "Butterflies in Sight" to atmospheric variables -air temperature, humidity, precipitation, and wind speed and direction- using the GLOBE program protocols for recording atmospheric variables.

The central research question guiding the study is posed: *How is the sighting of butterflies in the school garden of School 1345 in Pujato (Argentina) related to the plants present at the site and the atmospheric variables recorded there during the 2025 school year?*

Through exploratory and descriptive research, with a mixed approach (qualitative and quantitative), activities are proposed to answer the question. Observations are carried out between March and November 2025, with a special focus on autumn and spring. Data is systematically recorded on a spreadsheet linked to butterfly sightings, their characteristics, and the atmospheric conditions at the time of observation.

Activities include searching for information on butterflies, their metamorphosis, host and nectar plants, the most common lepidopteran species in the region where Pujato is located, the definition of the study site, the organization of field trips for sighting, the preparation of measurement tools and instruments, the elaboration of spreadsheets, and the recording and transfer of data, among other tasks.

The results show that sightings are concentrated in two periods: Autumn (March-May) and Spring (September-November). Sightings have been reduced. No butterflies were observed during the winter, likely due to low temperatures and windy days. The temperature range during sightings, for both autumn and spring, is similar, approximately between 20ºC and 30ºC similarly, the wind speed was low during all sightings.

The diurnal butterfly species sighted are *Dione vanilae maculosa* (Espejitos) (much more frequent), *Papilio thoas* (Limonera grande), *Phoebis sennae* (Amarilla), *Vanessa braziliensis* (Dama pintada), *Vanessa carye* (Dama manchada), and *Ortilia ithra* (Bataraza). It is assumed that the greater observation of *Dione vanilae maculosa* (Espejitos) is due to the presence of the host and nectar plant: Passionflower (*Passiflora caerulea*).

The project allows students to acquire a research methodology, characterize diurnal butterfly species, relate their presence to atmospheric variables, and, fundamentally, value the importance of protecting these insects as bioindicators of the health of local ecosystems and promote their conservation.

INTRODUCTION

Butterflies are insects, pollinators, that play an essential role in ecosystems. Their presence, abundance, and diversity are closely related to environmental quality and the availability of host and nectar plants.
It is important to clarify that Private Primary School N° 1345 "Nuestra Señora del Carmen" has been part of the International Collaborative Project "Butterflies and Environmental Variables" since 2024, which includes schools from Uruguay, Argentina, and Peru, coordinated by Lic. Andrea Ventoso.
Within the framework of this Project, this school research project emerges in 2025, seeking to integrate the study of butterflies with the work in the school garden, using GLOBE program tools to measure and record environmental variables such as air temperature, relative humidity, precipitation, wind speed and direction, surface temperature, cloudiness, among others.
In addition to fostering school science processes such as observation, the use of measurement instruments, and data collection and communication, the goal is to strengthen an emotional and responsible bond with nature through collaborative work and environmental education. The observation and conservation of butterflies (from caterpillars to adults) allow students to experience the life cycle and value the importance of habitat care.
This work is also articulated with institutional activities such as the patriotic act on July 9th, which commemorates Argentina's independence. On that occasion, the speech given by the students was inspired by the Argentine Flag butterfly (*Mariposa Bandera Argentina*), a symbol of freedom and transformation.

RESEARCH QUESTIONS

The 2025 school year begins in mid-March and ends in November of the same year. During that March, observations of butterflies began in the school garden "El Rabanito escondido" (The Hidden Radish). It was only possible to sight very few butterflies in the garden, while some students claimed to observe butterflies in their gardens and other green spaces in the town.
Many simple questions arose regarding the mentioned scarcity. Some of them: In which season can butterflies be observed in the school garden? Where will it be possible to sight butterflies in Pujato? Do butterflies choose flowers? Do all butterfly species feed on the same flowers? Is there any relationship if it is windy or if the temperature is high? Why are not as many butterflies observed in the garden as in other places in Pujato?
These questions became a focus of interest for the study of butterflies in the school garden, which started in March 2025.
Guided by these initial questions, a research question is formulated for this investigative work:

> *How is the sighting of butterflies in the school garden of School 1345 in Pujato (Argentina) related to the plants present at the site and the atmospheric variables recorded there during the 2025 school year?*

It is important to note that the project will first involve an exploratory study to examine the characteristics of the butterfly species present in the region that could be sighted in the school garden, as well as the characteristics of the plants existing at the study site and their possible relationship with the butterflies. Similarly, students must learn about certain atmospheric variables -air temperature, relative humidity, precipitation, wind speed and direction, and cloudiness- the instruments used to measure them, the corresponding units, and the GLOBE protocols for recording them.

A descriptive approach will be used to attempt to relate the presence of butterflies to the type of plants found in the garden. Furthermore, the project will seek to determine if the recorded atmospheric variables may affect the presence of these insects.

The research question posed is important for different reasons. From the perspective of school science, the answers obtained will offer possible relationships between the variables under study and the presence of butterflies in the school garden, generating new knowledge about an area of the biosphere corresponding to the local environment where the study is conducted, with a global outlook.

The importance of this work lies in the exploratory and descriptive research process, which involves conducting school science activities that aid in understanding important scientific concepts, data, and methodologies where specific protocols and instruments are applied to ensure that the collected records are comparable.

In turn, answering this research question involves initiating actions such as systematic observation and recording, the application of special techniques for measurements, the comparison of information, and the description of the immediate natural environment: the school garden.

Through this research work and different activities appropriate for the student researchers, an attempt will be made to answer the research question, providing a detailed description of both the biological aspects of the butterflies and their environment, which includes the plants present in the school garden and the atmospheric conditions recorded during butterfly sightings.

The presence of butterflies in the immediate surroundings of the child researchers has motivated a great interest in the study of butterflies. They have become involved by observing, with a scientific perspective, the mentioned variables and have converted the school garden into a GLOBE study site, detailing the sightings, the plants present, and the atmospheric variables that have been mentioned.

Furthermore, by participating in the project, students develop a global vision that allows them to perceive a relationship between the presence of butterflies, the plants in the garden, and the recorded atmospheric variables.

The following objectives guide the research process:

General Objective:

To investigate the presence of butterflies in the school garden in relation to existing plants and atmospheric variables recorded at the study site during the 2025 school year, while also promoting the conservation of both the habitat and the sighted lepidopteran species.

Specific Objectives:

- ✓ Define the GLOBE study site in the school garden of School 1345 in Pujato where observations are carried out during the 2025 school year.
- ✓ Describe in detail the characteristics of the study site, mentioning the plants present in the school garden.
- ✓ Study the butterfly species of the region that can potentially be observed in the school garden.
- ✓ Apply the GLOBE Program Atmosphere protocols corresponding to air temperature, relative humidity, precipitation, wind speed and direction, and cloudiness, as well as the instruments used to measure them and the corresponding units.
- ✓ Observe and record the presence of butterflies at the study site during the 2025 school year, intensifying sightings during autumn and spring 2025.
- ✓ Relate the sightings to the plants present in the garden and the recorded atmospheric variables.
- ✓ Reflect on the importance of the presence of butterflies as an environmental bioindicator.

THEORETICAL FRAMEWORK

Butterflies belong to the order Lepidoptera, a word that means "scale wings." Butterfly metamorphosis is one of nature's most fascinating biological cycles. It is an example of complete metamorphosis, which means it goes through four distinct stages: egg, caterpillar or larva, pupa or chrysalis, and adult or imago. The complete cycle can last from a few weeks to a year, depending on the species and environmental conditions. They are bioindicator organisms: their presence can reflect the environmental health of an ecosystem.

