COAL ACTION MURIHIKU

CAM News Update No 10 May 2013

One of the things that long troubled me has been the continued resistance in New Zealand toward any suggestion of protecting good soils. We claim to be an agricultural nation, politicians and dignitaries of all kinds like nothing better than to dress rural while farmers recite endless variations on the monologue 'backbone of the nation'.

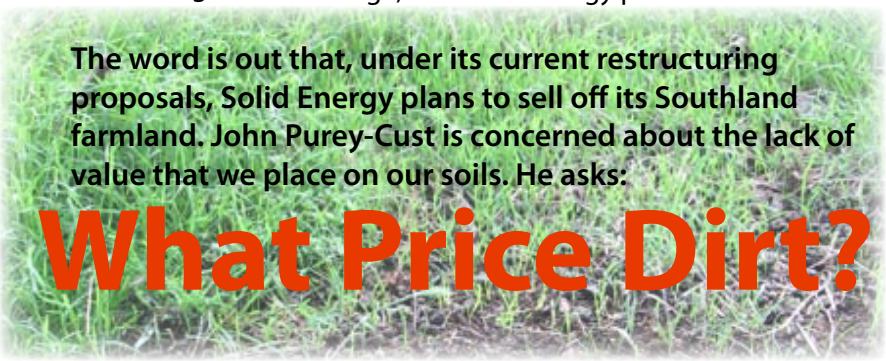
Yet when the opportunity comes the first thing to be sacrificed is the soil. I don't mean changes in use – sheep to dairy to horticulture to arable to forestry and so on – because there the soil and options for its use remain. I mean those things which make it disappear altogether, such as urban sprawl and of course in the Gore district, lignite mining.

Despite the usual background blether about good soils beyond price the community accepted without demur Solid Energy's response that we could have an even better landscape than before, just a little lower down. A local transport magnate said we would be fools to ignore the chance.

No one questioned that; even though simple maths showed that mining at the rate suggested would have to go well beyond any possibility of reconstitution. The only landscape we could hope for was a wet one. Goodbye dairy cows.

The lack of questioning by Federated Farmers puzzled me, particularly because the newly elected president had just had a tilt at soils being lost to urban sprawl, whilst saying nothing about opencast mining – Solid Energy having bought upwards of 4,000 hectares of farmland over lignite round here.

It took a while for a fellow member of CAM, also a Fed, to hammer home the point that Federated Farmers is a union, and a union first and foremost looks after its members' interests. In this case one of those interests is the right to sell land to best advantage, and Solid Energy paid well.



The word is out that, under its current restructuring proposals, Solid Energy plans to sell off its Southland farmland. John Purey-Cust is concerned about the lack of value that we place on our soils. He asks:

What Price Dirt?

So how do you value soil against what lies beneath? We already had a royalty value for the lignite – 30 cents/tonne – plus a ministerial assurance that it would all go to central government, not local, but what about the soil?

At this stage the Gore and Southland District Councils and the Regional Council (Environment Southland) are all being very opaque on anything to do with lignite, in particular standards for reclamation and anything to do with existing agricultural values. Gore District doesn't even admit to knowing where the lignite is.

A little discussion showed that in fact Environment Southland has a great deal of relevant information, but it just hasn't been pulled together in this context. The lignite fields are mapped, the Southland topoclimate soil survey maps the soils, there are land use capability maps and records of tenure and present use.

Those that know tell me that it isn't difficult to pull all these together and establish a value for the soils above any lignite field. It's a work in progress.

The transport magnate now says that Solid Energy's farms will sell well – they are the cream of Southland.

Next subject: Lord Monkton, introduced by well known song "They're coming to take me away haha", but someone else can write about that . . .

Soil Protection www.seppo.net/e/

Clued Up On Carbon – Part 3

Too much of a good thing?

You've probably heard this argument from climate change deniers: *"Even if we are adding more carbon dioxide to the atmosphere, it will help plants to grow better because it's a natural fertiliser. That's got to be good for farming."* Jane Young explains why things aren't quite that simple.

Carbon dioxide is an important raw material that plants need for making food by photosynthesis. You would expect that increasing the amount of available CO_2 would speed up this process. In addition, as climate change kicks in, some areas will not only be warmer but also wetter, further increasing the rate at which plants can make food. Surely all we'll have to do is sit back and wait for the grass to grow?

