

Natura 2000 in Wales:

Costings for Terrestrial Actions

LIFE Natura 2000 Programme for Wales

Natura 2000 yng Nghymru:

Costings for Terrestrial Actions

Rhaglen Natura 2000 LIFE yng Nghymru

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# Cyflwyniad / Introduction

The LIFE Natura 2000 Programme for Wales, which ran from September 2012 to September 2015, was tasked with producing a strategic plan for the management and restoration of all Special Protection Areas and Special Areas of Conservation in Wales. The purpose is to enable Wales to make significant progress towards bringing Natura 2000 species and habitats into favourable condition and help meet its commitments under the European Habitats and Birds Directives. The Programme has also provided a platform to seek funding for Natura 2000 related projects from all potential sources, and to integrate Natura 2000 funding into other financial instruments and policy areas.

A set of detailed prioritised actions, has been developed for all Natura 2000 sites in Wales. The actions are held in the Natural Resources Wales (NRW) Actions Database and summarised in Prioritised Improvement Plans (PIPs). Each action incorporates a defined activity, a mechanism and a responsible organisation. Actions are identified for the whole site or, more frequently, for management units, which are subdivisions of Natura 2000 sites based on landownership or ecological differences.

As far as possible, estimated costs have been identified for individual actions. This is the first time that actions for Natura 2000 sites have been costed in a systematic way across the series. This paper outlines the approach taken to establish costings in the terrestrial environment.

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# Purpose of costings

The purpose of establishing costings is to enable realistic estimates to be made for the resources needed to invest in Natura 2000 to make progress towards favourable condition across the whole series, within a region, for a given feature or for a particular site. This will facilitate operational planning by organisations responsible for delivering actions and improve strategic planning, prioritisation and allocation of resources at a national level. Costings will also facilitate the process of apply for external funds from, for example the European Union or Heritage Lottery Fund.

The costs identified in the Actions Database/PIPs are intended to be estimates and are not suitable to be used to prepare grant applications, write specifications, let contracts or purchase capital items etc. without further verification. However, they can be used as a basis for working up more accurate and detailed costs for these purposes.

# Method of establishing costings

The objective of the costings exercise was to produce costings for individual activities on management units or sites based on actual areas and lengths derived for example, from maps (i.e. a bottom-up approach), rather than using a ‘top-down’ costing model. Actions are therefore are relatively detailed and accurate.

Costs for actions on individual Natura 2000 sites have been sourced in three main ways, by using:

1. **Standard Costs** as used and published by established schemes and programmes, primarily Glastir and the Water Framework Directive.
2. **Previously established detailed costs** – e.g. from existing plans and programmes or from grant bids which have not yet been delivered.
3. **Previous similar work** which has been carried out in the recent past (3-5 years) on the same or similar sites.

One or more of these methods may have been used. The choice of method would depend upon availability of information; the most accurate method for a given site would be chosen in preference. Further details on how the costs were sourced in each case are given below.

Costs were identified for one-off expenses such as capital investment in, for example, fencing or scrub clearance. Costs were also identified for on-going (usually annual costs) which may be practical action which needs to be done repeatedly (such as the control of invasive species) or a payment provided to a landowner/farmer for delivering specific conservation management under a management agreement.

Estimates were also made for Natural Resources Wales staff time. See Table 5 below.

1. **Standard Costs**

Initially a search of possible sources of standard costs was carried out by the LIFE Natura 2000 team.

The following were identified as appropriate sources of standard costings, which could be used to cost Natura 2000 actions.

|  |  |  |
| --- | --- | --- |
|  | **Costing source**  (investigated May/June 2014) | **Notes/Reference** |
| i. | Glastir agri-environment scheme  Including - All Wales (Entry), Targeted (Advanced), Commons and Woodland elements. | Costs were sourced from WG website with the latest payment rates to be found at: <http://gov.wales/docs/drah/publications/151103-glastir-advanced-2017-expression-of-interest-rules-booklet1-en.pdf>  See table 1 below for full list.  While most costs were deemed accurate, some were considered to under-represent the costs which would be incurred on N2K sites due to more complex or sensitive work methodologies required as compared with those required in the wider countryside. In these cases, they have been reviewed and if necessary amended based on the advice of NRW Land Agent, using standard NRW Management Agreement Payments a s a guide. |
| ii. | Water Framework Directive Measures Costing Inventory | Lists of costs provided by NRW Water Framework Directive team. See Table 2 below.  Costs were extracted from the *Environment Agency Cost-effectiveness Database 2014* developed as part of the River Basin Management Plan cost-benefit analysis.  <https://naturalresources.wales/media/3218/river-basin-management-planning.pdf>  NB. The terminology used for mechanisms often do not correlate well with terminology used to identify Natura 2000 actions (as used in the NRW Actions Database). Therefore, some interpretation is required to use these standard costs. |
| iii. | NRW Management Agreement payments | NRW Land Agents use the following guidance when preparing Management Agreements:   * Wales level Farm Business Survey in Wales (Aberystwyth University) - to estimate margins and profit forgone. * Agricultural Budgeting and Costing Book (Agro Business Consultants) - to produce costs for capital costs, labour and contracting. * comparison with previous costings for similar work.   The Land Agents reviewed Glastir costs for the most common activities carried out on Natura 2000 sites, and amended costs where appropriate to make them more relevant to N2K circumstances. These are noted in Table 1. |
| iv. | The Economic Cost of Invasive Non-Native Species to Great Britain, F. Williams, et al, 2010, CAB International | <http://www.nonnativespecies.org/index.cfm?pageid=175>  This document was used to validate some of the standard invasive species costs from Glastir and Water Framework Directive Costing Inventory. |

The following sources were explored but did not produce any standard costs which could be used for costing Natura 2000 actions.

|  |  |
| --- | --- |
| **Costing source**  (investigated May/June 2014) | **Outcome** |
| Tir Gofal | Scheme has been superseded; costs out-of-date. |
| Woodland Grant Schemes (English and Scottish) | These schemes have standard costs, however they varied in terms of the way work was described (e.g. classifying heights/widths of rhododendron etc) and were not relevant to the Welsh context. All costings included in these schemes were also within the Glastir standard costings, therefore, Glastir was used in preference. |
| National Park management scheme payments (Snowdonia) | Scheme discontinued. |
| National Park management scheme payments (Pembrokeshire Coast) | Uses Glastir payment rates |
| National Park management scheme payments (Brecon Beacons) | Uses Glastir payment rates |
| Berwyn standard payment schemes | Costs are now outdated. |
| Aberystwyth payment schemes | Costs are now outdated |
| Woodland Trust | Do not have standard costs, use the English and Scottish Woodland Grant Schemes. |
| Wye and Usk Foundation | Do not use standard costs but did review some site-specific costings. |

1. **Previously established costs**

Some costs for the LIFE Natura 2000 Programme were derived from operational plans, bids for external funds or other projects with detailed actions which have previously been costed but not yet delivered. The sources were documents available either publically, within NRW or from partner organisations. Examples include the River Dee Restoration Plan and the Dee Invasive Non-native Species (INNS) Project. Costings are shown in Table 3.

