

Gradignan France, Monday, 07 January 2008

Dear all,

We hope you all have good memories of the week we spent together at Château les Vergnes. We as organisers thoroughly enjoyed your very positive and precious contribution to this pilot study. As you probably noticed during the expedition, your observations clearly indicated that some improvements had to be made to the RBA (rapid biodiversity assessment) methods we tested. This letter completes the field report and contains a small update of what happened after this week.

After we had recovered from the effort and sorted out the different results and remarks you produced, Sylvain and Veronique made new identification guides. Since we were eager to see if the improvements were successful we organised a mini-expedition composed of all members of the ENITA research team plus some other volunteers. André Fougeroux, Bruno Cagnac and Serge Labat received us for two more days (an evening barbecue and a very short night) at Château les Vergnes. The new identification keys showed to be a real improvement. Veronique is finishing the analyses of all these steps and will present this in her student report.

We also discussed with all partners the possibility of organising more expeditions next year and it was decided to have no less than three sessions next year, aiming at different 'levels' of participants. It was also decided to work out a landscape management plan for the whole château - some ENITA students will work on that during this winter. Future farmscaping measures such as hedgerow planting have been initiated and will increase the value of future expeditions, linking biodiversity with the landscape.

The trapping of arthropods has continued and Sylvain will soon present the results in his student report. Both reports will be available on the EITA Website at www.enitab.fr from November onwards.

We hope you will be able to use the skills you acquired during the expedition for other biodiversity projects. If you meet anyone interested in our work please point out to him/her that there will be new expeditions in 2008!

Maarten van Helden (PI); Veronique Minssieux, Sylvain Lodsdat.

Biodiversity Enhancement in the Bordeaux Vineyards - Report -



Biodiversity Enhancement in the Bordeaux Vineyards

- Field report -



*Château les Vergnes – France
18th – 22th June, 2007*

Project Title: 'Biodiversity Enhancement in the Bordeaux Vineyards'.

Principal Investigator:

Dr. Maarten van Helden
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Research Site:

Château Les Vergnes
UNIVITIS ; 33220 Les Lèves et Thoumeyragues, Gironde, France
N : 44'46,59" E : 00'11,43"
Wine Estate

Key Research Objectives:

- The objective of this project is to identify and promote farmscaping practices to enhance biodiversity at the regional level in grape growing areas.
- As a first step the 2007 expedition aimed at developing appropriate methods to quantify biodiversity in a simple and efficient way (parataxonomy) that can be used by non-experts.

Additional information on this expedition and its use in the scientific research programme of the Principal Investigator is available through reports by Losdat (2007) and Minssieux (2007).

Data collection and results:

This expedition, which took place from June 18th-22nd in Château Les Vergnes (Univitis) at the village of Les Lèves et Thoumeyragues in Gironde (France), is a collaborative project of *the Earthwatch Institute*, the Bordeaux Agricultural University ('*ENITA de Bordeaux*'), *Syngenta*, The *Univitis* cooperative Winery and the hunting federation of the Gironde (*Fédération départementale des chasseurs de la Gironde*).

This first Earthwatch expedition was a pilot study, aiming at developing and testing the feasibility of simplified biodiversity measurements for different taxons (birds, insects, plants) using non-expert volunteers.

Field work included sampling of insects and plants and bird song identification, followed by laboratory identification. Some introductory lectures and plenty of discussions completed this week. Participants showed good motivation, in spite of suboptimal weather conditions, and enjoyed excellent food, drinks and lodgings.

The final objective of this project will be to promote farmscaping practices to enhance biodiversity at the regional level in grape growing areas. In order to achieve this goal, appropriate methods have to be developed to quantify biodiversity in a simple and efficient way (parataxonomy) that can be used by non-experts.

