CRCSI 2.07 project Workshop

Day and venue:
Canberra, 21 February 2013, Pye Laborartory CSIRO, Black Mountain, Canberra

Participants:

Canberra: Andrew Haywood (DSE_VIC), Christine Stone (NSW_DPI), Simon Jones (RMIT), Will Woodgate (RMIT), Phil Wilkes (RMIT), Andrew Mellor (DSE_VIC), Martin Mutendeudzi (DAFF), Claire Howell (DAFF and ABARES), Lola Suarez (RMIT).

By phone in:
Brisbane: Peter Scarth, John Armston and Nic Goodwin (DSITIA_QLD)

WA: Brendon McAtee (Landgate_WA)

Session 1: Project description and update
In this section a brief project description was provided; for new observers (unfamiliar with the project goal and objectives). Project activities carried to date were then summarised.

Session 2: Data primitives discussion
This session aimed to clarify the definition of “data primitive” (DP), in the context of the project, and prioritise which DPs would be targeted for work in project 2.07.
The group agreed on a definition of Data Primitives as a:
“Set of landscape metrics that are functional descriptors of woody vegetation” and more explicitly being “Scalable up to the landscape level” and “of utility in Australian sclerophyll environments”.

During the first phase of the project, a set of data primitives were selected based on international initiatives and a survey of Australian and New Zealand end users. This set of data primitives were introduced for group discussion.
The table below summarises the output of the discussion:

Data primitive	Priority	Comments
Canopy height	High	Expected accuracy < 2m. In some cases enough to create categorical maps. Photogrammetry was proposed as methodology (using satellite instruments / stereo-models) for large area mapping.
Fractional cover	High	LAI and FPC are included in this output. Use of LiDAR and up-scale to regional level estimation using satellite optical imagery. Differentiate between photosynthetic and non-photosynthetic components
Woody/Non-woody classification	High	Using optical imagery and LiDAR
Forest typing	High*	*Not in the scope of the project. Considered a product resulting from the combination of other data primitives
Plant Area Volume Density	Low	Using LiDAR and Radar (the latest out the scope of the project)
Coarse Woody debris	Low	NA
Tree diameter (DBH)/ Tree spacing/ Stem density	Very low	
Foliage chemistry/Discolouration	Very low	

The project partners unanimously agreed on focusing on the high priority data primitives in the next phase of the project.

Session 3: Landscape definition and landscape features

During this section, the group defined the terms “landscape” and “feature” for the new stage of the project that will focus on woody vegetation feature extraction at the landscape level.
Landscape was defined as a heterogeneous portion of terrain composed of homogeneous patches (features).
Feature size can be between 20 and 5000 ha. Accurate feature delineation is important because they are management units with independent budget(s). A group of management units is a compartment and a forest is composed of several compartments.
The features created to characterise each landscape are dependent on the objectives, the agency, and the spatial resolution.

The project partners stressed the need for generating automatic tools for feature generation, followed by a demonstration to the partner agencies and a test on specific landscape examples. The values of interest of those segmentation methods are being operational and applicable to large scale areas.

Session 4: Agreement on future working line and decision point

In this section the project team proposed some changes to the project work plan, due to team personnel changes and data availability. The proposed changes included the re-phasing of certain activities, the modification of some activities and the insertion of new activities. These changes were discussed in the context of partner needs. All workshop participants (investigators, and project partners) agreed unanimously to the proposed changes.

The proposed changes were:

- To change the literature review entitled “Literature review for multi-sensor (airborne and space-borne multi-resolution optical and ranging data) and ground data registration models to realise up-scaling of data-primitive woody vegetation characterisation to landscape woody vegetation attribution” into “Literature review of multi-sensor techniques for up-scaling of data-primitive woody vegetation characterisation to landscape woody vegetation attribution” focusing on techniques used to generate landscape features using different sensor data.
- To re-phase the milestone “Test field and multiple-sensor (passive and active) data fusion techniques across network of native Australian forest field sites” and the deliverable “Literature review for landscape woody vegetation feature generation” scheduled for quarter 7 to quarter 9.
- To change the literature review entitled “Develop Standard Operating Procedures for standardised field data techniques for collecting data primitives in a range of ecologically significant Australia forest types” into “Develop guidelines for standardised field data techniques for collecting data primitives in a range of ecologically significant Australian forest types”.
- To change the milestone entitled “Publish Australian woody vegetation landscape feature generation manual – comprising standard operating procedures for field sampling and data processing, and analysis algorithms for adoption by end-users in various off-the-shelf and open-source software systems” into “Publish examples/demonstration of Australian woody vegetation landscape features generation for adoption by end-users in various off-the-shelf and open-source software systems”.

The final remarks were:

- Feature generation is very important in the national context.
- There is a need of interaction between partners and the team to validate products
- The future workshops and the scientific collaboration will be open to every person interested
- After refocusing the project plan, it looks more pragmatic and realistic.