The NRW National Nature Reserve management planning system (CMSi) holds budget information for specific projects/tasks which are due to be carried out on reserves, however, in general these could not be used as there was no information on quantity of work (e.g. length, area etc.).

1. **Previous similar work**

Many costs for the LIFE Natura 2000 Programme were derived by using information from similar work carried out recently (3-5 years) on similar sites. The majority of the information was provided by NRW Conservation Officers and National Nature Reserve Wardens, many of which have detailed knowledge of work on protected sites within these region in question. Other site managers of other organisations such as the RSPB, Woodland Trust, and Local Authorities have also been able to provide figures in certain cases. Published sources have also been used where necessary.

Some examples of costs are shown in Table 4, however, this is not exhaustive. Full details can be derived from the NRW Actions Database.

# Limitations

Actions for all Natura 2000 sites have not previously been costed in a systematic way and therefore this has been a large and challenging task. In total 74% of actions have been costed. Many of the uncosted actions were those which are inherently difficult to cost, such as ‘changes to policy or legislation’, ‘enforcement’, or activities around stakeholder engagement, training or education.

NRW Conservation Officers will continue to update and identify new actions. Therefore, new or revised costings will be added to the Actions Database over time.

The quality of costing varied to some extent depending on the ecosystem in question. In general, costings on farmed land or woodland are more accurate as there is an established and comprehensive systems of financial support for farmers and landowner delivering conservation action, and associated information. Whereas costings for river, estuarine or other coastal actions were generally more difficult to obtain.

# Table 1: Standard costs for Natura 2000 activities based on Glastir agri-environment scheme costs

All costs are as set by Glastir unless noted in the “Verified by” column. In these cases, costs have been verified and if necessary amended to align them more closely with predicted costs of work on protected sites. Amendments are based on NRW Land Agents advice (based on costs given for NRW Management Agreements) and “*Economic Cost of Invasive Non-Native Species to Great Britain”* document.