These methods can then be used:

- to compare between sites (spatial scale, regional level) and different existing landscape-types (descriptive) in order to select farmscaping practices functional for stimulating biodiversity which then can be proposed to farmers
- to compare between years (timescale) to observe the effects of these farmscaping practices

This expedition was thus aiming at providing additional methods and data for the scientific research project of Maarten van Helden (Principal Investigator) of the ENITA de Bordeaux.

Ten people participated in this first expedition (see appendix 1).

During the expedition week different protocols for Rapid Biodiversity Assessment (RBA) as developed during a students project of the ENITA de Bordeaux in 2006 (Daubas *et al.*, 2007) were tested on the participants. Results expected were about the participants' ability to use the sampling methods and identification tools.

Insects were sampled using different traps. Plants were collected through leaves of the plants of the vine undergrowth that were directly field sampled. Birds were observed through song identification.

Identification of plants and insects was performed in the laboratory using identification keys and 'intuitive' sorting of samples. Different approaches and evaluation protocols were tested during several consecutive sessions on different groups of participants in order to test their reliability and to select the most efficient (speed and reliability) methods.

On the whole, results were encouraging. The first test session of each (taxon) theme made it possible to define needs and the best way to present the method. The second (adapted) session (with another group) showed that, with these adaptations, the participants were able to perform the sampling and identification quite quickly and reliably. Parallel to this 'non-expert' parataxonomy, the scientific staff (cf. appendix 1) properly identified samples, and results were compared and discussed with the participants through daily briefings.

During the week, a lot of feedback on the present work was obtained. These suggestions, ideas, problems and defaults were the result we aimed at and they were used to further improve the method.

The major goal of this expedition was achieved: the development of methods to measure biodiversity of different taxons (especially insects and plants) that are simple, fast and

reliable and can be used by non-experts. A short training period (two hours) seems essential to learn to use the methods.

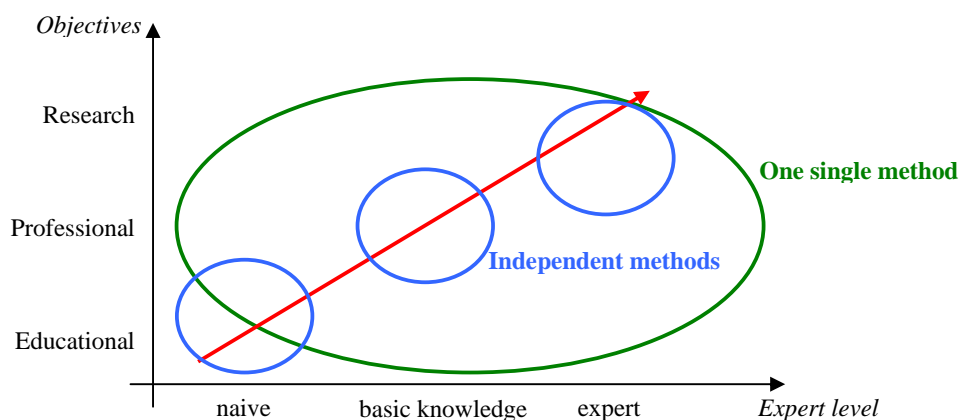
NB: An additional two day mini-field trip was already performed (July 24th and 25th 2007) with a new set of non-expert volunteers to validate the new RBA methods.

Benefits of research

- The methodology developed during the 2007 project will allow us to proceed in the research project and to apply these methods on a landscape scale from next year onwards. We will apply the techniques we developed in two distinct wine-growing areas in France.
- At these two sites we will try to do:
 - Monitoring of arthropods in relation to landscape characteristics.
 - An experiment to test wild flower seed mixtures appropriate for plot undergrowth
- At Château les Vergnes we will try to establish a farmscaping and management plan with the help of ENITA students that will be applied from spring 2008 onwards as a demonstration project.
- Three Earthwatch expeditions are programmed in 2008. During these expeditions the participants will apply these RBA methods to gather useful scientific data for the research programme on this site.

