

Forestry and Kerry Slug Guidelines.

Forest Service
Department of Agriculture, Fisheries and Food



Forest Service Forestry and Kerry Slug Guidelines.

Introduction and Summary

These guidelines are a result of a review of relevant literature including National Parks and Wildlife Service's *Kerry Slug Species Action Plan, Conservation Status Assessment Report and Threat Response Plan* and best expert advice. The Forest Service Forestry and Kerry Slug Guidelines are divided into two parts as summarised below. The first part (sections 1 – 4) gives some general background information on the Kerry slug and the threats to the species and the second (sections 5 – 10) focuses on forestry and the Kerry slug.

The following Part (pages 2 to 3 inclusive) summarises some of the Headings of the main document on pages 4 to 10 inclusive. It contains links to those Headings.

PART 1: BACKGROUND INFORMATION

[1.0 Protection and Conservation Status](#)

The Kerry slug, *Geomalacus maculosus*, being an Annex IV species under the Habitats Directive, is strictly protected wherever it occurs, making it an offence to deliberately disturb the species or damage or destroy its breeding or resting place. It is also an offence under national legislation (Wildlife Act 1976, Wildlife (Amendment) Act 2000) to deliberately destroy or damage the slug or its habitat. A total of seven Special Areas of Conservation (SACs) have been designated for the species.

[2.0 Distribution](#)

The Kerry slug has a restricted distribution, occurring only in areas of sandstone geology in west Cork and Kerry (Fig. 1).

[3.0 Lifecycle, Habitat and Ecology](#)

The Kerry slug is a distinctive spotted mollusc, which occurs in three broad habitat types, namely deciduous woodland, unimproved oligotrophic open moor or blanket bog,, and lake shores. Within these habitats, the Kerry slug occurs only where there is a sufficient quantity of sandstone outcrops and boulders, largely bare of vegetation except for lichens and mosses, on which it feeds and high humidity.

[4.0 Threats](#)

The main threat to the species is habitat change and disturbance from a number of potential sources. With regard to forestry, the main threat is loss of habitat through planting, loss of scrub, loss of mature woodland and the spread of exotic species such as *Rhododendron ponticum* into its semi-natural woodland habitat

PART 2: FORESTRY AND KERRY SLUG

[5.0 Forestry and Kerry slug](#)

In the known distribution range of the Kerry slug ([Fig. 1](#)) all Forest Service grant aided, approved or licensed activities must be assessed for the presence of the species or its resting/breeding habitat.

[6.0 Woodland Habitats used by Kerry Slug](#)

The Kerry slug may occur in deciduous woodland especially woodland comprised of oak, ash, holly, rowan and birch. Most conifer plantations are unlikely to have trees with sufficient lichens (trees not old enough) to support Kerry slugs. However, Kerry

slugs may occur in open habitats with sandstone outcrops or rocks covered in lichens within commercial conifer plantations in their distribution range. Suitable habitats within such forests include sandstone outcrops and rocks or any sandstone ruins of old buildings, walls and archaeology on the edge of plantations, in open spaces, gaps in the canopy, beside roads or other areas where there is sufficient light (for lichen growth). Sandstone outcrops and rocks under forest cover are unlikely to have sufficient, if any lichens, and as such are not suitable for the Kerry slug. The species also appears to have an affinity for lake shores at low altitudes in forests or open ground where there is high atmospheric humidity

7.0 Forest Operations that may impact on the Species

If Kerry slug is present then any activity (e.g. scarification, drainage, scrub clearance during afforestation/reforestation, thinning/harvesting, road/path construction and upgrade, coppicing) is likely to impact on the species or its habitat.

8.0 Detecting the Presence of Kerry Slug

Detecting the presence of Kerry slugs includes:

- Identifying the distribution range
- Identifying suitable habitat
- Identifying if the application is within a designated area or within a designated area referral zone.

The screening chart in [Figure 2](#) summarises the procedure and may be used to determine whether a site contains Kerry slugs or habitat suitable for Kerry slugs. If the result is 'yes' proceed to Forestry Operations and Kerry Slugs (section 9) and if it is 'no' follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations.

