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Visit our web site <http://www.symfor.org> for more information on SYMFOR and for a free copy of the software

### SYMFOR (Silviculture and Yield Management For Tropical Forests)

The SYMFOR framework and models have been developed in order to improve growth estimation and yield prediction for timber resources, supported since 1997 by the Forestry Research Programme (FRP, project R6915) of the UK Department for International Development (DFID).

In the first years of the project, the focus was on developing ecological and management models that have become the SYMFOR modelling framework. This was followed by a phase where SYMFOR was successfully applied by a number of groups around the world, providing a tool to assist forest management decision and forest policy.

Building on this work, activities now concentrate on further promotion of the uptake of SYMFOR and discussions of a planned cluster of projects supporting yield regulation within multiple objective forest management (<http://www.moform.org>) with potential collaborators and clients.

### Project activities over the first half of 2002

#### JANUARY - MARCH 2002

#### Paul Phillips in French Guiana: linking SYMFOR with ECOGENE

The potential for collaboration between FRP R6915 and the DFID-Brazil DENDROGENE project (<http://cpatu.embrapa.br/dendro>) was first identified through visits in 2000 and 2001 of the R6915 Project Manager, Dr Paul van Gardingen. As a result of these discussions, Dr Paul Phillips was commissioned by DFID Brazil and INRA (France) to develop a version of SYMFOR to be integrated with the ECOGENE simulation model, developed by Bernd Degen and used by the DENDROGENE project. Dr Phillips worked on this with staff at INRA, French Guiana from January to March 2002. A workshop was held in Belem, Brazil, in March 2002 to present the results of the first phase of this collaborative activity. A second phase will follow in August/September 2002.

#### FEBRUARY - MARCH 2002

#### Multi-stakeholder workshops in Indonesia and Guyana

FRP project R6915, managed by the University of Edinburgh, and project R7278, managed by the University of Oxford, have been working in conjunction with partners in Indonesia and Guyana to implement yield regulation pilot studies applying the tools SYMFOR and MYRLIN<sup>1</sup> in each country. In February and March 2002, local partners in Indonesia and Guyana hosted workshops to present technical results from yield regulation pilot studies that had been supported by the FRP. The results of the studies were presented to diverse groups of local stakeholders to raise awareness of yield regulation issues, stimulate debate and obtain feedback on the need for additional research and policy support.

For further details about those workshops please see Paul van Gardingen's Back to Office Report, available from [http://www.symfor.org/btor/Pilot\\_studies\\_2002.pdf](http://www.symfor.org/btor/Pilot_studies_2002.pdf). Full workshop reports will be posted on the website.

<sup>1</sup> Yield regulation toolbox for use in situations where data are limited, developed by the University of Oxford (FRP project R7278)

## **Paul van Gardingen visiting Indonesia, Bangkok, Canberra, Brazil, Guyana, and Washington**

Paul van Gardingen went on a two months trip to visit existing (SYMFOR) and potential (MOFORM) project partners in various countries. The Back to Office report covering this visit is available from [http://www.symfor.org/btor/Pilot\\_studies\\_2002.pdf](http://www.symfor.org/btor/Pilot_studies_2002.pdf).

## **Paul van Gardingen attending the Tropenbos International Seminar, The Hague**

The Tropenbos International seminar, “*Forest Valuation and Innovative Financing Mechanisms for conservation and sustainable management of tropical forests*”, was held in The Hague on March 20-21 2002. Details of all papers and the resulting discussion have been published on the Tropenbos International website (<http://www.tropenbos.nl>). The meeting was used as an opportunity to meet with a number of potential collaborators for the MOFORM research cluster.

### APRIL 2002

## **Overseas researchers working with SYMFOR at Edinburgh University**

### **1. SYMFOR as a framework**

*By Paul Phillips (University of Edinburgh)*

SYMFOR is a software framework for containing and running forest simulation models. Generally it is known by the models it contains, such as that for Indonesia and two regions of Guyana. Recently the framework has become attractive to researchers who wish to use their data to build a model and use it in simulations. This is the case for Bert van Ulft and Eric Arets, PhD students from the University of Utrecht in the Netherlands, and Geoffrey Blate, a PhD student from the University of Florida at Gainesville in the USA. Bert and Eric have collected data from Guyana in collaboration with Tropenbos, and Geoff is collecting data from Bolivia in collaboration with the BOLFOR project. Bert and Eric are modelling the process of recruitment through seed-dispersal and seedling growth, while Geoff is interested in evaluating forest management options as trade-offs between timber yield, fire risk and carbon storage. All three visited Edinburgh for about 3 weeks in March-April 2002 for training in C++ programming, the SYMFOR code and modelling. Geoff is currently involved with the data-collection process, while Bert and Eric have

progressed significantly with their model implementation, as described below.