| **General area** | **Activity** | **Cost (£)** | **Measure** | **CAPITAL/MGT** | **Verified by** |
| --- | --- | --- | --- | --- | --- |
| VEG MGT | Bracken control - aerial spraying | £175 | ha | CAPITAL |  |
| VEG MGT | Bracken control - hand knapsack sprayer | £280 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Bracken control - mechanical two cuts/year | £49 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Bracken control - tractor mounted sprayer | £100 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Bramble / scrub control - hand knapsack spraying | £185 | ha | CAPITAL |  |
| VEG MGT | Chemical control of *Molinia* | £32 | ha | CAPITAL |  |
| VEG MGT | Heather management by burning | £200-250 | day | CAPITAL | NRW Land Agents |
| VEG MGT | Heather management by cutting | £69 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Heather restoration by seed and mulch | £265 | ha | CAPITAL |  |
| VEG MGT | Planting marram grass | £365 | ha | CAPITAL |  |
| VEG MGT | Reed cutting | £400 | ha | CAPITAL |  |
| VEG MGT | Reed planting – bought in seed | £4,091 | ha | CAPITAL |  |
| VEG MGT | Reed planting – seed from existing stands | £421 | ha | CAPITAL |  |
| VEG MGT | Rush/*Molinia* management – mechanical control | £30 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Scrub clearance – hand | £1,000 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Scrub clearance – mechanical | £227 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Sward enhancement using native seed | £250 | ha | CAPITAL |  |
| VEG MGT | Weed wiping | £35 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Invasive plant species control | £1,179 | ha | CAPITAL |  |
| VEG MGT | Japanese knotweed | 50-8000 | m² | CAPITAL | Economic Cost of INNS to GB |
| VEG MGT | Rhododendron control <1.5m | £3,883 | ha | CAPITAL |  |
| VEG MGT | Rhododendron control – 1.5 to 2.5m | £5,129 | ha | CAPITAL |  |
| VEG MGT | Rhododendron control - >2.5m | £7,461 | ha | CAPITAL |  |
| VEG MGT | Ride & open ground mechanised mowing for conservation reasons | £160 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Green hay | £157 | ha | CAPITAL |  |
| VEG MGT | Chisel ploughing | £17 | ha | CAPITAL |  |
| VEG MGT | Turf stripping | £525 | ha | CAPITAL |  |
| VEG MGT | Heather cutting and removal | £109 | ha | CAPITAL | NRW Land Agents |
| VEG MGT | Himalayan balsam pulling by hand | £150 | day | CAPITAL | NRW Land Agents |
| GRAZING MGT | Relocation of sheep dips and holding pens | £3,500 | each | CAPITAL |  |
| GRAZING MGT | Relocation of sheep pens only | £2,250 | each | CAPITAL |  |
| GENERAL | Specialist consultation | £300 | day | CAPITAL | NRW Land Agents |
| BOUNDARIES | Dry stone wall - importing stone [additional] | £16 | m² | CAPITAL |  |
| BOUNDARIES | Dry stone wall restoration | £28 | m² | CAPITAL | NRW Land Agents |
| BOUNDARIES | Earth bank restoration | £6 | m² | CAPITAL | NRW Land Agents |
| BOUNDARIES | Stone faced earth banks – repairing and restoring | £17 | m² | CAPITAL | NRW Land Agents |
| BOUNDARIES | Electric fence | £3 | m | CAPITAL | NRW Land Agents |
| BOUNDARIES | Hedge laying | £6 | m | CAPITAL | NRW Land Agents |
| BOUNDARIES | Hedge planting/coppicing | £5 | m | CAPITAL | NRW Land Agents |
| BOUNDARIES | Enhanced hedgerow management | £0 | m | CAPITAL |  |
| BOUNDARIES | Post and rail fencing | £18 | m | CAPITAL | NRW Land Agents |
| BOUNDARIES | Post and wire fencing | £1 | m | CAPITAL | NRW Land Agents |
| BOUNDARIES | Post and wire fencing with stock netting | £8 | m | CAPITAL | NRW Land Agents |
| BOUNDARIES | Rabbit fencing | £5 | m | CAPITAL |  |
| BOUNDARIES | Slate fencing - restorations | £31 | m | CAPITAL |  |
| BOUNDARIES | Top wiring on stone walls | £1 | m | CAPITAL |  |
| BOUNDARIES | Metal field gate + installation | £125 | each | CAPITAL | NRW Land Agents |
| BOUNDARIES | Timber field gates - hardwood + installation | £236 | each | CAPITAL | NRW Land Agents |
| BOUNDARIES | Timber field gates – softwood + installation | £150 | each | CAPITAL | NRW Land Agents |
| HAB MGT | Additional Management Payment - Control burning | 220.80-96.00 | 0-3 ha | MGT |  |
| HAB MGT | Additional Management Payment - Control burning | £12 | 3-5 ha | MGT |  |
| HAB MGT | Additional Management Payment - Control burning | £0 | 5-10 ha | MGT |  |
| HAB MGT | Additional Management Payment - Control burning | £0 | >10 ha | MGT |  |
| HAB MGT | Additional Management Payment – Reduce stocking | £268 | LU | MGT |  |
| HAB MGT | Additional Management Payment – Mixed grazing | £12 | ha | MGT |  |
| HAB MGT | Grazed perm pasture (no inputs) | £94 | Ha | MGT |  |
| HAB MGT | Grazed perm pasture (low inputs/mix grazing) | £66 | Ha | MGT |  |
| HAB MGT | Grazed perm pasture (low inputs) | £54 | ha | MGT |  |
| HAB MGT | Grazed perm pasture (no inputs/mix grazing) | £106 | Ha | MGT |  |
| HAB MGT | Lowland marshy grassland (mix grazing) | £119 | Ha | MGT |  |
| HAB MGT | Coastal and lowland heath (mix grazing) | £89 | Ha | MGT |  |
| TREE MGT | Woodland - stock exclusion | £80 | ha | MGT |  |
| TREE MGT | Scrub – stock exclusion | £140 | ha | MGT |  |
| TREE MGT | Light grazing | £58 | ha | MGT |  |
| TREE MGT | Wood pasture | £78 | ha | MGT |  |
| HAB MGT | Saltmarsh | £135 | Ha | MGT |  |
| HAB MGT | Saltmarsh (mix grazing) | £147 | Ha | MGT |  |
| HAB MGT | Sand dunes (mix grazing) | £124 | Ha | MGT |  |
| HAB MGT | Grazed open country | £58 | ha | MGT |  |
| HAB MGT | Grazed open country (mix grazing) | £70 | ha | MGT |  |
| HAB MGT | Establish grass ley | £264 | ha | MGT |  |
| HAB MGT | Establish red clover ley | £280 | ha | MGT |  |
| HAB MGT | Historic parks and gardens | £86 | ha | MGT |  |
| HAB MGT | Lowland dry heath with less than 50% western gorse | £90 | ha | MGT |  |
| HAB MGT | Lowland dry heath with more than 50% western gorse | £90 | ha | MGT |  |
| HAB MGT | Lowland wet heath with less than 60% purple moor- grass | £64 | ha | MGT |  |
| HAB MGT | Lowland wet heath with more than 60% purple moor-grass | £58 | ha | MGT |  |
| HAB MGT | Lowland heath habitat expansion - establishment on grassland | £284 | ha | MGT |  |
| HAB MGT | Lowland unimproved acid grassland | £242 | ha | MGT |  |
| HAB MGT | Lowland unimproved acid grassland - reversion (pasture) | £189 | ha | MGT |  |
| HAB MGT | Lowland unimproved acid grassland - reversion (hay cutting) | £249 | ha | MGT |  |
| HAB MGT | Lowland unimproved neutral grassland - pasture | £161 | ha | MGT |  |
| HAB MGT | Lowland unimproved neutral grassland – hay meadow | £221 | ha | MGT |  |
| HAB MGT | Lowland unimproved neutral grassland - reversion (pasture) | £161 | ha | MGT |  |
| HAB MGT | Lowland unimproved neutral grassland - reversion (hay cutting) | £221 | ha | MGT |  |
| HAB MGT | Lowland unimproved calcareous grassland | £228 | ha | MGT |  |
| HAB MGT | Lowland unimproved calcareous grassland - reversion (pasture) | £161 | ha | MGT |  |
| HAB MGT | Lowland unimproved calcareous grassland - reversion (hay cutting) | £221 | ha | MGT |  |
| HAB MGT | Conversion from arable to grassland (no inputs) | £246 | ha | MGT |  |
| HAB MGT | Conversion from improved grassland to semi- improved grassland (hay cutting) | £235 | ha | MGT |  |
| HAB MGT | Lowland marshy grassland | £151 | ha | MGT |  |
| HAB MGT | Lowland marshy grassland - reversion (pasture) | £242 | ha | MGT |  |
| HAB MGT | Lowland bog and other acid mires with less than 50% purple moor-grass | £190 | ha | MGT |  |
| HAB MGT | Lowland bog and other acid mires with more than 50% purple moor-grass | £151 | ha | MGT |  |
| HAB MGT | Lowland bog and other acid mires - restoration (no grazing) | £205 | ha | MGT |  |
| HAB MGT | Lowland bog and other acid mires - reversion (pasture) | £280 | ha | MGT |  |
| HAB MGT | Lowland fen | £129 | ha | MGT |  |
| HAB MGT | Lowland fen - restoration (no grazing) | £205 | ha | MGT |  |
| HAB MGT | Lowland fen - reversion (pasture) | £234 | ha | MGT |  |
| HAB MGT | Reedbed – stock exclusion | £67 | ha | MGT |  |
| HAB MGT | Reedbed - creation | £401 | ha | MGT |  |
| HAB MGT | Coastal grassland (maritime cliff and slope) | £187 | ha | MGT |  |
| HAB MGT | Saltmarsh - restoration (no grazing) | £268 | ha | MGT |  |
| HAB MGT | Saltmarsh - creation | £242 | ha | MGT |  |
| HAB MGT | Coastal vegetated shingle and sand dunes - creation | £301 | ha | MGT |  |
| HAB MGT | Red clover ley | £255 | ha | MGT |  |
