

# The Guadalhorce Delta



## Student's workbook



# The Guadalhorce Delta



## 1. INITIAL CONTACT

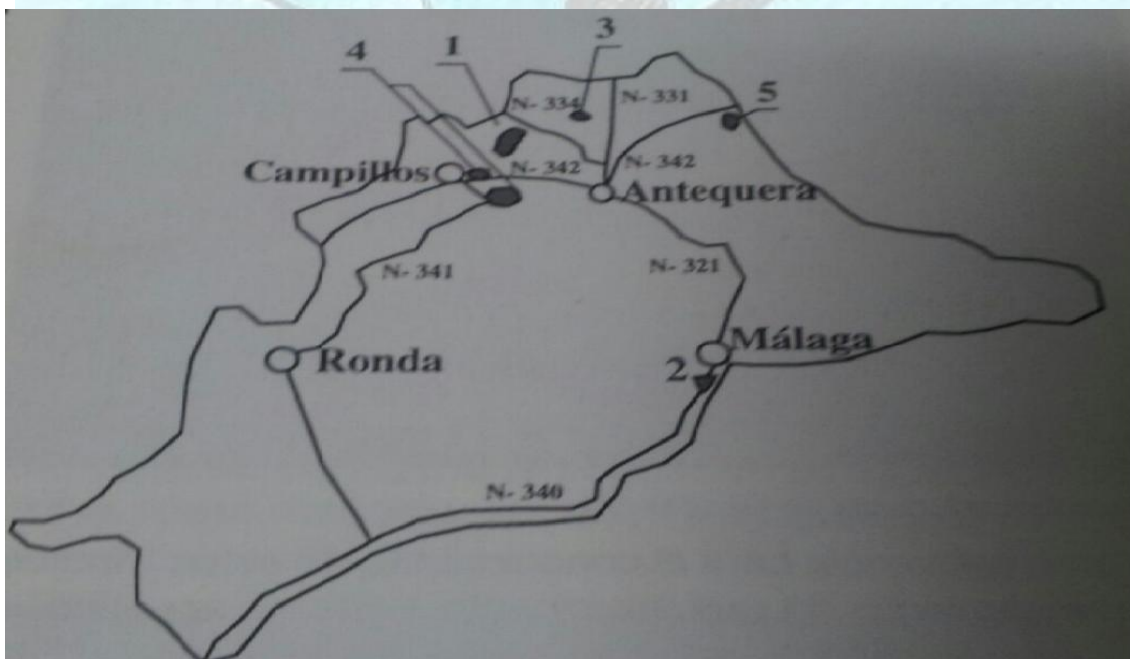
Wetlands are areas where water is the protagonist. They are ecology laboratories. The Guadalhorce Delta is a wetland which is especially interesting because of its proximity to the capital city and its confluence of diverse ecosystems:

- Lagoons (of anthropic origin).
- Alluvial delta.
- Beach.
- Wastelands, meadows and crops.
- Swamped areas

1.1 - In Malaga province there are other important wetlands located in the map. Which are they?