Pujato is in the Pampas region of Argentina, where the climate is characterized as temperate Pampa: moderate temperatures, abundant humidity due to regular precipitation throughout the year, and clear seasonal differences. The climatic characteristics of each season impact the fauna and flora of the region, particularly the presence of butterflies.

Pujato, within the province of Santa Fe, is home to a great diversity of lepidopterans. Although the complete list is extensive, attention has been given to the butterfly species that students observed in different green spaces in the locality—squares, gardens, and natural areas. Some of the most common diurnal lepidopterans are mentioned in the following table.

Table 1: Some common butterflies in Pujato - Santa Fe

Common name	Genus	Species	General Characteristics	Image
South American Monarch (Monarca sudamericana)	*Danaus*	*erippus*	Bright orange butterfly with black veins and dark borders with white spots..	

Thoas Swallowtail (Limonero grande)	*Papilio (Ex Heraclides)*	*thoas*	It is one of the largest butterflies in the area. It is black with large yellow spots. Its caterpillar feeds on citrus plants (lemon, orange).	
Gulf Fritillary (Espejito)	*Dione (Ex Agraulis)*	*vanillae maculosa*	Orange with black lines. Easily identified by the silver sheen (like small mirrors) on the underside of its wings. Its caterpillars eat Mburucuyá o Passionflower ((*Passiflora caerulea*))	
Deva Yellow (Limoncito común)	*Eurema*	*deva deva*	Small, bright yellow with a black border. They often fly low and in a zigzag pattern.	
Ithra Crescent (Bataraza)	*Ortilia*	*ithra*	Fast-flying butterfly with dark brown color patterns and white spots.	
Grizzled Skipper (Ajedrezada menor)	*Pyrgus*	*orcynoides*	Small, with a pattern of checks or a "chessboard" in white and black/brown.	
Western Painted Lady (Dama manchada)	*Vanessa*	*carye*	Intense red-orange color, with black borders and several white spots. On the underside, it has circular spots that look like eyes.	
Painted Lady (Dama pintada)	*Vanessa*	*braziliensis*	Similar to the spotted lady but distinguished by its bright pink color. The wingtips are black with white spots, and there are two visible eyespots on the hindwings.	

Cloudless Sulphur (Amarilla o Azufrazada común)	*Phoebis*	*sennae*	It is a medium-sized butterfly, yellow on both sides with some black spots on the edge of the wings.	
Fiery Skipper (Saltarina amarilla)	*Hylephila*	*phyleus*	It is small, robust, and has a large head. It can fold its wings into a triangular shape, holding the forewings vertically while the hindwings remain horizontal.	

It is important to know where butterfly caterpillars eat and grow—these are the host plants—as well as where adult butterflies feed: nectar plants. For this reason, the butterflies mentioned in the previous table are directly associated with native plants that serve as food for their caterpillars and for the adult butterfly, such as *Mburucuyá* (*Passiflora caerulea*) or Milkweeds (*Asclepias*) or Spanish Flag (*Asclepias curassavica*), which is the host plant for the Monarch caterpillar.

Butterflies are bioindicator organisms; their presence can reflect the environmental health of an ecosystem. Habitats rich in butterflies, especially those with high species diversity, are also generally rich in other invertebrates and plants, making them a good proxy for assessing the general biodiversity of a location. If the butterfly population is thriving, the ecosystem is in good health.

Regarding atmospheric variables, the protocols corresponding to the Atmosphere area of the GLOBE Program are applied. It should be noted that School 1345 has participated in the GLOBE program since 2002 and has a defined atmosphere site, which is why some children have been using these atmosphere protocols for previous years. In the same way, these protocols are reviewed regarding the characteristics of the measuring instruments used and the procedures that must be carried out in the records of each of the intervening atmospheric variables.

RESEARCH METHODS

The research is carried out at the study site located in the garden "El Rabanito Escondido" (The Hidden Radish) at Private Primary School N°1345 "Nuestra Señora del Carmen" in Pujato, Argentina.

In the following Figure 1, the location of the school can be seen in its perspective within the town of Pujato, in the San Lorenzo Department, Santa Fe Province, Argentina, American Continent.

Figure 1: Location of the school/study area in Pujato in America

The research is exploratory because butterflies are observed and atmospheric variables are recorded at a site about which very little is known regarding this fact. It is also descriptive since it involves detailing and measuring the atmospheric variables to relate them and characterize the sightings.

In turn, the study has a mixed approach as it requires integrating both qualitative and quantitative methods to obtain a more complete description. The qualitative aspect is applied with the goal of exploring; for example, the type of butterfly, its image, and the actions it performs at the time of sighting. Meanwhile, it will also be quantitative since measurements are taken; for example, the number of specimens observed is counted, atmospheric variables are measured, among other records.

Observations are carried out from March to November 2025, allowing for the characterization of the study site, the presence of butterflies, and the atmospheric variables recorded, especially during autumn and spring.

For the observations, student teams are organized to carry out the sightings and corresponding measurements on the assigned days.

Before the field trip, a cell phone or camera is prepared for taking pictures. Measuring instruments are prepared for measuring atmospheric variables. Thus, they have: a digital thermometer to measure temperature using the Celsius unit (°C), and relative humidity expressed as a percentage (%); the applications Wind Compass (for temperature) and Hygro (for relative humidity) are also often used. Precipitation is measured with the rain gauge installed at the school, expressed in millimeters (mm). Wind direction is determined using the weathervane (installed at the school) or the Wind Compass application, which is also often used along with the manual anemometer for wind speed, which records the measurement in meters per second (m/s). For cloudiness, the percentage of coverage is observed.

For recording these variables, the table developed by the International Collaborative Butterfly Team is used, where the values obtained at the time of observation are completed.

Table 2: Data collection form

DATE	TIME	Nº. SPECIMENS OBSERVED	PHOTOGRAPH	COMMON NAME	GENUS	SPECIES	LOCATION OF OBSERVATION	BUTTERFLY ACTION	PLANT PHENOLOGY	PLANT NAME

TEMPERATURE (°C)	HUMIDITY (%)	PRECIPITATION (mm)	CLOUD COVER (%)	WIND DIRECTION	WIND SPEED (m/s)	OTHER ANIMALS (YES/NO)	COMMENTS

It is important to clarify that some of the columns in the table contain a drop-down list of options that facilitate data entry. These reference options are shown below:

Location
Building
Air
Asphalt
Cement
Flower
Fruit
Herb
Leaf
Leaf litter
Pot
Branch
Rocks
Bare soil
Stem
Trunk

Action
Feeding
Flying
Resting with open wings
Resting with folded wings
Resting with moving wings
Ovipositing
Copulating

Plant Phenology
Foliation (Leafing)
Fruiting
Flowering
Senescence
Fruit dispersion
Dead

Wind Direction
North
Northeast
East
Southeast
South
Southwest
West
Northwest

Regarding the butterflies' photographs, they are archived using a code also established by the International Collaborative Butterfly Team, which states that they should mention Country-Locality-Year-Month-Day.

For example: Arg-Pujato-2025-Nov-21 corresponds to a photo of a butterfly sighted flying near the Passionflower (*Passiflora caerulea*) at the site in Argentina, in Pujato, on November 21, 2025 (Figure 2).

If there are doubts regarding the common name of the observed butterfly, the corresponding species, and genus, after the observation and with the photograph (if it was possible to take one), school catalogs are consulted or a search is performed on the web.

The table is completed with all the recorded data, and the records are communicated via the web to a virtual table where all participants of the International Collaborative Butterfly Team share the observed values. Likewise, atmosphere data is reported on the GLOBE Program website. This activity is carried out periodically.