| HAB MGT | Buffer zones to prevent erosion and run-off from grassland | £146 | ha | MGT |  |
| HAB MGT | Buffer zones to prevent erosion and run-off from grassland - ditch landscapes | £205 | ha | MGT |  |
| HAB MGT | Buffer zones to prevent erosion and run-off from land under arable cropping | £380 | ha | MGT |  |
| HAB MGT | Grassland managed with no inputs between 15 October and 31 January | £44 | ha | MGT |  |
| HAB MGT | No lime on improved or semi-improved grassland over peat soils | £54 | ha | MGT |  |
| HAB MGT | Grassland management for chough (feeding) | £118 | ha | MGT |  |
| HAB MGT | Grassland management for curlew (nesting & chick feeding) | £78 | ha | MGT |  |
| HAB MGT | Grassland management for curlew (adult feeding) | £78 | ha | MGT |  |
| HAB MGT | Hay meadow management for curlew (nesting) | £194 | ha | MGT |  |
| HAB MGT | Grassland management for golden plover (feeding) | £78 | ha | MGT |  |
| HAB MGT | Grassland management for lapwing (nesting & feeding) | £78 | ha | MGT |  |
| HAB MGT | Grassland management for ring ouzel (feeding) | £78 | ha | MGT |  |
| HAB MGT | Orchard management | £205 | ha | MGT |  |
| HAB MGT | Management of rough grassland - enclosed land | £255 | ha | MGT |  |
| HAB MGT | Additional Management Payment - Stock management | £18 | ha | MGT |  |
| HAB MGT | Additional Management Payment - Re-wetting | £25 | ha | MGT |  |
| HAB MGT | Additional Management Payment - Re-wetting (improved land) | £40 | ha | MGT |  |
| HAB MGT | Additional Management Payment - Grazing management for dung invertebrates | £28 | ha | MGT |  |
| HAB MGT | Lowland marshy grassland | £107 | Ha | MGT |  |
| HAB MGT | Coastal and lowland heath | £77 | Ha | MGT |  |
| AGRI MGT | Unsprayed autumn sown cereal crop for corn bunting (nesting & feeding) | £326 | ha | MGT |  |
| AGRI MGT | Unsprayed spring sown barley crop for corn bunting (nesting & feeding) | £456 | ha | MGT |  |
| AGRI MGT | Unsprayed spring sown cereals, oil seed rape, linseed or mustard crop for lapwing (nesting) | £303 | ha | MGT |  |
| AGRI MGT | Uncropped fallow plot for lapwing (nesting) | £497 | ha | MGT |  |
| AGRI MGT | Existing hay meadow | £154 | Ha | MGT |  |
| AGRI MGT | Retain winter stubbles | £122 | ha | MGT |  |
| AGRI MGT | Unsprayed cereals or legumes | £284 | ha | MGT |  |
| AGRI MGT | Unsprayed cereals retaining winter stubbles | £440 | ha | MGT |  |
| AGRI MGT | Unsprayed rootcrops (no direct drilling) | £497 | ha | MGT |  |
| AGRI MGT | Wildlife cover crop | £604 | ha | MGT |  |
| TREE MGT | Stacking area - New basic - no stone | £1 | m² | CAPITAL |  |
| TREE MGT | Stacking area - New – stone bought in | £6 | m² | CAPITAL |  |
| TREE MGT | Stacking area – New - stone won on site | £4 | m² | CAPITAL |  |
| TREE MGT | Stacking area– Upgrade to basic – stone bought in | £6 | m² | CAPITAL |  |
| TREE MGT | Stacking area- Upgrade to basic – stone won on site | £4 | m² | CAPITAL |  |
| TREE MGT | Stacking area- Upgrade to basic – no stone | £1 | m² | CAPITAL |  |
| TREE MGT | Grafting and budding | £15 | hr | CAPITAL |  |
| TREE MGT | Basic re-stocking: <5ha coupe size – over 350m altitude | £2,300 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: >5 to 20ha coupe size – over 350m altitude | £1,900 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: >20ha coupe size – over 350m altitude | £1,900 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: <5ha coupe size – between 250 and 350m altitude | £2,300 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: >5 to 20ha coupe size – between 250 and 350m altitude | £2,300 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: >20ha coupe size – between 250 and 350m altitude | £1,900 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: <5ha coupe size – below 250m altitude | £2,300 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: >5 to 20ha coupe size – below 250m altitude | £2,300 | ha | CAPITAL |  |
| TREE MGT | Basic re-stocking: >20ha coupe size – below 250m altitude | £1,900 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: <5ha coupe size – over 350m altitude | £2,560 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: >5 to 20ha coupe size – over 350m altitude | £2,150 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: >20ha coupe size – over 350m altitude | £2,150 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: <5ha coupe size – between 250 and 350m altitude | £2,560 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: >5 to 20ha coupe size – between 250 and 350m altitude | £2,560 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: >20ha coupe size – between 250 and 350m altitude | £2,150 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: <5ha coupe size – below 250m altitude | £2,560 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: >5 to 20ha coupe size – below 250m altitude | £2,560 | ha | CAPITAL |  |
| TREE MGT | Enhanced re-stocking: >20ha coupe size – below 250m altitude | £2,150 | ha | CAPITAL |  |
| TREE MGT | Re-stocking: Broadleaves - PAWS, ASNW and Core & Focal networks | £2,770 | ha | CAPITAL |  |
| TREE MGT | Re-stocking: Broadleaves – All other sites | £2,770 | ha | CAPITAL |  |
| TREE MGT | Re-stocking: Riparian zones | £2,000 | ha | CAPITAL |  |
| TREE MGT | Chemical thin | £236 | ha | CAPITAL |  |
| TREE MGT | Clear fell conifer and extract using skyline on PAWS | £1,946 | ha | CAPITAL |  |
| TREE MGT | Re-spacing natural regeneration to favour native broadleaved species or mixed woodland | £491 | ha | CAPITAL |  |
| TREE MGT | Scarification to encourage natural regeneration of trees from seed | £283 | ha | CAPITAL |  |
| TREE MGT | Coppicing | £1,078 | ha | CAPITAL |  |
| TREE MGT | Thin predominantly broadleaf woodland and extract | £271 | ha | CAPITAL |  |
| TREE MGT | Thin predominantly broadleaf woodland to waste and retain all timber | £490 | ha | CAPITAL |  |
| TREE MGT | Thin predominantly conifer woodland and extract | £498 | ha | CAPITAL |  |
| TREE MGT | Thin predominantly conifer woodland to waste and retain all timber | £519 | ha | CAPITAL |  |
| TREE MGT | Ring barking | £236 | ha | CAPITAL |  |
| TREE MGT | Trees and scrub - establishment by planting | £345 | ha | CAPITAL |  |
| TREE MGT | Trees and scrub - establishment by natural regeneration | £341 | ha | CAPITAL |  |
| TREE MGT | Removal of conifers | £6 | each | CAPITAL |  |
| TREE MGT | Restoration pruning of orchard trees | £13 | each | CAPITAL |  |
| TREE MGT | Tree pollarding | £44 | each | CAPITAL |  |
| TREE MGT | Tree shelter [60cm with stake] | £1 | each | CAPITAL |  |
| TREE MGT | Trees – standards | £11 | each | CAPITAL |  |
| TREE MGT | Trees & shrubs – transplants | £1 | each | CAPITAL |  |
| TREE MGT | Trees & shrubs – whips | £3 | each | CAPITAL |  |
| TREE MGT | M25 & mm111 orchard trees plus guard and stake | £60 | each | CAPITAL |  |
| TREE MGT | Sabre planting [no fence planting] | £12 | each | CAPITAL |  |
| TREE MGT | Spiral rabbit guards | £0 | each | CAPITAL |  |
| DRAINAGE | Enhanced in ditch wetland | £465 | wetland | CAPITAL |  |
| DRAINAGE | In ditch wetland | £205 | wetland | CAPITAL |  |
| DRAINAGE | Pond creation | £4 | m² | CAPITAL |  |
| DRAINAGE | Pond restoration | £3 | m² | CAPITAL |  |
| DRAINAGE | Swales | £3 | m² | CAPITAL |  |
| DRAINAGE | Cross drains [polychannel] | £82 | m | CAPITAL |  |
| DRAINAGE | Ditch casting | £1 | m | CAPITAL |  |
| DRAINAGE | Piped water supply | £1 | m | CAPITAL |  |
| DRAINAGE | Soft engineering to reduce river bank erosion | £81 | m | CAPITAL |  |
| DRAINAGE | Culverts - <400mm | £46 | m | CAPITAL |  |
| DRAINAGE | Breaking up field drains | £21 | each | CAPITAL |  |
| DRAINAGE | Flexi pipe sluices | £120 | each | CAPITAL |  |
| DRAINAGE | Grazing marsh bridge | £236 | each | CAPITAL |  |
| DRAINAGE | Grip blocking | £124 | each | CAPITAL |  |
| DRAINAGE | Scrapes | £62 | each | CAPITAL |  |
| DRAINAGE | Sediment traps | £124 | each | CAPITAL |  |
| DRAINAGE | Seepage barrier | £122 | each | CAPITAL |  |
| DRAINAGE | Timber sluice | £232 | each | CAPITAL |  |
| DRAINAGE | Water gate | £100 | each | CAPITAL |  |
| DRAINAGE | Water troughs | £118 | each | CAPITAL |  |
| DRAINAGE | Culverts – 400mm | £237 | each | CAPITAL |  |
| DRAINAGE | Culverts – 600mm | £290 | each | CAPITAL |  |
| DRAINAGE | Culverts - 900mm | £665 | each | CAPITAL |  |
| DRAINAGE | Culverts – 1050mm | £809 | each | CAPITAL |  |

