Integration of Conservation

and

Farm Production

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A project completed as part of a 2006 Nuffield Scholarship

by

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2. Executive Summary

Conservation is a subjective thing, it is different for different cultures. In the United States, in England and Italy the lived in working rural landscape is highly valued by rural and city people alike, and is protected by a variety of methods.

Government involvement does not necessarily lead to better outcomes in the provision of conservation. It certainly does not lead to the most efficient outcomes. Generally where farmers were paid for conservation outcomes the goals of those programs were unclear. There is little for New Zealand to take from those programs. The English Higher Level Stewardship Scheme is one of the few government schemes that has some elements that could be used in New Zealand.

There are many examples of where the non government sector takes an active involvement in conservation. The outcomes from this involvement appeared to be more effective and more efficient then those from government involvement. The United States situation where large NGO‘s such as the Nature Conservancy and Ducks Unlimited are very active, demonstrates what can be achieved when the right policy environment is in place. Creating the right policy environment for conservation groups and land owners to work together can bring real innovation to the provision of conservation outcomes. That innovation includes a full spectrum from short term contracts for a conservation service. to permanent easements and land purchase.

The ability of the larger conservation groups, both in the US and UK, to work with a variety of partners from federal government through to private individuals appeared to be a key competence for the success of their programs

Incentives matter. If the incentives for private and public landowners are wrong then the desired outcomes will not be achieved. I found documented evidence of where landowners had responded in the opposite way to that intended by well meaning legislation.

Niche markets will require specific environmental quality standards which will progressively require verification of integrity of claims. Over time this may move to where minimum environmental standards are a prerequisite for access to many of New Zealand‘s markets for agricultural produce. There is potential for much confusion in the market over environmental claims and it would be beneficial if common environmental standards could be developed.

In other countries the relationships between conservation groups and landowners is different than the current New Zealand situation. There is a recognition that dealing with landowners can lead to more enduring outcomes than a command and control approach. There is also recognition from landowners that it is ok to deal with conservation groups.

Internationally housing development is seen as one of the biggest threats to landscapes – a much bigger threat than farming activities.

3. Introduction

This report is produced as part of a Nuffield scholarship. The direction of the report came from frustration with my experience of the issues around conservation and farm production in New Zealand. Simplistically conservation is seen as a role for government. Where private people engage in conservation they are often faced with perverse incentives or disincentives to delivering positive conservation outcomes. It comes at a cost to them, and government (local or central) often takes rights away from those people when they are doing the ‗right' thing. So the incentive is not to carry out the very things that are seen to benefit conservation. i.e. The public and private benefits of conservation provided by private people are not at the level they would be if these perverse incentives were removed.

It can also be more efficient for a private individual to carry out conservation work simply because they are already on site and can do it as part of their day to day work.

Regulatory approaches such as the Resource Management Act or Crown Pastoral Land Act generate contention between farmers and conservationists because if either want to change the rules or the way things are done they have to do it through a political process. They deal with the media and politicians, not with the people concerned so the opportunity for win - win outcomes is reduced. Typically one side wins and the other loses until the politics change and the result goes the other way. Sometimes even both lose without realizing it. This is not a recipe for enduring outcomes.

New Zealand is a small country with a huge conservation challenge and a small economy to fund that challenge. A balance needs to be found in the provision of conservation between the private sector, the non government sector and the public sector.

The implementation of tenure review by Land Information New Zealand reinforces the prevailing belief that the Government is the appropriate party to deliver conservation outcomes. Farming and conservation are rigidly separated in ownership and management.

New Zealand removed farming subsidies in 1984 and it has benefited farming and the environment greatly. In my travels it was obvious that the businesses and industries that I looked at that had no government support were dynamic, innovative and forward looking and provided better for the environment. Conversely those with government support, looked to government to solve any problems they had. They were inward looking, lacking drive and enthusiasm and were backward – or sideways – looking, and provided worse for the environment.

The difference between these businesses was like chalk and cheese. So as I traveled I asked the question, if the removal of government involvement is good for business what are the benefits – if any – of governments taking a step back from conservation?
Is there a market failure in the provision of conservation?

Binning (2000) in his extensive look at Institutions policies and incentives for conserving biodiversity talked about the concept of a conservation management network with conservation across the full range of tenures from Government to private, he however noted that

> *"There remain significant impediments to its application. Perhaps the most significant of these is the pervasive culture that nature conservation is a public responsibility with little or no role for private individuals."* [1]

I wanted to look and see if this culture was pervasive overseas as well and see if there are other ways to look at conservation.

Binning used three categories for looking at the policy toolkit – People, Finance and Security. My discussion is mainly on the latter two but the people aspects of research, extension and motivation are no less important.[2]

Conservation can be provided for a range of reasons. I will structure the discussion on the issues I looked at in this report into a range of categories outlined below.

* Payment for environmental services,
* Conservation for private benefit,
* Purchase of land by NGO,
* Purchase/donation of interest in land,
* Zoning rules/ Parks.

[1] Conserving Biodiversity –Institutions, policies and Incentives, Carl Binning Nov 2000 p.26
[2] Conserving Biodiversity –Institutions, policies and Incentives, Carl Binning Nov 2000 p.70

4. Conservation Defined

There are a range of definitions for ―conservation.” For clarity I will list a few and briefly discuss what ―conservation” means in relation to this report.

> Conservation is the management of resources to eliminate waste or maximize efficiency of use.[3]

> Conservation is political action or belief which seeks to keep something in being.[4]

> Conservation is defined by the Conservation Act 1987 as: ―the preservation and protection of natural and historic resources for the purpose of maintaining their intrinsic values, providing for their appreciation and recreational enjoyment by the public, and safeguarding the options of future generations”.[5]

> Conservation is a philosophy underpinning approaches to the management of environmental and archaeological resources which promotes a positive relationship between change and preservation. As such it is an anthropocentric philosophy in which it is accepted that the environment is instrumental in the fulfillment of human desires, and the importance of the environment can be justified in terms of what it can provide for humans. Although conservation is often seen only in terms of preservation, protection, and trying to prevent change, this is a rather narrow view of a philosophy that emphasizes the dynamic rather than the static. [6]

[3] http://www.sahra.arizona.edu/programs/water_cons/why/definition.htm

[4] forest.http://www.answers.com/topic/conservation?cat=biz-fin

[5] http://www.doc.govt.nz/templates/MultipageDocumentPage.aspx?id=43780

[6] http://www.answers.com/topic/conservation?cat=biz-fin

Conservation is the term coined by the forester Gifford Pinchot, the first chief of the US forest service, in 1907 to describe the philosophy that the environment must be managed to assure adequate supplies of natural resources for present and future generations.

For the purposes of this report I will accept that there will be differing interpretations of what conservation means and because conservation is an anthropocentric philosophy, that there will be differing priorities attached to the importance of conserving different things. i.e. landscapes compared to biodiversity.

I will define conservation using the broader definition, as the political action or belief which seeks to keep something in being. In practical terms it relates to the protection and wise use of natural and historic values such as landscapes, biodiversity and water.

There are a range of reasons for why people would want to conserve things. Farmers conserve soil because that is what provides for their businesses and families. Farmers may also conserve native plant areas for the shelter they provide, for the personal enjoyment they get from both having them there and from showing them to other people. A town person may wish for a forest to be protected so that she can enjoy being in it or may wish for kiwi to be protected just for the reason of knowing that they are there and that they are alive.

5. Contention between Conservation and Farm Production.

Where conservation and farm production are mutually exclusive such as the maintenance of native vegetation or the clearance of that native vegetation to plant pasture, different people will place differing values and priorities on which is ‗best' – maintenance of native vegetation or clearance to plant pasture. If the property rights are clearly defined and strictly enforced the way for the different people to deal with their differing values and priorities is to come together and come to a deal i.e. trade.

However if the property rights are not clearly defined and strictly enforced, then it may be cheaper for one side to attempt to have some of those rights allocated to it via a political process. A New Zealand example would be lobbying by conservation groups to have vegetation clearance rules imposed in district plans. The conservation groups get their outcomes for free and the farmers have rules imposed on them which may cost them. A win – lose. The farmer loses and blames the conservationists and is left with the only option of lobbying to try and redress the balance to create a lose (for the conservationist) - win scenario. An endless expensive cycle with escalating contention can be the result of a situation like this. Also as the ownership of the forest has become a liability the land ‗owner' no longer has an incentive to look after it, so the actual conservation outcome is unlikely to be optimal. The worst result is a situation where the farmer accepts that there will be a cost to undertaking a prohibited action e.g. a fine for clearing native vegetation, but none the less clears it anyway. A lose, lose scenario.

A converse example is water quality where livestock grazing in a stream affect someone else's (say a fisherman's) use for that water. It is a cost for the farmer to exclude the livestock from the stream, but his actions of not excluding livestock impose a cost - an externality - on someone else. Again the property rights of each party are not clearly defined. This situation has been the source of much contention in New Zealand.

Conservation and farm production are not always mutually exclusive however and there are many examples where they can work together. Take the above example of livestock in waterways. For dairy farmers it is often beneficial if they control mineral delivery to their cows via the water trough system. If that is the case it is in their interest to make sure their cows can not drink any other water – so they fence all waterways anyway. So protection of the waterway happens as a result of an unrelated economic incentive.

6. Payment for Environmental Services

6.1. United Kingdom Agri-Environmental schemes

I will provide a brief description of the United Kingdom subsidy situation, and background the English Agri-Environment schemes. Putting these schemes in context helps to understand the background for the decisions that the English farmers are making.

The environmentally sensitive area (ESA) scheme was introduced in 1987. The ESA is a type of designation for an agricultural area that needs special protection because of its landscape, wildlife or historical value. Participation in the scheme was voluntary; any farmer within the ESA could enter into a ten year agreement with an option of termination after 5 years. Annual payments are made for changing management practices and are meant to be based on income foregone. Payment rates for each ESA varies, but each ESA has one or more tiers. A higher tier attracts more restrictions on farming and a higher payment. In England the initial scheme, the Countryside Stewardship Scheme, has now closed for new entrants and it has been replaced by the Environmental Stewardship Scheme (ESS).