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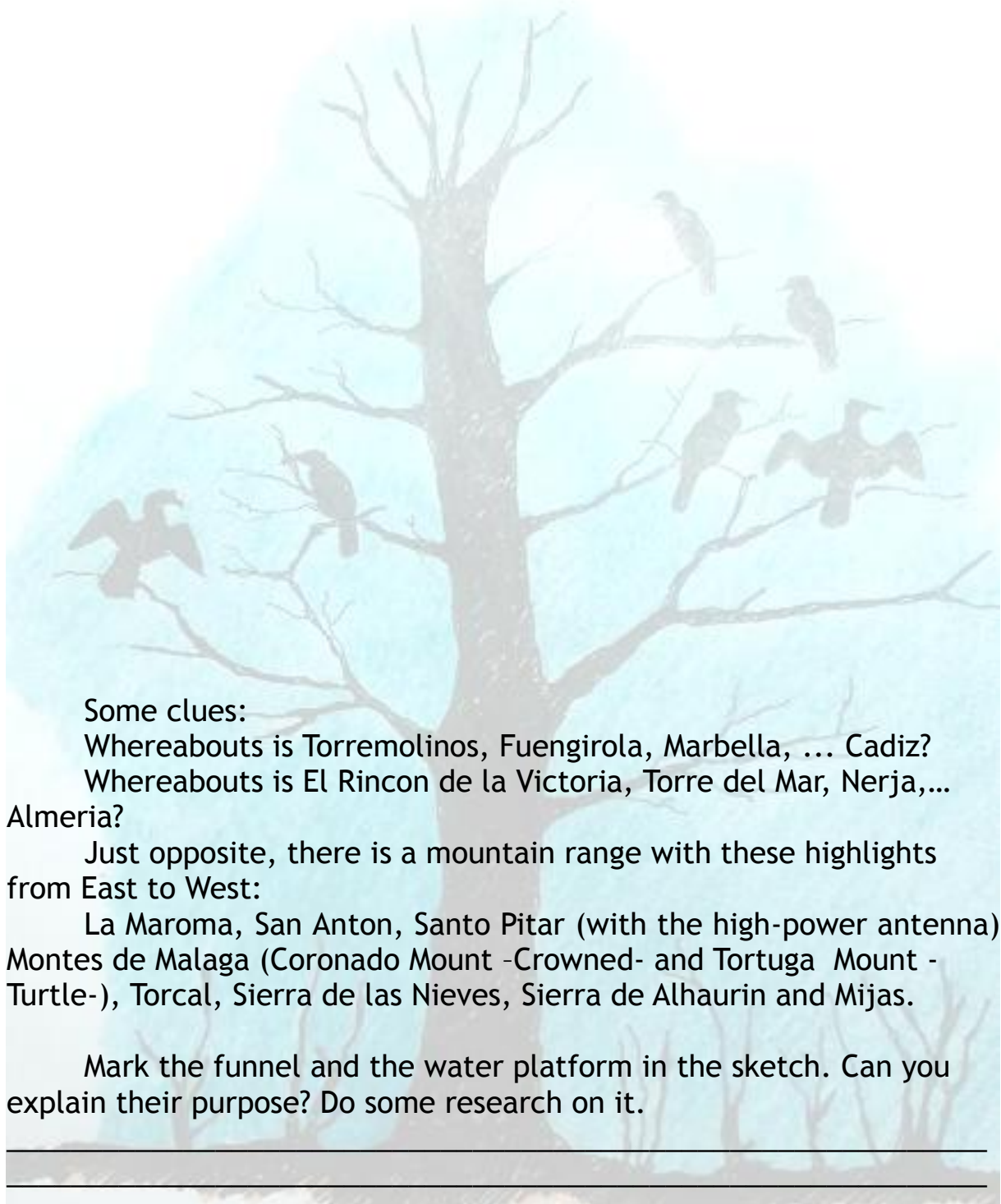


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## 2-WHERE ARE WE?

Find the cardinal points and draw a sketch.



Some clues:

Whereabouts is Torremolinos, Fuengirola, Marbella, ... Cadiz?

Whereabouts is El Rincon de la Victoria, Torre del Mar, Nerja, ... Almeria?

Just opposite, there is a mountain range with these highlights from East to West:

La Maroma, San Anton, Santo Pitar (with the high-power antenna), Montes de Malaga (Coronado Mount -Crowned- and Tortuga Mount -Turtle-), Torcal, Sierra de las Nieves, Sierra de Alhaurin and Mijas.

Mark the funnel and the water platform in the sketch. Can you explain their purpose? Do some research on it.

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## 3. -HISTORY NOTES

In the 8<sup>th</sup> century BC this place was part of an islet situated in the middle of a huge delta. In this islet of about 10 Hm2 the Phoenicians set up a flourishing/thriving city, from where they departed to do business with the indigenous inhabitants of the upper river basin.

600 years BC the Phoenicians were forced to leave the islet due to floods and settled up by the Eastern riverbank, in Malaka (origin of Malaga). Later, in the Middle Ages they built up a watchtower on this Eastern bank/edge, The River Tower, which nowadays gives name to a street of the area.