# Table 2: Standard costs for Natura 2000 activities based on Water Framework Directive Measures Costing Inventory

| **Mechanism theme** | **Activity** | **Cost (£)** | **Measure** | **CAPITAL/ MANAGEMENT** |
| --- | --- | --- | --- | --- |
| AGRI | Allow field drainage systems to deteriorate | £30 | per ha | MGT |
| AGRI | Arable reversion to low fertiliser input extensive grazing | £1,050 | per ha | MGT |
| AGRI | Avoid use of fertiliser at high risk times | £3 | per ha | MGT |
| AGRI | Construct bridges for livestock crossing rivers/streams | £18 | per ha | MGT |
| AGRI | Construct Troughs with firm but permeable bases | £4 | per ha | CAPITAL |
| AGRI | Convert arable land to unfertilised and ungrazed grass | £100 | per ha | MGT |
| AGRI | Convert arable/grassland to permanent woodlands | -£150 | per ha | MGT |
| AGRI | Cultivate and drill across the slope | £10 | per ha | MGT |
| AGRI | Cultivate compacted tillage soils | £25 | per ha | MGT |
| AGRI | Cultivate land for crops in spring rather than autumn | £100 | per ha | MGT |
| AGRI | De-culverting | £2,500 | per m | CAPITAL |
| AGRI | Ditch Management | £18 | per ha | MGT |
| AGRI | Do not apply manufactured fertilisers to high risk areas | £3 | per ha | MGT |
| AGRI | Do not apply manure to high risk areas | £1 | per ha | MGT |
| AGRI | Do not apply P fertiliser to high P index soils | £2 | per ha | MGT |
| AGRI | Do not spread FYM, slurry or poultry manure at high risk times | £1 | per ha | MGT |
| AGRI | Early harvesting and establishment of crops in the autumn | £800 | per ha | MGT |
| AGRI | Establish and maintain artificial wetlands | £108 | per ha | MGT |
| AGRI | Establish cover crops in autumn | £60 | per ha | MGT |
| AGRI | Establish in-field grass buffer strips | £1,775 | per farm | CAPITAL |
| AGRI | Establish new hedges | £48 | per ha | MGT |
| AGRI | Establish tree shelter belts around livestock housing | £600 | per farm | MGT |
| AGRI | Extend the grazing season for cattle | £775 | per farm | CAPITAL |
| AGRI | Farm track management | £2 | per ha | MGT |
| AGRI | Fence off rivers and streams from livestock and provide water troughs | £10 | per ha | MGT |
| AGRI | Fit/improve instream sediment traps | £8 | m2 | CAPITAL |
| AGRI | Fit/improve riparian buffer strips | £5,625 | per farm | CAPITAL |
| AGRI | Fit/improve wetlands (including constructed wetlands and fencing/grip blocking to restore blanket bogs/re-wet blanket bog | £108 | per ha | MGT |
| AGRI | Incorporate manure into the soil | £45 | per ha | MGT |
| AGRI | Increase capacity of farm manure (slurry) stores to improve timing of applications | £4 | per m3 slurry | MGT |
| AGRI | Leave autumn seedbeds rough | £40 | per ha | MGT |
| AGRI | Liming to treat acidification | £5,100 | per water-body per year | CAPITAL |
| AGRI | Loosen compacted soil layers in grassland fields | £10 | per ha | MGT |
| AGRI | Maintain/improve field drainage systems | £10 | per ha | MGT |
| AGRI | Modify/cease dredging regime | £23 | m2 | CAPITAL |
| AGRI | Reduce field stocking rates when soils are wet | £3,100 | per farm | CAPITAL |
| AGRI | Reduce length of the grazing day/grazing season | £3,125 | per farm | CAPITAL |
| AGRI | Relocate or remove main receptor (e.g. divert stream) | £449 | m2 | CAPITAL |
| AGRI | Remediation of land contamination and/or Groundwater |  |  |  |
| AGRI | Removal of sediment (including contaminated sediment and fisheries gravel cleaning) |  |  |  |
| AGRI | Re-site gateways away from high risk areas | £3 | per ha | MGT |
| AGRI | Restriction on boat access, speed and maintenance activities on navigable waterways and marinas |  |  |  |
| AGRI | Riparian management | £6,878 | m2 | CAPITAL |
| AGRI | Riparian management | £3 | m2 | CAPITAL |
| AGRI | Riparian restoration | £1,142 | m2 | CAPITAL |
| AGRI | Seal/cap contaminated sediments |  |  |  |
| CHANNEL | Agriculture Construct winter storage reservoir | £4,452 | per Ml | CAPITAL |
| CHANNEL | Creating multi-stage channels | £3,760,975 | per km | CAPITAL |
| CHANNEL | In-channel works | £188,050 | per km | CAPITAL |
| CHANNEL | In-stream structures (current deflectors) | £70,410 | per km | CAPITAL |
| CHANNEL | Modify channel (deepen/realign) | £5,336,070 | per km | CAPITAL |
| CHANNEL | Raising the river bed level | £235,099 | per km | CAPITAL |
| CHANNEL | Re-meandering | £1,913,014 | per km | CAPITAL |
| INVASIVES | Reduction of the extent of invasive non-native species by operations - Floating Pennywort Machine removal followed by hand-picking maintenance | £1370-2000 | £ per km machine clearance | CAPITAL |
| INVASIVES | Hand picking maintenance re invasives | £283 | £ per km | MGT |
| INVASIVES | Reduction of the extent of invasive non-native species by operations - Spraying Japanese Knotweed/giant hogweed | £26 | £ per hour | CAPITAL |
| INVASIVES | Control of signal crayfish | £32,500 | per 'project' | MGT |
| WATER | Appropriate water level management strategies, including timing and volume of water moved | £48,025 | per site | CAPITAL |
| WATER | Baffled fish pass | £429,825 | per structure | CAPITAL |
| WATER | Bank rehabilitation / reprofiling | £128,110 | per km | CAPITAL |
| WATER | Bank rehabilitation / reprofiling | £612 | m2 | CAPITAL |
| WATER | Bed raising | £197,000 | per km | CAPITAL |
| WATER | Change operational regime | £18 | m2 | CAPITAL |
| WATER | Change operational regime (locks weirs etc.) | £2,500 | per ha per year | CAPITAL |
| WATER | Channel maintenance strategy | £12,500 | per ha per year | CAPITAL |
| WATER | Channel maintenance strategy | £12,914 | per structure | CAPITAL |
| WATER | Construction and operation of 30m fish pass and ancillary works | £5,000,000 | per scheme | CAPITAL |
| WATER | Creating side bars, riffles and back waters | £74,770 | per km | CAPITAL |
| WATER | Cross-Section Enhancement (e.g. re-profiling and extending banks, two-stage channels) | £77,000 | per km | CAPITAL |
| WATER | Current deflectors | £70,410 | per km | CAPITAL |
| WATER | Dual flight with resting pool - simple site | £190,000 | per structure | CAPITAL |
| WATER | Enable fish passage | £30,000 | per ha per year | CAPITAL |
| WATER | Enable fish passage | £498 | m2 | CAPITAL |
| WATER | Enable fish passage (installation during maintenance) | £50,000 | per structure | CAPITAL |
| WATER | Enable fish passage (stand-alone installation) | £150,000 | per structure | CAPITAL |
| WATER | Ensure the seasonal pattern of water levels during each year is managed so as to enable the establishment and retention of aquatic plant and animal communities in the shore zone of the impoundment | £71 | per site | CAPITAL |
| WATER | Fencing (post & wire) | £5 | per m | CAPITAL |
| WATER | Fish Friendly Turbines | £805,923 | per structure | CAPITAL |
| WATER | Fisheries management plan |  |  | CAPITAL |
| WATER | General: Increase in-channel morphological diversity | £81,620 | per km | CAPITAL |
| WATER | Habitat creation | £342 | m2 | CAPITAL |
| WATER | Habitat creation (includes Create scrapes/pools) | £45,640 | per ha per year | MGT |
| WATER | Habitat Management | £20,000 | per ha per year | CAPITAL |
| WATER | Habitat Management | £67 | m2 | CAPITAL |
| WATER | Habitat Management | £42,788 | per ha per year | MGT |
| WATER | Improve floodplain connectivity | £20,000 | per ha per year | CAPITAL |
| WATER | Improve floodplain connectivity | £40,290 | per km | CAPITAL |