### **2. Modelling recruitment from seeds**

*By Bert van Ulft and Eric Arets (Utrecht University, the Netherlands)*

SYMFOR in its current form includes individual trees larger than five centimetres diameter. It uses spatial data about these trees to model their growth. However, recruitment depends on only local competition. Therefore, new sub-models were developed, which make recruitment dependent on presence of and distance to adult trees. Since modelling individual seeds and seedlings would be technically impossible, it was decided to model seedling cohorts. A seedling cohort is characterised by a species group, the number of seedlings in the cohort and the age and size of the seedlings in the cohort (all seedlings in a cohort have the same age and size).

The new sub-models include seed dispersal, seedling establishment and growth and mortality of seedlings. Each year, the number of seeds entering a gridsquare will be calculated for each species from the distance to and size of surrounding con-specific adult trees. The amount of competition (index for light climate) in that gridsquare will then be calculated from surrounding vegetation and the proportion of seedling establishment will be calculated. Multiplying the number of seeds with the proportion of establishment gives the initial number of seedlings in the cohort. In following years the growth and mortality are calculated from the competition index. If a cohort reaches five centimetres diameter, then the remaining “seedlings” are translated to individual trees. For these individuals a random position within the gridsquare is selected, ensuring they are not positioned on impossible locations (e.g. on top of other trees or skid trails that are younger than the cohort). The development of these sub-models is still ongoing. The data that will be used to derive the equations and estimate the parameters are collected in Guyana within the Tropenbos-Guyana Programme.

### MAY 2002

## **Training programme for overseas visitor**

Celso Azevedo, from Embrapa Amazonia Oriental, Brazil, visited Edinburgh University to partake in a

personal training programme in statistical analysis and the development of ecological models. The programme was implemented by Dr. Paul Phillips, supported by the DENDROGENE project. The DENDROGENE project is developing approaches to address genetic conservation within managed forests in Amazonia, and is a bi-lateral cooperation between Embrapa Amazonia Oriental and the UK Department for International Development (DFID).

## JUNE 2002

### **Paul van Gardingen attending IUFRO conference “Reality, models and parameter estimation – the forestry scenario”**

The IUFRO conference “*Reality, models and parameter estimation – the forestry scenario*” was organised by IUFRO groups 4.01 and 4.11 and held in Sesimbra, Portugal from 3-5 June 2002. The themes of the workshop commenced with the consideration of issues of the representation of “*reality*” by models with the implied question of how can the models be improved to give precision or accuracy. Later sessions moved on to a discussion of how models could be applied to support management decisions and policy development.

## JULY 2002

### **SYMFOR release**

The latest version of SYMFOR, with changes up to 22<sup>nd</sup> July 2002, is now available on the website (<http://www.symfor.org>). The upgrades include:

- a few minor bug-fixes
- the addition of some model components – for models for Ecuador, Guyana and Brazil
- a new, improved multiple-run facility (tip – use the File menu...).

The help files are also updated to reflect the recent changes to SYMFOR. Probably the most useful change is a new Tutorial:

“<http://www.symfor.org/symfor/Hlp/userman/tutorial.html>”.

To see what’s new, check out the page: “<http://www.symfor.org/symfor/hlp/whatsnew/whatsnew.html>”.

## AUGUST 2002

### **Paul Phillips in French Guiana: linking SYMFOR with ECOGENE**

The second phase of this work will see the linked EcoGene/SYMFOR system calibrated for moist tropical forests in Amazonian Brazil. Part of this process will be to produce a model within SYMFOR that will be used to calibrate the linked system. This work is supported by INRA (France) and the DENDROGENE project, Belem, Brazil.

## Project Management and Organisation

The SYMFOR Project is managed by staff at  
[The University of Edinburgh](http://www.ed.ac.uk).

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