

Northern Rivers Farmland Protection Project

Final Recommendations

February 2005



Department of
Infrastructure, Planning and Natural Resources



NSW DEPARTMENT OF **PRIMARY INDUSTRIES**

FINAL RECOMMENDATIONS

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Introduction

Agriculture is an important industry on the North Coast. It is the region's third largest employer and exporter and fourth highest contributor to gross regional production.

Agricultural land is a finite resource and is under increasing development pressure. A great deal of good agricultural land has been lost to production already. Population pressures have resulted in substantial urban and rural residential encroachment onto farmland. This is having a significant impact on the economic and social value of agriculture in our region. In particular, the loss of critical mass of farms can make it difficult to maintain support services and infrastructure. Land use conflicts between farming and non-farming neighbours have increased, at times leading to farmers having to alter or even close their farming operations. Increasing land prices due to development pressure makes it difficult for farmers to purchase additional land to ensure the ongoing viability of their business.

What's the background of the Farmland Protection Project?

The protection of agricultural land on the NSW North Coast is a long-term government initiative. It was first identified in 1995 in the North Coast Urban Planning Strategy and subsequently in the NSW Coastal Policy (1997), the Northern Rivers Regional Strategy (1999), and the Northern Rivers, Upper North Coast and Mid North Coast Catchment Blueprints (2002). It is consistent with the goals and strategic directions of the state government.

The Northern Rivers Catchment Management Blueprint was developed to provide a direction for action and investment by stakeholders in the catchment's natural resources. Land Use Planning Management Target 2.1 of the Blueprint is to have:

'100% of those large contiguous areas of land mapped as most important for current and/or future food, fibre and timber production and rural employment permanently protected in agricultural reserves by 2008.'

The related Blueprint action 2.1.1 is to:

'Develop criteria to identify the areas of agricultural land that need to be conserved for future agricultural use, and map the agricultural reserve boundaries at a cadastral level'

The target and action form the basis for the Farmland Protection Project.

Where does the project apply?

The project area includes the Tweed, Richmond and Brunswick catchments, these being the previous Northern Rivers Catchment Management area. It includes land in the Tweed, Byron, Kyogle, Lismore, Richmond Valley and Ballina local government areas.

Who is carrying out the project?

Stage One of the Project was coordinated by Lismore Living Centres, as part of the former Department of Urban Affairs and Planning/PlanningNSW. That stage of the project was overseen by the Living Centres Reference Group, which comprised representatives from state and local government as well as regional industry and community interests. PlanningNSW has since been merged with the former Department of Land and Water Conservation to form the Department of Infrastructure, Planning and Natural Resources (DIPNR). The Northern Rivers Catchment Management Authority secured federal funding to continue the Project, and

contracted DIPNR to carry out Stages Two and Three of the project through DIPNR's North Coast office in Grafton. The former NSW Agriculture, now Department of Primary Industries, is a major partner in the project.

The project team comprised:

- Claire Aman, DIPNR, (environmental planning), project coordinator for Stages Two & Three. The coordinator for Stage One was Wendy Stuart, (natural resource planning) Lismore Living Centres
- Carlie Boyd, DIPNR, (environmental planning)
- Max Boyd, former Northern Rivers Catchment Management Board
- Roy Hayward, DIPNR, (geographic information systems)
- Jim Hindmarsh, NSW DPI, (agricultural land assessment)
- Michael Kennedy, DIPNR, (geographic information systems)
- David Morand, DIPNR, (soil survey)
- Graeme Short, DIPNR, (land resource mapping)
- Rik Whitehead, NSW DPI, (agricultural land use planning)
- Greg Yeates, DIPNR, (environmental planning)

Local government planning staff had input to project team meetings on a regular basis during the second and third stages of the project. Agricultural industry representatives were consulted during the project.

What does the project seek to do?

The Farmland Protection Project seeks to protect important farmland from urban and rural residential development by mapping farmland and developing planning principles. The project team has endeavoured to put forward policies which can be of genuine long-term benefit to agriculture in the region without imposing unnecessary restrictions on farmers.

The project aims to protect a broad range of lands to cater for a range of agricultural industries that may be important currently or in the future, thereby keeping land options open for new crops and farming methods. Urban and rural residential development will be limited on land identified by the project so that areas with the most potential for production are not lost to urban uses.

Farmland protection has the potential to provide a range of broad benefits. By keeping agricultural land available for farming, it will help to maintain the agricultural land resource in the long term. It will minimise farming/residential land use conflicts. Farmers, knowing whether their locality is to be protected from residential encroachment, will have greater certainty for investment in agriculture and sustainable land management systems.

The project will not force a change to current land use. There will be no requirement for agricultural activity to occur on land. The intention is to protect the land's farming potential, so land uses that alienate farmland, such as residential development, will be limited. The main effect of the project will be that mapped farmland will be avoided in the planning process for future residential areas. The project will result in a greater level of certainty about the development potential of farmland.

The project does not aim to protect any scenic views associated with farmland. Its focus is on protecting the agricultural land resource for current and future production. The quality of any visual landscape has not been a criterion for identifying significant farmland.

What's happened so far?

First stage

The project commenced in July 2002. The first stage began with the project team developing criteria for mapping lands suitable for agricultural protection. The mapping process is described at section 2. The team prepared draft maps using these criteria. Draft planning rules were developed as a starting point for discussion. In the first half of 2003, the draft maps and planning rules were presented to agricultural industries, local and state government and the broader community for discussion. The community consultation process is detailed in section 3. The first stage was coordinated by Lismore Living Centres.

Second stage

During Stage 2, DIPNR implemented a policy to protect farmland as a holding measure while the project was being completed. The policy is a Section 117 Direction under the Environmental Planning and Assessment Act, and is called the Section 117 Direction (January 2004) on interim protection for farmland of state and regional significance on the NSW far north coast. It prevents urban and rural residential rezoning of state or regionally significant farmland identified on maps dated January 2004, unless the land is within a settlement strategy agreed between councils and DIPNR. It refers to the maps which were drafted in the first stage of the project, using the methodology as developed at the time.

Stage 2 was a review phase. After examining the feedback which resulted from the 2003 community consultation, the project team reviewed the mapping methodology and the planning rules, taking into account the key themes which had emerged. Those themes are presented at section 3.

The reviewed draft maps and planning rules were placed on public exhibition between mid-August and the end of September 2004. The draft planning rules exhibited in the second stage focused on strategic planning rather than land use on farms, in response to community feedback given during the first consultation.

Third stage

The third stage was a further review stage which examined community feedback received in response to the stage 2 consultation phase. This feedback guided the project team in developing the third stage maps and the planning recommendations in this Final Report. The key themes highlighted by the community in response to the 2004 maps and planning rules are at section 3. This stage also included an independent methodology review by CSIRO Sustainable Ecosystems.

What happens next?

The Section 117 Direction on interim protection for farmland is currently still in place. As a next step, DIPNR intends to recommend to the Minister for Planning to update the Section 117 Direction to refer to the finalised maps and the planning principles proposed at section 4.

Again this would be an interim situation, pending the completion of the department's Far North Coast Strategy, which is expected to be completed in late 2005. The Strategy, in planning for the region's next 30 years, will consider a range of issues including population growth, infrastructure, transport, housing affordability, coastal management, environmental protection and economic growth. The outcome of the farmland work will form one of many layers of the Strategy. The Section 117 Direction will be superseded by the Strategy.

2 THE MAPS

How the maps were developed

A detailed account of the methodology is available in a separate document as part of this package. The following is a summary.

The steps

The steps in the mapping process are summarised below:

Stage One (July 2002 to June 2003)

- a) investigate available mapping data sets
- b) identify preferred data set (soil landscape mapping) and criteria for identifying significant agricultural land
- c) Initial selection of soil landscapes which meet criteria
- d) identify draft criteria to differentiate selected soil landscapes as state, regional or local.
- e) prepare preliminary draft maps based on draft criteria
- f) observe the maps broadly for coverage, distribution and anomalies
- g) amend maps where required
- h) workshop preliminary draft maps with local government planners, government agencies and industry bodies
- i) identify cadastral boundaries of best fit for areas identified as state significant
- j) run sensitivity analysis to identify scale error for cadastral boundaries
- k) workshop draft maps with the community in conjunction with draft planning rules
- l) compile community feedback and submissions for consideration at review stage (Stage Two)

Stage Two (July 2003 to August 2004)

- m) check mapping anomalies and inconsistencies identified by public submissions and project team assessment
- n) refine soil landscape selection/classification in response to previous step
- o) prepare revised draft maps applying refined selection/classification
- p) assess revised maps, check for anomalies and inconsistencies
- q) steps p) – r) repeated four times
- r) prepare new draft maps, exhibit to the public with revised planning rules

Stage Three (September 2004 to February 2005))

- s) independent review of methodology
- t) check for mapping anomalies and inconsistencies identified by public submissions
- u) soil landscape data review
- v) refine soil landscape selection
- w) refine distinction between state and regionally significant farmland
- x) final check of maps for consistency
- y) print final maps

Soil landscape mapping

The first steps in the project were to investigate various mapping data and decide on a suitable method of identifying significant agricultural land. The method chosen by the project team was based on soil landscape mapping undertaken by the former Department of Land and Water Conservation (now DIPNR).

Soil landscape mapping uses soil, landforms and geology to identify soil landscapes. Descriptions of vegetation, land use, land degradation and rural and urban capability are included in each soil landscape description in the accompanying soil landscape reports (Morand 1994). Soil landscape mapping has nothing to do with 'landscape' in the visual or scenic sense. Soil landscapes are areas of land with unique landform features containing a characteristic set of soils. Since landscapes and their soils are formed by the same natural processes, soil landscapes are the best way of presenting soil and land resource information. A particular soil landscape can occur widely, or it can be unique to a small area. For example, the Ophir Glen soil landscape occurs in numerous small alluvial fans and valley in-fills throughout the Burringbar Hills, including near Mooball, Upper Burringbar, Crystal Creek and North Tumbulgum.

A major reason for using soil landscape mapping is that it uses a combination of criteria to identify a land's rural capability - that is, the ability of land to sustain permanent agricultural or pastoral production without permanent damage. An additional major advantage of soil landscape mapping is that there is complete coverage of the Northern Rivers.

Soil landscape selection

The rural capability evaluations described in soil landscape reports have formed the basic criteria for selecting the soil landscapes to be included in the proposed farmland areas. Consideration was given to those with low to moderate limitations. These evaluations are a broad adaptation of the Rural Land Capability classes and generally refer to erosion and land degradation risk. This risk can be independent of agricultural quality. Landform is also an important factor. For, example, soils on steep slopes, irrespective of their quality, will be subject to high erosion risk, and therefore would be given a less favourable rural land capability ranking than those areas of the same soils on gentler slopes. Consequently, using rural land capability alone is not feasible due to a variety of map units per land area and therefore fragmented nature of mapping. It was used as an initial indicator for lands suitable for inclusion in a farmland area. The additional factors of soil type, soil characteristics, drainage, mass movement risk, landform and land use history were also used to assist in choosing which soil landscapes were to be considered. Another important factor was the distinction between cultivation and grazing country. Good cultivation country is generally also good grazing country. However, good grazing country also includes those steeper soil landscapes that have high limitations for cultivation.

Soil landscape selections were reviewed during Stages Two and Three of the project. They were refined using feedback from community consultations and also after re-appraisal following field inspections or reconsideration of some of the borderline inclusions or exclusions.

Table 1 shows the characteristics of the soil landscapes which were selected as significant farmland.

Refining the maps

The task of developing the methodology involved a series of re-evaluations of mapping rules and production of a number of map versions. Refinement of the mapping continued throughout Stages Two and Three of the project in response to issues identified through consultations and by the project team. Public submissions referring to the mapping of specific properties were collated, details recorded and each query investigated. Changes to the mapping during the review process were made on a 'global', data basis rather than on an individual property level. No individual property was excluded from the mapping. When a submission referred to a particular property, the whole soil landscape was assessed. If a decision was made that the particular soil landscape should be included or excluded, the maps were adjusted to reflect this change wherever that particular soil landscape occurred. A detailed account of the methodology and mapping rules can be found in the Stage Three Methodology Report.