| WATER | Improve floodplain connectivity | £183 | m2 | CAPITAL |
| WATER | Improve floodplain connectivity | £38,034 | per ha per year | MGT |
| WATER | Improvements to longitudinal connectivity | £20,000 | per ha per year | CAPITAL |
| WATER | Improvements to longitudinal connectivity | £17 | m2 | CAPITAL |
| WATER | Improvements to longitudinal connectivity | £9,508 | per ha per year | MGT |
| WATER | Incorporating sluices to allow sediment continuity | £10,848 | per structure | CAPITAL |
| WATER | Increase in-channel morphological diversity | £20,000 | per ha per year | CAPITAL |
| WATER | Increase in-channel morphological diversity | £178 | m2 | CAPITAL |
| WATER | Install screens at fish farms, cress beds or amenity intakes (installation during maintenance) | £1,650 | Per structure | CAPITAL |
| WATER | Install screens at fish farms, cress beds or amenity intakes (standalone installation) | £5,000 | per structure | CAPITAL |
| WATER | Install screens at Pumping Stations (installation during maintenance) | £100,000 | per structure | CAPITAL |
| WATER | Install screens at Pumping Stations (standalone installation) | £300,000 | per structure | CAPITAL |
| WATER | Install screens on Electricity Industry intake (installation during maintenance) | £165,000 | per structure | CAPITAL |
| WATER | Install screens on Electricity Industry intake (standalone installation) | £500,000 | per structure | CAPITAL |
| WATER | Install screens on Industrial intake (installation during maintenance) | £33,000 | per structure | CAPITAL |
| WATER | Install screens on Industrial intake (standalone installation) | £100,000 | per structure | CAPITAL |
| WATER | Install screens on Irrigation & Agriculture intake (installation during maintenance) | £1,000 | per structure | CAPITAL |
| WATER | Install screens on Irrigation & Agriculture intake (standalone installation) | £3,000 | per structure | CAPITAL |
| WATER | Install screens on Private supply intake (installation during maintenance) | £16,500 | per structure | CAPITAL |
| WATER | Install screens on Private supply intake (standalone installation) | £50,000 | per structure | CAPITAL |
| WATER | Install screens on Public Water Supply intake (installation during maintenance) | £165,000 | per structure | CAPITAL |
| WATER | Install screens on Public Water Supply intake (standalone installation) | £500,000 | per structure | CAPITAL |
| WATER | Install screens Unclassified (installation during maintenance) | £1,650 | per structure | CAPITAL |
| WATER | Install screens Unclassified (standalone installation) | £5,000 | per structure | CAPITAL |
| WATER | Inter-tidal zone restoration (from land reclamation) | £46,000 | per ha | CAPITAL |
| WATER | Land drainage water level management | £42,000 | scheme | CAPITAL |
| WATER | Licensing of fisheries |  |  |  |
| WATER | Manage risk of fish entrainment | £12,000 | per structure | CAPITAL |
| WATER | Manage risk of fish entrainment | £5,500 | per structure | MGT |
| WATER | Managed realignment | £1,087 | m2 | CAPITAL |
| WATER | Managed realignment of flood defence | £20,000 | per ha per year | CAPITAL |
| WATER | Managed realignment of flood defence | £19,017 | per ha per year | MGT |
| WATER | Management of the risk of fish entrainment in intakes for hydropower turbines or water resource purposes (or pumping stations) where there is downstream fish migration | £540,011 | per structure | CAPITAL |
| WATER | Modify structure or reclamation | £3,937 | per structure | CAPITAL |
| WATER | Modify structures | £30,000 | per ha per year | CAPITAL |
| WATER | Modify structures | £1,375 | m2 | CAPITAL |
| WATER | Modify structures | £19,017 | per ha per year | MGT |
| WATER | Modify vessel design | £63,577 | per project | CAPITAL |
| WATER | Notch and Low Flow Channel | £6,716 | per structure | CAPITAL |
| WATER | Operational and structural changes to locks, sluices, weirs, beach control, etc. | £89,646 | per structure | CAPITAL |
| WATER | Plant new vegetation | £85 | m2 | CAPITAL |
| WATER | Plant new vegetation | £24 | m | CAPITAL |
| WATER | Plant new vegetation (tree planting) | £3 | per tree planted | CAPITAL |
| WATER | Pool type fish pass | £42,983 | per structure | CAPITAL |
| WATER | Preserve (e.g. fencing) and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone | £2,144 | per farm per year | MGT |
| WATER | Preserve and restore habitats | £511 | m2 | CAPITAL |
| WATER | Preserve and restore habitats (includes restoration of natural planform) | £20,000 | per ha per year | CAPITAL |
| WATER | Preserve and restore habitats (includes restoration of natural planform) | £38,034 | per ha per year | MGT |
| WATER | Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone / Retain marginal aquatic and riparian habitats (channel alteration) | £18,600 | per km | CAPITAL |
| WATER | Preserve and, where possible, restore historic aquatic habitats | £288,245 | per km | CAPITAL |
| WATER | Protect and maintain natural sediment processes | £12,500 | per ha per year | CAPITAL |
| WATER | Protect and maintain natural sediment processes | £180 | m2 | CAPITAL |
| WATER | Protect and maintain natural sediment processes | £19,017 | per ha per year | MGT |
| WATER | Protect existing vegetation | £148 | m2 | CAPITAL |
| WATER | Protect existing vegetation | £20,000 | per ha per year | CAPITAL |
| WATER | Protect existing vegetation | £9,508 | per ha per year | MGT |
| WATER | Re-engineering of the river where the flow regime cannot be modified | £56 | m2 | CAPITAL |
| WATER | Remedial alteration of EA Gauging Stations to meet WFD Fish Passage requirements: includes weir removal, installing ultrasonics/acoustic doppler (high end estimate £300-350K) and baffles (low end estimate £50K). | £200,000 | per structure | CAPITAL |
| WATER | Removal of hard bank reinforcement / revetment, or replacement with soft engineering solution | £3,558,590 | per km | CAPITAL |
| WATER | Removal of redundant river modifications to improve river lateral and longitudinal connectivity and subsequently fish productivity and environment diversity | £2,100 | per structure | CAPITAL |
| WATER | Removal of sediment | £9 | m2 | CAPITAL |
| WATER | Removal or replacement of hard bank reinforcement with soft engineering solution | £10,001 | per ha per year | CAPITAL |
| WATER | Removal or replacement of hard bank reinforcement with soft engineering solution | £30 | m2 | CAPITAL |
| WATER | Removal or replacement of hard bank reinforcement with soft engineering solution | £28,525 | per ha per year | MGT |
| WATER | Remove obsolete structure | £53,361 | per structure | CAPITAL |
| WATER | Remove structures | £30,000 | per ha per year | CAPITAL |
| WATER | Remove structures | £705 | m2 | CAPITAL |
| WATER | Replacement of tidal sluices/flaps with better-designed flaps to allow fish navigation. Installation during maintenance. | £10,000 | per structure | CAPITAL |
| WATER | Rock ramp fish pass | £214,913 | per structure | CAPITAL |
| WATER | Sediment management | £15 | m3 | CAPITAL |
| WATER | Sediment management strategies | £5,000 | per ha per year | CAPITAL |
| WATER | Sediment management strategies | £10,788 | per ha per year | MGT |
| WATER | Structure modification | £210,000 | per km | CAPITAL |
| WATER | Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works | £320,164 | per structure | CAPITAL |

