

Money makes the countryside go round

*The case for increased spending
on countryside schemes in Wales*

A WWF-UK Report
Mike Christie and Steve Adams
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1 Executive Summary

AIM OF THE RESEARCH

The aim of this report is to review agri-environment schemes in Wales and to assess the extent to which they deliver environmental and socio-economic benefits.

KEY RECOMMENDATIONS

- The annual budget for the Tir Gofal agri-environment scheme is currently set at £5.5 million, rising to £21.4 million in 2006/07. This will enable around 2,335 Tir Gofal agreements to be made on Welsh farms.
- This report recommends that a realistic participation target for Tir Gofal is 10,000 agreements (50 per cent of eligible Welsh farms). This level of uptake would make a significant contribution towards meeting Wales' biodiversity obligations, as well as supporting farm incomes.
- To achieve this target, funds allocated to Tir Gofal need to be increased over four-fold to £91.66 million per annum.
- This report recommends that the government make this financial commitment to the Tir Gofal agri-environment scheme.

BENEFITS

To demonstrate the benefits that agri-environment schemes can generate, four case study farms were examined.

Penmaen Isa is a 146-hectare lowland and upland beef and sheep farm, situated in west Wales. The farm has been in Tir Cymen since 1992, and also has two SSSI management agreements. The scheme agreements are perhaps unusual in that they require the farmer to increase, in a controlled manner, the stocking density on the farm's marshland areas. This practice has enhanced these wetland habitats, resulting in significant increases in their bird populations, including lapwings, redshanks and Greenland white-fronted geese. All of these birds are listed as species requiring special protection. Without the aid of these schemes, it is likely that these important habitats would have been lost.

The second case study farm is an example of a typical Welsh upland sheep and beef farm. One of the most interesting features of the farm is its traditional landscape of small fields bounded by hedgerows. Unfortunately, many of these hedges had fallen into disrepair. Furthermore, the farmer had plans to remove many them in an attempt to allow more efficient management. The Tir Cymen agreement, which was signed in 1992, provided incentives to change this situation. The hedges are now protected under the whole farm code, and are now managed for wildlife. The Tir Cymen scheme has also required a reduction of stocking on the farm's unimproved grassland. This has allowed these areas to sustain a greater diversity of plant species and

associated wildlife. It is clearly evident that the Tir Cymen agreement on this farm has both safeguarded and enhanced a number of fragile habitats.

Aber Hyddnant is an example of an upland livestock farm that has two threatened species within its boundaries; the otter and the brown hare. The Welsh and UK Biodiversity Action Plans for the otter and brown hare specifically state that schemes such as Tir Gofal should be used to take account of the requirements of these species. Tir Gofal does offer an opportunity to enhance the farm's environment to meet these nature conservation needs.

However, the initial lack of funds for Tir Gofal resulted in the rejection of the farm's application to join the scheme. This meant that Aber Hyddnant's important habitats were still under threat. Furthermore, as a result of not being accepted for Tir Gofal, Mr Williams was forced to find alternative employment off the farm to supplement his income, and thus he now is forced to manage his farm on a part-time basis. It was only after extra funds were allocated to the scheme that Aber Hyddnant's application was accepted. This case demonstrates the significant benefits that extra funding for agri-environment schemes can bring.

Rhydlanfair is a 231-hectare upland livestock farm in Snowdonia National Park. Almost half of the farm is currently managed under existing agri-environment agreements. This includes 150 hectares of dwarf shrub heath, which is recognised as being of international importance. In 1999, Mr Williams planned to extend the scope of environmental management on his farm by applying for entry into the Tir Gofal agri-environment scheme. This would have generated significant income for the farm, which is currently in heavy debt. In his application, Mr Williams had proposed to enhance existing, and create new, habitats on his land. In addition to the general benefits to wildlife, the agreement also proposed to manage an area of grassland for the benefit of lapwings, a bird species listed as a high priority species by the RSPB. Unfortunately, the Tir Gofal application was rejected, and thus the opportunity to further promote wildlife on Rhydlanfair was lost.

ECONOMIC ANALYSIS

The annual budget set aside for Tir Gofal is currently set at £5.5 million, rising to £16.4 million in 2006/07. This budget currently accounts for only three per cent of the total direct farm subsidies in Wales. Further funding from modulation is expected to provide an additional £18.5 million for Tir Gofal over the five-year period to 2006/07. It is predicted that these allocated funds will enable around 2,335 Tir Gofal agreements to be made on Welsh farms. It is estimated that a realistic target uptake for Tir Gofal is 10,000 agreements after 10 years. This would make a significant contribution to meeting Wales' biodiversity obligations. To achieve this target, funds allocated to Tir Gofal need to be increased four-fold. This report recommends that the UK government commit these extra funds to the Tir Gofal agri-environment scheme.

METHOD

Of the four case study farms, the first two were included to illustrate the significant benefits that agri-environment schemes can bring in terms of protecting and enhancing the biodiversity on farmland. The remaining two farms provide examples of farms that were not accepted into agri-

environment schemes due to the lack of funds. These farms provide an example of the lost opportunities for protecting threatened habitats and species. Based on the evidence gathered in this research, predictions are made regarding the extent to which funding needs to be increased in order to meet the UK's legal obligations for protecting its biodiversity.

2 Agri-environment schemes in Wales

Agri-environment schemes provide a policy mechanism for remunerating farmers on a contractual basis for the provision of environmental services and the use of environmentally sound farming practices. The legislation providing for such schemes (EU Regulation 2078/92) was introduced as one of the accompanying measures in the 1992 MacSharry reforms of the Common Agricultural Policy. In Wales, the principal agri-environment scheme is Tir Gofal, an all-Wales whole-farm scheme, introduced in 1999 to replace the Tir Cymen, Environmentally Sensitive Areas (ESA), Moorland, Countryside Access and Habitats schemes¹. The following section provides an overview of Tir Gofal and its predecessors.

Environmentally Sensitive Areas 1987-1999 (WOAD)

The ESA scheme was introduced in 1987. It was designed to protect and enhance the environment by offering two tiers of voluntary incentives to farmers in designated areas to adopt environmentally beneficial agricultural practices. Within the six ESAs in Wales there are approximately 2,220 agreements, covering an area of 166,750 hectares. Annual expenditure on the ESA scheme in 1999/2000 is around £7.5 million.

Moorland Scheme 1995-1999 (WOAD)

The Moorland scheme aimed to protect and improve the upland moorland environment by encouraging farmers to remove ewes, to set maximum stocking densities, and to conserve and enhance moorland. Sixteen agreements have been signed, covering an area of 623 hectares. Annual expenditure on the Moorland Scheme in 1999/2000 was around £81,000.

Countryside Access Scheme 1995-1999 (WOAD)

This voluntary scheme provided farmers with incentives to make new areas of suitable farmland available to the public for walking and quiet recreation. There has been very little interest in this scheme in Wales. To date, there has only been one application, which is currently being negotiated.

Habitat Scheme 1995-1999 (WOAD)

This pilot scheme aimed at creating and enhancing valuable habitats (broadleaved woodland, coastal belt, species-rich grassland and water fringe) by either taking land out of agricultural production or introducing extensive grazing, and then managing it for the benefit of wildlife over a period of ten years. Around 860 agreements have been signed, covering 6,880 hectares. The annual expenditure on this scheme is around £420,000.

Organic Aid Scheme 1995-1999 (WOAD)

The Organic Aid scheme provided incentives for farmers to convert from conventional farming to organic production. Payments, which apply for 5 years, reflect the income foregone during the period of conversion. There are currently 61 participants, covering around 2,355 hectares. Annual expenditure is around £11.5 million.

¹ Note that, although no new agreements will be made in these schemes after 1999, existing schemes will continue to be supported until the end of the agreement.

The Hedgerow Renovation Scheme 1992-1999 (CCW)

The Hedgerow Renovation scheme was launched by CCW with the aim of re-introducing good management to selected hedges in Wales. The scheme proved to be very popular with farmers, and its aims are now incorporated into Tir Gofal. Over the life of the scheme (1992-99) 1,553 agreements were signed at a cost of £3.72 million. This allowed a total of 593km of poor hedgerow to be restored, 3,053km to be retained, and 3,646 km of good hedgerow to be brought into protection.

Tir Cymen 1992-1999 (CCW)

Tir Cymen, meaning 'Tidy Land', was developed as an experimental countryside stewardship scheme in the Meirionnydd, Dinefwr and Swansea districts of Wales. It was a voluntary, whole-farm based scheme that offered farmers a ten-year agreement to manage their holding in an environmentally beneficial manner. Farmers receive annual payments for following a code of good environmental practice on the whole farm, with additional annual payments for positive management of important habitats and providing new permissive access. Standard capital payments are also available.

A total of 1,023 Tir Cymen agreements were made, covering 89,304 hectares; equivalent to 47.2 per cent of the eligible land in the pilot areas. In addition to introducing a code of good environmental practice on all land entered into the scheme, further positive management on specific habitat areas was secured. This included 24,246 hectares of heather moorland, 12,538 hectares of upland grassland, 4,219 hectares of marshy grassland, 1,540 hectares of flower-rich meadows and 4,540 hectares of broadleaved woodland. During 1998/99, £5.76 million was paid to participating farmers for land management and capital works.

Tir Gofal 1999 onwards (CCW)

Tir Gofal, meaning 'Land in Care', is the new all-Wales agri-environment scheme, introduced in 1999 to replace all existing agri-environment schemes in Wales except the organic scheme. Farmers joining the scheme receive annual payments for mandatory compliance with the whole farm section and the management of key habitats. All public rights of way on the farm must be open, and access must be provided to open land. In addition, the farmer can select from a range of voluntary options for the restoration or creation of certain habitats or features. One-off payments are available for specific work designed to protect and manage habitats and features and to support new access provision. Farmers are selected for entry into the scheme according to those that provide best value for money and the best environmental benefit.

Around 1,380 applications have been received in the first year of the scheme. Initially, only £3.2 million was allocated to Tir Gofal. This funding was later increased in December 1999 to £5.5 million. CCW are currently processing these applications, but have not yet been able to confirm any agreements. However, they have made 472 offers, and it is the intention to make a further 130 offers in the near future. This will allow a total of 600 agreements to be made during the first year of the scheme. CCW's aspiration is to have at least 10,000 farms in Tir Gofal after 10 years of the scheme.

The above review demonstrates that, over the past eight years, there has been a series of agri-environment schemes developed in Wales. The outcome of this development programme has been the Tir Gofal scheme; a whole-farm scheme that is available throughout Wales.

PROTECTION OF WALES' BIODIVERSITY

EU legislation providing for agri-environment schemes has been developed foremost in response to agricultural pressures including the then escalating EU budgetary crisis and the GATT trade negotiations, but also, and importantly, in response to increasing concerns for the environment and biodiversity.

The UK government has a legal obligation to implement EU environmental legislation, including the Birds Directive (79/409/EEC) and the Habitat Directive (92/43/EEC). The UK is also one of 150 signatories to the Convention on Biological Diversity. Signatories to this international convention are required to recognise the decline in habitats and species diversity and to develop national strategies for the conservation and sustainable use of biological diversity.

The UK's response to the Biodiversity Convention was the report *Biodiversity: The UK Action Plan*, which was published in 1994. From this, the UK Biodiversity Steering Group was set up, with the task of producing a detailed programme of action. One of the key approaches to completing this task was the production of action plans for over 400 species and 40 habitat types. The compulsory section of the Tir Gofal agreement benefits 20 of these habitats, while the voluntary options include two further habitats. **The Wales Biodiversity Group was set up in 1996. One of its tasks was to produce action plans for the 54 species and 12 habitats that occur in Wales. Eight of the habitat plans will benefit from the compulsory section of Tir Gofal, with one more covered by the voluntary options.**

There are also local biodiversity plans. These tend to be divided by county, but National Park Authorities also produce action plans. At the time of writing, both the Carmarthenshire and the Brecon Beacons National Park Action Plans were still in draft form. The Snowdonia National Park Authority's Biodiversity Action Plan is in the process of being produced, and it is expected to be published this summer (2000).

Agri-environment schemes offer an excellent opportunity for the government to meet its biodiversity obligations, since around 80 per cent of the Welsh countryside is agricultural land. The habitats and species present in the Welsh landscape have undoubtedly been greatly influenced by farming practices. Most of these practices were stable for hundreds of years, but since the Second World War, changes in mechanisation and the increased use of fertiliser and pesticide have had profound effects on species diversity. For example, increased fertiliser use tends to favour only a few very competitive plant species, such as perennial rye-grass (*Lolium perenne*) and white clover (*Trifolium repens*). Increased mechanisation encourages the formation of large farm units, which tend to be more economical. The consequence of these changes has been the destruction of the traditional mosaic of fields, hedges, woodlands and ponds to form large monocultural units. With the drop in plant diversity, there is a corresponding fall in general fauna diversity. **Agri-environment schemes are now needed to**

halt this destruction and provide farmers with incentives to return to production methods that are more environmentally friendly.

3 Case studies on the impact of agri-environment schemes in Wales

This section of the report examines the environmental and social impacts of agri-environment schemes on four Welsh farms. The environmental and economic impacts of participating in existing schemes, ie Tir Cymen, are considered in the first two case study farms: Penmaen Isa and a farm in South Wales. The remaining two farms, Aber Hyddnant and Rhydlanfair, are used as examples of farms that applied to participate in the Tir Gofal agri-environment scheme, but whose applications were rejected due to a lack of funding for the scheme. These case study farms are used to demonstrate the environmental benefits that participation in these schemes can bring, and also highlight the lost opportunities for environmental conservation resulting from a lack of funding for agri-environment schemes. The case study farms were selected, in conjunction with the Farmers' Union of Wales, to represent typical Welsh farms. All farmers participating in the study did so in the knowledge that their cases would be communicated to the public in a media campaign. However, due to a change in circumstances, one farmer has since requested that his name and personal details be withheld, although he is happy to be contacted through WWF.

It must be remembered that these assessments were made after brief visits to the farms. It was therefore not possible to produce habitat maps or complete species lists. If time had allowed, then more detailed surveys could have been carried out, which would have undoubtedly identified a wider range of species of conservation interest on each farm. However, the species identified in this report are based largely on the observations by farmers and therefore predominantly include the larger, better known species such as brown hare, otter and lapwing. Without doubt, the list of protected species resident on the four farms is much longer than that which is mentioned in this report.

PENMAEN ISA

Farmer: Mr Huw Besent

Address: Penmaen Isa, Pennal, Machynlleth, Powys, mid-Wales, SY20 9LB

Telephone: 01654 791221

Penmaen Isa is a 146-hectare lowland and upland beef and sheep farm situated in west Wales. The farm has been in Tir Cymen since 1992 and also has two SSSI management agreements. The scheme agreements are perhaps unusual in that they require the farmer to increase, in a controlled manner, the stocking density on the farm's marshland areas. This practice has enhanced these wetland habitats, resulting in significant increases in their bird populations including lapwings, redshanks and Greenland white-fronted geese. All of these birds are listed as species requiring special protection. Tir Cymen has also made a significant contribution to the farmer's income. Penmaen Isa was recently honoured as the runner-up in Wales of the NFU President's 'Biodiversity and Conservation' award.

The Farm

	Pre-scheme	Now
Total area of Farm	146.5 hectares	146.5 hectares
Improved grassland	71.2 hectares	71.2 hectares
Unimproved grassland	6.9 hectares	6.9 hectares
Broadleaved woodland	13.0 hectares	13.0 hectares
Conifer woodland	1.0 hectares	1.0 hectares
Wetland (saltmarsh)	54.4 hectares	54.4 hectares
LFA DA	53.0 hectares	53.0 hectares
LFA SDA	93.5 hectares	93.5 hectares
Beef enterprise		
Sucker cows (no.)	15	50
Store cattle (no.)	16	20
Calves (no.)	15	45
Bull (no.)	1	1
Sheep enterprise		
Ewes (no.)	350	455
Ewe lambs (no.)	35	109
Lambs (no.)	300	525
Performance indicators		
Lambs / ewe (per cent)	80-90 per cent	110 per cent

The Farmer

Mr Huw Besent (41) owns and has farmed Penmaen Isa for around nine years. Although his principal goal is to make a living from the farm, Mr Besent is also very keen to improve the quality of his farm's environment. Interestingly, he regards the 'production of habitats' for wildlife (and particularly birds) in a similar light to managing land for sheep or beef production. '*It is just a different animal!*' Clearly, Mr Besent has very strong environmental motivations and hence his motivation for participating in the agri-environment schemes.

Agri-environment schemes on Penmaen Isa

Penmaen Isa has been in Tir Cymen since its introduction in 1992. Within the scheme the farmer has to manage three habitats (grazing marsh, salt marsh and broadleaved woodland) according to specific habitat management prescriptions, as well as follow a code of good environmental practice on the rest of his farm. The farm also has two SSSI management agreements: one for 51.4 hectares of salt marsh and the second for 6.8 hectares of unimproved marshy grassland. Again these areas have to be managed according to environmental prescriptions. In addition, the farm has land entered into the Woodland Grant Scheme (1997). In the past the farm had a Farm Conservation Grant Scheme (1990) that ran for six years. Mr Besent applied to these agri-environment schemes mainly because they fitted into his farm plan, but also because of their financial incentives, which covered the costs of conservation work. This review will examine the impact of both the Tir Cymen scheme and the SSSI agreement.

Tir Cymen Agreement

Agreement detail	Quantity	£ / Ha	Total Payment
Whole farm code ¹	146.5 hectares	20	£2,930 pa
Habitat and feature agreement			
Coastal land (Grazing marsh)	1 hectare	70	£70 pa
Coastal land (Salt marsh)	51.4 hectares	30	£1,542 pa
Broadleaved woodland (existing)	13 hectares	85	£1,105 pa
Total Annual Tir Cymen Payments			£5,860 pa
Capital Payments			
Fencing for environmental management	1.3km		£1,800
Tree and shrub planting (number)	1,000		£1,250
Special projects (re-profiling ditch)	180m		£500
Total capital payments			£3,550

¹ The Whole Farm Code includes: Retain all existing field boundaries; Retain in good repair all weatherproof farm buildings; Safeguard trees and shrubs; Safeguard water features; Keep farm clear of rubbish.

SSSI Agreement

Agreement detail	Area (Ha)	£ / Ha	Total Payment
Marshy grassland	6.8	218	£1,500 pa
Extensive grazing of salt marsh			£750 pa
Winter grazing: Greenland white-fronted geese	10	75	£750 pa
Total Annual SSSI Payments			£3,000 pa

Environmental impacts of agri-environment schemes on Penmaen Isa

The management of Penmaen Isa resulting from Tir Cymen and the SSSI agreements is unusual in that it requires stocking rates to be increased. Standard agri-environment management practice tends to encourage reductions in stocking levels. However, CCW, after consulting with the local RSPB warden, decided that controlled increases in the stocking density of cattle on the marshland were necessary to create the preferred conditions for wetland birds. It should, however, be noted that the area that the cattle are allowed to graze is strictly controlled using electric fences.

The marshy grassland is managed for breeding lapwings (*Vanellus vanellus*); a UK biodiversity long list species. Lapwings were included on the long list because they have suffered a 25-49 per cent decline in numbers/range in the UK over the last 25 years (UKBSG, 1995). Lapwings like to nest in the open, in short vegetation, with no obstructions to their field of view. This allows them to see approaching predators. The rushes on Penmaen Isa are therefore cut to create a short sward for breeding lapwings. This management has been extremely successful in that it has attracted six pairs of breeding lapwings to the marshy grassland.

A ditch has also been re-profiled so that young lapwings can move from the field in which nesting takes place to the neighbouring field to feed. The original ditch had steep/vertical sides in which young birds were often found dead, presumably because they could not escape. The re-profiling of the ditch will also benefit other wetland species. Sloping banks are more natural and allow for a range of aquatic and semi-aquatic plants. A ditch with good bank vegetation will also be far more attractive to animals such as otters. The re-profiling has only taken place recently, so it will be late spring 2000 before the effect on lapwings can be assessed.

To benefit breeding redshanks (*Tringa totanus*) and other waders on the saltmarsh, intensive grazing with cattle takes place using electric fences to control the areas affected. These birds need a mosaic of long and short vegetation. They like to hide their nests in long vegetation but also need areas of short vegetation for feeding. The trampling caused by the cattle controls the rushes and produces a large number of small puddles (hoof prints). This allows plentiful breeding of various insects which redshanks are then able to feed on. The less intensively grazed areas have long vegetation where the birds are able to nest.

Mr Besent did have plans to treat the rushes on the saltmarsh with chemicals to control them and encourage grasses. Although this would have allowed higher stocking rates, it would have destroyed the mosaic of tall rushes and short grassland which waders such as the redshank need for breeding. The SSSI agreement on Penmaen Isa has been able to protect and enhance this important habitat.

Greenland white-fronted geese (*Anser albifrons flavirostris*) have also benefited from the management of the marshy grassland. In 1998/99, a winter flock of 140 birds visited the farm. It

is believed that this flock is one of only a few that visit the UK each year. Greenland white-fronted geese are an EC Birds Directive Annex 1 species. Under this Directive, Annex 1 species “shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area”.

Tir Cymen funding also allowed the 13 hectares of broadleaved woodland on the farm to be fenced to exclude livestock. Removing grazing encourages woodland ground flora and the natural regeneration of trees. Once the flora has started to recover, the associated fauna will also start to return. Common species such as the speckled wood butterfly (*Pararge aegeria*), wood mouse (*Apodemus sylvaticus*) and bank vole (*Clethrionomys glareolus*) will return quickly as there will be populations nearby. Rarer woodland species may never re-establish themselves because the distance from the nearest population is too great.