Depends on what kind of grass you're talking about. All plants make food by photosynthesis, but they don't all carry this out in exactly the same way. Most plants – including many crops such as wheat, barley, potatoes, and trees such as radiata pine – are described as C3 plants. They respond strongly to the "carbon dioxide fertilisation effect"; the rate of photosynthesis may increase by 25–75% if the concentration of the gas in the air is doubled. C4 plants such as corn and sugar cane, on the other hand, make food in a slightly different way. They tend to cope better than C3 plants with dry conditions, but don't respond as much to increased CO_2 levels.

And of course it doesn't matter how much extra carbon dioxide you feed to plants; if they can't get the extra minerals that they need from the soil, they won't be able to grow any faster. It's a bit like mass-producing cars – regardless of how many extra bodies you assemble, if there aren't enough extra wheels you won't have any more cars driving out the other end.

But that's not the end of the story. The availability of minerals is affected by changes in temperature. As the temperature increases, organic matter in the soil will decay more quickly and release nutrients that plants can use. Sounds good? But as plants "fix" more carbon dioxide in photosynthesis they produce more litter, which, until it's had a chance to decay, actually immobilises nutrients, producing a negative feedback known as "progressive nitrogen limitation". In addition, if plant growth is increased by increasing carbon dioxide, but nutrient uptake is limited, then the plant's internal nutrient status declines. Not good.

Plants are far more complex than any technology that we could devise, and no two species are going to react in the same way to changing conditions. With pine trees for example, increased CO_2 response doesn't necessarily translate to increased wood production – the energy may just be used for more root growth. C4 plants often have complex relationships with soil fungi, and in this case the extra carbohydrates that the plants manufacture may just seep out into the soil to feed the fungi. In higher CO_2 levels most plants tend to close the tiny pores in their leaves (stomata), which reduces water loss and conserves soil moisture. Different species show different responses in different environments. The beneficial effects of extra CO_2 are likely to be greatest on warm, dryland sites such as Eastern Otago, especially if there are plenty of nutrients available, but water availability is going to be one of the big unknowns as climate change really starts to bite.

A study carried out in Arizona showed that plants may thrive during the early stages of a warming environment, but then deteriorate rapidly. Long-term warming resulted in loss of native species and encroachment of species typical of warmer environments, ultimately pushing the plant community toward less productive species. The warmed grasslands also cycled nitrogen more rapidly. You'd think this would make more nitrogen available, helping plant growth. But instead, much of the nitrogen was lost; either converted to nitrogen gases in the atmosphere or else leached from the soil by rainfall.

To get back to CO_2. A recent US study found worryingly that, as land ecosystems absorb more CO_2, they may actually *increase* their emissions of other, even more potent greenhouse gases such as methane or nitrous oxide. We may well be overestimating the ability of these ecosystems to lock up carbon.

In the short term there will be winners and losers in all ecosystems, including agricultural ones. It would be unwise, however, for farmers or anyone else to take bets on just how the long-term future will pan out.

Replacing coal with green jobs

In the wake of Solid Energy's closure of the uneconomic Spring Creek Mine in 2012, Minister of Economic Development Steven Joyce called for environmental organisations to drop their opposition to the Escarpment mine at Denniston in order that more mining jobs could be created. The Navajo people in Arizona are taking a different approach.

Historically, nearly everyone in the 4,900 population of Kayenta, part of the Navajo Nation, worked in the area's coal mines, Black Mesa and Kayenta. Coal companies are major employers throughout the Navajo Nation. In fact, more than half the Nation's General Fund comes from revenue from coal mining.

Apart from providing low wages and hazardous working conditions, coal mining has polluted the township and surrounding environment. The impact of strip mining has been documented since the late 1970s as eliminating existing vegetation, displacing or destroying wildlife and habitats, degrading air quality, altering current land use, and permanently changing the general landscape.

Mining company Peabody used billions of litres of water to move slurry through a pipeline to the power plant where the coal was burnt. By 2005 water reserves were in serious decline, tribal councils banned Peabody from using the aquifer, and the Black Mesa mine and the massively polluting Mohave power plant were shut down. (Ironically, the power company was then eligible to sell millions of dollars worth of pollution credits to companies wanting to increase their sulfur dioxide emissions.)

The curb on coal mining on Navajo lands was a bittersweet victory for many on the reservation, where in 2004 the unemployment rate was nearly 50 percent and many residents depended on the low wage jobs the mines provided. A grassroots group, the Black Mesa Water Coalition (BMWC), set up an alliance with other groups to create the Just Transition Coalition, which spearheaded a move to diversify the Navajo economy and create opportunities for youth employment in renewable energy. In 2009, the Navajo tribal government established a Navajo Green Economy Commission and Fund, which can apply for funds to create green jobs as well as sponsor small-scale green developments that will help to create jobs for Navajo youth and provide much needed services to the community.

