

**A MANUAL FOR THE PRODUCTION OF
GRAZING IMPACT ASSESSMENTS
IN UPLAND AND PEATLAND HABITATS**

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AND
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1. INTRODUCTION

The Department of Agriculture and Food (DAF) and Dúchas, the Heritage Service, of the Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI), have decided to address the problem of overstocking of the peatland and upland resource by assessing the impact of grazing, if any, in all of the commonages in Ireland. An agri-environmental plan will be produced for every commonage by teams consisting of an environmentalist, with skills in assessing the condition of the vegetation, and an agriculturalist, with skills in assessing the appropriate farming regimes for the commonages in question.

These plans, known as “Commonage Framework Plans” (CPs), will be used to produce individual farm plans which are compatible with the overall strategy laid down in the framework plan.

The initial purpose of producing CPs in the uplands and peatlands is to arrest degradation caused by overstocking, where this has occurred. The recovery of vegetation cover and structure in these degraded areas is deemed to be achievable but it is not the objective to restore “modified” habitats to their “natural” state. Upland habitats, in particular, are viewed as being semi-natural and can vary in floristic composition and structure due to different landuse histories.

A separate system of botanical monitoring will be set up to “fine-tune” the recommendations of the upland and peatland CPs. This detailed evaluation will seek to ensure that sustainable stocking levels and land management practices are achieved and that the degradation of the upland and peatland resource in commonages is arrested and reversed.

2. THE COMMONAGE FRAMEWORK PLAN (CP) AND ITS IMPLEMENTATION

a) General provisions

The commonage framework plan shall be drawn up by an approved agri-environmental planning agency and will be approved by both the Department of Agriculture and Food and the Department of Arts, Heritage, Gaeltacht and the Islands, if deemed to be of an acceptable standard. This CP shall include the following elements:

- the establishment of a grazing regime, including environmentally sustainable stocking levels, for the total area of the commonage(s)
- an overall grassland management plan for the commonage(s)
- measures for habitat protection within the commonage(s)

The CP shall also provide for the exclusion of the use of fertilisers (see Appendix 5 for details), plant protection products (see Appendix 5), ploughing, re-seeding, planting of trees and other prohibitions deemed necessary by the Department of Agriculture and Food and Dúchas.

Within the CP, an overall destocking percentage for the commonage will be specified, if the commonage has been damaged. If there are two or more agricultural units within a single commonage, the percentage stock reduction will be based on the assumption that stock are evenly distributed over the entire area.

The CP will specify if additional work is to be carried out, eg the removal of dumped materials, and a time-scale by which the work is to be completed will be clearly stated.

b) Specific Provisions

In particular, the framework plan shall specify

- the current use of the commonage, including the type of animals that graze there
- the current condition of the commonage, its vegetation cover, soil type, flora and fauna, landscape features and other relevant environmental factors and any local variations across the commonage; this description shall be identified on a map and will be accompanied by photographs, notes and sketches (where appropriate)
- the specific environmental objectives and an annual time-scale by which to measure and assess progress; dates by which work is to be completed should also be specified
- a schedule of environmental restrictions to be observed for the commonage or for landscape features, to protect watercourses, to protect peatlands and to restore the environmental value to the land

Habitats other than those described in this manual may occasionally be encountered. If a framework planner has any difficulty in assessing a habitat type he/she should contact the Dúchas co-ordinator or Dúchas directly. CP manuals for coastal grasslands, turloughs and limestone pavement will be forwarded to the framework planners as soon as they have been produced and further training courses will be organised. In the meantime, framework planners should refer to the agreed farming conditions for these habitats. Farming conditions for the following habitats have been agreed and are presented in Appendix 5;

- the Burren
- blanket bogs, heaths and upland grasslands
- sand dunes and machairs

Farming conditions for additional habitats are under development and will be circulated to framework planners as soon as they become available. In the meantime, the planners shall set down appropriate management conditions for habitats not covered in Appendix 5, in consultation with Dúchas, The Heritage Service.

c) Implementation of the Commonage Framework Plan

Each shareholder will be obliged to submit a REPS plan or a management plan drawn up by Dúchas. This plan must comply fully with the criteria in the CP and the relevant measures for “target areas¹” covered by SM A. If the commonage shareholder does not elect to undertake an agri-environmental plan, cross compliance will be enforced. Within the agri-environmental plan, the farmer will be allocated a grazing entitlement, pro-rata to his/her share or grazing right in the commonage.

The REPS planner will complete an individual plan for farmers who which to enter REPS, based on the recommendations of the CP. Commercial turf cutting is prohibited in areas covered by SM A, however turf cutting for domestic use is currently permitted on existing peat banks.

The DAHGI (Dúchas) planner will complete a plan for the commonage and/or SAC portion of the farm. This plan will incorporate the recommendations of both the CP and the SAC management plan (where relevant). Compensation will be paid on the basis of proven loss of income.

¹ Target Areas: Proposed Natural Heritage Areas (pNHAs), commonages or any farmland-based Special Protection Areas (SPAs) or candidate Special Areas of Conservation (cSACs) designated under the Habitats and Wild Birds Directives.

3. PRODUCTION OF THE COMMONAGE FRAMEWORK PLAN

a) Preliminary Documentation

Teams who have attended a Commonage Framework Planning training course and who have been approved to carry out framework planning on behalf of Dúchas and DAF will be provided with the following;

- an overview map showing the locations of the commonages which are to be assessed
- AO maps (2-3 copies) at a scale of 1:10,560 for the block of commonages
- the area of the commonage block and a reference code relating to this unit
- a copy of this manual and separate CP documents
- recent aerial photographs of the commonages; these are available at Dúchas and must be accessed (by prior appointment only)

b) The Reconnaissance Visit

The survey team should visit the site and make a preliminary or reconnaissance inspection. This may involve driving the roads around or through the site and locating vantage points from which the site can be viewed. All framework planners should ensure that they acquire a copy of the relevant Discovery map and new roads/tracks should be clearly marked on the original AO maps. The objective of this reconnaissance visit is to gain an overall impression of the site, to assess the variation within the site and to plan the survey. The best points of access should be identified and marked on the survey map. Access points should be marked only if access here is convenient, not merely if the planners gained access and had to traverse fences etc. The planners must contact at least one of the commonage shareholders and acquire permission to enter the commonage.

At this stage, the planners may decide that two or more commonages form a single agricultural or management unit (eg if there are no fences, rivers or stockproof natural boundaries and stock can wander freely between them) and should be amalgamated for the purposes of the CP. A very limited amount of stock movement between commonages is acceptable (eg in the case where an occasional sheep may climb over

a mountain peak) and should not be taken as a reason to amalgamate commonages. Alternatively, if a fence is in poor condition and stock can traverse this fence, then the framework planner may decide that this represents the limit of a traditional agricultural unit and state in the CP that the fence must be repaired by the shareholders involved. In all cases, a separate CP must be prepared for each agricultural unit, irrespective of its size. The framework planning team may decide that there is more than one agricultural unit within a single commonage and in this instance two or more CPs must be produced.

Accurate information on the current and/or recent agricultural practices is very useful in understanding the dynamics within commonages. The framework planners may wish to contact local farmers or REPS planners to establish whether there has been recent burning, fencing or turbarry activity in the commonage. Assessments of the impact of grazing in a given commonage, however, should not be influenced by contact with farmers or REPS planners.

c) The Survey

It is essential that the boundary of the commonage is correctly established. The supplied map should be checked to ensure that all land that was claimed as commonage is actually commonage. Areas of privately owned land (not subject to grazing rights) and forestry should not be surveyed. Lakes should also be excluded from the survey area at this stage.

In addition, it is required that the planners identify commonage or land subject to grazing rights which adjoin, or are located close to, the existing block and which were not shown on the map provided. If this scenario arises, contact should be made at an early stage with the Dúchas co-ordinator before proceeding to survey these extra areas. Generally it will be necessary to contact landowners to establish the extent of the commonage, especially where it is unfenced from private land or where portions of the commonage have been unofficially enclosed.

Both team members should walk the commonage(s) in pre-planned routes called transects and they should ensure that these transects pass through all the major vegetation types and states of damage which are present in the site. Transects must be

neatly drawn on the map. The framework planning team must fill in a General Field Card (see Appendix 3a) as they travel through the site, which is a summary of the ecological and landuse information noted in the commonage.

As the survey proceeds, it is essential to continually note the condition of boundary fencing, the extent of internal fencing, quarrying, supplementary feeding, burning, dumping and active turbarry. Active turbarry is defined as the area used for turf cutting operations in the last five years.

As the extent and degree of grazing damage, if any, is the critical factor in arriving at a stock reduction percentage, strong emphasis must be placed on the accurate mapping of the variation in grazing damage within the agricultural unit. For the purposes of this exercise, the mapping of the precise boundaries between different habitat types is not of paramount importance, but an attempt should be made to delimit and map the broad extent of each habitat type.

Habitat Identification

Soil type, soil depth and drainage are the most important parameters in determining habitat type in an upland or peatland environment, in conjunction with the past landuse history. If the soil type is a peat or a peaty podsol, one can encounter either blanket bog (>80cm in depth), wet heath (15-80cm in depth) or dry heath² (<15cm). If the soil is mineral, it is either described as upland grassland or dry heath (both are usually <15cm), based on the evidence of heather presence here. Check the soil depth and soil type regularly to evaluate the extent of the different habitat types.

For the purposes of this commonage survey, the following observations are deemed to be of central importance in distinguishing habitat type;

1. Blanket bog: The deepest peats are found in the valley bottoms and on the flat-topped plateaus. They are water-saturated for all or most of the year and may quake when walked on. They will be over 80cm deep and have a slope of less than 5°.

² In some circumstances, the heather cover can be so significantly reduced as to necessitate the classification of the community as grassland

2. Wet heath: The shallower wet peats are located immediately upslope from the blanket bogs. They are firm to walk on, are found on sloping or rolling terrain (the slope is usually greater than 5°), and have a peat depth of 15cm to 80cm. This habitat is usually characterised by a co-dominance of *Molinia caerulea* and *Calluna vulgaris*, but heather cover can vary and should not be used as a means of assessing damage here. With prolonged heavy grazing, there may be an expansion of *Nardus stricta* (Mat Grass) in this community, giving rise to a degraded wet heath community that is different in appearance to the typical community. If *Nardus* has become dominant and the soil depth is still between 15 and 80 cm, then continue to refer to this community as wet heath. If the soil depth in the *Nardus* community is less than 15cm on average, then refer to it as grassland.

3. The very shallow peaty podsols and the mineral soils (both less than 15cm) will be generally further upslope from the bogs and wet heaths and have a slope of greater than 5°. Peat can be differentiated from mineral soils by the ease with which a probe or auger can penetrate the substrate. The two habitat types encountered on substrates less than 15cm deep are as follows;
Grassland: Recognisable by a dominance of grass species
Dry heath: Recognisable by the occurrence here of heather species. It can be found on either peaty podsols or mineral soils.

Damage Assessment – Condition Scoring of Vegetation

Visible signs of grazing in a habitat does not necessarily mean that the habitat is damaged. The most critical factors in assessing damage in an upland or peatland environment are the extent of bare peat and the condition of heather. Bare peat, as referred to below, does not include areas covered with mosses or litter, nor does it include gullies caused by long established watercourses. However, peat covered with algae is "bare" in this sense. On peat substrates, bare peat is the most visible and important sign of grazing damage. One should also bear in mind, however, that peat can be exposed by harsh climatic conditions, by climatic erosion, by burning and by peat extraction and that the final grazing damage assessment should reflect these factors.

Other factors should also be borne in mind when assessing the ecological value of a site, eg the extent of *Sphagnum* lawns, the firmness of the ground etc, but these factors tell us more about the scientific interest of the site and should not be given equal weighting to bare peat and heather condition in assessing grazing damage.

- **Undamaged Areas (U):** There is a complete vegetation cover and there is little evidence of damage by treading or grazing. There is little or no bare ground here and there is little or no deterioration of the natural habitat as a result of grazing activity.

If the team feel that a given area is undamaged, in that there is no bare ground as a result of grazing activity and the condition and cover of heather is good (if heather is present), then no stock reduction should be recommended.

- **Moderately Damaged Areas (M):** The vegetation is visibly damaged by treading and grazing. There may be some bare ground and there may be signs that erosion is beginning. This category is sub-divided into “moderate to undamaged (MU)”, “moderate (MM)” and “moderate to severe (MS)”.

An area is classified as moderately damaged if there is less than 5% bare ground and there are visible signs of grazing damage. In allocating the three sub-categories, it may help to consider the following; the extent of bare ground, the effect of grazing on heather cover (if present), the effect of grazing on the dominant species and the extent of Nardus cover, where this species has become established.

MU: Areas where grazing damage is clearly detectable

MM: Areas where grazing damage is evident but nowhere very heavy

MS: Areas where there are many signs of grazing damage but where the 5% bare ground threshold is not reached

- **Severely Damaged Areas (S):** There is a conspicuously damaged vegetation structure and cover. There are abundant signs of severe grazing of most plants. Bare ground is obvious (>5%) and can be attributed to the presence of grazing animals or the maintenance of bare ground by grazing animals. In areas of shallow peat, the underlying soil or rock may be beginning to become exposed. Severe peat erosion may be a visible feature in these areas, with sheet erosion

and/or gullying evident. This category is sub-divided into "severe (S)" and "very severe (S*)".

Bare ground is the most obvious indicator of overstocking. If over 10% of an area is bare or eroding, it must be classified as severely damaged, and a 100% destocking must be recommended. Mark these areas on the map as S. Between 5% and 10% bare ground is also considered as being severely damaged, but the planner has the discretion to select a destocking of between 70% and 100%.*

Areas which are a mosaic of different habitats of the same damage category may be mapped as one sub-unit. If a sub-unit is mapped as S* or U, planners must ensure that the sub-unit is predominantly composed of either >10% bare peat or 100% vegetation cover, as appropriate.

Examples of grazing impact assessment bands:

U: Areas with 100% vegetation cover (except where heather cover is being damaged), heavily grazed grassland with no bare peat, lightly or un-grazed areas where no damage is evident, lightly grazed areas where bare peat is due to factors other than grazing and is not being maintained by the presence of grazing animals.

MU: Areas of *Nardus* grassland with little or no bare peat, areas where grazing induced bare peat (1-2%) is evident, areas where grazing is having a detectable damaging effect on current heather cover, areas where the structure of the vegetation is detectably damaged by the presence of grazing animals, areas where bare peat is due to factors other than grazing but is being partly maintained by the presence of grazing animals.

MM: Areas of *Nardus* grassland with some bare peat (1-2%), areas where grazing induced bare peat is very visible but significantly less than 5%, areas where grazing is having a significant damaging effect on current heather cover, areas where the structure of the vegetation is evidently damaged by the presence of grazing animals, areas where bare peat is due to factors other than grazing but is being significantly maintained by the presence of grazing animals.

MS: Areas of *Nardus* grassland with significant bare peat (but <5%), areas where grazing induced bare peat is very visible but just less than 5%, areas where grazing is having a seriously damaging effect on current heather cover, areas where the structure of the vegetation is evidently damaged by the presence of grazing animals, areas where bare peat is due to factors other than grazing but is being substantially maintained by the presence of grazing animals

S: Heavily grazed areas where grazing damage has resulted in 5-10% bare peat throughout,

S*: Very heavily grazed areas where grazing damage has resulted in >10% bare peat throughout

d) The Stations

At intervals along the transects, the planners should select locations where a more detailed record of the vegetation condition is made. These are known as "stations". It is suggested that each station area should be circa 10m x 10m but the team may decide that a larger area is required to adequately describe a given area. The station must be re-locatable and therefore must be described in relation to features which are easy to find on the ground. A GPS reference must be recorded at every station. Each station should be given a number which is marked beside an encircled "X" on the map (eg X7, X13 etc). At each station, the planners must fill in a "General Station Report Card" and a "Station Assessment Card" and must take appropriate photographs. Equal weighting should not be given to each of the categories on the station assessment card, as the amount of bare peat and the effect of grazing on heather cover (where it exists) are the most important criteria in arriving at an assessment of the current grazing impact here.