Without the Tir Cymen scheme, these woodland areas would still be grazed by stock, thus preventing natural regeneration as the young tree seedlings are eaten. Over time, as trees died and were not replaced, the wooded area would have slowly reverted to grassland.

Economic impact of agri-environment schemes on Penmaen Isa

It is extremely difficult to determine the actual economic impact that the agri-environment schemes have had on Penmaen Isa. The main reason for this is that the farm has intensified its livestock production in order to maintain profitability. Changes in the livestock enterprises include increased sheep and cattle numbers, as well as a change from mountain ewes to heavier lowland ewes. Associated with these changes in livestock numbers has been an increase in annual use of fertiliser from three tonnes to 40 tonnes on improved grassland. Although none of these changes were specifically linked to the agri-environment schemes, it should be noted that the scheme agreements did not prevent the farmer from intensifying his farm.

A measure of the direct economic impact resulting from participation in the agri-environment schemes is based on the income received from the annual payments for the Tir Cymen whole farm code (£2,930) and both the Tir Cymen and SSSI Habitat agreements (£2,717 and £3,000 respectively). Thus the total annual income from the schemes is £8,650. The actual cost of meeting the requirements of these agreements has largely been negligible, since the farmer has not been required to make costly changes to his farming practices or reduce stock numbers. The Tir Cymen capital payments, however, have not provided significant economic benefits for the farm. Of the £1,800 received for fencing, £500 was spent on wire, while posts were made from wood sourced on the farm. Mr Besent undertook all of the fencing work himself. Of the £1,250 received for tree planting, £800 was spent on young trees and protection tubes, the remainder being retained to cover the cost of the farmer labour. The ditch profiling was done by a contractor. Clearly the annual payments received by Mr Besent do make a significant contribution to the farm income; estimated by the farmer to be in the region of 15-20 per cent of annual income.

Partial Budget: The implications of Tir Cymen on Penmaen Isa

Costs		Benefits	
Income lost	£	Income gained	£
		Tir Cymen: whole farm	2,930
		Tir Cymen: Habitat agreement	2,717
		Tir Cymen: capital payments ¹	305
		SSSI agreement	3,000
Total income lost		Total income gained	8,952
New costs		Costs saved	-
Tir Cymen: Capital materials ¹	130		
Total new costs	130	Total Costs saved	8,952
LOSS	130	GAIN	8,952
Net gain associated with participation in Tir Cymen and SSSI = £8,822			

¹ Note that it has been assumed that the capital costs associated with Tir Cymen are spread equally over the ten year life of the agreement.

There are also employment impacts related to participation in the schemes. Mr Besent spent five days undertaking fencing and tree planting work, while contractors were employed for three day re-profiling the ditch.

Summary

Penmaen Isa is an example of a farm that has large areas of important habitats within its boundaries. These habitats, along with the wildlife that it hosts, are recognised as being important in terms of maintaining the biodiversity within the UK. The agri-environment schemes have not only ensured the protection of these habitats, but also allowed them to be managed in a way that improves them for wildlife. Indeed, significant increases in the numbers of various bird species, including lapwing and Greenland white-fronted geese, have been seen on Penmaen Isa. Without the aid of these schemes, it is likely that these important habitats would have been lost.

A FARM IN SOUTH WALES

This farmer has requested that his name and address be withheld.

This farm is a 47-hectare upland sheep and beef farm situated in south Wales. The farm has a traditional landscape of small fields bounded by hedgerows. The farm entered Tir Cymen in 1992. Through this scheme, the field boundaries, which had been largely neglected over recent years, have been brought back into management, creating improved habitats for wildlife. Also, the scheme has required a reduction in stocking density on the farm's unimproved grassland. This has resulted in an increase in flowers and butterflies in these areas. In addition to these environmental benefits, the Tir Cymen scheme also has significant social impacts in that the income from the scheme is equivalent to a quarter of the farm's annual income.

The Farm

	Pre-scheme	Now
Total area of Farm	47.6 hectares	47.6 hectares
Improved grassland	10.0 hectares	10.0 hectares
Unimproved grassland	35.6 hectares	35.6 hectares
Broadleaved woodland	2.0 hectares	2.0 hectares
LFA DA	47.6 hectares	47.6 hectares
Beef enterprise		
Sucker cows	20	20
Store cattle	20	-
Calves	20	20
Bull		
Sheep enterprise		
Ewes	250	150
Ewe lambs	-	-
Lambs	375	150
Performance indicators		
Lambs / ewe	150 per cent	100 per cent

The Farmer

The farmer has farmed this farm for around 20 years. He lives on the farm with his wife and two teenage children. He very much enjoys working on the farm and wishes to maintain it as a commercial entity. Although he would be happy to pass his farm onto his son, due to the concerns regarding the future financial viability of farming, he would insist that he also have another trade to fall back on. The farmer's wife currently works as a nurse, and her income is regarded as an essential component of family income.

Agri-environment schemes on the farm

The farm has been in Tir Cymen since its introduction in 1992. The farmer joined the scheme primarily for the extra income associated with it, but also for the conservation interest. He sees the scheme as providing benefits to both the farm infrastructure in terms of helping to maintain field boundaries, and to the environment in terms of creating and maintaining habitats for wildlife.

Tir Cymen Agreement

Agreement detail	Quantity	£ / Ha	Total Payment
Whole farm code ¹	47.6 hectares	20	£952 pa
Habitat and feature agreement			
Unimproved grassland (marshy grassland)	1.4 hectares	80	£116 pa
Broadleaved woodland (existing)	2 hectares	52	£105 pa
Winter grazing (Turnips for birds)	2.4 hectares	275	£657 pa
			£878 pa
Total Annual Tir Cymen Payments			£1,830 pa
Capital Payments			
New hedges	80m		£120
Hedge restored/rejuvenated	2,346m		£3,519
Fencing for environmental management	4,462m		£6,247
Gates and styles	1		£130
Total Capital Payments over 10 years			£10,016

¹ The Whole Farm Code includes: Retain all existing field boundaries; Safeguard trees and shrubs; Safeguard water features; Keep farm clear of rubbish.

Environmental impacts of Tir Cymen on the farm

The farm is an upland sheep and beef farm that has retained its traditional farm landscape of small fields bounded by hedgerows. The farm's average field size is around 1.2-1.6 hectares, while the largest field is only 2.8 hectares. The majority of grassland (80 per cent) is unimproved, and only 10 hectares of it has been improved.

Before joining Tir Cymen, the farmer had started on a programme of drainage and reseeded on the unimproved land to make his farm more productive. This, along with increases in fertiliser inputs, would have allowed higher stocking densities. Many of the farm's hedges were in bad condition prior to entry into Tir Cymen, as the farmer could not afford to manage them. The farmer had planned to remove over half of these hedges to create larger fields. Alder thickets, which are scattered along the boundaries, had also been due to be removed. Since joining the Tir Cymen scheme, all the planned agricultural improvements have stopped.

The Tir Cymen scheme required stocking levels, as well as fertiliser applications, to be reduced on the grassland. The farmer has noticed that this has led to an increase in the number of flowers and butterflies in the area of marshy grassland, but has not yet noticed any visible changes in the larger area of unimproved grassland. This agreement adheres to the advice provided in the UK Biodiversity Action Plan for lowland hay meadows.

During the eight years of the Tir Cymen agreement, 2.3km of neglected hedgerow has been coppiced and laid, and an additional 80m of new hedge planted. To protect all these hedges from stock, 3.2km of fencing has been erected. A further 1.2km of fencing has been put up to protect areas of alder (*Alnus glutinosa*) thicket from grazing by stock. The farmer has noticed that these 1m buffer strips along the hedgerows have led to an increase in the numbers of flowering plants along the hedges. The hedgerow work undertaken on the farm has contributed towards the UK Biodiversity Action Plans for Ancient and/or species-rich hedgerows, and the Welsh BAP for hedgerows.

As part of the Tir Cymen agreement, the farmer now also grows 2.4 hectares of turnips as a fodder crop. This also provides winter feeding areas for birds such as linnet (*Carduelis cannabina*) and yellowhammer (*Emberiza citrinella*), as well as mammals such as brown hare (*Lepus timidus*). Linnet (UKBG, 1998) and brown hare (UKBSG, 1995) are both listed as priority species under the UK Biodiversity Action Plans.

Since joining Tir Cymen, the farmer has noticed that the condition of the livestock has improved. He believes this is due to the decrease in stocking density. The Tir Cymen agreement on the farm demonstrates that agri-environment schemes can also provide benefits to agricultural systems as well as the environment.

Economic impact of Tir Cymen on the farm

Tir Cymen has had two main implications for this farm: the requirement to reduce stocking density and the maintenance of field boundaries.

The management agreements for the marshy grassland and unimproved grassland required the farmer to reduce the number of stock grazing these areas. This has meant that sheep numbers have had to be reduced from 250 ewes to 150 ewes. The result of this is that the farm has lost the income from the sales of this livestock as well as the subsidies associated with them (£6,002). This loss has been partly offset by the Tir Cymen agreements (£1,830) and also the Extensification Premium that the farmer is now eligible for (£580) and savings associated with reductions in fertiliser use (£1,530). However, it is clear that these savings do not cover the income lost from reducing livestock numbers.

The farmer will receive £10,016 for the fencing and hedging work over the 10 years of the scheme. He has estimated that around £7,000 of this money will be spent on materials, with the remainder going towards the costs of his labour. He has calculated that from this money, he is paid around £0.70 per hour for his labour.

The partial budget (below) demonstrates that participation in Tir Cymen results in a reduction in annual income of around £1,761. This indicates that the level of the Tir Cymen compensation payments is not sufficiently high to cover the farmer's expenditure on environmental management activities required by the scheme. There are, however, a number of other benefits from participation in the scheme that have not been taken into account in the partial budget. These include improvements to field boundaries, a reduction in workload associated with the livestock enterprises, a reduction in vet bills and possibly higher prices for stock due to their improved

condition and the environmental benefits. In addition, the general public also benefits from the scheme through the creation of new access routes through the farm.

Partial Budget: The implications of Tir Cymen on the farm

Costs		Benefits	
Income lost	£	Income gained	£
225 lambs @ £17.5	3,937	Tir Cymen: Whole farm	952
HLCA (100 ewes) @ £2.65	265	Tir Cymen: Habitat agreement	878
SAPS (100 ewes) @ £18.00	1,800	Tir Cymen: Capital payments ¹	1,001
		Extensification premium	580
Total income lost	6,002	Total income gained	3,411
New costs		Costs saved	
Capital materials	700	Fertiliser 17 t @ £90	1,530
Total new costs ¹	700	Total Costs saved	1,530
LOSS	6,702	GAIN	4,941
Net financial loss associated with participation in Tir Cymen = £ 1,761			

¹ Note that it has been assumed that the capital costs associated with Tir Cymen are spread equally over the ten-year life of the agreement.

Summary

This farm is an example of a typical Welsh upland sheep and beef farm. One of the most interesting features of the farm is its traditional landscape of small fields bounded by hedgerows. Unfortunately, many of these hedges had fallen into disrepair. Furthermore, the farmer had plans to remove many of the hedges in an attempt to allow more efficient management. The Tir Cymen agreement, which was signed in 1991/92, provided incentives to change this situation. The hedges are now protected under the whole farm code, and are now managed for wildlife. The Tir Cymen scheme has also required a reduction of stocking on the farm's unimproved grassland. This has allowed these areas to sustain a greater diversity of plant species and associated wildlife. It is evident that the Tir Cymen agreement on the farm has both safeguarded and enhanced these fragile habitats, and thus has made a contribution to achieving the objectives of the UK and Welsh Biodiversity Action Plans.

ABER HYDDNANT FARM

Farmer: Mr Paul Matthews,
 Address: Aber Hyddnant, Crai, Brecon, LD3 8LS
 Telephone: 01874 636797

Aber Hyddnant is a 90-hectare upland beef and sheep farm that lies within the Brecon Beacons National Park. The farm contains a number of interesting features and habitats that, if managed properly, would generate significant wildlife benefits. Mr Matthews applied to Tir Gofal in 1999 with the intention of managing his farm in an environmentally sensitive manner. The proposed environmental work included the management of a series of streams and ponds, and also the conversion of six hectares of semi-improved grassland to unimproved grassland. However, his application failed to attain a high enough rank for selection and was therefore rejected. The consequence of this rejection is that the farm's resident populations of otters and brown hare will not benefit from the habitat enhancement programmes, thus potentially putting these protected species at risk. Otters are listed in Annex II of the EU Habitats Directive, while both the otter and brown hare are UK biodiversity priority list species. The rejection of the Tir Gofal application has also forced Mr Matthews to find alternative off-farm employment to help maintain his income. The result of this is that he now farms Aber Hyddnant on a part-time basis. In December 1999, extra funds were allocated to Tir Gofal, enabling additional farms, including Aber Hyddnant, to be accepted into the scheme.

The Farm

Total area of Farm	90.7 hectares
Crop area	5.0 hectares
Improved grassland	62.1 hectares
Unimproved grassland	15.6 hectares
Broadleaved woodland	6.0 hectares
Conifer woodland	2.0 hectares
LFA DA	90.7 hectares
Hill common land	62.0 hectares
Beef enterprise	
Sucker cows (no.)	26
Heifers (no.)	18
Store cattle (no.)	8
Calves (no.)	2
Sheep enterprise	
Ewes (no.)	480
Ewe lambs (no.)	120
Lambs (no.)	
Performance indicators	
Lambs / ewe (per cent)	100 per cent

The Farmer

Mr Matthews (38 years old) has owned Aber Hyddnant farm since 1983. For most of the year, he farms Aber Hyddnant by himself. He does, however, use contractors to undertake harvesting and muck spreading work, and employs a student to help with the lambing. Mr Matthews has wanted to be a farmer all of his life and he enjoys his work. He considers that a good farmer is someone who produces high quality products, whilst also being sensitive to the environment and the welfare of livestock. He also suggests that to make money in farming today, farmers have to be aware of the market, and be able to 'work the system' to take advantage of the subsidies that are available.

Although Mr Matthews would like to continue to farm in the future, the recent problems facing UK agriculture are placing him under increasing financial pressures. Indeed, Mr Matthews had hoped that a successful Tir Gofal application would ease these pressures. However, his application was initially rejected and, as a result, he has been forced to find alternative employment. In his new job, Mr Matthews will be working three days a week, sourcing organic beef in Wales for a national supermarket chain. He will, however, continue to farm, but now only on a part-time basis.

Agri-environment schemes on Aber Hyddnant

Aber Hyddnant is currently entered into a number of agri-environment schemes. In 1996, the farm signed up to the Habitats scheme to manage 10 hectares of species-rich grassland. More recently, 0.75 hectares of woodland have been entered in the Woodland Grant scheme. However, a dispute over payments for fencing work has meant that no work has yet been carried out under this scheme. In 1999, the farm started a programme of conversion to organic farming under the Organic Aid Scheme.

Although these existing schemes have both economic and environmental benefits, the Habitat scheme only targets set habitats, while the Organic Aid Scheme, which covers the whole farm, does not provide incentives for environmental work such as hedging and stream corridors. To enable a more comprehensive programme of environmental work to be undertaken on his farm, Mr Matthews applied to join Tir Gofal in 1999. However, his application was initially rejected, and consequently, the opportunity to enhance the habitats on Aber Hyddnant for the benefit of wildlife appeared to have been lost. The extent of this lost opportunity is now assessed.

Tir Gofal Agreement

Agreement detail	Quantity
Whole farm section	90.7 hectares
Landscape features: river, pond,	5
Non-designated historic features (no.)	2
Traditional farm buildings (no.)	2
Unimproved grassland	15.6 hectares
Semi-improved grassland	6.0 hectares
Broadleaved woodland	2.7 hectares
Voluntary section	
Converting semi-improved to unimproved grassland	6.0 hectares
Creating a buffer zone next to watercourses	400m
Growing undersown spring cereals without insecticide	5.0 hectares
Establish new broadleaved woodland	1.4 hectares
Establish new streamside corridors	250m
New footpath	1,000m
Access for educational purposes	90.7 hectares

The potential environmental losses resulting from Aber Hyddnant's unsuccessful Tir Gofal application

Aber Hyddnant has several interesting features and habitats that would have been managed for environmental purposes under the Tir Gofal scheme. On the farm, there are a number of small ponds that are linked by a series of streams. These stream corridors host some wetland vegetation such as rushes, as well as scattered trees. At present these watercourses are unfenced, enabling grazing to take place up to the water's edge. Such grazing removes most streamside vegetation and consequently results in a loss of cover for wildlife. In his Tir Gofal application, Mr Matthews had been prepared to establish 250m of new streamside corridors and 1.4 hectares of new broadleaved woodland. Most of this woodland would have been situated along the streams. Both of these management projects would have allowed streamside vegetation to recover from grazing, thus providing cover for animals such as otters. While otters are able to move across open country, they prefer to keep to well vegetated stream corridors. One of the actions within the UK Biodiversity Action Plan for otters is to "*Seek to ensure management agreements and incentive schemes take account of the requirements of otters in occupied areas*". Clearly the rejection of Mr Matthews' Tir Gofal application went against the advice of this action plan.

Aber Hyddnant comprises 32 fields, all of which are surrounded by traditional hedge boundaries. Many of these boundaries have been damaged as a result of grazing and trampling associated with high stocking densities used in modern farming. The high costs involved in maintaining these boundaries has, sadly, meant that Mr Matthews has been unable to afford to undertake essential maintenance work. Mr Matthews had not proposed any specific hedgerow restoration in his Tir Gofal application, as he did not think that the payments would have covered the expenditure required. However, the hedges would still have benefited from the Tir

Gofal whole farm agreement, which requires that all traditional boundaries be retained with a one-metre buffer strip. This buffer strip would have helped in protecting the hedges from further damage from livestock grazing and trampling, as well as allowing the vegetation along the hedge to recover. This taller vegetation is essential for the protection of the brown hares resident on Aber Hyddnant in that it provides areas for them to rest and raise their young. The Welsh Biodiversity Action Plan for brown hare mentions that agri-environment initiatives should encourage farmers to maintain suitable habitats for these animals.

The protection of the hedges would also have improved the habitat so that it could support a greater diversity of species such as the field vole (*Microtus agrestis*). The thicker hedges would also encourage small birds such as wren (*Troglodytes troglodytes*), blue tit (*Parus caeruleus*) and blackbird (*Turdus merula*). While all these species may be common, they also provide food for animals higher up the food chain such as the barn owl (*Tyto alba*) and sparrowhawk (*Accipiter nisus*).

Mr Matthews was also prepared to convert six hectares of semi-improved grassland to unimproved grassland. This would have involved stopping all fertiliser and pesticide applications. Over time, the nutrient levels in the soil would decrease from the artificial levels created by fertiliser inputs. This would allow more grass and herb species typical of neutral soils to compete with the highly competitive agricultural species such as perennial rye-grass and white clover, which tend to dominate improved grassland. By encouraging species diversity in unimproved grassland, habitats are created that support a wide variety of insects and larger species. Thus, again an opportunity to enhance Wales' biodiversity has been lost.

Although the 10 hectares of unimproved grassland is already managed under the Habitat Scheme, this agreement expires in 2004. Acceptance into Tir Gofal would have ensured that this habitat was protected for a further five years. UK lowland meadows BAP targets are to “*arrest the depletion of unimproved lowland hay meadow throughout the UK*” and “*secure favourable condition over 30 per cent of the resource by 2005, and as near to 100 per cent as is practicable by 2015*”. As lead partners in this action plan, CCW and WOAD have to take into account the requirements of lowland meadows in the development of agri-environment schemes. This presumably also puts the obligation on them to try and reach that 100 per cent cover by 2015.

The rejection of Aber Hyddnant's Tir Gofal application has meant that two UK and Welsh BAP species, the brown hare and the otter, would not be given the protection that they deserve. The otter, more importantly, is an Annex II species of the EU habitats directive. Both these species would benefit from the management that had been in the Tir Gofal application.

The economic implications of rejection from Tir Gofal

It is estimated that Mr Matthews would receive around £6,000 income per year from his Tir Gofal application. Most of this would, however, be offset by the lost income associated with reductions in the number of livestock on the farm required by the scheme. Further income would also be attained through grants for capital work. However, the majority of this income would have to be spent on materials. It is clear that Mr Matthews, like most other farmers, is unlikely to make substantial increases in farm income from Tir Gofal. However, during a period where livestock prices are low and unstable, Mr Matthews would have very much welcomed the opportunity to gain a secure source of income, which the Tir Gofal scheme would have provided.

Mr Matthews had hoped that Tir Gofal would have helped to supplement the low income that he currently receives from the farm. However, his rejection from the Tir Gofal scheme has meant

that he has now had to undertake additional employment off the farm, and only farm on a part-time basis.

Summary

Aber Hyddnant is an example of an upland livestock farm that has two threatened species within its boundaries; the otter and the brown hare. Tir Gofal offers an opportunity to enhance the farm's environment for these species. However, the lack of funds for the scheme has meant that important habitats will continue to be lost, thus threatening the existence of these endangered animals. The Welsh and UK Biodiversity Action Plans for the otter and brown hare specifically state that schemes such as Tir Gofal should be used to take account of the requirements of these species. There is, however, some good news. As a result of the extra funding for Tir Gofal, Mr Matthews' application was accepted in the second round of offers. The result of these additional funds is that the environmental work outlined in the Aber Hyddnant Tir Gofal application will now be undertaken. This case study thus provides a very interesting example that demonstrates the significant benefits that can be gained from increasing funds to agri-environment schemes.