In autumn 1905 there was a high rise of the river due to torrential rains, dividing the river into two arms and leaving a triangular islet in the middle.

In 1977 the so-called “La Isla”, ‘The Island,’ became a private property and a special permit to extract sand and gravel for the construction business was granted. As a consequence, artificial lagoons were formed by infiltration.

In 1979 certain parts of the lagoon pans were filled in with debris for the construction of a thermal power plant and a gas bottling plant.

The change of the habitat was detected and reported by some ecologist groups, which resulted in the declaration of the site as a Natural Protected Area in 1989. It is now our turn to take over and join forces together in order to prevent this fragile and threatened world of “The Island” from disappearing.

3.1.- What factors do you think were decisive for the Phoenicians to settle up here?

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## 4.-SHALL WE START?

### MATERIAL:

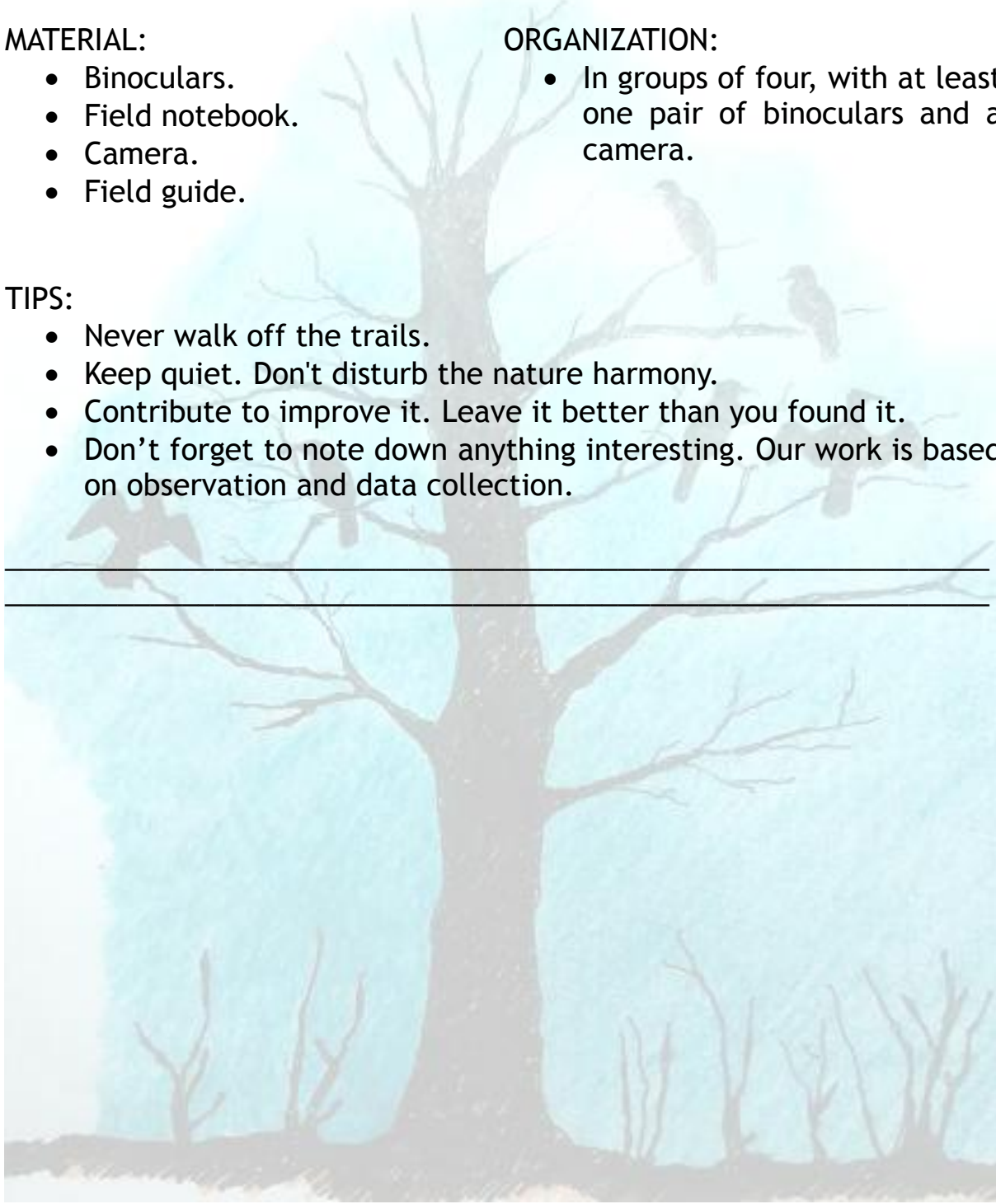
- Binoculars.
- Field notebook.
- Camera.
- Field guide.