It is suggested that when the framework planning team have established a consistent approach that two or three stations per CP will suffice, depending on the size and variation within the given commonage(s). Stations that are typical or representative of the variation in damage, if any, within the commonage(s) should be chosen. The station damage assessment need not always be the same as the sub-unit damage assessment in which the station is located. In assessing the grazing impact assessment in a given sub-unit, a variety of different factors come into play, eg exposure, climatic erosion, time of year, visible signs of grazing etc., whereas there is no latitude for interpretation at the station level.

e) The Photographs

A set of at least four photographs must be taken at each station. The photographs should be colour prints taken with a standard camera and should be chosen to reflect the condition of the vegetation at that station. A 200 ASA film is recommended, particularly if variable light conditions are anticipated.

Take one or more photographs to assist in relocating the station. These should include some landscape feature and enough foreground to show the location of the station. Mark the aspect of the photograph by means of arrows on the map. Photographs

should be labelled P1, P2 etc. Take at least three photographs of vegetation (in addition to the station location photographs) at each station, comprising some close-up shots which show the condition of the heather/grasses and the amount of bare peat. Photograph numbers must be clearly labelled in the CP. Additional photographs may also be used to identify transect routes and starting points etc.

4. PRESENTATION OF THE COMMONAGE FRAMEWORK PLAN (CP)

a) The Commonage Framework Plan Map

The map(s) submitted to Dúchas for inspection and approval with the completed CP should be the map(s) issued with your contract, ie a series of Ordnance Survey AO maps (1:10,560) showing the boundary lines of commonage LPIS³ blocks claimed by farmers. Since the original map is likely to get wet in the field, planners are advised to make photocopies for field use. Areas of reasonably uniform vegetation condition should be mapped as sub-units and the habitat type and condition indicated as described below. Each of the mapped sub-units within an agricultural unit should be numbered sequentially (eg from 1-20) from west to east and from north to south. Areas which comprise a mosaic of different habitats may be mapped as single sub-units. There should never be a mosaic of damage categories, only mosaics of habitats are permitted. Lakes and other areas (eg forestry, privately owned land) should not be assessed, must be labelled "Excl'd" and cross-hatched on the map and should not appear anywhere in the CP.

HABITAT CLASSIFICATION SYMBOLS

Blanket Bog	I
Wet Heath	II (II ^N – if <i>Nardus</i> dominant /15-80cm)
Dry Heath	III
Grassland	IV (IV ^N – if <i>Nardus</i> dominant/<15cm)
Other habitats	V

VEGETATION CONDITION SYMBOLS

Undamaged	U
Moderate damage	MU, MM or MS
Severe damage	S or S*

³ Land Parcel Identification System

The following should also be marked on the map; the transect routes, the station locations and the photograph locations and direction of view. Observations of relevant features (eg dumped cars, recently burned areas, archaeological features etc) should be marked on the map as N1, N2 and described in the General Field Card. The following standardised approach to mapping should be adhered to at all times;

Mapping Guidelines

1. **Access:** Access points should be marked as **(A)**. Include additional information on the General Field Card eg “access by car as far as old dwelling house” etc.
2. **Agricultural Units:** Enclosed areas of commonage must be identified, with the boundary drawn on the map with a red line where stockproof or with a broken red line where not stockproof. The boundary of the agricultural unit may be a fence, stone wall, lake, river, rock face, forestry, private land etc. An agricultural unit may be part/all of a commonage or part/all of several commonages or townlands. In extensive commonage blocks, where a distinct change in vegetation condition is encountered and this change is consistent (indicating different management regimes) a townland boundary (preferably coinciding with a significant natural feature) may be selected as the boundary of the agricultural unit. This is shown on the map as a broken red line.
3. **Transects:** Show transects with long broken lines (— —), with stations marked **(X1)**, **(X2)** etc. Draw arrows at each station indicating the direction of the numbered photographs (eg P12, P13 etc)
4. **Features to note:**
 - Dump sites should be marked as **•D** on the map.
 - Supplementary feeding sites (semi-permanent/seasonal) should be marked as **•SF** on the map
 - Internal fencing, other than an agricultural unit boundary, should be marked as short broken lines (- - - -)
 - Internal roadways should be indicated as double short broken lines (= = = =).
These can be mapped using aerial photographs, Discovery maps and/or ground surveys

- Where the outer limit of the provided commonage block is not fenced, write the words “private land” or “forestry” if appropriate or contact the coordinators if it is confirmed as commonage, as it will have to be surveyed
- Exclusions: Write “Excl’d” and cross-hatch, eg lakes, forestry and privately owned land
- Active Turbary/Quarries: Mark “Active Turbary” or “Active Quarry” and define the boundaries of same on the map
- Others: Mark burning, old turbary, old quarrying, drainage, reclamation etc as N1, N2 on the map and describe in the General Field Card

5. Sub-Units:

- Sub-unit boundaries should be defined with a solid black line (heavier than the LPIS unit boundaries)
- Sub-unit number, habitat type and vegetation condition should be shown as “8-I-MM” etc
- Mosaics to be shown as “Mosaic 7-III/IV-MS” not “Mosaic 7-III-MM/S”, ie one can have a mosaic of habitats but not of damage categories
- Very Severe damage (>10% bare ground due to grazing) to be shown as S*
- Number sub-units from west to east and from north to south within each agricultural unit
- The map(s) submitted with the initial CP should be the AO map(s) issued with your contract. All areas outlined on the supplied maps must be assessed or excluded by the framework planners and there should be no modifications to the boundary of the supplied maps

b) The General Field Card (Appendix 3a)

One field card should be completed for each agricultural unit (or framework plan). The field card should be completed during or immediately after the field survey and is a summary of the ecological and landuse information within the surveyed commonage(s). The commonage name(s), job code (eg MA15b), Discovery map number(s), pNHA/CSAC names and codes, 1995 aerial photography references (a requirement), number of stations recorded etc must also be completed on this sheet. The planners must tick the habitats that occurred in the site, the birds and mammals that were noted and any commonage activities that were observed. Any notes that

were recorded on the map can be described at the bottom of this sheet and continued on an additional sheet.

c) The Station Cards (Appendix 3b, 3c, 3d)

For blanket bog and wet heath stations, The General Station Report Card (App. 3b) and the Station Assessment Card (App. 3c) must be completed. For dry heath stations, The General Station Report Card (App. 3b) and the Station Assessment Card (App. 3d) must be completed. For grassland and other habitat types, only the General Station Report Card must be completed. These station cards must be completed in all cases, irrespective of damage. As previously stated, not all indicators on the station assessment cards should be given equal weighting, with amount of bare peat and current damage to heather cover being by far the most important.

d) The Worksheet (Appendix 4a)

The planners must calculate the area of each of the mapped sub-units, the total area of the agricultural unit and the relative percentage area of each of the sub-units. The appropriate levels of stock reduction (if any) for each of the sub-units are set by the framework planning team, who have discretion to select appropriate levels within the bands specified below. The mid points of the bands are given as normal or typical prescriptions.

Undamaged (U)	= No reduction
Moderate to undamaged (MU)	= 20% to 40% (30% norm)
Moderate damage (M)	= 40% to 60% (50% norm)
Moderate to severe damage (MS)	= 60% to 70% (65% norm)
Severe damage (S)	= 70% to 100% (85% norm)
Severe damage with over 10% eroded peat (S*)	= 100%

The worksheet is only included in the initial (top) copy submitted for approval.

e) The Commonage Framework Plan Summary Sheet (Appendix 4b)

The framework plan text includes the following;

1. Agricultural Unit Code: Use the commonage job code provided in the contract. If the job code for the block provided is, for example, MA15 ("MA" for Mayo and "15" for the 15th block produced) and there are five agricultural units within this block, then it follows that each of these units should be coded MA15a, MA15b etc. A separate framework plan must be produced for each of these units. In some instances, an agricultural unit will extend beyond the block provided. This should be brought to the attention of the co-ordinators (if it is commonage) and approval must be given before any further survey commences to ensure that another team does not duplicate the work. Care should be taken by the team to ensure that unfenced private land is not included in the survey area.

2. General site description: State the dominant habitat type and the types of current landuse, eg "a damaged blanket bog area, grazed by sheep with some active turbary".

3. Objectives: A general objective for degraded commonages is to initiate the recovery of appropriate vegetative growth and the recolonisation of bare ground. The planner should comment on whether this rehabilitation is likely to be achieved within the five year span of the plan. A general objective should be to move down at least one level in each damage category over the period of the plan, eg MM to MU or S to MS.

4. Assessment Summary Sheet: This table can be used to summarise the data on the worksheet. Sub-units with the same prescribed destocking, even though they may have different habitat types, can be entered as a single row on the table.

Example:

Assume there are 20 sub-units in an agricultural unit, 4 of which (blanket bog, wet heath, dry heath and upland grassland) are classified as MM. The total area of the agricultural unit is 100 hectares and the four sub-units are 5, 12, 17 and 19 hectares, respectively. In total, therefore, 53 hectares of the commonage (or 53%) was classified as MM and the mean for this damage assessment is 50%. Assuming the planners elect to use the mean for each of these sub-units then all the MM data can be entered as one row in the table and calculated as follows;

$$53 \times 50 / 100 = 26.5\%$$

The remaining damage categories are calculated in the same way and added to 26.5% to give the total stock reduction for this agricultural unit.

5. The grazing regime: The planners must firstly state the actual destocking required for the agricultural unit. If there is no grazing damage in the agricultural unit, then planners should specify that the current management regime can continue. Where damage has occurred, it is anticipated that the prescribed destocking will allow recovery to commence, even with all year grazing. However in the case of cattle and horses it may be appropriate to restrict the grazing season, especially in blanket bog and wet heath habitats. Supplementary feeding can continue, where it has previously been practiced, provided no damage ensues. The planners should specify the location and frequency of movement of feeding sites (see Agreed Farming Conditions – Appendices 5a-c)

6. Other restoration measures: The framework planning team must specify restoration measures, if any are required, and the time by which the work must be completed, eg repairs to fencing, removal of dumped waste materials etc. A time-scale by which the

work is to be completed must be clearly stated. This will normally be within the first 18 months to two years. However planners may wish to allow extra time for the completion of work in the case of very large dumps etc. Recommendations in relation to turf cutting are not appropriate. However it may be appropriate to make recommendations in relation to quarrying, fertilisation, application of pesticides and other activities that are likely to alter the nature of the commonage.

f) Eligible Area Payment Sheet (Appendix 4c)

This sheet is designed to indicate the eligible area for payment under SM A on a townland basis. The gross area surveyed in each townland is calculated and non-eligible areas (ie active turbary and active quarries) are deducted. Note: Unlike all other tables in this manual, calculations are not based on sub-units but on townlands.

g) Submission of the Commonage Framework Plans

There is an onus on each framework planning team to present the results of the survey in as clear and concise a manner as possible. It is important that a standardised format of presentation is followed. Each framework plan should be spirally bound and clearly labelled. The sequence in each CP should be as follows;

1. Cover sheet (provided)
2. Overview map (location of commonage on an overview map)
3. Worksheet (Appendix 4a – in the top copy only)
4. Commonage Framework Plan Summary Sheet (Appendix 4b)
5. Eligible Area Payment Sheet (Appendix 4c)
6. General Field Card (Appendix 3a)
7. Station assessment cards in sequence (eg 1-5), with photographs for each station (Appendices 3b-d)
8. Map(s) – fully labelled

One copy of the CP and maps (AO) should initially be submitted to Dúchas, for inspection by both Dúchas and DAF. If the top copy is approved, 5 additional copies should be sent to Dúchas. One of these copies does not require sequence

numbers 3 and 7 above (ultimately to be submitted by Dúchas to the FDS⁴). Original photographs are required in the top copy only and colour photocopies will suffice in the other copies, provided the quality is good. The planners should ensure that each framework plan is spirally bound when approval is received and that the original maps are photocopied to either A4 or A3 size (or both) and included in the binding. Where agricultural units are located on two or more six-inch maps, then the planners must present this agricultural unit on separate sheets in the final bound version. No sticking together of maps will be permitted. A detailed caption should be attached to each map in the bound CP, stating the agricultural unit code, planners' names, townland names, six-inch map numbers and date of completion. An overview map at 1:50,000 should be included in the framework plan to show the location of the agricultural unit.

Usually two spirally bound additional volumes will also be submitted with the top copy of the CPs, one containing maps of the areas supplied in the contract which were not surveyed (eg private land, forestry or entry permission refused) and one containing additional⁵ areas of commonage that were not included in the contract but which were surveyed. In the latter volume, the area of each of the additional blocks must be calculated on an agricultural unit basis and a total area calculated. In the first volume, the planners must state the reasons why these areas were not surveyed. Planners must ensure that the unsurveyed areas are not given an agricultural unit code and are not contained within a red line on the AO maps. Names of commonage shareholders whose permission was received to carry out the survey must be presented in one of the extras volumes and any other comments in relation to ownership, access problems etc can be detailed here.

h) Queries with respect to fieldwork

As the commonage information was originally provided through the Area Aid system, it is possible that some areas of commonage may not be precisely drawn. Planners will occasionally encounter privately owned land and they are asked not to survey this land. In some instances, the actual area of a commonage will extend beyond the area highlighted on the map provided and planners are asked to survey

⁴ The Farm Development Service

⁵ For which approval to survey was sought and granted by the co-ordinators

these areas. If there are any changes to the boundary please indicate these on the map, but under no circumstances should the original block line be erased. Planners should always contact the co-ordinators before commencing unauthorised work or if there appears to be any anomalies in the maps that were provided.

APPENDIX I

The identification of Blanket Bogs, Heaths and upland Grasslands proposed or designated as NHAs under the Rural Environment Protection Scheme (REPS)

BLANKET PEAT (BLANKET BOG)

Blanket peat accumulates under conditions of high rainfall and humidity. It has developed in the West of Ireland principally and most vigorously on slopes of less than 5°.

Western Irish blanket peats tend to have a grassy appearance due to the abundance in them of the deciduous grass Molinia caerulea (purple moor grass). However, they are best characterised and differentiated from the wet heaths by the concentration in them of Schoenus nigricans (black bog rush), Rhynchospora alba (beak sedge), Eriophorum vaginatum (bog cotton) and Drosera rotundifolia (Sundew). These species are virtually exclusive to the deep wet blanket peats on flattish ground. The dominant plant types therefore on the blanket bogs are in the main grass-or sedge-like. Although the ericaceous species like Calluna (ling heather) may be constantly present they also extend into the wet heaths. A relatively deep spongy moss layer is a characteristic feature of an undamaged blanket bog.

Blanket Bog Identification:

Botanical:

Presence of: Schoenus nigricans
 Rhynchospora alba
 Eriophorum vaginatum
 (Myrica gale)

Absence of: Juncus squarrosus
 Erica cinerea
 Carex binervis

Species common to Blanket bog and Wet Heath

Molinia caerulea
Trichophorum caespitosum
Narthecium ossifragum
Eriophorum angustifolium

Ecological:

Slopes of 0 - 5°
Strongly impeded drainage - bog surface quakes if jumped on
Peat depth at least 30cm and can be up to 300 cm

Small, open pools scattered across the bog

Range of Soils: deep (over 30cm) wet peat which follows the undulations of the underlying ground.

Grazing / Conservation of Blanket Peat:

Blanket bog is a natural, climax vegetation type. In other words, even if grazing was removed it would not change into any other vegetation type. Its conservation requires a relatively low stocking density which ideally is evenly dispersed over the whole bog. Overgrazing / poaching removes the protective higher plant and moss layers and can initiate severe erosion which once started can result in the almost complete removal of the peat layer.