9.0 Forestry Operations and the Kerry Slug

Sites within SACs:

- The Forest Service will consult with NPWS and an Appropriate Assessment may be required.

Sites where Kerry slugs occur or where their presence is likely:

- Avoid the habitat/likely habitat, e.g. retain it as an Area for Biodiversity Enhancement (ABE), route the activity away from the habitat.
- If the operation is to proceed confirm whether or not the species occurs in the habitat.
- If the occurrence of the species is confirmed and if there is a risk that its resting or breeding place may be damaged or destroyed the applicant must seek a *derogation licence* from the Minister of the Environment, Heritage and Local Government under Regulation 25 of the Habitats Regulations (see Section 10). On receipt of this licence by the applicant the Forest Service will consider the approval/licence application.

10.0 Derogations

11.0 References

FORESTRY AND KERRY SLUG GUIDELINES

PART 1: BACKGROUND INFORMATION

1.0 Protection and conservation status

The Kerry slug (*Geomalacus maculosus*) is protected under the Wildlife Act 1976, as amended by the Wildlife (Amendment) Act 2000, from deliberate destruction and all deliberate damage to the slug and its habitat is prohibited. It is listed under Annex II of the Habitats Directive and seven SACs have been designated for the species with a combined total area of approximately 95,337 hectares. The Kerry slug is also listed in Annex IV of the Habitats Directive and as such is strictly protected, making it an offence to deliberately disturb the species or damage or destroy its breeding or resting place wherever it occurs.

2.0 Distribution

The Kerry slug has a restricted distribution, occurring mainly or only on acid and mineral poor Devonian Old Red Sandstone strata in west Cork and Kerry (Fig. 1).

3.0 Lifecycle, Habitat and Ecology

The Kerry slug is an attractive and distinctive spotted mollusc. Two colour forms exist, a blue/grey to black body colour with white spots and a ginger/bronze/brown to olive form with yellow spots. The latter colour appears to be predominately found in woodland habitats while the black form is common on heath and bog. The ability of the Kerry slug to curl into a ball shape when disturbed, a feature not shared by any other Irish slug species, is useful in identification (Plate 1).

Kerry slug eggs are deposited in batches of 18 – 30 between July and October and take 6 – 8 weeks to hatch. The juveniles take two years to mature, and the species can live for up to seven years. Juveniles may feed during the day unless it is especially sunny or dry but adults usually feed at night although they may feed in the daytime during or after rain.

Within its range, the Kerry Slug has been recorded in three broad habitat types where the humidity is high. These are:

- Open situations of unimproved oligotrophic open moor or blanket bog, and possibly cutaway/cutover bog, where there is a sufficient quantity of sandstone outcrops and boulders, largely bare of vegetation except for lichens and mosses.
- Deciduous woodland. The habitat is often sloping, with outcropping of rock or with boulders scattered amongst the trees. Both trees and rocks are in undisturbed, humid conditions with clean air, with a good lichen flora, or mixture of lichen, liverwort and moss flora. In this habitat, slugs can graze the organic film of the lichen and associated flora of both trees and rocks. Kerry slugs have been recorded under damp moss on horizontal or near horizontal branches and deep in crevices on tree trunks of rowan, holly, birch, ash and oak. Two specimens have been recorded from *Rhododendron ponticum*, one individual from western hemlock and one from *Pinus sylvestris*. Very few or

no records of the Kerry slug were found in *Rhododendron* thicket, close canopy conifer plantation and mature beech woodland.

- Lake shores – Kerry slug appears to have an affinity for water at low altitudes in forests or open ground where there is high atmospheric humidity and where there is a sufficient quantity of sandstone outcrops and boulders, largely bare of vegetation except for lichens and mosses.

4.0 Threats

The main threat to the species is habitat change and disturbance from a number of potential sources. With regard to forestry, the main threat is loss of habitat through planting, loss of scrub, loss of mature woodland and the spread of exotic species such as *Rhododendron ponticum* into its semi-natural woodland habitat.