### ORGANIZATION:

- In groups of four, with at least one pair of binoculars and a camera.

### TIPS:

- Never walk off the trails.
- Keep quiet. Don't disturb the nature harmony.
- Contribute to improve it. Leave it better than you found it.
- Don't forget to note down anything interesting. Our work is based on observation and data collection.



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## LEGEND:

- Blue itinerary.
- Red itinerary, alternative in case the river enables passing by the beach.

## THE MOST INTERESTING AREAS FOR OBSERVATION:

1. Breakwater of the western arm (or of Guadalmar).
2. Escondida Lagoon -Hidden-.
3. La Casilla Lagoon -The Little House- and Torrecilla Lagoon.
4. Upper area of the Rio Viejo -Old River-.
5. Lower area of the Rio Viejo.
6. Breakwater of the eastern arms.
7. Grande Lagoon -Big -.

## 5. MAIN ARM OF THE RIVER GUADALHORCE

1.- Identify some of the trees you will find on the riverbanks.

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2.- What is the name of this group of plants?

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3- What is their role?

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4.- Do they benefit or damage birds? How?

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5.- What other plants are there?

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6.- Write down the names of the birds you see in the area.

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## 6. THE BIRDS

Bird migration is a long journey that certain birds make twice a year.

Mark in the map the way you would take to try to cross over from Europe to Africa, if you could fly.



The Strait of Gibraltar represents a migratory bottleneck and the Guadalhorce Delta means an extremely important place for the birds resting there before crossing to the other side of the Mediterranean.

Some birds decide not to cross as they find very mild weather conditions in this site, and finally opt to stay with us for the hardest season of the year.

There are species that even breed in the location:

- Sedentary (coots, grebes, ducks, moorhens, etc).
- Migratory from Africa (bee eaters, hoopoes, shrikes, etc).

1.- What do the birds we find in this ecosystem do?

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## ANATOMY OF A BIRD:

Draws a bird and points out the following parts:

Forehead, beak/bill, malar (mentón), neck, chin, throat, eye, eyering, crown(píleo), nape(nuca), auriculars, cheek patch, mantle/back, wings, wing feathers, wingbars, median/greater/primary coverts, tertials, secondaries, primaries, rump(obispillo), tail, vent((cloaca), uppertail/undertail coverts, outer/inner rectrices, sides/flanks, breast(pecho), belly/abdomen/torso, leg, thigh(muslo), tibia, tarsus, feet, toes, claw(with nail),alula

NOTE: watch Videos, eg., All about Birds for children, free school, Parts, Characteristics, Types, How do Birds fly?, Nest.

NOTE: If I were a Bird,...(kids poems, Valentine's poems (Pinterest))



## 7. SMALL LAGOONS

The Escondida Lagoon, The Casilla Lagoon and the Rio Viejo Lagoon have been formed by infiltration of sea water as well as river water. Let's compare the birds that are most frequently spotted in these lagoons.

### THE COMMON HOOT AND THE MOORHEN

The common hoot and the moorhen are very similar to ducks, but due to their beaks and legs they belong to a different zoologic group. In order to distinguish both species we must pay close attention to some details:

Complete the next grid.

