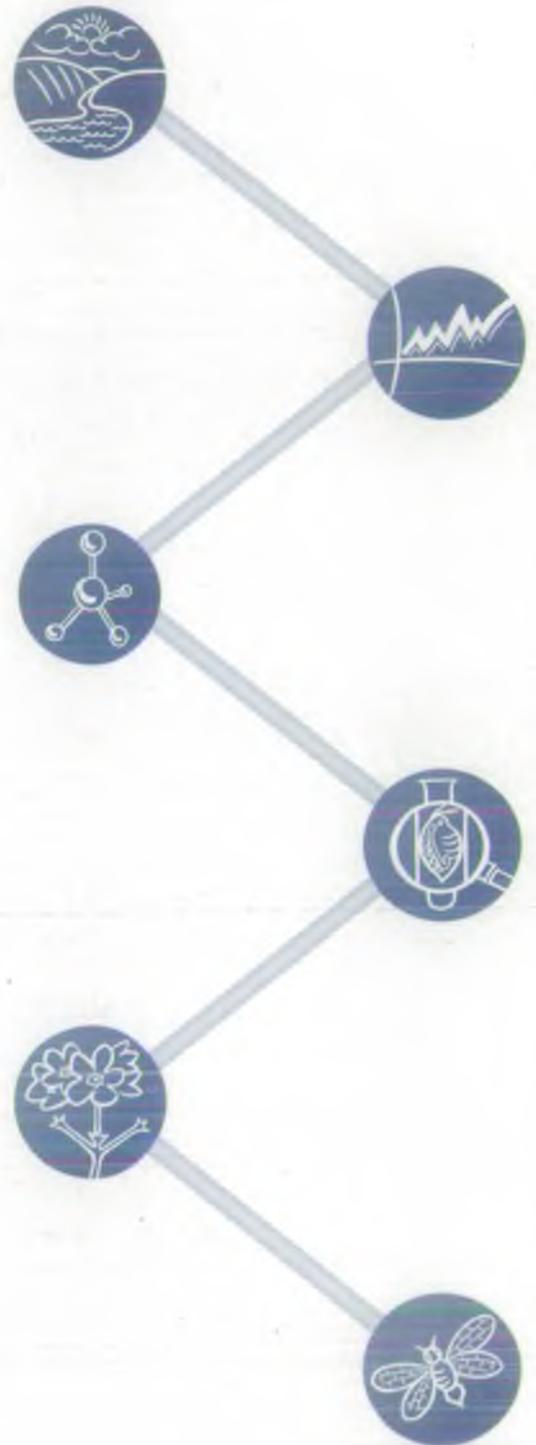


# AERIAL SPRAYING WITH ASULAM TO CONTROL BRACKEN

Guidance notes for  
Environment Agency staff



ENVIRONMENT  
AGENCY

EA NCEHS

# **AERIAL SPRAYING WITH ASULAM TO CONTROL BRACKEN**

## **GUIDANCE NOTES FOR ENVIRONMENT AGENCY STAFF**

The purpose of this document is to provide **internal guidance** to Environment Agency staff on the control of bracken with asulam to ensure that waters are of sustainable quality for potable supply. It provides information on the need for control, the legal responsibilities of the Agency and users, the use of buffer zones, and the use of asulam to control bankside vegetation. This document may also be provided to an external audience upon request.

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## Part 1. Background

Bracken *Pteridium aquilinum* is a native plant found in most areas of Britain. It provides a rich habitat for many native species including butterflies, birds, plants and other insects. However, due to its invasive nature it has become problematic in some areas and needs to be controlled. It has an economic impact on the value of grazing land or heather moorland that it has overgrown, and is potentially harmful to man, carrying ticks that may result in infections such as Lyme Disease. Bracken plants are also known to contain carcinogens and their spores have been shown to be tumour inducing.

A common method of controlling bracken is to apply Asulox\* by aerial spraying. However, this practice has potential water pollution and conservation implications. These notes provide guidance to Environment Agency staff on their responsibilities in this area.

