Research Centre in Experimental and Predictive Ecology
CEREEP - Ecotron IleDeFrance
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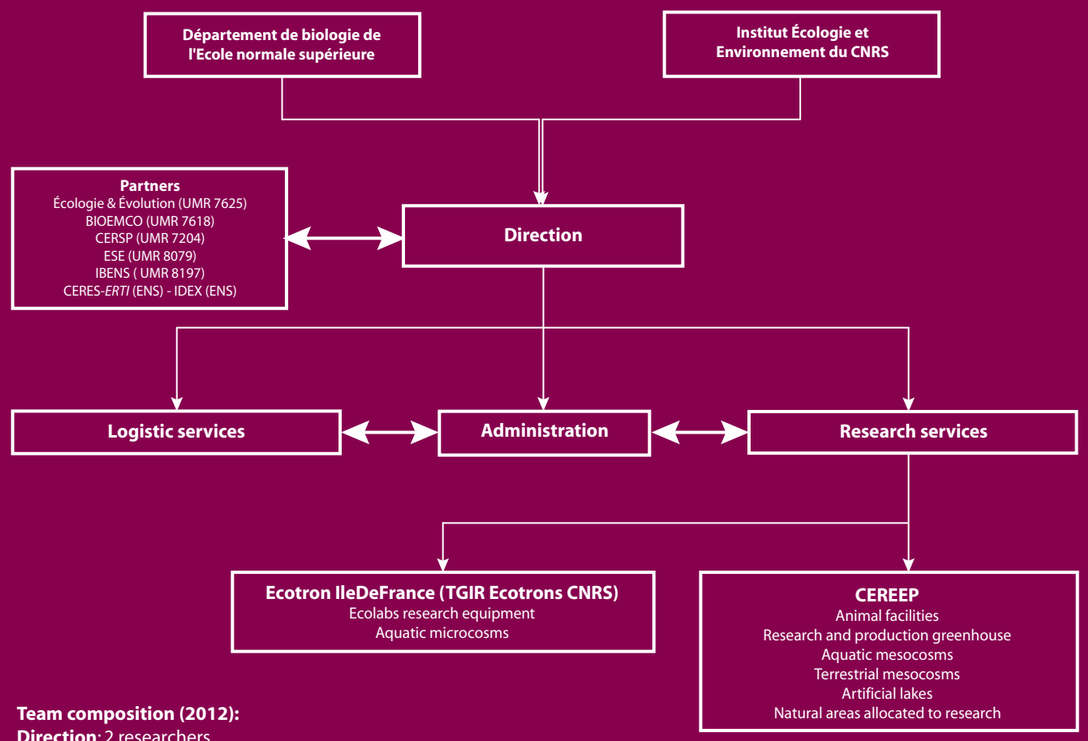
CEREEP - Ecotron IleDeFrance - UMS 3194

Towards a better understanding of ecological systems

Organization chart of the CEREEP - Ecotron IleDeFrance



Team composition (2012):
Direction: 2 researchers
Technical staff: 8 permanents and 4 fixed-term contracts

The Mixed Service Unit (UMS) CEREEP-Ecotron IleDeFrance from CNRS and ENS was created in January 2008 and aims primarily at hosting research and teaching programs in ecology. The development of the center is part of a national initiative to promote field stations and research infrastructures in ecology. Our center is installed in the biological field station of the Ecole normale supérieure, located in the district of Foljuif in Saint-Pierre-lès-Nemours approximately 70 km in the south-east of Paris. Our domain includes five buildings and approximately 78 ha of natural forest and meadow habitats. The main goals of our centre are to provide services in experimental ecology and we now host numerous research programs in various fields of environmental sciences, including some projects initiated in 1994. Our centre coordinates the Ecotron IleDeFrance, which allows to manipulate whole-ecosystems under highly controlled conditions and is included in the European infrastructure ANAEE, as well as a national experimental aquatic ecology platform. The scientific partners of the CEREEP - Ecotron IleDeFrance are major laboratories in ecology and environmental sciences in the Région Ile-de-France : Ecology & Evolution (UMR 7625), Biogeochemistry and ecology of continental habitats (UMR 7618), Species conservation, restoration and population monitoring (UMR 7204), Ecology-Systematics-Evolution (UMR 8079), ENS Biology institute (IBENS) et le Centre d'Enseignement et de Recherches sur l'Environnement et la Société CERES-ERTI (ENS).