TABLE ONE SELECTED SOIL LANDSCAPES FOR INCLUSION AS STATE AND REGIONALLY SIGNIFICANT FARMLAND

More detailed information about selection of soil landscapes is in the Methodology Report 2005.

Soil Landscape	Landform	Slope <25% (Y or N)	Slope <15% (Y or N)	Soil Type	Soil Depth >1m (Y or N)	Landscape drainage	Rock outcrop <10% (Y or N)	Flood free (Y or N)	Other Constraints/ hazards	Current predominant ag land use
Dungarubba (du)	Floodplain	Y	Y	HG	Y	Poor	Y	N		Grazing, sugar cane, soybeans
" (dua)	Levee	Y	Y	BRE	Y	Moderate	Y	N		
Eltham (el)	Floodplain	Y	Y	K	Y	Well drained	Y	N		Grazing, soybeans, fodder crops
" (ela)	Floodplain	Y	Y	K, PS	Y	Well drained	Y	N		
" (elb)	Floodplain	Y	Y	K, PS	Y	Well drained	Y	N		
Empire Vale (ep)	Floodplain	Y	Y	PS	Y	Moderate	Y	N		Sugar cane
" (epb)	Floodplain	Y	Y	HG, PS	Y	Poor-moderate	Y	N		Sugar cane
Leycester (le)	Floodplain	Y	Y	BE	Y	Moderate	Y	N		Grazing, soybeans, fodder crops
Mullumbimby (mu)	Floodplain	Y	Y	BRE	Y	Moderate	Y	N		Grazing, some sugar cane
Tatham (ta)	Floodplain	Y	Y	BC, GC	Y	Moderate	Y	N		Grazing
Terania (te)	Floodplain	Y	Y	BRE	Y	Moderate	Y	N		Grazing
Crabbes Creek (cr)	Floodplain	Y	Y	BRE	Y	Moderate	Y	N		Grazing
Cudgera (cd)	Floodplain	Y	Y	YE, A	Y	Moderate	Y	N		Grazing, sugar cane
Oxley (ox)	Floodplain	Y	Y	PS, A	Y	Moderate	Y	N		Grazing
Rous (ru)	Floodplain	Y	Y	BRE, RE	Y	Moderate	Y	N		Grazing
Tweed (tw)	Floodplain	Y	Y	HG	Y	Poor	Y	N	Acid sulfate soils	Sugar cane, some grazing
" (twb)	Floodplain/sandplain	Y	Y	PS	N	Moderate	Y	N	Sand restricts soil depth	
Brays Creek (bc)	Floodplain	Y	Y	PS, A	Y	Moderate	Y	N	Stony soils common	Grazing
Cobaki (cb)	Estuarine plain	Y	Y	HG	Y	Poor	Y	N	Acid sulfate soils	Sugar cane, grazing
Ewingsdale (ew)	Low hills	Y	Y	K	Y	Well drained	Y	Y	Local run-on	Grazing
McKee (mc)	Low hills	Y	Y	CS, PS	N	Well drained	Y	Y		Grazing, dairy, poultry
" (mca)	Low hills	Y	N	CS, PS	N	Well drained	Y	Y		Grazing
Wollongbar (wo)	Rises	Y	Y	K	Y	Well drained	Y	Y		Horticulture, grazing
" (woa)	Rises	Y	Y	K	Y	Well drained	Y	Y	Small topographic	Horticulture, grazing

Soil Landscape	Landform	Slope <25% (Y or N)	Slope <15% (Y or N)	Soil Type	Soil Depth >1m (Y or N)	Landscape drainage	Rock outcrop <10% (Y or N)	Flood free (Y or N)	Other Constraints/ hazards	Current predominant ag land use
									extent	
" (wob)	Rises/low hills	Y	N	K, PS	N	Well drained	Y	Y	Small topographic extent; localised rock and slopes>20%; mixed soils. Soil depth is variable, but generally shallow.	Horticulture, grazing
Disputed Plain (dp)	Fans, footslopes	Y	Y	BE	Y	Moderate	Y	N	Run-on	Grazing
Myocum (my)	Drainage plains	Y	Y	BE, W	Y	Poor	Y	N	Run-on	Grazing
Tyagarah variant (tyc)	Backbarrier plain	Y	Y	HG	Y	Moderate	Y	N		Sugar cane
Cudgen (cu)	Rises	Y	Y	K	Y	Well drained	Y	Y	Localised stony soils	Horticulture, vegetables
Carool variant (caa)	Rises	Y	Y	K	Y	Well drained	Y	Y		Horticulture, vegetables
Bangalow (bg)	Low hills	N	N	K	Y	Well drained	Y	Y	Localised: slopes>25%; mass movement	Grazing, macadamias, bananas
Rosebank (ro)	Rolling hills	N	N	K, CS	Y	Well drained	Y	Y	Localised: slopes>25%; mass movement; rock outcrop.	Grazing, horticulture
" (rob)	Rolling low hills/hills	Y	N	K	Y	Well drained	Y	Y		Grazing, horticulture
Ophir Glen variant (oga)	Terrace	Y	Y	RP	Y	Well drained	Y	Y		Grazing
Frederick (fr)	Rises, low hills	Y	Y	PS, BE, K	N	Moderate	Y	Y	Localised rock, variation in soil depth	Grazing
Western Richmond Soil Landscapes - the following is based on draft information which in many cases is still awaiting field investigation. No lab data is currently available. Map linework is also subject to change.										
Haystack Mountain (hm)	Rises, low hills	Y	Y	PS, CS, K	Y	Well drained	Y	Y		Horticulture, grazing
" (hma)	Bench surfaces	Y	Y	PS, CS	N	Well drained	Y	Y		Grazing
Roseberry (rb)	Low hills, hills	Y	N	CS, PS, BE	Y	Well drained	Y	Y		Grazing
Frederick variant (fra)	Rises	Y	Y	K, PS	Y	Well drained	Y	Y		Grazing
Horseshoe Station Creek (hs)	Low hills, hills	Y	N	CS, PS, BE	N	Well drained	Y	Y		Grazing
Ironpot Creek (ir)	Floodplains	Y	Y	PS, BE, GP	Y	Moderate	Y	N		Grazing

NOTES TO TABLE 1:

1. 'Soil Type' is the great soil group of Stace *et al.* (1968). The codes are:

<i>Soils of high fertility (from Murphy et al. 2000):</i>	
Group 4*	
CS	Chocolate Soil
K	Krasnozem
BC	Brown Clay
GC	Grey Clay
Group 5*	
BE	Black Earth
PS	Prairie Soil
<i>Other soils</i>	
HG	Humic Gley
BRE	Brown Earth
W	Weisenboden
A	Alluvial Soil
YE	Yellow Earth
RE	Red Earth
YP	Yellow Podzolic Soil
RP	Red Podzolic Soil
SH	Soloth
P	Podzol
AP	Acid Peat
GP	Gleyed Podzolic Soil

*

Group 4: soils with a high level of fertility in their virgin state, but this fertility is significantly reduced after only a few years of cultivation.
Physically, Krasnozems are better than most soils but they have some undesirable chemical features.

Group 5: soils with high fertility that generally only require treatment with chemical fertilisers after several years of cultivation.

(from Murphy et al. 2000)

What the maps show

The policy map set has been derived from soil landscape data which was produced for use at a scale of 1:100,000 or smaller. The map set comprises four sheets at a scale of 1:100,000. Each grid is equivalent to 2,500 hectares.

The maps show three farmland categories: state significant (yellow), regionally significant (brown) and significant non-contiguous (hatched). Significant farmland boundaries reflect soil landscape boundaries. The maps are proposed to be reviewed in the future to incorporate any reviews of soil landscape data.

State and regionally significant farmland

The distinction between state and regionally significant farmland was established to recognise the diversity within the region's 'important' farmland. There was a need to distinguish between very high quality and unique agricultural soils/lands and other lands that were also important to agriculture but which were more extensive and less productive generally per unit area.

This distinction allows greater flexibility in planning controls. Rules about urbanisation of farmland can afford stronger levels of protection to smaller unique significant areas compared to expansive areas that contain a more diverse range of soils, landscapes and opportunities for agriculture.

Table 1 lists the soil landscapes which were selected as significant farmland. Four of those soil landscapes were further identified as state significant due to the presence of the following attributes:

1. Slope generally less than 15%.
2. Consists predominantly of any of the following soil types:
 - Chocolate Soils
 - Euchrozems
 - Krasnozems
 - Some Grey, Brown and Red Clays
 - Black Earths
 - Chernozems
 - Prairie Soils

These soils are groups 4 and 5 in Table 8.2 from Murphy *et al.* (2000). They are soils of high fertility. Group 4 soils have a high level of fertility in their virgin state which is significantly reduced after only a few years of cultivation. Group 5 soils generally only require treatment with chemical fertilisers after several years of cultivation. Physically, Krasnozems are better than most soils but they have some undesirable chemical features. Australian Soil Classification equivalents are Dermosols, Ferrosols and Vertosols. The above soils are generally characterised by well-developed structure, high fertility and good drainage.

3. Soils are generally deeper than 1 metre.
4. Well drained landscape.
5. Rock outcrop less than 10%.
6. Flood free.
7. Not affected by other constraints/hazards either within the soil landscape or originating in adjoining soil landscapes (eg: run-on, mass movement, localised flooding).

The soil landscapes generally consistent with these criteria are:

- Wollongbar
- Wollongbar variant (woa)
- Cudgen
- Carool variant (caa)

Contiguity

One of the criteria set by the Northern Rivers Catchment Blueprint was that 'large contiguous areas of land' be considered for farmland protection. 'Contiguous' is defined as 'touching, in contact with, in close proximity, near.' The need for contiguous areas is to assist with diversity, resilience, economies of scale and freedom from conflicts in agricultural areas.

To assist in identifying contiguous areas, mapping rules applying to minimum sizes of selected land units were developed. A minimum contiguous mass of state significant land was determined to be 500 hectares. The minimum size for a regionally significant land mass comprising an alluvial or alluvial-influenced soil landscape was set at 500 hectares. The minimum size for a regionally significant land mass on other soil landscapes was set at 1000 hectares. The minimum size rules are detailed in the Methodology Report.

Hatched areas

The 2003 maps showed state, regional and locally significant land. On the 2004 maps, land previously identified as locally significant was excluded on the basis of the project's regional nature and scale. These 'local' areas comprised lesser quality land, as well as better quality land units which were too small to be included as state or regionally significant, given the project's emphasis on contiguity and the size rules referred to above.

However, exclusion of the fragmented, better quality units resulted in islands of valuable farmland not being given any protection or status at all by the project. So as not to overlook the local importance of these lands, the final maps identify soil landscape units which are selected as state or regionally significant, but are smaller than the minimum unit size and larger than 40 hectares. Those lands are identified as 'significant non-contiguous farmland' and are shown hatched on the maps. Proposed planning principles applying to the various farmland categories are outlined in section 4.

Excluded areas

Areas excluded from the maps are:

- State Forests and National Parks
- Water bodies
- Areas identified as having committed urban uses. These are indicated pink on the maps and equate to:
 - land zoned urban and rural residential,
 - rural land isolated within urban areas,
 - open space which is zoned open space or identified as open space in council strategies or plans,
 - roads and drains in urban areas,
 - environmental protection areas within urban areas,
 - land zoned private open space which allows urban uses,
 - land identified for urban (including industrial) purposes in a development control plan,
 - land zoned rural but used for urban purposes (eg airport, waste facility, industry).

Future settlement areas

Future settlement areas identified in councils' settlement strategies are not shown on the maps. These areas are recognised through written planning rules in this report rather than as part of the mapping process. The maps include a text box as follows:

Land identified in an agreed council settlement strategy can be considered for urban or rural residential rezoning even if it is mapped as significant farmland. The council strategy must have been agreed to between December 1994 and December 2004 (or placed on public exhibition by the end of 2004 and subsequently approved) under clauses 20 or 38 of the North Coast Regional Environmental Plan. Land identified in a settlement strategy is not automatically approved for development; further investigations occur as part of the rezoning process. Agreed strategies can be seen at council offices.

Environmental values

Some areas identified as state or regionally significant include important habitat or remnant vegetation. While the maps indicate the existence of significant farmland, this should not mean agriculture should take precedence over environmental values. A text box is included on the maps as follows:

Significant farmland status does not imply that vegetation and habitat values are secondary to agricultural values, or that land has to be used for agriculture.

