SAD PAYSAGE - Paysage et écologie

Rapport Hcéres

▶ To cite this version:

Rapport d'évaluation d'une entité de recherche. SAD PAYSAGE - Paysage et écologie. 2016, Institut national de la recherche agronomique - INRA, Agrocampus Ouest - Institut supérieur des sciences agronomiques, agroalimentaires, horticoles et du paysage, Groupe ESA. hceres-02034559

HAL Id: hceres-02034559

https://hal-hceres.archives-ouvertes.fr/hceres-02034559

Submitted on 20 Feb 2019

HCERES

High Council for the Evaluation of Research
and Higher Education

HCERES report on research unit:

Biodiversity and Landscape Management

Under the supervision of the following institutions and research bodies:

Institut National de la Recherche Agronomique - INRA

Agrocampus Ouest - Institut supérieur des sciences agronomiques, agroalimentaires, horticoles et du paysage

Groupe ESA

Evaluation Campaign 2015-2016 (Group B)

HCERES

High Council for the Evaluation of Research and Higher Education

<div style="text-align:center">Research units</div>

In the name of HCERES,[1]

Michel Cosnard, president

In the name of the experts committee,[2]

Hannah MOSSMAN, chairwoman of the committee

Evaluation report

This report is the sole result of evaluation by the expert committee, the composition of which is specified below.

The assessments contained herein are the expression of an independent and collegial reviewing by the committee.

Unit name:	Biodiversity and Landscape Management
Unit acronym:	Non available
Label requested:	UMR
Current number:	
Name of Director (2015-2016):	Ms Claudine THENAIL and Mr Hervé DANIEL
Name of Project Leader (2017-2021):	Mr Alexandre JOANNON

Expert committee members

Chair:	Ms Hannah MOSSMAN, Manchester Metropolitan University, United Kingdom
Experts:	Ms Sabine APITZ, SEA Environmental Decisions, Ltd., United Kingdom
	Mr Alexandre ICKOWICZ, CIRAD, France

Scientific delegate representing the HCERES:

Mr Serge DELROT

Representatives of supervising institutions and bodies:

Mr Benoît DEDIEU, INRA, Paris

Mr Romain JEANTET, AgroCampus Ouest, Rennes

Ms Frédérique JOURJON, ESA, Angers

Head of Doctoral School:

Ms Nadine THÉRET, Doctoral school VAS "Vie-Agro-Santé"

1 ● Introduction

History and geographical location of the unit

For the next contract, Biodiversity and Landscape Management will integrate two units, SAD-Landscape research unit (20 staff) and the Landscape Ecology unit (9 staff). Twenty-nine staff will comprise the new unit.

The SAD-Landscape research unit is currently located at AGROCAMPUS OUEST in Rennes and in Le Rheu. The goal of the SAD-Landscape research unit is to identify and assess interactions between agriculture, landscape and biodiversity in order to reconcile agricultural activities with the ecological processes required to maintain ecosystem services provided by biodiversity. The unit was created in 1993 to research the role of intensive (industrial) polyculture-livestock systems in the ecological organization of landscape. It was integrated in a network of research laboratories in Rennes, which become the "CAREN" in 1998, then the "Earth, Ecosystems and Societies" OSUR in 2010. To date, the unit remains associated with the OSUR. In 2010 (the last AERES assessment), the AERES committee and the SAD Department of INRA advised that the unit was appropriately and convincingly established in the field of landscape agroecology, and encouraged it to further develop its research in this direction. In 2005, Ms Véronique CHABLE joined the SAD-Paysage unit to develop research in the area of participatory plant breeding for organic and low-input agriculture; this scope was later broadened to include research on cultivated diversity, from farm to fork, with the aim of implementing resilient crop systems for the production of local, high-quality food.

The Landscape Ecology unit began in 2008 as a Landscape unit and comprised academics from AGROCAMPUS OUEST, who were joined in 2009 by members of "Groupe ESA" (School for Higher Education in Agriculture) working in the field of landscape ecology. The objective of the unit is to develop interdisciplinary approaches for studies of landscape that include considerations of ecology, physical geography and human geography. In January 2013, researchers in human geography left the unit to join "UMR ESO". Based on these changes, the unit's title was modified to "Landscape and Ecology". In Angers, the research team unites researchers/lecturers from two Ministry of Agriculture schools of higher education in order to develop research in the field of ecology applied to landscape planning.

Management team

The new unit Biodiversity and Landscape unit is structured as a single team, in order to promote a coordination between research and functioning activities that is consistent with its size. The current director of the SAD Paysage unit is Ms Claudine THENAIL, who has held this position since 2006. The current director of the Landscape Ecology unit is Mr Hervé DANIEL. In 2017, Mr Alexandre JOANNON, who was recruited in 2005, will succeed as the director of the new Biodiversity and Landscape unit.