Some supplementary conclusions based on our observations and participant comments:

- ✓ The **length of a (taxon) session** was not well adapted. One day per taxon is too short. Half a day more at least is needed. The first half day is needed to teach the method. The second half day would be used to make participants use the method properly in order to have exploitable results for the PI in his research programme. This requires a full five day expedition, starting Monday morning and ending Friday afternoon.
- ✓ **Improvement and choice of the methods for each taxon will depend on future goals and utilizations** that will have to be defined. The present methods aim to answer to three main objectives: educational, professional and scientific. All these objectives cannot all be reached for all taxons with the same expert level. The scale of observation (intra-plot, inter-plot and landscape) also changes the optimal approach.



- ✓ The present methods provide good educational supports, as most of the participants left the training session indicating they learned a lot about biodiversity and farm practices. However, at the start of the expedition participants do not all have identical

- (ideas on their) proper expert level. → the method should leave more opportunity for the individual user to use his proper knowledge.
- ✓ Some people know some scientific names of plants or insects (expert or technicians) and they are reluctant to use codes instead of scientific names as used in the plant identifications.
 - ✓ It seems important to be able to link results to other scientific studies. Since most of the research programmes on biodiversity assessment are based on taxonomic evaluation, identification should be performed at least up to a generally recognised taxonomic level.
 - ✓ For insects the 'order' level seems appropriate. The additional short session showed us that it is possible to reach determination at order level quite easily with an adapted key and quick training, even for naïve participants. A single method therefore seems broad enough to ensure at the same time educational aspects for naïve people and research aspects. For plants and birds this would require adapting the actual methods.
 - ✓ The introductory lectures were not well adapted. They were too theoretical. For next time, we should include more explanations about the global context of the project and insist more on relationships between landscape-biodiversity-farm practices for each taxon: birds, flora and fauna.
 - ✓ As far as logistics was concerned:
 - Some 2007 participants were unable to attend the whole 3.5-day expedition (Monday evening, Thursday evening). This clearly was disappointing for them as it was for the organisers of the expedition.
 - As stated before, the expedition would have gained in value by lasting a full week, starting Monday morning and ending Friday afternoon.
 - Some of the evening activities had to be cancelled due to bad weather conditions. This did not harm the overall standard of the week.
 - The amount of scientific staff seems more than sufficient. The presence of the two students (Veronique Minssieux and Sylvain Losdat) was a considerable help to assure good communication and logistics.
 - Food and lodging facilities were appreciated and contributed to the general well-being of all participants and staff.
 - Evening programmes should not be scheduled unless optional. Such activities are difficult to combine with daytime and dinner schedules.

Volunteer tasks and Accomplishments

- A. Volunteers tested new, experimental protocols designed for Rapid Biodiversity Assessment (RBA) for plants (vineyard undergrowth); arthropods and birds. Apart from the different test sessions, a lot of informal discussion contributed to improvements of the methods.
- B. The main objective for us was to see if we could develop methods that were simple, fast, easy to use by non experts and still scientifically correct. This result was achieved and the methods can and will be used in future scientific research. Volunteers were nearly as good as 'experts' in distinguishing species; the absence of official 'taxonomic identification' of the specimens is not a constraint for the research we are doing.

Project development

- A. In 2008 three expeditions will be held. Logistics will not be changed (general satisfaction, no complaints), but we will focus on our scientific goals: linking biodiversity to farmscaping practices.
- B. We have already organised a mini-expedition with our laboratory staff. This allowed us to validate the new keys we developed. This year research objectives were modest. Research will be more important next year.
- C. A farmscaping management schedule will be developed as a professional project by a group of ENITA students during this winter. All experts implicated in the 2007 expedition have agreed to participate, together with the farm manager Serge Labat and the environmental experts from Syngenta. We will also have two students working over the summer on biodiversity assessment on more plots in different landscape situations, and an experiment on the sowing of undergrowth. Earthwatch volunteers will participate in both projects, using the methods tested in 2007.

