

RESEARCH

LUPIS : A DECISION-SUPPORT TOOL FOR INTEGRATED LAND-USE PLANNING

by Robert Lambeck

ARE you doing farm or catchment planning? CSIRO has been working on a computer model that could help.

Things are obviously changing down on the farm: increasingly we're hearing about product diversification, alley farming, plantation forestry, oil mallees, land conservation, nature conservation, integrated catchment management, etc. Farmers are having to make decisions about a much wider range of land uses and, with the expansion of catchment management, they are often having to make decisions in consultation and cooperation with their neighbours, shire councils, government agencies and their advisers, and private consultants.

Suddenly, the decision-making process has become more complex, and maybe not everybody share the same objectives. Even if they do have common objectives, they may not agree about the relative importance of those objectives. So, how do we decide which parts of the landscape are best suited for the different land uses that we identify? How do we assess the impact of actions for nature conservation and land conservation on productivity and profits? How do we take into account the fact that different participants have different objectives? These and many other questions have to be dealt with when we consider multiple goal planning at a catchment scale.

This is where decision support tools such as LUPIS (Land Use Planning and Information System) can be of assistance. Decision support tools are designed to help you to make decisions in an orderly manner. They ensure that it is obvious to everyone exactly what

decisions are being made, and why they are being made. LUPIS also allows you to play 'what if' games with your farm plans so that you can explore the consequences of making different land-use decisions.

If you are going to get involved in group planning, there are some essential elements that have to be included in the planning process. These include:

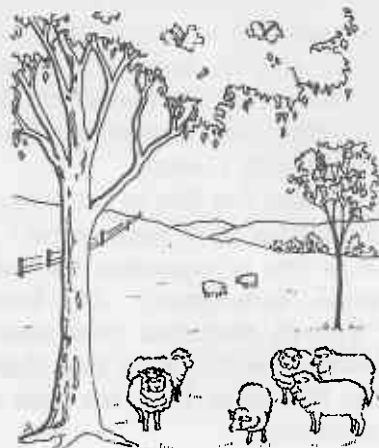
- stake holder participation
- identification of the main land management issues and objectives
- identification of the full range of potential land uses that can help you to meet those objectives
- assessment of land suitability/capability for those different uses
- development of guidelines for land allocation - these are the 'rules' that you use to decide what should go where
- creation and comparison of alternative land-use plans.

LUPIS is a computer-based support system which helps with the last point in this list. It's a sophisticated version of those plastic overlays that you've all used in farm planning in the past, with the benefit that it allows you to try different patterns of land use and see what the implications are for

your different objectives. The important features of LUPIS include:

- an ability to reflect the interests of each of the different stakeholder groups,
- transparency in the decision - making process, so that all participants can see how outcomes are arrived at, and how their interests are performing,
- an ability to quantify the extent to which different objectives are being met,
- and ability to determine the impact on all other land uses of allocating land to a particular use,
- an ability to run 'what if' scenarios to assess the likely consequences of alternative decisions.

It's important to remember that any decision support tool is designed to assist you in the planning process - they don't make the decisions for you. More importantly, the quality of the results that such a process produces will depend on the quality of the information that you use for making decisions. There is no substitute for a good understanding of the issues that you are dealing with! The real strength of using these types of tools is that they help you to manage the information that you need for good planning and they provide a logical and transparent procedure for helping you to make decisions about increasingly complex planning issues.



LUPIS was developed by John Ive of CSIRO's Division of Wildlife and Ecology. For more information about its use, contact Dr. Robert Lambeck at CSIRO Division of Wildlife and Ecology, LB 4, PO Midland WA 6056.