The Kayenta Mine www.flickr.com/photos/docsearls/8577862119/

In an ideal world the environmental activists would then have been able to rest upon their laurels. The reality was that BMWC and other groups had to continue fighting Peabody's efforts to obtain alternative water supplies so that the Black Mesa mine could be reopened. In 2012 problems with water depletion were an ongoing issue at the Kayenta mine whose operating permit was renewed despite the protests of environmentalists.

No-one would pretend that there are easy answers to the problems of providing sustainable jobs when mines close, but those answers certainly don't lie in opening yet another coal mine and attempting to carry on business as usual.

Jane Young

> ***"We realized that we can't always be a part of always saying no. We have to be part of a solution, to build jobs."***
>
> **Navajo activist Enei Begaye**

http://www.yesmagazine.org/planet/replacing-coal-with-green-jobs-in-navajo-nation
http://www.earthisland.org/journal/index.php/eij/article/seeking_a_just_transition/
http://intercontinentalcry.org/black-mesa-wins-peabodys-coal-mining-permit-revoked/

Our thanks to Margaret Phillips of "The Ensign" for permission to use this material from her article of 5 April:

Climate change expert visits home

A former St Peters College pupil who works for the Climate Group in the United Kingdom says climate change is very real and there is more than sufficient scientific evidence to back up the need to put in place mitigation measures. Damian Ryan, Climate Group senior policy manager, was recently home for a holiday in Balfour. Mr Ryan's role involves writing, researching, analysing and communicating material on practical climate change solutions.

"Ninetyeight percent of climate scientists say [climate change] is real, it's happening, it's caused by human activity," Mr Ryan said. The big question was whether New Zealand would take the action it needed to take. That question was political rather than scientific. Not only was it good environmental stewardship to implement measures to reduce carbon emissions but it also made good business sense to take steps to create a more efficient economy. "It's a win, win situation."

New Zealand was in a unique position as 50% of this country's greenhouse gas emissions were created in the farming sector. There was no easy answer to the agricultural emissions dilemma, but the best option available in the immediate future was an effective emissions trading scheme, Mr Ryan said. Eventually, New Zealand would be forced to take action on its agricultural emissions by its international consumers who could demand the products they bought were carbon neutral. Therefore changes would have to be made to keep New Zealand's place in the high end market.

The question that needed to be answered by the rural sector was, did it want to continue to rely on the rest of the economy to subsidise the farming sector? Mr Ryan did not think the answer was yes. "New Zealand farming has never done well when protected [from] international competition." The choice for New Zealand was whether to be proactive or reactive.

Kia ora e hoa

A regional update by Jenny Campbell

It has been hard for CAM members to keep up with developments in Southland recently as Solid Energy has quite a few issues to be contending with so waiting seems to be a good game to be playing at present.

Problems around trying to get the ingredients of the briquettes to 'stick together' appears to be just one issue preventing commissioning of the plant, with cold Southland nights not such an easy environmental condition to deal with.

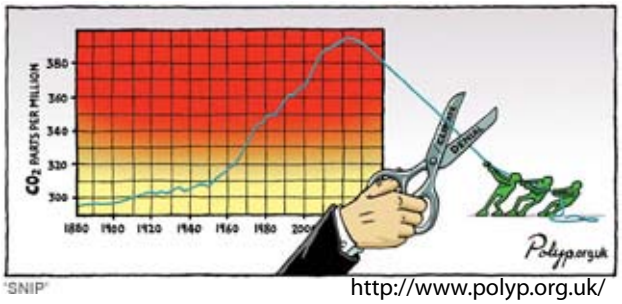
CAM members continue with plans for education sessions around valuing our soils, economic returns from farmland, health issues and climate change. Plans are being made for an environmental film series/ festival.

Thank you to those who came to create piles of wood for sale as a fundraiser and for all the networking done over shared food and splitting logs.

Bill McKibben of 350.org fame is visiting Aotearoa/ NZ in June on his **'Do the Math'** tour and we are trying for a video link to Dunedin on Wednesday 12 June, probably in Invercargill, 7- 8.30 pm. Networks will be advised as soon as we confirm. Information is circulating at present about **'Do the Math: the Movie',** which tells the story of the growing climate movement, from the fossil fuel divestment campaign to the fight against the Keystone XL pipeline.

I am going to 'Our Land, Our Water, Our Future: Beyond Coal and Gas' Australian conference in the Hunter Valley at Kurri Kurri from 18 to 20 May.

Rangimarie, Jenny Campbell, Co-convenor CAM



'SNIP' http://www.polyp.org.uk/

WANT TO GET INVOLVED?

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