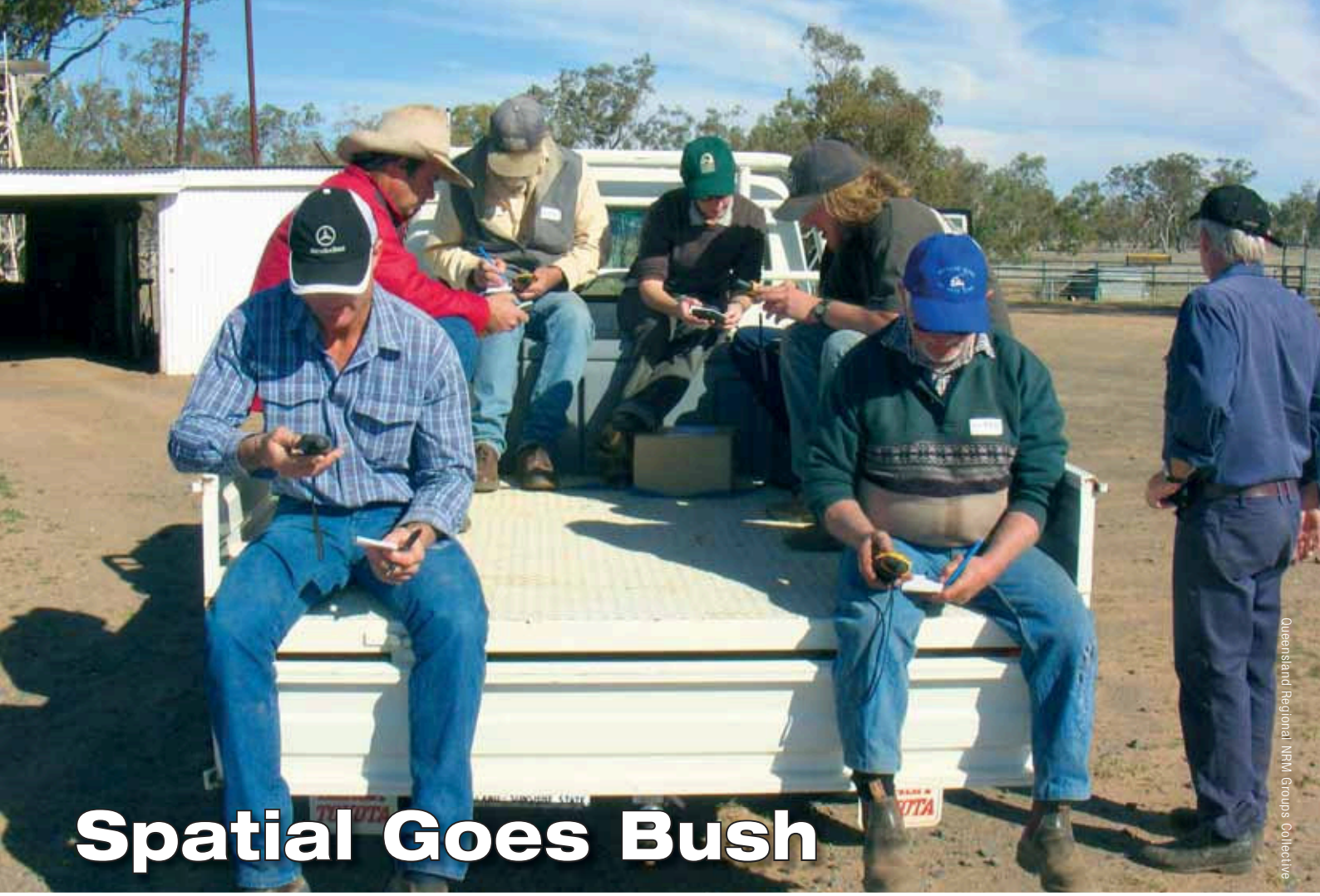

Queensland Regional NRM Groups Collective

Spatial Goes Bush

Spatial technology can enhance relations between policy makers and citizens.

JOSE DIACONO

Spatial information impacts on the lives of many ordinary people every day, although most are not even aware of it. However, citizens – such as farmers, environmentalists or construction contractors – can benefit a great deal from knowing just a little about what it involves. Training is the key.

Participants have described it as 'the best training course I have ever attended'. The training in question was provided by the Queensland Regional Natural Resource Management Groups collective. Lee Blacklock, its manager of spatial services, thinks this reputation has come about because his GPS and GIS courses are never generic.

'When you are giving training in a remote location, you can't have people going back to their office and asking, "What the hell do I do now?"' he says.

It is also because the courses are fun. 'When we had school children and teachers on a course, we hid toys around the golf course, the kids uploaded the co-ordinates, and tore off to find them.' He and his team go to great lengths to discover each group's problems or needs and the standards, tools and processes they use, so these can be incorporated into the training.

Practical exercises use meaningful data such as fences along riverbanks to stop over-grazing; river systems and flood areas for property owners; and burial grounds and sites of engravings and paintings for traditional owners. Students hit the ground running. They don't waste time or get confused learning about functionality that won't be available to them back home.

> He found ten GPS units on his desk and had no idea what to do with them...

The big enabler for the technology in rural Queensland has been the 2005 and 2006 purchases of SPOT5 imagery at ten-metre resolution for the entire state (1.72 million square kilometres). This was the first time that multispectral imagery had been available for large tracts of land. It is expected that the exercise will be repeated on a five-year cycle.

The collective teaches a wide variety of people to use the satellite imagery:

The art of GPS: land managers capturing infrastructure on a property.

property owners, local police and emergency services, school teachers and students. When the trainer comes to town, the whole community gets involved.

