

Mentoring in action

The first water mentoring trip took place in July 2022.

Departments involved in water supply in the overseas countries and territories (OCTs) wished to benefit from capacity building by sharing their experience and best practices in water resource monitoring in Pacific island settings and through training for field technicians and officers.

The New Caledonian Animal Health, Food and Rural Affairs Department (DAVAR) offered its 60 plus years' experience in qualitative water resource monitoring to the other OCTs with European Union support under PROTEGE. After developing a joint assessment, DAVAR designed and implemented a capacity building programme for the departments.

The first mentoring trip aimed at:
- experience sharing in methods applied in all



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three territories with regard to measuring water flow rates, rainfall and pressure;
- presenting the metering network and systems used in New Caledonia (NC) through onsite tours;
- presenting commonly used gauging techniques and carrying out supervised hands-on work; and
- capacity building for OCT departments in water management data acquisition.

This might interest you...

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- ▶ [Invasive species](#)

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Oyster farming in the Pacific – a unifying topic

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Among its aquaculture diversification and eco-friendliness promotion projects, PROTEGE supports rock-oyster farming trials, as we believe it is a valuable model for environmental and economic sustainability in the region's OCTs.

Following discussions between French Polynesia (FP) and NC's Ifremer stations, an exchange visit was scheduled for late June to share experience and advice on trialling and breeding these shellfish.

The managers, FP Marine Resources Department and Wallis & Futuna (WF)

Fisheries Department were able to meet their New Caledonian counterparts at the Northern and Southern Provinces, Territorial Government, Technopole and SPC, and industry players around the Boulouparis aquaculture centre ponds. They left determined to work together by, for example, setting up a research and development project.

By meeting each other, the various organisations were able to forge links that will facilitate future regional technical exchange events.

French Polynesia hosts European Union Ambassador to the Pacific

Invasive species control, making organic potting mix with copra plantation waste and a municipal composting facility, etc. Work conducted under PROTEGE was presented to His Excellency Sujiro Seam to report on the large number of concrete achievements made.

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Events

- **October - FP/NC:** conference, seminar and regional cooperation on beekeeping projects in FP
- **2 - 8 October - NC:** Regional demonstration farm workshop and "Tech@bio" Show
- **October - NC/WF/FP:** regional mentoring trip to NC
- **18 November:** PROTEGE steering committee meeting

Growing 80% of vegetables using 20% of fish

In the Tuamotu Islands, growing vegetables is a recurrent problem. The lack of arable land and fresh water makes the atoll soil difficult to cultivate. In order to meet the requirements of a healthy and varied diet there, the Marine Resources Department (DRM) is developing an aquaponics kit that should provide a regular local supply of vegetables to households.

Aquaponics is a closed-circuit system similar to hydroponics that combines fish farming with market gardening. So far, French Polynesian aquaponics has been based on imported species, namely tilapia or sunfish, which may disrupt the environment if released. The DRM is, therefore, trialling an



© DRM FP

aquaponics kit based on pati (Chanos chanos), a native species familiar to the Paumotu Islanders.

As at first quarter 2022, two aquaponics demonstration kits had been set up on the DRM's site at Vairao and produced some 13 kilogrammes of cucumbers and 7 kg of lettuce as well as tomatoes, pota (taro leaves) and basil. Seven DRM and Agriculture Department officers were trained, and the DRM wishes to continue the research and development phase so as to make the kit more self-contained.

New-Caledonia

Sea cucumber identification training



Following the 18th meeting of the Conference of the Parties, three sea-cucumber species were added to CITES appendix II in June 2019, i.e. *Holothuria fuscogilva*, *Holothuria whitmaei* and *Holothuria nobilis*. Trade in such appendix II species is subject to an export licence or re-export certificate and exporting them requires a "safe trade notice" issued by a "state scientific" authority. In order to issue such a notice, the

scientific authorities must rely on the "best available information" to assess the risks, including, stock status, species recruitment rate and current management measures, such as quotas and catch sizes.

Two sea-cucumber identification training sessions were held in NC in July with this aim in mind and two further sessions in September in collaboration with HRT company and DAVAR/SIVAP.

A total of 50 commercial fishers were able to receive training and, with a view to cooperation, so were three Fiji Ministry of Fisheries officers. Another two sessions are scheduled for November.

Wallis and Futuna

First Observatory newsletter



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The Coastal Fisheries Observatory (OPC) is an essential agency for Wallis & Futuna.

In 2022, the observatory began racing against the clock to collect and process as much data as it could so as to demonstrate its usefulness by example.

A fishing contest was held to encourage fishers to help gather the data. And the hard work paid off!

The OPC published its first annual report that responded to questions about current Wallis & Futuna fisheries realities and its resource status that had been left unanswered for many years.

