


Birds, Rats and Eels: The Story of a Spanish Lake



What lies
beneath the
water?

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For most of us, Spain means bullfights, flamenco dancers, and paella, the savory rice dish served in restaurants in every *plaza mayor*. In Valencia, the Mediterranean city where paella was born, locals even believe that “in a moment of good humor God himself revealed the paella recipe to them and to them alone.”

Whether it came from God or not, paella originated on the shores of a large lake just south of the city, called the Albufera. The Romans called the lake “the lagoon of the oysters,” because the marine mollusks thrived in its salty water. Like everyone else who would settle in Valencia, Roman

historians wrote admiringly of the lake’s exceptional bird life, and followed the example of the area’s original Iberian settlers by using it as a hunting ground.

When the Moors arrived in Valencia in the eighth century, they brought with them new foods, new technologies, and new ideas. They introduced the first widespread irrigation to the Iberian peninsula, and farmers around the city now built hundreds of new canals to water their fields. The Moors also brought crops such as eggplants, artichokes, tiger nuts, and rice.

Rice plants are extremely productive and much easier to grow than most vegetables. Their need for lots of water made them a good



Paella may have come from God, as the Valencians believe, but it conveniently used local ingredients.

crop for water-logged, previously unproductive land.

But even though rice played an important part in the Valencian diet and economy, most farmers preferred to stay on dry land. The swampy rice fields were a breeding ground for disease-carrying mosquitoes, and malaria rates among rice farmers were so high that some monarchs would later ban rice farming altogether.

By the seventeenth century, the spread of irrigation had transformed the Albufera to freshwater, as new canals drained into the lake and diluted the salt water. This caused a major crisis for the lake's fishermen, and the Spanish Crown's agent, the king's representative, despaired that "the lake is lost, as there is neither the abundance of fish that there was, nor are those that remain of such good quality, as they are fresh water fish."

But the lake was not lost – it was merely different.

The water was crystal-clear, and rooted plants waved in vast "underwater prairies" beneath the surface. The banks bloomed with thick growths of duckweed, iris, eelgrass, and other rooted plants. Algae and leafy water plants provided food and habitat for fish, amphibians, and invertebrates. The birds for which

the Albufera had always been famous still waded or swam through the waters and nested on its shores, adapting their diets to the new freshwater species that inhabited it.

Together with the introduction of anti-malarial drugs, the fresh water of the Albufera also changed the way people used the lake. For the first time, rice farming was an attractive economic option, and as the population grew, new farmers reclaimed land on the lakeshores.

In 1761 the Crown officially recognized rice farming as the preferred activity in the Albufera and established a series of regulations to encourage farmers to drain portions of the lake to form new rice paddies.

This created a new set of problems. Over the next two hundred years, rice farmers drained more than three quarters of the lake to plant rice. As the lake shrank, fishermen found it increasingly difficult to make a living, and turned instead to farming their own paddies.

An early twentieth-century peasant in Valencia with all the equipment he needs to make paella.

It's just a question of which ingredients he will use---rats, eels, or chicken.

Image Courtesy of the Library of Congress Prints and Photographs.



By 1902, Valencian author Vicente Blasco Ibañez described the landscape of the Albufera as little more than an endless rice farm where “the immense plain of the rice-fields merge[s] into the horizon, blending with the distant mountains... vast fields of liquid mud mottled with bronze stalks.”

The men who built this landscape were the inventors of paella: the farmers and day-laborers who ferried countless boatloads of mud across the lake to fill in a new rice paddy. They would cook rice from their fields outdoors in large, flat skillets over a fire of orange twigs and vines, simmering in water from the lake, and mixed in whatever meats and vegetables they had at hand. Those ingredients often included fresh-caught eels from the lake, marsh rats from the canals, and a few butter beans from their gardens, all flavored with paprika and salt.

Each spring, the lake’s huge populations of eels, mullet, toothcarp, and other fish scattered into the flooded fields, frustrating fishermen but facilitating hunting for wading and diving birds. Winter flooding to clean out the fields offered crucial winter habitat for migratory birds such as mallards, spoonbills, and teals. According to some estimates, the fish, insects, water plants, and seedlings in the rice fields provided ninety percent of the total food consumed by waterfowl in the Albufera area.

Occasionally, the Spanish Crown would invite wealthy tourists to hunt birds on the Albufera, which was still renowned as an incomparable bird habitat. The more refined tastes of these urban elites, visiting Valencia’s hinterland

for a weekend hunt, gradually influenced changes in the paella recipe. Rabbit, duck, and chicken replaced the traditional eel and rat, while butter beans were joined by other garden vegetables, including tomatoes, green beans, garlic, and artichokes.

For the Albufera, these uses – farming, land reclamation, hunting, and bird habitat – continued until the early twentieth century, when the Crown sold the lake to the City of Valencia as a public park. The city established new hunting regulations and stopped the practice of “reclaiming” land from the lake to create more rice fields.

By the mid-twentieth century, Valencia was a popular tourist destination for foreigners and Spaniards alike, who flocked to Mediterranean beaches for their summer vacations.

Under the dictatorship of Francisco Franco, the city government sought to develop the area around the Albufera for tourism, bulldozing sand dunes and leveling forests to make way for roads, high-rise hotels, shops and restaurants.

A local environmental movement in the early 1970s stopped the tourism development when it was only partially-completed, but the work had already damaged the ecosystem, leaving it unprotected from salty ocean winds. Untreated urban waste and runoff heavily polluted the lake, and many of the native species died out. By the time Spain restored democracy in the late 1970s, many biologists declared that the Albufera was “ecologically lost.”

But once again, despite its many transformations, the lake was not

lost. A small community of fishermen still cast their nets each day, catching eel as they always had, as well as mullet and other fish that could survive in the polluted, oxygen-poor water. Farmers around the lake continued to grow the distinctive short-grain rice used in paella and other Spanish dishes. Tourists continued to visit the lake and its nearby beaches, enjoying the beautiful views and delicious local cuisine.

The most recent transformation of the Albufera came about because of the birds.

In the late twentieth century, a small group of Valencian scientists drew national and international attention to the fate of the lake and to its exceptional bird populations. Many of the species that visited the Albufera migrated from as far away as Russia and sub-Saharan Africa.

In the late 1970s and early 1980s, legislation at the level of the European Community and the United Nations declared that

La Albufera in the 1890s



migratory species belonged to the world as a whole, not to a single nation, and required member states to protect them. Several of these treaties listed the Albufera as an area of special value to migratory species.

In response to a local campaign, the regional government also declared the entire area – the lake, beach, and rice fields - a Natural Park. The declaration of the Natural Park made habitat and species preservation the primary function of the entire area.

Rice farmers, whose fields had suddenly been reclassified as “artificial wetlands” without any compensation, were not happy about this legal change. Park declaration meant that they could not sell their lands, build anything without permission, or grow any crop other than rice, because the rice fields played such an important role in the birds’ habitat.

For more than a decade, farmers and biologists clashed over the

park’s legality. They finally reached an agreement in the mid 1990s, when the European Union agreed to pay farmers a subsidy for certain environmentally-friendly actions.

Since that time, park managers embarked on an ambitious slate of reconstruction projects: rebuilding nearby sand dunes, replanting native vegetation, and installing water treatment facilities to reduce algae levels and remove pollutants.

The Albufera is now a completely human-made landscape, several times over. Yet each year, the park’s serenity and “natural” beauty attract thousands of tourists from around the world for birdwatching, boat tours, nature walks, lounging on sun-drenched beaches and, of course, feasting on *paella valenciana*.

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Albufera Crane