HCERES nomenclature

SVE2_LS8

SVE2_LS9

Scientific domains

SVE Sciences du Vivant et Environnement

Unit workforce

Unit workforce	Number on 30/06/2015	Number on 01/01/2017
N1: Permanent professors and similar positions		6
N2: Permanent researchers from Institutions and similar positions		6
N3: Other permanent staff (technicians and administrative personnel)		12
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)		
N6: Other contractual staff (technicians and administrative personnel)		
N7: PhD students		
TOTAL N1 to N7		
Qualified research supervisors (HDR) or similar positions		

Unit record	From 01/01/2010 to 30/06/2015
PhD theses defended	10
Postdoctoral scientists having spent at least 12 months in the unit	
Number of Research Supervisor Qualifications (HDR) obtained during the period	2

2 • Overall assessment of the unit

Introduction

The unit has structured their scientific strategy to develop a landscape agroecological approach, based on their interdisciplinary resources. The aim is to further develop interactions between issues addressed in biotechnical (agronomy, livestock sciences) and ecological sciences. The unit has developed research questions related to biodiversity in the context of i) farm management techniques and agricultural production and ii) maintenance of biodiversity and associated ecological functions for stakeholders in landscape management. Based on extensive experience of agricultural landscapes, their objective in landscape ecological sciences is to strengthen the integration of the analysis of ecological processes of landscape structures and dynamics that are generated by agricultural practices. In agricultural sciences, where their experience is less advanced, the aim is to build and consolidate new skills and knowledge regarding the implications of farm management for landscape and biodiversity, in intensive or industrial crop-livestock systems. The final goal is to put the emphasis on the different timescales of agricultural and ecological processes and to evaluate their implications at different landscape scales. Based on skills in computer sciences, the unit has also committed to further developing their collective modelling of the interactions between agriculture, landscape, and biodiversity.

The scientific strategy is aimed at strengthening the unit's scientific expertise in the field of landscape agroecology at local, national, and international levels. At the local level, the unit, which remains rather small despite new staff, is well integrated in a scientific and institutional context. They have strengthened their local scientific and institutional network by promoting complementary issues and skills in environmental/agri-environmental sciences. This is illustrated by the development of collaborative projects (including PhD projects), notably with the UMR IGEPP, and also by the long-term research investigations they are involved in (e.g., with the Sebiopag network including five observatories or ZA in France). They have also made significant contributions to the research themes of the OSUR, particularly on landscape dynamics, and to the themes of the INRA Centre of Rennes (e.g. functioning and management of terrestrial and aquatic agroecosystems). Moreover, they contributed with colleagues of the OSUR to the development of a scientific project in the field of landscape and environmental social and human sciences (e.g., project "Dipee" Landscape School). At the national and international levels, their aim was to develop work that focuses on the interface between the issues of agricultural and multifunctional landscapes. Regarding the biotechnical sciences, their aim, at the national and international levels, has been to contribute to the emergence of scientific networks that were previously poorly represented in their field (e.g., animal science and territory agronomy).

Most of the recommendations of the previous AERES panel have been followed. Recommendations that have been successfully considered are to focus the work of the unit on landscape agro-ecology rather than on socio-ecological systems, to focus particularly on the organisation of farming practices and their impact biodiversity and ecosystem services, and to use modelling to aggregate different disciplines. The unit has also improved the capacity of senior researchers to supervise PhD students through the defence of two HDRs. During the last AERES assessment, it was suggested that their studies in the biotechnical disciplines should be further integrated with ecology. The unit has made some progress towards this recommendation, for example, through collaboration on the EU funded SOLIBAM project. However, further integration could be achieved, but only where it is clearly beneficial to the research of both groups. The last assessment also suggested an increase in the number of interdisciplinary publications, but few such outputs have been published.

Global assessment of the unit

This project will integrate two small existing units who work in agronomy, biodiversity and landscape management in agricultural, rural and urban systems. The two groups have highly complementary skills and research interests, and the integration of these units should benefit and increase their scientific output. The aims of the scientific project have a strong chance of success because they are in line with emerging social and political strategies to integrate biodiversity, and associated ecosystem services, into landscape management in urban and rural contexts. The unit has very strong partnerships with a range of stakeholders, including excellent connections with the agricultural sectors, a key player in acting on project outputs. This should result in real potential for the uptake of research findings into policy. Much of the unit's current work is in regional or national contexts, although many of the scientific outputs are relevant to international audiences and although the group leads EU funded projects. While the project is highly relevant and the team is very well placed to successfully deliver its objectives, the project does face some challenges. The multi-disciplinary nature of the project means it runs the risk of falling between funding poles and not qualifying for funding from either. To maximise the potential of the project, the team needs to carefully

ensure integration between current research groups and strands. The number of peer-reviewed publications per researcher is currently quite low and needs to be increased; increasing the number of HDR staff, and thus PhD students, may increase output. The project is lacking staff expertise in geomatics and, if not managed, future staff retirements may cause issues achieving project objectives.

Strengths and opportunities in the context

The two existing teams that will combine to form this new unit have complementary skills and experience, and, if they integrate well, will be powerful in advancing the field of landscape ecology. Furthermore, both teams currently have strong collaborations with geographers, social scientists, economists and stakeholder groups. The integration of the two groups should expand this potential for collaboration and synergy with these experts.