The ESS has three levels. The Entry Level Stewardship(ELS) is the lower level and the Higher Level Stewardship(HLS) is the upper level. Alongside these is the Organic Entry Level Stewardship(OELS)

I will now discuss the current UK situation including the Single Farm Payment in more detail.

6.1.1. The Single Farm Payment

There is another standard below the Stewardship Schemes – the Single Farm payment. English farmers are paid a subsidy that is now decoupled from production – The Single Farm Payment (SP) It is based on a European Council Regulation 1782/2003[7]. It is a means of providing a subsidy to farmers that is decoupled from production. It therefore does not have clear environmental goals or objectives that it wants to achieve. Eligible land is defined as ―arable land and permanent pasture excluding permanent crops, woodlands, and land used for non-agricultural purposes."[8] The aim is to eventually pay all land at the same area rate. To receive a single farm payment farmers have to abide by what are called ―cross compliance rules" on their land. Cross Compliance has two main strands, Statutory Management Requirements (SMR) and Good Agricultural and Environmental Condition. To make a claim, farmers must abide by these two requirements on all their farmed area for the entire year.

[7] http://www.scotland.gov.uk/Publications/2004/03/19085/34436#b
[8] Agricultural Budgeting and Costing Book No 60 May 2005 p 198

Statutory Management Requirements are 19 pieces of existing legislation, rough examples of New Zealand equivalents would be the Resource Management Act, Occupational Safety and Health Act, and animal welfare provisions.

Good Agricultural and Environmental Conditions are a different beast to the statutory requirements. The intention is to ensure land is kept in good agricultural and environmental condition. Some of the rules are listed below.

- trimming of hedgerows will not be allowed between 1st March and 31st July (to protect nesting birds)
- farmers will not be permitted to remove or damage stonewalls without consent (even if the wall is not currently stock proof)
- farmers will have to draw up soil management plans
- 2m uncultivated, unsprayed and unfertilized, field margins will be required next to hedges and ditches. [9]

Comment on Single Farm Payment.

The Single Farm Payment is very bureaucratic. It has proved to be difficult to administer by both the farmers and the government. Farmers had no idea when their payments were going to turn up. It contained rigid regulations constraining farmer‘s actions on their land. Farmers were generally disgruntled with it. If farmers didn‘t comply they didn‘t get paid as much, so a strong incentive to comply. It was introduced rapidly and the implementation was difficult.

As it was based on area farmed in Spring 2005 there is a strong incentive to maximize area. Farmers had responded to this;

~~–~~it enormously distorted the land and business structures being used as all potential claimants sought to maximise their opportunities under the new system whether by retaining land which would ordinarily be let or surrendered, or by adapting or freezing their business structures” [10].

It was also regulation imposed from the top and the costs were generally borne by the farmer and taxpayer. The people administering the scheme had no incentive to be flexible or efficient. Results on the ground were more about form filling than achieving conservation outcomes.

[9] Agricultural Budgeting and Costing Book No 60 May 2005
[10] www.publications.parliament.uk/pa/cm200607/cmselect/cmenvfru/107/6011123.htm

6.1.2 The Entry Level Stewardship Scheme.

The Entry-Level Stewardship Scheme requires environmental management beyond cross-compliance under the single farm payment. The scheme aims to conserve wildlife, enhance the landscape, protect natural resources and promote public access and understanding on the land. The ELS is non competitive – if targets are met you will get paid, if not no funds. It is based on a points system with an average of 30 points per/ha required to attract the then 30 pd /ha payment. England has a target of 70% of Agricultural land managed under the ELS by 2008.[11]

Examples of management which will attract points

Beetle banks	580/ha
Permanent grassland with low inputs	85/ha
Hedgerow management both sides	22/m
Stone wall protection & Maintenance	15/100m
2m / 4m / 6m buffer strips	10 /20 /30 per 100m

Beetle bank on Abbotts Hall Farm

[11] www.defra.gov.uk/wildlife-countryside/biodiversity/biostrat/stocktake/stocktake0405.pdf

Comment on the Entry Level Scheme

The Entry Level Scheme provides flexibility to farmers. They choose what they would like to do on their farms to achieve the points. Is bureaucratic, there is no incentive for the agents of the government to mitigate the costs of administering the scheme. Potentially these costs may get out of control. Like the Single Farm payment the ELS is based on area so it also creates an incentive to maximize area. [12]

Caring for the environment has broad political support in England so the decoupling of agricultural subsidies from farm production and the move to payment for environmental work is not controversial and even has support in some farming circles.

The ELS allocates points for management actions that are assumed to provide environmental outcomes. E.g the bettle banks above are an action but the outcome from, or goal of, that action is not specified. It will therefore be hard to determine if the ELS scheme contributes to an increase in specific birds or reduction in pesticide use or whatever is the actual reason for having the beetle banks in the first place.

[12] http://www.publications.parliament.uk/pa/cm200607/cmselect/cmenvfru/107/6011123.htm

6.1.3 Higher Level Stewardship Scheme (HLS)

The HLS aims to provide more intensive environmental management than ELS. Overall objectives are wildlife conservation; protection of the historic environment; maintenance of landscapes; protection of public access and natural resource protection, plus two secondary objectives of flood management and genetic conservation. Entry into the HLS is discretionary and competitive. Only the entries offering the greatest environmental benefit will succeed. If successful an applicant will be offered a 10 yr agreement with a break year available after the fifth year.

Some of the options and income available under the HLS are listed below.

Arable reversion by natural regeneration	500£/ha/yr
Nil fertilizer supplement	55£/ha/yr
Crop establishment by direct drilling	70£/ha/yr
Floristically enhanced grass margins	485£/ha/yr
Educational access – payment per visit	100£/visit
Permissive footpath access	41£/ha/yr[13]

For a full list see http://www.defra.gov.uk/erdp/pdfs/es/hls-payment-booklet.pdf

An HLS application will be possible on part of a holding, but the balance must be in an ELS. HLS will include an element of monitoring for desired outcomes rather than following a set of management prescriptions. A Farm Environment Plan (FEP) is a prerequisite for an application to the HLS. The FEP identifies the environment features on a farm, their condition, and guides the most appropriate management options for them. The costs of the FEP‘s (advisors proportion) will be refunded.

[13] agricultural budgeting and costing book 60th edition May 2005)

Comments on Higher Level Stewardship

In the management of land, one activity at the end of the day takes precedenceover all others. In conservation management this means that one species or landscape or ecosystem is what is being managed. This can be illustrated by the example of hedgerow management in England. Hedgerows can be for a range of benefits including landscape benefits, for shelter for soils or livestock, for plant or wildlife biodiversity. Often they are there for the habitat for birds. One species that is used as an indicator species for wildlife habitat in England is the Grey Partridge. If the hedgerow is gappy and lifted at the bottom it suits Grey Partridge for habitat. Change the shape and it is more suited to French Partridge. Leave tall trees in the hedge and it suits the raptors which prey on the Grey Partridge. Under the HLS farmers are paid to fill hedgerows in, which does not suit the species viewed by many conservationists as the most important.

The point of this is that if one species takes primacy such as the Grey Partridge then it will be more efficient to pay for numbers of Grey Partridge present, and let the landowners work out the most effective way to provide that benefit than the shotgun mutlti faceted approach of the HLS. Conservation inclined land managers I spoke to when pushed said that when they had tradeoffs to make around conservation in hedgerows, then the management for grey partridge would take precedence. [14]

The HLS has the potential to be used in this way but I can see it being very hard to get away from prescriptive management or a recipe type approach. I can see further work required on defining what are the biodiversity targets desired, and working out the best ways to achieve them, and providing that information as advice to farmers..

It does not appear clear that the debate has been had in England about how much conservation of anything is required. The more the merrier appears the approach. There will however be an optimum amount for the provision of any conservation service.

The competitive nature of the HLS may bring some efficiency from the landowners in the provision of conservation benefits.

The HLS provides a long term income stream (10 years) to landowners for little risk. The government can be treated as a customer for services delivered on the farm.

Because the 5 or 10 year term is not permanent it does provide flexibility for landowners if it doesn‘t suit them, and for the government to improve over time. However there are no permanent guarantees or covenants for the biodiversity protection. At the end of the ten year term the HLS will either be renegotiated or will lapse.

There is considerable administration work required by both the farmers and government to satisfy the requirements of the HLS (and ELS).

[14] John Austen, Thomas Cooke pers comm. May 2006

Most farmers would not be as active in conservation management without this public support. One farmer I spoke to farming 1500ha estimates a receipt of 160 000£/yr from the HLS. The farmers though were all passionate about the wildlife present on their farms.

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Rare breeds of pigs and sheep – part of the conservation of genetics supported by the Higher Level Stewardship scheme.

In 2003 Kleijn & Sutherland concluded that the lack of robust evaluation studies does not allow a general judgment on the effectiveness of European agri-environment schemes. This in spite of the fact that 24 Billion euros has been spent on them between 1994 and 2003. [15]

The fact that a number of the effectiveness studies found no change or even negative change in biodiversity highlights the importance of regular evaluations of agri-environment schemes. To do this clear and unambiguous biodiversity objectives for each scheme would be needed. The UK appears to be leading the way in design of agri-environment schemes and in the studies for their effectiveness. The ELS and HLS however do not appear to have clear goals for the desired biodiversity outcomes. The HLS can include monitoring and because of the complexity of ecological systems, adaptability will be required. The science around conservation is advancing and changing all the time. Whether the HLS can keep up and adapt to those changes remains to be seen.

Broadly speaking from a political level it would appear that the incentive for politicians is to appear they are doing something (protecting the environment) rather than ensuring it is the most efficient and effective way to do it. It has also provided a way to continue income transfers to farmers while decoupling payments from Agricultural output.

The New Zealand Institute of Economic Research notes that

[15] Kleijn, Sutherland –How effective are European agri-environment schemes in conserving and promoting biodiversity" Journal of Applied Ecology 2003, 40, 947-969)

–Contractual arrangements such as the European ESA schemes or US CRP, have evolved in the context of subsidized agriculture which makes them very costly, but similar instruments of tailored management agreements or standardized prescriptive measures could have application here (NZ) albeit at a lower level of incentive than the current overseas schemes."[16]

From what I saw on my trip I would not support the standardised prescriptive measures being used in New Zealand, however there is the opportunity to contract with farmers for the provision of specific conservation services. The competitive nature of the HLS also has some benefits to consider to ensure the efficiency of those contracts.