Read the latest Wallis & Futuna OPC news at:

<https://www.calameo.com/learn/006488102566765efda3c>

"Tell me about Europe in the Pacific" contest

At the initiative of the New Caledonia Education Department, the contest was launched early in the 2022 academic year in all New Caledonian junior and senior secondary schools. In the space of only a few months, several groups of four to 10 students, assisted by their teachers, produced films, board games and other talented work on Europe in New Caledonia and the Pacific.

All together, eight student groups won prizes awarded by various partner organisations, including the European Union, NC Education Department, Southern Province, Pacific Community and University of NC. The 32 prizewinners will go on a well-deserved three-day bonding trip!



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Pandanus leaf dyeing protocol

The University of French Polynesia (UFP) was tasked with developing pandanus leaf dyeing protocols based on local dye plants. The aim was to obtain five colours, namely red, yellow, green, brown and black. The plants identified following a literature study were lipstick tree seeds, turmeric roots, pawpaw leaves, pine bark and candle-nuts. All the plants were collected on Tahiti Island and samples were sent to the University of New Caledonia for plant chemical and biological testing.

The Agriculture Department (DAG) and UFP travelled to Rurutu to provide feedback on the research. Adding fixative and varying cooking times led to an assorted plant colour palette. On Rurutu, 20 artisans at-



tended the presentation at the Hauti community hall. On Rimatara, Tivana (Mayor) Artigas Hatitio and 22 artisans attended at the Amaru community hall.

Recovered biodiversity



On Wallis & Futuna, rats have been eradicated from five out of 16 Wallis offshore islands. The campaign is on-going with follow-up work on the treated islands and pig trapping and hunting operations on Nukutea and Faioa Islands. The Territorial Department of the Environment is receiving support from two Island Conservation experts for supervising the eradication operations.

So far, 28 pigs have been removed from Nukutea, where they are more common and difficult to catch because of the island's rugged terrain and many reclusive areas. Trapping operations on Faioa Island were particularly successful with 54 pigs removed in the first six months. Scouting trips by officers show that only one or two individuals remain. Hunting trips have been scheduled to put down the last remaining pigs on Faioa and prepare the rat poison spraying phase that will be carried out using drones next September on the remaining 11 offshore islands.

Honey characterisation / pollen library



The French Polynesian Department of Agriculture (DAG) collected 34 honey samples from the five island groups and sent them to the Belgian Research and Information Centre for Beekeeping (CARI) for physical, chemical, sensory and pollen analysis. The pollen library was finalised as part

of a honey characterisation exercise.

The collection of pollen reference microscope slides currently contains 105 melliferous species, which will help with pollen tests and contribute to developing the first French Polynesian honey typology.

Training for culling invasive species in New Caledonia

Following a conference held by the New Caledonian Wilderness Conservation Agency (CEN) and its Pacific Community partners on 19 September on New Zealand's strategies and methods for controlling invasive mammals that are also present in New Caledonia and a priority concern, training was provided for a fortnight and attended by 25 candidates from 10 municipal areas on the New Caledonian mainland.

Glen Coulston, a New Zealand expert and trainer presented a range of innovative culling techniques that had been used for several decades, such as thermal goggles for stalking deer at night and GPS collars for canine helpers. CEN oversaw the organisation and provided training in trapping, culling objectives and rules and the data collection and genetic material gathering required for integrated deer population management.



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Resilience Episode 8: Water as a Life Source

A focus on watershed management and preservation that is vital for communities.

[Watch the video](#)



Resilience Episode 9: Clean Water for All

Water is not always accessible on many Pacific islands. A closer look at how the issues are seen.

[Watch the trailer](#)



Resilience Episode 10: Pacific-made Solutions

A focus on some technical, financial, social and cultural solutions provided by PROTEGE to support businesses and assist Pacific Island territories.

[Watch the video](#)



WATCH THE VIDEO TUTORIALS



My sea cucumber life in the Pacific – the life of sea cucumbers

These animals are on the world CITES list as needing protection and could attract an export ban unless stocks are managed...

[Watch video](#)



My sea cucumber life in the Pacific – identifying live sea cucumbers

The new rules require exporting countries to set up monitoring and control mechanisms, but we need to be able to recognise the various sea cucumber species.

[Watch video](#)



My sea cucumber life in the Pacific – identifying dry products

A number of sea cucumber species are currently protected internationally, such as two teatfish species, for example...

[Watch video](#)



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READ



WF1ère TV channel – An episode of Resilience entitled “Invasive Species, A Blight on Biodiversity”

An episode of Resilience entitled “Invasive Species, A Blight on Biodiversity” will be aired on Monday 24 October 2022 on WF1ère television after the news...

[Read the article](#)



Pandanus leaf dyeing protocol using dye plants

The Agriculture Department and University of French Polynesia travel to Rurutu and Rimatara to provide feedback on research carried out on French Polynesian dye plants.