HEATHLAND

Heathland is a vegetation formation dominated by ericoid dwarf-shrubs (Gimingham 1972). Dwarf-shrub heaths are confined to the Atlantic region of Europe. The typical dominants are Calluna vulgaris (ling), Erica tetralix (cross-leaved heath) and Erica cinerea (purple heather). While Molinia and Trichophorum may also be present in the Irish wet heaths they are overshadowed by the ericaceous species. In late summer and through the autumn the flowering heathers give the heaths a different aspect to the more grassy blanket bogs.

Heaths represent a semi-natural vegetation. The species they contain are generally all native. However, they are subjected to regular grazing and burning. There may also be some peat cutting. In upland areas in the East of Ireland where the peat was scarce the fibrous organic surface of the dry heath soils was dug and used as an inferior fuel up to the middle of this century.

Dry heaths are typically found on the poorest mineral soils such as Brown Podzolics and Podzols. These are usually shallow and stony and may have a thin peat cover. They are widespread on the upper slopes of hills and mountains and are more common in the east than the west. The dry heaths and acidic grasslands are closely related and one can be converted into the other by regulation of the intensity of grazing and burning.

Wet heaths are typically found over peaty podzols, peaty gleys and shallow wet peats. They are widespread on the lower slopes of hills and mountains and are more common in the west than the east. They have a close botanical and ecological relationship with the blanket bogs and one often merges into the other with change of slope or topography. Some wet heaths may have evolved from the disturbance of blanket bog by overgrazing, burning or partial peat removal.

Heathland has been man-modified for many hundred of years. Grazing and burning have been practised for generations and the formation of new peat in the wet heaths is now minimal. If the peat and its covering vegetation is lost the ground becomes practically worthless. Over-grazing and too frequent burning are the usual causes for the loss of wet heath. Dry heaths, because they have minimal peat cover and are mainly well-to moderately well drained are not so readily damaged in a permanent way. Nonetheless overgrazing or too frequent burning will lessen both their agronomic and their natural history value.

WET HEATH IDENTIFICATION:

Botanical: There are no species unique to wet heaths. They have to be defined by the **absence** of (a) species of the deep blanket bogs, on the one hand and by the absence of (b) lowland grassland species on the other:

- (a) *Schoenus nigricans* (black bog rush)
Rhynchospora alba (white beak-sedge)
Eriophorum vaginatum (cotton-grass)
- (b) *Agrostis tenuis* (bent-grass)
Anthoxanthum odoratum (sweet vernal grass)
Festuca rubra (red fescue)

A well developed moss / lichen layer is a characteristic feature of undamaged sites.

Ecological: Slopes of 5 - 10°
Impeded to strongly impeded drainage
Peat depth 15 to 75cm

Range of soils: (a) moderately deep, firm, rolling peat
(b) shallow peat. Often eroded, disturbed or humified in the surface.

Grazing/Conservation of wet heaths:

Grazing intensity on the wet heaths is higher than on the deep blanket bog. Unlike lowland grassland, if they are overgrazed there are serious longterm consequences. The indigenous species that they contain, growing in the low fertility environment of the wet heath are slow to recover after severe poaching. If the ground is sloping the peat surface may be lost in the drainage water and the original vegetation type may disappear. What replaces it, usually species like **Juncus squarrosus** (heath rush) and **Nardus stricta** (mat-grass) have a very low agronomic value and make no contribution to the replenishment of the peat layer. Damaged and eroded peat is also typically colonised by a moss called **Rhacomitrium lanuginosum**. Its pointed leaf tips have a bleached white appearance in dry weather.

DRY HEATH

Dry Heath is relatively species-poor. It lacks the pure blanket bog species like **Schoenus** (black bog rush) as well as the bog and wet heath species like **Molinia** (purple moor-grass), **Trichophorum** (deer sedge), **Erica tetralix** (cross-leaved heath) and **Rhacomitrium** (wooly hair moss). Instead, it is typically dominated by **Erica cinerea** (bell heather) and **Calluna vulgaris** (ling heather). These two species usually give the dry heath a distinctive purple aspect in the autumn.

On close examination of the dry heath it will be found to have up to half the ground cover made up of grass and sedge species like **Carex binervis**, **Nardus stricta** (mat-grass),

Sieglingia decumbens (heath grass), Agrostis tenuis (bent-grass), Anthoxanthum odoratum (sweet vernal grass) and Festuca vivipara (viviparous fescue). The relative proportion of heathers and grasses/sedges will be determined by the land-use history of the particular site. If grazing or burning is hard or frequent the heathers will be depressed in favour of the grasses/sedges. On the other hand, if grazing or burning is light or infrequent the heathers are likely to be dominant.

Dry heaths are best developed on the eastern mountains such as the Comeraghs, Blackstairs and Dublin/Wicklow mountains. In the Dublin mountains as well as in West Cork and West Kerry and locally, on the Forth Mountain of Co Wexford the heathers may have Ulex gallii (autumn gorse) as a co-dominant. This version of dry heath needs to be burned every 6 - 8 years to prevent total dominance by the heathers and autumn gorse.

Dry heath in Ireland is typically associated with podzolised soils which may or may not have a thick, humified peat layer on the surface. Soil drainage is moderately free to impeded.

DRY HEATH IDENTIFICATION:

Botanical: There are no species unique to dry heaths. They lack the wet bog species like Schoenus (black bog rush). They are fairly typically dominated by Erica cinerea (bell heather) and Calluna vulgaris (ling). A few bog species like Molinia and Trichophorum may occur but they will be combined with grassland species like Agrostis tenuis (bentgrass), Anthoxanthum odoratum (sweet vernal grass) and Festuca vivipara (viviparous fescue). In the Dublin/Wicklow mountains and the peninsula of West Cork and West Kerry the dry heaths have Ulex gallii (autumn gorse) as a co-dominant with Erica cinerea (bell heather) and Calluna (ling).

Ecological: Slopes of 5° - 20°
Moderately free to impeded drainage.

Range of soils: Peaty podzols, peaty podzolised gleys and very shallow peats overlying podzols.

Grazing/Conservation of dry heaths:

Dry heaths have been grazed and burned for many centuries. Some areas were cultivated during the population build-up in the 1800 - 1850 period and were subsequently re-invaded by the heath species. If all grazing/burning were to cease a scrubby woodland with Betula (birch), Quercus (oak) and Ilex (holly) would eventually develop. If grazing/burning is heavy and constant the heathers and gorse are largely replaced by heathy grassland species like Sieglingia decumbens (heath grass) and Agrostis tenuis (bentgrass). If lime and fertilisers are also applied then the heath gradually transforms into a poor type of lowland grassland with Agrostis tenuis (bentgrass), Holcus lanatus (Yorkshire fog) and Festuca rubra (red fescue the main species). White clover may also come in.

Dry heaths are relatively free of soil erosion problems.

Acidic grassland or upland grassland

Areas of upland grassland are very localised in the western counties but they are quite widespread on the eastern mountains. They are generally confined to freely and moderately well drained mineral soils. They can occur on shallower slopes in the eastern than in the western counties.

Acidic grasslands are typically dominated by low-growing grasses. The bog and heath species are typically absent. The outlines of old cultivation ridges ('lazy beds') are often to be seen where acidic grasslands occur, indicating that such areas were once cultivated.

Because the grasses are dominant and there is no buildup of dead material due to the year-round grazing acidic grasslands look green throughout the year. In the winter months the greenness is often enhanced by an abundant growth of mosses.

Most upland grasslands are dominant by Agrostis tenuis (bentgrass), Anthoxanthum odoratum (sweet vernal grass), Sieglingia decumbens (heath grass) and Festuca vivipara (viviparous fescue). There may be some legumes present in the form of Lotus corniculatus (bird's foot trefoil) and Trifolium repens (white clover). There has been little or no lime or fertilisers applied to upland grasslands. If this were done lowland species like Holcus lanatus (Yorkshire fog) and Poa trivialis (rough stalked meadow grass) would displace the Sieglingia and Festuca species.

The grazing value of many areas of upland grassland has been diminished by the invasion of bracken (Pteridium aquilinum). The tall fronds of bracken shade the grasses during summer and autumn. In winter, the dead fronds decay slowly and build up a carpet of litter which further lessens the agricultural value.

ACIDIC GRASSLAND IDENTIFICATION

Botanical: Low-growing, grass dominated sward with Agrostis tenuis (bentgrass), Sieglingia decumbens (heath grass), Festuca vivipara (viviparous fescue) and Anthoxanthum odoratum (sweet vernal grass). If the fertility is low Nardus stricta (mat grass) may be present as well. If the fertility is moderate Holcus lanatus (Yorkshire fog), Festuca rubra (red fescue) and Trifolium repens (white clover) may be present.

Ecological: Slopes of 5° - 25°
Free draining soil

Range of soil: Brown podzolics and acid brown earths.

Grazing/Conservation of acidic grasslands:

Because they are the most palatable and most productive upland vegetation types the acidic grasslands are grazed heavily all year round. It is virtually impossible to overgraze them as their growing points are near the soil surface and out of the reach of the grazing animals. If under-grazed they are liable to be invaded either by bracken - a woodland species - or by the shrubby members of the dry heaths. They need constant annual grazing to remain free of invasive woody species or bracken. If grazing totally ceased they would eventually revert to an oak woodland with an understorey of birch, holly and rowan.

There are few soil erosion problems associated with acidic grasslands. The perennial grass cover protects them from soil loss.

APPENDIX 2(a): Indicators of Habitat Condition Categories for BLANKET BOG

(Typically found on deep 80 cm+, waterlogged peat on flat or gently sloping ground).

Indicators	Undamaged	Moderately Damaged	Severely Damaged
<p>Heathers Abundance/Cover (dry areas e.g hummocks)</p> <p>Growth Condition</p> <p>Average Height</p>	<p>Frequent/± Full cover</p> <p>Bushy/Vigorous⁽¹⁾Damaged types absent</p> <p>30-40cm⁽²⁾</p>	<p>Frequent/Cover much reduced.</p> <p>< 50% heathers damaged⁽¹⁾.</p> <p>>10-15cm</p>	<p>Scarce or absent.</p> <p>> 50% heathers damaged⁽¹⁾.</p> <p><10-15cm</p>
<p>Rest of Herbage Composition</p> <p>Cover</p> <p>Average Height</p>	<p>Diverse (≥ 12 species per sq. m.)</p> <p>Dry Areas - High (i.e. reasonably closed sward)</p> <p>Wet Areas - Low⁽³⁾ (i.e. more open sward)</p> <p>30-40cm</p>	<p>Palatable plants absent or less abundant. Plant variety moderate.</p> <p>Dry Areas - Moderate</p> <p>Wet Areas - Low⁽³⁾</p> <p>>10-15cm</p>	<p>Unpalatable Mat grass (Nardus) may be present, plant variety poor.</p> <p>Dry Areas - Low</p> <p>Wet Areas - Low</p> <p><10-15cm</p>
<p>Ground Vegetation Composition</p> <p>Thickness</p> <p>Cover/Condition</p>	<p>Peat mosses, lichens, plant litter with some algae and low growing plants in watertracks.</p> <p>Thick layer outside watertracks.</p> <p>Extensive/Intact</p>	<p>Peat mosses, lichens, plant litter with some algae and low growing plants in watertracks.</p> <p>Thick layer outside watertracks.</p> <p>Extensive but diffusely poached.</p>	<p>Peat mosses sparse, lichens often absent. Thin algal layer common even outside watertracks.</p> <p>Thin/patchy to absent peat moss layer.</p> <p>Patchy or extensively trampled.</p>
<p>Overall Complexity of Vegetation Structure</p>	<p>Complex: due to cover of heathers, herbage and ground vegetation.</p>	<p>Moderate: due to removal of heathers and much herbage.</p>	<p>Simple: due to removal of heathers and herbage and damage to ground vegetation.</p>
<p>Bare or Algal-covered Peat</p>	<p>Virtually none⁽⁴⁾. Algae may be common in watertracks but with litter, moss etc.</p>	<p>Small bare-peat areas corresponding to hoof prints - but not coalescing into patches.</p>	<p>Hoof-prints conspicuous over extensive areas. Frequent small to larger bare-peat patches in more serious cases.</p>
<p>Other Management Practices Burning</p>	<p>Unburnt</p>	<p>May have been recently burnt - but moss layer undamaged.</p>	<p>May have been recently burnt with moss layer affected.</p>

- (1) See App. 2 (†) Heather: damaged types resulting from overgrazing ('Carpet', 'Topiary', 'Drumstick').
- (2) Heathers are however shorter and more stunted on high altitude (>300m) and exposed sites.
- (3) If vegetation cover is low (i.e. open sward) then peat moss cover very significant where the ground is constantly wet.
- (4) If bare or algal-covered peat occurs with significant frequency under vigorous heather then habitat should be classified as severely damaged.
- (5) See App. 2 (e) for list of palatable/unpalatable plant species.

APPENDIX 2(b): Indicators of Habitat Condition Categories for WET HEATH

(Typically found on relatively shallow to moderately deep (c.15cm-80cm)⁽⁶⁾, wet peat, peaty podzols and peaty gleys on rolling terrain in the zone between the steep hill slopes and the deep, flattish blanket bogs of the valleys. More common in the wetter west than in the east).

Vegetation & Soil Characteristics	Undamaged	Moderately Damaged	Severely Damaged
Heathers Abundance (in dry areas)	Frequent/± Full cover	Frequent/Cover much reduced	Scarce or absent
Growth Condition	⁽¹⁾ Damaged types absent	< 50% heathers damaged ⁽¹⁾	> 50% heathers damaged ⁽¹⁾
Average Height	> 30-40cm ⁽²⁾	> 10-15cm	< 10-15cm
Rest of Herbage Composition	Diverse (≥ 12 species per sq.m.)	Palatable plants absent or less abundant Plant variety moderate	Unpalatable Mat grass (<i>Nardus</i>), and Heath rush (<i>Juncus squarrosus</i>) maybe present. Plant variety poor.
Cover	High, except in wettest areas ⁽³⁾	Moderate Low in wettest areas ⁽³⁾	Low
Average Height	> 30-40cm	> 10-15cm	< 10-15cm
Ground Vegetation Composition	Peat mosses, lichens and low growing plants	Peat mosses, lichens and low growing plants	Moss variety poor; peat mosses may be replaced by one or two species e.g. Woolly hair moss (<i>Racomitrium</i>). Lichens sparse (or absent)
Thickness	Thick layer	Thick layer	Thin/patchy to absent peat moss layer
Cover/Condition	Extensive/Intact	Extensive but diffusely poached	Patchy or extensively trampled
Overall Complexity of Vegetation Structure	Complex: due to cover of heathers, herbage and ground vegetation	Moderate: due to removal of heathers and much herbage	Simple: due to removal of heathers and herbage and damage to ground vegetation
Soil Bare or Algal-covered Peat	Virtually none ⁽⁴⁾ Algae may be common in water tracks but with litter, moss etc.....	Small bare - peat areas Corresponding to hoof-prints - but not coalescing into patches.	Hoof prints conspicuous over extensive areas. Frequent small bare-peat patches to larger patches in more serious cases
Other Management Practices Burning	Unburnt	May have been burnt - but moss layer unaffected.	May have been recently burnt with moss layer affected.

- (1) See App 2(f) Heather: damaged types resulting from overgrazing.
- (2) Heathers are however shorter and more stunted on high altitude (>300m) and exposed sites.
- (3) If vegetation cover low (i.e. open sward) then peat moss cover very significant where the ground is constantly wet.
- (4) If bare or algal-covered peat occurs with significant frequency under vigorous heather then habitat should be classified as damaged (mod. or severely, depending on the amount of bare peat).
- (5) See App 2(e) List of palatable/unpalatable plant species.
- (6) When Wet Heath is found on deep peats it is because these have been drained.

APPENDIX 2(c): Indicators of Habitat Condition for DRY HEATH.

(Typically found on the poorest shallow podsolised soils (with or without a thin peat ($\leq 15\text{cm}$) cover) and moderately free to impeded drainage. Widespread on the upper slopes of hills and mountains. More common in the east than in the west).