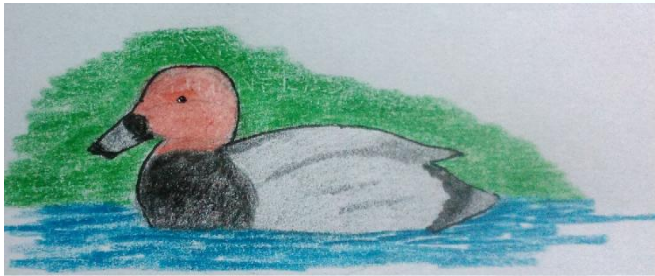
	COMMON COOT	MOORHEN
		
Beak and frontal shield		
Tail		
Legs	Greyish	Yellowish green
Behaviour	Gregarious	Solitary

**DUCKS**

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Ducks can be swimmer or divers, depending on the way they mainly find their food, on the water surface or in the deep water. This can also affect some characteristics of the body, for example, the tail.



SWIMMING DUCKS: the Mallard has a tail which is ...

DIVING DUCKS: The Common pochard has a tail which is ...

Sexual dimorphism: Different characteristics that the two sexes of the same species exhibit beyond their sexual organs. This is a very clear feature in ducks.

1.- Compare in situ both the female and the male mallards and write down their differences.

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2.- Enumerate the advantages of this adaptation of females.

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3.- Describe the advantages of this adaptation for the males.

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## 8. THE BEACH

1.- Where does the beach sand come from?

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The grains of sand are small pieces of rock broken by the waves and the swell. These can also be washed away by the river after the rain, so many of the stones and pebbles of our coasts are just pieces of our nearby mountains

It is not easy for a plant to live in the beach sand; just a few can survive.

2.- What problems do they find?

3.- How big are they/What is their size? High Low

Why? \_\_\_\_\_

4.- What are their roots like? Long Short

Why? \_\_\_\_\_

Describe their adaptations:

The leaves \_\_\_\_\_

The stems \_\_\_\_\_

## 9. GRANDE LAGOON

It is the closest to the sea.

1.- Keep a record of all the birds you watch and comment on their most characteristic features.

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Not only shall we find birds in the place, but also a rich and diverse fauna. There are mostly small-sized animals which are difficult to see; we need patience to watch them.

Mammals: rabbits, foxes, field mice, moles, ...

Reptiles: chamaleons, ocellated lizards, lizards, tortoises, terrapin turtles, (in decline due to invasive species competence), geckos, snakes, ...

Anphibians: common green frog/Iberian water frogs, Mediterranean Tree frogs, Iberian midwife toads, ...

Fish: goat fish/barbels, mullets, ...

And we cannot forget the invertebrates, mainly insects.

2.-Create a food chain and a food web out of this information:

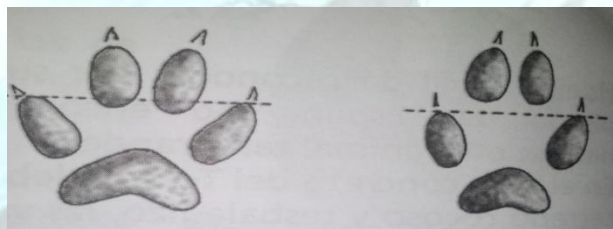


## 10. TRACKS AND TRACES

Looking for and recognizing the signs that animals leave behind is really interesting.

### FOXES AND DOGS

There is a very simple rule to distinguish their tracks: place a pencil or a straight twig just over the back toes (see the image). If it cuts the front toes, it is a dog's track, but if it does not, it is a fox's.



A fox's excrement is more or less cylindrical-shaped and the sides are different: one is round and the other pointed. The color may be different depending on the omnivorous feeding.

### BIRDS: PELLETS AND FOOTPRINTS

Pellets are the mass of undigested parts of a bird's food that some bird species regurgitate. The content depends on the bird's diet, but it usually contains bones, skin, exoskeletons of insects, indigestible plant matter, feathers, fur, claws, teeth, which the birds cannot digest.

The footprints in the shores and the mud areas can easily help us track the moves of the birds of the place.

1.- Try to locate some of them and take photos to identify them.