Changes to the maps between 2004 and 2005

Feedback from the 2004 consultation suggested that the classification of some areas needed review. The final maps reflect the following revisions.

Soil landscape data revisions

On checking source soil landscape data for a number of areas, the data in the Lismore-Ballina maps (Morand 1994) appeared to contain some anomalies. These were due to the variable or dissected nature of some of the soil landscapes, and the gradual refinement of the soil landscape mapping process (the Lismore-Ballina map was the first to be completed within the Northern Rivers). The Tyagarah (ty), Rosebank (ro), Wollongbar (wo) and Empire Vale (ep) soil landscapes were of particular concern.

The project team agreed that it would be of value to utilise reviewed data which is to become part of Version 2 of the published soil landscape maps. The review of soil landscapes utilised radiometric data, the latest colour aerial photography, latest geology maps and field work carried out since publication of the original 1994 maps. The review focused on areas about which the project team had held reservations in terms of its agricultural value. Some of these areas had also been queried in submissions. Below is a list of soil landscape changes which consequently affected the Farmland Project maps.

- The Tyagarah soil landscape is found around the Tuckean Swamp area, west of Brunswick Heads, west of Byron Bay, near Tyagarah, northwest of Lennox Head, between Ballina and Lennox Head and near Newrybar Swamp. Most of it is poorly drained and has poor soils. However, an area extending from Newrybar south to the Ballina Nature Reserve, having a basaltic influence, was found to have better soils (Prairie Soils, Black Earths and Humic Gleys with associated Humus Podzols). The hydrology of this landscape has been altered by the establishment of an extensive drain network. This area was remapped as a new variant (tyc).
- The Rosebank soil landscape, extending over various districts north, northeast and south of Lismore was acknowledged to be steep in a number of areas. However, the overall presence of krasnozem

soils make the less steep parts of this soil landscape valuable for agriculture. The steeper (over 25% slope) areas of this dissected soil landscape were remapped as Coolamon soil landscape, which comprises steep slopes on basalt – as found adjacent the northern side of the Coolamon Scenic Drive.

Parts of the Rosebank soil landscape around Bagotville and west of Mullumbimby were remapped as the Rosebank variant (roa) due to their long narrow ridge slopes.

In the Dorrroughby area, some Rosebank soil landscape was remapped as Minyon (mi) because of its rhyolite geology.

- The Wollongbar soil landscape was originally mapped on the Alstonville Plateau and in smaller areas around Eureka, Modanville, Dunoon, and Rosebank plateaux. The Modanville, Dunoon and Rosebank Plateaux were remapped as Wollongbar variant (wob) because of their more dissected landscapes which include shallower, stonier soils with localised rock outcrop. The Eureka, Fernleigh and Newrybar Plateaux remained in the Wollongbar soil landscape.
- The Empire Vale soil landscape comprises the coastal floodplain of the Richmond River, Maguires Creek and Emigrant Creek. Some variation was found between the eastern and western sections of this soil landscape, and immediately south of the Richmond River. An eastern strip and the area immediately south of the river were remapped as a new variant (epa) reflecting the poorly drained humic gley soils of that area which distinguish it from the rest of the Empire Vale soil landscape. The western area was mapped as epb, reflecting where estuarine soil materials have mixed with alluvial soil materials. A new estuarine variant, Burns Point variant (bpa), has replaced some of the area around Maguires Creek that was previously mapped as Empire Vale. Subsequent soil investigations have shown this area to be distinct from the Empire Vale soil landscape.
- The Mullumbimby soil landscape variant (mua) was created so as to distinguish the more estuarine conditions that occur in this part of the Brunswick catchment. This variant occurs north and east of Mullumbimby, with poorly drained Humic Gleys being a common soil.
- The description of the Bangalow soil landscape was slightly revised, resulting in the incorporation of some small Wollongbar variant (woa) polygons. These changes have not affected the farmland maps (although Bangalow soil landscape is now regional - see dot point below).
- Much of country mapped as McKee (mc) soil landscape in the draft Western Richmond soil landscape map included areas which were seen as anomalous and not conforming to the original McKee landscape description. Further field work (currently in progress) will probably show that the soils are also different. These areas were remapped as two new soil landscapes - Roseberry (rb) and variant (rba), and Horse Station Creek (hs) and variant (hsa).

A more detailed account of the soil landscapes review is in the Stage Three Methodology Report. The review resulted in the following changes to Farmland maps

Changes from state significant to regionally significant

- The Bangalow soil landscape was reclassified from state to regionally significant. The widespread occurrence of slopes over 15% made it inconsistent with criteria for state significance.
- The Wollongbar variant (wob) was reclassified from state to regional, due to its shallower soils and rock outcrops rendering it inconsistent with the criteria for state significance. These units include land around Modanville, Rosebank and Dunoon Plateaux.

Changes from regionally significant to 'other rural land'

The following soil landscapes were reclassified from regionally significant to 'other rural land' on further consideration of their qualities.

- The Ophir Glen (og) soil landscape is found as small alluvial fans throughout the Burringbar Range. Its high incidence of dispersive soils made it ultimately unsuitable for regional significance.
- The Disputed Plain soil landscape variant (dpa), also found as alluvial fans and valley infills within the hills north of Mullumbimby, was reclassified because of its poor soils.
- The Limpinwood (li) soil landscape north of Tyalgum and its variant (lia) were reclassified because of the incidence of localised steep and benched slopes with shallow, rocky soils.
- The Pumpenbill (pu) soil landscape, west of Tyalgum, was reclassified because of the incidence of shallow rocky soils.
- The Tyagarah (ty) soil landscape was reclassified because of its general poor drainage and soils. (The new tyc variant was assigned regional significance.)
- The Georgica (ge) soil landscape and its variants comprise much of the land between Lismore, Nimbin and Kyogle. They include substantial areas which are steep, with shallow, stony soils. These qualities make them generally unsuitable for regional farmland status.
- The part of the Empire Vale (ep) soil landscape which was remapped as (epa) was given 'other rural land' status due to its poor drainage and estuarine influence.
- The Rosebank variant roa (see above) was reclassified because of its long, narrow and steep ridges
- The Everlasting (ev) soil landscape, comprising estuarine backswamps of the Richmond River, was reclassified because, despite some areas being used for cane, it is a swamp soil landscape.
- The part of the McKee (mc) soil landscape remapped as the Roseberry variant (rba) was reclassified because of its shallower soils. (The main Roseberry soil landscape was classified as regionally significant because of its expected deeper soils, but field investigation is still in progress for this map.)
- The part of the McKee soil landscape remapped as the Horse Station Creek variant (hsa) was reclassified because of its steeper slopes and shallower soils. The main Horse Station Creek soil landscape was given regional significance because of its expected deeper soils, but field investigation is still in progress.
- The McKee variant mcd was reclassified because it is now part of Horse Station Creek soil landscape variant (hsa).
- The North Casino (nc) soil landscape and its variant (nca), the Oxley variant (oxa), and the Tweed variant (twa) were reclassified because they comprise swamp landscapes. They were originally included as regional because of their small extent and occurrence within more agriculturally valuable soil landscapes.
- The Mount Burrell variant (mba) was reclassified because of its steep slope and rock outcrops.
- The Yorklea (yo) soil landscape and its variants (yoa) and (yob) were reclassified because of its poorer soils and drainage.
- The Kingscliff variant (kib) was reclassified because of its sandy soils.
- The Coolamon (co) soil landscape was reclassified because of its steep slopes and shallow soils.
- The Calico variant (cla) was reclassified because of its erodible, dispersive soils.
- The Afterlee (af) soil landscape was reclassified because of its poorer quality soils (field investigation still in progress). The Dyraaba Arm (da) soil landscape was reclassified because of its poorer quality soils (field investigation still in progress).
- The Ghinni Ghi (gh) soil landscape was reclassified because of its poorer quality soils (field investigation still in progress).
- The Cudgen variant (cua) was reclassified because it represents a narrow drainage depression within the Cudgen soil landscape.

Peer review

As set out in the project workplan developed in 2003, the methodology was subjected to a peer review. CSIRO Sustainable Ecosystems (CSE) was contracted to carry out the review. The review commenced in October 2004, focusing initially on the maps which had been exhibited in August and September of that year. As the Farmland Protection Project team responded to community feedback from the consultation, revisions were made to the methodology. The CSE review team took these revisions into account in their review. Additionally, the CSE review team made some recommendations during the process, which the Farmland project team incorporated into the final mapping.

The reviewers were asked to examine:

1. criteria applied for selecting the soil landscapes used to classify farmland of state and regional significance;
2. the scope and contribution of the consultation process and the extent to which this process influenced the final draft maps;
3. the consultation report;
4. the map validation method;
5. the use of a 'master log' for recording and dealing with issues arising from public submissions and ongoing project analysis; and
6. impurities and inherent limitations in the mapping process.

The CSE report provided the following conclusions and recommendations:

'Transparency

While the initial Soil Landscape classification and associated criteria were not as transparent as desirable as per current practice, the project team rectified this problem and provided clear criteria.

Revisions of criteria and mapping during the process.

A more rigorous assessment of Soil Landscape and other criteria before the consultation process commenced may have reduced community uncertainty and concern. Subsequently, the project team have incorporated more recent information (notably radiometric data for some areas) and considered additional technical information in submissions and from other scientists to produce a revised methodology and mapping that reflects best available knowledge. Additional refinements can be expected in future. The team had the best available land resource scientists with long standing mapping experience.

Categories - State and regional.

The final maps show significant land defined by a rigorous and transparent classification system. It must be noted that the threshold for State significance is very high compared with other jurisdictions.

Spatial Resolution.

The mapping scale is smaller than that commonly applied for these purposes where maps at 1:25000 or 1:50000 are common. In combination with the contiguity and polygon size thresholds, this means that some significant land will not be defined for protection and that inevitably there will be inliers of land of lower quality. The methodology does however ensure that large contiguous areas of farmland will be protected for the future. The boundary review process, which incorporates finer scaled land capability mapping, will significantly alleviate the spatial resolution problem when urban land conversion proposals are considered in close proximity to significant farmland

Consultation process.

The project team employed a comprehensive and appropriate process and took action to incorporate suggestions wherever relevant and legitimate in terms of the policy framework. (Many economic and land development opinions cannot be resolved in this assessment process.)

Overall approach/methodology for the determination of significant landscapes

The criteria for selecting soil landscapes as important farmland is well defined in the final version of Table 1 in the Methodology document. Based on the published and unpublished soil landscape mapping, the criteria outlined in Table 1 and the rules of contiguity defined in methodology, the rules for selecting important farmland have been consistently applied across the mapped area of the Northern Rivers.

Contiguity.

A further condition for land to be considered as significant farmland was the size rule of minimum contiguous areas of 500 ha. This was based on a rather arbitrary premise that 500 ha represents a reasonable-sized cluster with efficient workable areas for intensive farming on the best farmland. It also aims to avoid conflict where agricultural land is actually or potentially fragmented by urban or rural residential settlement. As a result of this rule, significant agricultural land may not be protected and a further category called significant non-contiguous areas was formed - the protection of which becomes the responsibility of local councils/agencies. The reviewers believe that it would be possible that novel agricultural/horticultural industries may develop below the minimum contiguous area size of 500 ha and important soil landscapes should be protected. Examples of this may be seen in European countries such as Switzerland and Holland.

Applicability to other regions

Due to the influences of the Mt Warning shield volcano in soil landscape development, the NSW Northern Rivers landscape is arguably more complex than other areas of NSW. The approach that the Northern Rivers Farmland Project team has undertaken to select significant soil landscapes has been influenced by the availability of published and unpublished (draft) soil landscape maps for the northern rivers region of NSW and the skills of an experienced soil surveyor (David Morand). The applicability of this approach to other regions will vary depending on circumstances and the availability of soil landscape mapping and skilled staff. While soil landscapes in other regions of the state are likely to be less complex than the Northern Rivers region, the availability of soil landscape mapping may be a limitation to applying this methodology widely.