Arg-Pujato-2025-Nov-21

Figura 2

ACTIVITIES

Selection of the study site:

It is decided to make butterfly sightings in the school garden "El Rabanito Escondido" (The Hidden Radish) which is located within the grounds of School 1345, since a study site was defined in 2024 when the school joined the International Collaborative Project "Butterflies and Atmospheric Variables," and this site is reactivated in this project.
Its name is: BUTTERFLIES IN SIGHT (*MARIPOSAS A LA VISTA*).
The geographical location is Lat: 33°01'07.1"S Long: 61°02'34.8"W or (-33.018643, -61.043004).
The site elevation is 57.40 meters.
The land cover of the study site corresponds to the MUC code: 812-Cultivated land-Gardens or horticulture.

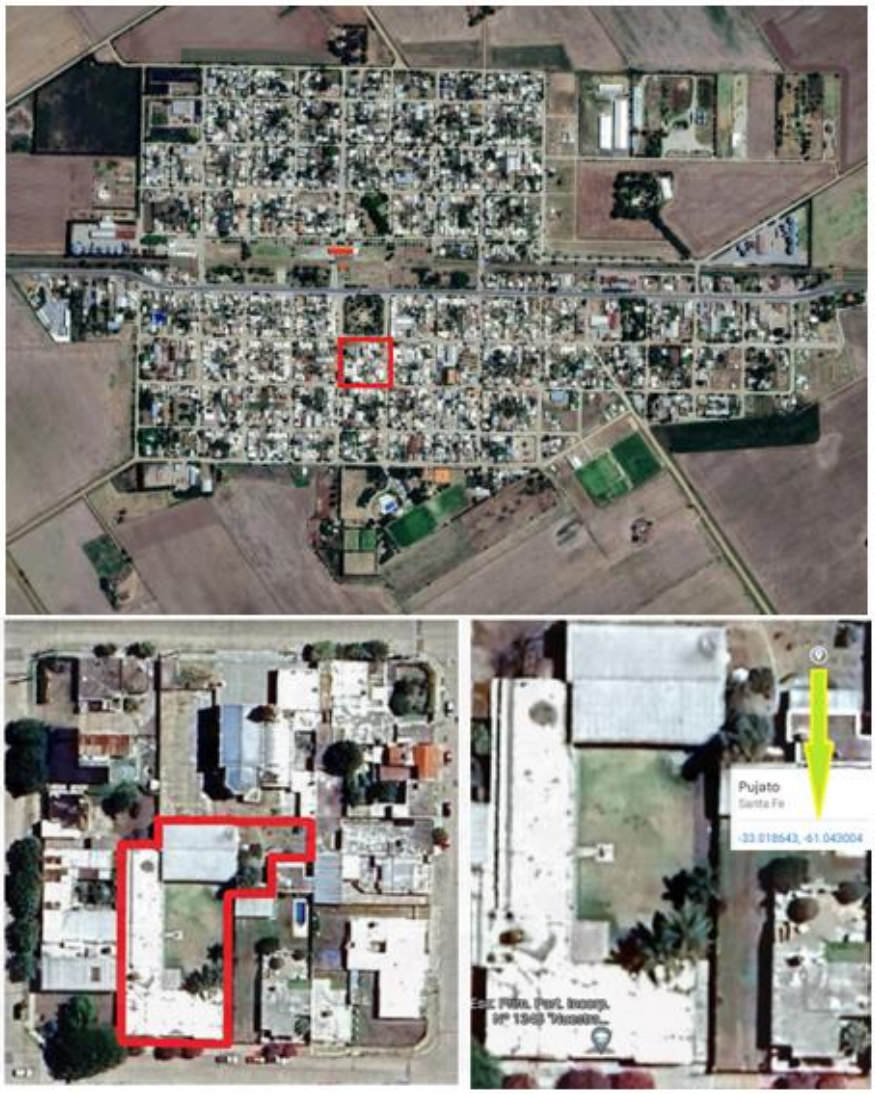

Figure 3: Location of the study site within the perspective of the Pujato map

Figure 3 consists of several images created with Google Earth (2022). At the top is an aerial view of Pujato with a red square signing the block where EPPI 1345 is located. Below, on the right, the perimeter occupied by the educational institution within the block is indicated, and on the left, the study site they called *Butterflies in Sight* is marked.

The photographs towards the four cardinal points (Figure 4) complete the description of the study site:

Figure 4: Photos of the *Butterflies in Sight* site towards the four cardinal points.

Within the institutional site of Private Primary School Nº1345 “Nuestra Señora del Carmen” on the GLOBE Program website, the study site called *Butterflies in Sight* is located, with the ID 360910. Figure 5 shows the site data.

Figure 5: Screenshot indicating the defined study site.

Figure 6 shows a screenshot of the GLOBE Program website, illustrating its general features..

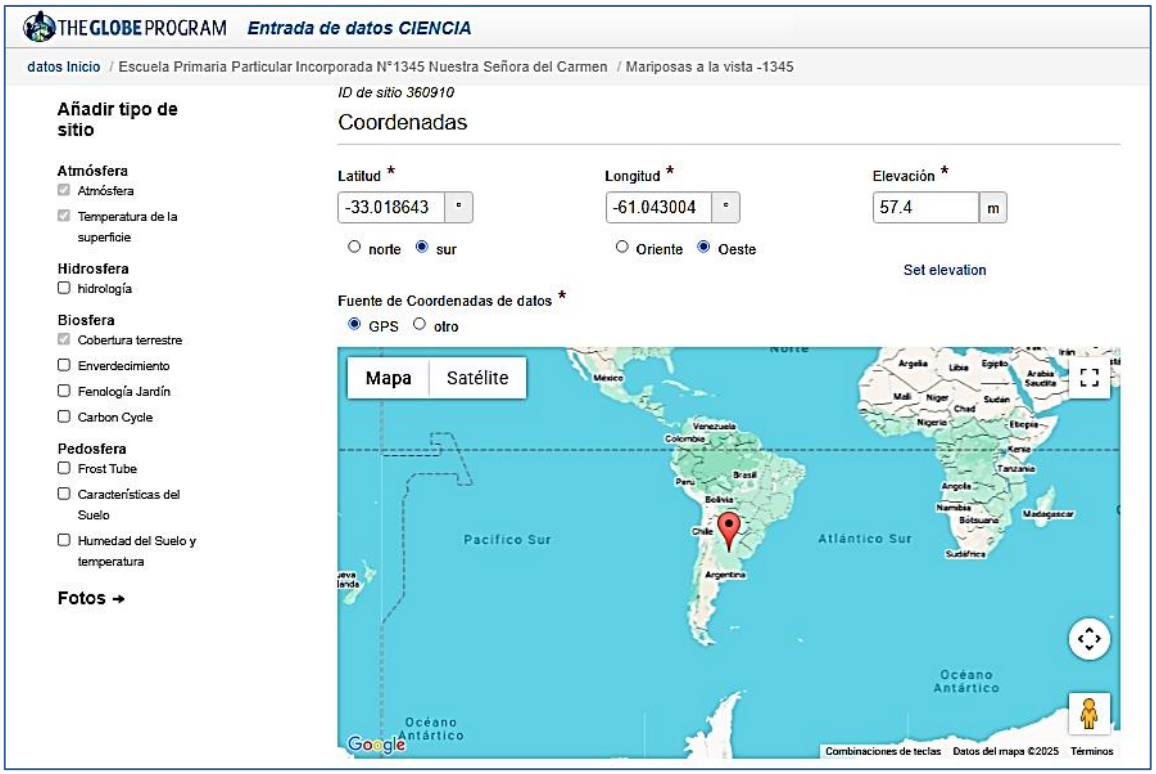

Figure 6: Screenshot showing the general characteristics of the study site.