Tightly targeted management agreements using some of the competitive nature of the HLS may have some applicability here. The assumption in this though is that a political process can identify what is the appropriate standard and amount of biodiversity protection required, and that the incentives should come from the political sector.

The HLS was a National scheme and had some inflexibility because of that. Identifying biodiversity conservation goals at a local level and then developing schemes to deliver on those goals with National support appears to have more chance of success than working at a National level back down to a local level.

[16] NZIER Encouraging Private Biodiversity – June 2000

6.2. Virginia US Conservation Reserve Program

A key issue for conservation in Virginia is the protection of water quality in the Shenandoah River watershed, which drains into Chesapeake Bay. The Bay has a dead zone, where no fish live. Pollution in the Bay comes from a range of sources such as mercury, PCB, sediment from runoff, faecal coliforms, nitrates and phosphates. Industrial sources and urban development are viewed as far worse than farm land for pollution sources. I looked at a US Government program on agricultural land to control, sediment, faecal coliforms and fertilizer run off into the Shenandoah. The idea is to turn this clearly degraded stream, with rubbish and poor water quality; below

Into this well fenced and planted riparian margin as seen below. The picture below was taken 400m downstream from the picture above.

For the above program the issue was sediment runoff after heavy thunderstorms and there was a 90% subsidy for fencing, planting and water reticulation. There is no regulatory mandate to authorize the federal agencies to regulate pollution caused by agricultural lands so the National Resource Conservation Service, a division of the US Department of Agriculture, uses a voluntary program with financial and technical assistance to fence and plant riparian margins. From the numbers we looked at it made sense financially for farm management reasons for the farmers to fence the waterways and provide stock water anyway without any government support. As it was they were getting most of it paid for by the taxpayer. The taxpayer funded solution had an excessive water setback (40m) and high specification fencing standards, when a permanent two wire electric fence would have removed the cattle grazing. It wasn't the most efficient or effective way to get the outcomes required. Also the outcome was fudged using multiple objectives. Even though the results look impressive the net result was a transfer of wealth from taxpayers to farmers for what was an overly expensive solution. Conservation programs such as this (and those in England) have broad based political support. This is evidenced by the proposed increase in conservation funding in the latest Farm Bill.

The US has a range of programs targeted at specific conservation issues, they appeared bureaucratic, disjointed and complex. The federal government has also recognized this and will try to address it,

> —WASHINGTON, April 10, 2007 – Agriculture Secretary Mike Johanns today highlighted the Administration's farm bill proposals related to conservation. Johanns pointed out that a key theme throughout the conservation title is simplification and streamlining of programs, while increasing funding for conservation by $7.8 billion over ten years.
>
> "In the area of conservation, we heard during our Farm Bill Forums broad acknowledgement of our successes, but also suggestions to make the programs more user-friendly," said Johanns. "We are proposing to do just that and to bolster our commitment to conservation through the largest increase in funding for any title within our farm bill proposals." [17]

Interestingly there is a provision for $50mUS in the Farm Bill to look at the creation of markets

> —Lastly, to spur the development of ecosystem service markets that would establish a value for agriculture and forestry conservation practices, the Administration would invest $50 million. These funds would be used to develop uniform standards for quantifying environmental services, to establish credit

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17 www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1UH?contentidonly=true&contentid=2007/04/0092.xml

> registries, and to offer credit audit and certification services. Ultimately producers could earn credits for conservation efforts, which in turn could be sold to achieve environmental goals such as sequestering carbon, protecting endangered species and other measures that enhance the nation's environment."[18]

It is interesting also to speculate on the results of this increase in funding for conservation programs. In the US I saw real examples of innovation and flexibility among NGO's and private landowners (outlined later in this report). This increase in funding will likely curtail some of that innovation and efficiency and direct people to be looking to the Government for solutions to environmental issues. In my mind and from what I saw this will not lead to better provision of conservation outcomes – maybe an oversupply of certain outcomes such as the riparian planting mentioned above. I can see many of the potential benefits being lost with inefficiencies between Federal Government and action on the ground. With the current push and federal support towards growing biofuels there will also be tension between conservation and productive agricultural land uses into the future.

Another approach to resolving the pollution issue in Chesapeake Bay is the use of markets and the courts. Schnare argues that ~~"o~~nly vigorous protection of private property rights and markets can clean up the Bay and, equally important they can do so regardless of the success or failure of the command and control orthodoxy"[19]

A potential 3Billion US$ fishery has collapsed to 100mUS$ and Schnare argues that

> ~~"P~~rivate actions against polluters in the Potomac and Rappahannock watersheds, for example, would rehabilitate the privately owned fish and mollusk habitat—reducing the dead zone to historical (pre-colonial) levels. The most efficient legal action would be against the point sources—those which should be held liable for their contribution to the nuisance. By asking who has trespassed on the dead zone." i.e. whose externality has imposed a cost to someone else' rights.

A successful case would internalize the externality of polluters who damage the Bay by charging them through the courts for the costs they impose on others, and promote some efficiency in trying to mitigate the effects of that externality. Would it work? It could if the science behind the reasons for the pollution and identifying those sources were correct. It does appear a long bow to be able to successfully prosecute multiple point sources, though if key ones were identified in a test case it could work.

In Colorado, Wyoming and Montana, management of the riparian zone was seen as a better option than exclusion of cattle. Controlled cattle grazing at certain times of the year managed streamside vegetation, and the provision of water away from the riparian zone were some of the most efficient ways of maintaining stream health. [20]

[18] www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1UH?contentidonly=true&contentid=2007/04/0092.xml
[19] http://www.perc.org/perc.php?id=887
[20] Knight R, The Ecology of Ranching

7. Conservation for Private Benefit

7.1 Markets

7.1.1. Environmental Quality Standards.

7.1.1.1 LEAF - Linking Environment and Farming.

Linking Environment And Farming(LEAF) and the LEAF Marque Standard's principal aim is to recognize farmers who employ advanced resource management in the protection and enhancement of their farm environment and landscape.

LEAF was set up in the UK in 1991 in an attempt to bridge the perceived widening gap between consumers and farmers. A group of farmers, environmentalists, food and agricultural organisations, consumers, government and academics got together. They were motivated by a common concern for the future of farming and were keen to develop a system of farming which was realistic and achievable for the majority of farmers and that system would help to bridge the identified gap between consumers and farmers. Based on work in Germany that had been carried out since 1986, LEAF was established to develop and promote Integrated Farm Management.[21]

LEAF is run as a charity with funding from,

- **Memberships**
- **Corporate Memberships**
- **Corporate Sponsorship**
- **Government Grants**

A set of LEAF demonstration farms were set up around the country to trial Integrated Farm Management techniques, to demonstrate them to other farmers, and also to demonstrate good farming practices to consumers and to the non farming community. The LEAF Marque can be used on produce sold from LEAF accredited farms. It did not appear to be commanding a high premium but was helping to continue to ensure access to preferred markets.

[21] ://www.leafuk.org/leaf/organisation/

An example of this is the LEAF Marque sign shown below in a Waitrose supermarket.

Signage from a Waitrose supermarket certifying product.

The updated audit for the LEAF Marque standard can be found at the following web link

http://www.leafuk.org/_code/common/item.asp?id=4035369

A copy of the part of the LEAF Marque Standards for wildlife and landscape is included in appendix 2 for reference.

LEAF is moving outside of the UK and now has a global policy.

Comment on Leaf

Integrated farm management is a fairly wooly concept encompassing a whole range of actions. The LEAF philosophy can be summarized as promoting best farm practice and communicating that to customers and other stakeholders. It was however a bit vague to work out what exactly LEAF was about.

In spite of that LEAF now has credibility in the marketplace.

Having LEAF accreditation (or a similar system) on global suppliers is another step in the direction of requiring environmental quality standards for certain markets.

Signage beside a footpath on „Manydowns" a LEAF demonstration farm.

For producers that require certification of desired environmental performance the LEAF Marque audit provides a starting template to work off. It provides a template to work off but there are not clear goals as to the best environmental outcomes required. Advise on working out these priorities comes from outside advise. So the LEAF scheme does provide a good balance between flexibility for farmers, and conformance to standards for customers or other interested people external to the farm.

7.1.1.2 Waitrose

Waitrose a UK supermarket with about 4% of the supermarket trade has targeted the greener consumer for some years now. In April 2007 it announced plans to ensure that all conventional fresh, prepared and frozen fruit vegetables and flowers on sale in its supermarkets will be farmed to LEAF Marque certification by 2010. That includes flowers grown in Kenya or pineapples grown in Ghana.[22]

In 2006 Waitrose also launched a farm environmental scheme with its Dairy farmer suppliers. The dairy farmer scheme, endorsed by the Wildlife Trusts will see the farmers aim to have 10% of their land in natural habitat and will require them to develop ~~"F~~arm Wildlife Action Plans." The 10% figure appears fairly arbitrary and it does not relate to any particular conservation outcome.

The scheme has higher standards than the LEAF Marque. English farmers dislike the major supermarkets but generally those who deal with Waitrose have a more favourable relationship. Prior to the introduction of the wildlife addition to the current dairy farm assurance Waitrose had been paying their milk suppliers a premium above other milk producers. This natural habitat scheme was driven from the farmer suppliers up rather than from Waitrose down. The reason was to cement in their relationship with Waitrose rather than to try and extract any further premium for their milk.[23]

Comment on Waitrose and Market Based Environmental Standards.

Including environmental criteria in the provision of products to a supermarket and on to consumers is a market based approach, so no contention between conservationist groups and farmers .

English farmers have the benefits of payments under the Entry Level Stewardship Scheme and the Higher Level Stewardship Scheme, which New Zealand farmers do not have. It is a competitive advantage or non tariff barrier for New Zealand farmers to compete against.