Vegetation & Soil Characteristics	Undamaged	Moderately Damaged	Severely Damaged
Heathers and/or Gorse Abundance/Cover	Frequent/>50% cover	Frequent/Fragmented cover 20 - 50%	Scarce or absent/cover 20 - 0%
Growth Condition	Bushy/Vigorous/Damaged heathers absent ⁽¹⁾	< 50% heathers damaged ⁽¹⁾	> 50% heathers damaged ⁽¹⁾
Average Height	> 30-40cm ⁽²⁾	> 10-15cm	10-15cm
Rest of Herbage Composition	Mixed: grasses, sedges, some herbs	Mixed	Grass dominated
Cover	< 50%	50 - 80%	80 - 100%
Average Height	Mixed heights	Mixed	Uniformly close-cropped
Ground Vegetation Cover / Condition / Composition.	Extensive thick (> 10cm deep) layer mosses and lichens.	Patchy or thin	Patchy / thin.
Overall Complexity of Vegetation Structure	Complex to moderate	Moderate	Simple due to loss of heathers
Exposed Soil	Insignificant	Diffuse hoof-prints	Frequent patches
Other Management Practices Burning	Unlike Wet Heath and Blanket Bog controlled burning on a rotational basis may be an acceptable management tool to prevent scrub invasion but advice needs to be sought prior to its use within proposed or designated NHA/SACs.		

(1) See App. 2(f) Heather: damaged types resulting from overgrazing i.e. 'carpet', 'topiary', 'drumstick'.

(2) Heathers are however shorter and more stunted on high altitude (>300m) and exposed sites.

APPENDIX 2(d): Indicators of Habitat Condition

UPLAND GRASSLAND: Typically found on skeletal mineral soil on steep freely or moderately well drained slopes. Quite widespread on eastern mountains - very localised in west.

Vegetation & Soil Characteristics	Undamaged	Moderately Damaged	Severely Damaged
<u>Heathers</u> Abundance (in dry areas) Growth Condition Average Height	± Absent _____ _____	Absent _____ _____	Absent _____ _____
<u>Rest of Sward</u> Plant Composition Plant Density Average Height	Grasses Vegetation cover almost complete ?	Grasses Vegetation cover incomplete on terraces ?	Grasses Vegetation cover missing from terraces and from gully areas. ?
<u>Ground Vegetation</u> Composition Condition/Thickness Cover	?	?	?
<u>Soil</u>	Insignificant amounts of poaching	Some terracing or severe poaching but no extensive bare areas.	Significant areas of bare soil, extensive terracing and some gully erosion.
<u>Other Management Practices</u> Burning	?	?	?

APPENDIX 2 (e): Palatable and unpalatable species

The general grazing value of the more common species in the rough grazings may be summarised as follows:

High Value:

<u>Calluna vulgaris</u>	-	all year round when growing well
<u>Molinia caerulea</u>	-	Spring and early Summer only
<u>Vaccinium myrtillus</u>	-	all year round, high in Ca, P, Mn, Fe and Cu
<u>Agrostis tenuis</u>	-	" " "
<u>Anthoxanthum odoratum</u>	-	" " "
<u>Holcus lanatus</u>	-	" " "
<u>Trifolium repens</u>	-	" " "

Moderate value:

<u>Schoenus nigricans</u>		
<u>Trichophorum caespitosum</u>	-	highest feeding value in early Spring
<u>Eriophorum angustifolium</u>	-	high in P and K in spring
<u>E. vaginatum</u>	-	" " "
<u>Festuca vivipara</u>		
<u>Sieglingia decumbens</u>		

Low value:

<u>Juncus squarrosus</u>	-	grazed in times of food shortage only
<u>Nardus stricta</u>	-	more readily eaten by cattle than sheep
<u>Erica tetralix</u>		
<u>E. cinerea</u>		
<u>Pteridium aquilinum</u>	-	high in K in spring, lightly grazed by sheep in spring and early summer. Poisonous if eaten in quantity.

(Adapted from A. O'Sullivan 1976, 1996)

APPENDIX 2 (f): Heather damage due to overgrazing

Chronic heavy damage and the development of distinct growth forms

High but sub-lethal intensities of clipping and grazing by vertebrate herbivores tend to produce distinct growth forms of heather which can be classified as 'carpet', 'topiary' and 'drumstick' (or 'mop') forms (Figure 1). 'Carpet' heather can also be the result of severe climate ('wind clipping') and can be found on exposed ridges and hill tops even where grazing pressure is low.

'Carpet' heather

A heather seedling develops a well-defined leading shoot from which lateral shoots also arise. The lowermost laterals develop strongly, producing a pyramidal growth form, and they may root adventitiously where they make contact with the substrate. If the shoot system above the lowermost laterals is destroyed by grazing or severe weather these laterals allow growth to continue and they may begin to grow upwards at the tips to form new leaders. If shoot destruction of this kind is recurrent a dense, mat-like growth form results.

'Topiary' heather

After a few years, the leading shoot of a heather seedling usually dies. Two or three new leading shoots develop in its place. This continues and results in the development of a rounded bush. The lowermost lateral branches become a much less significant component of the structure than in younger plants. More intense destruction of shoot tips will further increase the number of growing points and density of shoots in the canopy, although the growth in size of the bush may be considerably curtailed. In an isolated bush, heavy grazing will produce a dense, compact canopy down to ground level.

'Drumstick' or 'mop' heather

When heather plants grow in a dense stand the lowermost lateral branches become shaded and die. Most of the remaining branches are more or less upright in orientation. A very intense but brief episode of damage by grazing, cutting or burning will quickly strip the canopy and promote the growth of new shoots from the stem bases, provided the stems are not too old. However, if canopy destruction is only partial, but prolonged, stem base buds which could produce new shoots may not be activated, growth of prostrate lateral branches will no longer be an option, and the growth of the remaining canopy will be constrained. This may be the origin of 'drumstick' or 'mop' heather bushes in which the heather canopy is reduced to small, compact masses of intertwined and contorted shoots on the ends of scattered long, bare stems.

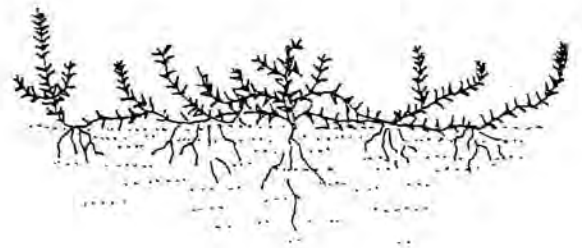
see Figure 1 oveleaf

Seedling: pyramidal form



Where only low growing shoots not grazed or killed by exposure

'Carpet' heather

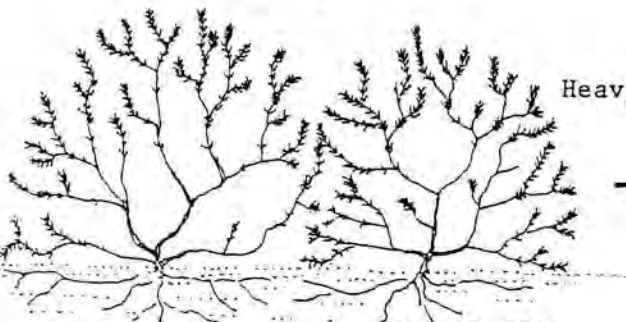


Older plants: more branched and rounded canopy

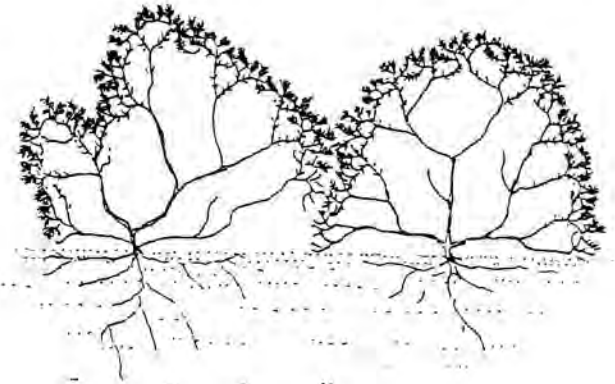


'Topiary' heather

Heavy grazing



Mature, dense stand: loss of lower, lateral branches through shading



'Drumstick' heather

Heavy grazing

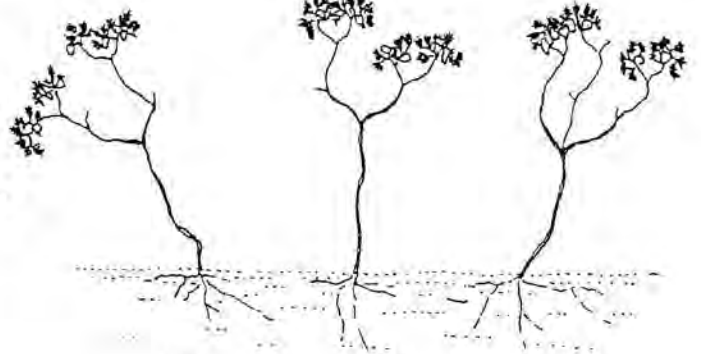
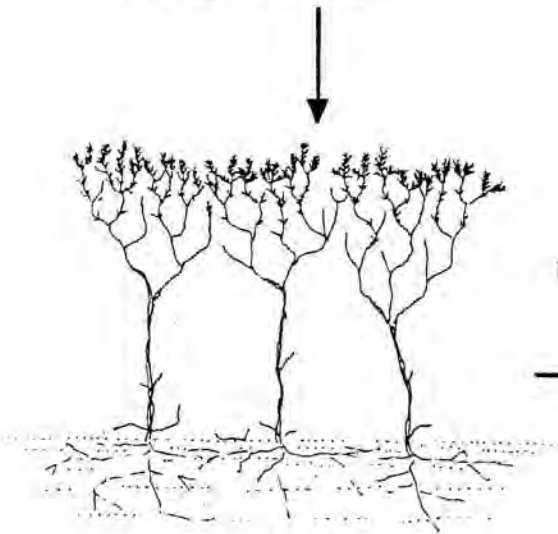
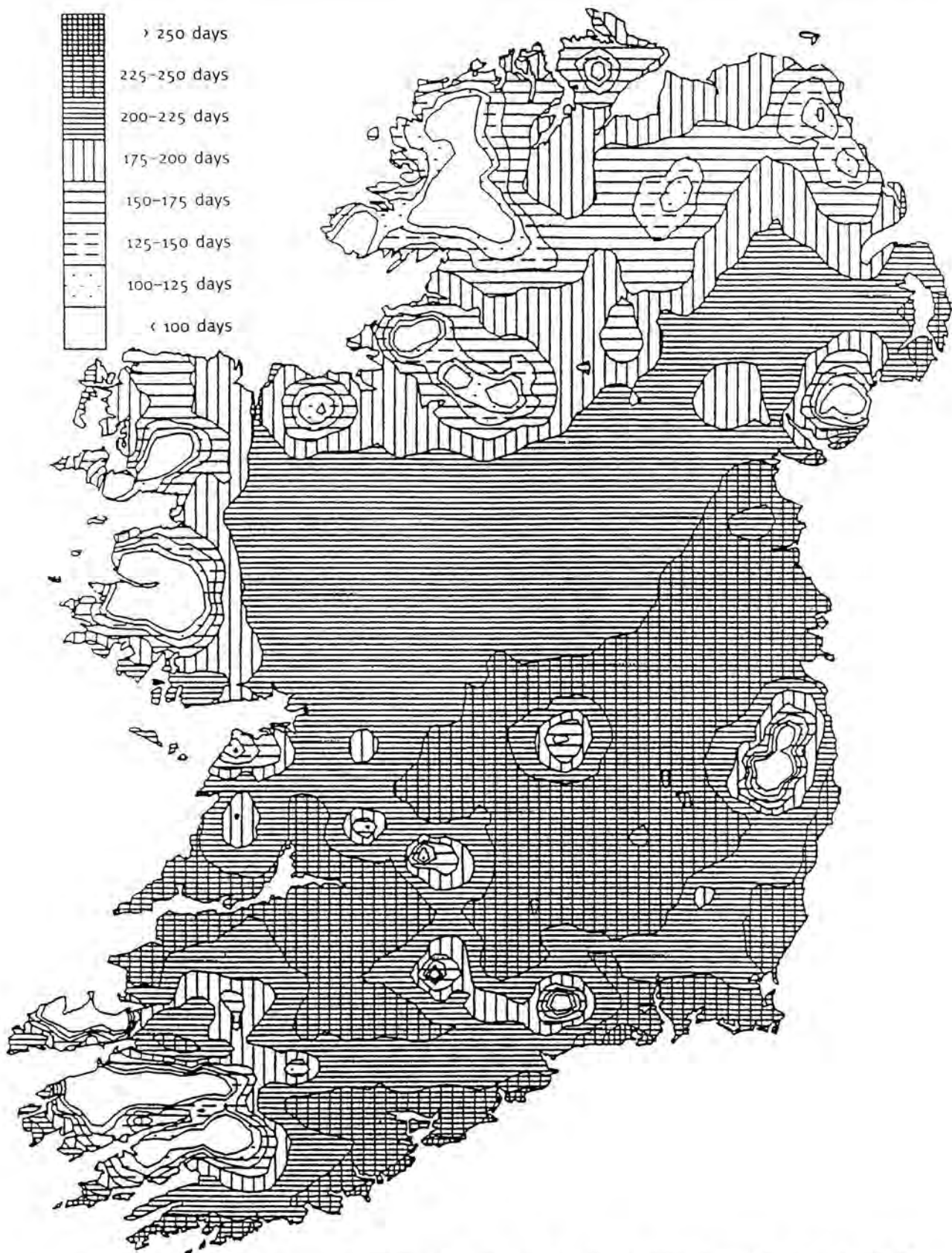


Fig1. Generation of 'carpet', 'topiary' and 'drumstick' growth forms of *Ling* heather (*Calluna vulgaris*):
(from A. McDonald 1990)



Mean length of grazing season (days/year), 1950-1980, based on the Smith Formula [number of days = $29.3T - 0.1R + 19.5$, where T = mean annual air temperature, °C, and R = mean annual rainfall, mm/year]

Appendix 3a: General Field Card

Commonage Name(s)	Code(s)	Area (ha)
County	Survey date(s)	Discovery map no.
1/2 " map no.	Grid. Ref. (centre).	Six-inch map nos.
Altitude range (m)		Agmet Graz. Season
Proposed NHA/SAC Name + Site No.		
Envir. Assessor	Agric. Assessor	Company
Weather (<i>Visibility + Wet or Dry</i>)		Tot. no of Stations Assessed
1995 B&W, vertical Aer. Photo. Flight Line and Nos.		
Other Aerial Photo/Digital Image Flight Line and Nos.		

Habitat(s) occurring (*Tick*)

<i>Blanket Bog</i>	<i>Wet Heath</i>	<i>Dry Heath</i>
<i>Flushes</i>	<i>Lakes</i>	<i>Bare Rock/Scree</i>
<i>Upland Grassl'd</i>	<i>Scrub</i>	<i>Dense Bracken</i>
<i>Broadleaf Woodland</i>	<i>Other</i>	

Wild Birds, Mammals etc...