RHYDLANFAIR FARM

Farmer: Mr Richard Williams
 Address: Rhydlanfair farm, Betws-y-Coed, LL24 0SS
 Telephone: 01690 710267

Rhydlanfair is a 231-hectare upland livestock farm in Snowdonia National Park. Almost half of the farm is currently managed under existing agri-environment agreements. This includes 150 hectares of dwarf shrub heath; which is recognised as being of international importance and consequently listed as a UK Biodiversity Action Plan habitat. In 1999, Mr Williams planned to extend the scope of environmental management on his farm by applying for entry into the Tir Gofal agri-environment scheme. In his application, Mr Williams had proposed to enhance existing, and create new, habitats on his land. In addition to the general benefits to wildlife, the agreement also proposed to manage an area of grassland for the benefit of lapwings; a bird species listed as a high priority species by the RSPB. Unfortunately, the Tir Gofal application was rejected, and thus the opportunity to further promote wildlife on Rhydlanfair was lost.

The Farm

Total area of Farm	231.0 hectares
Improved grassland	80.6 hectares
Semi-improved grassland	25.0 hectares
Unimproved grassland	1.3 hectares
Broadleaved woodland	3.1 hectares
Unimproved open hill (heather and other dwarf shrubs)	121.0 hectares
LFA DA	13.0 hectares
LFA SDA	218.0 hectares
Beef enterprise	
Sucker cows (no.)	36
Heifers (no.)	25
Store cattle (no.)	20
Calves (no.)	
Sheep enterprise	
Ewes (no.)	950
Ewe lambs (no.)	250
Lambs (no.)	30
Performance indicators	
Lambs / ewe (per cent)	100 per cent

The Farmer

Rhydlanfair comprises 121 hectares of land owned by Mr Williams and an additional 110 hectares that is rented from the National Trust. The farm has been in the Williams family for several generations. Mr Williams (56 years old) took over the farm from his father nearly 36 years ago, and is now planning to pass the farm on to his son, who currently works on the farm. Mr Williams' main objective over the next few years is to pay off his debt so that he can pass the farm on in a healthy financial state. He would also like to expand the farm as improvements in machinery have meant that farming has, to some extent, become a part-time job. Thus, he considers that expansion is necessary to ensure that he has a farm that is of a viable financial size for his son. To help maintain a reasonable standard of living and provide him with a pension, Mr Williams has several tourist cottages on his farm. This, along with his wife's part-time job as a physiotherapist, provides an extremely important source of additional income for the family.

Agri-environment schemes on Rhydlanfair

Rhydlanfair has two areas that are currently managed for the benefit of the environment. The first is a small area of wetland, part of which is also designated as an SSSI. Since 1996, the wetland area has been managed as a water fringe habitat under a Habitat Scheme agreement.

In 1990, Mr Williams had applied for a Farm Conversation Grant Scheme (FCGS) grant to lime and reseed the mountain land on his farm. The mountain land comprises dwarf shrub heath, dominated by blueberry (*Vaccinium myrtillus*). Dwarf shrub heaths are recognised as being of international importance because they are largely confined within Europe to the British Isles and the western seaboard of mainland Europe (UKBG, 1999). Upland heathland is a UK BAP habitat for which a costed action plan has been produced. If Mr Williams had limed and reseeded this land, this important habitat would have been lost. However, when the National Park Authority heard of Mr Williams FCGS application, they approached him with an alternative management agreement that required Mr Williams to withdraw his FCGS application and then to reduce the number of stock on the mountain. Mr Williams accepted the National Park Authorities management agreement, and the dwarf shrub heath is now thriving on the mountain.

In 1999, Mr Williams applied to join Tir Gofal but, due to lack of funding, his application was rejected. A summary of his Tir Gofal application is reproduced below.

Tir Gofal Agreement

Agreement detail	Quantity
Whole farm section	231 hectares
Landscape features: rock outcrops rivers	
Scheduled Ancient monuments (no.)	2
Non-designated historic features (no.)	1
Traditional farm buildings (no.)	10
Unimproved open hill (Heather and other dwarf shrubs)	121 hectares
Enclosed land: unimproved	1.3 hectares
Enclosed land: semi-unimproved	25.0 hectares
Broadleaved woodland	3.1 hectares
Parkland	4.8 hectares
Voluntary section	
Restore traditional field boundaries	750m
Converting grassland	15.0 hectares
Creating a buffer zone next to watercourses	200m
Increasing water levels	15 hectares
Establish new streamside corridors	200m
New area access	151 hectares
Access for educational purposes	40 hectares

The lost environmental benefits resulting from the unsuccessful Tir Gofal application. The Tir Gofal application for Rhydlanfair farm included a number of measures to protect and enhance important habitats and features. The farm has 3.1 hectares of broadleaved woodland that is currently unfenced and therefore grazed by stock. Under Tir Gofal, this woodland would have been fenced off to exclude stock. This would have allowed the woodland ground flora to develop, and the natural regeneration of trees to occur. This would encourage the return and increase the diversity of woodland fauna such as the speckled wood butterfly, wood mouse or the song thrush (*Turdus philomelos*).

Additional parkland would also have been created on a 4.8-hectare area of improved grassland, on which there is currently a scattering of trees. The management agreement would have required stocking levels to be reduced to 1.5 livestock units per hectare per year and also replacement saplings to be planted. This would have maintained and encouraged the development of a diverse habitat. Features of less intensively managed parkland would be retained, such as leaving deadwood *in situ*. Deadwood provides a habitat for a range of fungi and invertebrates, which in turn provide food for other animals. The rejection of Mr Williams's Tir Gofal application has meant that these woodland and parkland habitats will not be created.

In his application, Mr Williams was also prepared to restore between 500 and 999m of hedge. Properly managed hedgerows with good ground flora provide shelter for a wide range of small birds and mammals. They also provide corridors linking woodlands and other semi-natural habitats, along which animals can move.

Between 1984 and 1990, one quarter of the total length of Welsh hedgerows was lost. Lack of management was responsible for destroying more hedgerows than removal (CCW, 1997). In the UK, the Biodiversity Action Plan for ancient and/or species-rich hedgerows aims to '*halt the net loss of species-rich hedgerows through neglect and removal by the year 2000, and all loss of hedgerows which are both ancient and species-rich by 2005*' (UKBSG, 1995).

Mr Williams had also proposed to create a 200m buffer zone along one of the farm's watercourses, and to establish a new streamside corridor along another 200m section of stream. The streams are currently grazed up to the waters' edge. This means that there is only short grass on the streams' banks, and very little vegetation in the stream. The reduction in grazing required under the Tir Gofal agreement would allow the streamside vegetation, which includes wetland species such as rushes, to grow taller and become more abundant. In addition, the vegetation that is actually growing in the stream would also increase. This would provide more feeding for insects and would encourage fish by providing hiding places and food. This in turn would encourage birds such as dippers (*Cinclus cinclus*) and kingfisher (*Alcedo atthis*).

There is also a 15-hectare area of grassland where lapwings breed, which Mr Williams was offering to manage for the benefit of these birds. The lapwing is an RSPB high priority species because of a dramatic fall in numbers. Populations of lapwings halved in Wales between 1987 and 1993 (RSPB, 1998). With proper management, it is hoped that the number of breeding lapwings would increase on Rhydlanfair farm. The rejection of Mr Williams' Tir Gofal application means that lapwings are once again denied the protection that they require.

Finally, Mr Williams was also prepared to open up 150 hectares of mountain land for public access. Such public access is extremely important to areas in a National Park.

Economic implications

Mr Williams is acutely aware of the financial pressures affecting agriculture today. In response to this pressure, he has converted a number of farm buildings into holiday cottages. This diversification provides him with an important second income, and in the longer-term, will provide him with a reasonable pension.

It is estimated that Mr Williams would receive around £18,500 income as annual payments under the Tir Gofal scheme, with additional money for capital works. Mr Williams stated that one of his main objectives over the next few years was to pass his farm to his son with a healthy state of finances. He had hoped that Tir Gofal would help him to fully achieve this objective.

Summary

Rhydlanfair is an example of a farm that has had its Tir Gofal application rejected. The consequence of this is that a number of important habitats that exist on the farm will not be protected. In particular, Rhydlanfair farm's Tir Gofal application would have contributed towards the aims of the Hedgerow Biodiversity Action Plan, as well as encouraging the protection of lapwings, an RSPB high priority species. This opportunity to support biodiversity on Rhydlanfair has now been lost. This will have knock-on consequences for his plan to pass the farm to his son. The rejection of Mr Williams' Tir Gofal application has clearly resulted in major implications for both the environment and the farmer.

4 Economic analysis

This section of the report provides an assessment of the extra funding required to enable Tir Gofal to make a significant contribution to the protection and enhancement of biodiversity in Wales. A prediction of the socio-economic benefits that the Tir Gofal scheme can provide to Welsh farmers is also made.

TIR GOFAL PARTICIPATION TARGETS TO MEET ENVIRONMENTAL OBJECTIVES

To be eligible for Tir Gofal, farms must be greater than three hectares in size and not already participating in the Tir Cymen or ESA schemes. In Wales, there are approximately 27,000 farms, of which 20,000 are larger than three hectares. Three thousand of these farms currently hold Tir Cymen or ESA agreements². Thus the potential market for Tir Gofal is between 17,000 and 20,000 agreements. It is, however, unrealistic to expect, or even aim for, all eligible farms to be entered into the scheme. It is therefore proposed that a realistic target level of uptake for Tir Gofal should be 50 per cent of the eligible farms, ie between 8,500 and 10,000 agreements, after 10 years. This figure is based on advice from CCW (Parker & Pawson 1999) and also related to the fact that the uptake of Tir Cymen (which was regarded as a successful scheme) was 47.2 per cent of the total eligible area. Thus the following analysis will be based on a target participation level of 8,500 to 10,000 Tir Gofal agreements.

TIR GOFAL FUNDING REQUIREMENTS

Tir Gofal is currently funded through the Welsh Assembly's Rural Development Plan. Initially, £3.2 million was allocated to Tir Gofal, enabling 300 agreements to be made at an average annual cost of £10,666 per agreement. This was later increased by £2.3 million, enabling an additional 300 agreements to be made at an average cost of £7,667 each³. **Thus, in the first year of the Tir Gofal, £5.5 million will be used to fund around 600 agreements: the average cost of each agreement is expected to be £9,166 per farm.**

² It should be noted that, in the longer-term, farms that are currently signed up to these scheme will be eligible to join Tir Gofal once their existing agreements have terminated.

³ The difference in the average costs of agreements outlined above can be explained due to the fact that the farms entered into the first round of agreements represented those farms that offered the highest levels of environmental benefit and therefore were more costly to fund than farms with a lower environmental ranking (Agricultural and Rural Development Committee, 2000).

In December 1999, Mr Nick Brown, the Minister for Agriculture, announced a proposal that the Agricultural Departments in the UK should use their discretionary powers that now exist following the Agenda 2000 CAP reform (EU Regulation 1259/1999) to modulate production subsidies to provide extra funding for rural development measures. In Wales, these measures are outlined in the Welsh Rural Development Plan. The proposed modulation would be introduced at 2.5 per cent in 2001/02, gradually rising to 4.5 per cent by 2005/06⁴. It is estimated that modulation would release around £39 million in Wales over six years to 2006/07 (Table 1). In addition, the UK Treasury has pledged, subject to the outcome of the forthcoming spending round, to match fund this money. It is therefore estimated that an extra budget of around £78 million could be available to the Welsh Assembly to spend on its Welsh Rural Development over the next six years (Table 1). The total budget for the Plan will therefore be increased from £374.5 million in 2000/01 to £452.5 million in 2006/07.⁵

It is proposed that, of the extra £78 million raised through modulation, £18.5 million will be targeted to the Tir Gofal agri-environment scheme, and £29 million to the Organic farming scheme. This brings the total expenditure on these two schemes over the period 2000/01 to 2006/07 to £108.9 million and £33.5 million respectively (Table 2). Expenditure on the other agri-environment schemes is not set to change as a result of modulation and will remain at £55.9 million. **The annual expenditure on Tir Gofal will increase from £5.5 million in 1999/2000 to £21.4 million in 2006/07. The total expenditure on Tir Gofal over the period to 2006/07 is predicted to be £114.4 million.**

Table 1: Modulation and match funding in Wales 2001 – 2006

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	Total
Rate of Modulation (per cent)	2.5	3.0	3.5	3.5	4.5	4.5	
Funds from Modulation (£m)	4.1	5.1	6.1	6.4	8.5	8.8	39.0
Funds from UK Government (£m)	4.1	5.1	6.1	6.4	8.5	8.8	39.0
Total additional funding for Welsh RDP (£m)	8.2	10.2	12.2	12.8	17.0	17.6	78.0
Additional funding earmarked for Tir Gofal (£m)	-	1.5	3.5	4.0	4.5	5.0	18.5

A prediction of the number of Tir Gofal agreements that current funding could achieve each year was estimated by dividing the annual expenditure allocated to Tir Gofal by the average annual cost (£9,166) of an agreement (Table 2). It is predicted that by 2006/07 the current allocation of funds to Tir Gofal would enable 2,335 agreements to be made. This accounts for only a quarter of the target of 8,500 to 10,000 agreements outlined earlier. Based on the average annual expenditure of £9,166 per agreement, it is estimated that it would cost between £77.91 million to £91.66 million per annum to attain the target of 8,500 to 10,000 Tir Gofal agreements respectively (Table 3). It is thus argued that the budget allocated to Tir Gofal would need to be increased four-fold in order to meet the scheme's environmental target.

⁴ It should be noted that the maximum permissible rate of modulation under EU Regulations is 20 per cent.

⁵ A detailed analysis of the impact of modulation in Wales can be found in the Welsh Assembly's Agricultural and Rural Development Committee's (2000) consultation paper '*Modulation of Farm Subsidies*'.

Table 2: Predicted expenditure and uptake of Tir Gofal.

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	Total
RDP expenditure on Tir Gofal (before modulation) £m	5.5	7.5	10.9	12.4	13.4	14.4	15.4	16.4	95.9
Additional funding for Tir Gofal from modulation (£m)	-	-	-	1.5	3.5	4.0	4.5	5.0	18.5
RDP expenditure on Tir Gofal (including modulation) ¹ (£m)	5.5	7.5	10.9	13.9	16.9	18.4	19.9	21.4	114.4
Number of agreements per year ²	600	818	1189	1516	1844	2007	2171	2335	
Number of new agreements per year ³	600	218	371	327	327	164	164	164	2335

1 Note that the 'Total' RDP expenditure quoted here (£114.4 million) is based on the predicted £108.9 million earmarked for Tir Gofal over the periods 2000/01 to 2006/07 plus the £5.5 million spend during 1999/2000.

2 The number of agreements funded each year was estimated by dividing the RDP expenditure on Tir Gofal with the average annual cost of an agreement (£9,166).

3 The estimate of the number of new Tir Gofal agreements made each year was based on the marginal increase in funding for the scheme.

Table 3: Total annual estimated expenditure on Tir Gofal to achieve targets of 8,500 and 10,000 agreements.

	8,500 Agreements	10,000 Agreements
Average Agreement Cost: £7,667	£65.17 million	£76.67 million
Average Agreement Cost: £9,166	£77.91 million	£91.66 million
Average Agreement Cost: £10,667	£90.67 million	£106.67 million

SOCIO-ECONOMIC BENEFITS OF AGRI-ENVIRONMENT SCHEMES

In 1995, ADAS undertook an assessment of the socio-economic effects of Tir Cymen. The report indicates that Tir Cymen increased the incomes of participating farms by an average of £1,616 per year. The ADAS report also estimated that Tir Cymen generated 29 days of environmental work per year on each of the sample farms, as well as safeguarding another 19 days of environmental work that was already being carried out on farms. Extrapolating these estimates, they suggest that, during the first five years of the scheme, Tir Cymen would have generated the equivalent of 154.4 person years of work.

Assuming that the socio-economic impacts of Tir Gofal are similar to those generated from Tir Cymen⁶, the following predictions can be made. During the first year of Tir Gofal, just under £1 million in extra income will be generated for the 600 participating farmers. By 2006, the extra income generated for participating farmers will be increased to approximately £3.7 million per

⁶ This assumption is based on the fact that the two schemes are reasonably similar in terms of the management agreements that they offer and the levels of payment.

year. In terms of employment generation, Tir Gofal should generate 17,400 days work (or 67 person years of work⁷) on environmental projects during the first year of the scheme and 67715 days (or 260 person years of work) in 2006/07.

It was argued above that Tir Gofal should aim to attract 10,000 farmers into the scheme. The annual cost of meeting this target was estimated to be around £91.66 million per annum. It is estimated this investment in Tir Gofal would generate £16 million income per annum for Welsh farmers and around 1,115 person years of environmental work. For comparison, total net farm income from Welsh agriculture was estimated to be £202 million in 1998, while farm employment was around 63,000. Clearly, investment in Tir Gofal would generate significant socio-economic benefits to the Welsh economy.

⁷ It is assumed that a person year is equivalent to 260 days work.

5 Conclusions

Tir Gofal was launched in 1999 as the innovative new all-Wales agri-environment scheme. The scheme provides farmers with annual compensation payments for mandatory compliance with a code of good environmental practice on the whole farm, and also for the protection and management of key habitats. In addition, farmers can select from a range of voluntary options for the restoration or creation of important habitats and features. One-off payments are also available to cover the costs of specific work designed to protect and manage the habitats and features.

The UK government has a legal obligation, under the EU Habitats and Birds Directives, to protect threatened habitats and species. To meet these biodiversity obligations, Biodiversity Action Plans have been developed. In Wales, there are 12 habitat and 54 species Biodiversity Action Plans. The measures that have been incorporated into the Tir Gofal agri-environment scheme aim to protect and enhance nine of these threatened habitats. This report has demonstrated, using examples from the four case study farms, how Welsh agri-environment schemes have contributed towards the protection and enhancement of four threatened habitats (dwarf shrub heath, broadleaved woodland, lowland meadows, hedgerows) and at least four protected species (including otter, brown hare, Greenland white-fronted geese, and lapwing). Around 80 per cent of Wales is classified as agricultural land. Clearly, the biodiversity that exists on Welsh farms must be protected if the UK's biodiversity obligations are to be met. Agri-environment schemes provide a mechanism to achieve this objective.

The annual budget set aside for Tir Gofal is currently set at £5.5 million, rising to £16.4 million in 2006/07. This budget currently accounts for only three per cent of the total direct farm subsidies in Wales. Further funding from modulation is expected to provide an additional £18.5 million for Tir Gofal over the five year periods to 2006/07. It is predicted that these allocated funds will enable around 2,335 Tir Gofal agreements to be made on Welsh farms. It has been estimated that 10,000 agreements are required to meet Tir Gofal's biodiversity targets. To achieve this target, funds allocated to Tir Gofal need to be increased four-fold. This report therefore recommends that the government makes a greater commitment to agri-environment schemes.

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Arian sy'n cyfannu cylch y rhod yng nghefn gwlad

*Y ddadl o blaid gwario mwy ar
gynlluniau cefn gwlad yn
Nghymru*

Adroddiad gan WWF-UK
Mike Christie a Steve Adams
Mai 2000



Astudiaethau Gwledig, Prifysgol Cymru, Aberystwyth; mae Mr Steve Adams yn rheolwr prosiect amgylcheddol sy'n gweithio i Environmental Consultants yn Truro, Cernyw.

Rhestr gynnwys

- 1 Crynodeb gweithredol
- 2 Cynlluniau amaethyddol-amgylcheddol yng Nghymru
- 3 Ffermydd astudiaeth achos
Fferm Penmaen Isa
Fferm yn ne Cymru
Fferm Aber Hyddnant
Fferm Rhydlanfair
- 4 Dadansoddiad economaidd
- 5 Casgliad
- 6 Llyfryddiaeth

1 Crynodeb gweithredol

NOD YR YMCHWIL

Nod yr adroddiad hwn yw adolygu cynlluniau amaethyddol-amgylcheddol yng Nghymru ac asesu i ba raddau y maent yn cyflenwi budd amgylcheddol a budd cymdeithasol-economaidd.

ARGYMHELLION ALLWEDDOL

- Cyllideb flynyddol cynllun amgylcheddol-amaethyddol Tir Gofal ar hyn o bryd yw £5.5 miliwn, gan godi i £21.4 miliwn yn 2006/07. Bydd hyn yn galluogi llunio oddeutu 2,335 o gytundebau Tir Gofal ar ffermydd Cymru.
- Mae'r adroddiad hwn yn argymhell targed ymarferol o gyfranogiad yng nghynllun Tir Gofal o 10,000 o gytundebau (50% o'r ffermydd yng Nghymru sy'n gymwys i gymryd rhan). Byddai'r lefel yma yn gyfraniad mawr tuag at gwrdd â gofynion bioamrywiaeth Cymru, yn ogystal â chefnogi incwm ffermydd.
- Er mwyn cyflawni'r targed yma, mae angen cynyddu'r cyllid a ddyrennir i Tir Gofal bedair gwaith i £91.66 miliwn y flwyddyn.
- Mae'r adroddiad hwn yn argymhell y dylai'r llywodraeth ymgymryd â'r ymrwymiad ariannol yma i gynllun amaethyddol-amgylcheddol Tir Gofal.

MANTEISION

Er mwyn dangos y manteision a ddaw yn sgil cynlluniau amaethyddol-amgylcheddol archwiliwyd pedair fferm fel astudiaeth achos.

