

# POLYCONE (2020-2024)

[Click here for the project presentation video](#)

*The POLYCONE project is the first one dedicated to the study of integrated and sustainable regulation of cones in Eastern Polynesia.*



## **Project Objective :**

Conical snail toxins (conotoxins) are of increasing interest to scientists and the pharmaceutical industry for the treatment of human health. Various applications are being studied, such as oncology, diabetes and analgesics. Development of a sustainable and ethical use plan for this resource is hence key. However, a few of the 931 species of cone snails have been studied in detail and only a small fraction of conotoxin diversity has been characterized.



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This project is the first attempt to develop a model of sustainable and ethical use of cone snails. It will specifically focus on species present in French Polynesia where 114 cone snails occur, including 20 species that are endemic (1/8 of the world diversity). The work will entail three axes:

1) improvement of our knowledge of cone snails (taxonomy, population sizes, abundance, reproduction, life cycle, habitat, and diet) to constitute a reference collection ;

2) establishment of a cone snail venom bank that will enable future sustainable use of conotoxins through non-destructive processes and socio-ecological regulation of cone species by stakeholders. This regulation may lead to the establishment of protected areas with harvest quotas according to predefined socio-ecological criteria or to aquaculture ;

3) development and implementation of a regulatory mechanism that takes into account local, domestic, scientific and industrial knowledge and provides for the sharing of benefits resulting from access to these genetic and biological resources. The consortium has the capacity to pave the way for an adaptive cone management.

These axes combine several international research teams that are among the most renowned in their field of expertise: anthropologists, political scientists and lawyers specializing in Access and Benefit Sharing (ABS) and socio-ecosystems, ecologists and taxonomists specializing in coral reefs and cones, and biologists specializing in the sustainable extraction of conotoxins. This project also involves government agencies in charge of fisheries, the environment, ABS; local and international partners in the field of ABS and sustainable uses of the ocean; and private companies that can facilitate establishment of a venom bank.

[More information here \(Belmont Forum website\).](#)

### **Field of study :**

In French Polynesia in the Pacific Ocean :

- Marquesas Islands (Archipel des Marquises) Nuku Hiva
- Society Islands (Archipel de la Société) Tahiti, Moorea
- Tuamotu Islands (Archipel de Tuamotu) Rangiroa, Tikehau

### **Principal Investigators:**

Tamatoa Bambridge, National Center for Scientific Research, France

### **Work package and leaders :**

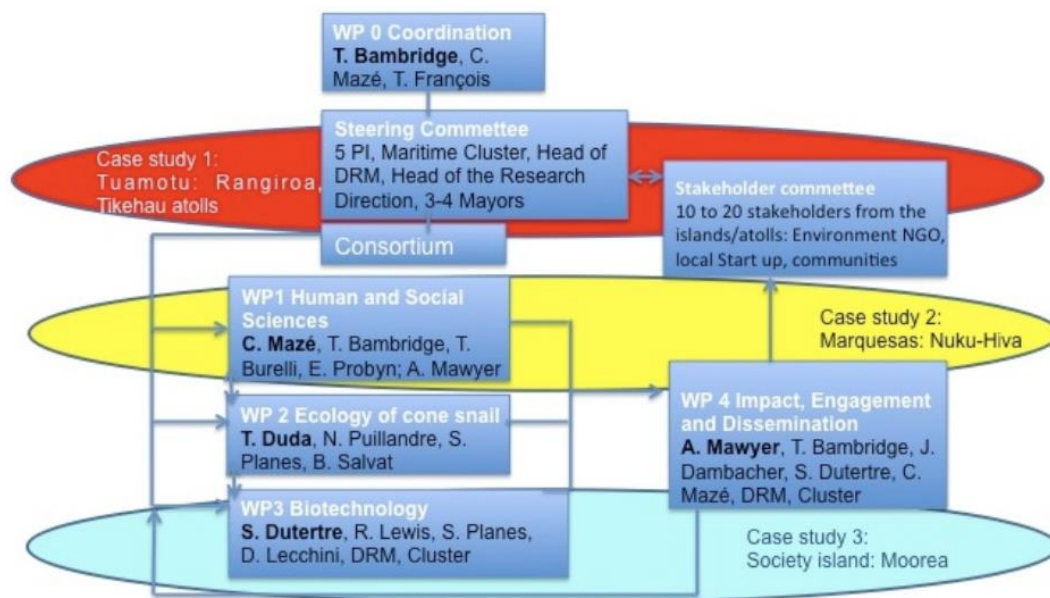


Figure 1 : General scheme of PolyCone

### **Link with APOLIMER :**

Raymond Valentin, *Trajectoires d'intégration des politiques environnementales dans les collectifs ultramarins. Enquête multi-située dans l'archipel des Marquises, Polynésie française*, Anthropology and Political Science Thesis PhD, Allocation du Ministère de l'Éducation Nationale, de l'enseignement supérieur et de la recherche and La Rochelle University, 2021-2024.

## Partners :

- Ponsonnet Cédric, Direction des ressources marines et minières, French Polynesia
- Jeffrey Dambacher, Commonwealth Scientific and Industrial Research Organisation, Australia
- Thomas Franklin DUDA, University of Michigan, United States
- Sébastien Dutertre, National Center for Scientific Research, France
- David Lecchini, National Center for Scientific Research, France
- Alexander Mawyer, University of Hawaii at Manoa, United States
- Camille Mazé, National Center for Scientific Research, France
- Serge Planes, National Center for Scientific Research, France
- Elspeth Probyn, The University of Sydney, Australia
- Nicolas Puillandre, Museum national d'Histoire naturelle, France
- Bernard SALVAT, National Center for Scientific Research, France
- Gerard SIU, Maritime Cluster of French Polynesia, French Polynesia

## Sponsors :

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National Science Foundation, United States



## Scientific consortium and partners :



## Operating partners :



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RESSOURCES MARINES**  
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