In a review by Thompson and Beckman (1986) there was limited evidence to suggest that soil taxonomy was relevant to broadscale land use planning in south-eastern Queensland. The review found that while soil taxonomy is able to separate soils that are different from one another, it could separate soils that have similar land use potential. Many of the attributes used in soil taxonomy seem to have little relevance to local land use while other attributes of known local importance were not used. Soil types may not be useful categories in themselves, but to the extent that they correlate with agriculturally relevant parameters such as soil depth, fertility etc, they can provide the basis for capability and significance ratings. For example, some of the criteria Thompson and Beckman suggested as important to land use in southern Queensland included: depth of soil; A-horizon depth ; surface condition; water holding capacity; presence of stone or stony bands in the profile; amounts of gravel and concretions throughout the profile. Other local data such as soil moisture regimes, depth classes, temperature classes and sodicity should also be considered and these will depend on the local circumstances.

Future methodology for farmland protection would benefit from including additional agriculturally relevant soil based criteria, especially locally significant indicators. e.g salinity risk in risk prone areas. Further consultation of the literature (see reference list) is encouraged.

3 CONSULTATION: WHAT WE LEARNT

The Farmland Protection Project included two consultation periods. The consultations aimed to:

- inform people about the project and provide them with opportunity to provide input into the project
- seek feedback about the selection of farmland areas
- seek feedback on the planning rules
- identify issues that had been overlooked in the development of the project

The 2003 consultation

The first, 2003 phase, presented draft maps derived from a variety of sources including cadastral information and some LEP agricultural protection zones. The maps showed state, regionally and locally significant agricultural land. The maps were accompanied by ideas for planning rules restricting new housing entitlements and rural subdivision on farmland. The draft also suggested restricting various other developments on farmland including workers dwellings and most tourism. A detailed account of the 2003 consultation is in the Farmland Protection Project Consultation Report, October 2003.

The community was engaged by the following means:

- community forum (evening meetings in Ballina, Condong, Casino, and Mullumbimby)
- agricultural industry forum (Casino, Murwillumbah - representatives from the following industries: sugar, dairy, macadamias, soy, forestry, coffee, bananas, beef, ti-tree, olives, stone fruit, avocados, passionfruit, bush foods, custard apples, citrus, mangoes, herbs, and organic producers)
- local government planning staff forum
- state government (former Department of Land and Water Conservation, former NSW Agriculture, National Parks and Wildlife Service) forum
- Exhibition at local government offices
- Exhibition on the internet
- Radio interviews on ABC Rural Report
- Local and regional newspapers
- Television coverage (Prime News)
- Fact sheets

The consultation ran from 13 May until 30 June, 2003. Submissions were received electronically and in hard copy, on feedback forms and by letter. A total of 94 written submissions were received during the submission period, and 171 people attended community forums.

Key themes in 2003

Although the community expressed diverse views about how to protect agricultural land, the majority response to the project was positive and constructive. A high level of support was expressed for the principle of preserving farmland. Several key themes emerged, around which a diversity of voices was heard. The project team in reviewing the draft planning rules endeavoured to address these key themes, outlined below. Text in *italics* indicate how the themes were addressed in stage 2 of the project.

Agricultural viability and profitability

A clear message emerged that many farmers are experiencing serious difficulties in making a living from their land. Some people asked why farmland should be preserved. At the same time, many felt it was important to preserve productive land for the future, particularly at Alstonville and Cudgen. Another clear message was that farm diversification can assist viability, and that the system should support this.

Action

Subsequent draft planning rules focused on strategic planning rather than imposing new restrictions on farm use. The 2004 Proposals Report recommended that councils could permit developments such as farm bed and breakfasts, rural (value-adding) industry, produce markets, farm-related tourism and on-farm restaurants in farmland areas. The report also included a section on further ways in which agriculture might be protected. It highlighted some existing areas of assistance for farmers, as well as additional potential mechanisms. That section is included in this Final Recommendations Report as section 5.

Land values and financial issues

Many people were concerned that speculation is driving land prices up, disadvantaging farmers by making it difficult to buy farming land. This was seen as demoralising for farmers in areas where more money could be made in subdivision than in farming. On the other hand, many other people believed that any lack of increase in land prices resulting from the project would be a negative outcome.

Action

Advice from the valuation industry indicated that the existence of policies which influence whether the land might be rezoned at some point in the future does not play a critical role, as the valuation focuses on the current planning situation rather than a hypothetical future scenario. It is therefore doubtful whether 'devaluation' of land would occur.

Flexibility

Many people felt that blanket land use controls create impediments to farmers, and that a variety of land uses are suitable for different areas. Several people advocated locality planning.

Action

The project team reviewed the draft land use codes which had been exhibited in 2003, aiming for an approach which was flexible enough to respond to local issues while maintaining an overall strategic approach based on the protection of significant agricultural land. Subsequent recommendations placed responsibility for land use controls in rural zones with local government, thus enabling a more locally responsive approach.

Extent of regulation

Many people believed existing planning controls already protect agricultural land, and that farmers have too many restrictions. On the other hand, many people supported the draft planning controls fully. While most people support agricultural land protection, there is a resistance to tighter rules about permissible land uses, subdivision, dwellings and workers dwellings.

Action

In subsequent stages, the project team endeavoured to formulate planning rules which could prevent important agricultural land being lost to urban and rural residential development while allowing farmers the freedom to carry out their rural activities without adding any unnecessary impediments. The project's emphasis turned to strategic urban planning rather than prescribing rules about on-farm uses in rural zones. The project team resolved not to recommend new rules about subdivision of land zoned rural, or dwellings on rural land, or uses of land zoned rural but to recommend that these matters remain under councils' local environmental plans (LEPs).

Land use conflict

Land use conflict is a serious problem for farmers. Farmers should be able to farm without the threat of conflict with residential encroachment. The issue of how to manage the interface of agricultural and residential land was raised often. The use of buffer zones was widely advocated. Coordinated strategic planning and a precautionary approach by local and state government were seen as important.

Action

The subsequent 2004 Proposals Report recommended strategic planning controls to avoid the creation of potential land use conflict situations. These draft controls included the principle of buffers being established outside farmland areas where new development expands towards a farmland area, and conflict risk assessments being undertaken where new development is established within a farmland area.

Social issues

The importance of the family farm was emphasised by many people. Many said the ability to build additional dwellings on a property was important in keeping family members on the farm. The project proposed that boundary adjustments could occur which excised a small lot with a house while the residue was amalgamated with a neighbouring farm. This approach was supported in feedback.

Action

DIPNR subsequently encouraged councils by letter to include provisions in their local environmental plan to allow applicants to apply for boundary adjustments as outlined above.

Local and state decision-making

Some people felt that local government could not be trusted to act impartially to protect agricultural land, and that state government was more responsible. Others felt that agricultural production should be left with local government, and that the project came from a centralised bureaucracy based in Sydney. Clear roles should be identified for local and state government, unified by a clear set of principles.

Action

The project subsequently identified clear roles for state and local government. The 2004 Proposals Report recommended that the state government focus on protecting farmland by strategic settlement planning, while local government retain responsibility for land use controls in rural zones.

Environmental issues

Many people were concerned about how environmental values of agricultural lands could be protected in a farmland area. Concern was expressed that environmental values may be considered secondary. The issue of unmanaged land came up frequently, as did weed issues. Some people felt that environmental management issues were strongly linked to farm viability.

Action

The subsequent 2004 maps included a text box indicating that significant farmland status does not imply that vegetation and habitat values are secondary to agricultural values, or that land has to be used for agriculture.

Mapping and land classification

Some people expressed doubt about the accuracy of the mapping. Many properties or districts were recommended for review - some for inclusion in the project and others for exclusion.

Action

The project team reviewed the methodology, using feedback from submissions as well as its own observations.

Process

Many submissions suggested that more information and consultation would be necessary to allow rural communities to become aware of the project.

Action

The next (2004) consultation was designed to maximise participation. Efforts were made to notify all rural landowners about the project by mail. All-day information stalls were conducted in eight locations to increase flexibility and convenience for community members wishing to talk with the project team. Additionally, all

people who wrote submissions or registered their names at public meetings or left their details by telephone were kept informed as the project continued.

Strategic planning

Several people commented on the importance of planning for population growth in areas not needed for agriculture. Many pointed to the need to control urban sprawl.

Action

The project team consulted local government planning staff on an on-going basis to ensure a consistent and compatible relationship between councils' strategic planning work and the Farmland Project.

Regional economic issues

The point was made that agriculture is a valuable contributor to the regional economy, and that a region's ability to produce food is important. However, some people felt that residential growth provides more jobs than agriculture. Many submissions identified the need for technical information and extension services, which could bring regional economic benefits through assisting farmers.

Action

The 2004 Proposals Report included a section on further ways in which agriculture might be protected. It highlighted some existing areas of assistance for farmers, as well as additional potential mechanisms.

The 2004 consultation

After considering the key themes which arose in 2003, the project team reviewed the mapping methodology and drafted new planning rules which addressed those themes where possible. The new draft maps and planning rules were placed on public exhibition between 12 August and 30 September. A detailed account of the 2004 consultation can be seen in the Farmland Protection Project Consultation Report, 2004. A summary of that report was mailed to all those who had written submissions or expressed interest in being updated about the project. The full report was available upon request.

Feedback in 2003 had suggested that not enough landholders were made aware of the project. As a response, efforts were made to notify all rural landholders of the 2004 consultation. An information flyer was inserted with rate notices for Ballina Council and Richmond Valley residents. Rural occupants in Byron Shire received the flyer through Australia Post direct mailing. An advertisement was placed in the council newsletters for Tweed, Lismore and Kyogle Councils. People who had written submissions in the previous consultation were advised by letter that the new draft maps were on exhibition. Additionally, all those who had asked at meetings or by telephone to be kept informed received a letter of notification.

The maps were exhibited at Tweed, Lismore, Kyogle, Richmond Valley, Ballina and Byron council offices, as well as at DIPNR offices in Grafton, Alstonville and Murwillumbah and the DPI office in Wollongbar. Copies of a Proposals Report giving an overview of the project and outlining proposed planning rules were available, along with a summary document and a Methodology Report describing in detail how the maps had been developed.

An internet site was developed for the project showing the maps and reports. However, on-going technical problems made the site difficult to access for many people. The project team sent compact discs of the exhibited material to people who requested this. Television, radio and press coverage accompanied the consultation.

To provide flexibility for community members, the project team held information days in Cudgen, Alstonville, Murwillumbah, Woodburn, Kyogle, Casino, Bangalow and Dunoon. Team members were available throughout

the day to answer questions, discuss the maps and provide information. Approximately 250 people attended information days.

Submissions were received by mail, by email, by telephone and as comments at information days, both verbally and in the comments book provided. The project team received a total of 95 submissions.

The project team offered to present the draft maps and reports to a range of agricultural industry groups. Several organisations took up the offer including NSW Farmers, NSW Cane-Growers Association, North Coast Horticultural Producers Consultative Committee and Byron Creek Landcare. The project was exhibited at the Lismore Organic Produce Market.

Key themes in 2004

Key themes which arose from the 2004 consultation are below. The text in italics indicates the project team's response or any action proposed to address the issue. Page numbers indicate the location in this report of any proposed action.

Mapping/methodology: indication of future settlement areas on farmland maps

Some submissions urged that future settlement areas be shown on the farmland maps so people can see clearly which land is able to be considered for development.

Action

To give the community a clearer picture about which land can be considered for future development, a box is be included on the farmland maps stating:

'Land identified in an agreed council settlement strategy can be considered for urban or rural residential rezoning even if it is mapped as state or regionally significant farmland. The council strategy must have been agreed to between December 1994 and December 2004 under clauses 20 or 38 of the North Coast Regional Environmental Plan (or placed on public exhibition by the end of 2004 and subsequently approved. Land identified in a settlement strategy is not automatically approved for development; further investigations occur as part of the rezoning process. Agreed strategies can be seen at council offices.'

Mapping/methodology: adequacy of the criteria

Some people argued that the soil landscape methodology is too narrow for identifying significant farmland and is not useful in identifying all of the factors that limit agricultural production on a particular parcel of land. They pointed to the NSW Agricultural Lands Classification system as superior, on the basis that it takes a greater range of factors into account.

Action

The farmland maps continue to be based on soil landscape mapping. The Farmland Protection Project's emphasis is on long-term protection of the agricultural land resource. It does not take into account factors which are relevant in the short-term such as availability of labour, availability and cost of land locally and elsewhere, local farming and marketing structures or the presence of local supporting infrastructure. NSW Land Classification criteria can be used to provide finer detail when verifying boundaries. NSW Agricultural Suitability mapping if available should be used additionally by councils in their planning to provide a greater level of information.