It is likely that an environment management plan of some sort will become a requirement for access to English Supermarkets. The other English Supermarkets are following Waitrose into the environmental area. I could not see a large market for the provision of

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[22] www.leafuk.org/sources/4000134/4001069/4035896/LEAFgoesglobalfinalversion.doc20.4.07.doc

[23] David Homer pers comm. May 2006

environmental type products but the larger supermarkets have the power to and are likely to require certain minimum environmental standards from their suppliers.

The New Zealand Merino Company also sees ethics and the environment as the latest fashion –A recurring message from current and potential brand partners is the high market demand for environmentally sound production and supply. Underlying this market demand is the need for transparent evidentiary support to back up those marketing claims." [24] The challenge is to find systems that provide the evidence required of the market without adding significant cost. These issues were certainly apparent in some of the companies I visited such as Ibex and Smartwool but not in other markets.

Jordans a supplier of cereals and snack foods has a conservation grade scheme similar to the Waitrose dairy select farms scheme with its suppliers. They pay a small premium to suppliers and claim a resulting five fold increase in some bird populations on conservation grade farms. [25]

Some farmers perceive that LEAF is working more for the supermarkets than the farmers.

There is potential for much confusion among consumers of environmental standards unless there is an agreed understandable industry standard worked on in the future.

As I traveled I looked at the markets for wool and meat to see if there were any benefits in having environmental standards on products made from wool or meat. To me it appeared that in small segments of the market there were benefits. The Active outdoors customers for woolen products in the US, in places such as Vermont, California, Colorado and Montana were certainly interested in where the fibre came from and where their food came from.

[24] Merino forum August 2007
[25] http://www.conservationgrade.co.uk/birds.htm

Whole Foods supermarket in San Francisco containing many messages promoting sustainability, stewardship and natural food. Whole Foods is one of the fastest growing supermarkets in the US and has moved into England

Conversely in Paris, or Rome consumers rarely asked about the origins of their garments. Some of this came from a lack of interest but there was also faith and trust placed in the brands they purchased.

7.2 Conservation for Private Enjoyment or Capital Value

Managed regenerating forest and man made lake on the estate of Thomas Cooke Norfolk.

There are many individuals who like to protect and preserve things, such as wetlands or forests, and they will do that for their own benefit. The public gets some benefit from it by having it there, but may not have open public access to those sites. In spite of that, the values are being protected. Many of the English estates such as the one shown above are in that category. Often criticized for their exclusivity they nonetheless protect the values that are present. It is a valid strategy for the provision of conservation and can range from the very small action such as planting a woodlot to the scale of Ted Turner purchasing significant landholdings in the US for buffalo farming.

Another variant on this theme is the purchase and protection of land with a covenant or conservation easement and then subdividing and selling parts of the land with the benefits of the protection being a marketing benefit. Some NGO groups such as The Nature Conservancy use this strategy.

Additionally landowners may perceive the value of land with conservation attributes will be of value to them when they sell a property so it is in their interests to maintain and enhance those conservation attributes.

This unregulated conservation is a very efficient and effective means and is not contentious. It is not well targeted for conservation outcomes but it provides a diversity of management and as part of a suite of conservation approaches can be a significant part of the overall conservation picture.

7.3 Ecotourism

Elephant & Mahout, Thailand National Elephant Conservation Centre

Establishing rights in wildlife and products or using income from tourism can align the incentives to protect biodiversity such as the Elephants shown above. In this example tourists provide the income to help maintain and enhance the Thai Elephant Conservation Centre.

Wildlife is often owned publicly. As such it can be a classic example of the ―tragedy of the commons.” Free access to hunting wildlife is a big part of the US culture. However the hunting experience is not the same in the US on private land as it is on public land. In a survey of hunters on private and public lands in Western Colorado, hunters on public land saw less game, encountered more hunters and had to work harder for access. ―The differences reflect the positive experiences reported by fee paying hunters and the negative effects of uncontrolled access on the quality of hunting.” [26]

Eco-tourism is growing in New Zealand. There are only limited amounts of ecotourism on private land as it has to compete with the free access to a large publicly owned estate. However it can provide significant benefits to conservation outside of public land and also in partnerships on public land.

[26] *Davis, R K 1995. P116 A New Paradigm in Wildlife Conservation: Using Markets to Produce Big Game Hunting*. In Wildlife in The Marketplace.

8. Purchase of Land by Non Government Organisation

8.1 Essex Wildlife Trust - Abbots Hall Farm - U.K.

The Abbotts Hall farm is owned and managed by the Essex Wildlife Trust. It is supported by the World Wildlife Fund(WWF) -UK, Environment Agency, English Nature, Heritage Lottery Fund and The Wildlife trusts. It has two aims

1) to show how wildlife can flourish alongside profitable farming.
2) to show how sustainable coastal defences can lead to the recreation of coastal marshes which are vital for the future of wildlife and people.

Map of Abbotts Hall Farm showing the layout and where the coastal protection has been breached to make saltmarsh. Wetlands.

Comments on Abbots Hall Farm

A market approach to protecting conservation i.e conservationists buying rights to further the outcomes they want, supported by the government. So no contention.

Profitability of the farm had relied on about 50% coming from non-farming related income - Agri-environment schemes and Arable area payments. Some coastal defences had been breached to allow wetland reestablishment. Creating coastal wetlands was worth 500pound/acre/yr for 10 years when the land was worth about 3000pd/acre. So it made good business sense to do this.

The farm has been trying to extract a premium for the products produced off the farm. It grows _conservation Oats" for Jordans at a premium of 6pd/tonne. But in reality it is only just starting in this area and as yet there are no real tangible benefits.

The conservationists running Abbots Hall Farm viewed property development, both residential and commercial, as a much bigger threat to biodiversity than farming. The Wildlife Trust wanted to work with farmers, not against them to achieve their desired outcomes. They were also shifting their message from being about protecting wildlife to providing economic and health benefits to the community through the protection of wildlife and landscape..

750 000 Wildlife trust members nationally in the UK, 1,500,000 Royal Society for The Protection of Birds members, so significant lobbies and they compete with each other.

The main management actions used to benefit wildlife were

- Restocking of hedgerows and the creation of new ones.
- Grassland margins on arable fields of two to 6 metres
- Restoring or creating new ponds and a lake
- Putting in Bettlebank strips through arable fields
- Planting woodland on crop edges
- Choice of crop species for wildlife
- Choice of crop species – resistant to pests
- Some conversion to organic.
- Changing timing and amount of ploughing and cultivation, e.g. spring sown crops leaving winter stubble for wildlife.
- Careful pesticide choice and application level.

Most of these actions are not major costs to the farm – can be benefits. The farm is however rewarded financially through the Agri-environment schemes for 8 out of ten of them. Again this is not contentious as the cost(benefit) to the farmer is not high and they are being paid to provide the public conservation benefits as well. The efficiency and effectiveness of the agri-environment schemes is another question that has been discussed previously. With the high level of government support I was unconvinced that they were

satisfying their goal of demonstrating how wildlife can flourish alongside profitable farming. Apart from the coastal marshes it was also unclear as to which goal would take precedence if a choice had to be made. i.e. If they were short of funds would they maintain large field margins or grow crops to the edge of the fields?

8.2 The Nature Conservancy (TNC)

The Nature Conservancy is a huge multinational conservation organization with a budget of over $1bn US and a mission to.

”preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.”

- The Nature Conservancy works in all 50 states and more than 30 countries.
- The Nature Conservancy has protected more than 117 million acres of land and 5,000 miles of river around the world.
- The Nature Conservancy operates more than 100 marine conservation projects in 21 countries and 22 US states.
- The Nature Conservancy has about 1 million members and supporters. [27]

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In the early days of TNC‘s operation they focused on buying land to protect the values present. The implication of this was that they – conservationists – were better at protecting land and biodiversity than ranchers or other private landowners. They were a competitor to ranchers for land and weren‘t always viewed favourably by them.

TNC was hostile to conservation easements (similar to covenants such as the QE11 trust covenants) up to the mid 1990‘s [28] The TNC‘s focus in Montana at least, has shifted to working constructively with ranchers. The Montana branch of TNC has 102 conservation easements and they have not yet taken any to court to have the conditions enforced. TNC works hard on its relationship with easement holders. New owners buying land with easements on is one area where there is a potential for problems. TNC though had a system for dealing with these land transfers which reduced most potential problems.

In Montana they are however changing their focus to influencing landowners behavior. At the Matador Ranch owned by TNC, the TNC is engaging in grass banking, a concept to exchange forage for good stewardship on neighbouring rancher‘s lands. If a neighbouring rancher engages in good conservation management he can graze his cows cheaply on the Matador ranch. That way the purchase of a 60000 acre ranch can help influence behavior over about a quarter of a million acres.

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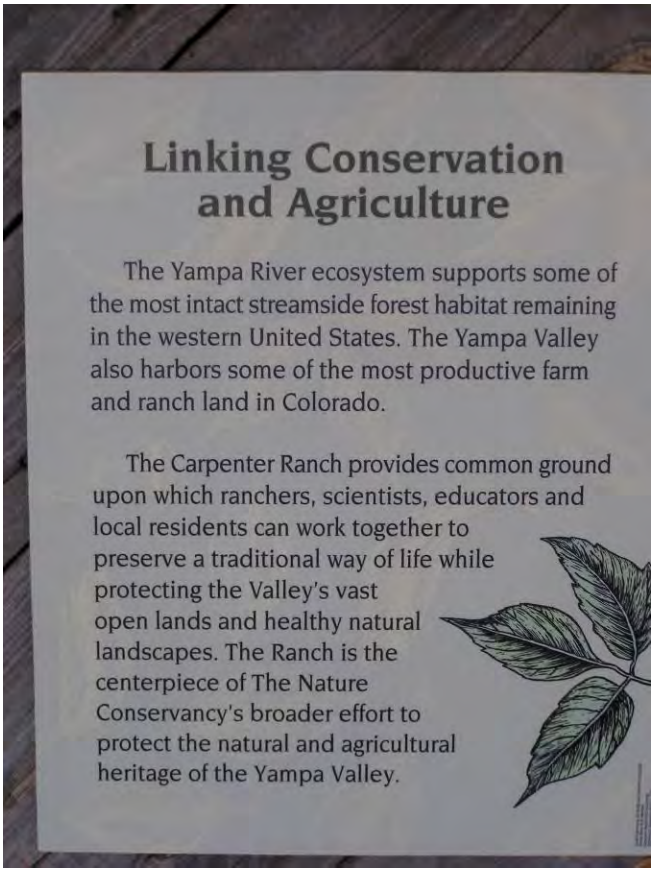
[27] www.nature.org

[28] B Martin, The Nature Conservancy Montana pers comm

Specifically, the ranchers agree to the protection of around 2,000 acres of prairie dog colonies and over a dozen sage grouse leks. All of the ranchers have agreed to weed control, resulting in a 296,000-acre noxious weed-free zone. [29]

There appeared to be widespread support for the grassbanking concept articulated by these comments from Professor Myles Watts of Montana State University.