# Table 3: Costs collated from existing plans and programmes

| **Project** | **Activity** | **Cost** | **Measure** | **Source of information** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| Dee Invasive Non-Native Species (INNS) project | Line management of project officer | £2,500 | year |  |  |
| Dee INNS project | Project officer | £40,000 | year |  |
| Dee INNS project | Project staff expenses | £3,500 | year |  |
| Dee INNS project | Translation and printing costs for single project | £2,000 | year |  |
| Dee INNS project | Baseline survey | £100,000 | Dee catchment |  |
| Dee INNS project | Training | £15,000 | group of volunteers |  |
| Dee INNS project | Equipment | £31,000 | Dee and Ceiriog catchments | £6k on equipment for the main Dee and £15k for the Alyn and £10k on Ceiriog. Trailers, boat, sprayer, strimmer. |
| Dee INNS project | Biosecurity awareness raising | £5,000 | Dee catchment | 500 biosecurity packs at £10 a pack. |
| Dee INNS project | Stakeholder workshop | £1,500 | per workshop |  |
| Dee INNS project | Washing station | £10,000 | per station | Includes concrete box with gear for cleaning kit with a combination lock for canoeists and anglers. |
| Dee River Restoration Plan | Remove bank reinforcement | £75-£138 | per meter | River Dee SSSI River Restoration Management Report March 2013, Jacobs on behalf of Environment Agency. |  |
| Dee River Restoration Plan | Remove embankment | £2-£138 | per meter | Cost based on length of reinforced bank. Disposal costs of material not included. |
| Dee River Restoration Plan | Remove minor weir | £5,000-£19,000 | per weir | Minor weir, landowner or local contractor to undertake work. |
| Dee River Restoration Plan | Remove major weir (and associated walls) | £60,000-£120,000 | per weir | Feasibility and detailed design necessary and included in costs. Disposal costs of demolition materials not included |
| Dee River Restoration Plan | Replace artificially straightened channel with a more sinuous channel to create fish spawning habitat | £250-£550 | per meter | Based on experience of projects c.1 km in length. Assumed rural area and no major services diversions required. |
| Dee River Restoration Plan | Improve riparian corridor (including tree planting) Fill gaps in riparian vegetation by planting | £7 | per meter | Assume 50% of channel length (between both banks). Based on 12m riparian width. Costs £345-400/hectare. |