Mapping/methodology: the need for more detailed assessment of farmland areas for exclusion from mapping

A large number of submissions called for the project to allow on-going assessment and verification of the farmland mapping, as the mapping's broad scale makes it subject to inaccuracies on a property level.

Action

The project team proposes a verification process of the map boundaries as part of one-off council-initiated strategic investigations over a nominated settlement area which has merit in terms of other planning issues and the overall regional strategic direction.

Mapping/methodology: review of farmland maps

Some submissions suggested that the farmland maps should be reviewed from time to time.

Action

The project team proposes that the Farmland maps be updated as part of any review of the Far North Coast Strategy, utilising any reviewed soil landscape data.

The principle of farmland protection: government regulation

Some submissions expressed the view that the government puts too many restrictions on rural land, and that rural planning should be kept in the hands of local government rather than state government.

Action

The project team proposes that the Farmland maps be used as a strategic settlement planning tool rather than an agricultural resource tool. Councils will not be required to base their agricultural protection zones on the farmland maps. The maps are proposed to be used for strategic planning, to show areas where urban and rural residential development is not suitable due to the presence of significant farmland. The farmland policy is only intended to apply where a change of zoning is proposed – from rural to urban, rural residential or industrial. Councils will be responsible for rural zones. The farmland policy will not make rules about subdivision of land zoned rural, or dwellings on rural land, or uses of land zoned rural. These matters are intended to remain under councils' local environmental plans.

The principle of farmland protection: support for farmland protection

A number of submissions indicated support for the project's intent. There was a wide acknowledgement that farmland is a finite resource, and that we need to preserve the better farming areas for the future. Some submissions cautioned against any weakening of the project in response to development pressures.

Action

The final maps will be based on the best data and technical expertise available, objectively applied and based on an independently reviewed methodology. The final maps and strategic planning rules are proposed to be implemented through a Section 117 Direction as an interim measure. The Section 117 Direction will be superseded by DIPNR's Far North Coast Strategy which will direct the region's growth for the next 30 years. That strategy will consider a range of issues including farmland, population growth, infrastructure, transport, housing affordability, coastal management, environmental protection and economic growth. It is due to be completed in late 2005.

Socio-economic issues: viability

Many submissions raised the issue of farm viability and profitability. It was emphasised frequently that many farmers face agricultural viability problems and find it difficult to make a living from their farms.

Many people commented that developing land for residential use represents superannuation for farmers, and that selling off small valuable parcels to newcomers is seen as a viable source of income for farmers

Action

The project acknowledges that many farmers are experiencing difficulties. The Farmland Protection Project does not impose new restrictions on farm use which may limit farm viability. It does not introduce new rules about dwellings, or minimum lot sizes, or which developments are allowed on farmland. The buying or selling of farms is not affected by the project. The project does not prevent niche crops being grown on small or large

properties. Section 4 of this report makes recommendations on initiatives for natural resource management which build on the valued status of significant farmland.

Socio-economic issues: land values

A view was expressed in some submissions that the Farmland Protection Project may cause the financial value of a farm to decrease, because the likelihood of the land being rezoned in the future would be removed.

Action

No action. A future urban or rural residential development 'right' or potential does not exist for land zoned rural. The Farmland Project introduces clearer rules about what should be considered significant agricultural land. Land valuation takes many factors into account, based on the situation applying at the time. The existence of policies which influence whether the land might be rezoned at some point in the future does not play a critical role in formal valuations, as the valuation focuses on the current planning situation rather than a hypothetical future scenario.

Socio-economic issues: equity

Some submissions questioned the equity of the project, in that some landowners will be able to have their land rezoned for residential use while others cannot. Some submissions called for farmers to be compensated for looking after the land in the public interest while not being able to have development expectations.

Action

No action. As outlined above, a future development 'right' does not exist for land zoned rural. The Farmland Project will not change the way farms can be bought or sold. Nor does it propose any change to existing planning rules about subdivision or houses on land zoned rural. The current rules regarding land zoned rural clearly do not allow urban or rural residential development.

Avoiding land use conflict at the residential/rural interface

Submissions widely acknowledged that one of the problems for Northern Rivers farmers is the movement of urban people to farmland areas, bringing urban expectations and associated land use conflict. There was general support for the urban-rural interface provisions suggested in the Proposals Report.

Action

This report recommends urban-rural interface rules to be applied where new urban or rural residential development is likely to affect farmland. The recommended rules are largely the same as those put forward in the Proposals Report. They clarify that the onus is on the encroaching urban or rural residential development to avoid conflict through the provision and maintenance of buffers. The need to separate residential from rural uses through buffers is also addressed as part of the recommended strategic boundary review process. The principle that legitimate rural uses (farming, conservation, extractive industry, forestry, rural industry) have priority over non-rural uses in farmland areas is included in the regional agricultural objectives at section 4.

Environmental protection

Submissions indicated support for the text box on the 2004 maps clarifying that significant farmland status does not imply that vegetation and habitat values are secondary to agricultural values, or that land has to be used for agriculture. The principle of retaining existing environmental protection zones identified as farmland was supported.

Action

The maps retain the text box clarifying the status of environmental values. Environmental protection zones are proposed to be retained where farmland is identified, as recommended in the 2004 Proposals Report. Additionally, a regional agricultural objective of protecting agricultural land from development that may result in environmental degradation is proposed.

Strategic and local planning: future land availability

Some submissions urged that the Farmland Protection Project should be integrated with a range of other planning considerations. Some reflected a concern that the region is experiencing a shortage of residential land, and that the Farmland Project would further reduce opportunities by limiting land available for rezoning.

Action

In decisions about where to locate settlement, significant agricultural land is only one consideration. The maps and strategic planning rules are expected to form a layer of the Far North Coast Regional Strategy, which will direct the region's growth for the next 30 years. That strategy will consider a range of issues including population growth, infrastructure, transport, housing affordability, coastal management, environmental protection and economic growth. The Far North Coast Strategy is expected to be completed in late 2005.

Land identified in agreed local government settlement strategies (agreed to by DIPNR between December 1994 and December 2004 or placed on public exhibition by the end of December 2004 prior to agreement) can still be considered for rezoning regardless of its farmland significance. This report recommends strategic planning rules applying to farmland which:

- *direct rural residential development away from state and regionally significant farmland*
- *direct urban development away from state significant farmland*
- *allow urban and industrial development in regionally significant farmland only under limited circumstances*

Strategic and local planning: settlement strategies

Some submissions did not support the exemption of land identified in councils' urban and rural residential settlement strategies from the farmland rules. They advocated the winding back of agreed strategies where significant farmland was identified.

Action

DIPNR has worked with councils in the development of local government settlement strategies and formally approved them. Councils have expended significant resources in development of the strategies and private and public investment decisions have been based on their approved status under the North Coast REP (clauses 20 and 38). The status traditionally given to strategies approved under the REP helps the community to maintain confidence in the planning system. Land identified in current approved strategies is proposed to be exempt from the farmland policy. However, councils may choose to review their settlement strategies at any time. In such a review, a council would be able to delete future settlement areas located on farmland, if they wished. However, new settlement areas could not be identified on farmland (unless consistent with criteria proposed for urban development in regionally significant land).

Strategic and local planning: land uses on farmland

There was general agreement with the proposal that councils' local environmental plans should continue to set rules about subdivision, houses and uses of farmland. Boundary adjustment provisions suggested in the Proposals Report were also supported, although some people felt they had limited applicability. Support was indicated for dwelling entitlements not being removed from rural properties.

Action

Councils will not be required to base their agricultural protection zones on the farmland maps. Councils will be responsible for rural zones. The project team does not propose to introduce new rules about subdivision of land zoned rural, or dwellings on rural land, or uses of land zoned rural. These matters will remain under councils' local environmental plans (LEPs). DIPNR has encouraged councils by letter to include provisions in their local environmental plan to allow applicants to apply for boundary adjustments as outlined in the 2004 Proposals Report.

4 RECOMMENDATIONS FOR USE OF THE FARMLAND MAPS

While the planning system cannot solve all of the problems which are faced by farmers, it can go some way towards protecting agricultural land resources. Planning can protect the resource security of today's farmers by avoiding the creation of new land use conflict situations. This can be achieved by setting principles for avoiding land use conflicts where farmland is near a proposed new residential area. The planning system can also protect the land resource for future generations of farmers by keeping farmland available for agriculture. This means taking a strategic approach to urban and rural residential planning which avoids using the best agricultural land for housing or commercial uses. In addition to keeping land available and avoiding land use conflicts, the planning system can support farmers in optimising their farm income potential. This can be by facilitating boundary adjustments for farm amalgamation and retirement, and by allowing a range of agriculture-related farm diversification developments.

The farmland maps are proposed to be used as a strategic settlement planning tool rather than an agricultural resource tool. Councils will not be required to base their agricultural protection zones on the farmland maps. The maps are intended for strategic planning, to show areas where urban and rural residential development should not be targeted. Councils will continue to administer rural zones through their local environmental plans. The farmland project does not introduce rules governing subdivision of land zoned rural, or dwellings on rural land, or uses of land zoned rural. These matters are intended to remain under councils' local environmental plans.

Regional farmland objectives

The following objectives are recommended to guide decision-making on development in farmland areas:

1. To establish the priority of legitimate rural uses (farming, conservation, extractive industry, forestry, rural industry) over non-rural uses, without one rural use necessarily having preference over another rural use.
2. To recognise and conserve the best agricultural land in the region for current and future rural uses.
3. To prevent fragmentation, alienation and encroachment of the most important agricultural areas by land uses unrelated to agriculture and rural uses.
4. To keep options open for future generations to produce a range of agricultural goods throughout the region on allotment sizes which optimise production potential.
5. To allow for a range of activities that support agriculture, including farm diversification and value-adding, without compromising long-term agricultural production potential.
6. To provide for management of important agricultural land for a range of rural uses.
7. To protect agricultural land from development that may result in environmental degradation.

Planning principles

The following principles are recommended to implement farmland protection objectives, in conjunction with the maps.

1 State significant farmland: urban and rural residential development

State significant farmland cannot be considered for urban (including housing, retailing and other uses normally located within towns) or rural residential rezoning. The only exception is where the land is identified in a council settlement strategy which has been agreed to between December 1994 and December 2004 under clauses 20 or 38 of the North Coast Regional Environmental Plan (or placed on public exhibition by the end of 2004 and subsequently approved). Councils when preparing new settlement strategies cannot consider state significant farmland for inclusion.

2 Regionally significant farmland: rural residential development

Regionally significant farmland cannot be considered for rural residential rezoning. The only exception is where the land is identified in a council rural settlement strategy which has been agreed to between December 1994 and December 2004 under clause 20 of the North Coast Regional Environmental Plan (or placed on public exhibition by the end of 2004 and subsequently approved). Councils when preparing new rural residential settlement strategies cannot consider regionally significant farmland for inclusion.

3 Regionally significant farmland: urban development

Regionally significant farmland can be considered for urban rezoning if it is identified in an existing urban settlement strategy which has been agreed to between December 1994 and December 2004 under clause 38 of the North Coast Regional Environmental Plan (or placed on public exhibition by the end of 2004 and subsequently approved).

4 Regionally significant farmland: future urban strategies

Regionally significant farmland is not an absolute constraint to future strategic urban development. Councils when preparing new urban settlement strategies under clause 38 of the North Coast Regional Environmental Plan can consider regionally significant farmland for future urban use if all of the following apply:

- the proposed new urban area or use would form part of the urban areas of Lismore, Murwillumbah, Kyogle, Casino or Ballina¹ and no viable alternative land is available in proximity to those towns, or it would form a minor 'rounding-off'² on the edge of an urban centre which would make good planning sense given the nature of the locality; and
- it would be adjacent or close to an existing zoned urban area; and
- it would not significantly undermine the integrity of a regionally significant farmland area by creating wedges or spikes of urban development; and
- it would not compromise local or regional agricultural potential by alienating agricultural infrastructure or agricultural transport routes, or decreasing 'critical mass' for any existing agricultural industry; and
- it would not create impacts which would compromise the agricultural use of nearby regionally significant land; and
- it would not be located in an area where there was an identified risk of land use conflict near an existing agricultural enterprise; and
- it would not involve filling part of a floodplain unless consistent with a floodplain management plan prepared in accordance with the Floodplain Management Manual.