The new school principal at Croyden, 500 kilometres west of Cairns, was greatly relieved to see the NRM trainer. He had found ten GPS units on his desk when he arrived at his new school and had no idea what to do with them.

Traditional owners use the imagery as a backdrop to map their cultural heritage. Catchment managers plan weed eradication programs and map habitats, and farmers may undertake more complex analysis to interpret moisture in crops. Imagery at 2.5-metre resolution is also available for the eastern part of the state. It has sufficient detail for land managers to identify such artefacts as water tanks, houses and sheds, roads, riparian corridors and fence lines. They can also see contour banks, streams, and areas prone to flooding and grazing pressure.

But Blacklock feels he is only chipping away at the surface. 'We need more people who can pass on the knowledge. Not all school teachers are enthusiastic about new technology, and there are constant staffing changes.'

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When the NRM trainer comes to town, the whole community gets involved.

Lee would love to see roving GIS/GPS trainers spreading the word just like the roving dentist of the old days. There has already been talk of harnessing the nursing or teaching skills of 'grey nomads'.

When GIS specialists retire and tour the outback, wouldn't it be wonderful if their skills could be used in the same way? An opportunity for the Spatial Sciences Institute perhaps?

Building on the training, the collective supports, mentors and lobbies on behalf of Queensland's 14 regional natural resource management bodies. These bodies roughly equate to catchment management authorities in other states, helping local farmers, graziers and other land managers to improve the condition of their natural resources.

There is one major difference: the collectives are not arms of government. They are limited or incorporated entities with independent boards, which gives them more flexibility.

The 14 bodies were formerly funded by the federal government's Natural Heritage Trust, the National Action Plan for Salinity and Water Quality programs. They also received some state support. While they operate at grassroots level, they still need to work together on challenges that cross regional boundaries.

The NRM Groups Collective was born in 2002 to encourage collaboration, standardisation and streamlined, effective use of resources.

The Natural Heritage Trust Program has been axed by the Rudd government, and replaced by the five-year, $2.5 billion national *Caring for our Country* program.

While this is widely welcomed, it also means a new round of bidding for funding by NRM bodies and other land care groups. It also puts a question mark over the future of the collective. So this is a good time to take a close look at what the collective has achieved, and what still needs to be done. The answer on both counts is 'a lot'.

Some 285 GPS and 218 GIS users have been trained to date; they receive follow-up support and mentoring. Fitzroy Basin's biodiversity field officer, Rhys Kellow, is using the technology in Emerald to map the vegetation of high biodiversity value in priority areas.

A water quality field officer, Nick Kirby, uses GIS and satellite imagery to select suitable locations for water monitoring stations. He downloads data from the Bureau of Meteorology and develops average rainfall rasters for the Regional Water Quality Monitoring Network.

Traditional owners use the imagery as a backdrop to map their cultural heritage...

Farmers and graziers use skills gained on the courses to develop land and water management plans. In programs such as rotational and cell grazing, or precision agriculture, accurate mapping of paddocks and topography is essential.

Farmers are significant investors in managing our natural resources. They make the most significant contributions to the health of our land, water and communities. Without the subsidised training provided by the collective, most could not do what they are now doing.

Sometimes, it is a simple capability that makes a breakthrough. With just about everybody having a digital or phone camera these days, it is easy to take a picture of an asset or a paddock. How useful would it be to compare the state of that same soil and grass

over a period of years in a series of photographs?

Of course, you could end up with thousands of photos with no idea when and where they were taken, especially after the photographer had moved on. Blacklock is a great proponent of a particular Nokia phone that can geo-tag a photo. Date, time and latitude/longitude are recorded on every photo.

When the time comes to update, Blacklock encourages resource managers, police and emergency services to ensure that new phones have this capability. Police use them for on-the-spot crime scene recording, and traditional owners to record artefacts or fish traps.

There is a crying need for standardisation in data display…

He also points out that there is a crying need for standardisation in data display. If we are to compare apples with apples, then our maps must look the same. A fence-post in the Fitzroy Basin should have the same symbology as one in south western Queensland – even better if it is the same in other states.

Blacklock's team has developed 700 codes with symbology, which have been passed to Agforce, the peak organisation representing Queensland's rural producers. It will be built into the widely used Phoenix farm management software package.

Queensland Regional NRM Groups Collective

A group of land managers in Georgetown travelled by helicopter.

Standard presentation will enable datasets to be rolled up, compared and better understood at federal level. It's one thing to allocate $2.5 billion to *Caring for our Country*, but who decides the priorities and on what grounds?

It is also important to know whether new management and agricultural practices have brought about improvements to land and water, or protected biodiversity. Knowing if they have made a difference is also crucial, given that 80-90 per cent of land in Queensland is leasehold. At lease renewal time, farmers need to demonstrate to the state government that they have met land management conditions.

Climatic conditions can have as much impact on soil quality as fencing stock out of an area. Rainfall data can be added to the analysis. Rural Queensland is edging closer to having the complete picture and the ability to evaluate the impact of different procedures. People on the ground increasingly have the technology, and know how to use it to roll their small pictures into the big one.

To make decisions you need information; to gather reliable information, you need training.

As we have seen with the 'laptops in schools' program, hardware and software can only be effective with training, infrastructure and support. It is the same with GPS and GIS.

In the Queensland model, funding comes from government, but local organisations provide the practical training and continuing support.

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Queensland Regional NRM Groups Collective

Making GIS fun through children's training held at Dunkeld, near St George.