Hen Harrier	Peregrine Falcon	Raven	Hooded Crow
Grouse(droppings)	Golden Plover	Merlin	Snipe
Meadow Pipit	Skylark	Deer	Hare
Fox	Otter	Badger	Rabbit
Greenland WF Goose		Frog	Lizard
Other			

Commonage Activities

Turf-cutting: /Active	/Machine	/Hand	/Old workings
Recent burning	Scrub clearance	Drainage	
Supplementary feeding	Dumping	Machine tracks	
Reclamation	Reseeding	Fertilisation	
Grazing: /Sheep	/Cattle	/Deer	/Horse /Goat
Fencing within Ag. unit		Other	
Boundary of Ag. unit open or fenced:			

Erosion:	Plateau erosion gullies	Slope gullies
	Sheet erosion	Patchy mosaic
Sheep/Stock Paths	Sheep Scars	Local 'blackspot'

Access *indicate advised access points on map using this symbol* **(A)**
 NHA potential? _____

Condition Assessment: _____

Outlook: _____

Notes (N1, N2 etc):

Appendix 3b:
General Station Report Card

Assessors

Ag. unit code _____ **County** _____ **Date** _____

Assessment Unit (10m x 10m recommended) _____

Locational details (including GPS reading) _____

Photographs taken @ Assessment Unit (Record /Film No/ Frame Nos. and view direction)

Soil Type *Tick*

Soil Depth *use probe*

Peat _____ < 15 cm _____

Peaty podsol _____ 15 - 80 cm _____

Mineral _____ > 80cm _____

Habitat (tick only one)

Blanket Bog _____ Wet Heath _____ Dry Heath _____

Grassland _____ Other _____

Ground Cover of Vegetation *Estimate % Cover*

D = Dominant >50%; A = Abundant 25 - 50%;

F = Frequent 5 - 25%; O = Occasional < 5%.

Ling Heather (*Calluna*) _____ %cover/ _____ % carpet/ _____ % topiary / _____ % drumstick /

Cross-leaved Heath (*Erica tetralix*) _____

Bell Heather (*E. cinerea*) _____

Frauchan/Bilberry (*Vaccinium myrtillus*) _____

Gorse (*Ulex spp*) _____

Purple Moorgrass (*Molinia*) _____

Bog Myrtle (*Myrica gale*) _____

Mat Grass (*Nardus stricta*) _____

Other Grasses (Fescues/Bents/Heath Grass) _____

Bog Cotton (*Eriophorum* species) _____

Heath rush (*Juncus squarrosus*) _____

Peat mosses (*Sphagnum* species) _____ Other Mosses _____

Bushy lichens (*Cladonia* species) _____ Crustose lichens on peat _____

Other species which might have an indicative value _____

% Vegetation	% Bare peat	% Rock	% Litter
Average height Ling _____ cm	Bell heather _____ cm	Cross-leaved heath _____ cm	
Rest of sward _____ cm			

Damage assessment for station: _____

Damage assessment for sub-unit: _____

Reasons for difference: _____

STATION ASSESSMENT CARD 3c -BLANKET BOG or WET HEATH

Tick as appropriate H = Heavy, M = Moderate, L = Light, NA= Not applicable.

adapted from Mac Donald et. al. 1998, Scottish Natural Heritage

<p style="text-align: center;">Trampling and grazing of pool systems and water tracks</p> <p>H Edges of pools broken down, neither abrupt vertical sides nor sloping <i>Sphagnum</i> covered edges. Wet hollows obviously trampled, hoof prints abundant</p> <p>L No evidence of trampling or grazing around pools particularly those containing Bog Bean (<i>Menyanthes</i>) and water tracks. Wet hollows with intact <i>Sphagnum cuspidatum</i> cover.</p> <p>NA</p>	<p style="text-align: center;">Trampling of <i>Sphagnum</i> moss hummocks and lawns</p> <p>H Most <i>Sphagnum</i> moss surfaces broken by hoof prints over most of the bog surface. Loose and bleached portions of <i>Sphagnum</i> mosses present</p> <p>M Minority of <i>Sphagnum</i> moss surfaces broken by hoof prints, locally distributed of the bog surface. Loose and bleached portions of <i>Sphagnum</i> mosses very local.</p> <p>L Most <i>Sphagnum</i> moss surfaces intact. Evidence of hoof prints found only after extensive searching. Loose + bleached portions of <i>Sphagnum</i> mosses absent or very infrequent</p> <p>NA</p>												
<p style="text-align: center;">Extent of ground cover of mosses +/- lichens among+between dwarf-shrub, sedge and grass plants.</p> <p>H <i>Sphagnum</i> mosses and/or lichens absent or very patchy. "Feather" mosses may be abundant but if so then forming thin (<< 5cm deep) mats.</p> <p>M <i>Sphagnum</i> mosses and/or lichens present but patchy. Feather mosses if present, forming thin to moderately deep mats and low hummocks (< 10 cm deep).</p> <p>L <i>Sphagnum</i> mosses and/or lichens extensive and abundant. Feather mosses, if present, forming deep mats and low hummocks (> 10 cm deep).</p> <p>NA</p>	<p style="text-align: center;">Abundance of bare peat in the transect station.</p> <table style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 25%;">< 1%</td> <td style="width: 25%;">< 5%</td> <td style="width: 25%;">5 - 10%</td> <td style="width: 25%;">>10%</td> </tr> <tr> <td>L</td> <td>M</td> <td>H</td> <td>H</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p style="text-align: center;">Estimate actual percentage = %</p>	< 1%	< 5%	5 - 10%	>10%	L	M	H	H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
< 1%	< 5%	5 - 10%	>10%										
L	M	H	H										
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
<p style="text-align: center;">Firmness of ground underfoot</p> <p>H Hard or firm over most of the bog surface. [Note: drainage and frequent burning can have similar effects]</p> <p>M } Soft to very soft, spongy, over most of the bog surface</p> <p>L }</p>	<p style="text-align: center;">Signs of browsing on Cross-leaved heath (<i>Erica tetralix</i>) and Crowberry (<i>Empetrum nigrum</i>)</p> <p>H } Some.</p> <p>M } [Note: <i>E. tetralix</i> is very rarely browsed. <i>E. nigrum</i> is almost never browsed, although it may be damaged by trampling. If these species show extensive signs of browsing this is a good indication of heavy browsing and grazing in the immediate area]</p> <p>L None</p> <p>NA</p>												
<p style="text-align: center;">Amount of flowering bog cottons (<i>Eriophorum</i> spp.)</p> <p>H Little or none. Inconspicuous.</p> <p>M Abundant or widespread but thinly scattered.</p> <p>L Widespread and abundant, very conspicuous and may give a colour cast to large areas of the bog.</p> <p>NA</p>	<p style="text-align: center;">Evidence of browsed woody material on Bog myrtle (<i>Myrica gale</i>)</p> <p>H Any extensive browsing into old woody material beyond current year's growth</p> <p>M Browsed shoots easy to find but not immediately conspicuous.</p> <p>L Browsed shoots difficult to find or absent</p> <p>NA</p>												
<p style="text-align: center;">Abundance of hoof prints in bare peat over the transect station</p> <p>H Conspicuous and extensively present. Unmarked bare peat hard to find.</p> <p>M Patchily present. Unmarked bare peat can be found after limited searching</p> <p>L Absent or very inconspicuous, extensive searching required to find hoof prints.</p> <p>NA</p>	<p style="text-align: center;">Conspicuousness of browsing on Ling (<i>Calluna vulgaris</i>) or Frauchan (<i>Vaccinium myrtillus</i>)</p> <p>H } Clearly browsed in general appearance though the browsing may be patchy. Browsed shoots easy to find.</p> <p>M } [Note: particularly if being browsed in summer and/or if browsed into older woody shoot material]</p> <p>L Not obviously browsed. Browsed shoots difficult to find without both intensive and extensive searching</p> <p>NA</p>												
<p style="text-align: center;">Amount of herbivore dung present</p> <p>H } Easy to find, though may not be immediately conspicuous.</p> <p>M } NB. Dung will be difficult to find in taller vegetation.</p> <p>L Rare and very difficult to find or absent.</p>	<p style="text-align: center;">Assessors overall evaluation of current condition of vegetation cover in station based on averaging the above indicators:</p> <p style="text-align: center;">U <input type="checkbox"/> M/U <input type="checkbox"/> MM <input type="checkbox"/> M/S <input type="checkbox"/> S <input type="checkbox"/> S* <input type="checkbox"/></p>												

STATION ASSESSMENT CARD 3d - DRY HEATH

Tick as appropriate H = Heavy, M = Moderate, L = Light, NA= Not applicable.

adapted from Mac Donald et. al. 1998, Scottish Natural Heritage.

<p style="text-align: center;">Signs of browsing on Crowberry (<i>Empetrum nigrum</i>), Cross-leaved heath (<i>Erica tetralix</i>) or associated Mat Grass (<i>Nardus stricta</i>),</p> <p>H Some M } None L } NA</p>	<p style="text-align: center;">Amount of flower or fruit on Ling (<i>Calluna</i>) and/or Frauchan (<i>Vaccinium myrtillus</i>)</p> <p>H Sparse M Obvious but patchy. L Abundant and conspicuous. NA</p>												
<p style="text-align: center;">Summer browsing of Ling (<i>Calluna</i>)</p> <p>H Extensive, obvious, easy to find. M } Very limited, patchy, negligible. Though infrequent L } may still be obvious due to removal of flowering shoots. NA</p>	<p style="text-align: center;">Type of shoot material removed from Ling (<i>Calluna</i>) and/or Frauchan (<i>Vaccinium myrtillus</i>)</p> <p>H Frequent evidence of browsing of woody shoot material older than the most recent years growth. M Little or no browsing of woody shoot material older than most recent year's growth. Mainly shoot tips removed. L Only tips of shoots browsed. NA</p>												
<p style="text-align: center;">Amount of bare ground in station</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">H</td> <td style="width: 35%;">Frequent</td> <td style="width: 15%;">5 - 10%</td> <td style="width: 35%; text-align: right;">>10 %</td> </tr> <tr> <td>M</td> <td>Occasional</td> <td>1 - 5 %</td> <td></td> </tr> <tr> <td>L</td> <td>Insignificant</td> <td>< 1%</td> <td></td> </tr> </table> <p>Estimate actual percentage = %</p>	H	Frequent	5 - 10%	>10 %	M	Occasional	1 - 5 %		L	Insignificant	< 1%		<p style="text-align: center;">Uprooting of dwarf-shrub seedlings in recently burnt patches</p> <p>H Conspicuous. M Not conspicuous, but possible to find with limited searching. L Little or none. NA</p>
H	Frequent	5 - 10%	>10 %										
M	Occasional	1 - 5 %											
L	Insignificant	< 1%											
<p style="text-align: center;">Dwarf-shrub stem breakage as a result of trampling by large herbivores (check for hoof prints).</p> <p>H Conspicuous. > 50m from supplementary feeding locations. M Common in immediate vicinity of supplementary feeding locations or other locations where animals become unusually concentrated even when average stock densities are low. L Inconspicuous, except < 50m from supplementary feeding locations NA</p>	<p style="text-align: center;">Depth of carpet of mosses and liverworts or "bushy" <i>Cladonia</i> lichens, under and between the dwarf-shrubs.</p> <p>H } Thin <5cm deep, and patchy. M } L Thick and luxuriant > 10cm deep, extensive. NA</p>												
<p style="text-align: center;">Amount of trampled, bare ground</p> <p>H Frequent, especially in recently burnt patches. M } Little or none except for sporadic sheep scars. L }</p>	<p style="text-align: center;">Amount of herbivore dung present</p> <p>H Very conspicuous. M Not very conspicuous but easy to find. L Rare and difficult to find or absent. NB. Dung can be relatively abundant in resting areas, and areas which provide shelter, without these areas necessarily being heavily grazed</p>												
	<p style="text-align: center;">Assessors overall evaluation of the current condition of vegetation in station based on averaging the above indicators:</p> <p style="text-align: center;"><u>U M/U M M/S S S*</u></p>												

Appendix 4b: Commonage Framework Plan Summary Sheet

Job Code _____

General Site
Description and
Current Land Use

Overall Objective
for Conservation
Plan

Specific Objectives
& Timescale to Achieve
Objectives

LPIS No if available	Damage Assessment Sub-Unit No(s)	Habitat Type	Percentage of Area (a) *	Condition of Vegetation and % Reduction .						Reduction Percentage (b)	% Reduction (a) x (b)/100
				U	MU	M	MS	S	S *		
				Norm 0	30	50	65	85	100		
				Range 0	20 - 40	40 - 60	60 - 70	70 - 100	100		
Grazing Reduction Prescribed - Percentage											

* Figures in column (a) must add up to 100%.

Other Nature Conservation Measures for the Commonage(s)

Grazing

Regime

to be

Followed

Other

Restoration

Measures

DECLARATION: (to be completed by Persons approved to draw up Framework Plans)

I certify that the Framework Plan set out herein for _____ Commonage

conforms in all respects to the requirements laid down for Conservation of Natural Heritage

SIGNED _____ **Date:** _____ (Agri-environmental Planner)

SIGNED _____ **Date:** _____ (Agricultural Planner)

SIGNED _____ **Date:** _____ (Agri-environmental Planning Agency)

Note: A false or misleading statement may lead to the removal of the Person/Agency from the Approved List.

APPENDIX 5a: FARMING CONDITIONS FOR THE RURAL ENVIRONMENT PROTECTION SCHEME (REPS) – SUPPLEMENTARY MEASURE A

CONDITIONS FOR THE CONSERVATION OF THE BURREN TO BE APPLIED UNDER THE RURAL ENVIRONMENT SCHEME (REPS)

The conditions applicable to Supplementary Measure A shall pertain; the guidelines set out below are complementary to these conditions

Conditions for the conservation of the HIGH BURREN.

No environmentally damaging activity is permitted. In particular the following conditions shall apply.

1. WINTERAGE AREAS

Grazing is prohibited in areas identified as "winterage" on the REPS map from May to October inclusive.

2. STOCKING INTENSITY

Sustainable optimum stocking levels should be set down by the REPS planner following careful assessment of the environmental conservation needs of the farm. Where the stock levels set by the planner require a reduction in stock this must be achieved within one year of the commencement of the plan. Where there is a need for stock increases this can be achieved as determined by the planner. In addition, sheep should not be introduced to new areas.

3. SUPPLEMENTARY FEEDING

Supplementary feeding will be permitted only on lands where it is currently practised. The number of cattle being fed cannot be increased nor can the total amount of feed. The amount of feed should not, in any event, exceed 1.25 tons of silage (or the equivalent in other feed) per l.u. or 50% of the feed requirement of the animal for the feeding period. Additionally, in normal years, supplementary feeding to livestock will be confined to a 9 week period between 15 January and 12 April with the period to be chosen by the farmer and notified to the local office of the Department of Agriculture, Food and Forestry. In the case of calves meal may be fed from weaning time.

In unusually severe winters feeding can be permitted outside of this period with the prior agreement of the Department of Agriculture, Food and Forestry after consultation with the National Parks and Wildlife Service (NPWS). All supplementary feed must be provided either in round feeders, hay racks or mobile feeders which must be located at "feeding points" described and specified in the farm plan. Locations and rate of change of locations should not be on bare pavement, but should be on areas of deeper soil preferably those which already have a low plant species diversity. Locations should be chosen to reduce the possibility of ground water pollution or changes in the flora and to minimise visual impact.

4. FARM IMPROVEMENT WORKS

No land improvement works, infilling or rock removal are permitted unless with the prior approval of the National Parks and Wildlife Service. However, the control of scrub by chain saw or other brush cutting tools is permitted.

5. USE OF FERTILISERS AND HERBICIDES

Neither organic nor inorganic fertilisers may be applied. All spraying or broadcast application of herbicides should be avoided, but spot application and wipe-on treatments to eradicate docks, thistles, ragwort and similar noxious weeds can be used. Farmyard manure should not be stored in fields for composting and any accumulation of such manure at feeding points should be removed at the end of the feeding season.

6. GROUNDWATER POLLUTION

The greatest care should be taken on the high Burren to observe the national regulations on agricultural pollution. The hydrology of the Burren is such that pollutants like slurry and silage effluent run into local lakes very quickly. Planners should identify suitable feed storage areas such that the groundwater is protected.

Conditions for the conservation of Natural Heritage Areas (NHAs) in the BURREN FOOTHILLS

Relatively intense farming practices in these areas require careful management to avoid nutrient pollution of the internationally important wetlands of the region. It is particularly important that phosphate leaching from these areas to the wetlands be kept to an absolute minimum. REPS plans must be drawn up to meet these requirements.