The garden, transformed into the *Butterflies in Sight* site, occupies a small area (Figure 3) with a wide variety of plants. The species found there are listed below with their scientific and common names:

Citrus limon – Lemon tree
Olea europaea var. Europaea – Olive tree
Syagrus romanzoffiana – Pindo Palm
Viburnum tinus - Laurustine
Lavandula angustifolia - Lavender

Laurus nobilis - Bay Laurel
Thymus vulgaris - Thyme
Lantana cámara - Lantana
Asclepias curassavica - Butterfly grass
Annunziata Labarile - Lontananza
Mentha spicata - Ment
Origanum Vulgare - Oregano
Ligustrum - Privet
Ligustrum japonicum – Japonese privet
Brassica oleracea var. Capitata - Cabbage
Lactuca sativa - Lechuce
Raphanus sativus - Radishes
Eruca vesicaria ssp.sativa - Arugula
Beta vulgaris L. var. cicla L - Swiss chard
Rosmarinus officinalis o Salvia rosmarinus- Rosemary
Erythrina crista-galli - Cockspur Coral Tree
Citrus sinensis – Sweet Orange
Passiflora caerulea - Passionflower

Access to information

At the beginning of the 2025 cycle, the GLOBE teachers participating in the Butterfly study with the 6th and 7th-grade students of School 1345 updated their information about butterflies by accessing material developed by the International Collaborative Project through online videoconferences.
- *Learning to see: Butterflies and caterpillars of Uruguay* by Dr. Gabriela Bentancur-Viglione
- *How abiotic factors affect butterflies* by Entomologist Juan Farina
- *Butterflies and moths of the southeast Buenos Aires region* by Entomologist Juan Luis Farina
This information is shared with the students as they require it.

Information search and exchange

The students comment on the butterflies they observe in their gardens and the main square.
They search for information about the species they remember having observed.
They also gather information about the specimens that can be found in the geographical region where the school is located.
In turn, they express surprise because they do not observe many butterflies at school.
This is where the questions mentioned at the beginning are raised, and conjectures arise, mainly related to climatic factors.
In this first stage, the research question that guides this work is posed, whose objective is *to investigate the presence of butterflies in the school garden in relation to the existing plants and the atmospheric variables recorded at the study site during the 2025 school year, promoting in turn the conservation of both the habitat and the species of lepidoptera sighted.*

Pre-Field Trip Organization

To organize the field trips, the equipment and instruments used are prepared beforehand. These instruments adhere to atmospheric protocols for recording atmospheric variables, and participants become familiar with the data sheet where they will record information about the butterflies. During this stage, a "test" trip is conducted to familiarize themselves with the equipment and to later form observation teams and practice completing the data sheet.

Field Trip

After the teams were formed, they scheduled at least one field trip per week.
The trips began during March 2025.

The Metamorphosis

The study of butterfly metamorphosis is developed in detail.
Each of the stages of the butterfly's biological cycle is described.
Some previously obtained images are considered, such as a *Papilio thoas* butterfly (Limonero grande) laying an egg on a "lemon tree" leaf at the study site (April 15) and a caterpillar (May 21).
Figures 7 and 8: *Papilio thoas* Butterfly laying eggs on the leaves of the lemon tree.
Research has established that the *Papilio thoas* Butterfly lays its eggs singly, usually individually, not in clusters, and on the underside of young citrus leaves. This fact motivates a close observation of the lemon tree. The observation focuses on the branch shown in Figure 8, as it is lower and more easily accessible to the students.

Figure 7

Figure 8

Upon inspection of the leaf, the egg of the *Papilio thoas* Butterfly can be observed, and it is confirmed that it is a single egg laid on the underside of a new lemon tree leaf.
Figures 9 and 10: The egg is seen lay on the lemon tree leaf.

Figure 9

Figure10

Upon closer inspection of the egg on the leaf, a perforation in the leaf vein can be detected. This is noteworthy, prompting a search for information on how the caterpillars mark the leaves before laying their eggs. In the case of the adult *Papilio thoas* butterfly, it does not perforate the leaf before laying its egg. The confusion is generally due to the damage caused to the leaves by the caterpillars, which often leave holes or irregular edges.
A great surprise was the observation of the *Papilio thoas* caterpillar on the lemon tree leaf. Its size and appearance were striking, as seen in Figures 11 and 12. Even in the second image, the portion of the leaf eaten by the larva is visible. Interestingly, when first observed, it was mistaken for pigeon droppings, but upon closer inspection, it was revealed to be a caterpillar that had hatched from that small egg! Further research clarified the descriptions.

Figure 11

Figure 12

One aspect of the appearance of the *Papilio thoas* caterpillar is its camouflage function. It perfectly mimics bird droppings (guano) so that predators (such as birds) ignore it. Later, when

it is larger, its shape and coloration, especially when at rest with its head retracted, gives it the appearance of a snake's head or a fragment of bark or a dry branch.
The pupa was later observed on the lemon tree, but no photographs were obtained, and the emergence of the butterfly was not observed. Weather conditions, wind and rain, prevented it.
This practical example of metamorphosis was extremely important as an application of the concepts of metamorphosis.
It is important to clarify that these observations also motivated the students to search for caterpillars, and some were seen in the garden.
For example, on May 21, five *Danaus erippus* (Monarcas) caterpillars were sighted at the study site, as shown in Figures 13, 14, and 15.


Figure 13


Figure 14


Figure 15

Species of butterflies in the region

To learn about the different species, the students access, in addition to bibliographic material, several educational games.
One card game, with cards that include images of butterflies and their names -Panambí-.
Others with memory game cards -Mariposas test-, in this way they begin to identify the different lepidopterans they observe in the surroundings and to know the host plants corresponding to each of them.

New information: Host and nectar plants

The absence of butterflies led the students to search for more information associated with the presence/absence of butterflies. That is where the importance of host and nectar plants arose.

This led to the addition of new species in the school garden with the hope of enriching the site with butterflies
During the Autumn, as the weather wasn't too cold, a passionflower (*Passiflora caerulea*) was planted, which is a host and nectar source for the *Dione vanilae maculosa* butterfly. (Espejito)
In the spring, the following were added to the garden: red canary (*Dicliptera squarrosa*), a host for the *Ortilia ithra* butterfly (Bataraza), and lantana (*Lantana camara*), which is a nectar source for the *Vanessa braziliensis* (Dama Pintada) and *Danaus erippus* (Monarca) butterflies.
Figures 16 and 17 show the students carrying out the spring planting at the study site.

Figure 16

Figure 17

Butterfly "ARGENTINE FLAG"
Complementary activity: July 9 - Argentine Independence Day –

Prior to this date, the students and teachers involved in the project are conducting a study related to the Argentine Flag butterfly.
They gather information about this species and delve deeper into it through a connection with journalist Florencia Coelho, who provides the students with a wealth of material.

The following is an excerpt from the article "Argentine Flag: The National Butterfly?" from La Nación, which describes this species of butterfly:

> Beautiful and elegant, the **Argentine Flag butterfly** (*Morpho epistrophus argentinus*) is both charismatic and vulnerable. This species' distribution covers much of northeastern Argentina, reaching its southernmost point in General Madariaga, Buenos Aires Province.
>
> It is a **large** butterfly whose wingspan reaches between 70 and 105 mm when its wings are open, and **its presence is striking** whenever it can be observed in groups in flight, chasing each other with an erratic and curious trajectory. (Florencia Coelho, June 19, 2022).