¹ The Department of Planning's 1995 North Coast Urban Planning Strategy listed sub-regional centres and major district centres which formed the basis of a regional 'settlement hierarchy' on which to build future growth. This means they are towns which have been given a regional role in that regional strategy. The towns identified above are those which are located within or beside regionally significant farmland and are included in the North Coast Urban Planning Strategy's list.

² 'Minor rounding-off' means developing a small area of land occupying a gap in an urban zone. 'Good planning sense' means there would be some improved outcome for a settlement, such as:

- alleviation of existing land use conflict (eg by the incorporation of a buffer),
- efficient and economic use of infrastructure, or
- greater contiguity of an urban zone resulting in improved linkages or access.

Note that if the above criteria can be met, the proposal would still also need to satisfy the normal requirements for urban settlement strategy preparation. The Department of Infrastructure, Planning and Natural Resources will monitor the use of the above criteria to observe any cumulative impact. If necessary, it will review the criteria.

5 Regionally significant farmland: industrial development

Industrial development is generally located within urban areas, in which case the principles applying to urban development in regionally significant land apply to any proposal to create or expand an industrial area. However, some large industry is of a type which does not suit an industrial estate and needs to be located out of town. In these circumstances, regionally significant farmland is not an absolute constraint to industrial development.³ Councils would be able to consider regionally significant farmland for stand-alone future industrial use if all of the following apply:

- it would not significantly undermine the integrity of a regionally significant farmland area; and
- it would not compromise local or regional agricultural potential by alienating agricultural infrastructure or agricultural transport routes, or decreasing 'critical mass' for any existing agricultural industry; and
- it would not create impacts which would compromise the agricultural use of nearby regionally significant land; and
- it would not be located in an area where there was an identified risk of land use conflict near an existing agricultural enterprise; and
- it would not involve filling part of a floodplain unless consistent with a floodplain management plan prepared in accordance with the Floodplain Management Manual; and
- no viable alternative land is available which is suitable for the proposed industrial use.

6 Hatched areas – significant non-contiguous farmland

Hatched areas represent land that has the general characteristics of state or regionally significant farmland but does not fit within the definition of 'large contiguous areas' which are the primary focus of the Farmland Protection Project. Notwithstanding, such areas may have significant agricultural value when considered at the local level.

Generally these areas should not be considered for land use change through the rezoning process. However if there are compelling reasons to consider them for settlement as part of a council-initiated strategic planning process, then councils will be required to undertake a merit-based assessment of the agricultural value of such land, in consultation with Dept of Primary Industries and DIPNR. If the land is found to have agricultural importance, an agricultural emphasis should be maintained, to the exclusion of urban or rural residential development.

7 Managing the urban-rural interface

Where expansion of urban or rural residential zones towards farmland would create a potential conflict, such zones would not be permitted to extend to the boundary of significant farmland. A suitable buffer must be provided outside the farmland area, designed to separate the residential zone from mapped farmland. The onus is on the developer of the encroaching residential zone to avoid conflict through the provision and

³ This proposed planning rule would not apply to rural industry, which is defined as handling, treating, processing or packing of primary products and includes the servicing in a workshop of plant or rural equipment used for rural purposes in the locality. Rural industry is recommended to be allowed in farmland areas, without restriction.

maintenance of buffers, and acquisition of buffers must form part of the overall development. Buffers must minimise the potential for conflict, protect the rights of all parties, provide an agreeable quality of living and enable farmers to undertake legitimate activities. The buffer may continue to be used for agriculture but could represent a transition zone. It may incorporate a physical separation distance accounting for topography, plantings of vegetation or other combinations of measures which reduce the potential for conflict.

In cases where a new urban zone may be considered in regionally significant farmland (see principle 4), a conflict risk assessment is required at the time the council develops its urban settlement strategy. The assessment is to address a range of suitable measures to minimise future conflict, applying the principle that any buffer should be provided as part of the development.

8 Environmental protection

Some areas identified as state or regionally significant farmland include important habitat or remnant vegetation. Some of those areas are currently zoned environmental protection. While the maps indicate the existence of significant farmland, this should not be taken to mean that vegetation and habitat values are secondary to agricultural values, or that land has to be used for agriculture. Where land is now zoned for environmental protection, the zoning should not be altered to agricultural protection. However, if the environmental protection zone is to be removed because of an absence of environmental values, the land should then be protected in an agricultural zone.

9 Infrastructure & facilities

Public infrastructure is permitted on land mapped as state or regionally significant where no feasible alternative is available. Councils or state agencies proposing public infrastructure on such land should select alternative sites where possible.

Councils and state agencies proposing public infrastructure on hatched (significant non-contiguous) land must assess the agricultural importance of this land, and should select alternative sites where possible if agricultural value is identified.

Strategic boundary review

While soil landscape mapping has its advantages, it also has disadvantages. One disadvantage is its broad scale (1:100,000). The maps were prepared for regional planning purposes. The minimum mappable area is 40 hectares. Farmland significance identified may not necessarily be accurate at the property scale. It is possible that there will be some inclusions of lower quality lands. Some degree of boundary verification will be necessary in assisting councils to overcome these limitations when defining boundaries for future settlement strategies. The following strategic boundary review process is recommended.

The mapped boundary is the default. However, when a future settlement strategy is being prepared, the boundaries of significant farmland will be able to be reviewed – not property by property but as part of one-off council-initiated strategic investigations over a nominated settlement area which has merit in terms of other planning issues and the overall regional strategic direction.

Boundary review is to be limited to within 150 metres of the mapped significant farmland boundary. One hundred and fifty metres is nominated on the basis of the 150 metre confidence limit for 1:100,000 mapping advocated by Ridler (Agricultural Classification Paps – Uses and Limitations: 2 Reliability and Scale Advisory Note 2/87, November 1987, Agdex 525.)

Boundary review can be carried out on boundaries between significant farmland and 'other rural land'. Areas wholly within mapped significant farmland are not able to be reviewed. To allow exemptions of small areas within farmland areas would create potential conditions for rural-residential/farmer conflict. Boundary review

cannot be carried out on shared boundaries between committed urban uses and significant farmland as shown on the maps.

The boundary review process uses agricultural land classification descriptions as prepared by NSW Agriculture. Each soil landscape generally corresponds to an agricultural suitability class. A map has been prepared showing agricultural suitability classes as an overlay on Farmland maps. Land subject to boundary review is to be checked against the description of the corresponding agricultural suitability class. Descriptions can be seen at Agfact AC 25 Agricultural Land Classification (Hulme, Grosskopf & Hindle) - available on the DPI website. If the land is found not to meet the description, then the boundary should be varied either to the point where consistency with the description could be met, or to a distance of 150 metres, whichever comes first. For example, the Cudgen soil landscape generally corresponds to classes 1/2. If a boundary assessment found land of generally class 3, the boundary could be varied. But the Myocum soil landscape is generally class 3. The boundary would have to be checked against the class 3 description.

Any land found to be outside the farmland mapping as a result of the review process should be considered as being 'outside the farmland area' in terms of the following interface management approach, as recommended in section 4.

'Where expansion of urban or rural residential zones towards farmland would create a potential conflict, such zones would not be permitted to extend to the boundary of significant farmland. A suitable buffer must be provided outside the farmland area, designed to separate the residential zone from mapped farmland.'

DIPNR is the lead agency for receiving submissions from councils re boundary review. DIPNR will consult specialists within DPI and other specialists within other organisations on a needs basis for advice.

Examples of where the boundary review process would apply:

A council is preparing a new rural residential strategy which includes a new rural residential zone occupying mostly 'other rural land' – but one corner of the investigation area is mapped as state or regionally significant. Under the buffer rules, the development would have to stop short of the farmland area, maintaining a separation between the residential and agricultural uses. But the farmland boundary could still be reviewed within 150 metres. The assessment might show the boundary should be moved 100 metres into the mapped regional farmland area. Of the 100 metres, 80 might be required as a separation distance, depending on the circumstances. But the area identified to be included in a rural residential zone could extend further than if the line had not been reviewed.

A council is preparing a village expansion strategy. The village borders on 'other rural land', with the state or regionally significant farmland boundary beginning some 300 metres away. The village is proposed to expand towards the farmland area (including a buffer). The farmland boundary could be reviewed.

Where the boundary review process would not apply:

A council is preparing a new urban strategy and wants to consider regionally significant land for inclusion. The land can be included if the requirements listed in planning principle 4 at section 4 are all met, despite its farmland status. There would be no need for review of the farmland boundary.

A council is preparing an urban settlement strategy, and wishes to expand an urban area which is completely surrounded by state significant land. The boundary between the farmland and the existing urban zone could not be reviewed. The urban area could not expand into the farmland area.

A council is preparing a rural residential strategy and wishes to establish a rural residential zone wholly within state significant or regionally significant farmland. As above, the farmland area could not be reviewed. No rural residential zone could be established.

Mapping review

The project team proposes that the Farmland maps be updated as part of any review of the Far North Coast Strategy, utilising any reviewed soil landscape data.

Additional recommendations

During the course of the Farmland Protection Project, rural communities put forward many issues which were of great concern to them. Most of these related to farmers' difficulties in remaining agriculturally viable while coping with current land use conflict, land management problems such as erosion, and problems of agricultural economics. The planning system with its zones and land use rules cannot solve these difficulties. The following recommendations are made in recognition that the valued status of farmland should be reflected as widely as possible, including outside the planning system.

- 1 Funding opportunities should be investigated for developing voluntary Codes of Practice for specific agricultural industries operating in farmland areas to clarify and protect farmers' responsibilities and rights. (For example, the 2003 'Code of Practice for Noise Management of On-farm Processing of Macadamia Nuts ' was developed jointly by Dept State and Regional Development, Lismore City Council, DIPNR's Living Centres Program and the Australian Macadamia Society.)
- 2 DIPNR should endeavour to contact all residents of farmland areas by letter:
 - * advising of the area's farmland status
 - * emphasising the priority of legitimate rural uses (agriculture, conservation, rural industry, forestry) over non-rural uses in these areas.
 - * enclosing the series of brochures on 'Living in a Rural Area'.
- 3 DIPNR should provide farmland maps and supporting information to all Northern Rivers real estate agents, with a letter which emphasises the priority of rural uses within farmland areas.
- 4 DIPNR should encourage councils to consider indicating farmland status on Section 149 certificates given to land purchasers.
- 5 The Northern Rivers Catchment Management Authority (NRCMA) should consider accessing funding to assist agricultural industry bodies in farmland areas to develop sustainable land management programs. Priority should be given to industries operating in state significant farmland – eg vegetable growers and orchardists.
- 6 Funding opportunities should be investigated for employment of a coordinator to assist implementation of the Byron Sustainable Agriculture Strategy.
- 7 Action 3.4.1 in Northern Rivers Catchment Blueprint is to develop a program to establish Best Management Practice for key industries impacting on water quality, and to encourage and promote its adoption. Agricultural industries on state significant land (horticulture, orchards) should be targeted by the NRCMA as a high priority in any project arising from this action, with regionally significant land as a next priority.

5 FURTHER WAYS IN WHICH AGRICULTURE MIGHT BE PROTECTED

The mechanisms discussed below may, in conjunction with planning controls, assist farmers to manage their land or conduct their business, thus increasing potential profitability. This report does not attempt to canvas all possible options for farmers. Rather, the intention is to draw attention to some of the existing areas of assistance for farmers in the Northern Rivers and highlight some additional potential mechanisms that might be implemented by farmers and/or other organisations in the short or long term.