They must also meet the following specific requirements.

1. SOIL SAMPLING

Where fertilisers are being applied the initial soil sampling should be relatively intensive with at least one sample per 2-4 ha.

2. PHOSPHATE RESTRICTIONS

Soil phosphate levels should not be increased above the index 2 level set in the Department's REPS specification. Where they are already above that level no chemical phosphates may be applied. In any event existing phosphate levels may not be increased.

3. NITROGEN AND POTASSIUM RESTRICTIONS

Nitrogen and Potassium should only be applied at rates which can be effectively used in conjunction with the phosphorous levels prevailing in the soil.

4. SLURRY AND WASTE SPREADING

Slurry and waste spreading is acceptable as long as the quantity spread does not exceed 25 cubic metres per hectare per application and does not occur within 50m of lakes or winter flooded areas. It should be spread only after grass growth has started. An initial application of between 50% and 75% should be spread before July and the remainder before the end of October.

5. FARMYARD MANURE

Where possible it should be recycled to the area from which hay or silage was obtained. Farm yard manure should not be stored in fields for composting and any accumulation of such manure at feeding points should be removed at the end of the feeding season. No agreements should be made to landspread manure produced on other farms.

6. WATERCOURSE PROTECTION

Extreme care should be taken to ensure that neither fertilizer nor silage effluent enters streams and water courses.

Monitoring the effects of REPS in the Burren

It is essential to research and monitor the environmental impact of REPS in the Burren region by comparing the effects of practices on REPS farms with practices on other farms under the following headings:

- environmental effects,
- agricultural effects, in terms of inputs and outputs, and
- socio economic effects

Arising from the results of these studies it may be appropriate to modify the "Conditions for the Conservation of the Burren" to be applied under the Rural Environment Protection Scheme (REPS).

APPENDIX 5b: FARMING CONDITIONS FOR THE RURAL ENVIRONMENT PROTECTION SCHEME (REPS) – SUPPLEMENTARY MEASURE A

CONDITIONS FOR THE CONSERVATION OF BLANKET BOGS, HEATHS AND UPLAND GRASSLANDS TO BE APPLIED UNDER THE RURAL ENVIRONMENT SCHEME (REPS)

The conditions applicable to Supplementary Measure A shall pertain; the guidelines set out below are complementary to these conditions

General Provisions

The conditions set out in this document are supplementary to the agri environmental specifications. Planners may make a case to the Department of Agriculture, Food and Forestry, which in consultation with the NPWS of the Department of Arts, Culture and the Gaeltacht, may vary them in individual cases. All REPS plans in respect of NHAs must have an environmental input and REPS plans must be approved and signed by the Planning Agency's Environmentalist.

Both Departments shall exercise their respective statutory and administrative responsibilities in close co-operation.

Detailed Conditions

1 STOCKING INTENSITY

In all cases an environmentally sustainable plan must be prepared and adhered to for the total area of the farm. Sustainable optimum stocking rates should be set down by the REPS planner following careful assessment of the environmental conservation needs of the lands.

Where the stocking levels set down by the planner require a reduction in stock this must be achieved within one year of the commencement of the plan.

There can be no increase in stocking levels, no introduction of stock to new areas and no changes in stock type during the period of the REPS plan without the prior approval of the Department of Agriculture, Food and Forestry.

The maximum number of sheep that may be kept on the farm as a whole must be set down in the REPS plan. The conditions set out for zones in Supplementary A should follow. As a guide the following parameters should be used.

- (a) Where there is no damage the current stocking levels are acceptable.
- (b) If the level of damage is moderate a stocking reduction should be prescribed by the planner at a level related to the damage and sufficient for the vegetation to recover.
- (c) If the level of damage is severe a stocking reduction of between 70% and 100% below quota on the damaged area should be prescribed for a specified period.

At the annual review of the REPS plan, the conservation status of the areas will be reviewed. A change in the stocking levels (increase or decrease) may be appropriate depending on progress.

Stocking levels apply to Scottish Blackface sheep or similar medium sized sheep breeds. Stocking levels for cattle or other stock should be at livestock unit applicable rates taking account of Department of Agriculture, Food and Forestry conversion rates for the various stock types. The stocking levels recommended in this document are maximum sustainable rates for year round grazing. If shorter periods of grazing are used the number of animals may be increased, though not necessarily pro rata.

2 SUPPLEMENTARY FEEDING

Supplementary feeding will be permitted only on areas where it is currently practised. Locations of feeding points should be specified. To reduce heavy grazing, trampling, poaching and erosion problems "feeding points" should be moved every 3 weeks and sited on ground with least habitat and wildlife value, preferably on grassland well away from stands of heather. Feeding on steep slopes and on peaty soils should be avoided where possible. The total amount of feed shall not be increased.

3 USE OF FERTILISERS AND HERBICIDES

Neither organic nor inorganic fertilisers or lime may be applied on bogs, heaths or upland grasslands where they have not been used before. Fertilisers shall not be used as a means of regenerating eroded areas. In the case of upland grasslands fertilisers may only be applied on the basis of a soil test. Where fertilisers are being applied the initial soil sampling should be relatively intensive with at least one sample per 2-4 ha. Soil phosphate levels shall not exceed the Index 2 level set out.

Spraying or broadcast application of herbicides should be avoided. Spot application and wipe-on treatments to eradicate docks, thistles, ragwort and similar noxious weeds may be used. Rhododendron may be removed by cutting and herbicide treatment. Bracken control may be by rolling, cutting and/or by controlled cattle trampling in early summer. In exceptional circumstances control of bracken by herbicides may be permitted.

4 WATER POLLUTION

The greatest care should be taken to observe the statutory requirements on water pollution. The hydrology of bogland areas is characterised by extremely nutrient poor surface waters which contain flora and fauna adapted to these conditions. These species would be adversely affected by nutrient enrichment. New sheep dip sites should be listed and located away from streams and flushes to reduce the possibility of water pollution and damage to flora and fauna.

5 RESTRICTED AND PROHIBITED PRACTICES

The following practices shall not be carried out on Blanket Bogs, Heaths or Upland Grasslands.

- The areas shall not be drained, ploughed, cultivated or reseeded
- There shall be no infilling or rock removal

- Turf cutting on unexploited bogs shall not be permitted. Turf cutting for domestic use is permitted on existing banks.
- Planting of trees or other crops is not permitted
- No new tracks or paths shall be created
- Burning will only be allowed as a planned management practice
- Gorse may be controlled by cutting, spot spraying or exceptionally by burning outside of the bird nesting season (mid March to 31 August)

6 COMPLEMENTARY ACTION

(a) Measures to prevent damage by non REPS participants

The Committee recommends that measures be taken to ensure that the environmental benefits achieved in degraded areas under REPS are not negated or diminished by non participants in the Scheme.

(b) Evaluation and Monitoring

Monitoring and evaluating the effects of REPS on blanket bogs, heaths and upland and unimproved grassland is essential in determining the environmental impact of REPS on these habitats so that appropriate modifications can be identified and effected where necessary. The effect of the grazing regime on the vegetation and wildlife should be monitored to assess recovery as well as any damage being caused by animals. To this end the Department of Agriculture, Food and Forestry and the National Parks and Wildlife Service of the Department of Arts, Culture and the Gaeltacht, in consultation with Teagasc and private planners, will monitor the environmental impact of REPS on these habitats on an ongoing basis. Progress in this regard will be reported to the Consultative Committee on REPS.

(c) Farmer Education / Advice

A REPS promotional campaign will be undertaken as soon as is practicable to inform farmers of the conservation needs of these areas and of the provisions of REPS. This campaign will be undertaken by the Department of Agriculture, Food and Forestry. Farming and environmental organisations will also be invited to assist in this promotional campaign.

(d) Seminars for Planners

Seminars for REPS Planners shall be held to advise on the interpretation of these conditions at ground level.

(e) Demonstration Farms

A number of REPS participant demonstration farms will be set up in selected areas. Research work could also be carried out at these farms to assess the ability / rate of recovery of an area under different stocking conditions.

(f) Quota rights

Any REPS participant farmer is guaranteed that their quota rights are protected and in the event of a possibility of increasing numbers arising such farmers would be allowed to do so, subject to the environmental condition of the participant farm.

(g) Scheme extension

The Committee recommends that the Department of Agriculture, Food and Forestry seek the agreement of the European Commission to extend the application of REPS in overgrazed areas from 5 years to a period of 15 years.

(h) Local Co-ordination

The Department of Agriculture, Food and Forestry will encourage co-ordination, at local level, of efforts to rejuvenate damaged areas.

APPENDIX 5c: FARMING CONDITIONS FOR THE RURAL ENVIRONMENT PROTECTION SCHEME (REPS) – SUPPLEMENTARY MEASURE A

CONDITIONS FOR THE CONSERVATION OF SAND DUNE AND MACHAIR AREAS TO BE APPLIED UNDER THE RURAL ENVIRONMENT SCHEME (REPS)

The conditions applicable to Supplementary Measure A shall pertain; the guidelines set out below are complementary to these conditions

General Provisions

The conditions set out in this document are supplementary to the agri environmental specifications. Planners may make a case to the Department of Agriculture and Food, which in consultation with the NPWS of the Department of Arts, Heritage, Gaeltacht and the Islands, may vary them in individual cases. All REPS plans in respect of NHAs must have an environmental input and REPS plans must be approved and signed by the Planning Agency's Environmentalist.

Both Departments shall exercise their respective statutory and administrative responsibilities in close co-operation.

Detailed Conditions: Sand dunes and machairs

1. DESCRIPTION

Sand Dunes and Machairs are coastal habitats consisting of hills and hollows in which unique communities of plants and animals are found in response to the very demanding nature of the dry, windy and salty environment.

Machairs are flat, level plains over lime - rich sands which have evolved in response to a unique interaction between wind, high rainfall and historical land use. They are found only in western Ireland and Scotland.

2. FARMING CONDITIONS RECOMMENDED FOR THESE AREAS

The primary recommendation is to avoid farming practices that cause environmental damage and all the following recommendations are designed to meet that objective. If a practice is environmentally damaging it should be stopped or modified, but the following are only general guidelines and may be superseded by specific recommendations for individual farms. The National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage, Gaeltacht and the Islands or the local Farm Development Service (FDS) of the Department of Agriculture and Food should be contacted if the situation on - farm warrants an exception to the general rules.

3. GRAZING REGIME

The conditions for zones in Supplementary Measure A will apply generally. It should be noted that on sand dunes and machairs, the objective is to maintain extensive agricultural practices, and to prevent a further increase in stock numbers. Cattle stock should be kept at the level the land can support - see also the Section on Supplementary Feeding.

Cattle grazing should continue in line with traditional practices. The land should normally be grazed only in winter. However, in areas where Summer grazing has traditionally (i.e. over the previous 10 years) been practised, this can continue, provided, of course, that stock levels at all times do not exceed what the land can bear on a sustainable basis. Grazing on young and fore - dune areas should be avoided.

Where conditions warrant, grazing levels should not exceed 1 Livestock Unit (LU) per hectare on a year round average and should never exceed 2 LU at any one time. This change would enable 2 LUs to be overwintered on the sand dune/machair provided it is deemed to be sustainable by the planner.

The introduction of sheep into areas where they have not been traditionally grazed should be avoided, but areas which have kept sheep traditionally can retain them, though perhaps at a lower level.

4. SUSTAINABLE STOCKING LEVELS

In general the provision of Supplementary A apply. Stocking levels for each farm should be set by the REPS planner or Department of Arts, Heritage, Gaeltacht and the Islands planner in the farm plan. The levels should be set below the level which causes eutrophication, overgrazing, or erosion, but still high enough to control the encroachment of coarse vegetation and scrub. Where the stock level set by the planner requires a reduction, this must be achieved within 12 months of the start of the plan,. Where the stock level is to increase, this can be spread over the period of the plan, as specified by the planner . The same level will apply for a REPS plan as for an A,H,G & I plan.

The NPWS will prepare a conservation plan for each area to cover all aspects of the SAC in question, including farming. In so far as the farming aspects are concerned, the plan will be prepared in consultation with the Department of Agriculture and Food in accordance with the terms of these conditions. Where an area conservation plan has been prepared for the SAC in question, this should be used to assist in determining where damage has occurred or is occurring, where damage is moderate, and where damage has not occurred. Official conservation plans, when available, can be obtained from the local office of the NPWS.

5. SUPPLEMENTARY FEEDING

The introduction of supplementary feeding can bring additional nutrients into sand dune and machair areas, and thus bring about a very fundamental change in the vegetation of these areas.

The use of silage and other feed can pollute the groundwater and also facilitate excessive stocking levels. Consequently, the use of any supplementary feeds in areas where it has not

been customary over the last ten years may be allowed only in consultation with the Department of Agriculture and Food and the Department of Arts, Heritage, Gaeltacht and the Islands.

Round - baled silage can be stored in these areas. Loose silage can only be stored where an approved effluent collection system is in place, and the effluent removed from the machair/sand dune.

No supplementary feeding can take place on young and fore - dune areas.

In machair and grey dune areas where supplementary feed has been used over the last 10 years it may be continued, provided that:-

- the number of LUs fed does not increase;
- the species of stock fed does not change;
- the total amount of feed equivalent does not increase;
- the amount of feed does not exceed 3.5 tonnes of silage or 0.75 tonnes of hay per LU;
- no meals and concentrates are fed.

However, in exceptional circumstances, such as in unusually severe weather conditions (i.e., when there are heavy snowfalls or floods), and with the agreement of the Department of Arts, Heritage, Gaeltacht and the Islands, feeding will be permitted. Weanling cattle may be fed small quantities of concentrates.

6. CULTIVATION, RESEEDING AND PESTICIDES

Ploughing, harrowing or any other form of cultivation should be avoided since this will destabilise the dune structure. Small traditional tillage plots on machairs may be retained.

The bringing in of any seeds to these areas will disturb the vegetative balance on which the dune depends and must be avoided. The feeding of hay should only be from round feeders.

The fixed dune parts of sand dunes are essentially areas with low levels of plant nutrients in the soil and this has contributed to the development of their distinctive flora. These are also areas most used for grazing. However, the spreading of organic (slurry, FYM) , or inorganic fertilisers should not take place as the flora in these areas would be damaged.

On machairs, where fertiliser has not been applied in the past, none should be applied now. However, where low levels of phosphorus have traditionally been applied on machairs, this may continue, provided that the soil Phosphorous levels do not increase above their present levels or in any event do not exceed Soil Index 2.

7. PESTICIDES AND HERBICIDES

All spraying or broadcast application of herbicides should be avoided, but spot application and wipe on treatment to eradicate docks, thistles and similar noxious weeds can, of course, be used.

8. ANIMAL TREATMENTS

Worm doses may be used normally, but animals which have been given pesticides the residues of which persist in the dung should be kept off the dune for at least a week after treatment.

9. DUMPING AND INFILLING

The dumping of domestic or industrial refuse, farm wastes, rubble, rock, or any similar materials which could disturb the natural environment by bringing in unsuitable nutrients or unsuitable soils and seeds should be avoided.

Appendix 6:

Contact Names and Addressess

Dúchas Co-ordinator

Andy Bleasdale

Dúchas – The Heritage Service

National Parks and Wildlife

16 Eyre Square

Galway

Mobile: 087-2391264

Phone: 091-572087/563016

Fax: 091-572413/561809

E-mail: ecologic@tinet.ie

DAFRD Co-ordinator

Joe Heffron

Government Buildings

DAFRD

Carrick on Shannon

Co. Leitrim

Phone: 078-2006

Fax: 078-21810

For regional Dúchas staff see overleaf.