PART 2: FORESTRY AND KERRY SLUG

5.0 Forestry and Kerry slug

In the known distribution range of the Kerry slug (Fig. 1) all Forest Service grant aided, approved or licensed activities must be assessed for the presence of the species or its resting/breeding habitat.

6.0 Woodland Habitats used by Kerry Slug

As described above, the Kerry slug may occur in deciduous woodland of rowan, holly, birch, ash and oak. The habitat is often sloping, with outcropping rock or with boulders scattered amongst the trees. Both trees and rocks are in undisturbed, humid conditions with clean air, with a good lichen cover, or mixture of lichen, liverwort and moss flora. In this habitat, slugs can graze the organic film of the lichen, and associated flora, of both trees and rocks. Kerry slugs have been recorded under damp moss on horizontal or near horizontal branches and deep in crevices on tree trunks. Very few or no records of the Kerry slug were found in *Rhododendron* thicket, close canopy conifer plantation and mature beech woodland

With regard to coniferous forests, the majority of Irish conifer plantations are managed as a commercial crop resulting in few plantations greater than 50 years of age. Consequently, most conifer plantations are unlikely to have trees with sufficient lichens to support Kerry slugs.

However, Kerry slugs may occur in habitats with sandstone outcrops or rocks covered in lichens within commercial conifer plantations in their distribution range. Suitable habitats within such forests include sandstone outcrops and rocks or any sandstone ruins of old buildings, walls and archaeology on the edge of plantations, in open spaces, gaps in the canopy, beside roads or other areas where there is sufficient light (for lichen growth).

Sandstone outcrops and rocks under forest cover are unlikely to have sufficient, if any lichens, and as such are not suitable for the Kerry slug. Sandstone outcrops and rocks that are covered in mosses with little or no lichens generally do not provide sufficient food for the species.

7.0 Forest Operations that may impact on the Species

If Kerry slug is present any activity (e.g. scarification, drainage, scrub clearance during afforestation/reforestation, thinning/harvesting, road/path construction or upgrade, coppicing,) is likely to impact on the species or its resting/breeding habitat.

8.0 Detecting the Presence of Kerry Slug

In order to ensure sustainable forest management and the protection of Annex IV species in Ireland, the Forest Service has developed forestry guidelines for selected Annex IV species. Kerry slugs are known to have a restricted distribution in Ireland, therefore only those Forest Service grant aided, approved or licensed activities in the species range must be assessed for the presence of the species or its resting/breeding place as outlined in these Forestry and Kerry Slug Guidelines. The *Forestry and Kerry Slug Guidelines* supplement all other Forest Service Guidelines and the Code of Best Forest Practice and apply to all potentially impacting forest operations in areas where the Kerry slug occurs or is likely to occur.

Screening for Kerry slug or potential Kerry slug habitat

The screening chart in Figure 2 (page 10) summarises the questions numbered 1 to 4 beneath and may be used to determine whether or not a site contains a Kerry slug or its resting or breeding habitat. If the result is ‘yes’ proceed to Section 9 “Forestry Operations and Kerry Slug” beneath and if it is ‘no’ follow standard Forest Service guidelines provided there is no other environmental (ecological, archaeological, landscape) or silvicultural considerations.

1. Is the application in the species distribution range? ([Fig. 1](#)). If ‘yes’ go to Q2, if ‘no’ follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations.
2. Is there any record or sighting of the Kerry slug on the site? Potential information sources include NPWS maps and data (<http://www.npws.ie/en/MapsData>) and the National Biodiversity Data Centre (www.biodiversityireland.ie). If ‘yes’ go straight to Section 9 “Forestry Operations and the Kerry Slug” beneath. If ‘no’ go to Q3.
3. Identify if suitable habitat is present on the site. The screening chart in [Figure 2](#) and descriptions in Section 6 should be used to determine whether a site contains habitat suitable for the Kerry slug. If ‘yes’ proceed to Section 9 “Forestry Operations and the Kerry Slug” beneath. If ‘no’ follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations.
4. Is the application within a designated area or within a designated area referral zone? If it is National Parks and Wildlife Service will be consulted (see Section 9 “Forestry Operations and the Kerry Slug” beneath).