Inspired by the Argentine Flag Butterfly and considering the initiative to declare it a national symbol or national butterfly of Argentina, primarily by naturalist, conservationist, and environmental education movements, this project reflects on the butterfly's life cycle and relates it to the national holiday commemorating Argentina's independence.
From this reflection, creative activities emerge artistic and written productions, associating the Argentine Flag Butterfly with the Declaration of Independence. All this production is linked to the commemorative event for Independence Day, which revolves around butterflies, with the motto "*History gave us wings, and we chose to fly*!"
Among the activities, the auditorium is decorated with butterflies in the national colors, as shown in the collage in Figure 18.

Figure 18: Collage with images of the decoration alluding to the Butterfly “Argentine Flag” at the July 9th event

In turn, allusive words related to the butterfly's life cycle are created. The following are the allusive words used in the July 9th event:

> *There are moments in life when everything seems to stop. As if we were on pause, enveloped in doubts, wounds, or routines that no longer make sense. But right there, where there seems to be no way out, transformation begins.*
> *And just as the butterfly needs its time in the cocoon, on July 9, 1816, the day the Independence of the United Provinces of the Río de la Plata was declared, those men and women who dreamed of a free country gathered in Tucumán to make a courageous decision: to break the ties that bound them to the Spanish crown and begin to build their own nation. It wasn't easy. There was uncertainty, differences, fears… but there was something stronger than all of that: the conviction of being free.*
> *Being independent wasn't just about ceasing to depend on another country. It was about starting to decide for us, to seek our identity, to think about how we wanted to live together. That spirit of struggle, commitment, and unity inspires us to this day.*
> *The butterfly represents that struggle, that battle…that passage from the hidden to the visible, from fragility to flight, from silence to freedom.*
> *It is a symbol that something new is born when we are able to stop, look inward, and allow ourselves to be touched by the love that restores.*
> *If you see a butterfly, remember: It is not just beauty. It is courage, it is process, it is grace in motion. And yes, we too can fly and shout, "WE ARE FREE!" like that cry of 1816.*

Creating a Logo to Represent the Project

The students designed a light blue circular logo with a white circular center where they placed the project name and a butterfly. The wreath includes flowers, branches, and butterflies. At the base, they placed the school's name and location. The original design is shown in Figure 19. Then, using digital tools, they transformed the logo into the one shown in Figure 20.

Figure 19

Figure 20

Reflections on values inspired by the butterfly's transformation

During the last parents' meeting of the 2025 school year, the school research project carried out by the students in relation to the presence of butterflies and atmospheric variables throughout the year, and the findings obtained are discussed.
An activity called "Butterfly Dynamic" is carried out.
During the activity, an allusive text by Luis Fernando Nolasco Villatoro (2017), shown in Figure 21, is read, and its content is reflected upon.

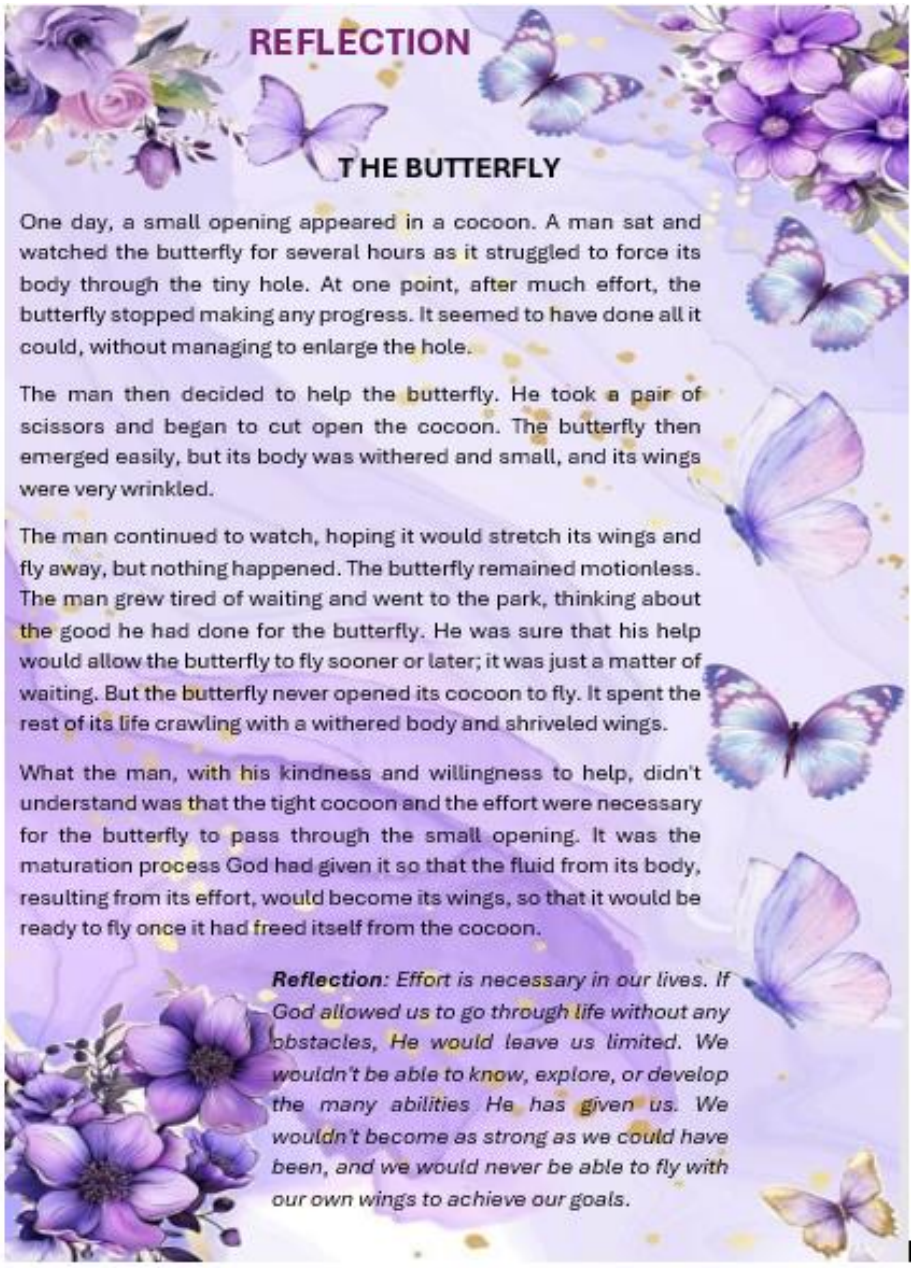

Figure 21

Through dialogue, ideas and considerations are exchanged about the importance of effort in overcoming obstacles and achieving goals, using analogies with the butterfly life cycle.

As a closing activity, a souvenir is given with a message alluding to the reflections made: *"Each butterfly is a reminder of God's power to transform the small into something beautiful*." Figure 22 shows the original card in Spanish.

Figure 22

RESULTS

The Appendix (pages 25 to 27) contains a data collection form with records from March 19 to November 21, 2025. Sightings occurred during the following periods:

- ✓ *March 19 to May 02*
- ✓ *September 04 to November 21*

The first period is considered AUTUMN 2025, even though it officially begins on March 21 and the first sighting took place on the 19th of that month. Similarly, the second period is categorized as SPRING 2025, although the first observation occurred on September 4.

No butterfly sightings were recorded during the winter. Based on existing information, the low temperatures and characteristic winter winds are factors that result in the absence of butterflies.