NATIONAL PARKS & WILDLIFE FIELD STAFF

AREAS	CONSERVATION RANGERS	DISTRICT CONSERVATION OFFICERS	DEPUTY REGIONAL MANAGER	REGIONAL MANAGER
NORTHERN AND EASTERN REGION - DIVISIONAL MANAGER – MR. PAT WARNER, 7 ELY PLACE, DUBLIN 2. TEL: (01) 647 2393 FAX: (01) 662 0283 MOBILE: (086) 827 8026 REGIONAL ECOLOGIST – DR. JUDIT KELEMEN, ST. STEPHEN’S GREEN HOUSE, EARLSFORT TERRACE, DUBLIN 2. TEL: (01) 6611610 FAX:(01) 6611623 MOBILE: (086) 2669773				
EASTERN REGION		<i>GLENDALOUGH DISTRICT</i>		
WICKLOW – NORTH/ DUN LAOGHAIRE RATHDOWN COUNTY COUNCIL	MR. ANTHONY MCELHERON, ROSTELLAN MEWS, KILLINCARRIG RD., GREYSTONES, CO. WICKLOW. <i>TEL: (01) 2874870</i> <i>MOBILE: (087) 6795928</i>	MR. WESLEY ATKINSON WICKLOW MOUNTAINS NATIONAL PARK GLENDALOUGH CO. WICKLOW <i>TEL: (0404) 68393</i> <i>FAX: (0404) 69990</i> <i>MOBILE: (087) 2671739</i>	MR. JOHN FLYNN BELL VIEW DUBLIN ROAD MULLINGAR CO. WESTMEATH <i>TEL: (044) 42771</i> <i>FAX: (044) 40622</i> <i>MOBILE: (087) 2646411</i>	MR. SEAN CASEY WICKLOW MOUNTAINS NATIONAL PARK GLENDALOUGH CO. WICKLOW <i>TEL: (0404) 45338</i> <i>FAX: (0404) 45306</i> <i>MOBILE: (087) 2539489</i>
WICKLOW - MID	MR. CATHAL B. STOCKDALE, 30 DUNBUR GLEN, WICKLOW TOWN, CO. WICKLOW. <i>TEL: (0404) 62088</i> <i>MOBILE: (087) 2646409</i>			
WICKLOW SOUTH/WEXFORD NORTH	MR. EAMON P. DORAN, BEECHWOOD GROVE, BURROW, GOREY, CO. WEXFORD. <i>TEL: (055) 26339</i> <i>MOBILE: (087) 2646410</i>			
DUBLIN (FINGAL CO. CO. (NTH OF R. LIFFEY) AND DUBLIN CORPORATION)	DR. LINDA PATTON, NPWS. , UNIT 1 (TNT), BELGARD INDUSTRIAL EST., TALLAGHT, DUBLIN 24. <i>TEL: (01) 4626767 FAX: (01) 4626768</i> <i>MOBILE: (087) 2569601</i>			
LOUTH	MR. PAUL DUFFY, FLAT 3B, KERMON HOUSE, THE MALL, DROGHEDA, CO. LOUTH. <i>TEL: (041) 9844445</i> <i>MOBILE: (087) 2071390</i>			
MEATH	MS. ANNETTE LYNCH, CREWBAWN, SLANE, CO. MEATH. <i>TEL:</i> <i>MOBILE:</i>			
WICKLOW MOUNTAINS NATIONAL PARK <i>TEL: (0404) 45338</i> <i>FAX: (0404) 45306</i>	CIARA FLYNN, MOBILE: (086) 8037582 BEN MCCABE, MOBILE: (086) 8050244 ENDA MULLEN, MOBILE: (086) 8037581 DAMIAN CLARKE, MOBILE: (086) 8037594 MONICA BYRNE (OFFICE) HUGH MCLINDON (HEAD GUIDE) <i>TEL: (0404) 45656</i>			

AREAS	CONSERVATION RANGERS	DISTRICT CONSERVATION OFFICERS	DEPUTY REGIONAL MANAGER	REGIONAL MANAGER
DIVISIONAL MANAGER – MR. PAT WARNER, 7 ELY PLACE, DUBLIN 2. TEL: (01) 647 2393 FAX: (01) 662 0283 MOBILE: (086) 827 8026 REGIONAL ECOLOGIST – DR. J. KELEMAN, ST. STEPHEN’S GREEN HOUSE, EARLSFORT TERRACE, DUBLIN 2. TEL: (01) 6611610 FAX: (01) 6611623 MOBILE: (086) 2669773				

EASTERN REGION		KILDARE DISTRICT		
NORTH KILDARE AND SOUTH DUBLIN COUNTY	MR. TERRY DOHERTY, UNIT 1, BELGARD INDUSTRIAL EST., TALLAGHT, DUBLIN 24. TEL: (01) 4626766 FAX: (01) 4626767 MOBILE: (087) 6795862	MR. VAL SWAN NATIONAL PARKS AND WILDLIFE MONASTEREVIN CO. KILDARE TEL: (045) 526872 FAX: MOBILE: (087) 2646407	MR. JOHN FLYNN BELLVIEW DUBLIN ROAD MULLINGAR CO. WESTMEATH TEL: (044) 42771 FAX: (044) 40622 MOBILE: (087) 2646411	MR. SEAN CASEY, NATIONAL PARKS & WILDLIFE WICKLOW MOUNTAINS NATIONAL PARK GLENDALOUGH CO. WICKLOW TEL: (0404) 45338 FAX: (0404) 45306 MOBILE: (087) 2539489
KILDARE SOUTH	MR. ROY THOMPSON, STEWARDS FLAT, BALLYWARD HOUSE, MANOR KILBRIDE, BLESSINGTON, CO. WICKLOW. TEL: MOBILE:			
SOUTH OFFALY	MR. JAMES GREENE, GRANGE, ROSCREA, CO. TIPPEREARY. TEL: (0505) 21658 FAX: MOBILE: (087) 2646425			
OFFALY – NORTH WEST	MR. COLM MALONE,			
WESTMEATH	MR. NIAL HARMY, BIRR, CO. OFFALY. MOBILE: (088) 2614711			
LAOIS	MR. JOHN CARROLL, LOWER BOLEY, ABBEYLEIX, CO. LAOIS. TEL: (0502) 39687 FAX: MOBILE: (087) 2646431			

AREAS	CONSERVATION RANGERS	DISTRICT CONSERVATION OFFICERS	DEPUTY REGIONAL MANAGER	REGIONAL MANAGER
NORTHERN AND EASTERN DIVISION - DIVISIONAL MANAGER, MR. PAT WARNER, 7 ELY PLACE, DUBLIN 2. TEL: (01) 647 2393 FAX: (01) 6620283 MOBILE: (086) 8278026 REGIONAL ECOLOGIST – DR. J. KELEMAN, ST. STEPHAN’S GREEN HOUSE, EARLSFORT TERRACE, DUBLIN 2. TEL: (01) 6611610 FAX: (01) 6611623 MOBILE: (086) 2669773				
NORTHERN REGION		GLENVEAGH DISTRICT		
DONEGAL - SOUTH EAST	CARL BYRNE, CARRIGMAGRATH, BALLYBOFEY, CO. DONEGAL. <i>MOBILE: (087) 6378398</i>	MR. DERMOT J. MCLOUGHLIN 7 WEST END, BUNCRANA, CO. DONEGAL.	MR. DAVE DUGGAN, GLENVEAGH NATIONAL PARK, CHURCH HILL, LETTERKENNY, CO. DONEGAL.	MR. JOE GATINS MAIN STREET LAGHY CO. DONEGAL.
DONEGAL - NORTH WEST	LORCAN O'TOOLE <i>MOBILE: (087) 2472262</i>	<i>TEL: (077) 61570</i>	<i>TEL: (074) 37090/37262</i>	<i>TEL: (073) 21837</i>
DONEGAL-NORTH EAST	ANDREW SPEER <i>MOBILE: (087) 6378397</i>	<i>FAX: (074) 37072</i>	<i>FAX: (074) 37072</i>	<i>FAX: (073) 21674</i>
DONEGAL-SOUTH WEST	MR. ROBERT MILLER, MULLINAMILLIA, GWEBARRA, GLENTIES, CO. DONEGAL. <i>TEL: (075) 44038</i> <i>MOBILE: (087) 2472265</i>	<i>MOBILE: (087) 2646420</i>	<i>MOBILE: (087) 2735066</i>	<i>MOBILE: (087) 2646417</i>
SLIGO-SOUTH WEST	MR. ROBERT LUNDY, CASHEL, TUBBERCURRY, CO. SLIGO. <i>TEL: (071) 85140 FAX: (071) 86209</i> <i>MOBILE: (087) 2646422</i>			
SLIGO-NORTH WEST	MR. ANTHONY PRINS, BALLINLIG, BELTRA, CO. SLIGO. (TRAPPER) <i>TEL: (071) 66607</i> <i>MOBILE: (087) 2646423</i>			
DONEGAL NORTH	POST VACANT			
DONEGAL SOUTH	POST VACANT			
GLENVEAGH NATIONAL PARK <i>TEL: (074) 37090/37262/65003</i> <i>FAX: (074) 37072</i>	MR. PAT VAUGHAN (HEAD RANGER) <i>MOBILE: (087) 2646419</i> MR. DANNY O'KEEFFE <i>MOBILE: (087) 2472264</i> MR. LARRY MCDAID <i>MOBILE:</i> MR. SEAMUS MCGINTY <i>MOBILE:</i> MR SEAN O'GAOITHIN (HEAD GARDENER) <i>TEL: (074) 37091</i> MR. WILLIE WILKIE (FOREMAN) MR. JAMES MCGINLEY (STOREKEEPER) MS. CARMEL BRADY (HEAD GUIDE) MS. ELIZABETH GIBSON (OFFICE)			

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NORTHERN AND EASTERN DIVISION - DIVISIONAL MANAGER, MR. PAT WARNER, 7 ELY PLACE, DUBLIN 2. TEL: (01) 647 2392, FAX: (01) 662 0283, MOBILE: (086) 8278026 REGIONAL ECOLOGIST – DR. J. KELEMAN, ST. STEPHEN’S GREEN HOUSE, EARLSFORT TERRECE, DUBLIN 2. TEL: (01) 661 1610, FAX: (01) 661 1623, MOBILE: (086) 2669773				
NORTHERN REGION	ARVAGH DISTRICT			
LEITRIM SOUTH	MR. JOHN MATTHEWS, ARVAGH, CO. LONGFORD. <i>TEL: MOBILE:</i>	MR. M.J. HACKETT, CHURCH STREET CARRIGALLEN CO. LEITRIM.	MR. DAVE DUGGAN GLENVEAGH NATIONAL PARK CHURCH HILL LETTERKENNY CO. DONEGAL	MR. JOE GATINS MAIN STREET LAGHY CO. DONEGAL
CAVAN WEST		<i>TEL: (049) 4339608</i>		<i>TEL: (073) 21837</i>
LONGFORD NORTH		<i>FAX:</i>	<i>TEL: (074) 37090/37262/65003</i>	<i>FAX: (073) 21674</i>
LOUTH/MONAGHAN-SOUTH EAST	MR. PEADAR MORGAN, LISTINNY, CO. MONAGHAN. <i>TEL: (047) 80623 FAX:</i> <i>MOBILE: (087) 2646414</i>	<i>MOBILE: (086) 2646414</i>	<i>FAX: (074) 37072</i>	<i>MOBILE: (087) 2646417</i>
MONAGHAN-NORTH WEST	MR. DENIS O’HIGGINS, MILLTOWN, CO MONAGHAN. <i>TEL: (047) 82520 FAX:</i> <i>MOBILE: (087) 2646415</i>		<i>MOBILE: (087) 2735066</i>	

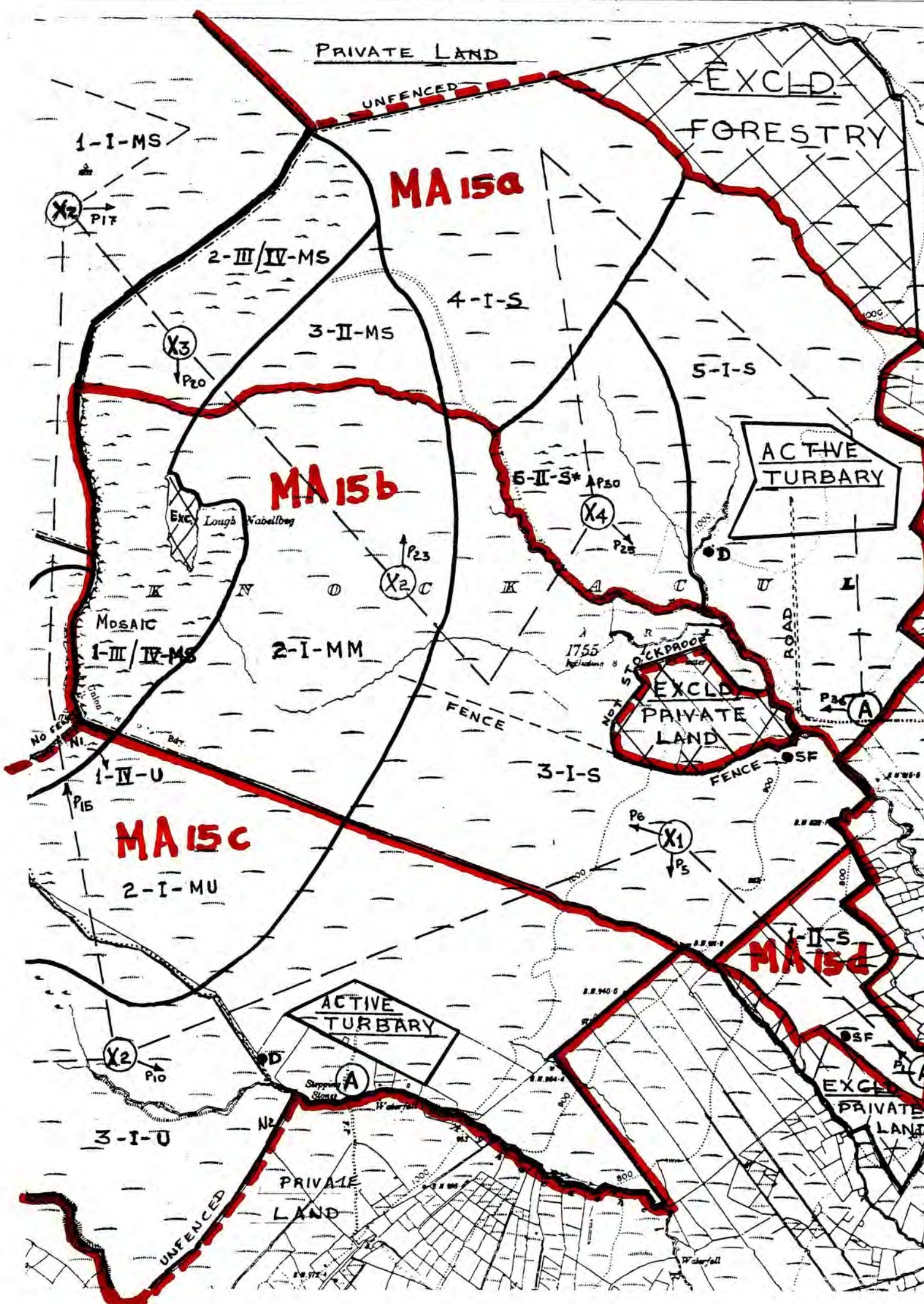
AREAS	CONSERVATION RANGERS	DISTRICT CONSERVATION OFFICERS	DEPUTY REGIONAL MANAGER	REGIONAL MANAGER
SOUTHERN DIVISION – DIVISIONAL MANAGER – MR. DON MCMAHON, GOVERNMENT BUILDINGS, SULLIVAN’S QUAY, CO. CORK. TEL: (021) 961920 FAX: (021) 964072 MOBILE: (087) 2646435 REGIONAL ECOLOGIST – DR. FERDIA MARNELL, 7 ELY PLACE, DUBLIN 2. TEL: (01) 647 2385 FAX: (01) 678 8123				
SOUTH EASTERN REGION		NEW ROSS DISTRICT		
WEXFORD-MID	MR. PATRICK O’SULLIVAN, KITESTOWN, CROSSABEG, CO. WEXFORD. TEL: (053) 20967 FAX: MOBILE: (087) 2646433	MR. PADRAIG COMERFORD JENKINSTOWN PARK CO. KILKENNY.	MR. EAMON MESKELL NATIONAL PARKS & WILDLIFE GOVERNMENT BUILDINGS SULLIVAN’S QUAY CORK.	MR. PADDY KEANE NATIONAL PARKS AND WILDLIFE GOVERNMENT BUILDINGS NENAGH CO. TIPPERARY
WEXFORD-SOUTH	MR. EUGENE WALLACE, ROSS ROAD, TAGHMON, CO. WEXFORD. TEL: (053) 20967 FAX: MOBILE: (087) 2646434	TEL: (056) 67793 FAX: (056) 67198	TEL: (021) 961920 FAX: (021) 964072	TEL: (067) 44135 FAX: (067) 32386
WEXFORD WILDFOWL RESERVE TEL: (053) 23192 FAX: (053) 24785	MR. ALYN WALSH (ASSIGNED TO RESEARCH) MOBILE: (087) 2588616 MR. CHRISTOPHER WILSON, MOBILE: (087) 2029628 W.W.R., NORTH SLOB, CO. WEXFORD.	MOBILE: (087) 2646426	MOBILE: (087) 2646438	MOBILE: (087) 2646428
CARLOW	MS. EMER GIDDY, KEEPERS HOUSE, LISNAVAGH, RATHVILLY, CO. CARLOW. TEL: (0503) 61500 MOBILE: (087) 2646406			
KILKENNY	MR. LORCAN SCOTT, BALLYHEMMON, CASTLECOMER, CO. KILKENNY. TEL: (056) 40023 MOBILE: (087) 2646421			
TIPPERARY-NORTH WEST	MR. BRIAN DUFFY, 11 CHURCH ROAD, BORRISOKANE, CO. TIPPERARY. TEL: (067) 27354 MOBILE: (086) 8541961	TALLOW DISTRICT		
TIPPERARY-SOUTH EAST	MR. PATRICK CLANCY, CLOONEEN, CLONMEL, CO. TIPPERARY. TEL: (052) 31308 FAX: MOBILE: (087) 2646442	MR. TOM RYAN GREENOGUE TALLOW CO. WATERFORD.		
TIPPERARY- SOUTH WEST	MR. SEAN BREEN, GARRYDUFF WEST, DUNDRUM, CO. TIPPERARY. TEL: (062) 71131 FAX: MOBILE: (087) 2646441	TEL: (058) 56260 FAX:		
CORK – NORTH EAST	MR. CYRIL F. SAICH, KILMURRAY SOUTH, KILWORTH, CO. CORK. TEL: (025) 270221 MOBILE: (087) 2646443	MOBILE: (087) 2646440		
CORK – SOUTH EAST	MR. PATRICK J. SMIDDY, BALLYKENNEALLY, BALLYMACODA, CO. CORK. TEL: (024) 98286 FAX: MOBILE: (087) 2646444			
SOUTH AND EAST WATERFORD.	DOMINIC BERRIDGE 108 THE QUAY, CO. WATERFORD. TEL: (051) 854331 FAX: MOBILE: (086) 8542203			