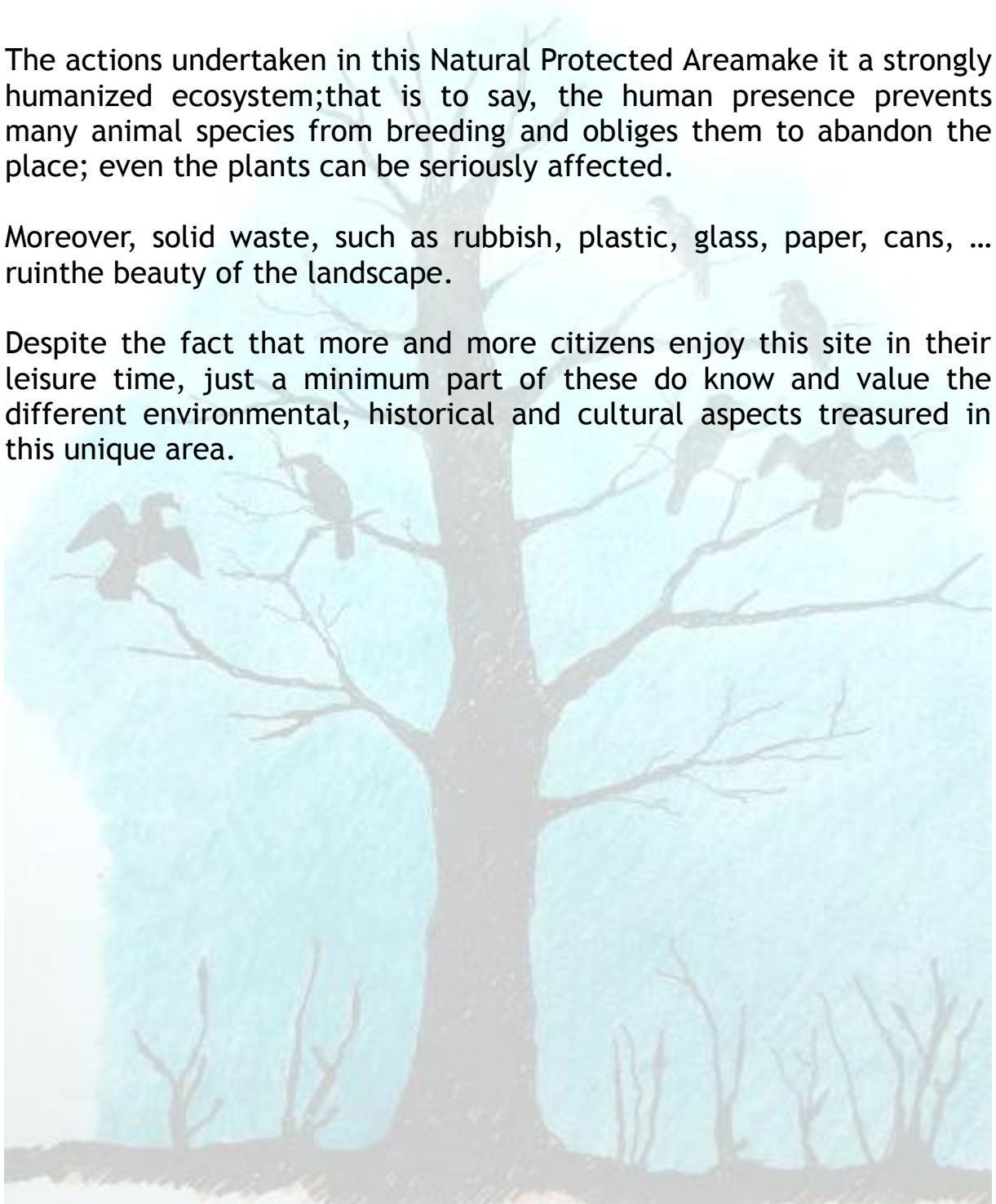


## 12. TO FINISH

The actions undertaken in this Natural Protected Area make it a strongly humanized ecosystem; that is to say, the human presence prevents many animal species from breeding and obliges them to abandon the place; even the plants can be seriously affected.

Moreover, solid waste, such as rubbish, plastic, glass, paper, cans, ... ruin the beauty of the landscape.

Despite the fact that more and more citizens enjoy this site in their leisure time, just a minimum part of these do know and value the different environmental, historical and cultural aspects treasured in this unique area.





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## 13. NOTES



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