Mae Penmaen Isa yn fferm iseldir ac ucheldir 146 Ha sy'n ffermio defaid ac eidion, ac fe'i lleolir yng ngorllewin Cymru. Mae'r fferm wedi bod yn rhan o gynllun Tir Cymen ers 1992, ac mae gan y fferm hefyd ddau gytundeb Safle o Ddiddordeb Gwyddonol Arbennig (SoDdGA). Mae cytundebau'r cynllun o bosib yn anarferol i'r graddau ei bod yn ofynnol i'r ffermwr gynyddu dwysedd stocio ardaloedd gweundir y fferm, a hynny mewn modd rheoledig. Mae'r arfer yma wedi ychwanegu at gynefinoedd gwlyptir yma, gan arwain at gynnydd sylweddol ym mhoblogaeth adar yr ardaloedd hyn, yn cynnwys y cornicyll, y pibydd coesgoch a gŷydd dalcenwyn yr Ynys Las. Mae pob un o'r adar yma wedi eu rhestru fel rhywogaethau arbennig sydd angen eu hamddiffyn. Heb gymorth y cynlluniau hyn, mae'n debygol y byddai'r cynefinoedd pwysig yma wedi cael eu colli.

Mae'r ail fferm yn enghraifft o fferm ucheldir Cymreig arferol sy'n ffermio defaid ac eidion. Un o nodweddion mwyaf diddorol y fferm yw'r tirlun traddodiadol o gaeau bychain wedi'u ffinio â gwrychoedd. Yn anffodus mae cyflwr llawer o'r gwrychoedd hyn wedi dirywio. Ar ben hynny, yr oedd gan y ffermwr gynlluniau i dynnu llawer o'r gwrychoedd mewn ymdrech i gael rheolaeth mwy effeithlon. Darparwyd cymhelliant i newid y sefyllfa yma gan gytundeb Tir Cymen, a luniwyd ym 1992. Bellach mae'r gwrychoedd hyn wedi'u gwarchod o dan y côd

fferm cyfan, ac maent yn awr yn cael eu rheoli ar gyfer bywyd gwyllt. Mae cynllun Tir Cymen hefyd wedi golygu gostyngiad yn nifer y stoc a gedwir ar y glaswelltir sydd heb ei wella ar y fferm. Mae hyn wedi caniatáu i'r ardaloedd hyn gynnal mwy o amrywiaeth mewn rhywogaethau planhigion a bywyd gwyllt cysylltiedig. Mae'n amlwg bod cytundeb Tir Cymen ar y fferm hon wedi diogelu a helaethu nifer y cynefinoedd oedd dan fygythiad.

Mae Aber Hyddnant yn enghraifft o fferm ucheldir da byw gyda dwy rywogaeth sydd dan fygythiad o fewn ei ffiniau; sef y dyfrgi a'r ysgyfarnog brown. Mae Cynlluniau Gweithredu Bioamrywiaeth Cymru a'r DU yn nodi'n benodol y dylid defnyddio cynlluniau fel Tir Gofal er mwyn rhoi ystyriaeth i anghenion y rhywogaethau hyn. Mae Tir Gofal yn cynnig cyfle i ychwanegu at amgylchedd y fferm er mwyn cwrdd â'r anghenion cadwraeth antur yma. Er hynny, golygodd diffyg cyllid ar gyfer Tir Gofal bod cais cychwynnol Aber Hyddnant i ymuno â chynllun Tir Gofal wedi cael ei wrthod ac felly roedd y cynefinoedd pwysig ar y fferm yn dal dan fygythiad. Ar ben hynny, o ganlyniad i fethu ymuno â Thir Gofal, gorfodwyd i Mr Williams ddod o hyd i gyflogaeth arall i ffwrdd o'r fferm er mwyn ychwanegu at ei incwm, ac felly fe'i gorfodir bellach i reoli ei fferm ar sail rhan amser. Derbyniwyd cais Aber Hyddnant i ymuno â'r cynllun yn unig ar ôl i Tir Gofal dderbyn dyraniad o gyllid ychwanegol. Mae'r achos hwn yn dangos y budd sylweddol a ddaw yn sgil dyrannu arian ychwanegol i gynllun amaethyddol-amgylcheddol.

Fferm ucheldir da byw ym Mharc Cenedlaethol Eryri yw Rhydlanfair. Mae bron i hanner y fferm ar hyn o bryd yn cael ei rheoli o dan gytundebau amaethyddol-amgylcheddol cyfredol. Mae hyn yn cynnwys 150Ha o brysgwydd dwarf y waun; sy'n cael ei gydnabod fel prysgwydden o bwysigrwydd rhyngwladol. Ym 1999, yr oedd Mr Williams yn bwriadu ymestyn ystod rheolaeth amgylcheddol ar ei fferm trwy wneud cais i ymuno â chynllun amaethyddol-amgylcheddol Tir Gofal. Byddai hynny wedi cynhyrchu incwm sylweddol ar gyfer y fferm, sydd ar hyn o bryd mewn dyledion mawr. Yn ei gais, yr oedd Mr Williams wedi mynegi bwriad i ychwanegu at y cynefinoedd presennol ar ei dir, a chreu cynefinoedd newydd. Yn ychwanegol i'r manteision cyffredinol i fywyd gwyllt, yr oedd y cytundeb hefyd yn cynnig rheoli ardal o laswelltir er budd y cornicyll; un o'r rhywogaethau adar sy'n cael eu rhestru fel rhywogaeth blaenoriaeth uchel gan y Gymdeithas Gwarchod Adar (RSPB). Yn anffodus, gwrthodwyd y cais i ymuno â'r cynllun Tir Gofal, ac felly collwyd y cyfle i hybu bywyd gwyllt yn Rhydlanfair.

DADANSODDIAD ECONOMAIDD

Ar hyn o bryd neilltuir cyllideb flynyddol o £5.5 miliwn ar gyfer Tir Gofal, a disgwylir i'r ffigwr hwn godi i £16.4 miliwn yn 2006/07. Mae'r gyllideb yma ar hyn o bryd yn cyfrif am 3.0% yn unig o gyfanswm y cymorthdaliadau uniongyrchol i ffermydd yng Nghymru. Disgwylir rhagor o gyllid yn sgil modwleiddio gan ddarparu £18.5 miliwn ychwanegol ar gyfer Tir Gofal dros y cyfnod pum mlynedd hyd at 2006/07 Rhagwelir y bydd y dyraniad cyllid yma yn galluogi llunio oddeutu 2,335 o gytundebau Tir Gofal ar ffermydd yng Nghymru. Amcangyfrifir bod 10,000 o gytundebau yn darged realistig ar gyfer Tir Gofal, ar ôl 10 mlynedd. Byddai hynny'n gyfraniad sylweddol tuag at gyflawni gofynion bioamrywiaeth Cymru. Mae'r adroddiad yma yn argymhell y dylai llywodraeth y DU glustnodi'r arian ychwanegol yma i gynllun amaethyddol-amgylcheddol Tir Gofal.

DULL

Fel rhan o'r astudiaeth yma archwiliwyd pedair fferm fel astudiaeth achos. Cafodd y ddwy fferm gyntaf eu cynnwys er mwyn dangos y manteision sylweddol a ddaw yn sgil cynlluniau amaethyddol-amgylcheddol yn nhermau amddiffyn ac ychwanegu at fioamrywiaeth tir ffermio. Mae'r ddwy fferm arall yn enghreifftiau o ffermydd na chafodd eu derbyn ar gynlluniau amaethyddol-amgylcheddol oherwydd prinder arian. Mae'r ffermydd hyn yn rhoi enghreifftiau o'r cyfleon a gollwyd ar gyfer amddiffyn cynefinoedd a rhywogaethau sydd dan fygythiad. Ar sail y dystiolaeth a gasglwyd yn y gwaith ymchwil yma, cyflwynir rhagfynegiadau o'r cynnydd sydd ei angen yn yr arian a ddyrennir er mwyn cwrdd â gofynion cyfreithiol y DU ar gyfer amddiffyn bioamrywiaeth.

2 Cynlluniau amaeth-amgylcheddol yng Nghymru

Mae cynlluniau amaeth-amgylcheddol yn cynnig peirianwaith polisi i dalu ffermwyr ar sail contract i ddarparu gwasanaethau amgylcheddol a defnyddio ymarferion ffermio sy'n amgylcheddol dda. Cyflwynwyd y ddeddfwriaeth sy'n darparu ar gyfer cynlluniau o'r fath (Rheoliad 2078/92 UE) fel un o'r mesurau a ddaeth i'r amlwg law yn llaw â newidiadau MacSharry i'r Polisi Amaethyddol Cyffredinol ym 1992. Yng Nghymru, y prif gynllun amaeth-amgylcheddol yw'r cynllun Tir Gofal. Cyflwynwyd Tir Gofal, sy'n gynllun Cymru gyfan ar gyfer ffermydd cyfan, ym 1999 i ddisodli Tir Cymen, Ardaloedd Amgylchedd Sensitif (ESA), y cynllun Gweundiroedd, y cynllun Mynediad i Gefn Gwlad a'r cynllun Cynefinoedd¹. Yn yr adran hon ceir cipolwg ar y cynllun Tir Gofal a'r cynlluniau a fodolai o'i flaen.

Ardaloedd Amgylchedd Sensitif (ESA) 1987 - 1999 (Adran Amaeth y Swyddfa Gymreig)
Cyflwynwyd y cynllun ESA ym 1987. Bwriadwyd y cynllun i warchod a gwella'r amgylchedd drwy gynnig dwy haen o symbyliadau gwirfoddol i ffermwyr mewn ardaloedd penodedig i fabwysiadu ymarferion amaethyddol sy'n fanteisiol i'r amgylchedd. O fewn y chwech ESA yng Nghymru ceir oddeutu 2,220 o gytundebau sy'n cynnwys ardal o 166,750 Ha. Mae'r gwariant blynyddol ar y cynllun ESA ym 1999/2000 yn oddeutu £7.5 miliwn.

Y Cynllun Gweundiroedd 1995-1999 (Adran Amaeth y Swyddfa Gymreig)
Nod y cynllun Gweundiroedd oedd gwarchod a gwella amgylchedd gweundiroedd uchel drwy annog ffermwyr i ostwng nifer y mamogiaid i lefel uchafswm stocio bendant er mwyn cadw a gwella'r gweundir. Llofnodwyd un ar bymtheg o gytundebau ar gyfer ardal o 623 Ha. Roedd y gwariant blynyddol ar y Cynllun Gweundiroedd ym 1999/2000 yn oddeutu £81,000.

Y Cynllun Mynediad i Gefn Gwlad 1995 - 1999 (Adran Amaeth y Swyddfa Gymreig)
Rhoddai'r cynllun gwirfoddol hwn symbyliadau i ffermwyr i ddynodi rhannau newydd o dir amaethyddol addas yn dir sydd ar gael i'r cyhoedd ar gyfer cerdded a gweithgareddau hamdden tawel eraill. Ychydig o ddi-ddordeb a welwyd yn y cynllun hwn yng Nghymru. Hyd yma, ni chafwyd ond un cais ac mae'r trafodaethau'n mynd rhagddynt ar hyn o bryd.

Y Cynllun Cynefinoedd 1995-1999 (Adran Amaeth y Swyddfa Gymreig)
Nod y cynllun peilot hwn oedd creu a gwella cynefinoedd gwerthfawr (coetiroedd dail llydan, stribynnau arfordirol, glaswelltir sy'n gyfoeth o rywogaethau ac ymyl dyfroedd) drwy un ai hepgor tir o weithgareddau cynhyrchu amaethyddol neu gyflwyno tir pori helaeth, ac yna ei reoli er budd bywyd gwyllt dros gyfnod o ddeng mlynedd. Llofnodwyd oddeutu 860 o gytundebau ar gyfer 6,880 Ha. Mae'r gwariant blynyddol ar y cynllun hwn yn oddeutu £420,000.

Y Cynllun Cymorth Organig 1995 - 1999 (Adran Amaeth y Swyddfa Gymreig)
Roedd y cynllun Cymorth Organig yn rhoi symbyliadau i ffermwyr i addasu o ffermio confensiynol i gynhyrchu organig. Mae'r taliadau, a roddir dros gyfnod o 5 mlynedd, yn adlewyrchu'r incwm rhagweledig yn ystod y cyfnod addasu. Ar hyn o bryd mae 61 yn cymryd

¹ Sylwer, er na wneir unrhyw gytundebau newydd dan y cynlluniau hyn ar ôl 1999, bydd y cynlluniau presennol yn dal i gael eu cefnogi tan ddiwedd y cytundeb.

rhan yn y cynllun dros ardal o oddeutu 2355 Ha. Mae'r gwariant blynyddol yn oddeutu £11.5 miliwn.

Y Cynllun Adfer Gwrychoedd 1992 - 1999 (Cyngor Cefn Gwlad Cymru)

Lansiwyd y Cynllun Adfer Gwrychoedd gan y Cyngor Cefn Gwlad gyda'r nod o ail-gyflwyno rheolaeth dda ar gyfer gwrychoedd dethol yng Nghymru. Bu'r cynllun yn boblogaidd iawn gyda ffermwyr, a bellach, mae ei nod wedi'i gynnwys yng nghynllun Tir Gofal. Yn ystod oes y cynllun (1992-99) llofnodwyd 1,553 o gytundebau ar gost o £3.72 miliwn. O ganlyniad, llwyddwyd i adfer 593 km wrychoedd gwael, achub 3053 km a sicrhau bod 3,646 km o wrychoedd da yn cael eu gwarchod.

Tir Cymen 1992-1999 (Cyngor Cefn Gwlad Cymru)

Sefydlwyd Tir Cymen fel cynllun stiwardiaeth cefn gwlad arbrofol yn ardaloedd Meirionnydd, Dinefwr ac Abertawe yng Nghymru. Cynllun gwirfoddol ar gyfer y fferm gyfan oedd Tir Cymen a chynigia gytundeb deng mlynedd i ffermwyr i reoli eu daliad mewn modd sy'n fanteisiol i'r amgylchedd. Mae ffermwyr yn derbyn taliadau blynyddol am ddilyn côd ymarfer amgylcheddol da ar y fferm gyfan, gyda thaliadau blynyddol ychwanegol am reoli cynefinoedd pwysig yn bositif a darparu mynediad newydd drwy ganiatâd. Mae taliadau cyfalaf safonol hefyd ar gael. Gwnaed cyfanswm o 1023 o gytundebau Tir Cymen, ar gyfer 89,304 Ha; mae hyn yn cyfateb i 47.2% o'r tir a oedd yn gymwys yn yr ardaloedd peilot. Yn ogystal â chyflwyno côd ymarfer amgylcheddol da ar yr holl dir a gyflwynwyd i'r cynllun, sicrhwyd rhagor o reolaeth bositif dros ardaloedd cynefinoedd penodol gan gynnwys 24,246 Ha o weundir grugog, 12,538 Ha o laswelltir mynydd, 4,219 Ha o laswelltir corsiog, 1,540 Ha o ddolydd sy'n gyfoeth o flodau a 4,540 Ha o goetir dail llydan. Yn ystod 1998/99 talwyd £5.763 miliwn i ffermwyr a oedd yn rhan o'r cynllun hwn am reoli'r tir ac am waith cyfalaf.

Tir Gofal 1999 ymlaen (Cyngor Cefn Gwlad Cymru)

Tir Gofal yw'r cynllun amaeth-amgylcheddol newydd ar gyfer Cymru-gyfan a gyflwynwyd ym 1999 i ddisodli'r holl gynlluniau amaeth-amgylcheddol presennol yng Nghymru heblaw am y cynllun organig. Mae ffermwyr sy'n ymuno â'r cynllun yn derbyn taliadau blynyddol am gydymffurfio â'r adran orfodol ar gyfer y fferm gyfan ac am reoli cynefinoedd allweddol. Rhaid i bob llwybr cyhoeddus ar y fferm fod ar agor a rhaid darparu mynediad i dir agored. Hefyd, gall y ffermwr ddewis o amrywiaeth o opsiynau gwirfoddol ar gyfer adfer a chreu cynefinoedd neu nodweddion penodol. Mae taliadau unwaith-ac-am-byth ar gael am waith penodol a fwriadwyd i warchod a rheoli cynefinoedd a nodweddion ac am gefnogi mynediad o'r newydd. Dewisir ffermwyr i fod yn rhan o'r cynllun ar sail y rheini sy'n cynnig y gwerth gorau am arian a'r budd amgylcheddol gorau.

Cafwyd oddeutu 1,380 o geisiadau yn ystod blwyddyn gyntaf y cynllun. I ddechrau, dim ond £3.2 miliwn a ddyrannwyd i'r cynllun Tir Gofal. Cynyddwyd yr arian hwn wedyn ym 1999 i £5.5 miliwn. Mae'r Cyngor Cefn Gwlad wrthi'n prosesu'r ceisiadau hyn, ond nid ydynt wedi gallu cadarnhau unrhyw geisiadau hyd yma. Fodd bynnag, maent wedi gwneud 472 o gynigion ac mae bwriad i wneud 130 o gynigion eraill yn y dyfodol agos. Byddai hyn yn golygu y gellid gwneud 600 o gytundebau yn ystod blwyddyn gyntaf y cynllun. Gobaith y Cyngor Cefn Gwlad yw cael o leiaf 10,000 o ffermydd yn rhan o gynllun Tir Gofal ar ôl 10 mlynedd o'r cynllun.

Dengys yr arolwg uchod y datblygyd, dros yr wyth mlynedd diwethaf, gyfres o gynlluniau amaeth-amgylcheddol yng Nghymru. Canlyniad y rhaglen ddatblygu hon yw'r cynllun Tir Gofal; sef cynllun fferm gyfan sydd ar gael ledled Cymru.

GWARCHOD BIOAMRYWIAETH CYMRU

Lluniodd Undeb Ewrop (UE) ddeddfwriaeth sy'n darparu ar gyfer cynlluniau amaeth-amgylcheddol yn bennaf mewn ymateb i bwysau amaethyddol gan gynnwys argyfwng cyllidebol cynyddol UE, bryd hynny, a thrafodaethau masnach GATT, ond hefyd, ac yn bwysig, mewn ymateb i bryderon cynyddol am yr amgylchedd a bioamrywiaeth.

Mae gan Lywodraeth y DU rwymedigaeth gyfreithiol i roi ar waith ddeddfwriaeth amgylcheddol UE gan gynnwys y Gyfarwyddeb Adar (79/409/EEC) a'r Gyfarwyddeb Cynefinoedd (92/43/EEC). Mae'r DU hefyd ymhlith y rheini a lofnododd y Cytundeb ar Amrywiaeth Biolegol. Mae'n ofynnol i'r rheini a lofnododd y cytundeb rhyngwladol hwn gydnabod y dirywiad mewn cynefinoedd a rhywogaethau yn eu holl amrywiaeth ac mae'n rhaid iddynt hefyd lunio strategaethau cenedlaethol ar gyfer gwarchod a defnyddio amrywiaeth biolegol mewn modd cynaliadwy.

Ymatebodd y DU i'r Cytundeb Bioamrywiaeth gydag adroddiad *Biodiversity: The UK Action Plan*, a gyhoeddwyd ym 1994. Yn sgîl hwn, sefydlwyd Grwp Llywio Bioamrywiaeth y DU gyda'r dasg o gynhyrchu rhaglen weithredu fanwl. Un o'r camau allweddol i gyflawni'r dasg hon oedd cynhyrchu cynlluniau gweithredu ar gyfer 400 o fathau o rywogaethau a 40 o fathau o gynefinoedd. Mae 20 o'r cynefinoedd hyn yn elwa o ran orfodol y cytundeb Tir Gofal, tra bod yr opsiynau gwirfoddol yn cynnwys 2 gynefin arall. **Yng Nghymru, sefydlwyd Grwp Bioamrywiaeth Cymru ym 1996 ac un o'i dasgau oedd cynhyrchu cynlluniau gweithredu ar gyfer y 54 rhywogaeth a'r 12 cynefin sydd i'w cael yng Nghymru. Bydd wyth o'r cynlluniau cynefinoedd yn elwa o adran orfodol Tir Gofal a chynhwysir un arall yn yr opsiynau gwirfoddol.**

Ceir cynlluniau bioamrywiaeth lleol hefyd. Tuedda'r rhain i gael eu rhannu fesul sir, ond mae Awdurdodau'r Parciau Cenedlaethol hefyd yn llunio cynlluniau gweithredu. Adeg ysgrifennu'r adroddiad hwn roedd Cynlluniau Gweithredu Parc Cenedlaethol Bannau Brycheiniog a Pharc Cenedlaethol Sir Gaerfyrddin yn dal ar ffurf drafft. Mae Cynlluniau Gweithredu Bioamrywiaeth Awdurdod Parc Cenedlaethol Eryri wrthi'n cael eu cynhyrchu a disgwylir iddynt gael eu cyhoeddi yr haf eleni (2000).