Farm forestry

Farm forestry involves the integration of tree crops into traditional agricultural farming to produce forest products and/or maintain or enhance the natural resources upon which the production capacity of the property relies. There are several benefits from farm forestry, including (NSWAg 2002):

- Supplemented farm income from the sale of timber and other products (eg oils, medicines, bush foods)
- Shade and shelter for livestock
- Reduced wind speed and evaporation within crops and pastures
- Increased soil and water stability/quality
- Increased biodiversity and habitat quality
- Fewer pests through the maintenance of beneficial, natural predators
- Economic returns from under-utilised areas, such as laneways and areas with soil problems
- Creation of a buffer between properties or other uses, resulting in reduced potential for conflict
- Creation of a suitable area for effluent disposal from intensive livestock operations
- Flexibility in tree cropping times, allowing for more efficient use of farm resources and increased commercial stability
- Increased aesthetic value of the property
- Additional on-farm employment opportunities for farming families and rural workers
- Source of timber for on-farm activities such as building and fencing

There are several organisations that are able to assist farmers in establishing and running a forestry operation on their farms. Appendix A provides some additional information on relevant organisations, the assistance they can provide, and contact details.

Carbon trading

Carbon trading may be an option for farmers in the Northern Rivers, through various methods such as farm forestry, plantations or revegetation. 'Carbon credits' are the credits a landholder can gain for removing greenhouse gases from the atmosphere. There may be potential for landowners to form a 'carbon credits collective' to promote carbon sequestration in the Northern Rivers area (TEDC 2002). This may be a more viable approach than individual landowners, especially where individual landholdings are smaller than the optimum.

There are several options for landholders to consider regarding carbon credits. These are:

- Renting your land to an organisation (such as State Forests NSW or a private afforestation company) so that they may plant forests for carbon credits
- Establishing a planted forest for carbon credits on your own land
- Establishing a planted forest on your own land for other reasons (such as environmental enhancement)

All three options have specific issues, benefits and costs, which must be fully considered prior to deciding whether to go ahead. State Forests provide a useful plain English document *Growing Trees for Carbon Credits – A Guide for Landowners*, which covers these issues. Another document, *Generating Carbon Benefits from Public and Privately Owned Forests* gives additional information on carbon credits, carbon markets and options to generate revenue. See Appendix A for more contact details.

Farmers' markets

Producers can sell fresh produce to the public at weekly or fortnightly markets. This has advantages in terms of local markets, producers being able to sell directly to the public, consumers being able to buy fresh local produce, increased ability to supply locally unique products, less energy used in transport and refrigeration, and social benefits (CVC 2001). Consumers seeking large quantities of produce often purchase from markets and this direct contact can benefit farmers. Direct selling allows farmers to network and can help to identify new markets. Farmers can also use markets to trial new products and sell produce that is not suitable for sale elsewhere (eg 'seconds' and non-export quality produce) (FOE 2002).

Farmers' markets are regularly held in several locations within or near to the Northern Rivers, including Lismore, Byron Bay, Banora Point, Tumbulgum, Uki, Mullumbimby, Bangalow, Grafton and Maclean. Lismore has an organic market as well as a market for general produce. Farmers' Markets are also held further afield but within a reasonable distance from parts of the Northern Rivers, including those at Mudgeeraba, Mt Cotton, Brisbane and Toowoomba, within south-east Queensland. Contact details for all of these markets are listed in Appendix A.

Groups of farmers may prefer to establish their own farmers' market. This would involve forming a group to organise, hold and manage the market, as well as secure commitments from participating producers. Costs may be involved in relation to gaining legal advice, insurance and a regular venue (TEDC 2002).

The Australian Farmers Markets Association Inc may be able to provide additional information. It can be contacted through Jane Adams, Interim Chair, at this email address: jacom@bigpond.net.au

Farmers' cooperative(s)

Farmers within the Northern Rivers could establish a farmers' cooperative, according to produce type or farming location, or on a larger regional scale across industries. The cooperative could provide a tool for networking amongst farmers, provide information, facilitate educational and extension activities and promote the region's produce to existing and potential markets (TEDC 2002). Links with other organisations and marketing bodies could be maintained through this cooperative. Financial support would be provided by participating farmers. Initially, a feasibility study should be conducted across the various industries to determine the likely benefits or otherwise of forming such a cooperative within the Northern Rivers and the level of support amongst potential participants.

Information for non-farming residents

Farming groups could distribute information to non-farming residents advising of production and land management activities taking place as part of necessary farm operations, or changes to normal operations, as well as activities being undertaken to increase or maintain the environmental value of farming land (TEDC 2002). The information could describe how the landowner has considered and managed potential impacts to neighbours and other community impact zones such as schools, community buildings and public spaces and demonstrate how the operations meet relevant land use planning and development codes or industry codes of practice. This educational process may assist in reducing complaints against farmers regarding their operations, facilitate greater recognition of the positive role farmers play in resource management, and encourage better neighbour relations.

Information products could also be used to advise non-farming residents on ways that they can assist in building a better relationship with nearby farmers. For example, advice could be included regarding the impact on farming operations from roaming dogs and other domestic pets. Cooperation could be sought from residents to assist in the control of such animals in rural areas.

The former PlanningNSW (now DIPNR) and NSW Agriculture (now Department of Primary Industries) has produced a set of information brochures that provide advice for rural residents, titled:

- Living in a rural area – What to expect living in a rural area

- Living in a rural area – Being a better rural neighbour
- Living in a rural area – Who to contact about conflicts

The brochures are available through the DIPNR and Department of Primary Industries offices (see Appendix A).

Cooperative farming

A group of farmers may decide to run their properties as a unit, increasing productivity and sharing infrastructure and equipment and transport costs (CVC 2001). Land title and tenure would not change, but the farms would become one business unit. Opportunities for linking production and/or land management activities between producers may be identified through property level resource audits. This innovation is being trialled on the New England Tablelands at Tilbuster by the Institute for Rural Futures at the University of New England in Armidale. This project involved 'the establishment of procedures for joint decision making by the landowners, the reorganisation of property boundaries and fencing to create commons for livestock production and for conservation of bushland, and the investigation of the use of property law to formalise the rights and responsibilities of the participating landowners' (IRF 2004). The project reflects the European use of common property regimes, where benefits such as economies of scale, management efficiencies, market opportunities and resilience against climatic variability can be obtained. A book dealing with the common property concept titled *Reinventing the Common: Cross-boundary for a Sustainable Future* has been released by the Institute. A review of the success of this concept within the trial should be undertaken to determine its possible application to the Northern Rivers.

Value Adding

Despite the move towards value adding to products away from the farm gate, there may be opportunities for value adding activity within the Northern Rivers (Tayner 1999). For example, the national trend towards organically grown, clean and green food is especially evident on the Northern Rivers, where social and cultural attributes have lead to a greater demand for fresh, 'environmentally friendly' produce. The desire to buy locally grown produce has also grown.

The lack of additional processing in food can also be a form of value adding. Clever marketing of fresh, reliable, unprocessed produce of high quality and presentation can yield results for farmers. However, large investments in market research and building networks may be involved (Tayner 1999).

Farmers may also add value to their experience and resources through the formation of groups for collective gain (refer to Cooperative farming and Formation of farmers' cooperative(s) for more information on these options) or through the diversification of property use (see Farm Forestry and Farm-based tourism).

Farm-based tourism

Tourism is a growing industry in the Northern Rivers, with increasing opportunities arising from the proximity of the area to south-east Queensland's expanding domestic and international tourism market (TEDC 2002).

Low-key, low-impact agricultural related rural tourism can contribute to a landholder's income. It can include a range of tourism opportunities associated with on-farm activities such as farm activity holidays, bed and breakfast establishments or farm and nature-based retreats with an ecological and agricultural education focus. Councils could set out clear guidelines and processes for establishing farm-based tourism, with a focus on farm experience, farm product consumption, and protecting the landscape and the environment.

A joint project between Tourism Queensland, Sustainable Tourism CRC and AgForce Queensland⁴ has produced an assessment tool to assist landowners to determine the potential of their property for a farm and

⁴ AgForce is Queensland's premier rural lobby group, representing broadacre producers and small business operators across the state. The equivalent organisation in NSW would be the NSW Farmers Association.

country tourism business. Farm and Country Tourism on Your Property comes in two parts: Stage 1 Assessment Tool and Stage 2 Workbook. These documents will assist farmers to consider important issues regarding the suitability of their land for such as business, including the attractiveness of both the region and individual property to tourists in terms of natural values, heritage and cultural values and recreational opportunities, as well as the relative accessibility of the property to the target market. The documents are not specifically targeted towards Queensland properties and may be used in a general way by landowners within the Northern Rivers, as a first step towards investigating potential sources of additional on-farm income. Alternatively, a similar project could be undertaken within the Northern Rivers to assist those farmers in a more direct manner. CRC for Sustainable Tourism can be contacted through its Regional Tourism Research contact in Lismore: Mr Dean Carson, phone 6620 3785.

Community-supported agriculture

Under this scheme, urban people subscribe directly to local farmers to grow their food. Fifty families might each pay the farmer \$1,500 per year, and be guaranteed a box of fresh produce each week. In this way, the farmer is not subject to outside price mechanisms, urban people would be able to eat fresh, locally produced food, and food would be transported less. Economic, environmental and community benefits would be significant (CVC 2001). This system is being implemented in Tasmania, California, Canada and across Europe (FOE 2002) and is also being trialled in Byron Bay. The system creates stronger links within the community as well as between consumers and producers. Friends of the Earth Brisbane (FOE) have published a report titled Towards a Community Supported Agriculture which discusses the benefits and issues involved with this type of scheme. Some other benefits for farmers outlined in this report include:

- A reliable income for farmers at the beginning of the season from 'shareholders' within the community
- A guaranteed market for their produce
- Sharing of the risks of food production with consumers (shareholders)
- A reduction in the burden of farmers' debt
- Reduction in loss and waste from harvested farm produce
- Direct connections formed with the community
- A reduction in required effort to market produce, allowing more time to be spent on farm management
- Environmentally sustainable farming practices may be easier to adopt though increased support

The report is available for purchase from FOE (phone 07 3846 5793 or email foebrisbane@uq.net.au) or can be downloaded free from their website at www.brisbane.foe.org.au. The website also has additional information on community supported agriculture case studies, including different models that may be applied (eg, individual farmers versus a collective producer approach).

Rural support services

There are several organisations offering rural support services in the Northern Rivers. The Northern Rivers Rural Financial Counselling Services offices based in Casino offer free rural financial counselling and financial planning services, farm debt mediation, facilitation for family business meetings, assessment of farm enterprise viability for Farm Help assistance, advice on government and non-government assistance schemes, assistance with Rural Assistance Authority applications and personal or family counselling or referral to other services.

Other specific programs include the Water Reform Structural Adjustment Program (Waterwise), Natural Disaster Relief Scheme, NSW Special Conservation Loan Scheme and NSW Farmbi\$. The Rural Assistance Authority administers most of these services.

A rural leadership skills course is underway through Casino Business Enterprise Centre, which appears to be successful in helping agricultural industries develop strategic planning. TAFE runs farm and business related courses at several campuses.

The Department of Primary Industries' Agriculture section (formerly NSW Agriculture) provides extension services to rural landowners. Many of these services are provided through the Wollongbar Agricultural Institute. The Institute can provide advice to landowners through its Agricultural Environment Officer, Soils Advisory Officer, Irrigation Officers and Environment Extension Co-ordinator. A library available for use by members of the public is also located on site. Several laboratories for research, analytical and diagnostic services in relation to soils water, plants, fertilisers, feeds, essential oils, animal diseases and dip sites are also provided. A Chemical Residues Laboratory in Lismore is able to test plant and animal food products for pesticide residues. The Centre for Tropical Horticulture in Alstonville also employs research and extension horticulturists to provide advisory, research and regulatory services. The Department can also provide advice on a range of rural issues. For example, it has produced an extensive range of publications and information sheets on drought management and recovery and available assistance services. This includes the NSW Guide to Drought Support Services, a quick reference guide containing contact information for a range of personal, financial and information services, from a range of organisations. A booklet titled Support Services for Rural Families and Businesses is also available, which provides a more comprehensive list of services available for support or advice during the drought. These publications are available online. For contact details and other information see Appendix A.

Environmental support is available through the Department of Infrastructure, Planning and Natural Resources. In particular the Department can provide advice on rivercare issues (such as riverbank erosion), groundwater resources (mapping, availability, monitoring, irrigation bores licensing and general advice), water extraction (licensing and advice), farm forestry, and native vegetation. See Appendix A for further details.

Additional environmental advice can be obtained by the Department of Environment and Conservation, National Heritage Trust, Department of Primary Industries (including the former NSW Agriculture and NSW Fisheries agencies), Northern Rivers Catchment Management Authority, Wetland Care Australia and Greening Australia.