> –Cooperative efforts such as grassbanks between conservationists and ranchers are to be applauded. Grassbank programs that fit the local environmental conditions and the desires of the local people are likely to be more successful than the command and control approaches. Providing incentives through the market is one of the keys to encourage participation, create win – win outcomes, and reduce the acrimony between ranchers and conservationists. Grassbanks are on the right track."[30]



Informational sign at the TNC Carpenter ranch in Colorado. TNC was not finding the linking of conservation and farming easy. On the Carpenter ranch the extent of the farming when I visited was restricted to selling hay. Interesting though a simple act of delaying hay making by about 10 days significantly increased the nesting success of Bobolink. Sometimes linking conservation and farm

[29] http://www.nature.org/wherewework/northamerica/states/montana/preserves/art10062.html
[30] Myles Watts, Professor of Agricultural Economics, Montana State University, Letter in PERC vol 25,No 1, Spring 2007

production is simple and all it requires is a bit of science and changed practices for a win for conservation at no economic loss. A New Zealand example would be targeted grazing in riverbeds to enhance Black Stilt nesting success.

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Comment on The Nature Conservancy

The Nature Conservancy use the market to purchase the conservation outcomes they want. They are often flexible and innovative with how they approach deals buying properties and protecting the important parts and on selling with conservation easements attached. Their current focus in Montana of creating positive incentives for behavior from neighbours shows the common ground that ranchers and TNC have. TNC has recognized that if the culture of the people on the land is in grazing animals and you remove those animals then you will alienate the people. This is a reasonably recent change in TNC's mode of operation

There are boundary effects on the borders of TNC purchases. Buying and protecting a property adds value to the neighbouring land for development. This is a similar effect to the English National Parks or to a rigid planning zone.

A series of Washington Post articles has alleged appraisal fraud in some easements done by The Nature Conservancy. They are a big organization and they have attracted criticism in other areas too. Range magazine has savaged TNC in a series of articles "Natures Landlord" [31]

The TNC have however been incredibly effective at what they do and because they generally use markets to get their outcomes the contention is limited

Much of the land they buy is on sold to the federal government so there is the presumption that land in political control is better looked after than land in private ownership. To some extent it can also be seen as land purchase by the federal government via an NGO.

Ecological studies of the US rangelands indicate that removing livestock grazing from rangeland does not always lead to the anticipated results

> "What are we to make of these findings? They certainly do not fit in our tidy stereotype of: cows – overgrazing – desertification – rest – recovery. Instead these discoveries reinforce what some might suggest to be the obvious: that nature is more complex than we can understand, and ecologists are continuing to learn

[31] http://www.rangemagazine.com/pdf/spr03_landlord.pdf

about the inter - relatedness of climate, fire, and grazing, not to mention the importance of time and space scales, in understanding ecosystems." [32]Knight

The Matador Ranch grassbank is an example of understanding the complexity of ecological systems and adapting to them. It is in contrast to the tenure review situation in New Zealand which looks at values currently present and assumes that if you take the current management away those values will remain.

Dr Carl Binning in his comprehensive study of New Zealand institutions policies and incentives for conserving biodiversity, commented on the Nature Conservancy that

> —The US experience highlights the largely untapped potential of the Non-government sector in New Zealand and Australia. It provides a model for developing partnerships between community-based organizations, businesses and government."[33]

I agree with that.

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[32] Knight, R.L. 2002. The ecology of ranching. Pages 123-144 in R.L. Knight, W.C. Gilgert and E. Marston, eds. Ranching west of the 100th meridian. Island Press, Washington, D.C.

[33] Conserving Biodiversity –Institutions, policies and Incentives, Carl Binning Nov 2000.

9. Purchase/Donation of interest in Land

9.1. Conservation Easements, USA

The encroachment of housing into open space is not just a New Zealand issue. In many parts of the US there is similar, if not greater pressure. Knight also argues that the development of Ranchettes (lifestyle blocks!) has an adverse affect on biodiversity[34]. In Colorado the rate of loss of agricultural land is accelerating from 141,000 acres per year in the 10 years between 1987 and 1997, to 270000 acres per year between 1997 and 2002.

A tool that is being used widely to combat this perceived problem is the conservation easement. Conservation easements must be for at least one of the following three purposes.

- Preservation of relatively natural habitat for fish, wildlife, plants, or similar ecosystems.
- Preservation of open space (including farm or forest land) for 1) scenic enjoyment by the general public or 2) significant public benefit pursuant to a clearly delineated government policy.
- Preservation of land areas for the education of or outdoor recreation by the general public.

Conservation easements are similar to a New Zealand covenant. Conservation covenants and easements are voluntary legal mechanisms for promoting conservation objectives on private lands. In each case the landholder retains the fee interest in a tract of land while conveying to another entity, rights to restrict or prescribe certain uses of the land, commonly in perpetuity.[35]

In the US they must be granted in perpetuity, must be granted to a qualified organization and they must prohibit all surface mining.

The value of an easement is seen in federal law as a tax-deductible charitable gift. This value must be determined by resource data prior to donation of the easement. A property is valued before and after an easement is applied and the difference is the value of the easement. The donation of an easement can reduce income tax and also estate and gift taxes, a fundamental difference between the United States and New Zealand.

[34] The Ecology of Ranching. In Ranching West of the 100th Meridian. R.L. Knight,W. Gilgert, E. Marston, eds

[35] Donahue & Norton unpublished.

New housing Dubois, Wyoming.

And below a stunning house free landscape five miles down the road.

TNC estimates there are 5.1 million acres of ranchlands in Montana at risk from low-density housing, of which 222,550 are protected with TNC easement. And 1.1.m protected through other agencies.[36]

The Land Trust Alliance a National US body representing land trusts provides the following information on the scale of land trusts in the US in 2005.

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[36] The Nature Conservancy –Conservation Easements in Montana." Brochure 02/2005

Total acres conserved by local, state and national land trusts **doubled to 37 million acres** *in just the past five years.* This is an area 16 ½ times the size of Yellowstone National Park.

The pace of conservation by local and state land trusts more than **tripled between successive five-year periods.**

The number of land trusts grew to 1,667, a 32% increase over five years.

The West is the fastest-growing area, for both acres conserved and new land trusts.

Professionalism of land trusts is increasing, with most land trusts agreeing to more stringent rules of conduct, and securing larger annual budgets and stewardship endowments.[37]

There has been a recent amendment to the legislation to make the tax deductibility easier for conservation easements so this trend is likely to increase if the law change is made permanent. [38]

With this exponential increase in protected land looking ahead, I can potentially see some issues with land supply and inflexibility of land use in some parts of the US. Ranchers if they are not careful may get locked into a subsistence type farming where it is difficult to innovate and use newer technology. There is however potential to buy back the easement from the land trust by agreement if at some time in the future it is no longer appropriate, which does provide a degree of flexibility.

Much of the driver for conservation easements is the tax law. Estate duties tax the value of assets passing from one generation to the next so reducing that value can make it easier to pass on to the next generation, while also protecting the risk that the next generation won't subdivide the property. Rock Ringling managing director of the Montana Land Reliance thought that 95% of their easements were donated and that the main driver for conservation easements is Estate planning with Income tax benefits being the icing on the cake.[39]

There are a huge number of land trusts ranging from the conservation groups through to the Cattlemans associations. In Colorado the Colorado Cattlemans Agricultural Land Trust is second only to TNC in acres protected under conservation easement.[40] The rancher based groups have a different perception than the conservation groups among the ranching community, but also show that ranchers are interested in protecting open space and ranchland as much as anyone else.

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[37] www.lta.org/census/

[38] http://www.mtlandreliance.org/tax_incentives.htm

[39] Ringling R, pers comm. April 2006

[40] Knight 2002

There is not unanimity among the farming community on the wisdom of conservation easements, the Montana Farm Bureau, the farming lobby group, certainly had reservations about the permanent nature of easements.[41]

I am unconvinced that tax should be the driver for such large scale protection. The effect of the tax benefits though, is that the taxpayer as a whole pays for some of the benefits of the provision of a public good provided by private landowners. i.e. there are both public and private benefits from the provision of conservation easements and the costs are shared - to a point - between the public and private beneficiaries.

Of the trusts I spoke to monitoring of conservation easements to ensure easement conditions were met was on an annual basis. With the scale of growth in the trusts it was going to take some funding in the future and at least one trust was trying to ring fence money to ensure it is available into the future to manage the easements.[42]

Some easements, generally purchased ones, included access, whereas most did not. Some Trusts partnered with local recreationalists but they appeared more about protection of the features on the land than about public access.

There were overall very few reported problems with easement holders. Susan Otis Managing director of the Yampa Valley Land Trust had identified problems with ~~–in~~vited" easement holders. i.e. people who had been approached for easements rather than those who had come forward. There were a few minor issues on property transfer and most Trusts had a system in place so that the vendor and purchaser both new what was expected and what was going on.

[41] Youngberg, John, Montana Farm Bureau pers comm., April 2006
[42] Susan Otis Yampa Valley Land Trust pers comm., April 2006

Comment on Land Trusts/Conservation Easements.

The Trusts are flexible enough to cater for a range of circumstances. Often they were driven locally and were tailored to local conditions. There is certainly more scope to use easements or covenants in New Zealand than is currently the case.