Mae'r cynlluniau amaeth-amgylcheddol yn cynnig cyfle ardderchog i'r llywodraeth lynu wrth ei rhwymedigaeth bioamrywiaeth gan fod oddeutu 80% o gefn gwlad Cymru yn dir amaethyddol. Nid oes unrhyw amheuaeth bod ymarferion ffermio wedi dylanwadu'n fawr ar y cynefinoedd a'r rhywogaethau sy'n bresennol yn nhirwedd Cymru. Bu'r rhan fwyaf o'r ymarferion hyn yn sefydlog am gannoedd o flynyddoedd ond, ers yr Ail Ryfel Byd, mae newidiadau mewn peiriannau a chynnydd yn y gwrtaith a'r plaladdwyr a ddefnyddir wedi cael effaith ddofn ar amrywiaeth y rhywogaethau. Er enghraifft, tuedda'r cynnydd yn y gwrtaith a ddefnyddir i ffafrio ond ychydig iawn o rywogaethau planhigion cystadleuol iawn megis rhygwellt parhaol (*Lolium perenne*) a meillion gwynion (*Trifolium repens*). Mae cynnydd mewn peiriannau hefyd yn annog pobl i wneud ffermydd yn unedau mawr, sy'n tueddu i fod yn fwy economaidd. O

ganlyniad i'r newidiadau hyn, dinistriwyd brithwaith o gaeau, gwrychoedd, coetiroedd a phyllau i ffurfio unedau ungnwd mawr. Gyda gostyngiad yn amrywiaeth y planhigion ceir cwmp cyfatebol yn amrywiaeth yr anifeiliaid yn gyffredinol. **Rhaid cael cynlluniau amaeth-amgylcheddol yn awr i rwystro'r dinistr hwn a rhoi symbyliadau i ffermwyr droi'n ôl at y dulliau cynhyrchu sy'n fwy amgylchedd-garedig.**

3 Astudiaethau Achos ar effaith cynlluniau amaeth-amgylcheddol yng Nghymru

Mae adran nesaf yr adroddiad hwn yn pwysu a mesur yr effaith amgylcheddol a chymdeithasol y mae cynlluniau amaeth-amgylcheddol yn ei chael ar bedair fferm yng Nghymru. Rhoddir ystyriaeth i'r effaith amgylcheddol ac economaidd y mae cymryd rhan mewn cynlluniau presennol, h.y. Tir Cymen, yn ei chael ar ffermydd y ddwy astudiaeth achos gyntaf: Penmaen Isa ac y fferm yn ne Cymru. Defnyddir y ddwy fferm arall, Aber Hyddnant a Rhydlanfair, fel enghreifftiau o ffermydd a ymgeisiodd i fod yn rhan o'r cynllun amaeth-amgylcheddol Tir Gofal, ond bod eu ceisiadau wedi cael eu gwrthod oherwydd diffyg arian ar gyfer y cynllun. Defnyddir ffermydd yr astudiaethau achos i ddangos y manteision amgylcheddol y gellid eu cael yn sgîl cymryd rhan yn y cynlluniau hyn, a hefyd i dynnu sylw at y cyfleoedd i warchod yr amgylchedd a gollwyd oherwydd diffyg arian ar gyfer cynlluniau amaeth-amgylcheddol. Dewiswyd ffermydd yr astudiaethau achos, ar y cyd ag Undeb Amaethwyr Cymru, i gynrychioli ffermydd Cymreig arferol. Roedd pob ffermwr yn cymryd rhan yn yr astudiaeth gan wybod y byddai ei achos yn cael ei fynegi wrth y cyhoedd mewn ymgyrch yn y cyfryngau.

Rhaid cofio y gwnaed yr asesiadau hyn ar ôl ymweliadau byr â'r ffermydd. Nid oedd modd i ni, felly, gynhyrchu mapiau o gynefinoedd na chwblhau rhestrau o rywogaethau. Pe byddai amser wedi caniatáu byddem wedi cynnal arolygon mwy manwl, a byddai'r rhain, yn ddi-os, wedi dynodi amrywiaeth ehangach o rywogaethau o ddiddordeb cadwriaethol ar bob fferm. Fodd bynnag, mae'r rhywogaethau a ddynodir yn yr adroddiad hwn yn seiliedig i raddau helaeth ar sylwadau'r ffermwyr ac felly maent yn cynnwys, yn bennaf, y rhywogaethau mwy adnabyddus megis yr ysgyfarnog, y dyfrgi a'r gornchwiglen. Does dim amheuaeth bod y rhestr o'r rhywogaethau gwarchoddedig sy'n byw ar y pedair fferm yn llawer mwy na'r hyn a grybwyllir yn yr adroddiad hwn.

PENMAEN ISA

Ffermwr: Mr Huw Besent,
 Cyfeiriad: Penmaen Isa, Pennal, Machynlleth, Powys, canolbarth Cymru, SY20 9LB.
 Ffôn: 01654 791221

Fferm ddefaid a gwartheg biff tir isel a thir uchel 146 Ha yw Penmaen Isa ac fe'i lleolir yng ngorllewin Cymru. Bu'r fferm yn rhan o gynllun Tir Cymen ers 1992, ac mae ganddi hefyd ddau gytundeb rheoli SSSI. Mae cytundebau'r cynllun yn anghyffredin efallai o safbwynt eu bod hi'n ofynnol i'r ffermwr gynyddu'r lefel stocio, a hynny dan reolaeth, ar rannau corsio y fferm. Mae'r ymarfer hwn wedi gwella'r cynefinoedd tir gwlyb hyn, gan beri cynnydd sylweddol yn y poblogaethau adar gan gynnwys y gornchwigen, y pibydd coesgoch a gwyddau bronwyn yr Ynys Las. Rhestrir yr holl adar hyn yn rhywogaethau sydd angen gwarchodaeth arbennig. Mae Tir Cymen hefyd wedi ychwanegu'n sylweddol at incwm y ffermwr. Yn ddiweddar dyfarnwyd Penmaen Isa yn ail drwy Gymru yng ngwobr 'Bioamrywiaeth a Chadwraeth' Llywydd yr NFU.

Y Fferm

	Cyn y Cynllun	Nawr
Arwynebedd cyfan y fferm	146.5 Ha	146.5 Ha
Glaswelltir wedi ei drin	71.2 Ha	71.2 Ha
Glaswelltir heb ei drin	6.9 Ha	6.9 Ha
Coetir dail llydan	13.0 Ha	13.0 Ha
Coetir conifer	1.0 Ha	1.0 Ha
Tir gwlyb (morfa heli)	54.4 Ha	54.4 Ha
LFA DA	53.0 Ha	53.0 Ha
LFA SDA	93.5 Ha	93.5 Ha
Busnes gwartheg biff		
Buchod Sugno (nifer)	15	50
Gwartheg stôr (nifer)	16	20
Lloeau (nifer)	15	45
Teirw (nifer)	1	1
BUSNES DEFAID		
Mamogiaid (nifer)	350	455
Wyn Benyw (nifer)	35	109
Wyn (nifer)	300	525
DANGOSYDDION PERFFORMIAD		
Wyn / mamogiaid (%)	80 - 90%	110%

Y Ffermwyr

Mae Mr Huw Besent (41) yn berchen ar fferm Penmaen Isa ac yn ffermio yma ers oddeutu naw mlynedd. Er mai ei brif nod yw gwneud bywoliaeth o'r fferm, mae Mr Besent hefyd yn awyddus iawn i wella safon amgylchedd ei fferm. Yn ddiddorol, mae'n ystyried bod 'cynhyrchu cynefinoedd' ar gyfer bywyd gwyllt (ac yn enwedig adar) yr un fath â rheoli tir i gynhyrchu defaid a gwartheg bîff. *'Dim ond ei fod e'n anifail gwahanol!'* Mae gan Mr Besent, yn amlwg, gymhellion amgylcheddol cryf iawn a dyma egluro ei gymhelliad dros gymryd rhan yn cynlluniau amaeth-amgylcheddol.

Cynlluniau Amaeth-Amgylcheddol ar fferm Penmaen Isa

Bu Penmaen Isa yn rhan o gynllun Tir Cymen ers ei gyflwyno ym 1992. Dan y cynllun rhaid i'r ffermwyr reoli tri chynefin (cors bori, morfa heli a choetir dail llydan) yn unol â gorchmynion rheoli cynefinoedd penodol, yn ogystal â dilyn côd ymarfer amgylcheddol da ar weddill ei fferm. Mae gan y fferm hefyd ddau gytundeb rheoli SSSI: un ar gyfer 51.4 HA o forfa heli a'r ail ar gyfer 6.8 Ha o laswelltir corsiog heb ei drin. Unwaith eto, rhaid rheoli'r mannau hyn yn unol â gorchmynion amgylcheddol. Mae'r fferm, hefyd, yn rhan o'r Cynllun Grant Coetiroedd (1997). Yn y gorffennol bu gan y fferm Gynllun Grant Cadwraeth Fferm (1990) a redodd am chwe blynedd. Ymgeisiodd Mr Besent ar gyfer y cynlluniau amaeth-amgylcheddol hyn yn bennaf gan eu bod yn cyd-fynd â'i gynllun fferm, ond hefyd oherwydd eu symbyliadau ariannol a oedd yn talu am gostau'r gwaith cadwraeth. Bydd yr arolwg hwn yn archwilio effaith y cynllun Tir Cymen a'r cytundeb SSSI.

Y Cytundeb Tir Cymen

Manylion y cytundeb	Arwynebedd (Ha)	£ / Ha	Cyfanswm y taliad
Côd y fferm gyfan ¹	146.5	20	£2930 y fl
Cytundeb cynefinoedd a nodweddion			
Tir yr arfordir (Cors bori)	1	70	£70 y fl
Tir yr arfordir (Morfa heli)	51.4	30	£1542 y fl
Coetir dail llydan (presennol)	13	85	£1105 y fl
Cyfanswm taliadau blynyddol Tir Cymen			£5860 y fl
Taliadau cyfalaf			
Ffensio ar gyfer rheolaeth amgylcheddol	1.3 km		£1800
Plannu coed a gwrychoedd (nIFer)	1000		£1250
Prosiectau arbennig (ail-siapiro ffosydd)	180m		£500
Cyfanswm y taliadau cyfalaf			£3550

¹ Mae Côd y Fferm Gyfan yn cynnwys: Cadw holl derfynau presennol y caeau; Cadw'r holl adeiladau fferm sy'n dal tywydd mewn cyflwr da; Diogelu coed a gwrychoedd; Diogelu nodweddion dwr; Cadw'r fferm yn lân rhag sbwriel.

Y Cytundeb SSSI

Manylion y cytundeb	Arwynebedd (Ha)	£ / Ha	Cyfanswm y taliad
Glaswelltir corsiog	6.8	218	£1500 y fl
Pori'r morfa heli yn helaeth			£750 y fl
Porfa'r gaeaf: gwyddau bronwyn yr ynys las	10	75	£750 y fl
Cyfanswm y taliadau sssi blynyddol			£3000 y fl

Effeithiau Amgylcheddol y Cynlluniau Amaeth-Amgylcheddol ar fferm Penmaen Isa Mae rheoli Penmaen Isa dan gytundeb Tir Cymen a'r cytundeb SSSI yn anghyffredin o ran eu bod yn ei gwneud hi'n ofynnol i gynyddu'r lefelau stocio. Tuedd ymarfer rheoli amaeth-amgylcheddol safonol yw annog unigolion i leihau lefelau stocio. Fodd bynnag, penderfynodd y Cyngor Cefn Gwlad, ar ôl ymgynghori gyda'r warden RSPB lleol, fod yn rhaid sicrhau cynnydd rheoledig yn lefelau stocio'r gwartheg ar y corstir er mwyn creu'r amodau gorau ar gyfer adar tir gwlyb. Dylid nodi, fodd bynnag, fod y darn y mae'r gwartheg yn cael ei bori yn cael ei reoli'n gaeth gan ffensys trydan.

Rheolir y glaswelltir corsiog ar gyfer cornchwiglod magu (*Vanellus vanellus*); un o restr faith o rywogaethau bioamrywiaeth y DU. Mae cornchwiglod yn rhan o'r rhestr oherwydd eu bod wedi dioddef dirywiad o 25-49% o ran nifer/amrediad yn y DU dros y 25 mlynedd diwethaf (UKBSG, 1995). Mae'r gornchwiglen yn hoffi nythu mewn tir agored, mewn tyfiant byr, heb unrhyw beth yn ei rhwystro rhag gweld. Fel hyn, gall weld unrhyw ysglyfaethwyr sy'n nesáu. Felly, torrir y brwyn ym Mhenmaen Isa yn fyr er mwyn creu glastir byr ar gyfer cornchwiglod magu. Bu'r gwaith rheoli hwn yn hynod o lwyddiannus gan ei fod wedi denu chwe phâr o gornchwiglod magu i'r glaswelltir corsiog.

Ail-siapiwyd ffos hefyd er mwyn i'r cornchwiglod bach allu symud o'r cae lle mae'r nyth i gae cyfagos i fwyta. Roedd gan y ffos wreiddiol ochrau serth / fertigol lle canfuwyd adar ifanc marw yn aml, gan na allent ddianc mae'n debyg. Bydd ail-siapiro'r ffos hefyd yn fanteisiol i rywogaethau eraill y tir gwlyb. Mae llethrau graddol yn fwy naturiol ac yn caniatáu ar gyfer amrywiaeth o blanhigion dyfrol a lled-ddyfrol. Bydd ffos gyda thyfiant da ar ei hochrau hefyd yn lle llawer mwy deniadol i anifeiliaid megis dyfrgwn. Dim ond newydd ail-siapiro'r ffos y maent, felly ni ellir asesu'r effaith a gaiff hyn ar y cornchwiglod tan ddiwedd gwanwyn 2000.

Er budd y pibydd coesgoch (*Tringa totanus*) ac adar hirgoes eraill ar y morfa heli, mae gwartheg yn pori'r lle yn drwyadl gan ddefnyddio ffensys trydan i reoli'r manau dan sylw. Mae ar yr adar hyn angen brithwaith o dyfiant hir a byr. Maent yn hoffi cuddio eu nythod mewn tyfiant hir ond mae arnynt angen manau gyda thyfiant byr i fwyta. Mae'r sathru y mae'r gwartheg yn ei achosi yn rheoli'r brwyn ac yn cynhyrchu nifer fawr o byllau bach (ôl carnau). Gall amrywiol drychfilod fridio yn y rhain a gall y pibydd coesgoch eu bwyta. Mae gan y llefydd, na chaiff eu pori mor galed, dyfiant hir lle gall yr adar nythu.

Roedd gan Mr Besent gynlluniau i drin y brwyn ar y morfa gyda chemegau i'w rheoli ac annog y glaswellt. Er y byddai hyn wedi caniatáu lefelau stocio uwch, byddai wedi dinistrio brithwaith y brwyn tal a'r glaswelltir byr – pethau y mae ar y pibydd coesgoch eu hangen i fagu. Mae'r cytundeb SSSI ym Mhenmaen Isa wedi gallu gwarchod a gwella'r cynefin pwysig hwn.

Mae gwyddau bronwyn yr Ynys Las (*Anser albifrons flavirostris*) hefyd wedi elwa o reoli'r glaswelltir corsiog. Ym 1998/99, daeth haid o 140 o adar i'r fferm am y gaeaf. Credir bod yr

haid hon yn un o ddim ond ychydig sy'n dod i'r DU bob blwyddyn. Mae gwyddau bronwyn yr Ynys Las yn un o'r rhywogaethau sydd yn Atodiad 1 Cyfarwyddeb Adar Comisiwn Ewrop. Dan y Gyfarwyddeb hon, rhaid i'r rhywogaethau "*fod yn destun mesurau cadwraeth sy'n ymwneud â'u cynefin er mwyn sicrhau eu parhad a'u bod yn atgenhedlu yn eu hardal*".

Gydag arian Tir Cymen hefyd llwyddwyd i ffensio 13 Ha o goetir dail llydan ar y fferm i gadw da byw allan. Mae peidio â phori yn annog planhigion llawr coetiroedd ac adfywiad naturiol y coed. Unwaith y bydd y planhigion wedi dechrau adfywio bydd yr anifeiliaid cysylltiedig hefyd yn dechrau dychwelyd. Bydd rhywogaethau cyffredin megis gloyn byw brith y coed (*Pararge aegeria*), llygoden y maes (*Apodemus sylvaticus*) a'r llygoden goch (*Clethrionomys glareolus*) yn dychwelyd yn fuan gan y bydd yna boblogaethau gerllaw. Efallai na fydd rhai rhywogaethau coetiroedd, mwy prin, fyth yn ail-ymsefydlu oherwydd bod y boblogaeth agosaf yn rhy bell.

Heb y cynllun Tir Cymen, byddai stoc yn dal i bori'r coetiroedd hyn, a byddai hyn yn rhwystro adfywiad naturiol gan y byddai eginblanhigion y coed ifanc yn cael eu bwyta. Dros amser, wrth i'r coed farw, a heb rhai ifanc i ddod yn eu lle, byddai'r man coediog yn raddol droi'n laswelltir drachefn.

Effaith economaidd Cynlluniau Amaeth-Amgylcheddol ar fferm Penmaen Isa

Mae'n anodd eithriadol mesur yr union effaith economaidd a gafodd y cynlluniau amaeth-amgylcheddol ar fferm Penmaen Isa. Y prif reswm am hyn yw am fod y fferm wedi dwysáu ei chynhyrchiad er mwyn dal i fod yn broffidiol. Ymhlith y newidiadau yn y busnes da byw y mae cynnydd yn nifer y defaid a'r gwartheg, yn ogystal â'r newid o ddefaid mynydd i ddefaid tir isel trymach. Law yn llaw â'r newidiadau hyn yn nifer y da byw, gwelwyd cynnydd yn y gwrtaith blynyddol a ddefnyddir o 3 tunnell i 40 tunnell ar laswelltir sydd wedi ei drin. Er nad oedd yr un o'r newidiadau hyn yn benodol gysylltiedig â'r cynlluniau amaeth-amgylcheddol, dylid nodi nad oedd cytundebau'r cynllun yn rhwystro'r ffermwr rhag dwysáu ei fferm.

Mae un ffordd o fesur yr effaith economaidd uniongyrchol a geir o fod yn rhan o'r cynlluniau amaeth-amgylcheddol, yn seiliedig ar yr incwm a gafwyd o daliadau blynyddol côd y fferm gyfan dan gynllun Tir Cymen (£2930) a chytundebau Tir Cymen a Chynefin SSSI fel ei gilydd (£2717 a £3000). O'r herwydd, mae cyfanswm yr incwm blynyddol o'r cynlluniau yn £8650. Roedd y gwir gost o fodloni gofynion y cytundebau hyn yn ddim, bron, gan na fu'n rhaid i'r ffermwr wneud newidiadau costus i'w ymarferion ffermio na lleihau nifer ei stoc. Fodd bynnag, nid yw taliadau cyfalaf Tir Cymen wedi sicrhau manteision economaidd sylweddol i'r fferm. O'r £1800 a gafwyd am ffensio, gwariwyd £500 ohono ar weiers, tra gwnaed y polion o goed o'r fferm. Gwnaeth Mr Besent yr holl waith ffensio ei hun. O'r £1250 a gafwyd am blannu coed, gwariwyd £800 ar goed ifanc a thiwbiau gwarchodol, a chadwyd y gweddill i dalu am gostau llafur y ffermwr. Contractwr a wnaeth y gwaith o ail-siapio'r ffos. Mae'n amlwg bod y taliadau blynyddol y mae Mr Besent yn eu cael yn cyfrannu'n sylweddol at incwm y fferm; amcangyfrifa'r ffermwr ei fod yn oddeutu 15 – 20 % o'r incwm blynyddol.

Cyllideb Rannol: Goblygiadau Tir Cymen ar fferm Penmaen Isa

Costau		Manteision	
Incwm a gollwyd	£	Incwm a enillwyd	£
	-	Tir Cymen: Y Fferm gyfan	2930
		Tir Cymen: Cytundeb cynefinoedd	2717
		Tir Cymen: Taliadau cyfalaf ¹	305
		Cytundeb SSSI	3000
Cyfanswm yr incwm a gollwyd		Cyfanswm yr incwm a enillwyd	8952
Costau newydd		Costau a arbedwyd	-
Tir Cymen: Deunyddiau cyfalaf ¹	130		
Cyfanswm y costau newydd	130	Cyfanswm y Costau a arbedwyd	8952
COLLED	130	ENNILL	8952
Ennill net sy'n gysylltiedig â chymryd rhan yng nghynllun Tir Cymen ac SSSI = £ 8822			

1 Sylwer, y tybir bod y costau cyfalaf sy'n gysylltiedig â'r cynllun Tir Cymen yn cael eu taenu'n gyfartal dros oes deng mlynedd y cytundeb.

Mae bod yn rhan o'r cynlluniau hefyd yn effeithio ar gyflogaeth. Treuliodd Mr Besent bum diwrnod yn gwneud gwaith ffensio a phlannu coed, tra cyflogwyd contractwyr am dri diwrnod i ail-siapiro'r ffos.

Crynodeb

Mae Penmaen Isa yn enghraifft o fferm sydd â rhannau mawr o gynefinoedd pwysig oddi mewn i'w therfynau. Cydnabyddir bod y cynefinoedd hyn, ynghyd â'r bywyd gwyllt sy'n byw ynddynt, yn bwysig o safbwynt cynnal y bioamrywiaeth oddi mewn i'r DU. Mae'r cynlluniau amaeth-amgylcheddol nid yn unig wedi sicrhau y gwarchodir y cynefinoedd hyn, ond hefyd wedi caniatáu iddynt gael eu rheoli mewn ffordd sy'n eu gwella er budd bywyd gwyllt. Yn wir, gwelwyd cynnydd sylweddol yn nifer y gwahanol rywogaethau adar, gan gynnwys cornchwilogod a gwyddau bronwyn yr Ynys Las, ym Mhenmaen Isa. Heb gymorth y cynlluniau hyn, mae'n debygol y byddai'r cynefinoedd pwysig hyn wedi diflannu.