[Read the article](#)



Orange tree restoration in Punaruu Valley, French Polynesia

As part of European Union-funded PROTEGE project, the Agriculture Department and Pacific Community (SPC) support an orange tree restoration project on Rata Plateau, Punaruu Valley...

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#SAVETHEDATE Stand on the “Tech & Bio” Show in New Caledonia

As part of European Union-funded PROTEGE, a Pacific Community stand is set up to showcase the project and its various agriculture initiatives at the international “Tech & Bio” Show at La Foa, New Caledonia on 7 & 8 October 2022.

[Read the article](#)



Beekeeping knowhow and sensory testing

Belgium's CARI and New Caledonia's New Caledonia's Beekeeping Promotion Centre (CPA) travel to French Polynesia under the European PROTEGE Programme.

[Read the article](#)



PROTEGE agroecology demonstration farm network regional meeting

Farmers from the PROTEGE agroecology demonstration farm network from New Caledonia, French Polynesia and Wallis & Futuna meet from 3 to 6 October to share and showcase their experience in agriculture and the network.

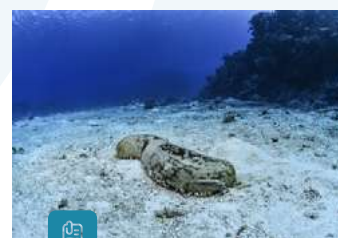
[Read the article](#)



Resilience Episode 11 – Gems That Need Safekeeping

Episode 11 of the Resilience TV feature was aired in New Caledonia at 6 pm on Sunday 9 October.

[Read the article](#)



Last two sea cucumber training sessions

The last two training sessions on sea-cucumber identification will be held on 7 and 8 October. Sign up now!

[Read the article](#)



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Agriculture and forestry

Regional cooperation for syntropic agroforestry

In May 2022, New Caledonian farmer-trainer Mickaël Sansoni, accompanied by a small delegation of Loyalty Island farmers and New Caledonian technicians travelled to French Polynesia to advise farmers on setting up syntropic farming plots on Rangiroa and Fakarava Atolls. After two weeks on site, he facilitated a three-day training session on Moorea Island on syntropic farming.

Following preparatory work by the French IUCN committee teams, Agriculture Department and Moorea CFPPA (agricultural training centre), some 20 trainees were immediately able to apply the principles presented to them when setting up a 15 m X 20 m plot at Opunohu Agricultural Senior Secondary School. The plot was made up of three rows of support trees, including fruit trees, and two intermediate beds of vegetables and green manure.



The syntropic farming plot is intended to be an educational demonstration plot for new low-input and water-saving farming methods. The experience sharing by PROTEGE agroecology demonstration farm member Mickaël and the successful trial inspired the French Polynesian farmers, technicians and trainers in attendance over the three days. ■



Thierry Lison de Loma

A grower who manages two certified organic farms on Raiatea French Polynesia

In June 2022, we met among farmers, engineers, technicians and project sponsors for this three-day practical training session to learn the practical methods Mickaël was developing in New Caledonia on his “AB-certified” organic farm that has been awarded SPG Bio Calédonia’s BioPasifika label.

Personally, I was already familiar with syntropic farming through documents produced by Brazil-based Swiss farmer-researcher Ernst Götsch, plus I manage two AB-certified organic farms on Raiatea which were developed based on permaculture and bio-intensive microfarming models. In addition, I have been providing yearly permaculture certificate training on Tahiti for seven years and Ernst’s farm and his trials in Brazil are among the models studied during the training. So, my expectations were high when I met Mickaël and the other trainees aboard the Moorea ferry as we sailed to the CFPPA farm.

The first part of the training confirmed the close links between syntropic farming and permaculture, as well as agroecology more generally. Notions such as design, invasive species use and control (often trees and leguminous bushes), systematic mulching, soil microbiology and very many other aspects are

common to these approaches and also found in traditional techniques used on many Pacific islands.

Also, the training was based on unseen relationships between species, i.e. between the elements of the agrosystem, taking place below ground, particularly mycorrhizal networks and how to develop them. His exemplary approach based on real-life data, such as soil analysis, microscopic analysis, yield figures and turnover, etc., also led to very interesting discussions on the respective advantages and disadvantages of the syntropic model as compared with models developed in organic farming, especially microfarming.

In a regional Pacific Island context, the three days also made us aware of the advantages of being able to discuss the common points and differences between our territories with a view to improving our production methods so as to progress further towards environmental and economic resilience on our respective farms. These practical and classroom sessions and discussions among all group members sparked enthusiasm and conviction in me for trialling syntropic agriculture on one of my farms. I am all the more eager now to visit his farm and share with other syntropic farmers when I next travel to New Caledonia. I would rate this training very positively! ■



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FEEDBACK FROM THE FIELD



Invasive species



Julie Pagot

PROTEGE Facilitator

Invasive Alien Species

Wallis & Futuna

Territorial Department of the Environment

The Wallis offshore island rat eradication operations are ongoing with manual deratting on a fifth island and preparations for drone-borne deratting on the remaining 11 islands from September to October 2022.