The taxation advantages were a huge driver for them. I am unconvinced that it should be the main driver. However, investigating whether there are ways to make New Zealand's tax system more favourable to private conservation and covenants in particular would be appropriate.

Landowners in the US are as interested as urban conservationists in the protection of open space and special values and will respond accordingly if given the right incentives. That interest included the protection of working farmed landscapes as well as natural values.

With the subdivision and development pressure now coming in New Zealand, the demand to protect working rural landscapes may increase. The US model of land trusts represents a useful tool to use for that protection.

9.2 Ducks Unlimited, USA

Ducks Unlimited (DU) is a big player in the protection of wetlands grasslands and waterfowl, in the US and Canada.

DU has over 700 000 members and last year raised $162M US. Over 70 years Ducks unlimited have restored and conserved nearly 12 million acres of habitat that benefits waterfowl, other wildlife and people.[43]

DU have recently launched a campaign to raise 1.7B$US for wetland habitat conservation.

In the Prairie pothole region of the central northern US and Canada their approach to working with landowners is informative.

The Prairie Pothole region is a vast grassland interspersed with kettle hole wetlands and forms a great habitat for waterfowl for breeding. The ducks nest in the grassland and raise their young on the wetlands, so both wetland and grassland are important for waterfowl populations. The grasslands and wetlands are however coming under pressure.

[43] http://www.ducks.org

Grasslands are being converted to cropland partly in response to federal production subsidies. The conversion is also supported by disaster relief subsidies. New farming technology is also making it more economic to _sod bust' and convert grassland to cropping.

Ducks Unlimited's answer to the problem is;

> —The solution is to work with ranchers and others who own prairie grasslands to secure the habitat through conservation easements. Protecting our remaining native prairie remains the highest priority of Ducks Unlimited."
>
> "Perpetual protection of native prairie is achieved through perpetual grassland & wetland easements, land purchases, and donated conservation easements. These approaches are always directed at willing landowners."[44]

The multi - faceted approach and the willingness to work with farmers is producing enduring solutions for Ducks Unlimited. There may still be contention between DU and ranchers over public policy but DU recognition that they have to work with farmers to get results is a refreshing approach compared to the heavy handed regulation type approach commonly advocated in New Zealand.

The ability of the larger conservation groups both in the US and England to work with a variety of partners from federal government through to private individuals appeared to be a key competence for the success of their programs.

A summary of DU programs are listed below. Full details can be found in Appendix 1.

- Purchase of land, protection through easement (NZ term is covenant) and on sale
- Purchase of interest in land (conservation easement)
- Management of donated interest in land (conservation easement)
- Restoration of grassland and wetland
- Technical farm support to create win wins.

Interestingly Binning notes that

—.….individual facilitation is the most effective educative tool in delivering both attitudinal and behavioral change in landholders, particularly when combined with catalytic or cost sharing incentives."[45]

This is exactly the approach of Ducks Unlimited.

[44] www.ducks.org
[45] Conserving Biodiversity –Institutions, policies and Incentives, Carl Binning Nov 2000

9.3 Delta Waterfowl, USA

Delta Waterfowl has a vision to secure the future of waterfowl and waterfowl hunting. It recognized that habitat for waterfowl was crucial to their vision. Their approach to getting their outcomes in the prairie pothole region is slightly different than Ducks Unlimited but is also innovative.

Delta Waterfowl believe the prime habitat for waterfowl is the kettle holes and surrounding land in the Prairie. Farmers sometimes cultivate in and around these to grow crops. Delta Waterfowl has devised a scheme where duck hunters and waterfowl fanciers can ~~"a~~dopt a pothole". Farmer are paid for maintaining habitat, for enhancing habitat and some for duck production, so the farmer has a direct incentive to improving nesting habitat.

Funding contributors (pothole adoptee's) receive an aerial photo of their pothole with an annual estimate of duck production. They see tangible evidence of their contribution to birdlife and as they are paying for the site protection, they will want to keep their costs as low as they can.

Delta Waterfowl has clear goals for their conservation outcomes and they monitor them accordingly. Nesting success has gone from 10-15% on un-adopted sites to 51% for adopted sites. If a Delta Waterfowl nesting device for predator protection is used average success goes to 90%.

As the deals are negotiated and provide benefits to both parties there is no contention.

Delta Waterfowl knows that if their programs are not economical for farmers they will not be adopted so they continually ensure that they are.[46]

[46] *Anderson, T & Leal, D "Enviro-capitalists, Doing Good While Doing Well" 1997 P. 60*

10. Zoning /Parks

10.1. Parks

Throughout the world there are many parks – national or regional which include privately owned farmed land in their boundary. I looked at a few of them to determine what the effect was on the farmers in those parks. Interestingly farm land values appeared similar inside and outside the parks, indicating that farmers on the whole were ambivalent whether they farmed inside the park or outside. This was the same in Tuscany in Italy as it was in England. House prices were however more expensive inside the parks and there were development pressures on the boundaries. The main controls I could see in the parks with private landownership were on subdivision and the creation of buildings.

10.1.2. North York Moors National Park, U.K.

Prior to the start of the Environmental Stewardship Schemes the North York Moors National Park had their own agri-environment scheme.

Part of the landscape of the North York National park showing the burnt heather – burnt on about a 10 year cycle for Grouse management.

A different view of the North York National Park showing the lived in landscape.

The objectives of the North York Moors farm scheme are many but they can be summarized primarily as being to maintain and enhance the existing landscape and to maintain and enhance the wildlife habitat, and also to maintain existing archaeological sites and access.
The Park had no data on the effectiveness of the schemes. They were based on profit foregone. The schemes are run by local people with the farmers having their own point of contact. Park staff were proud of their relationship with farmers and thought the keys to working with the farmers were, the local contact, flexibility, trust and the effort put into the maintenance of that relationship.[47]

10.1.3 Lake District National Park U.K.

The Lake District National Park has quite a different vision than New Zealand National Parks.

> "Working together for a prosperous economy, vibrant communities and world class visitor experiences - and all sustaining the spectacular landscape."
>
> –The Lake District National Park will be an inspirational example of sustainable development in action."

[47] Clare Bending, NY Moors National Park, pers comm

> –A place where its prosperous economy, world class visitor experiences and vibrant communities come together to sustain the spectacular landscape, its wildlife and cultural heritage." [48]

The above vision would be more appropriate in New Zealand for an area such as the Queenstown Lakes District Council than for a National Park. The differences reinforce the differing cultural backgrounds and history for New Zealand National Parks and English ones. They also reflect the anthropocentric nature of conservation and that differing people have differing expectations of what is valuable to protect. The Lake District National Park also has very different goals for biodiversity conservation and different threats to manage than New Zealand National Parks.

[48] www.lake-district.gov.uk/index/looking_after/visioning.htm

Typical Lake District National Park scenery showing stone building material and closely cropped open farmland.

Upland landscape of the Lake District showing treeless open tops stone fences and settlement generally confined to the lower valley.

In the Lake District National Park the lived in landscape and cultural heritage are just as important, if not more so, than the wildlife.

An interesting development in the management of the Park is that key organisations who have a role in the Lake District National Park have agreed to work together and established a Lake District National Park Partnership. The partnership is a first for the Park and aims to capture a genuine enthusiasm amongst partners to resolve conflict, reduce duplication and work together for a common good.[49]

The aspect of people working together for the common good was encountered in a many places. It has been used recently in New Zealand with the development of the Fiordland Management Strategy. There is potential to use that approach more widely. Landowners do not however have much representation on the partnership 2 out of 26, and one of those 2 being the National Trust - essentially a conservation group anyway.

10.2. USA Parks

In The US I had a brief look at Yosemite and Grand Teton National Parks and at some of the issues associated withYellowstone National Park. It is generally believed that a few farsighted individuals are responsible for the setting up of National Parks such as Yellowstone. However Anderson & Leal[50] argue that railroad interests were behind the setting up of Yellowstone, Mount Rainier, Crater Lake and Grand Canyon National Parks. The railroad interests saw that under the US land laws it would have been hard to own the land in the parks to capture the attractions to profit from them so the next best option was to have them in a Park status and capture the benefits by transporting people via there own railroads to see them.

They also argue that the incentives for managers of National Parks in the US are not always well aligned with providing visitor services. The incentive is to keep going to the congress to address a funding shortfall. Generating funds from Park users is not generally encouraged because that money goes into the Federal coffers. And if the system is changed there is a loss of control through congress holding the purse strings so it is unlikely to happen. The result is that the national parks are often underfunded and spending on conservation is allocated in a political context rather than to a specified conservation goal.

Meehan argues that, public land management —… relies on government experts to regulate and prioritize the multiple uses of land though an administrative or political process" and quotes Anderson & Leal —there is good evidence that political land management has ignored important recreational and amenity values and there is potential

[49] www.lake-district.gov.uk/lake_district_docs95/final_partnership_agreement.doc
[50] Anderson & Leal Enviro-capitalists, Doing good while doing well P 24.

for providing them through markets in ways that promote harmony between development and ecology"[51]

Facilities generally looked ok to me in the US Parks I looked at but it appeared that they would be under severe pressure at peak season time.

Comment on National parks

The farming and appearance of the countryside – landscape - is what the English people generally care about. The Lake District National Park is dominated by farmed land and the main restrictions are on building development. Essentially they amounted to a zone planning restriction which is similar to what is happening on Banks Peninsula at present.

Farmers are restricted in their ability to innovate and change and are providing a service to the community through their actions. They are paid for aspects of that service e.g. the stone walls. Where other groups try and provide the same land management as the farmers it costs about three times as much.[52]

The main beneficiaries of the farmers input are the tourism businesses. Funding for the parks comes from central government.

There is a lesson for New Zealand in regard to Conservation Parks. They will cost more to run than private landowners could manage the land for. There is scope to include farmed land in parks. Evidence from England is that the people want to preserve what is there now which includes the farming in the landscape. There is recognition that profit is needed for the maintenance of the important values and that farming actually preserves the current landscape. In the creation of the New Zealand High Country Parks there is potential to include farming land and features to capture some of the culture and history of the high country and to preserve the current landscape.
Public ownership subject to political management of multiple objectives may not lead to the best outcomes.