An analysis of the data for each observation period reveals the following: During the AUTUMN 2025, eighteen specimens of three species were observed: *Papilio thoas* (Limonera grande), *Dione vanilae maculosa* (Espejitos), and *Phoebis sennae* (Amarilla).

Figure 23 shows the distribution of the sighted species.

Atmospheric conditions during the Autumn 2025 observations were characterized by ambient temperatures between 21°C and 30°C. Relative humidity during this period showed a wide range of variation, from 33% to 82%. Winds were from the southwest, south, and northwest, with speeds between 2.5 and 7.8 m/s.

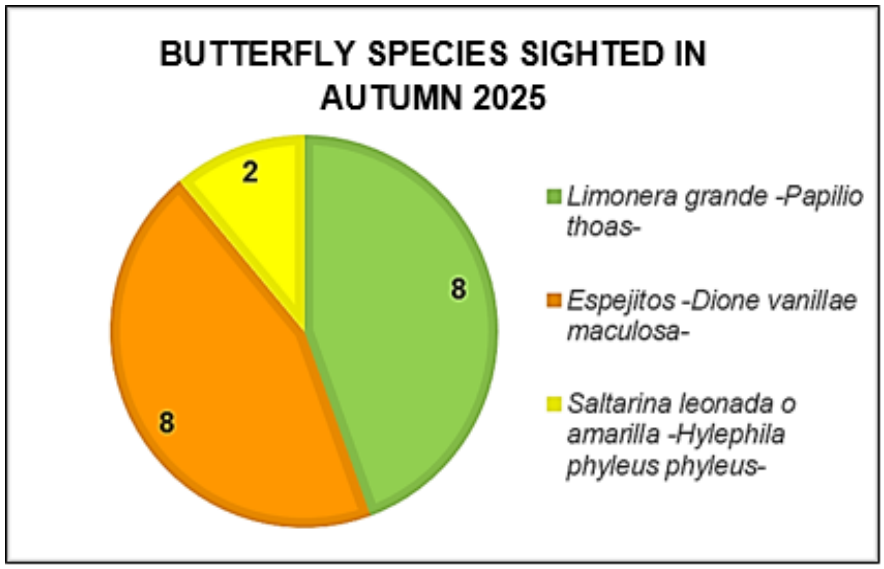

Figure 23

The second observation period began on September 4th, and although spring has not yet officially started, this second stage is considered as such.
The weather has been very windy with significant temperature fluctuations, suggesting that these factors contributed to the low number of butterflies observed at the beginning of this period. Furthermore, various activities and holidays prevented students from going on field trips.
Regarding species, only four butterfly species were observed: *Vanessa braziliensis* (Dama pintada), *Vanessa carye* (Dama manchada), *Dione vanilae maculosa* (Espejitos) and Ortilia ithra (Bataraza).
It should be noted that as the students acquired their observation skills and learned that the passionflower (*Passiflora caerulea*) is a host and nectar source for *Dione vanilae maculosa* (Espejitos), and that these butterflies are more frequently seen at midday, they have been able to observe a large number of *Dione vanilae maculosa* (Espejitos) in the vicinity of this native plant during the final days of this project. Figure 24 shows their distribution.

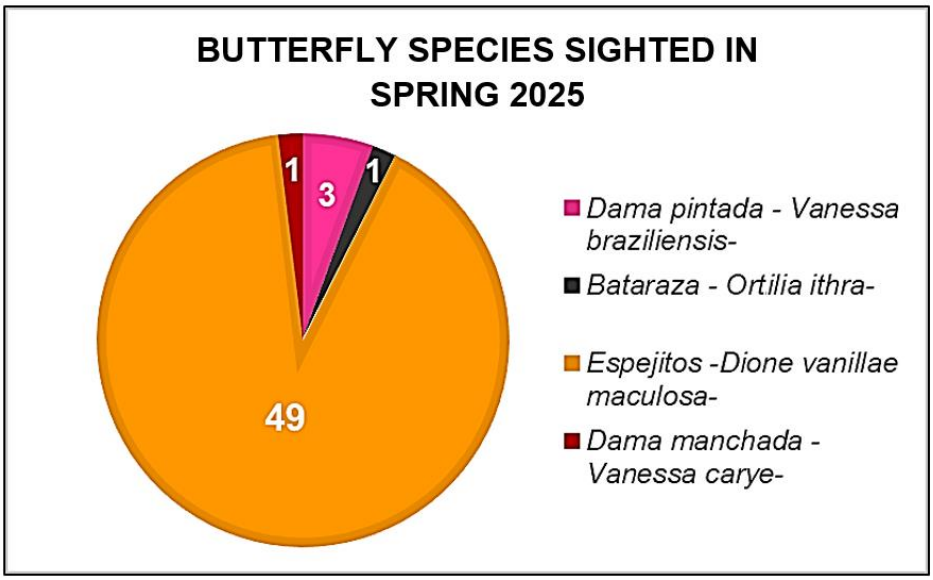

Figure 24

Regarding the atmospheric variables during the SPRING 2025 sightings: temperatures fluctuated between 19°C and 31°C; relative humidity covered a range from 30% to 63%, which is lower than in the first period. Most observation days were recorded as cloudless. As for wind speed, it was recorded between 2.7 m/s and 6.8 m/s, with directions varying according to general weather conditions.
In relation to the species sighted throughout the entire 2025 cycle from March to November, the species observed were:
:

- ✓ *Dione vanilae maculosa* - Espejito,
- ✓ *Papilio thoas* - Limonera grande,
- ✓ *Vanessa braziliensis* - Dama pintada,
- ✓ *Hylephila phyleus* -Saltarina amarilla,

- ✓ *Ortilia ithra* - Bataraza y
- ✓ *Vanessa carye* - Dama manchada.

Figure 25 shows 25 photographs of each species as examples of these sightings, indicating the corresponding code where the date of observation can be verified. Furthermore, their placement in the figure follows the same order as they appear in the list

Figure 25

The names of the species are shown below with their corresponding frequency in Figure 26:

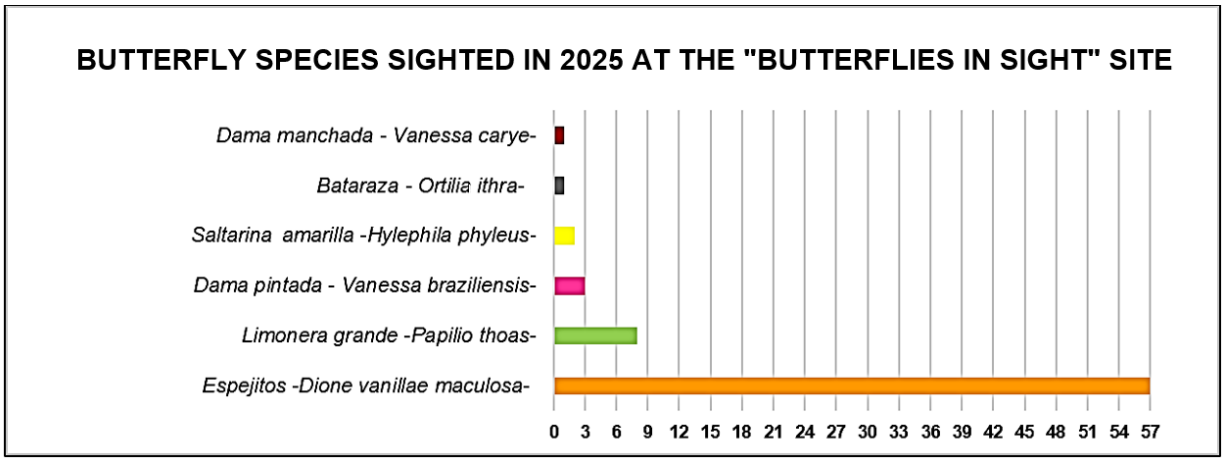

Figure 26

It can be stated that the most prevalent species was the *Dione vanilae maculosa* Butterfly (Espejitos), representing 79% of the specimens sighted. This is likely due to the presence of the native Passionflower (*Passiflora caerulea*) in and around the study site. This plant plays a dual role for this species, serving as a host for its caterpillar and a nectar source for the adult butterfly. Similarly, the presence of citrus trees, such as the Lemon tree (*Citrus limon*), in and around the study site facilitates the presence of the *Papilio thoas* (Limonera grande) Butterfly, which lays its eggs on this tree, as occurred during the Autumn.
Regarding atmospheric variables, it can be observed that ambient temperature variations are similar in both the Autumn and Spring periods, as is wind speed. Relative humidity shows wide variations, as mentioned, with greater variations during the Autumn of 2025.

