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Study of damaging agents in the Caribbean architecture in Costa Rica from a multidisciplinary perspective

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ABSTRACT

The objective of this study is to enhance the knowledge of the architectural, historic and construction values of the Caribbean architecture in Costa Rica [1] [4] [5], which is unique to the identity of the city of Limón [2] [3]. As part of this study, we identified biological agents responsible of damage in these buildings in a larger multidisciplinary project entitled: "Conservation of the Caribbean Architecture in Costa Rica: use of advanced techniques to study biological agents responsible of damage in these buildings. This project is a collaboration between the Tecnológico de Costa Rica and Western Illinois University.

We conducted an inventory of a selected area in the city of Limón with the purpose to identify the main characteristics of this type of architecture. We quantified and characterized the buildings using some defined criteria including the historic period, construction materials, and characteristic features of Caribbean architecture. Buildings were geolocated using Geographic Information System technology. Environmental and biological agents responsible of damage in these buildings were also identified. A number of buildings using multiple criteria were selected to conduct a more detailed identification of the biological agents, mainly fungi and insects, responsible of damage.

During the first phase of the study, approximately 100 buildings were separated in five classes from those that are highly representative of the Caribbean architecture to buildings that only maintain a few features or were destroyed during this study. Of those, we selected 35 buildings that are representative of Caribbean architecture and collected detailed information of their architectural and historic characteristics. Most frequent damaged areas were documented and biological agents responsible of damage were identified. Historical buildings such as Capitanía de Puerto and Casa Misionera Bautista were selected to establish a detailed characterization of damaged areas and for sampling and environmental monitoring. This project will help to identify

priority buildings for preservation based on their historical value and their representative features of these type of architecture.

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