- \* The product Asulox contains the active ingredient asulam

## Part 2. Legal responsibilities of the Environment Agency and users

The Control of Pesticides (Amendment) Regulations COP(A)R 1997 requires consultation with the appropriate area office of the Environment Agency no less than 72 hours before undertaking aerial application of pesticides if the land to be treated is adjacent to or within 250 metres of water. In considering applications of pesticides the Agency has the following legal responsibilities:

- **The Water Supply (Water Quality) Regulations 1989 (and EU Drinking Water Directive).** The Environment Agency has a responsibility to protect water abstracted for drinking supply from contamination. The regulatory limit for pesticides in drinking water set by the Water Supply (Water Quality) Regulations 1989 (and

EU Drinking Water Directive) is 0.1µg/litre (1 part in 10 billion). Although for asulam this limit is very much lower than levels that could have health implications, the Regulations require that this limit is not exceeded in any sample of water supplied to customers' taps. Pesticides are not removed by conventional water treatment processes and if they are found in supplies, specialised treatment with high capital and running costs has to be installed to remove them.

- **The Environment Act 1995 s. 7-(1)(b).** It is the duty of the Environment Agency to consider "any proposals relating to pollution-control functions of the Agency, to have regard to the desirability of conserving and enhancement of natural beauty and conserving flora, fauna and geological or physiological features of special interest". Consideration should be given to the environmental benefit of the area being sprayed and whether there are any conservation implications.
- **Water Resources Act 1991 s. 85 -(1).** A person contravenes this section if he causes or knowingly permits any poisonous, noxious or polluting matter, or any solid waste matter, to enter any controlled waters.
- **Salmon and Freshwater Fisheries Act 1975 s. 4-(1).** This provides for the offence of causing or knowingly permitting "to be put into any waters containing fish or into any tributaries of water containing fish, any liquid or solid matter to such an extent as to cause the waters to be poisonous or injurious to fish or the spawning grounds, spawn or food of fish, shall be guilty of an offence". In this case, consideration should be given to soil erosion problems that may result from the control of bracken and its potential for pollution of sensitive spawning grounds, particularly those for salmonids.

Agreement with aerial spraying should only be given where it is believed there is minimal or no risk of contamination by

asulam to public or private water supplies at greater than 0.1µg/l, or if conservation implications are not an issue. It should be expected that some areas in drinking water reservoir catchments, where agreement would previously have been given, will no longer receive agreement. The above legislation applies irrespective of whether the user is applying for a MAFF grant or not.

If spraying is carried out without consulting the Agency, the Health and Safety Executive will be informed and a prosecution could follow under the Food and Environment Protection Act 1985. The Agency can also prosecute under the Water Resources Act 1991 if pollution has occurred, for example, if a public water supply is polluted by asulam, or under the Environment Act 1995 if there has been a conservation impact, such as, damage to rare or protected species.

Users of asulam should be reminded of their obligation to comply with all relevant legislation. Although the legal requirement for consultation with the Agency is a minimum of 72 hours, it would be very helpful if initial application could be made much earlier as part of a long-term bracken control programme. This early application could indicate general areas where spraying might be considered, with more precise locations given nearer the date. This would enable proper consideration of any application, with adequate time for consultation where necessary with water abstractors/Plcs and other interested parties. Where possible, long-term bracken control plans (for example, five to ten years) should be discussed in advance with landowners to identify potential pollution-risk areas.

As well as Environment Agency consultation, any applicant must consult the appropriate nature conservation agency (English Nature or the Countryside Council for Wales) where a local nature reserve, a Marine Nature Reserve, a National Nature Reserve or a Site of Special Scientific Interest lies within 1,500 metres of the land that is to be treated. Environment Agency staff should also liaise with the appropriate conservation body

where there are conservation implications other than designated areas. For instance, asulam can harm other vegetation such as ferns, and bracken supports insects that may be rare and protected under the Wildlife and Countryside Act 1981, such as the high brown fritillary butterfly.

There are other legal notification requirements that aerial spray operators must follow. This information can be obtained from the advisory leaflet on *Aerial Spraying of Pesticides - Consultation and Notification*, available from the Pesticides Safety Directorate (PSD).