9.0 Forestry Operations and the Kerry Slug

If the forest operation/activity occurs within a designated area the National Parks and Wildlife Service will be consulted and approval/licence only issued following their agreement/comment. In addition, an Appropriate Assessment may be required for the operation/activity if it is likely to significantly affect the conservation objectives of a

Natura 2000 site. The following steps should be taken if Kerry slug occurs or is likely to occur (within the range and suitable habitat) on a site not within a SAC:

- 1 Avoidance: Determine if it is possible to conduct the forest activity/operation and avoid the Kerry slug habitat or likely habitat – for example incorporate the area into an Area for Biodiversity Enhancement (ABE), re-route the road/ride to avoid the area, do not travel through the area when harvesting/thinning. If it is possible to avoid the habitat go to Step 2, if not go to Step 3.
- 2 Avoidance possible: If it is possible to conduct the forest activity/operation and avoid the Kerry slug habitat/potential habitat,
 - a. Identify the area (i.e. suitable habitat) in the relevant documentation to be submitted to the Forest Service (this area may form part of the ABE requirement) and
 - b. Where necessary clearly identify the area on the ground to ensure that the forest activity/operation does not impact on the habitat.
- 3 Avoidance not possible: If it is not possible to conduct the forest activity/operation and avoid the Kerry slug or its resting or breeding habitat or potential habitat then:
 - a. If the Kerry slug has not been confirmed an ecological survey must be carried out (See Section 8 above) to determine whether the species occurs or not. Currently, hand searching during or after heavy rain or at dusk/dawn is the most successful method for finding specimens. It is much more difficult to locate individuals during dry, sunny weather. A live trap is being developed and tested for the species. If presence is confirmed proceed to Step 3b, if the species is not present then approval/licence may proceed - follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations.
 - b. If the Kerry slug has been confirmed the Forest Service will not issue approval/licence for the area where the Kerry slug was found or for the area used or likely to be used as a breeding or resting place **or**
 - c. If the Kerry slug has been confirmed and the activity/operation must proceed and there is a risk that a resting or breeding place of the species may be damaged or destroyed, then the applicant must seek a derogation licence from the Minister of the Environment, Heritage and Local Government under Regulation 25 of the Habitats Regulations (see Section 10). On receipt of this licence by the applicant the Forest Service will consider the approval/licence application.

If during the course of forest activity a Kerry slug is discovered, work should halt, the Forestry and Kerry Slug Guidelines should be implemented and the Forest Service notified immediately.

10.0 Derogations

Where a proposed development will affect a site known to be used by the Kerry slug, consideration needs to be given to the likely impact on the population. Even when planning permission or other permissions are given, or the activity does not require such permission, the wildlife legislation applies; Kerry slugs and their breeding and resting places are still protected.

Article 16 of the Habitats Directive provides for derogations. These may be issued "provided there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status".

Applications for a derogation licence should be made in writing to: Species and Regulations Unit, National Parks and Wildlife Service, Main Street, Ballybay, Co Monaghan. It can take 4 weeks for an application to be processed. The application should include Kerry slug survey results and the mitigation measures that will be implemented to minimize the impact on the slug. Local NPWS conservation rangers may be able to advise on appropriate mitigating measures.

Note that if the proposed activity can be timed, organised and carried out so as to avoid committing offences under Irish wildlife legislation and the EU Habitats Regulations, then a derogation is not required. Further information is available at: <http://www.npws.ie/en/WildlifePlanningtheLaw/Licences/>.

11.0 [References](#)

National Parks and Wildlife Service, 2007. Conservation Status Assessment Report: Background to the conservation assessment of the Kerry Slug (*Geomalacus maculosus*). Conservation Status Assessment Report. NPWS, Dublin.

National Parks and Wildlife Service, 2008. Species Action Plan – Kerry Slug. NPWS, Dublin. <http://www.npws.ie/en/PublicationsLiterature/SpeciesActionPlans/>

National Roads Authority, 2009. Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. NRA, Dublin.



Plate 1. The Kerry slug is the only Irish slug able to curl into a ball. This makes measurements of live adults difficult.