The CEREEP

The CEREEP gathers a set of technical platforms dedicated to experimental ecology and available to the scientific community. It is integrated in the national network of experimental field stations of the CNRS and is supported financially by the Regional council of Ile-de-France and the "Investissements d'avenir" program. The research philosophy promoted by the CEREEP is integrative and spans studies from the level of genes to the whole ecosystem and at the interface between ecology and evolution. The technical platforms of the CEREEP include a greenhouse, aquatic mesocosms and macrocosms, terrestrial mesocosms and a set of animal care and laboratory facilities. Our natural habitats (forest and meadows), including some protected against intrusion, are available to conduct long-term and large-scale experimental and observational programs.

Research services

Technical platforms available at CEREEP are open and available to research teams from all over the world. Hosted teams can benefit from various services including access to working space (offices, meeting rooms, laboratories, equipments) and instruments, access to common services (internet, computer resources, data bases, workshop), and from assistance of the technical staff. Our services are charged according to standard prices defined by the CNRS and Ecole normale supérieure on a yearly basis. Our technical staff can participate to the preliminary research tests, the preparation and logistics of a project and the monitoring of experiments including the collection and management of data.

Research and production greenhouse

The CEREEP greenhouse has a total working space of 500 m2 divided in two rooms dedicated to plant production and plant research and available for all type of projects in ecological and evolutionary plant biology. The greenhouse can host experiments on wild or non-genetically modified plants including genetic and morphological diversity, manipulations on plant-soil-insect interactions, and manipulations on plant communities.

Aquatic mesocosms and macrocosms platform

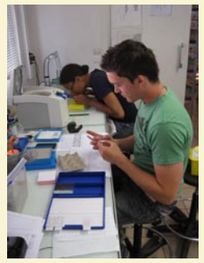
This experimental platform is under construction and includes aquatic ecosystems ranging in size from a few up to hundreds of cubic meters in the form of artificial lakes. Mesocosms are now fully functional and the artificial lakes will be functional in 2014 together with a range of innovative equipments and instruments. The platform is dedicated to research on the impacts of human activities on the ecology and biodiversity of aquatic organisms and ecosystems.

Terrestrial mesocosms

The platform of terrestrial mesocosms provides technical means to replicate under semi-natural conditions small populations of lizards whose demographic, social and genetic structure can be manipulated. This allows studying ecological and evolutionary responses to the dynamics of small terrestrial communities under partial control and confinement.

Animal care facilities and natural areas

Animal care facilities are available to manipulate birds, lizards and fishes in the laboratory, and conduct detailed monitoring of physiological and behavioral parameters. This allows various individual-based studies in evolutionary and behavioral physiology. Animal care facilities also provide means to raise under controlled conditions some animal species, and supply other technical platforms with individuals needed for experimentation. Our property is open to ecological experimentation and observation of biodiversity or natural populations. The meadows and woods provide ample space for field experimentation on long-term and large scale dynamics of natural commuities.

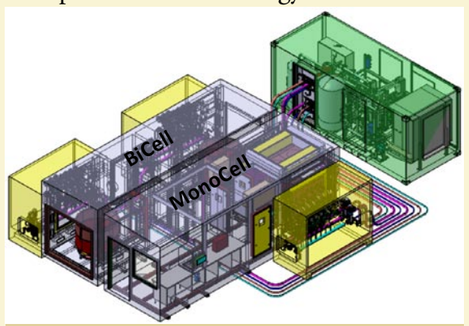


Teaching and workshops

The CEREEP can provide access for up to 30 persons to a seminar room, some laboratory spaces and the lodging and catering facilities. The center currently hosts lab meeting, teaching units and workshops in all fields of knowledge and science during the whole year. We can provide further technical assistance for those who plan to organize teaching units in ecology and ecosystem sciences.

The Ecotron IleDeFrance

The center coordinates the Très Grande Infrastructure de Recherche (TGIR) of the Ecotron IleDeFrance, initiated under the patronage of CNRS and ENS in 2005 and funded by the Regional council of Ile-de-France, the "Investissements d'avenir" and the European FEDER programs. The Ecotron IleDeFrance is a network of environmental cells available for applied and fundamental research in ecology. Each environmental cell behaves like a small world where the diversity of environmental and climate conditions can be simulated, and where aquatic and terrestrial ecosystems can be manipulated and monitored with unprecedented power. The technology of the Ecotron IleDeFrance rests on the principle of a modular unit of three identical environmental cells, called the Ecolab. Each environmental cell of the Ecolab can be controlled independently with great accuracy and in real time for air and ecosystem temperature, air humidity, light quality and quantity, rainfall and some atmospheric gas concentrations. Ecosystems are installed in a temperature-controlled lysimeter and their state variables can be monitored during the experiment using instruments or direct sampling. Equipments of the Ecotron IleDeFrance are currently protected by four European patents co-authored with our French industrial partners.



ECOLAB complet composé des modules MonoCell et BiCell couplés à des unités de distribution (jaune) et à une seule unité de production (vert)