The unit has a wide range of very strong partnerships with stakeholders, including excellent connections with the agricultural sector, a key player in acting on project outputs. There is also a good focus on both regional and international issues, with partnerships established to address both.

The key aims of the project have a strong chance of success because they are in line with emerging social and political strategies to integrate biodiversity, and associated ecosystem services/functions, into landscape management in urban and rural contexts. Nevertheless, other functions not directly linked to biodiversity such as water cycling might also be of interest in terms of agricultural impacts. The project is supported by proactive local, national and international policies, e.g., Ecophyto and the national strategy on Biodiversity. Furthermore, some farmers and agriculturalists are also reducing their inputs and are seeking advice on how to manage their land to enhance biodiversity. Urban areas are seeking guidance on how to integrate biodiversity enhancement and protection into their activities. This project has the potential to provide information to support farming and planning in these goals. In particular, information on trade-offs and synergies between land management practices, biodiversity and ecosystem service provision (such as production, pollination, pest control and resilience) should help inform better planning and practice.

Each of the two existing teams has its own field sites and taxonomic expertise. The development of projects on shared sites with more measures of biodiversity (number of taxa) will lead to more powerful datasets and outputs in the future. The cross-scale (temporal and spatial) nature of the unit's work is challenging, but their evaluation of ecosystem dynamics at these different scales is exciting and original.

The project will be attached to agricultural centres of education. This should make it possible to educate the next generation of agronomists using research-informed teaching.

The combining of the two existing units based in Angers and Rennes will give the new unit access to two regional sources of funding (Loire and Brittany). The increased cross-disciplinary nature of the new unit *may* also provide access to multiple poles of funding (although see Weakness below).

Weaknesses and threats in the context

Although integrative and multi-disciplinary research has strengths, the project potentially runs the risk of falling between funding poles (urban and plants), with increased risk of not qualifying for funding from either.

The number of peer-reviewed publications per researcher is currently quite low and needs to be increased. The small size of the existing units may be resulting in a higher organisational workload and the restructuring into one larger unit may solve this.

The project is split across multiple sites in different cities. While communication strategies are being developed, this poses administrative burdens. The distribution of staffing is imbalanced, with few staff located in Angers and those that are having the highest teaching workload.

There may be some challenges integrating insights from differing strands of research, as the foci are not always consistent. For example, some projects focus on low-input farming and others only on intensive farming. Shared projects and methodologies will overcome this.

The project is lacking staff expertise in geomatics and GIS.

Excellent work is being carried out in the fields of both crop diversity and landscape ecology, but there has been limited integration between these two groups. While further integration would be helpful, it is possible that the

scale of focus of these two sub-fields makes collaborative work challenging. Further integration should only occur where there is added benefits to both groups of researchers.

Recommendations

For the project integration to have maximum impact, it would be helpful if a conceptual diagram was developed that identified the key issues, pathways of impact (including recommendations for landscape management and at a higher policy level) and the manner in which the various projects address these issues. This would help in the identification of gaps and overlaps between research strands and projects, and might help define or clarify the long-term vision on impact and integration.

The unit will need to ensure the integration of the existing two teams, and between projects. Currently, specific research projects of the two groups address specific land use types and/or taxa. The project provides the potential for broadening and integration, and therefore high impact papers, but the risk of researches staying in their accustomed contexts should be borne in mind. With limited funding, incentives for broadening, adapting and sharing data and approaches should be identified.

To address potential issues of staffing resources and expertise, particularly in geomatics, interactions with other research units in the region should be developed. Units with current expertise in geomatics should be targeted for collaboration. If this is not possible, the potential for requesting funding for a new position shared between a number of units should be explored.

Many of the project aims seek to quantify the synergies between biodiversity and farming practices. However, some of the benefits or functions positive to farmers and not directly linked to biodiversity (e.g., in terms of reduced inputs or increased yield, cycling, erosion control, etc.) are implicit rather than measured. The group could consider explicitly measuring some benefits to farmers, such as increased yield or reduction in inputs, to put the findings in perspective and encourage uptake. This could increase the scientific and social impact of the work. As the group has collaborations with geographers, social scientists and economists, the development of such metrics is feasible.

PhD students do not often meet with students from other units, although they did not perceive this to be a problem. However, increased interaction should be encouraged, as these opportunities for sharing experiences could be helpful to their education. To enhance collaboration and communication between sites, transport and housing support could be provided, particularly for students.

The unit produces novel and exciting research, but most of it is published in subject-specific journals, which generally have lower impact factors. It is understood that subject-specific journals are usually read by the article intended audience. However, to increase international exposure, the unit could seek to increase the impact factor of the journals they submit to. This could be done by increasing the collaborative components of the work, e.g., multi-taxa, multi-landscape projects, and the unit is well placed to do so. Combining research data in this way may result in an overall reduction in the number of journal articles, but an occasional high impact paper does bring further international recognition. There are different stories to tell with the same datasets, and the unit may be able to produce multiple layers of information from a single large dataset and publish in a range of peer-reviewed journals. The unit should also consider including some questions relating to fundamental science into the new project, as these are sometimes relevant to the highest impact journals.