CONCLUSIONS

At the beginning of this research, the research question was posed: *How is the sighting of butterflies in the school garden of School 1345 in Pujato (Argentina) related to the plants present at the site and the atmospheric variables recorded in the area during the 2025 school year?*
This implied carrying out observations and recordings throughout the 2025 school year, from March to November.
Throughout all the activities carried out, an attempt was made to answer the problem posed. Given the age of the students and the location of the study site outside the classroom, working conditions were established coordinated with the rest of the school activities, since the advising teacher had to accompany the researchers for the field trips.
With these exploratory tasks, answers to the research question were collaboratively developed. Regarding the plants present at the study site, the Passionflower (*Passiflora caerulea*), the Lemon Tree (*Citrus limon)*, and the Butterfly Grass (*Asclepias curassavica)* were the plants where most butterflies were observed, although the number of sightings in general was low. There is a scarcity of butterflies at the *Butterflies in sight* site, except for the last days of observations near the Passionflower (*Passiflora caerulea* where many Zebra *Dione vanilae maculosa* butterflies (Espejitos) could be observed. However, in addition to linking the presence of diurnal lepidopterans with the plants, the cause is also due to atmospheric variables, mainly

temperature: it was observed that with low temperatures, butterflies are no longer seen, and similarly with the presence of wind; this was evident during the winter. Conversely, the presence of butterflies was greater with higher temperatures, such as those occurring around midday.

The work motivated the students to search for new host and nectar-producing plants to transform the *Butterflies in Sight* site into a butterfly garden, and although they have already planted several, they have not yet been able to observe changes, because these require time.

This work has successfully developed a research methodology that has enabled elementary school students to characterize several species of adult butterflies and caterpillars. They have also been able to relate these species to their host and nectar-producing plants native to the region where Pujato is located.

Furthermore, the study has not only described the butterfly study site and its relationship to atmospheric variables but has also enriched the students' understanding by highlighting the importance of these insects in relation to environmental health.

Protecting butterflies, beyond their beauty, is a way to ensure the functionality of ecosystems. Because these insects are extremely sensitive to environmental changes, they become biological indicators of habitat health, hence the ecological necessity and ethical and social obligation to protect them and conserve these ecosystems.

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APPENDIX: Data registration form from March 19 to November 21, 2025 - in Spanish-

HOJA DE REGISTRO DE DATOS DE OBSERVACIÓN DE MARIPOSAS Y VARIABLES AMBIENTALES

Fecha	Hora	Nº Ejemplares	Fotografía	Nombre común	Género	Especie	Lugar donde se observa la mariposa	Acción de la mariposa	Renología de la planta	Nombre de la planta	Temperatura (°c)	Humedad relativa (%)	Precipitaciones (mm)	Cobertura de nubes (%)	Dirección del viento	Velocidad del viento (m/s)	Otros animales presentes (SI/NO)	Comentarios
19/03/2025	12:48	1	Arg-Pujato-2025-Mar-19 - 1 y 2	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Flor	En reposo con alas en movimiento	Floración	Trachelospermum asiaticum - Jazmín asiático	28	38	0	15%	Sur	4,7	NO	
19/03/2025	13:36	1	Arg-Pujato-2025-Mar-19- 3	Saltarina leonada o amarilla	*Hylephila*	*phyleus phyleus*	Cemento	En reposo con alas abiertas			28	34	0	15%	Sur	4,4	NO	
10/04/2025	12:38	2	Arg-Pujato-2025-Abr-10- 1 y 2	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Rocas	En reposo con alas abiertas	Foliación	Passiflora caerulea - Mburucuyá	21	82	0	70%	Suroeste	7,8	NO	
11/04/2025	15:30	1	Arg-Pujato -2025-Abr-11-1	Limonera grande	*Papilio (Ex Heraclides)*	*thoas*	Aire	Volando			23	82	0	50%	Suroeste	6,6	NO	
11/04/2025	15:30	1	Arg-Pujato -2025-Abr-11-2	Limonera grande	*Papilio (Ex Heraclides)*	*thoas*	Hoja	En reposo con alas en movimiento	Foliación	Citrus x limon - Limonero	23	82	0	50%	Suroeste	6,6	NO	
11/04/2025	15:30	1	Arg-Pujato -2025-Abr-11-3	Limonera grande	*Papilio (Ex Heraclides)*	*thoas*	Hoja	En reposo con alas en movimiento	Foliación	Citrus x limon - Limonero	23	82	0	50%	Suroeste	6,6	NO	
11/04/2025	15:30	1	Arg-Pujato -2025-Abr-11-4	Limonera grande	*Papilio (Ex Heraclides)*	*thoas*	Hoja	Ovipositando	Foliación	Citrus x limon - Limonero	23	82	0	50%	Suroeste	6,6	NO	
11/04/2025	15:30	1	Arg-Pujato -2025-Abr-11-5	Limonera grande	*Papilio (Ex Heraclides)*	*thoas*	Hoja	Ovipositando	Foliación	Citrus x limon - Limonero	23	82	0	50%	Suroeste	6,6	NO	
11/04/2025	15:30	1	Arg-Pujato -2025-Abr-11-6	Limonera grande	*Papilio (Ex Heraclides)*	*thoas*	Hoja	Ovipositando	Foliación	Citrus x limon - Limonero	23	82	0	50%	Suroeste	6,6	NO	
11/04/2025	15:30	2	Arg-Pujato -2025-Abr-11-7	Limonera grande	*Papilio (Ex Heraclides)*	*thoas*	Aire	Volando			23	82	0	50%	Suroeste	6,6	NO	Otras dos limoneras grandes cercanas al limonero
02/05/2025	12:50	1	Arg-Pujato -2025-May2-1	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hoja	En reposo con alas cerradas	Foliación	Passiflora caerulea - Mburucuyá	23	46	0	sin nubes	Noroeste	2,5	NO	
02/05/2025	12:50	1	Arg-Pujato -2025-May2-2	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hoja	En reposo con alas cerradas	Foliación	Passiflora caerulea - Mburucuyá	23	46	0	sin nubes	Noroeste	3,5	NO	
02/05/2025	12:50	2	Arg-Pujato -2025-May2-3	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas en movimiento	Foliación	Panicum repens - Hierba torpedo o bala	23	46	0	sin nubes	Noroeste	4,5	NO	
04/09/2025	14:12	1	Arg-Pujato-2025-Sept-04- 1y2	Dama pintada o Vanesa	*Vanessa*	*braziliensis*	Flor	En reposo con alas abiertas	Floración	Taraxacum officinale - Diente de león	19	40	0	sin nubes	Sur	5,1	NO	
19/10/2025	11:11	1	Arg-Pujato-2025-Oct-19-1	Batarazza o Mbatará	*Orthilia*	*ithra*	Construcción	En reposo con alas abiertas			22	63	0	sin nubes	Sureste	6,6	NO	
23/10/2025	10:10	1	Arg-Pujato-2025-Oct-23-1	Dama pintada o Vanesa	*Vanessa*	*braziliensis*	Aire	Volando			25	56	0	25%	Noreste	6,5	NO	
23/10/2025	10:10	1	Arg-Pujato-2025-Oct-23-2	Dama pintada o Vanesa	*Vanessa*	*braziliensis*	Cemento	En reposo con alas en movimiento			25	56	0	25%	Noreste	6,5	NO	