Two offshore islands also saw pig removal operations with combined trapping, hunting and beating operations prior to deratting with over 120 pigs trapped on both islands!

Prior to conducting the operations, discussions were held with the traditional authorities to obtain consent from the traditional leaders and landowning families and ensure safety instructions were circulated among the community.

Once the introduced predators have been removed, the forests, crops and bird populations are expected to be revitalised. Deratting will also lead to healthier conditions and, generally speaking, improved ecosystem resilience to climate change.

The Territorial Department of the Environment will then focus on rat and pig control on the main islands and restoration work in certain Key Biodiversity Areas while fostering participative natural resource management. ■



Territorial Department of the Environment team - WF

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FEEDBACK FROM THE FIELD



Invasive species



Ludovic SAMINADIN

Trainee
Land-based professional culling
training

I am already a hunter and cull deer by hunting. I signed up for this training to learn the basic principles and rules that apply in professional hunting, because hunting for food is a different kettle of fish.

I gained a lot with this training and learned a great deal. I already knew some things, but there were a lot of practices we didn't follow as amateur hunters.

I particularly appreciated the first course module. We learned about the impact pigs and deer have on our forests and the damage these invasive species do to our water resources and landscapes and how to track them with a map or compass. Thanks to the training, I can now find my way about better.

I also knew a thing or two about culling but had never practised this type of hunting. I am now confident going forward. Another aspect of the training was the communal living. We learned to live together as a group with the various trainees from all over the mainland that I would be working with. We shared our experience with hunting methods with the other trainees, which taught me a lot. ■



Glenn Coulson

Co-Director of Good Wood
Aotearoa Ltd, specialising in
invasive species control
(Based on notes taken in
French)

What is the situation in invasive alien species control in New Zealand?

Ever since the 2000 game venison market collapse, professional culling has been vital, although developed in a hurry. Hunting for sport, food or business is unfortunately inadequate for effectively controlling deer populations in remote areas and/or on rugged terrain and professional operators are called upon by both the Department of Conservation (DoC) and private landowners. New Zealand has also seen unprecedented technological development in predator-control tools under the ambitious "Predator Free 2050" eradication project.

Among the most effective deer control methods, which ones are currently used in New Zealand?

In remote areas and/or on rough terrain, two culling techniques are commonly used, i.e. professional helicopter-borne culling in unforested areas; and professional land-based culling within forests. Unlike food and sport hunters, professional cullers are required to primarily shoot does and fawns and gather all the technical data on the culling effort, animals slaughtered and their biological characteristics, as in New Caledonia.



The interns

What innovative and particularly effective professional land-based deer and pig culling tools have you presented in New Caledonia?

For nearly 20 years, the use of thermal goggles has been really revolutionary and culling operations have been 10 or even 20 times more effective, depending on the environment. When goggles are used, animals can be detected by day or night without a light source and up to 1.5 km away. The operator can approach and select priority targets without startling them. Using GPS dog collars has also revolutionised feral pig control.

Do you believe professional culling is also applicable to New Caledonia?

Absolutely. Also, it is not so much an option as an obligation in an emergency situation to save the most inaccessible forests where deer populations so far are out of control. After the fortnight's training and seeing the motivation, qualities and training standard of the 25 selected hunters, I am highly optimistic that these future culling operators will be effective, and the profession will develop in your territory. ■

FEEDBACK FROM THE FIELD



Coastal fisheries and aquaculture



Calvin PALADINI

Project Officer, New Caledonian Coastal Fisheries Observatory

As a project officer at the New Caledonian Coastal Fisheries Observatory under PROTEGE, one of my main field operations is carrying out catch size monitoring for *Scylla seratta* mud crabs in New Caledonia's Southern Province.

The methodology used consists of onboard monitoring in close collaboration with volunteer commercial fishers. All the crabs caught during a monitoring exercise are sexed, measured and weighed.

The measurements aim to determine or specify size structures, sex ratio and catch per unit of effort (CPUE) per production pond and fishing period. The measurements are converted into indicators and can be used as resource development milestones.

I believe such monitoring is very useful, as it helps improve management of a particular resource and reveals the realities of the fishing industry, such as working hours, harsh weather



conditions and the industry's concerns and issues, which helps maintain and strengthen relations between managers and commercial fishers.

By carrying out such operations, PROTEGE highlights and reinforces the fact that commercial fishers need to become key participants in sustainably managing New Caledonia's reef and lagoon fisheries resources. ■



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