PREFACE

Rightly celebrated for its magnificent lighthouse, the construction of which began in the 16th century, and classified as a UNESCO World Heritage site in 2021, the Cordouan islet is a rocky plateau of barely 250 acres at low tide, situated facing the mouth of the Gironde in the southwest of France.

Subjected to the influence of estuary waters, its position is nevertheless advanced in the Atlantic Ocean. Cordouan's geographical location gives it a dual interest in terms of marine fauna and flora. While it is close to the rocky coasts from Royan to Talmont, the plateau constitutes the last natural hard substrate toward the south until the Basque coast.

Furthermore, it is relatively spared from tourist and economic pressures. To the incredibly rich history of the "king of lighthouses" is added the biogeographical uniqueness of the plateau, whose preserved fauna stimulates the curiosity of naturalists.

However, our disappointment is significant upon reading the works of our elder malacologists! In his Marine Conchylological Fauna of the Department of Gironde and the Southwest Coast of France, published in 1865 in the Proceedings of the Linnean Society of Bordeaux, Paul Henri Fischer reported the presence of 17 mollusk

species at Cordouan. This very low number is only slightly increased by some taxa that the author indicated as "common on all the southwest coasts" in an addition made in 1867.

Twentieth-century scientific literature does not correct this glaring lack of interest in the malacological fauna of the plateau. The addition of four species by Crisp and Fischer-Piette finalizes a total of 22 mollusks recorded in 1959. Finally, we can say, this present work sets the malacologists' clock right, more than a century and a half after the first text.

The O'Khæn inventory, which brings together in this work one hundred and fifty species of shelled mollusks, repositions Cordouan in its place in the assessment of our malacological knowledge of the English-Atlantic facade. The remarkable iconography of this book will also be of lasting help in identifying species, both for enthusiasts of "beautiful shells" and for researchers interested in the marine biodiversity of the French coast.

Guy Bachelet

Research Director at the CNRS, Arcachon Marine Station

Pierre-Guy Sauriau

Researcher at the CNRS, L'Houmeau Marine Station

INTRODUCTION

Malacology, or the study of mollusks, now relies on advanced techniques such as genetic sequencing or microscopic dissection. But one who sets foot on the Cordouan plateau, walks the fine sandy beaches of Soulac, or gets lost in the mudflats of Verdon, whether a passionate observer or a curious onlooker, does not have these methods to determine the identity of the animals encountered with the tides. However, some mollusks have the peculiarity of producing shells, these protective architectures that endure after the death of the animal and constitute, at choice, biological indicators or collectible objects. The immense variety of shapes and colors that these natural sculptures can display is matched only by the biological diversity they reflect.

We aimed for a work useful to both naturalists and amateurs, presenting in the most exhaustive way possible the shell species of the plateau and its surroundings. Special attention is therefore paid to the aesthetics of the shells, presented to the reader as precious objects, while highlighting the conchological characteristics necessary for their identification.

Like Cordouan, a historic place shared between natural and cultural heritage, this book oscillates between a naturalist guide and a catalog of artworks.

The Cordouan plateau is a submerged rocky shoal at high tide, except for the structure of the lighthouse that dominates the ocean with its sixty-eight meters in height. This ephemeral islet is located in the geographical continuity of the Pointe du Médoc, a land protrusion along the coast shared between the Atlantic Ocean and the Gironde estuary. This area is at the confluence of three different environments: the long sandy beaches of the Gironde to the south, the rocky coasts of Charente to the north, and the muddy bottoms of the estuary. This particular situation is conducive to the establishment and development of numerous species in a confined space but also shows strong variations in mollusk populations depending on environmental changes. In particular, the constant movements of soft substrates (sands, gravels, and silts) cause the disappearance or appearance of micro-biotopes over time.

For example, from the beginning of our research to the publication of this work, we have observed certain modifications to the marine environments of Cordouan and Pointe du Médoc. The silting of the artificial water reservoirs at the Cantines site in Verdon-sur-Mer and the Arros site in Soulac-sur-Mer since 2003 has led to the disappearance of Pharidae (razor clams), which had found in these reinforced concrete constructions from the Second World War preferred habitats. The consolidation works on the Cordouan lighthouse belt in 2005 greatly disturbed the supralittoral mollusk

populations, including the species *Lasaea adansonii* and *Littorina saxatilis*. In the same year, the *Zostera* seagrass bed and the mudflat south of the plateau were covered by the nearby sandbank, pushed westward by the currents. The typical species of this particular biotope thus disappeared from the area, but the same type of substrate and associated animals are still found on the estuarine side of the Pointe du Médoc. On this coastal facade, the construction of a marina put into service in 2004 profoundly changed the configuration of the Chambrette cove in Verdon-sur-Mer. Populations of burrowing species were thus disturbed, with the disappearance of *Ruditapes decussatus* in this zone in favor of *Ruditapes philippinarum* (clams). Conversely, some fixed bivalve species and certain gastropods from rocky environments found in these new infrastructures a suitable development location.

Faced with these observations, we wish to emphasize the fragility of marine habitats and the vulnerability of many animal and plant species to rapid changes of human or natural origin. The reader, whether a fisherman, collector, or naturalist, must keep in mind their responsibility to the natural heritage by limiting their collections to the legal minimum necessary and leaving behind substrates in their original state and free of waste.

SPECIES IDENTIFICATION CHARTS