The former PlanningNSW (now DIPNR), through its Living Centres program, has produced the booklet Northern Rivers Directory of Agricultural and Rural Services: A guide to government and community programs to assist rural landholders, which provides further details on available services, programs and publications. The booklet is available from the DIPNR planning office in Grafton and from councils.

Community Landcare Coordinator

Jackie Luethi has been appointed Community Landcare Coordinator with Richmond Landcare Inc. Jackie will be working with Northern Rivers farmers over the next year on projects aimed at developing sustainable land management practices.

Together with Landcare community support officers in the Tweed, Brunswick and Richmond catchments, she will work with networks of farming groups across the catchments. In particular, she will be involved with NSW Department of Primary Industries on sustainable agriculture projects such as Prograze, Soil Sense – Soil Health Card and Soil test interpretation, Landscan and Floodplain Backswamp Management. These projects, and Jackie's position, are federally funded through the National Landcare Program with the funds being made available through the Northern Rivers Catchment Management Authority.

Jackie is also keen to conduct any projects that enhance the uptake of sustainable farming practices in other agricultural industries. Jackie has a degree in Environmental Science and has worked in the cotton, macadamia, horticulture and beef industries. She is based at the Department of Primary Industries Wollongbar institute and invites people to contact her on 6626 1329.

Land purchaser information

It is necessary to seriously address the educational and awareness issues associated with buying property in or near to traditional farming areas. Councils could provide more information to land purchasers on 149(5) planning certificates, issued under the Environmental Planning and Assessment Act 1979, to make land

purchasers aware of the planning situation applying to their land. New land purchasers should be adequately informed as to the agricultural nature of the area in which the property is being purchased. As part of this initiative, information regarding typical rural activities should be readily available and accessible to potential buyers of rural property, new residents, real estate agents and conveyancing firms, to ensure that rural living issues are understood at the very earliest time possible.

Register of complaints

A register of complaints received could be established and maintained by local councils to assist in monitoring occurrences of conflict in relation to the application of planning, development and conflict management controls. This would help to determine over time the success or otherwise of such controls, and therefore assist in identifying gaps, strengthening existing control measures and/or determining more adequate measures, such as different buffer widths or types.

Conflict management

Where situations of conflict occur, involved parties should be encouraged to invest effort in communication, negotiation and mediation, rather than using litigation to deal with the issue. Outside and third parties should only be brought in after these methods have been pursued, or where a breach of the law is involved. This may help reduce the financial burden for farmers arising from dispute management.

Voluntary Conservation Agreements (VCAs)

VCAs could be promoted more as a means to protect high conservation value land. A VCA may be applied to a whole property or part of a property. Landholders who enter into a voluntary conservation agreement may be eligible for rate relief and tax deductions.

Environmental Enhancement Funding Programs

The Natural Heritage Trust (NHT) funds several programs which help landowners and communities to care for the environment in their area. Funding is available by application under the Landcare, Bushcare, Rivercare and Coastcare programs. There are several groups already operating in the Northern Rivers.

Regional Natural Resource Management Facilitators are employed to provide advice and assistance regarding the above programs. The Northern Rivers Facilitator is Kerri Francis. She can be contacted at the Alstonville DIPNR office (PO Box 664, Alstonville, 2477), by phone on 02 6627 0114 or by email at kerri.francis@dipnr.nsw.gov.au. More information on the programs can also be obtained from the NHT website: www.nht.gov.au/index.html. Follow the links on the webpage to the 'programs' area.

The 2003 Northern Rivers Funding Compendium is available on the CANRI website at www.canri.gov.au. Search for 'funding compendium.' This website gives details of a range of funding avenues which may be of benefit to farmers. It is currently being updated.

Property planning

The Farming for the Future program has been replaced by Property Management Planning through Farmbi\$ coordinators. This can help farmers manage their land and integrate environmental management. It includes financial management training.

The new Northern Rivers Catchment Management Authority (CMA) will provide landowners with access to data and relevant information to prepare Property Vegetation Plans (PVPs). Landowners will be encouraged to prepare PVPs under the new Native Vegetation Act 2003, which will replace the current legislation (the Native Vegetation Conservation Act 1997) later in 2004 once the supporting regulations have been prepared. The new legislation will provide for the allocation of funds through the CMA to support the development of PVPs, including financial incentives to landholders for native vegetation management. The CMA will also be providing education and training on natural resource management, especially in the area of vegetation management.

The Northern Rivers CMA General Manager is Michael Pitt. He can be contacted at PO Box 618, Grafton, 2460, or by email at northern@cma.nsw.gov.au . The web address for the CMA is www.northern.cma.nsw.gov.au .

Management plans and sub-catchment plans

Landholder groups can develop voluntary management strategies, such as the cane industry's drain management project or Landcare projects.

Leasing

Farmers may in some cases be able to increase their productivity and resilience by leasing land from other landowners. Alternatively, farmers can lease or agist land they are not using.

Best practice management guidelines

A comprehensive range of guidelines is available to help landowners improve management in various agricultural industries. These are available through individual government agencies such as the Department of Infrastructure, Planning and Natural Resources, Department of Primary Industries and Department of Environment and Conservation.

APPENDIX A – Additional Information

Farm Forestry and Carbon Trading

Several organisations are able to assist farmers in establishing and running a forestry operation on their farms. The following information and sources may be of particular use:

Department of Primary Industries (former NSW Agriculture): www.agric.nsw.gov.au

Publications and other sources of information include:

- Farm Forestry NSW – Potential for diversification
- Farm Forestry NSW – Trees for coastal regions and nearby ranges
- Farm Forestry NSW – Recommended tree planting times
- Farm Forestry Strategy for NSW
- Farm Forestry Contacts
- NSW Agriculture Agroforestry Unit

Department of Primary Industries (NSW State Forests section): www.forest.nsw.gov.au

Publications include:

- Growing Trees for Carbon Credits – A guide for Landowners
- Forest Facts – Generating Carbon Benefits from Public and Privately Owned Forests

Department of Infrastructure, Planning and Natural Resources (former Department of Land and Water Conservation): www.dipnr.nsw.gov.au

Publications and other sources of information include:

- DIPNR Farm Forestry Extension workers, Northern Region, Grafton, ph 02 6640 2000
- Information and factsheets on various farm forestry issues, such as related legislation
- Guidance Code for landholders wanting to invest in plantations
- Plantation Regulation in NSW (factsheet)

Subtropical Farm Forestry Association: www3.turboweb.net.au/~sffa/

Publications and sources of information include:

- Subtropical Farm Forestry Association Manual
- Membership benefits, such as:
 - Free professional advisory service
 - Low cost introductory farm forestry courses
 - Current information on commercial opportunities
 - Access to seminars, field days, conferences, research trials and demonstrations

Northern Rivers Regional Plantation Committee (aka Northern Rivers Private Forestry), through the Northern Rivers Regional Development Board: www.privateforestry.org.au/

Publications include:

- Information sheets on Government Policy, legislation, production, planning and establishment, pasture and grazing and management, including Introduction to Plantation Forestry.
- Range of useful publications, such as:
 - Planning for Farm Forestry
 - Farm Forestry Manual and Planner
 - What Wood Where

Other useful organisations include:

- Australian Forest Growers – www.afg.asn.au
- NSW Office of Private Forestry – www.opf.nsw.gov.au
- Greening Australia – www.greeningaustralia.org.au
- Commonwealth Department of Agriculture, Fisheries and Forestry – www.affa.gov.au
- Association of Consulting Foresters of Australia – www.australianconsultingforesters.org

Rural Support Services

Department of Primary Industries (former NSW Agriculture) – www.agric.nsw.gov.au

Office	Location	Phone
Wollongbar Agricultural Institute including Chemical Residues Laboratory	1243 Bruxner Highway, Wollongbar	02 6626 1200
Centre for Tropical Horticulture	Bruxner Highway, Alstonville	02 6626 2400
Casino District Office	134 Barker St, Casino	02 6662 2288
Kyogle District Office	38 Summerland Way, Kyogle	02 6632 1900
Murwillumbah District Office	Main St, Murwillumbah	02 6672 2770

Department of Infrastructure, Planning and Natural Resources – www.dipnr.nsw.gov.au

Office	Location	Phone
North Coast Regional Office	76 Victoria St, Grafton	02 6640 2000
Alstonville District Office	Suite 3 The Plaza, Alstonville	02 6627 0100
Murwillumbah District Office	135 Main St, Murwillumbah	02 6672 5488
North Coast Regional Planning Office (formerly PlanningNSW)	49 Victoria St, Grafton	02 6642 0622

- For Rivercare advice, contact Peter Boyd at the Murwillumbah District Office
- For Farm Forestry advice, contact Bruce Cole-Clark at the North Coast Regional Office
- For Groundwater advice, contact Richard Green at the North Coast Regional Office
- For copies of Northern Rivers Directory of Agricultural and Rural Services: A guide to government and community programs to assist rural landholders, contact the North Coast Regional Planning Office

Casino Business Enterprise Centre

100 Barker St, Casino

Shirley McNaughton (Manager), ph 02 6662 5055 or email casbec@nor.com.au

Adrienne John (Farmbi\$ Co-ordinator) ph 02 6663 1421 or email john@nrg.com.au

Rural Assistance Authority

161 Kite St (DX 3037), Orange, 2800 (no office in Northern NSW) - www.raa.nsw.gov.au

Ph 02 6391 3000 or freecall 1800 678 593 or email rural.assist@raa.nsw.gov.au

Northern Rivers Rural Financial Counselling Service

100 Barker St, Casino

Terry Pearce (Financial Counsellor), ph 02 6662 6503 or email ruralc1@bigpond.net.au

Fiona Grose (Financial Counsellor), ph 02 6662 3107 or email ruralc3@bigpond.net.au

Farmers' Markets

Contact details for markets held within or near to the Northern Rivers:

Market	Contact name	Contact phone	Notes / restrictions
Byron Farmers' Market	Joni Teal, Byron Farmers' Market Association*	02 6685 9792	Byron Shire produce unless product is new to that market
Bangalow Farmers' Market	Joni Teal, Byron Farmers' Market Association*	02 6685 9792	Byron Shire produce unless product is new to that market
Mullumbimby Farmers' and Country Craft Market	Sue Constable or Lyn McDonald, Mullumbimby Show Society	02 6684 1675 (Sue) 02 6684 3608 (Lyn)	Produce from all areas
Lismore Farmers' Market	Ian Mulligan	02 6621 5916	Produce from all areas
Rainbow Region Organic Markets (Lismore)	Dave Roby	02 6628 1084	Produce from all areas - must be certified organic
Tweed Valley Farmers' Market (Tumbulgum)	Paul Brouwer	02 6670 2440	Tweed Shire produce only
Banora Point Farmers' Market	Tony & Debbie Pereira	07 5590 4862	Produce from all areas
Uki Produce Markets		02 6679 5004	
Kingscliff Beachside Farmers and Friends Market	Margaret Kiss	07 5524 2102	Produce from all areas
Grafton Farmers' and Growers' Market	Henk van der Merwe or John Pullinger	02 6643 1967	For Clarence producers, but open to others
Maclean Farmers' Market	Mr Priddle	02 6645 3170	
SE Qld Markets			
Mudgeeraba Farmers' Market (Qld)	Clinton Parsons	07 5525 3525	Produce from Northern Rivers and south east Queensland
Redlands Farmers' Market (Mt Cotton)	Liz Venzin	07 3821 4460	Produce from all areas
Brisbane Powerhouse Farmers' Markets		07 3358 8622	
Toowoomba Farmers' Market	Nick Rutland	0422 155 223	SE Qld producers or unique product from other areas

* Note: Byron Farmers' Market Association is looking to establish a farmers' market in the Ocean Shores area in the near future. Contact the Association for more information or to express interest.

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Department of Land and Water Conservation (1999). Soil and Regolith Attributes for CRA/RFA Model Resolution, Upper North-east and Lower North-east Regions.

Morand, D.T. (1994). Soil Landscapes of the Lismore-Ballina 1:100 000 Sheet, Soil Conservation Service of NSW, Sydney.

_____ (1996). Soil Landscapes of the Murwillumbah-Tweed Heads 1:100 000 Sheet, Department of Land and Water Conservation, Sydney.

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