# Table 4: Costs derived from previous similar work

| **Source of information** | **Activity** | **Cost** | **Measure** | **Site (where planned or carried out)** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| [http://azollacontrol.com](http://azollacontrol.com/) | *Azolla* control standard weevil pack | £100 each | 10m2 | Llyn Dinam | One-off cost |
| [http://azollacontrol.com](http://azollacontrol.com/) | *Azolla* control large weevil pack | £360 each | 50m2 | Llyn Dinam | One-off cost |
| NRW conservation officer | Cattle grid with horse drawn vehicle gateway | £30,000-£40,000 | 1 | Preseli | One-off cost |
| NRW conservation officer | Biosecurity awareness raising | £12,000-£20,000 | year | River Dee and Bala Lake | This does not include staffing costs of an INNS Officer |
| NRW conservation officer | Burning management group | £5,000-10,000 | year | Preseli |  |
| NRW conservation officer | Fire break cutting | £500 | day | Preseli |  |
| NRW conservation officer | Shepherding | £500 | year | Preseli | To encourage grazing near top of slopes. |
| NRW conservation officer | Ponds: 0.4ha lining per pond for newts | £2,000 | pond | Glantraeth |  |
| NRW conservation officer | Ponds: 0.4ha excavation per pond for newts | £450 | pond | Glantraeth | Based on day digger hire at £300 per day and half a day of clerk of works to check for newts at £300 pro rata. |
| NRW conservation officer | Pond contouring and vegetation clearance | £450 | day | Glantraeth | Based on day digger hire at £300 per day and half a day of clerk of works to check for newts at £300 pro rata. |
| NRW project manager | Chainsaw work | £360 | person/ day | Corsydd Mon | IF work requires 2 people minimum for health and safety reasons. |
| NRW project manager | Chainsaw work | £225 | person/ day | Corsydd Mon |  |
| NRW conservation officer | Chainsaw work | £150 | person/ day | Gweunydd Blaencleddau |  |
| NRW conservation officer | Himalayan balsam pulling | £150 | person/ day | Work on a SSSI in 2014 on Ynys Mon |  |
| Internet quote | Japanese knotweed control spraying | £179 (£179-£1,076) | m² | Fenn’s and Whixhall | Cost is based on estimate of £50-£300 per 3 sq. feet which when converted to meters squared is £179-£1,076. The more difficult it is to remove the Japanese knotweed in terms of it interfering with building foundations etc. the higher the cost which may explain the range of £50-£8,000 per m2 given by the INNS secretariat.  <http://www.telegraph.co.uk/property/propertynews/7436431/Mortgages-refused-over-invasive-weed.html> |
| NRW conservation officer | Install a gate | £175 |  | Corsydd Mon |  |
| NRW conservation officer | Install a sleeper livestock crossing | £2,000 |  | Cors Caron |  |
| Internet | Lease shooting rights | £3-£10 | acre | Fenn’s Whixhall | Annual cost  <http://www.shootforum.com/forum/viewtopic.php?f=19&t=10925>  <http://www.thehuntinglife.com/forums/topic/230131-putting-a-price-on-sporting-rights/>  <http://farmingforum.co.uk/forums/showthread.php?16025-Is-%A34-an-acre-enough-for-shooting>  <http://forums.pigeonwatch.co.uk/forums/topic/149878-cost-for-renting-shooting-rights/> |
| Internet | Purchase shooting rights | £40 | acre | Fenn’s Whixhall | One-off cost |
| NRW project manager | Constructed wetland | £3,000 |  | Corsydd Mon |  |
| NRW project manager | One large or a number of small scrapes in a unit. | £6,000 |  | Corsydd Mon |  |
| NRW conservation officer | Land purchase wetland/marginal land/woodland on bog | £8,645 | hectare | Fenn’s Whixhall | Based on 2.47 acres in a hectare with an acre costing £3,500 actual price for land purchased. |
| NRW project manager | Cutting fen habitat with specialised cutter | £1,500-£2,000 | hectare | Corsydd Mon |  |
| NRW project manager | Cutting fen habitat by hand using a brush cutter/strimmer | £3,000 | hectare | Corsydd Mon |  |
| NRW project manager | Tractor and flail day rate | £225 | per day | Corsydd Mon |  |
| NRW land agent | Payment to formalise not deepening a ditch | £75 | 300m | Fenn’s Whixhall | Actual nominal annual payment to not undertake inappropriate ditch management. |
| NRW land agent | Payment to permanently re-wet an area of wetland (via ditch blocking). | £3,000 | hectare | Fenn’s Whixhall | Annual cost. Actual payment |
| NRW conservation officer | Ditch blocking | £2 | per meter | Berywn | Actual cost for upland ditch blocking. |
| NRW conservation officer | Cutting bramble by hand using a brush cutter/strimmer | £3,000 | hectare | Corsydd Mon |  |
| NRW project manager | Culvert crossing | 1400 | per crossing | Corsydd Mon |  |
| NRW conservation officer | Felling and complete removal of woodland/ conifers from an area of degraded raised bog. | £8,000 | hectare | Fenn’s Whixhall |  |
| LIFE N2K Team | Site Nitrogen Action Plan | £5,000 | per site |  | This is an average figure based on results of the *Assessing and Addressing Atmospheric Nitrogen Impacts on Natura 2000 Sites in Wales (AAANIS) report, CEH, 2015.* Actual costs would depend on the size of the site and number of air pollution issues/sources in the area. |
| **Work in the Wye Valley Woodlands SAC**  Work sites in the Wye Valley Woodlands are inaccessible with steep and sometimes difficult terrain so costs are generally higher than for similar work on other sites. Costs can vary enormously depending on the particular circumstances of a particular site, e.g. terrain, accessibility, density of plants, contractor used etc. | | | | | |
| NRW conservation officer | Coppicing | £1,000 | per coupe of approx. 0.2 ha | Wye Valley Woodlands SAC | Normally to be carried out every year on rotation. |
| NRW conservation officer | Selective thinning/removal of conifers from within broadleaved woodland (not felling of solid blocks of conifers) | £1,000 | per block of 0.2 ha | Wye Valley Woodlands SAC |  |
| NRW conservation officer | Manual clearance of Himalayan Balsam | £800 | per ha | Wye Valley Woodlands SAC | Clearance of patches with the hectare. Normally need to follow-up every year. |
| NRW conservation officer | Cherry laurel re-spray | £1,200 | per ha | Wye Valley Woodlands SAC | I.e. a hectare dominated by cherry laurel |
| NRW conservation officer | Cherry laurel re-spray | £240 | per 0.2 ha patch. | Wye Valley Woodlands SAC | Need follow up every other year on average. |
| NRW conservation officer | Cherry laurel clearance of mature plants, stacking and treatment of stumps | £10,000 | per ha | Wye Valley Woodlands SAC |  |
| NRW conservation officer | Cherry laurel clearance of mature plants, stacking and treatment of stumps | £2,000 | per 0.2 ha patch | Wye Valley Woodlands SAC |  |
| NRW conservation officer | Control of other aliens species e.g. Japanese knotweed, periwinkle | £1,200 | per hectare | Wye Valley Woodlands SAC | I.e. a hectare dominated by the alien species |
| NRW conservation officer | Control of other aliens species e.g. Japanese knotweed, periwinkle | £240 | for a 0.2 ha patch. | Wye Valley Woodlands SAC | Need to follow up every year. |
| Costs for control of deer by stalking based on a full time two-person team. This resource controls day-time deer visits in two major woodlands (Blackcliffe/Wyncliffe, Livox Wood/Troy Park and a small number of outliers) within the Wye Valley Woodland SAC. Venison is produced but sales income is not significant. | | | | | |
| Stalking contractor | Deer control by stalking – 2 full time members of staff | £60,000 |  | Wye Valley Woodlands SAC | Does not include on-costs |
| Stalking contractor | Running costs of vehicles, machinery and equipment | £15,000 |  | Wye Valley Woodlands SAC | Does not include replacement costs.  The equipment used as part of the deer management operation includes: 2 trucks, quad-bike, chainsaws, winches etc. |
| Stalking contractor | Infrastructure works and the maintenance, mowing of deer glades etc. | £10,000 |  | Wye Valley Woodlands SAC | For external contractors to open up space in woodlands to enable clear views of deer to enable management. |
| Stalking contractor | Other cash spend, larder maintenance and repairs, high seats, firearms repairs servicing and parts, ammunition, protective clothing etc. | £15,000 |  | Wye Valley Woodlands SAC | This does not include other costs such as management costs, admin, training etc. |
| Stalking contractor | Purchase of larder | £50,000 |  | Wye Valley Woodlands SAC |  |
| Stalking contractor | Installation of larder | £60,000 |  | Wye Valley Woodlands SAC |  |
| Stalking contractor | One thermal imaging survey – hire of equipment and staff time. | £7,000 |  | Wye Valley Woodlands SAC |  |

# Table 5: Average NRW staff time requirements

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| --- | --- | --- | --- |
| **Action/mechanism** | **Time** | **Notes** | **Staff role** |
| Management agreement NRW | 5 or 10 days | Time dependent on the progress of negotiations. | NRW conservation officer |
| NRW direct management | 3 days | Refers to the time taken to draw up and manage a small contract i.e. scrub removal over 10 ha | NRW project officer (Anglesey & Llyn Fens LIFE project) |
| Glastir | 1 day | Refers to the time taken to advise on the proposed agreement. | NRW conservation officer |
| Renew grazing licence | 1 day | Refers to the time taken to organise the renewal of a licence | NRW conservation officer |
| Land purchase | 5-20 days | Time dependent on the progress of negotiations (average to buy a small parcel 10 ha is between 5-10 days) | NRW land agent |
| Letting a new grazing licence | 3 days | Refers to the time taken to find and negotiate a with a new grazier | NRW project manager |