When pressed on the question what is he trying to do in the management of the Parco San Rossore, a Park including a UNESCO biosphere reserve in Tuscany, the director replied it was to keep his staff happy and when pressed further it was to balance income and

[51] G Tracey Meehan 111, "These Lands are Your Lands" In Perc reports Vol 25, no 1, Spring 2007
[52] Will Cockburn NFU Spokesman pers comm

expenditure. It was unclear what the objectives for protection of the park features were, or what the objectives were for the provision of services to the public.[53]

It is easy to have parks for parks sakes but if the objectives of the Park are not clear there will tend to be confused management and conflict between ‗beneficiaries' be they recreational users or conservationists and management.

Recreation is often touted as the highest and best use for public lands however increasingly recreationalists are having an affect on public lands. Knight believes

―people are not asking two tough questions: whether recreation is ecologically benign, and whether we can better manage recreation than we did logging and grazing"[54]

In one study the second leading cause of the decline of threatened species on public lands was recreation.[55]

Many believe that nonconsumptive outdoor recreation is an environmentally benign activity. The evidence while only rudimentary in the US at this stage is starting to challenge that belief.

New Zealand also faces the challenge of managing recreation on public lands. Shortly after the purchase of both Birchwood and Clent Hills some lowland wetlands on the properties were damaged to such an extent that vehicles had to be managed so that they are restricted to defined areas.

Ostrom & Nagendra in their multidisciplinary look at protected areas note that

―It is becoming increasingly clearer that community management under direct ownership, government concessions, or other long term co-management arrangements has the capacity to be as effective, or, under certain conditions, more effective than public strictly protected areas."[56]

[53] For info on the Parco San Rossore Ref www.unesco.org/mabdb/br/brdir/directory/biores.asp?mode=all&code=ITA+08
[54] http://www.headwatersnews.org/whiteKnight.html
[55] http://www.headwatersnews.org/whiteKnight.html
[56] Ostrom & Nagendra ―Insights on Linking Forests, Trees, and People from the Air, On the Ground, and In the Laboratory" www.pnas.org/cgi/doi10.1073/pnas.0607962103

11. Perverse incentives

Heavy handed regulation can sometimes have the opposite effect of that intended because it creates a cost to landowners for supplying the public good. Anecdotally even when talking to some of the more conservation minded land managers I was told of times where they will act contrary to best conservation practices to reduce a potential liability.

A documented example of this is the Endangered Species Act(ESA) in the U.S. The ESA prevents the take of an Endangered Species in the US. Take has been defined by the courts as habitat removal. So if you have habitat that supports or could support Endangered Species and having that habitat is, or potentially is, a cost, then the incentive is to get rid of it. In North Carolina home of the Red cockaded woodpecker, Lueck & Michael have surveyed the average age of timber harvest near to woodpecker colonies. The Woodpeckers preferred habitat is old pines. Having woodpeckers means you are unable to harvest the forests thus restricting potential income. The results are clear.
Where there are no colonies within a 25 mile radius, the average age of tree harvest is 58 years.
Where there are 25 colonies within 25 miles the average age of harvest is 36 years.
Where there are 437 colonies the average age of harvest is 16 years.[57]

Land managers clearly have responded to the costs impost by the ESA and altered behaviour accordingly. The well meaning ESA has resulted in the opposite of its intention. The primary cost of the ESA in Lueck & Michaels study was to the reduction in conservation benefits to Red Cockaded woodpecker. Timber harvest returns were little affected by earlier harvest. Even landowners who would have maintained older pine forests for the multiple private benefits of hunting and aesthetics no longer practiced longer forest rotations and missed that private benefit.

Red Cockaded woodpecker in action

Benjamin draws two main conclusions from this study.

— the evidence developed by Lueck and Michael makes two points abundantly clear. First, because of the perverse incentives created by the ESA, this law has accomplished

[57] Lueck D, Michael J. Preemptive Habitat Destruction Under The Endangered Species Act Working Paper Montana State University April 2000

less than many people think. Second, people respond to incentives; only by giving them appropriate incentives will we maximize the environmental protection achievable with a given expenditure of resources. Incentives matter, not just to people, but to woodpeckers, too."[58]

The other major perverse incentive that I observed was agricultural subsidies encouraging overproduction from marginal land. Martin of TNC in Montana thought one of their major conservation issues was the conversion of prairie land into farm land -"sod-busting" - by cultivation[59]. This land was marginal farmland and it wouldn't be possible economically without agricultural subsidies. Ducks Unlimited also recognized the same problem. New Zealand has removed the support for agricultural subsidies and Europe is decoupling them, but the push for support of biofuels will be encouraging cultivation of marginal lands, creating another perverse incentive to the conservation of that land.

These perverse incentives can be contrasted with the Defenders of Wildlife raising funds to compensate livestock owners for wolf depredation and rewarding those who allow wolves to raise pups on their properties.[60]

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[58] Daniel Benjamin http://www.perc.org/publications/percreports/dec2003/tangents.php?s

[59] B Martin TNC Montana Pers comm

[60] Anderson & Leal "Envirocapitalists - Doing Good While Doing Well". p84

12. Relationships between conservationists with farmers

No moo in 92‘ and cow free in 93‘ were old slogans used by some US NGO‘s at that time to try to remove cattle grazing on public lands. There are still some strident NGO‘s in the US and in the UK. There is not always harmony on the other side either –Wolves are State Sponsored Terrorism” was a bumper sticker viewed in outback Wyoming.

However it appeared that the relationship between farmers and conservationists had moved on from the contention of the 60‘s 70‘s & 80‘s. The larger NGO‘s such as TNC and Ducks Unlimited and the Wildlife Trusts in the UK have realized that if they want to make progress with their conservation goals they can make more effective and enduring ones by working with the landowners concerned. A Statement from the President of Environmental Defense in the US is informative.

> –The strategy of the early environmental movement, according to some, could be boiled down to three words, –mandate, regulate, litigate” Although we still go to court when necessary, Environmental Defense has long advocated a different approach: working with businesses, Government and private landowners to craft lasting solutions.”[61]

Similarly the following statement from the farming side in England is along a similar vein.

> –Compared to the debates since the 1960‘s there has been a sea change in the way environmental issues and land management are now discussed. From being a battlefield of attack and counter attack between environmentalists and land managers, there is now much more of a spirit of recognition that each needs the other. The Greens and Blues really can be friends!” [62]

The theme of partnerships and working together was a common theme in the US & UK.

This is in stark contrast to the –dirty dairying” campaign of Fish and Game or Forest & Bird handing out –slices of the high country.” But there is hope. Maybe New Zealand is 20 years behind these overseas trends. There are many examples of local partnerships in New Zealand but to get a culture change at National level will take leadership and trust from both sides of debates. It also requires political strength from central and local government to create the right environment for the _working together‘ to occur and flourish.

[61] Fred Krupp president environmental defense in PERC Vol 25 number 1 Spring 2007
[62] Public goods from Private lands, why Nature needs farming. Country and Land Business association discussion document Oct 2005

13. Recommendations for New Zealand

Farming and related agricultural product marketing businesses continue preparing and developing environmental quality standards. They will be required and the challenge for New Zealand is to be able to provide them and compete with countries that have environmental subsidies.

Those farming and related businesses see if they can agree to basic industry standards to avoid confusion in the marketplace.

Farming and conservation groups focus on their common ground and work together where they have that common ground. The ability of the larger conservation groups both in the US and England to work with a variety of partners from federal government through to private individuals appeared to be a key competence for the success of their programs. This competence is also required of farming groups as well.

Any entity be it local or central government or a community group engaging in conservation needs to have clear goals as to what it is trying to conserve and how. Clear goals were missing from many conservation programs looked at for this project. It was therefore hard to determine if they were successful or not. If an entity does have clear conservation goals over private land that it desires then it can contract landowners to provide outcomes working towards those goals.

Creating the right policy framework for conservation groups and private landowners to work together can bring real innovation to the provision of conservation. To develop this framework can either come from central government leadership, or key NGO‘s and farming groups would have to work together and take solutions to issues to central government. Respect for all sides and the rights they hold is a necessary prerequisite for creating this environment. Enduring solutions were generally local or bottom up solutions.

Government, both central and regional, does not need to solve all conservation issues. There are a suite of ways of delivering conservation outcomes, such as through market environmental standards or NGO‘s dealing with landowners. Leaving space can let others come in to deliver those conservation outcomes.

A review be conducted of New Zealand tax laws looking at the tax deductibility of donations. The full deductibility of these donations in the US was a key factor for both the size of the private sector involvement in conservation and for the willingness of private landowners to donate conservation easements.

There is an opportunity to set up more covenanting bodies or _land trusts‘ that are independent of government.

14. Comment re New Zealand South Island High Country

The topic for this project was borne out of a frustration with the politics around the South Island High Country. So what have I learned that may be applicable?

Incentives matter to achieve outcomes on the ground. If those incentives are perverse you will not get the results you want. It is hard to see how the current incentives for high country farmers could be more perverse.

a) If they improve the special values on their properties – the amenity values – they will be charged a higher rent.
b) If they want to protect a special value for their own and/or the public benefit it is likely they will not be able to keep it through a tenure review, and they will also likely face restrictions on its use under district plans.

The government is trying to take ownership of amenity values from farmers to public ownership. They are taking the ownership of assets away from the people who look after them, a situation that is unlikely to lead to sustainable management long term. Evidence from overseas suggests such a course of action will not protect those amenity values.

Creating a park does not guarantee management success. Local community ownership or private ownership can be just as successful. The lack of clear goals on many of the conservation programs looked at was a common feature. This is also true in the high country. It is not clear what the goals are for conservation in the high country. What are the goals we are managing for in the high country, and is placing the land in a park the best way to meet those goals?

The relationship between high country farmers and conservation groups is one of contention. To achieve a lasting solution to this debate common ground needs to be found and worked on between the parties. The tenure review system perpetuates this contention by not having farming and conservation groups dealing direct with each other. Instead they deal through a bureaucracy and to effect change they use the media and lobbying. The farmers own the land and have detailed knowledge of it yet NGO‘s outline their desires for properties prior to the farmers being consulted. As those NGO‘s don‘t have to pay for those outcomes directly this situation is a recipe for contention. Bringing the farmer into the deal at an earlier stage would be a start to deal with this contention.