Educational Opportunities

- A. Students (ENITA) were involved in the organisation. Viticulture extension workers (Syngenta) were involved
- B. The educational aim of this work is to make people aware that 'biodiversity' is not only focussing on nature conservation or endangered species. By observing 'common' biodiversity in a cultivated area people start to appreciate the direct environment they are living in and understand that agriculture has a direct impact on biodiversity. Even very simple agro-environmental measurements, easy to apply at the farm scale, can improve biodiversity.
- C. Two student master theses were produced, one on the educational side of the project by Veronique Minssieux (ENITA de Bordeaux), and one on the scientific validation of the RBA methods (Sylvain Losdat Bordeaux 1 university).

Partnerships

- A. Partnerships in this programme were the *Earthwatch Institute*, the Bordeaux Agricultural University ('*ENITA de Bordeaux*'), Bordeaux 1 university; *Syngenta*, The *Univitis* cooperative Winery and the hunting federation of the Gironde (*Fédération départementale des chasseurs de la Gironde*).
- B. All of these partners have contributed to the success of the expedition, either by providing experts (Didier Alard, Jerome Allou), or by providing help for logistics and funding (Univitis, Syngenta). Some external organisations (ESA Angers (agricultural university), the wine growers association of Saumur-Champigny, Association for Sustainable Agriculture ARD-VD.) have shown interest in either contributing or participating in new expeditions, or to apply the methods we have developed for future research.
- C. All of the partners have expressed their wish to continue with this project:
 - o Earthwatch, by expanding the scope of recruiting participants, offering it as a retail expedition.
 - o Syngenta wishes to continue with the project at Château les Vergnes and has proposed to continue financing a small research activity at the site. It would

also like to study the possibility of performing similar work at other demonstration farms of the AGERIS network. Syngenta wishes to continue to strengthen its efforts in developing sustainable methods in agriculture.

- Univitis (Chateau les Vergnes) sees this project also as a demonstration and communication tool. Even though this does not 'improve' the quality of the wine production, consumers are raising questions about environmental impact of agricultural activities. Univitis has promised even more help for logistics next year.
- Didier Alard (Bordeaux 1 university) will participate in research on wine undergrowth next year.
- Jérôme Allou (hunting federation) has found a new job but wishes to be involved in the student project and (if possible) in new expeditions.

Acknowledgements

We would like to thank all the people involved in the initiation of this project, especially Earthwatch and Syngenta. The help of all partners in the organisation and all participants was greatly appreciated. This project gave us a lot of work, but a tremendous amount of satisfaction. We are highly motivated to continue this work and we hope this will contribute to helping to improve farming practices to enhance biodiversity.

Maarten van Helden (Principal Investigator), Veronique Minssieux, Sylvain Lodsdad

D. Appendix 1

List of participants:

Andre Fougeroux (Syngenta France)
Bruno Cagnac (Syngenta France)
German Canomanuel (Syngenta Spain)
Lionel Stanbrook (Syngenta Switzerland)
Marc Alavoine (Syngenta France)
Olivier Cluzel (Syngenta France)
Paul Laird (Earthwatch UK)
Ramón Gonzalez (Spain, Universidad de Jaen)
Roger Mitchell (Earthwatch UK)
Serge Labat (Château les Vergnes manager)

Project staff:

Maarten Van Helden (Principal Investigator, ENITA Bordeaux)
Didier Alard (botany expert, University Bordeaux I)
Jérôme Allou (wildlife and bird expert, Hunting Federation Gironde)
Sylvain Losdat (scientific coordinator, ENITA Bordeaux)
Véronique Minssieux (on-site logistics coordinator, ENITA Bordeaux)

Appendix 2: additional reports, cited in the text:

Daubas M., Gardelle A., Losdat S., and Tache E. (2007) Biodiversité à l'échelle de l'exploitation viticole: Mise au point d'une méthodologie de suivi, ENITA de Bordeaux 2007
Minssieux, V. (2007)

Losdat, S. (2007)