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SOUTHERN DIVISION - DIVISIONAL MANAGER - MR. DON MCMAHON, GOVERNMENT BUILDINGS, SULLIVAN'S QUAY, CORK. TEL: (021) 961920, FAX: (021) 964072, MOBILE: (087) 2646435				
REGIONAL ECOLOGIST – DR. FERDIA MARNELL, 7 ELY PLACE, DUBLIN 2. TEL: (01) 647 2385, FAX: (01) 6788123				
	SOUTH WESTERN REGION	BANTRY DISTRICT		
KERRY-NORTH	MR. TIMOTHY O'DONOGHUE, UPPER BALLYBRENAGH, TRALEE, CO. KERRY. TEL: (066) 7124725 FAX: MOBILE: (087) 2646448	MR. JOHN BRENNAN NATIONAL PARKS AND WILDLIFE OLD MARKET HOUSE MAIN STREET BANTRY CO. CORK TEL & FAX: (027) 50180 MOBILE: (087) 2646447	MR. PADDY O'SULLIVAN KILLARNEY NATIONAL PARK MUCKROSS HOUSE KILLARNEY CO. KERRY. TEL: (064) 31440 FAX: (064) 33926 MOBILE: (087) 2646446	MR. DAN KELLEHER KILLARNEY NATIONAL PARK MUCKROSS HOUSE KILLARNEY CO. KERRY. TEL: (064) 31440 FAX: (064) 33926 MOBILE: (087) 2646445
KERRY-SOUTH	MR. MICHAEL O'SULLIVAN, ARDSHILLANE EAST, SNEEM, CO. KERRY. TEL: (064) 45257 FAX: MOBILE: (087) 2646449			
KERRY-WEST	MR. PATRICK FOLEY, BOOLTEENS EAST, CASTLEMAINE, CO. KERRY TEL: (066) 9767235 FAX: MOBILE: (087) 2646450			
KERRY-EAST	MR. TIMOTHY BURKITT, KILLARNEY NATIONAL PARK, MUCKROSSHOUSE, KILLARNEY, CO. KERRY. TEL: (064) 33926 FAX: (064) 33926 MOBILE: (087) 2646451			
CORK-WEST	MR. DECLAN O'DONNELL, COORAGURTEEN, SCHULL, CO. CORK. TEL: (028) 37347 FAX: MOBILE: (087) 2646452			
CORK	MS. CLARE HEARDMAN, MAIN GATE LODGE, GLENGARRIFF NATURE RESERVE, GLENGARRIFF, CO. CORK. TEL: (027) 63636 FAX: MOBILE: (087) 6781613			
CORK-MID WEST	MR. DONAL SCANNEL, GORTNATUBRID, MACROOM, CO. CORK. TEL: (026) 45531 FAX: MOBILE: (087) 2646453			
CORK – EAST/WEST	MR. FRANK MCMAHON, INCHINASHINGANE, MACROOM, CO. CORK. TEL: MOBILE:			
KILLARNEY NATIONAL PARK TEL: (064) 31440 FAX: (064) 33926	MR. PAUDIE O'LEARY (HEAD RANGER) MOBILE: (087) 2671740 MR. PADRAIG O'SULLIVAN MOBILE: (087) 2589306 MR. JOHN O'CONNOR MOBILE: (087) 6781616 MR. PASCAL DOWER MOBILE: (087) 6781615 MR. PETER O'TOOLE MOBILE: (087) 6781614 MR. BRENDAN O'SHEA MOBILE: (087) 6781617 DR. KATHERINE FREEMAN MOBILE: (087) 6784551			

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SOUTHERN DIVISION - DIVISIONAL MANAGER - MR. DON MCMAHON, GOVERNMENT BUILDINGS, SULLIVAN'S QUAY, CORK. TEL: (021) 961920, FAX: (021) 961920, MOBILE: (087) 2646435.				
REGIONAL ECOLOGIST- DR. FERDIA MARNELL, 7 ELY PLACE, DUBLIN 2. TEL: (01) 6472385, FAX: (01) 6788123.				
SOUTH WESTERN REGION		DONERAILE DISTRICT		
LIMERICK – WEST	MR. LIAM LENIHAN, GLENDUFF, ASHFORD, BALLAGH, CO. LIMERICK. <i>TEL: (063) 84066</i> <i>MOBILE: (087) 2646437</i>	MR. SEAMUS CROWLEY NATIONAL PARKS AND WILDLIFE DONERAILE WILDLIFE PARK DONERAILE CO. CORK <i>TEL: (022) 24244</i> <i>FAX: (022) 24350</i> <i>MOBILE: (087) 2646436</i>	MR. PADDY O'SULLIVAN KILLARNEY NATIONAL PARK MUCKROSS HOUSE KILLARNEY CO. KERRY <i>TEL: (064) 31440</i> <i>FAX: (064) 33926</i> <i>MOBILE: (087) 2646446</i>	MR. DAN KELLEHER KILLARNEY NATIONAL PARK MUCKROSS HOUSE KILLARNEY CO. KERRY <i>TEL: (064) 31440</i> <i>FAX: (064) 33926</i> <i>MOBILE: (087) 2646445</i>
LIMERICK SOUTH				
CORK- NORTH WEST	MS. EVA SWEENEY, COIS COILLE, RAHAN, MALLOW, CO. CORK. <i>TEL: (022) 26570</i> <i>MOBILE: (087) 2646439</i>			
	MR. DENIS RYAN, TOOR, NEWPORT, CO. TIPPERARY. <i>TEL: (061) 378376 FAX:</i> <i>MOBILE: (087) 2646429</i>			

AREAS	CONSERVATION RANGERS	DISTRICT CONSERVATION OFFICERS	DEPUTY REGIONAL MANAGER	REGIONAL MANAGER
WESTERN DIVISION - DIVISIONAL MANAGER - MR. MICHAEL SWEENEY, KILMAINE ROAD, BALLINROBE, CO. MAYO. TEL: (092) 41269, FAX: (092) 41773, MOBILE: (087) 2588615. REGIONAL ECOLOGIST – DR. ANDY BLEASDALE, MOBILE: (087) 2391264				
MID WESTERN REGION		BALLINASLOE DISTRICT		
ROSCOMMON NORTH/LEITRIM SOUTH	MR. BRENDAN O'CONNOR, KNOCKVICAR, BOYLE, CO. ROSCOMMON. TEL: (079) 67053 MOBILE: (087) 2646456	MR. PADRAIG O'DONNELL, 3 SOCIETY STREET BALLINASLOE CO. GALWAY.	DR. ENDA MOONEY BURREN NATIONAL PARK 2 RIVERVIEW COROFIN CO. CLARE	MR. TIM O'CONNELL NATIONAL PARKS AND WILDLIFE 16 EYRE SQUARE CO. GALWAY
GALWAY EAST/MID ROSCOMMON	MS. CATHERINE HANNON, OORA HOUSE, GALEYBAY, KNOCKCROGHERY, CO. ROSCOMMON. TEL: (0903) 61370 FAX: (0903) 61370 MOBILE:	TEL: (0905) 43868	TEL: (065) 6837166	TEL: (091) 563016
GALWAY-CENTRAL	MR. GERARD HIGGINS, LYDICAN, ORANMORE, CO. GALWAY. TEL: (091) 798602 MOBILE: (087) 2646458	FAX: (0905) 43868 MOBILE: (087) 2646412	FAX: (065) 6837165	FAX: (091) 561809 MOBILE: (087) 2646454
CLARE-CENTRAL	MR. PAUDIE COSGROVE, APT. 34, MILL HOUSE, MILL RD., ENNIS, CO. CLARE TEL: (065) 6840356 FAX: MOBILE: (087) 2646459		MOBILE: (087) 2646455	
CLARE-SOUTH WEST	MR. J. CONROY, VISITOR CENTRE, KILRUSH, CO. CLARE. TEL: (065) 9052139 MOBILE: (086) 8074384			
CLARE-WEST	MS. CONGELLA MCGUIRE, 2 RIVERVIEW, COROFIN, CO. CLARE. TEL: (065) 6837449 MOBILE: (087) 6717377			
GALWAY EAST/SOUTH ROSCOMMON	MR. STEPHAN JONES, 3 SOCIETY STREET, BALLINSLOE, CO. GALWAY. TEL: (0905) 43997 MOBILE:			
GALWAY – SOUTH EAST	CIARA O'MAHONY, COOLE PARK, GORT, CO. GALWAY. TEL: (091) 561804 MOBILE: (086) 8074626			
	MR. ROBERT STEEDE, BURREN NATIONAL PARK, 2 RIVERVIEW, COROFIN, CO. CLARE. TEL: (065) 6837166 FAX: (065) 6837165 MOBILE:			

AREAS	CONSERVATION RANGERS	DISTRICT CONSERVATION OFFICERS	DEPUTY REGIONAL MANAGER	REGIONAL MANAGER
WESTERN DIVISION – DIVISIONAL MANAGER, MR. MICHAEL SWEENEY, KILMAINE ROAD, BALLINROBE, CO. MAYO. TEL: (092) 41269, FAX: (092) 41773, MOBILE: (087) 2588615 REGIONAL ECOLOGIST – DR. ANDY BLEASDALE, MOBILE: (087) 2391264				
		WESTERN REGION		
		<i>LAGDUFF DISTRICT</i>		
MAYO - MID WEST	MR. MAURICE P. MCDONNELL, ST. JOHN'S KILNACARRA, BELLAVARY, CASTLEBAR, CO. MAYO. <i>TEL: (094) 31076, FAX:</i> <i>MOBILE: (087) 2646461</i>	MR. DENIS STRONG LAGDUFF MOR BALLYCROY WESTPORT CO.MAYO <i>TEL: (098) 49996</i> <i>FAX: (098) 49997</i> <i>MOBILE: (087) 2646465</i>	MR. JIM MOORE, LAGDUFF MOR BALLYCROY WESTPORT CO. MAYO <i>TEL: (098) 49996</i> <i>FAX: (098) 49997</i> <i>MOBILE: (087) 2646430</i>	DR. NOEL KIRBY CONNEMARA NATIONAL PARK LETTERFRACK CO. GALWAY <i>TEL: (095) 41054/41006</i> <i>FAX: (095) 41005</i> <i>MOBILE: (087) 2646460</i>
MAYO-NORTH EAST				
SOUTH WEST MAYO	MS. SUSAN CALLAGHAN, COACH HOUSE, MELCOMB, NEWPORT, CO. MAYO. <i>TEL: (098) 42088</i> <i>MOBILE: (087) 2316386</i>			
MAYO SOUTH EAST/ GALWAY EAST	MR. JOHN J. HIGGINS, CASTLEGROVE, TUAM, CO. GALWAY. <i>TEL: (093) 47502,</i> <i>MOBILE: (087) 2646464</i>			
MAYO-NORTH WEST	MR. TONY MURRAY, LAGDUFF, BALLYCROY, CO. MAYO <i>TEL: (098) 49996, FAX: (098) 49997</i> <i>MOBILE: (087) 6479926</i>			
MAYO- EAST/ROSCOMMON WEST	MR. BRIAN HAREN, CHURCH STREET, CHARLESTOWN, CO. MAYO. <i>TEL: (094) 54348</i> <i>MOBILE: (087) 2646424</i>			
GALWAY-WEST	MR. GER O'DONNELL, <i>TEL: (095) 41054</i> <i>FAX: (095) 41005</i> <i>MOBILE:</i>			
SOUTH EAST CONNEMARA	MR. RAYMOND STEPHENS, SEANAGURREN, SPIDDAL, CO. GALWAY <i>TEL: (091) 553941</i> <i>MOBILE: (086) 8542201</i>			
LAGDUFF <i>TEL: (098) 49996</i> <i>FAX: (098) 49997</i>	MR. OWEN MCGREAL <i>MOBILE: (087) 6479925</i>			
CONNEMARA NATIONAL PARK <i>TEL: (095) 41054/41006</i> <i>FAX: (095) 41005</i>	MR. SEAN WALL <i>MOBILE:</i>			



PRIVATE LAND

EXCLD. FORESTRY

MA 15a

1-I-MS

X2 PIT

2-III/IV-MS

4-I-S

3-II-MS

5-I-S

X3 P20

MA 15b

5-II-S* AP30

ACTIVE TURBARY

X2 P23

MOSAIC 1-III/IV-MS

2-I-MM

1755 Indicators STOCKPROOF

X4 P25

No fence NI

EXCLD. PRIVATE LAND

FENCE

P26 A

MA 15c

3-I-S

FENCE SF

2-I-MU

X1 P5 P6

MA 15d

ACTIVE TURBARY

3-I-U

X2 P10

PRIVATE LAND

EXCLD. PRIVATE LAND

UNFENCED

Waterfall