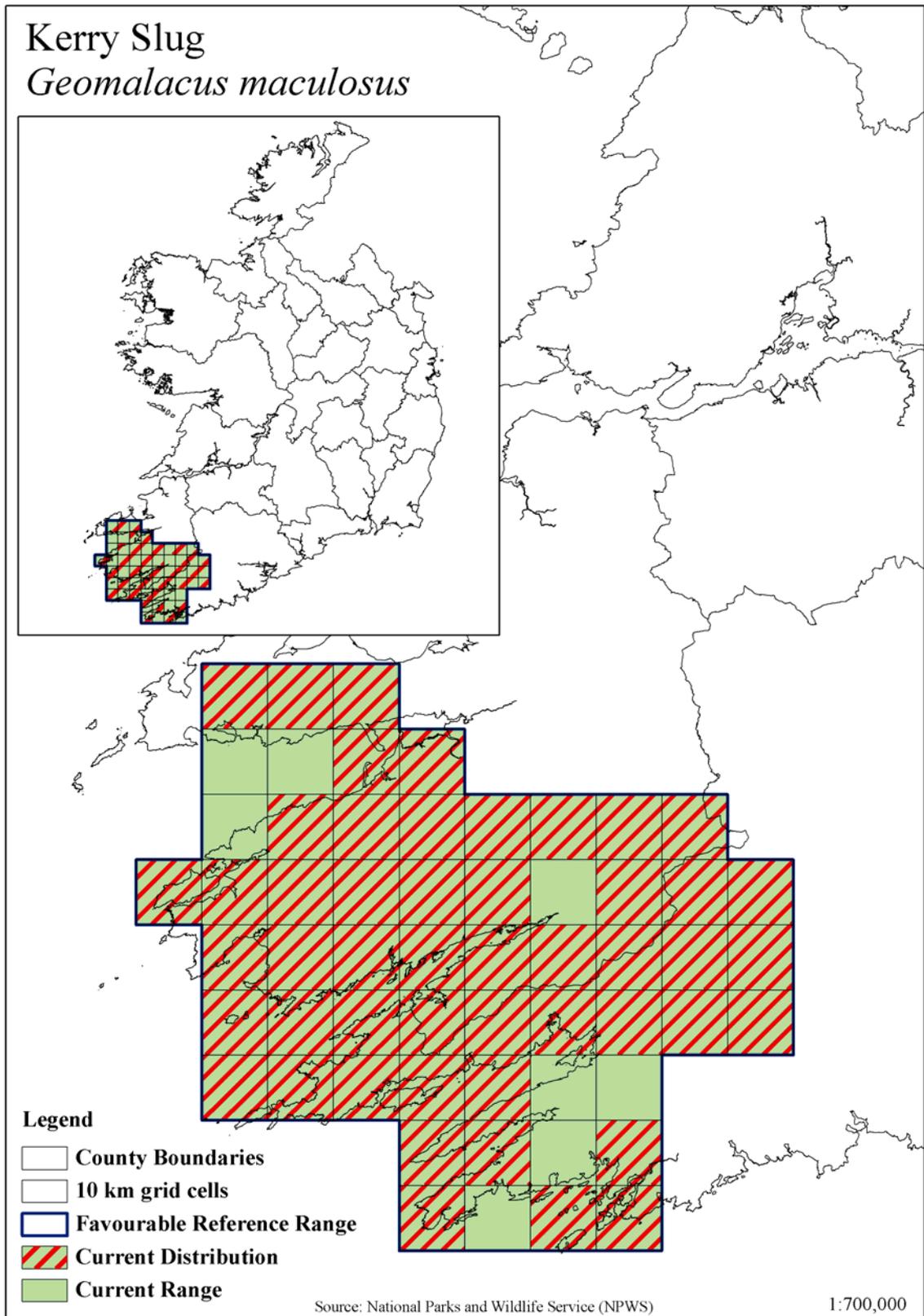


Fig. 1. Distribution of Kerry Slug in Ireland. The species has been officially recorded in 43 10km squares since 1970.

Fig.2 Screening chart to determine whether a forest activity has the potential to impact on a Kerry slug habitat (to be used in the absence of a confirmed record/sighting).