13/11/2025	15:35	1	Sin fotografía	Dama manchada o dama de dos ojos	*Vanessa*	*carye*	*Aire*	*Volando*			28	30	0	sin nubes	Noreste	2,7	NO			
13/11/2025	15:35	1	Sin fotografía	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			28	30	0	sin nubes	Noreste	2,7	NO			
20/11/2025	12:06	1	Arg-Pujato-2025-Nov-20-1	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas cerradas		Panicum repens - Hierba torpedo o bala	31	42	0	70%	Norte	6.3	SI		Insectos y pájaros	
20/11/2025	12:06	2	Sin fotografía	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			31	42	0	70%	Norte	6.3	SI		Varias espejitos. Dos volando. Presencia de Insectos y pájaros	
20/11/2025	12:06	1	Arg-Pujato-2025-Nov-20-2	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas cerradas		Panicum repens - Hierba torpedo o bala	31	42	0	70%	Norte	6.3	SI		Insectos y pájaros	
20/11/2025	12:06	1	Arg-Pujato-2025-Nov-20-3	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	31	42	0	70%	Norte	6.3	SI		Insectos y pájaros	
20/11/2025	12:06	1	Arg-Pujato-2025-Nov-20-4	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas cerradas		Panicum repens - Hierba torpedo o bala	31	42	0	70%	Norte	6.3	SI		Insectos y pájaros	
20/11/2025	13:40	1	Arg-Pujato-2025-Nov-20-5	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	29	31	0	90%	Norte	5,9	SI		Insectos y pájaros. Tormentoso	
20/11/2025	13:40	1	Sin fotografía	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			29	31	0	90%	Norte	5,9	SI		Insectos y pájaros. Tormentoso	
21/11/2025	12:20	1	Arg-Pujato-2025-Nov-21-1	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	22	59	0	75%	Sur	6,8	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	12:20	1	Arg-Pujato-2025-Nov-21-2	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	22	59	0	75%	Sur	6,8	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	12:20	1	Arg-Pujato-2025-Nov-21-3	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	22	59	0	75%	Sur	6,8	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	12:20	2	Arg-Pujato-2025-Nov-21-4	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			22	59	0	75%	Sur	6,8	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	12:20	2	Arg-Pujato-2025-Nov-21-5	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			22	59	0	75%	Sur	6,8	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	12:20	1	Arg-Pujato-2025-Nov-21-6	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	22	59	0	75%	Sur	6,8	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	13:44	1	Arg-Pujato-2025-Nov-21-7	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			23	49	0	75%	Sur	6,5	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	13:44	1	Arg-Pujato-2025-Nov-21-8	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			23	49	0	75%	Sur	6,5	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	13:44	1	Arg-Pujato-2025-Nov-21-9	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			23	49	0	75%	Sur	6,5	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	13:54	2	Sin fotografía	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	*Aire*	Volando			23	49	0	75%	Sur	6,5	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	
21/11/2025	13:54	1	Arg-Pujato-2025-Nov-21-10	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Rama	En reposo con alas abiertas		Parthenium hysterophorus - Escoba amarga	23	49	0	75%	Sur	6,5	SI		Muchas mariposas espejito en la Pasionaria junto a otros insectos y pájaros	

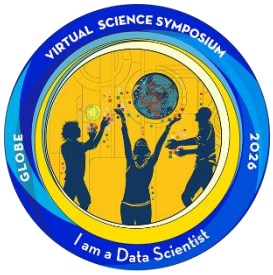
21/11/2025	13:54	1	Arg-Pujato-2025-Nov-21-11	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Aire	Volando		Parthenium hysterophorus - Escoba amarga	23	49	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:07	2	Arg-Pujato-2025-Nov-21-12	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Rama	En reposo con alas abiertas	Floración		23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:07	2	Arg-Pujato-2025-Nov-21-13	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Aire	Volando			23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:08	1	Arg-Pujato-2025-Nov-21-14	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:08	1	Arg-Pujato-2025-Nov-21-15	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Rama	En reposo con alas en movimiento		Parthenium hysterophorus - Escoba amarga	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-16	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Rama	En reposo con alas cerradas		Parthenium hysterophorus - Escoba amarga	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-17	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Aire	Volando			23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-18	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Flor	En reposo con alas en movimiento	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-19	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Flor	En reposo con alas abiertas	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-20	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Flor	En reposo con alas abiertas	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-21	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Flor	En reposo con alas en movimiento	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-22	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-23	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Aire	Volando			23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-24	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	2	Arg-Pujato-2025-Nov-21-25	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hierba	En reposo con alas abiertas		Panicum repens - Hierba torpedo o bala	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	2	Arg-Pujato-2025-Nov-21-26	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Aire	Volando			23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-27	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Rama	En reposo con alas cerradas	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-28	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hojas	En reposo con alas cerradas	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-29	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Rama	En reposo con alas cerradas	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-30	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Flor	En reposo con alas en movimiento	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros
21/11/2025	14:10	1	Arg-Pujato-2025-Nov-21-31	Espejitos	*Dione (Ex Agraulis)*	*vanillae maculosa*	Hojas	En reposo con alas abiertas	Floración	Passiflora caerulea - Mburucuyá	23	53	0	75%	Sur	6,5	SI	Muchas mariposas espejito en la Pasionaria junto a otros insectos ypájaros

DESCRIPTIONS/JUSTIFICATIONS OF BADGES

I AM COLLABORATOR

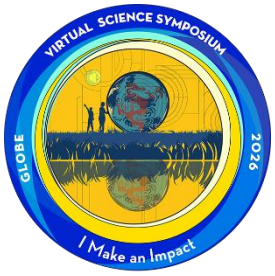
This work is being carried out within the framework of a collaborative project between GLOBE teams from several countries: Argentina, Uruguay, and Peru.
The student researchers have worked collaboratively, with clearly defined roles throughout the research.
The principal of School 1345 and the project's teacher advisors have collaborated to organize field trips to collect data at the study site.
Likewise, the GLOBE coordinator for the province of Santa Fe, who is also a Mentor Trainer for the Program, has collaborated on the application of protocols and the selection of research methodology.
These collaborations provided an opportunity to enhance scientific skills and apply them to the research project.

I AM A DATA SCIENTIST



These elementary school students made observations and recorded a series of GLOBE sightings and atmospheric variable data. They analyzed this data using age-appropriate tools, discussed it, and drew conclusions. Thus, with this data, they were able to answer the research question that initiated this study, enabling each student to become a data scientist.

I MAKE AN IMPACT



The report clearly describes how a regional problem led to the research question and establishes connections between the impacts of local atmospheric variables on the presence of butterflies at the study site, the EPPI 1345 orchard.
During this research project, the students have appreciated the importance of butterflies as bioindicators of the environment and recommended the protection of these ecosystems.