FFERM YN NE CYMRU

Saif y fferm, sy'n fferm tir uchel defaid a gwartheg bîff 47 Ha, yn ne Cymru. Mae gan y fferm dirwedd draddodiadol gyda chaeau bach a gwrychoedd yn derfynau iddynt. Ymunodd y fferm â chynllun Tir Cymen ym 1992. Drwy gyfrwng y cynllun hwn mae terfynau'r fferm, a oedd wedi cael eu hesgeuluso i raddau helaeth dros y blynyddoedd diwethaf, yn cael eu rheoli drachefn, gan greu gwell cynefinoedd i fywyd gwylt. Hefyd, mae'r cynllun wedi'i gwneud hi'n ofynnol i'r ffermwr leihau'r lefelau stocio ar y glaswelltir sydd heb ei drin ar y fferm. O ganlyniad, gwelwyd cynnydd mewn blodau a gloynnod byw yn y mannau hyn. Yn ychwanegol at y manteision amgylcheddol hyn, mae'r cynllun Tir Cymen yn cael effaith gymdeithasol sylweddol o ran bod yr incwm a geir o'r cynllun yn cyfateb i chwarter incwm blynyddol y fferm.

Y Fferm

	Cyn y cynllun	Nawr
Arwynebedd cyfan y fferm	47.6 Ha	47.6 Ha
Glaswelltir wedi ei drin	10.0 Ha	10.0 Ha
Glaswelltir heb ei drin	35.6 Ha	35.6 Ha
Coetir Dail Llydan	2.0 Ha	2.0 Ha
LFA DA	47.6 Ha	47.6 Ha
Busnes gwartheg bîff		
Buchod Sugno (nifer)	20	20
Gwartheg stôr (nifer)	20	-
Lloeau (nifer)	20	20
Teirw (nifer)		
Busnes defaid		
Mamogiaid (nifer)	250	150
Wyn benyw (nifer)	-	-
Wyn (nifer)	375	150
Dangosyddion perfformiad		
Wyn / mamogiaid (%)	150%	100%

Y Ffermwr

Mae'r ffermwr wedi ffermio y fferm hon ers oddeutu 20 mlynedd. Mae'n byw ar y fferm gyda'i wraig a'i ddau o blant sydd yn eu harddegau. Mae'n mwynhau gweithio ar y fferm ac mae'n awyddus i'w chadw yn undod masnachol. Byddai'n hapus yn trosglwyddo'i fferm i'w fab, fodd bynnag, oherwydd pryderon am ymarferoldeb ariannol ffermio i'r dyfodol, byddai'n mynnu iddo hefyd gael crefft arall i gwympo'n ôl arni. Ar hyn o bryd, mae'r ffermwraig yn gweithio fel nyrs ac mae ei hincwm hi yn ran hanfodol o incwm y teulu.

Cynlluniau Amaeth-Amgylcheddol ar y fferm

Mae'r fferm wedi bod yn rhan o gynllun Tir Cymen ers ei gyflwyno ym 1992. Ymunodd y ffermwr â'r cynllun yn bennaf oherwydd yr incwm ychwanegol a oedd yn gysylltiedig ag ef, ond hefyd am yr ochr gadwriaethol. Gwêl y cynllun fel un sy'n sicrhau manteision i seilwaith y fferm, o safbwynt ei fod yn helpu i gynnal terfynau'r caeau, ac i'r amgylchedd o safbwynt creu a chynnal cynefinoedd ar gyfer bywyd gwyllt.

Y Cytundeb Tir Cymen

Manylion y cytundeb	Arwynebedd (Ha)	£ / Ha	Cyfanswm y taliad
Côd y fferm gyfan ¹	47.6	20	£952 y fl
Cytundeb cynefinoedd a nodweddion			
Glaswelltir heb ei drin (glaswelltir corsiog)	1.4	80	£116 y fl
Coetir dail llydan (presennol)	2	52	£105 y fl
Porfa'r gaeaf (Maip i'r adar)	2.4	275	£657 y fl
			£878 y fl
Cyfanswm Taliadau Blynnyddol Tir Cymen			£1830 y fl
Taliadau cyfalaf			
Gwrychoedd newydd	80m		£120
Gwrychoedd wedi'u hatgyweirio/adfer	2346m		£3519
Ffensio ar gyfer rheolaeth amgylcheddol	4462		£6247
Gatiau a cHamfeydd	1		£130
Cyfanswm y Taliadau Cyfalaf dros 10 mlynedd			10016

1 Mae Cod y Fferm Gyfan yn cynnwys: Cadw holl derfynau presennol y caeau; Diogelu coed a llwyni; Diogelu nodweddion dwr; Cadw'r fferm yn glir rhag sbwriel.

Effeithiau Amgylcheddol Tir Cymen ar y fferm hon

Mae'r fferm yn fferm fynydd defaid a gwartheg biff sydd wedi cadw tirwedd draddodiadol y fferm o gaeau bach gyda therfynau gwrychoedd. Mae maint caeau'r fferm, ar gyfartaledd, yn oddeutu 1.2 – 1.6 Ha, tra nad yw'r cae mwyaf ond yn 2.8 Ha. Mae'r rhan fwyaf o'r glaswelltir (80%) yn dir heb ei drin, a 10 Ha ohono'n unig sydd wedi ei drin.

Cyn ymuno â chynllun Tir Cymen roedd y ffermwr wedi dechrau ar raglen ddraenio ac ail-hadu ar dir heb ei drin er mwyn gwneud ei fferm yn fwy cynhyrchiol. Byddai hyn, ynghyd â chynnydd mewn gwrtiaith, wedi caniatáu iddo gadw lefelau stocio uwch. Roedd llawer o wrychoedd y fferm mewn cyflwr gwael cyn ymuno â Thir Cymen gan na allai'r ffermwr fforddio eu rheoli. Roedd y ffermwr wedi bwriadu cael gwared â thros hanner y gwrychoedd hyn a chreu caeau mwy. Roedd llwyni gwern, a oedd i'w gweld yma ac acw ar hyd y terfynau, hefyd ar fin cael eu difa. Ers ymuno â chynllun Tir Cymen rhoddwyd pen ar yr holl welliannau amaethyddol a gynlluniwyd.

Dan gynllun Tir Cymen roedd hi'n ofynnol i'r ffermwr leihau'r lefelau stocio, a'r gwrtaith a ddefnyddiai, ar ei laswelltir. Mae'r ffermwr wedi sylwi bod hyn wedi arwain at gynnydd yn nifer y blodau a'r gloynnod byw sydd i'w gweld yn y glaswelltir corsiog, ond nid yw eto wedi sylwi ar unrhyw newidiadau amlwg yn y mannau mwy o laswelltir heb ei drin. Mae'r cytundeb hwn yn glynu wrth y cyngor a geir yng Nghynllun Gweithredu Bioamrywiaeth y DU ar gyfer dolydd gwair tir isel.

Yn ystod wyth mlynedd y cytundeb Tir Cymen, mae 2.3 km o wrychoedd a esgeuluswyd wedi eu tocio a'u plygu, a phlannwyd 80m o wrychoedd newydd. Er mwyn amddiffyn yr holl wrychoedd hyn rhag stoc, codwyd 3.2 km o ffens. Codwyd ffens arall 1.2 km i warchod y llwyni gwern (*Alnus glutinosa*) rhag i'r stoc eu pori. Mae'r ffermwr wedi sylwi bod y stribynnau gwarchod 1m ar hyd y gwrychoedd wedi arwain at gynnydd yn nifer y planhigion blodeuog a geir ar hyd y gwrychoedd. Mae'r gwaith a wnaed ar wrychoedd y fferm wedi cyfrannu at Gynlluniau Gweithredu Bioamrywiaeth y DU ar gyfer gwrychoedd Hynafol a / neu wrychoedd sy'n gyfoeth o rywogaethau a Chynllun Gweithredu Bioamrywiaeth Cymru ar gyfer gwrychoedd.

Fel rhan o'r cytundeb Tir Cymen, mae'r ffermwr yn awr yn tyfu 2.4 Ha o faip fel cnwd porthi. Mae hyn hefyd yn darparu mannau bwydo yn y gaeaf i adar fel llinosiaid (*Carduelis cannabina*) a llinosiaid penfelyn (*Emberiza citrinella*), yn ogystal â mamaliaid megis yr ysgyfarnog (*Lepus timidus*). Mae llinosiaid (UKBG, 1998) a'r ysgyfarnog (UKBSG, 1995) yn ddwy rywogaeth sydd ar restr blaenoriaeth Cynlluniau Gweithredu Bioamrywiaeth y DU.

Ers ymuno â'r cynllun Tir Cymen, mae'r ffermwr wedi sylwi bod cyflwr y da byw wedi gwella. Cred y ffermwr mai'r gostyngiad yn y lefelau stocio sy'n gyfrifol am hyn. Mae'r cytundeb Tir Cymen ar y fferm hon yn dangos y gall cynllun amaeth-amgylcheddol fod yn fanteisiol i systemau amaethyddol yn ogystal ag i'r amgylchedd.

Effaith Economaidd Tir Cymen ar y fferm hon

Mae Tir Cymen wedi golygu dau brif beth i'r fferm: yr angen i leihau lefelau stocio a chynnal terfynau caeau.

Dan y cytundebau rheoli ar gyfer y glaswelltir corsiog a'r glaswelltir heb ei drin, bu'n rhaid i'r ffermwr leihau nifer y stoc a oedd yn pori'r mannau hyn. O'r herwydd, bu'n rhaid gostwng nifer y defaid o 250 o famogiaid i 150. O'r herwydd, mae'r fferm wedi colli incwm a gaed o werthu'r da byw hyn yn ogystal â'r cymorthdaliadau sy'n gysylltiedig â nhw (£6002). Mae'r cytundebau Tir Cymen wedi gwneud iawn, yn rhannol, am y golled hon (£1830) a hefyd y premiwm Ysgafnhau Defnydd Tir y mae'r ffermwr yn nawr yn gymwys i'w gael (£580) a'r arbedion a gaiff yn sgîl defnyddio llai o wrtaith (£1530). Fodd bynnag, mae'n amlwg nad yw'r arbedion hyn yn gwneud iawn am yr incwm a gollir drwy leihau nifer y da byw.

Bydd y ffermwr yn cael £10,016 am y gwaith ffensio a phlannu gwrych dros 10 mlynedd y cynllun. Mae wedi amcangyfrif y bydd oddeutu £7000 o'r arian hwn yn cael ei wario ar ddeunyddiau, gyda'r gweddill yn mynd tuag at ei gostau llafur. Mae wedi cyfrifo, o'r arian hwn, y bydd yn cael oddeutu £0.70 yr awr am ei lafur.

Dengys y gyllideb rannol (isod) bod cymryd rhan yng nghynllun Tir Cymen wedi peri gostyngiad ariannol o oddeutu £1761 yn yr incwm blynyddol. Dengys hyn nad yw lefel taliadau iawndal Tir Cymen yn ddigon uchel i dalu am wariant y ffermwr ar y gweithgareddau rheoli amgylcheddol sy'n ofynnol dan y cynllun. Fodd bynnag, mae yna nifer o fanteision eraill a geir o gymryd rhan yn y cynllun ac na roddwyd ystyriaeth iddynt yn y gyllideb rannol. Ymhlith y rhain y mae gwelliannau i derfynau caeau, gostyngiad yn y llwyth gwaith sy'n

gysylltiedig â'r busnes da byw, gostyngiad ym miliau'r milfeddyg ac, o bosib, brisiau uwch am y stoc oherwydd eu cyflwr gwell a'r manteision amgylcheddol. Yn ychwanegol, mae'r cyhoedd hefyd yn elwa o'r cynllun yn sgîl greu llwybrau newydd drwy'r fferm.

Cyllideb Rannol: Goblygiadau Tir Cymen ar y fferm.

Costau		Manteision	
Incwm a gollwyd	£	Incwm a enillwyd	£
225 o wyn @ £17.5	3937	Tir Cymen: Fferm gyfan	952
HLCA (100 o famogiaid) @ £2.65	265	Tir Cymen: Cytundeb cynefinoedd	878
SAPS (100 o famogiaid) @ £18.00	1800	Tir Cymen: Taliadau cyfalaf ¹	1001
		Premiwm Ysgafnhau	580
Cyfanswm yr incwm a gollwyd	6002	Cyfanswm yr incwm a enillwyd	3411
Costau newydd		Costau a arbedwyd	
Deunyddiau cyfalaf	700	Gwrtaith 17 t @ £90	1530
Cyfanswm y costau newydd ¹	700	Cyfanswm y costau a arbedwyd	1530
COLLED	6702	ENNILL	4941
Y golled ariannol net sy'n gysylltiedig â bod yn rhan o gynllun Tir Cymen = £ 1761			

¹ Sylwer, y tybir bod y costau cyfalaf sy'n gysylltiedig â chynllun Tir Cymen yn cael eu taenu'n gyfartal dros oes deng mlynedd y cytundeb.

Crynodeb

Mae'r fferm yn enghraifft o fferm fynydd defaid a gwartheg biff arferol yng Nghymru. Un o nodweddion mwyaf diddorol y fferm yw'r tirlun traddodiadol o gaeau bach gyda gwrychoedd yn derfynau. Yn anffodus, roedd y rhan fwyaf o'r gwrychoedd wedi cael eu hesgeuluso. At hynny, roedd gan y ffermwr gynlluniau i gael gwared â llawer o'r gwrychoedd mewn ymgais i'w alluogi i reoli'r tir yn fwy effeithlon. Roedd y cytundeb Tir Cymen, a lofnodwyd ym 1991/92, yn cynnig symbyliadau i newid y sefyllfa. Gwarchodir y gwrychoedd bellach dan gôd y fferm gyfan, ac fe'u rheolir yn awr ar gyfer bywyd gwyllt. Mae'r cynllun Tir Cymen hefyd wedi'i gwneud hi'n ofynnol i leihau'r stoc ar laswelltir y fferm nad oedd wedi ei drin. Mae hyn wedi caniatáu i'r manau hyn gynnal amrywiaeth mwy o rywogaethau planhigion a bywyd gwyllt cysylltiedig. Mae'n gwbl amlwg bod y cytundeb Tir Cymen ar y fferm wedi diogelu a gwella'r cynefinoedd bregus hyn ac mae, yn sgîl hynny, wedi cyfrannu at gyflawni amcanion Cynlluniau Gweithredu Bioamrywiaeth Cymru a'r DU.

FFERM ABER HYDDNANT

Ffermwr: Mr Paul Matthews,
 Cyfeiriad: Aber Hyddnant, Crai, Aberhonddu, LD3 8LS
 Ffôn: 01874 636797

Mae Aber Hyddnant yn fferm fynydd gwartheg a defaid 90 Ha a saif oddi mewn i ffiniau Parc Cenedlaethol Bannau Brycheiniog. Mae'r fferm yn cynnwys nodweddion a chynefinoedd diddorol a fyddai, o'u rheoli'n iawn, yn sicrhau manteision sylweddol i fywyd gwylt. Cyflwynodd Mr Matthews gais i Tir Gofal ym 1999 gyda'r bwriad o reoli ei fferm mewn ffordd a fyddai'n sensitif i'r amgylchedd. Roedd y gwaith amgylcheddol arfaethedig yn cynnwys rheoli cyfres o nentydd a phyllau, a hefyd addasu 6 HA o laswelltir wedi ei drin yn rhannol yn laswelltir heb ei drin. Fodd bynnag, ni chafodd ei gais ddigon o bwytiau i gael ei ddewis felly fe'i gwrthodwyd. Yn sgîl hyn, ni fydd poblogaethau'r dyfrgi a'r ysgyfarnog sy'n byw ar y fferm yn elwa o'r rhaglenni gwella cynefinoedd ac mae hyn, o bosib, yn rhoi'r rhywogaethau gwarchoddedig hyn mewn perygl. Rhestrir y dyfrgi yn Atodiad II Cyfarwyddeb Cynefinoedd UE, tra bod y dyfrgi a'r ysgyfarnog yn rhywogaethau ar restr blaenoriaethau bioamrywiaeth y DU. Oherwydd i'w gais gael ei wrthod, bu'n rhaid i Mr Matthews ddod o hyd i gyflogaeth arall oddi ar y fferm i helpu i gynnal ei incwm. O ganlyniad i hyn, mae'n awr yn ffermio Aber Hyddnant yn rhan amser. Ym mis Rhagfyr 1999, dyrannwyd arian ychwanegol i gynllun Tir Gofal a llwyddodd i dderbyn ffermydd ychwanegol, gan gynnwys Aber Hyddnant, i'r cynllun.

Y Fferm

Arwynebedd cyfan y fferm	90.7 Ha
Arwynebedd cnydau	5.0 Ha
Glaswelltir wedi ei drin	62.1 Ha
Glaswelltir heb ei drin	15.6 Ha
Coetir dail llydan	6.0 Ha
Coetir conifer	2.0 Ha
LFA DA	90.7 Ha
Tir comin y mynydd	62.0 Ha
Busnes gwartheg bîff	
Buchod Sugno (nifer)	26
Heffrod (nifer)	18
Gwartheg stôr (nifer)	8
Lloeau (nifer)	2
Busnes defaid	
Mamogiaid (nifer)	480
Wyn benyw (nifer)	120
Wyn (nifer)	
Dangosyddion perfformiad	
Wyn / mamogiaid (%)	100 %

Y Ffermwr

Bu Mr Matthews (38 mlwydd oed) yn berchen ar fferm Aber Hyddnant ers 1983. Am y rhan fwyaf o'r flwyddyn mae'n ffermio Aber Hyddnant wrtho'i hun. Fodd bynnag, mae'n defnyddio contractwyr i wneud y cynhaefu a'r gwaith chwalu tail, ac mae'n cyflogi myfyriwr i helpu gyda'r wyna. Roedd Mr Matthews eisiau bod yn ffermwr ar hyd ei oes ac mae'n mwynhau ei waith. Cred ef mai ffermwr da yw rhywun sy'n cynhyrchu nwyddau o safon, tra'n bod yn sensitif i'r amgylchedd ac i les da byw ar yr un pryd. Awgryma hefyd, i wneud arian yn y byd ffermio heddiw, fod yn rhaid i ffermwyr fod yn ymwybodol o'r farchnad, a gallu 'gweithio'r system' i gymryd mantais o'r cymorthdaliadau sydd ar gael. Hoffai Mr Matthews ffermio i'r dyfodol, fodd bynnag, yn sgîl y problemau diweddar sy'n wynebu amaethyddiaeth yn y DU, mae teimlo'i hun dan fwy a mwy o bwysau ariannol. Yn wir, roedd Mr Matthews wedi gobeithio y byddai cais llwyddiannus i'r cynllun Tir Gofal wedi lleddfu'r pwysau hyn. Fodd bynnag, gwrthodwyd ei gais i ddechrau ac, o ganlyniad, gorfodwyd Mr Matthews i ddod o hyd i gyflogaeth arall. Yn ei swydd newydd, bydd Mr Matthews yn gweithio 3 diwrnod yr wythnos yn cael gafael ar gig eidion organig yng Nghymru ar gyfer archfarchnad gadwyn genedlaethol. Fe fydd, fodd bynnag, yn dal i ffermio ond yn rhan amser yn unig yn awr.

Cynlluniau Amaeth-Amgylcheddol ar fferm Aber Hyddnant

Ar hyn o bryd mae Aber Hyddnant yn perthyn i nifer o gynlluniau amaeth-amgylcheddol. Ym 1996, cofrestrodd y fferm gyda'r cynllun Cynefinoedd i reoli 10 Ha o laswelltir sy'n gyfoeth o rywogaethau. Yn fwy diweddar, cofrestrwyd 0.75 Ha o goetir gyda'r cynllun Grant Coetiroedd, fodd bynnag, oherwydd dadl dros y gwaith ffensio ni wnaed unrhyw waith, hyd yma, dan y cynllun hwn. Ym 1999, dechreuodd y fferm ar raglen o addasu i ffermio organig dan y cynllun Cymorth Organig. Er bod yna fanteision economaidd ac amgylcheddol i'r cynlluniau presennol hyn, dim ond cynefinoedd penodol y mae'r cynllun Cynefinoedd yn eu targedu, tra nad yw'r cynllun Organig, sy'n cynnwys y fferm gyfan, yn cynnig symbyliadau i wneud gwaith amgylcheddol megis plannu gwrychoedd a choridorau nentydd. Er mwyn ymgymryd â rhaglen waith amgylcheddol fwy cynhwysfawr ar ei fferm, cyflwynodd Mr Matthews gais i ymuno â chynllun Tir Gofal ym 1999. Fodd bynnag, gwrthodwyd ei gais i ddechrau ac, o'r herwydd, ymddengys bod y cyfle i wella'r cynefinoedd ar fferm Aber Hyddnant er budd bywyd gwyllt wedi ei gollu. Asesir maint y cyfle hwn a gollwyd yn awr.