A potential way to deal with the contention issue is to change the tenure review process so that it is more of a trade – similar to the Nature Heritage Fund purchases. With a limited public budget the conservation groups could be brought into that trade. Currently tenure review gives no recognition to the fact that the taxpayer has scarce resources, an open transparent trading process may help that. Uncertainty about the rights of the parties, (not helped by this governments handling of rental issues), involved in tenure review transaction also does not help the situation.

Another more efficient option would be for the government to simply pay high country farmers, on a willing buyer willing seller basis, to manage for the outcomes they want. Evidence from overseas suggests farmers are happy to trade in this regard, in effect having a customer for the provision of environmental services. I saw no evidence of enduring outcomes where farmers were coerced to become a party to that trade – the current high country situation.

15. Appendices

Appendix 1 Ducks Unlimited approaches to conservation

Grassland Easements

In cases where property is not for sale or the landowner is not in a position to donate a conservation easement, opportunities to sell perpetual grassland easements will be offered. In exchange for a one-time payment equating to approximately one-fourth of the land's value, landowners enter into legal agreements that prevent grasslands being placed under easement from ever being plowed. Grassland easements are compatible with livestock production and allow the land to remain in private ownership. Terms of the grassland easements allow grazing, but limit the timing of haying to protect birds during the nesting season. An important side benefit of grassland easements is that little incentive exists to drain or alter wetlands within the area covered by the grassland easement because of wetlands' value to livestock. Nonetheless, the U.S. Fish and Wildlife Service will also purchase permanent easements on all wetlands encompassed by the grassland easements to ensure the protection of the entire prairie complex.

Grassland easements are bought with money donated to Ducks Unlimited, but the easements are monitored and enforced by the U.S. Fish and Wildlife Service. Ranchers view grassland easements positively because easements offer financial relief at a time of low economic return in the ranching industry. For the conservationist, grassland easements offer the most cost-effective way to secure the last remaining Prairie Pothole Region habitat in North America.

Donated Conservation Easements

Donated conservation easements provide unique opportunities to protect private lands when the landowner is in a financial position to donate property rights and cover costs associated with annual monitoring. Ducks Unlimited accepts easements in perpetuity and agrees to annually monitor the property to ensure the terms of the easement are followed and the conservation values of the land are maintained.

As part of the donated easement partnership, landowners receive technical assistance from Ducks Unlimited on how to perform conservation-friendly land management. Additionally, the landowner donating an easement often recognizes substantial tax advantages as a result of the donation.

Acquisition

In locations where valuable, intact habitat is at imminent risk but the landowner is not willing to consider an easement, Ducks Unlimited may seek to acquire the property . Once purchased, grasslands and wetlands are restored and conservation easements placed on the land so as to perpetually protect important resource values. During the period of DU’s ownership, the public is welcome to hunt and enjoy the properties. When restoration is complete and easements are in place, the land is re-sold to a wildlife agency or a private individual who shares DU's interest in protecting the prairie's natural values. Previous buyers have included agencies who wanted the land

for a state or federal wildlife area, ranchers who needed pasture and were willing to abide by the terms of the easement, and individuals who were interested in the land primarily for its conservation or recreational values. Funds recovered through the subsequent sale of land are deposited in a revolving fund, which can be tapped for new acquisitions. Using this approach, 150,000 acres will be secured as part of Grasslands for Tomorrow.

Restoration

Wetland restoration has always been an important program in Ducks Unlimited, and it remains a vital part of Grasslands for Tomorrow.

Ducks Unlimited also assists with re-establishment of grasslands on former crop fields. Plantings may include easy-to-establish, cool season exotic grasses that are attractive to nesting ducks, or more difficult-to-establish native plant species. When grasslands will be permanently protected, native species are preferred because they are more attractive to a variety of birds and mammals, and require less maintenance in the long term.

Working with Landowners

Most waterfowl habitat in the Prairie Pothole Region is on private land. Consequently, Ducks Unlimited has several programs that work with landowners to help them improve and protect waterfowl habitat while at the same time maintaining or enhancing the viability of their ranching or farming operation.

In the Prairie Pothole Region, ranchers and ducks are dependent on the same resources: water and grass. This common need opens many opportunities for DU to work with livestock producers. Grassland and wetland easements are attractive to many ranchers because they provide a payment for maintaining resources they already have. Ranchers have used easement payments for many purposes, including retiring debt, expanding their operation, and sending kids to college. In addition, many ranchers have a deep respect for the land, and often enter into an easement agreement out of a strong belief that their rangeland should never be plowed. In addition to easements, DU works with ranchers to establish rotational grazing systems that increase the profitability of their operations while enhancing range quality, and may also cost-share new watering facilities including stock ponds and tanks.

While most cropland is of little value to breeding ducks, winter wheat affords a duck-friendly alternative that provides relatively secure nesting habitat. Because winter wheat (unlike spring-seeded crops) remains undisturbed during spring, duck nests are not destroyed by farm machinery. In addition, since wheat fields are not very profitable foraging habitats for mammalian predators, nests are relatively secure and have hatch rates several-fold higher than those nests located in spring-seeded crops. In the U.S., Ducks Unlimited employs two full-time agronomists, who deliver the winter wheat program. They offer incentives and technical support to landowners to entice them to try winter wheat and ensure their success. In addition, DU supports several variety trials in which new breeds of winter wheat are tested and evaluated under field conditions. Results of field experiments on variety, rotation, fertilization, and pesticide/herbicide application are published periodically in DU's winter cereals newsletter. This information, combined with incentive payments, one-on-one crop consulting, and extension efforts, has substantially increased winter wheat acreage in the Dakotas. [63]

[63] WWW.ducks.org

Appendix 2

LEAF Marque Standard for Wildlife and Landscape.

6 Wildlife & Landscape	
6.1	**Do you have a whole farm conservation audit?** In order to avoid the risk of environmental damage and deterioration, approved producers must be able to demonstrate an awareness of the distribution of the key wildlife habitats and other valuable environmental and archaeological or historical features on their farms as listed in the guidance notes, and know the farming operations that could damage or have a detrimental effect on them. • Areas and sites on the farm with any statutory landscape designation; • Lakes, ponds and watercourses; • semi-natural habitats (e.g. Moor land, wetlands, lowland heath, species-rich grassland, broad-leaved woodland, etc) ; • linear features (e.g. hedges, fencelines, farm borders, verges, field margins, walls, ditches, tracks); • public rights of way; archaeological or historical sites. **Evidence:** Inspection of the map-based audit, including the following key environmental features: • Areas and sites on the farm with statutory protection; • Lakes, ponds and watercourses; • Semi-natural habitats (e.g. moorland, wetlands, lowland heath, species-rich grassland, broad-leaved woodland, forest etc) • Linear features (e.g. hedges and verges, fencelines, farm borders, field margins, walls, ditches, tracks) • Public rights of way • Archaeological or historical sites. The audit (and whole farm conservation plan) should ideally be completed or reviewed by a specialist advisor or consultant such as FWAG (http://www.fwag.org.uk/); and should be regularly reviewed (at least every five years by the specialist advisor) and every year by the farmer. (R)
6.2	Do you have a whole farm conservation plan, based on the audit? You must have a clearly defined policy and plan for the conservation and management of wildlife habitats and biodiversity, and archaeological or historical sites, on your farm. This must include all the key environmental features as listed in the guidance notes of 6.1. Consideration in the plan must be made to ensure that standard 6.26 is followed. Evidence must be provided of a positive attempt by the farmer to address wildlife conservation on the farm through the preparation of a whole farm conservation plan (map and text based) that clearly identifies the necessary action required to conserve and enhance biodiversity and landscapes on the farm, and the protection and maintenance of archaeological or historical sites. The plan (and audit) should ideally be completed or reviewed by a specialist advisor and must be regularly reviewed (at least every five years by the specialist advisor) and every year by the farmer. R
6.3	Is your Whole Farm Conservation Plan an integral part of your farming system? You must ensure that decisions made in relation to agronomic practices take account of your Whole Farm Conservation Plan and its objects to protect and enhance the wildlife and landscape on your Farm. Farming and Environment are inseparably linked. Evidence: Evidence of procedures in all farming operations to protect and enhance wildlife and landscapes. (V)
6.4	Have you notified the relevant authorities, where appropriate and completed an

	Environmental Impact Assesment (EIA), , where you are planning to bring or have brought "uncultivated land or semi-natural areas" into more intensive agricultural use by clearance of vegetation, cultivation, fertilisation, liming, drainage, introducing high stocking rates, or earth moving etc? Environmental Impact Assessment (EIA) must be followed; this is a procedure for considering the potential environmental effects of land use change. Environmental Impact Assessment helps inform decision making and enables decisions on land use change to be taken with full knowledge of the likely environmental consequences. The EIA and measures to minimise any negative consequences must be incorporated into the Whole Farm Conservation Plan and approved by any necessary local bodies or agencies. Planned work must be approved and advised prior to work being carried out. Evidence: Checks will be made to see that any intensification of agricultural activities that appear to have been carried out on previously uncultivated land or semi-natural areas. Check Whole Farm Conservation Plan for any EIAs.
6.5	Do you retain traditional field boundaries, environmental / landscape features and other natural habitats? You must not remove or destroy any traditional field boundaries (hedges or stone walls), environmental / landscape features and other natural habitats such as rain forests on the farm. Evidence: Check maps and plans for removal of boundaries e.g. hedges, watercourses, stonewalls, grass strips, rain forests and other landscape features. (P)
6.6	Do you restrict the timing and frequency of field / boundary management such as hedge cutting? Trimming of hedgerows on the farm must not be carried out during the nesting period. Boundaries must be managed in accordance with your Whole Farm Conservation Plan. Hedge cutting and boundary management more often than every two or three years should be justified. Where local management is more intense due to highway safety this must be justified and explained. Evidence: Visual assessment of any recent damage during field checks. Check conservation plan recommendations. (V) (R)

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[64] http://www.leafuk.org/_code/common/item.asp?id=4035369

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