### **Part 3. Use of buffer zones to protect the environment**

In practice, aerial spraying on moorlands, uplands and heathlands is likely to result in the spray entering a watercourse from drift. Many small streams and rivulets run across these areas and hence feed drinking water catchments. The risk of contamination of drinking water sources can therefore be high. In the case of bracken, spraying must be done in accordance with the best practice laid out in the BRACKEN MANAGEMENT HANDBOOK, produced by Rhône Poulenc, which manufactures Asulox, with the exception of the buffer zones given on page 35. Environment Agency buffer zones will be used in their place. These buffer zones have been agreed by the Environment Agency and with the product manufacturer to protect water supplies:

Aerial spraying (conventional nozzles)	160 metres
Aerial spraying (RD raindrop nozzles)	50 metres
Hand-held ULVA drift sprayer	50 metres
Tractor and knapsack (conventional system)	20 metres
Tractor and knapsack (low-drift system)	5 metres

Appendix 2 gives more detailed guidance on application systems.

**Although there will be no blanket ban of aerial spraying, some particularly vulnerable areas, for example private wells, will be identified in which aerial spraying will not be appropriate.** In many of these instances, after consultation, the use of tractor or knapsack sprayers would be acceptable. Spring and well sources should also be identified by the applicant, with advice from the local Environmental Health Officer (EHO), and care should be taken to provide adequate protection.

Buffer zones should be applied where there are concerns over water supply contamination. In practice, this will generally mean recommending the use of buffer zones adjacent to water supply sources or significant feeder streams, that is, where there may be insufficient dilution to meet the 0.1µg/l drinking water standard. However, recognising the genuine need to control bracken, agreement may be given to spraying within normal buffer widths if the proportion of the total catchment is small and available dilution would provide adequate protection for the water source.

In areas where buffer zones are applied, non-chemical and traditional mechanical methods may provide a viable alternative to pesticides, provided that these can be carried out in such a way as to ensure protection of drinking water supplies and the environment.

Bracken can form dense stands with no underlying turf. In such cases, bare soil would be left after spraying and it is important that consideration is given to an aftercare management plan to restore ground cover and so prevent erosion. Erosion has consequences for both the environment and drinking water treatment, and in some cases spraying may not be appropriate.

#### **Part 4. Use of asulam to control weeds near water.**

Asulox is approved for both aerial application and for use near water to control bracken.

Under COP(A)R 1997 the **consent** of the Environment Agency must be obtained before a pesticide is applied for the purpose of controlling aquatic weeds or weeds on the banks of watercourses or lakes. This statement is now included in the statutory box on product labels. Requests for Agency consent to control weeds near water enable Agency staff to make an environmental assessment of the proposed treatment, including the potential of spray entering a watercourse.

Because of the nature of the terrain in upland, moorland and heathland areas with steep slopes adjacent to watercourses, as a default, the "banks" would be considered to be the area within the buffer zones distances specified in part 3 above. For aerial application with conventional nozzles, the bank is the area within 160 metres from the watercourse. **In practice, the aerial spraying of asulam to control bracken "near water" should not be permitted unless water supplies are not at risk, rare ferns or other sensitive plants are absent and soil erosion is not an issue.**

Further guidance on Agency staff's responsibility for consenting the control of weeds in or near water is provided in the Agency document, *The Use of Herbicides to Control Weeds in or Near Water. The MAFF booklet Guidelines for the Use of Herbicides on Weeds in or near Watercourses and Lakes* (1995) provides additional advice.

#### **Part 5. Conclusions**

These guidance notes have provided advice to Environment Agency staff on their responsibilities in respect to the aerial spraying of asulam to control bracken. The notification form (Form H3) for the aerial application of herbicides, including asulam, is included in the Appendix 1 for information along with the standard letters for application, agreement and objection. Further advice on this issue may be obtained from the Pesticides Section, EHS National Centre.

## References

*Bracken Management Handbook (1996):*  
Integrated Bracken Management. A guide to  
best practice. Rhône - Poulenc.

*Guidelines for the Use of Herbicides on Weeds  
in or near Watercourses and Lakes (1995).*  
MAFF Publications, London.

*The Use of Herbicides to Control Weeds in or  
Near Water (1998).* Environment Agency.