Y Cytundeb Tir Gofal

Manylion y cytundeb	Arwynebedd (Ha)
Adran y fferm gyfan	90.7 Ha
Nodweddion y tirlun: afon, llyn,	5
Nodweddion hanesyddol heb eu dynodi (nifer)	2
Adeiladau fferm traddodiadol (nifer)	2
Glaswelltir heb ei drin	15.6 Ha
Glaswelltir wedi ei drin yn rhannol	6.0 Ha
Coetir dail llydan	2.7 Ha
Yr Adran Wirfoddol	
Addasu glaswelltir wedi ei drin yn rhannol yn laswelltir heb ei drin	6.0 Ha
Creu ardal warchod ger y cyrsiau dwr	400m
Tyfu grawn gwanwyn wedi'I hau dan gnwd heb blaladdwyr	5.0 Ha
Sefydlu coetir dail llydan newydd	1.4 Ha
Sefydlu coridorau newydd ar lannau'r nentydd	250m
Llwybr newydd	1000m
Mynediad at ddibenion addysgol	90.7 Ha

Y Colledion Amgylcheddol posib sy'n Deillio o Gais Aflwyddiannus

Aber Hyddnant i gynllun Tir Gofal

Mae gan Aber Hyddnant nifer o nodweddion a chynefinoedd diddorol y byddai wedi cael eu rheoli at ddibenion amgylcheddol dan y cynllun Tir Gofal. Ar y fferm, ceir nifer o byllau bach wedi eu cysylltu gan gyfres o nentydd. Mae'r coridorau nentydd hyn yn gartref i rai planhigion tir gwlyb megis brwyn, yn ogystal â choed gwsgaredig. Ar hyn o bryd, nid oes ffens o amgylch y cyrsiau dwr hyn, a gall yr anifeiliaid bori hyd at ymyl y dwr. Mae pori fel hyn yn cael gwared â'r planhigion a geir ar ymyl y nant ac, o'r herwydd, nid oes cysgod ar gyfer bywyd gwyllt. Yn y cais hwn i gynllun Tir Gofal, roedd Mr Matthews wedi paratoi i sefydlu 250m o goridorau newydd ger ymyl y nentydd ynghyd â 1.4 Ha o goetir dail llydan newydd; byddai'r rhan fwyaf o'r coetir hwn wedi cael ei leoli ar hyd y nentydd. Byddai'r ddau brosiect rheoli hwn wedi rhoi cyfle i'r planhigion ger y nant adfywio ar ôl y pori, a byddai wedi rhoi cysgod i anifeiliaid megis y dyfrgi. Tra gall dyfrgwn symud ar draws y wlad agored, mae'n well ganddynt gadw at goridorau nentydd lle mae yna lawer o blanhigion. Un o'r camau gweithredu ar gyfer dyfrgwn oddi mewn i Gynllun Gweithredu Bioamrywiaeth y DU yw "*Ceisio sicrhau cytundebau rheoli a chynlluniau symbylu i roi ystyriaeth i ofynion y dyfrgi yn y manau lle maent yn trigo*". Mae'n amlwg bod gwrthod cais Mr Matthews i gynllun Tir Gofal wedi mynd yn groes i gyngor y cynllun gweithredu hwn.

Ceir 32 o gaeau yn Aber Hyddnant ac mae ganddynt oll wrychoedd traddodiadol yn derfynau iddynt. Mae llawer o'r terfynau hyn wedi cael eu difrodi drwy gael eu pori neu eu sathru oherwydd y lefelau stocio uchel a ddefnyddir mewn dulliau ffermio modern. Mae'r costau uchel o gynnal a chadw'r terfynau hyn, yn anffodus, wedi golygu nad yw Mr Matthews wedi gallu fforddio gwneud gwaith cynnal a chadw hollbwysig. Er nad oedd Mr Matthews wedi cynnwys unrhyw waith adfer gwrychoedd arfaethedig yn ei gais i gynllun Tir Gofal, gan na chredai y byddai'r taliad wedi cyfateb i'r gwariant a oedd yn ofynnol, byddai'r gwrychoedd yn

dal wedi elwa o gynllun fferm gyfan Tir Gofal, sy'n ei gwneud hi'n ofynnol i bob terfyn traddodiadol gael ei gynnal gyda sribyn gwarchod 1m. Byddai'r sribyn hwn wedi helpu i warchod y gwrychoedd rhag niwed pellach drwy fod y da byw yn eu pori neu eu sathru, yn ogystal â rhoi cyfle i'r planhigion ar hyd y gwrych adfywio. Mae'r tyfiant talach hwn yn hanfodol i warchod yr ysgyfarnogod sy'n byw yn Aber Hyddnant o ran ei fod yn cynnig llefydd iddynt orffwyso a magu rhai bach. Mae Cynllun Gweithredu Bioamrywiaeth Cymru ar gyfer ysgyfarnogod yn crybwyll y dylai cynlluniau amaeth-amgylcheddol annog ffermwyr i gynnal a chadw cynefinoedd addas ar gyfer yr ysgyfarnog.

Byddai gwarchod y gwrychoedd hefyd wedi gwella'r cynefin fel y gallai gefnogi amrywiaeth mwy o rywogaethau megis llygoden y gwair (*Microtus agrestis*). Byddai'r gwrychoedd mwy trwchus hefyd yn annog adar bach megis y dryw (*Troglodytes troglodytes*) y titw tomos las (*Parus caeruleus*) a'r aderyn du (*Turdus merula*). Er bod yr holl rywogaethau hyn yn gyffredin maent yn hefyd yn darparu bwyd i anifeiliaid sy'n uwch i fyny yn y gadwyn fwyd megis y dylluan wen (*Tyto alba*) a'r gwalch glas (*Accipiter nisus*).

Roedd Mr Matthews hefyd yn barod i addasu 6 Ha o laswelltir wedi ei drin yn rhannol yn laswelltir heb ei drin. Byddai hyn wedi golygu peidio â defnyddio unrhyw wrtaith na phlaladdwyr. Dros amser byddai'r lefelau maeth yn y pridd yn gostwng o'r lefelau artiffisial a grewyd gan y gwrtaith. Byddai hyn yn caniatáu i fwy o rywogaethau llysiâu a glaswellt, sy'n nodweddiadol mewn pridd niwtral, gystadlu gyda'r rhywogaethau amaethyddol hynod gystadleuol megis rhygwellt parhaol a meillion gwlanog, sy'n tueddu i fod â lle blaenllaw mewn glaswelltir sydd wedi ei drin. Drwy annog amrywiaeth o rywogaethau mewn glaswelltir heb ei drin, creir cynefinoedd sy'n cefnogi amrywiaeth mawr o drychfilod a rhywogaethau mwy. Felly, collwyd cyfle arall i wella bioamrywiaeth Cymru.

Er bod y 10 Ha o laswelltir heb ei drin eisoes yn cael ei reoli dan y cynllun Cynefinoedd, daw'r cytundeb hwn i ben ar 2004. Drwy gael ei dderbyn i gynllun Tir Gofal byddai'r cynefin hwn wedi cael ei warchod am 5 mlynedd arall. Nodau Cynllun Gweithredu Bioamrywiaeth y DU ar gyfer dolydd tir isel yw "*rhwystru disbyddiad dolydd gwair tir isel sydd heb eu trin ledled y DU*" a "*sicrhau amodau ffafriol i dros 30% o'r adnoddau erbyn 2005, ac mor agos i 100% ag y bo'n ymarferol bosib erbyn 2015*". Fel dau o'r prif bartneriaid yn y cynllun gweithredu hwn, mae Cyngor Cefn Gwlad Cymru ac Adran Amaeth y Swyddfa Gymreig wedi rhoi ystyriaeth i ofynion dolydd tir isel wrth lunio cynlluniau amaeth-amgylcheddol. Ymddengys bod hwn hefyd yn rhoi'r rheidrydd arnynt i geisio â chyrraedd y nod o 100% erbyn 2015.

Mae gwrthod cais Aber Hyddnant i gynllun Tir Gofal wedi golygu bod dau o rywogaethau Cynllun Gweithredu Bioamrywiaeth Cymru a'r DU, sef yr ysgyfarnog a'r dyfrgi, nad ydynt yn cael y warchodaeth y maent yn ei haeddu. Yn bwysicach fyth, mae'r dyfrgi yn rhywogaeth a gynhwysir yn Atodiad II cyfarwyddeb cynefinoedd UE. Byddai'r ddwy rywogaeth hon yn elwa o'r rheolaeth a oedd yn y cais i gynllun Tir Gofal.

Y Goblygiadau Economaidd yn sgîl cael ei Wrthod gan gynllun Tir Gofal
Amcangyfrifir y byddai Mr Matthews yn derbyn oddeutu £6000 o incwm y flwyddyn drwy'i gais Tir Gofal. Byddai'r rhan fwyaf o hwn, fodd bynnag, yn cael ei ddefnyddio yn erbyn yr incwm y byddai'n ei gollu yn sgîl gofynion y cynllun i leihau nifer y da byw ar y fferm. Byddai'n cael rhagor o incwm hefyd drwy grantiau ar gyfer gwaith cyfalaf; fodd bynnag, byddai'n rhaid gwario'r rhan fwyaf o'r incwm hwn ar ddeunyddiau. Mae'n amlwg nad yw Mr Matthews, fel y rhan fwyaf o ffermwyr eraill, yn debygol o weld cynnydd sylweddol yn incwm y fferm o'r cynllun Tir Gofal. Fodd bynnag, yn ystod cyfnod lle mae prisiau da byw yn isel ac yn anwadal, byddai Mr Matthews yn croesawu'n fawr iawn y cyfle i ennill ffynhonnell incwm ddiogel, y byddai'r cynllun Tir Gofal wedi'i rhoi.

Roedd Mr Matthews wedi gobeithio y byddai Tir Gofal wedi helpu i ategu'r incwm isel y mae'n ei gael ar hyn o bryd o'r fferm. Fodd bynnag, mae'r ffaith fod y cynllun Tir Gofal wedi ei wrthod yn golygu bod yn rhaid iddo yn awr gymryd gwaith arall oddi ar y fferm, a dim ond ffermio yn rhan amser.

Crynodeb

Mae Aber Hyddnant yn enghraifft o fferm da byw tir uchel sydd â dwy rywogaeth dan fygythiad yn byw o fewn ei therfynau; sef y dyfrgi a'r ysgyfarnog. Cynigia Tir Gofal gyfle i wella amgylchedd y fferm ar gyfer y rhywogaethau hyn. Fodd bynnag, golyga'r diffyg arian ar gyfer y cynllun y bydd cynefinoedd pwysig yn dal i ddiflannu, gan beryglu bodolaeth yr anifeiliaid prin hyn. Mae Cynlluniau Gweithredu Bioamrywiaeth Cymru a'r DU i'r dyfrgi a'r ysgyfarnog yn nodi'n benodol y dylid defnyddio cynlluniau megis Tir Gofal i roi ystyriaeth i ofynion y rhywogaethau hyn. Mae yna ryw gymaint o newyddion da serch hynny. Yn sgîl arian ychwanegol ar gyfer Tir Gofal, derbyniwyd cais Mr Matthews yn yr ail rownd o gynigion. O ganlyniad i'r arian ychwanegol hwn, bydd y gwaith amgylcheddol a amlinellir yng nghais Aber Hyddnant i gynllun Tir Gofal, yn awr yn cael ei gyflawni. Mae'r astudiaeth achos hon felly yn enghraifft ddiddorol iawn sy'n dangos y manteision sylweddol y gellir eu cael drwy gynyddu'r arian ar gyfer cynlluniau amaeth-amgylcheddol.

FFERM RHYDLANFAIR

Ffermwr: Mr Richard Williams
 Cyfeiriad: Fferm Rhydlanfair, Betws-y-Coed, LL24 0SS
 Ffôn: 01690 710267

Mae Rhydlanfair yn fferm fynydd da byw 231 Ha a saif ym Mharc Cenedlaethol Eryri. Mae bron i hanner y fferm yn cael ei rheoli ar hyn o bryd dan gytundebau amaeth-amgylcheddol. Mae hyn yn cynnwys 150 Ha o gorlwyni grug; fe'i cydnabyddir fel tyfiant o bwysigrwydd rhyngwladol ac, o'r herwydd, fe'i rhestrir fel un o'r cynefinoedd yng Nghynllun Gweithredu Bioamrywiaeth y DU. Ym 1999, roedd Mr Williams yn bwriadu ymestyn y rheolaeth amgylcheddol ar ei fferm drwy gyflwyno cais i gael ei dderbyn ar y cynllun amaeth-amgylcheddol, Tir Gofal. Yn ei gais, roedd Mr Williams wedi bwriadu gwella'r cynefinoedd presennol ar ei dir a chreu rhai newydd. Yn ogystal â'r manteision cyffredinol a geid i fywyd gwyllt, roedd y cytundeb hefyd yn cynnig rheoli ardal o laswelltir er budd cornchwilogod; rhywogaeth a restrir fel un o'r rhywogaethau blaenoriaeth uchel gan yr RSPB. Yn anffodus, gwrthodwyd y cais Tir Gofal, ac felly collwyd y cyfle i hybu bywyd gwyllt ymhellach ar fferm Rhydlanfair.

Y Fferm

Arwynebedd cyfan y fferm	231.0
Glaswelltir wedi ei drin	80.6
Glaswelltir wedi ei drin yn rhannol	25.0
Glaswelltir heb ei drin	1.3
Coetir dail llydan	3.1
Mynydd agored heb ei drin (grug a chorlwyni eraill)	121.0
LFA DA	13.0
LFA SDA	218.0
Busnes gwartheg bïff	
Buchod Sugno (nifer)	36
Heffrod (nifer)	25
Gwartheg stôr (nifer)	20
Lloeau (nifer)	
Busnes defaid	
Mamogiaid (nifer)	950
Wyn Benyw (nifer)	250
Wyn (nifer)	30
Dangosyddion perfformiad	
Wyn / mamogiaid (%)	100%

Y Ffermwyr

Mae Rhydlanfair yn cynnwys 121 Ha o dir sy'n eiddo i Mr Williams a 110 Ha ychwanegol y mae'n ei rentu gan yr Ymddiriedolaeth Genedlaethol. Bu'r fferm yn nwylo teulu Mr Williams ers sawl cenhedlaeth. Cymerodd Mr Williams (56 mlwydd oed) yr awenau gan ei dad bron i 36 mlynedd yn ôl, ac yn awr mae'n bwriadu trosglwyddo'r fferm i'w fab ei hun sy'n gweithio ar y fferm ar hyn o bryd. Prif amcan Mr Williams dros y blynyddoedd nesaf yw talu ei ddyledion er mwyn gallu trosglwyddo'r fferm mewn cyflwr ariannol iach. Byddai hefyd yn hoffi ehangu'r fferm oherwydd bod gwell peiriannau yn golygu bod ffermio, i raddau helaeth, wedi dod yn swydd ran amser. Cred felly bod yn rhaid iddo ehangu'r fferm er mwyn sicrhau bod ganddo fferm sydd o faint ariannol ymarferol i'w fab. I'w helpu i gynnal safonau byw rhesymol a sicrhau pensiwn iddo'i hun, mae gan Mr Williams nifer o fythynnod twristiaid ar ei fferm. Mae hyn, ynghyd â swydd ran amser ei wraig fel ffisiotherapydd yn ffynhonnell hynod bwysig o incwm ychwanegol i'r teulu.

Cynlluniau Amaeth-Amgylcheddol yn Rhydlanfair

Mae gan Rydlanfair ddau le a reolir ar hyn o bryd er budd yr amgylchedd. Darn bychan o dir gwlyb yw'r cyntaf, ac mae rhan ohono wedi'i ddynodi yn SSSI. Ers 1996, rheolwyd y tir gwlyb fel cynefin ymylon dwr dan gytundeb y cynllun Cynefinoedd.

Ym 1990, ymgeisiodd Mr Williams am grant dan y Cynllun Grant Cadwraeth Fferm (FCGS) i galchu ac ail hadu'r tir mynydd ar ei fferm. Mae'r tir mynydd yn cynnwys corlwyni grug, gyda llus yn bennaf (*Vaccinium myrtillus*). Cydnabyddir bod y corlwyni grug yn rhyngwladol bwysig gan eu bod wedi eu cyfyngu'n bennaf i Ewrop ac Ynysoedd Prydain ac arfordir gorllewinol tir mawr Ewrop (UKBG, 1999). Mae rhostir uchel yn un o'r cynefinoedd yng Nghynllun Gweithredu Bioamrywiaeth y DU a lluniwyd cynllun gweithredu wedi'i brisio ar ei gyfer. Pe byddai Mr Williams wedi calchu ac ail-hadu ei dir, byddai'r cynefin pwysig hwn wedi diflannu. Fodd bynnag, pan glywodd Awdurdod y Parc Cenedlaethol am gais FCGS Mr Williams, cysylltwyd ag ef gyda chytundeb rheoli arall a oedd yn ei gwneud hi'n ofynnol i Mr Williams dynnu ei gais am FCGS yn ôl ac yna lleihau nifer y stoc ar y mynydd. Derbyniodd Mr Williams gytundeb rheoli Awdurdod y Parc Cenedlaethol ac mae'r corlwyni grug bellach yn ffynnu ar y mynydd.

Ym 1999, cyflwynodd Mr Williams gais i ymuno â Tir Gofal, ond oherwydd diffyg arian, gwrthodwyd ei gais. Mae crynodeb o'i gais i gynllun Tir Gofal i'w weld isod.

Y Cytundeb Tir Gofal

Manylion y cytundeb	Arwynebedd (Ha)
Adran y fferm gyfan	231Ha
Nodweddion y tirlun: creigiau, cerrig brig, afonydd	
Henebion Rhestredig (nifer)	2
Nodweddion hanesyddol heb eu dynodi (nifer)	1
Adeiladau fferm traddodiadol (nifer)	10
Mynydd agored heb ei drin (Grug a chorlwyni eraill)	121Ha
Tir wedi'i gau allan: heb ei drin	1.3Ha
Tir wedi'i gau allan: wedi ei drin yn rhannol	25.0 Ha
Coetir dail llydan	3.1Ha
Parcdir	4.8Ha
Yr adran wirfoddol	
Adfer terfynau traddodiadol y caeau	750m
Addasu glaswelltir	15.0Ha
Creu ardal warchod ger cyrsiau dwr	200m
Cynyddu lefelau dwr	15 Ha
Sefydlu coridorau newydd ar ymyl nentydd	200m
Mynediad i ardal newydd	151Ha
Mynediad at ddibenion addysgol	40Ha

Y Manteision Amgylcheddol a Gollwyd oherwydd y Cais

Aflwyddiannus i'r cynllun Tir Gofal

Roedd cais Tir Gofal fferm Rhydlanfair yn cynnwys nifer o gamau i warchod a gwella cynefinoedd a nodweddion pwysig. Mae gan y fferm 3.1 Ha o goetir dail llydan sydd heb ei ffensio ar hyn o bryd ac sydd felly'n cael ei bori gan stoc. Dan gynllun Tir Gofal byddai'r coetir hwn yn cael ei ffensio i gadw stoc allan. Byddai hyn wedi caniatáu i blanhigion daear y coetir ddatblygu a byddai'r coed yn adfywio'n naturiol. Byddai hyn yn annog amrywiaeth o anifeiliaid y coetir, megis gloyn byw brith y coed, llygoden y maes neu'r fronfraith (*Turdus philomelos*), i ddychwelyd a chynyddu.

Byddai parcdir ychwanegol hefyd wedi cael eu creu ar ddarn 4.8 Ha o laswelltir wedi ei drin, sydd â choed wedi eu gwasgaru arno ar hyn o bryd. Byddai'r cytundeb rheoli wedi ei gwneud hi'n ofynnol i leihau'r lefelau stocio i 1.5 o unedau o dda byw/ha/y fl a hefyd plannu coed ifanc newydd. Byddai hyn wedi cynnal ac annog datblygiad cynefin amrywiol. Byddai nodweddion parcdir a reolir yn llai dwys yn cael eu cadw, megis gadael pren marw yn y fan a'r lle. Mae pren marw yn gwneud cynefin i amrywiaeth o ffwng a chreaduriaid di-asgwrn-cefn sydd, yn eu tro, yn darparu bwyd i anifeiliaid eraill. Oherwydd i gais Mr Williams i gynllun Tir Gofal gael ei wrthod ni fydd cynefinoedd y coetir a'r parcdir hyn yn cael eu creu.

Yn ei gais roedd Mr Williams hefyd yn barod i adfer rhwng 500 a 999m o wrychoedd. Mae gwrychoedd a reolir yn iawn gyda phlanhigion daear da yn rhoi cysgod i amrywiaeth eang o

famaliaid ac adar bach. Maent hefyd yn darparu coridorau sy'n cysylltu coetiroedd gyda chynefinoedd lled-naturiol eraill y gall anifeiliaid symud ar eu hyd.

Rhwng 1984 a 1990 collwyd chwarter o gyfanswm hyd y gwrychoedd yng Nghymru. Diffyg rheolaeth, yn hytrach na chael gwared â nhw, oedd yn gyfrifol am ddiestrio'r rhan fwyaf o wrychoedd (y Cyngor Cefn Gwlad, 1997). Yn y DU, nod y Cynllun Gweithredu Bioamrywiaeth ar gyfer gwrychoedd hynafol a/neu wrychoedd sy'n gyfoeth o rywogaethau yw *'rhoi pen ar y golled net o wrychoedd sy'n gyfoeth o rywogaethau, drwy gael eu hesgeuluso neu eu dileu, erbyn y flwyddyn 2000, a'r holl wrychoedd, sy'n hynafol ac yn gyfoeth o rywogaethau, a gollir erbyn 2005 (UKBSG, 1995).*

Roedd Mr Williams hefyd wedi bwriadu creu ardal warchod 200m ar hyd un o gyrsgiau dwr y fferm, a sefydlu coridor newydd ger ymyl darn arall o nant am 200m o hyd. Ar hyn o bryd mae stoc yn pori hyd at ymyl y dwr. Golyga hyn mai dim ond glaswellt byr sydd ar lannau'r nentydd ac ychydig o dyfiant sydd yn y nant. Byddai pori llai, sy'n un o'r gofynion dan y cytundeb Tir Gofal, yn caniatáu i'r tyfiant ar ochr yr afon, sy'n cynnwys rhywogaethau tir gwlyb megis brwyn, dyfu'n dalach a dod yn fwy toreithiog. Byddai'r planhigion sydd yn tyfu yn y nant yn cynyddu hefyd. Byddai hyn yn darparu mwy o fwyd i drychfilod a byddai'n annog pysgod drwy ddarparu llefydd cuddio a bwyd. Byddai hyn, yn ei dro, yn denu adar megis trochwyr (*Cinclus cinclus*) a glas y dorlan (*Alcedo atthis*).

Ceir hefyd ddarn 15 Ha o laswelltir lle mae cornchwiglod yn magu, a lle'r oedd Mr Williams yn cynnig ei reoli er budd y cornchwiglod. Mae'r cornchwiglod yn un o rywogaethau blaenoriaeth uchel yr RSPB oherwydd gostyngiad sylweddol mewn niferoedd. Bu i boblogaethau cornchwiglod haneru yng Nghymru rhwng 1987 a 1993 (RSPB, 1998). Gyda rheolaeth briodol, y gobaith yw y bydd nifer y cornchwiglod magu yn cynyddu ar fferm Rhydlanfair. Drwy wrthod cais Mr Williams gwrthodir, unwaith eto, y warchodaeth y mae ar y gornchwiglen ei hangen.

Yn olaf, roedd Mr Williams hefyd yn barod i agor 150 Ha o dir mynydd ar gyfer y cyhoedd. Mae mynediad cyhoeddus o'r fath yn bwysig iawn i ardaloedd mewn Parc Cenedlaethol.

Goblygiadau Economaidd

Mae Mr Williams yn ymwybodol iawn o'r pwysau ariannol sy'n effeithio ar amaethyddiaeth heddiw. Mewn ymateb i'r pwysau hwn mae Mr Williams wedi addasu nifer o adeiladau fferm yn fythynnod gwyliau. Mae'r arallgyfeirio hwn yn rhoi iddo ail incwm pwysig ac, yn y tymor hir, bydd yn rhoi pensiwn rhesymol iddo.

Amcangyfrifir y byddai Mr Williams yn derbyn oddeutu £18,500 o incwm fel taliadau blynyddol dan y cynllun Tir Gofal, gydag arian ychwanegol ar gyfer gwaith cyfalaf. Dywedodd Mr Williams mai un o'i brif amcanion yn ystod yr ychydig flynyddoedd nesaf oedd trosglwyddo ei fferm i'w fab mewn cyflwr ariannol iach. Roedd Mr Williams wedi gobeithio y byddai Tir Gofal yn ei helpu i gyflawni'r amcan hwn.

Crynodeb

Mae Rhydlanfair yn enghraifft o fferm y gwrthodwyd ei chais i fod yn rhan o gynllun Tir Gofal. Canlyniad hyn yw na fydd llawer o gynefinoedd pwysig sy'n bodoli ar y fferm yn cael eu gwarchod. Yn arbennig, byddai cais Tir Gofal fferm Rhydlanfair wedi cyfrannu tuag at nodau'r Cynllun Gweithredu Bioamrywiaeth ar gyfer Gwrychoedd, yn ogystal ag annog gwarchod gornchwiglod, un o rywogaethau blaenoriaeth uchaf yr RSPB. Mae'r cyfle hwn i gefnogi bioamrywiaeth ar fferm Rhydlanfair bellach wedi'i gollu. Bydd hyn yn cael effaith gynyddol ar ei gynllun i drosglwyddo'r fferm i'w fab. Mae'r ffaith i Mr Williams gael ei wrthod gan

gynllun Tir Gofal, yn amlwg, wedi peri goblygiadau sylweddol i'r amgylchedd ac i Mr Williams, fel ei gilydd.

4 Dadansoddiad Economaidd

Yn yr adran hon ceir asesiad o'r arian ychwanegol sy'n ofynnol i alluogi Tir Gofal i wneud cyfraniad sylweddol i warchod a gwella bioamrywiaeth yng Nghymru. Ceir hefyd ragfynegiad o'r manteision cymdeithasol-economaidd y gallai cynllun Tir Gofal eu sicrhau i ffermwyr Cymru.

TARGEDAU CYFRANOGIAD TIR GOFAL I GYRRAEDD TARGEDAU AMGYLCHEDDOL

I fod yn gymwys ar gyfer Tir Gofal, rhaid i ffermydd fod yn fwy na 3 Ha o faint a heb fod yn rhan o gynllun Tir Cymen na chynllun yr ESA eisoes. Yng Nghymru, ceir oddeutu 27,000 o ffermydd, ac mae 20,000 o'r rheini yn fwy na 3 Ha. Mae tair mil o'r ffermydd hyn, ar hyn o bryd, yn dal cytundebau Tir Cymen neu ESA². Felly, mae'r farchnad bosib ar gyfer Tir Gofal yn rhwng 17,000 ac 20,000 o gytundebau. Ni fyddai'n realistig, fodd bynnag, i ni ddisgwyl, na hyd yn oed anelu, i bob fferm gymwys gael ei derbyn ar y cynllun. Cynigir felly mai targed realistig o ffermydd i gael eu derbyn ar y cynllun Tir Gofal fyddai 50% o'r ffermydd cymwys, h.y. rhwng 8,500 a 10,000 o gytundebau, ar ôl 10 mlynedd. Mae'r ffigwr hwn yn seiliedig ar gyngor gan y Cyngor Cefn Gwlad (Parker & Pawson 1999) ac mae hefyd yn gysylltiedig â'r ffaith mai 47.2% o'r holl ardal gymwys a ymunodd â chynllun Tir Cymen (cynllun a ystyriwyd yn gynllun llwyddiannus). Felly, bydd y dadansoddiad canlynol yn seiliedig ar lefel cyfraniad targed o rhwng 8,500 a 10,000 o gytundebau Tir Gofal.

GOFYNIION ARIANNU TIR GOFAL

Ar hyn o bryd ariennir Tir Gofal drwy Bwyllgor Datblygu Gwledig y Cynulliad. I ddechrau, dyrannwyd £3.2 miliwn i gynllun Tir Gofal er gallu ymrwymo i 300 o gytundebau ar gost flynyddol gyfartalog o £10,666 y cytundeb. Yn ddiweddarach cynyddwyd hwn £2.3 miliwn gan ymrwymo i 300 yn ychwanegol o gytundebau ar gost gyfartalog o £7667 yr un³. **Felly, yn ystod blwyddyn gyntaf Tir Gofal, bydd £5.5 miliwn yn cael ei ddefnyddio i ariannu oddeutu 600 o gytundebau: disgwylir i gost gyfartalog pob cytundeb fod yn £9,166 y fferm.**

² Dylis nodi y bydd ffermydd sydd wedi ymrwymo i'r cynlluniau hyn ar hyn o bryd yn gymwys, yn y tymor hir, i ymuno â chynllun Tir Gofal ar ôl i'w cytundebau presennol ddod i ben.

³ Gellir esbonio'r gwahaniaeth yng nghostau cyfartalog y cytundebau a amlinellir uchod gyda'r ffaith mai'r ffermydd a dderbyniwyd i rownd gyntaf y cytundebau oedd y ffermydd hynny a gynigiai'r lefelau uchaf o fanteision amgylcheddol ac, felly, roeddent yn ddrutach i'w cyllido na ffermydd gyda gradd amgylcheddol is (y Pwyllgor Amaeth a Datblygiad Gwledig, 2000).

Ym mis Rhagfyr 1999, cyhoeddodd Nick Brown, y Gweinidog Amaeth, gynnig y dylai Adrannau Amaeth y DU ddefnyddio eu pwerau diamed, sydd yn awr yn bodoli yn sgîl diwygio'r Polisi Amaeth Cyffredin Agenda 2000 (Rheoliad UE 1259/1999), i addasu'r cymorthdaliadau cynhyrchu er mwyn darparu arian ychwanegol ar gyfer mesurau datblygu gwledig. Yng Nghymru, amlinellir y mesurau hyn yng Nghynllun Datblygu Gwledig (RDP) Cymru. Byddai'r addasiad arfaethedig yn cael ei gyflwyno ar 2.5% yn 2001/02 gan godi'n raddol i 4.5% erbyn 2005/06⁴. Amcangyfrifir y byddai addasu yn rhyddhau oddeutu £39 miliwn yng Nghymru dros chwe blynedd hyd at 2006/07 (Tabl 1). Mae Trysorlys y DU, hefyd, wedi addo rhoi cyllid cyfatebol i'r arian hwn, yn amodol ar ganlyniad y rownd wario nesaf. Amcangyfrifir, felly, y gallai cyllideb ychwanegol o oddeutu £78 miliwn fod ar gael i'r Cynulliad Cenedlaethol ei wario ar gynllun Datblygu Gwledig Cymru dros y chwe mlynedd nesaf (Tabl 1). Bydd cyfanswm y gyllideb ar gyfer y Cynllun, felly, yn cael ei chynyddu o £374.5 miliwn yn 2000/01 i £452.5 miliwn yn 2006/07.⁵ Y bwriad yw, o'r £78 miliwn ychwanegol a godir drwy addasu, y caiff £18.5 miliwn ei dargedu i gynllun amaeth-amgylcheddol Tir Gofal a £29 miliwn i'r cynllun ffermio Organig. Daw hyn â chyfanswm y gwariant ar y ddau gynllun hwn dros y cyfnod o 2000/01 i 2006/07 i £108.9 miliwn a £33.5 miliwn (Tabl 2). Ni fydd gwariant ar gynlluniau amaeth-amgylcheddol eraill yn newid yn sgîl yr addasu a bydd yn aros yn £55.9 miliwn. **Bydd y gwariant blynyddol ar gynllun Tir Gofal yn cynyddu o £5.5 miliwn ym 1999/2000 i £21.4 miliwn yn 2006/07. Rhagwelir y bydd cyfanswm y gwariant ar gynllun Tir Gofal, dros y cyfnod hyd at 2006/07, yn £114.4 miliwn.**

Tabl 1: Addasu ac arian cyfatebol yng Nghymru 2001 – 2006

	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	Cyfanswm
Cyfradd Addasu	2.5%	3.0%	3.5%	3.5%	4.5%	4.5%	
Arian yn sgîl Addasu (£m)	4.1	5.1	6.1	6.4	8.5	8.8	39.0
Arian gan Lywodraeth y DU (£m)	4.1	5.1	6.1	6.4	8.5	8.8	39.0
Cyfanswm yr arian ychwanegol ar gyfer RDP Cymru (£m)	8.2	10.2	12.2	12.8	17.0	17.6	78.0
Arian ychwanegol a glustnodwyd ar gyfer Tir Gofal (£m)	-	1.5	3.5	4.0	4.5	5.0	18.5

Amcangyfrifwyd rhagfynegiad o nifer y cytundebau Tir Gofal y gallai'r arian cyfredol ei sicrhau bob blwyddyn drwy rannu'r gwariant blynyddol a ddyrannwyd i gynllun Tir Gofal gyda chost gyfartalog flynyddol cytundeb (£9,166) (

Tabl 2). **Rhagwelir, erbyn 2006/07, y gellid gwneud 2335 o gytundebau gyda'r dyraniad arian cyfredol i gynllun Tir Gofal. Dim ond chwarter o'r targed, sef 8,500 i 10,000 o gytundebau, a amlinellwyd yn gynharach yw hwn. Ar sail y gwariant blynyddol cyfartalog o £9,166 y cytundeb, amcangyfrifir y byddai'n costio rhwng £77.91 miliwn a £91.66 miliwn y flwyddyn i gyrraedd y targed o 8,500 i 10,000 o gytundebau Tir Gofal**

⁴ Dylid nodi mai'r gyfradd addasu uchaf a ganiateir dan Reoliadau Undeb Ewrop yw 20%.

⁵ Mae dadansoddiad manwl o effaith addasu yng Nghymru i'w weld ym mhapur polisi Pwyllgor Amaeth a Datblygu Gwledig y Cynulliad (2000) 'Addasu Cymorthdaliadau Ffermydd'.

(Tabl 3). Dadleuir, felly, y byddai'n rhaid cynyddu'r gyllideb a ddyrannwyd i gynllun Tir Gofal bedair gwaith yn fwy er mwyn cyrraedd targedau amgylcheddol y cynllun.

Tabl 2: Rhagfynegiad o'r gwariant a'r cytundebau Tir Gofal.

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	Cyfanswm
Gwariant RDP ar Tir Gofal (cyn yr addasu) (£m)	5.5	7.5	10.9	12.4	13.4	14.4	15.4	16.4	95.9
Arian ychwanegol i Tir Gofal yn sgîl addasu (£m)	-	-	-	1.5	3.5	4.0	4.5	5.0	18.5
Gwariant RDP ar Tir Gofal (gan gynnwys addasu) ¹ (£m)	5.5	7.5	10.9	13.9	16.9	18.4	19.9	21.4	114.4
Nifer y cytundebau bob blwyddyn ²	600	818	1189	1516	1844	2007	2171	2335	
Nifer y cytundebau newydd bob blwyddyn ³	600	218	371	327	327	164	164	164	2335

1 Sylwer bod 'Cyfanswm' y gwariant RDP a ddyfynnir yma (£114.4 miliwn) yn seiliedig ar y £108.9 miliwn rhagweledig a glustnodwyd ar gyfer Tir Gofal dros gyfnodau 2000/01 i 2006/07 ynghyd â'r £5.5 miliwn a wariwyd yn ystod 1999/2000.

2 Amcangyfrifwyd nifer y cytundebau a ariennir bob blwyddyn drwy rannu'r gwariant RDP ar gynllun Tir Gofal gyda chost flynyddol gyfartalog cytundeb (£9,166).

3 Roedd amcangyfrif o nifer y cytundebau Tir Gofal newydd a wnaed bob blwyddyn yn seiliedig ar y cynnydd ffiniol yn yr arian ar gyfer y cynllun.

Tabl 3: Amcangyfrif o gyfanswm y gwariant blynyddol ar gynllun Tir Gofal i gyrraedd targedau o 8,500 a 10,000 o gytundebau.

	8,500 O GYTUNDEBAU	10,000 O GYTUNDEBAU
Cost Cyfartalog Cytundeb: £7667	£65.17 miliwn	£76.67 miliwn
Cost Cyfartalog Cytundeb: £9166	£77.91 miliwn	£91.66 miliwn
Cost Cyfartalog Cytundeb: £10667	£90.67 miliwn	£106.67 miliwn

MANTEISION CYMDEITHASOL-ECONOMAIDD CYNLLUNIAU AMAETH-AMGYLCHEDDOL

Ym 1995, gwnaeth ADAS asesiad o effeithiau cymdeithasol-economaidd Tir Cymen. Dynoda'r adroddiad fod Tir Cymen wedi cynyddu incwm y ffermwyr a oedd yn rhan o'r cynllun £1616 y flwyddyn ar gyfartaledd. Amcangyfrifodd adroddiad ADAS hefyd fod Tir Cymen yn cynhyrchu 29 diwrnod o waith amgylcheddol y flwyddyn ar bob un o'r ffermydd sampl, yn ogystal â diogelu 19 diwrnod arall o waith amgylcheddol a wnaed eisoes ar ffermydd. Drwy allosod yr amcangyfrifon hyn, awgrymant y byddai Tir Cymen, yn ystod pum mlynedd gyntaf y cynllun, wedi cynhyrchu'r hyn sy'n cyfateb i 154.4 o flynyddoedd gwaith person.

A thybio bod effeithiau cymdeithasol-economaidd Tir Gofal yn debyg i'r rheini a gynhrychir o gynllun Tir Cymen⁶, gellir gwneud y rhagfynegiad canlynol. Yn ystod blwyddyn gyntaf Tir Gofal, bydd ychydig o dan £1 miliwn o incwm ychwanegol yn cael ei gynhyrchu ar gyfer y 600 sy'n rhan o'r cynllun. Erbyn 2006, bydd yr incwm ychwanegol a gynhrychir ar gyfer y ffermwyr hyn yn codi i oddeutu £3.7 miliwn y flwyddyn. O safbwynt cynhyrchu cyflogaeth, dylai Tir Gofal gynhyrchu 17400 diwrnod o waith (neu 67 o flynyddoedd gwaith person⁷) ar brosiectau amgylcheddol yn ystod blwyddyn gyntaf y cynllun a 67715 diwrnod (neu 260 o flynyddoedd gwaith person) yn 2006/07.

Dadleuwyd uchod y dylai Tir Gofal geisio denu 10,000 o ffermwyr i'r cynllun. Amcangyfrifwyd bod y gost flynyddol o gyrraedd y targed hwn yn oddeutu £91.66 miliwn y flwyddyn. Amcangyfrifir y byddai'r buddsoddiad hwn yng nghynllun Tir Gofal yn cynhyrchu £16 miliwn o incwm y flwyddyn i ffermwyr Cymru ac oddeutu 1115 o flynyddoedd gwaith person i wneud gwaith amgylcheddol. I gymharu, amcangyfrifwyd bod cyfanswm incwm net ffermydd o amaethyddiaeth yng Nghymru yn £202 miliwn ym 1998, tra bod cyflogaeth ar ffermydd yn oddeutu 63,000. Mae'n amlwg y byddai buddsoddi yng nghynllun Tir Gofal yn cynhyrchu manteision cymdeithasol-economaidd i'r economi yng Nghymru.

⁶ Mae'r rhagdybiaeth hon yn seiliedig ar y ffaith bod y ddau gynllun yn eithaf tebyg o safbwynt y cytundebau rheoli a gynigiant a lefelau'r taliadau.

⁷ Tybir bod blwyddyn waith person yn cyfateb i 260 o ddyddiau gwaith.

5 Casgliadau

Lansiwyd Tir Gofal ym 1999 fel y cynllun amaeth-amgylcheddol newydd, arloesol ar gyfer Cymru-gyfan. Mae'r cynllun yn rhoi taliadau iawndal blynyddol i ffermwyr am gydymffurfio â'r adran orfodol a dilyn côd ymarfer amgylcheddol da ar y fferm gyfan a hefyd am warchod a rheoli cynefinoedd allweddol. Yn ychwanegol, gall ffermwyr ddewis o amrywiaeth o opsiynau gwirfoddol i adfer neu greu cynefinoedd neu nodweddion pwysig. Mae taliadau unwaith-ac-am-byth hefyd ar gael i dalu costau gwaith penodol a wneir gyda'r bwriad o warchod a rheoli'r cynefinoedd a'r nodweddion.

Mae gan lywodraeth y DU rwymedigaeth gyfreithiol, dan Gyfarwydddebau Adar a Chynefinoedd UE, i amddiffyn cynefinoedd a rhywogaethau sydd dan fygythiad. I fodloni'r rhwymedigaethau hyn o safbwynt bioamrywiaeth, lluniwyd Cynlluniau Gweithredu Bioamrywiaeth. Yng Nghymru, ceir 12 Cynllun Gweithredu Bioamrywiaeth ar gyfer cynefinoedd a 54 ar gyfer rhywogaethau. Nod y mesurau a gynhwyswyd yng nghynllun amaeth-amgylcheddol Tir Gofal yw amddiffyn a gwella naw o'r cynefinoedd hyn sydd dan fygythiad. Mae'r adroddiad hwn wedi dangos, gan ddefnyddio enghreifftiau o bedair fferm yr astudiaeth achos, sut y mae cynlluniau amaeth-amgylcheddol yng Nghymru wedi cyfrannu at warchod a gwella pedwar cynefin sydd dan fygythiad (corlwyni crug, coetir dail llydan, dolydd tir isel, gwrychoedd) ac o leiaf bedair rhywogaeth warchodedig (gan gynnwys y dyfrgi, yr ysgyfarnog, gwyddau bronwyn yr Ynys Las, a chornchwiglod). Mae oddeutu 80% o Gymru wedi'i dosbarthu yn dir amaethyddol. Mae'n amlwg bod yn rhaid gwarchod y bioamrywiaeth sy'n bodoli ar ffermydd Cymru er mwyn bodloni rhwymedigaethau bioamrywiaeth y DU. Mae'r cynlluniau amaeth-amgylcheddol yn cynnig peirianwaith i gyflawni'r amcan hwn.

Mae'r gyllideb flynyddol a neilltuwyd ar gyfer Tir Gofal ar hyn o bryd yn £5.5 miliwn, a bydd yn cynyddu i £16.4 miliwn yn 2006/07. Dim ond 3.0% o gyfanswm y cymorthdaliadau fferm uniongyrchol yng Nghymru yw'r gyllideb gyfredol hon. Disgwylir i arian ychwanegol, yn sgîl addasu, ddarparu £18.5 miliwn ar gyfer Tir Gofal ar gyfer y cyfnod pum mlynedd hyd at 2006/07. Rhagwelir, gyda'r arian hwn a ddyrannwyd, y gellir gwneud oddeutu 2,335 o gytundebau Tir Gofal ar ffermydd yng Nghymru. Amcangyfrifwyd bod angen 10,000 o gytundebau i gyrraedd targedau bioamrywiaeth Tir Gofal. I gyrraedd y targed hwn, rhaid cynyddu'r arian a ddyrennir i gynllun Tir Gofal bedair gwaith. Mae'r adroddiad hwn, felly, yn argymhell bod y llywodraeth yn gwneud mwy o ymrwymiad i gynlluniau amaeth-amgylcheddol.

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