**Pesticide Section**  
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## Appendix 1

### 1. Form H3 Notification form for aerial application of herbicides



ENVIRONMENT AGENCY

REGION

Address:

Tel:

Fax:

e-mail:

Control Of Pesticides Regulations 1986 (as amended)  
(Schedule 4, Paragraphs 2(b) & (c))

#### **Aerial Application of Herbicides**

If land to be treated with the aerial application of herbicides is adjacent to or within 250 metres of water, Environment Agency consent is required. Under the above legislation you are required to notify the Environment Agency no less than 72 hours before commencement of aerial application.

This form is to assist you in complying with the above requirements and to provide a record that the regulations have been followed.

Name and address of company		
Tel:	Fax:	e-mail:

Landowner's name and address	
------------------------------	--

Location to be treated. Provide OS map grid ref(s) and sufficient information for the areas to be identified, along with a marked site plan	
--	--

Approximate date (s) of treatment	
-----------------------------------	--

contd/...

Is it for control of: a) bracken b) other (give details)	
--	--

Name of pesticide to be applied	
---------------------------------	--

State dose rate and total amount to be used	
---	--

Have you contacted the local EHO for private abstractions/well supplies	
---	--

Have you contacted English Nature or Countryside Council for Wales being contacted for conversation implications	
--	--

"Water" means water held in sources of public water supplies, including reservoirs, upland catchment streams, lakes and rivers, groundwaters, springs, estuarial and coastal waters, water used for fishing, including spawning sites, small watercourses and lake fisheries, as well as that used for fish farming, or for the growing of watercress, or for the watering of livestock or for the irrigation of land.

Where there is a risk of contaminating water supply sources, a buffer zone of 160m applies to aerial spraying. Where there is no risk to water supply sources, rare ferns or other sensitive plants are absent and soil erosion is not likely to occur after treatment, buffer zones are not required.

As well as Environment Agency consultation, or any applicant must consult the appropriate nature conservation agency (English Nature or the Countryside Council for Wales) where a local nature reserve, a Marine Nature Reserve, a National Nature Reserve or a Site of Special Scientific Interest lies within 1,500 metres of the land that to be treated. Environment Agency staff should also liaise with the appropriate conservation body where there are conservation implications other than designated areas. For instance, asulam can harm other vegetation such as ferns and bracken supports insects that may be rare and protected under the Wildlife and Countryside Act 1981, such as the high brown fritillary butterfly.

There are other legal notification requirements that aerial spray operators must follow. This information can be obtained from the advisory leaflet *Aerial Spraying of Pesticides - Consultation and Notification* available from the Pesticides Safety Directorate (PSD).

Signed: \_\_\_\_\_

Position: \_\_\_\_\_

Date: \_\_\_\_\_

Please complete and return to:  
Designated Officer (for example, Environmental Protection Officer)  
Environment Agency

## 2. Standard letter for aerial application of herbicides

Our ref: <>

Your ref:<>

<>

<>

<>

<>

<>

<>

<>

Dear <>

Aerial application of <>

With reference to your letter of <>, the Environment Agency has the following general comments and requirements to make on the aerial application of any pesticides:

- a) The user should abide by the conditions of Schedule 4 of the Control of Pesticides Regulations 1986 (as amended) and the conditions in the Civil Aviation Authority's booklet CAP 414 *Information on Requirements to be met by Applicants and Holders of the Aerial Application Certificate*.
- b) The Agency should be notified in writing as early as possible, ideally at least three weeks, and legally no less than 72 hours before the commencement of the aerial spraying programme. This notification should include the submission of a map that clearly identifies the proposed areas of spraying and possible helicopter landing sites, plus a completed form, H3 (enclosed).
- c) It is the responsibility of the user to ensure that interests such as water abstraction for public supply and livestock, crop irrigation and fisheries are not adversely affected. Because of the large number of reservoirs and abstractions within the area, full details of the former cannot be given at this time. However, once you have provided us with the details required in b) above, we will be able to send you details of any water abstractions registered with the Agency within and close to the affected areas. An early notification helps the Agency to provide you with information in time to take measures to safeguard the environment.

Please note that many small private drinking water supplies are not licensed by us, but are regulated by the local Environmental Health Officer, who you should contact to provide you with details of these so that you can avoid contaminating any such sources.

- d) The Agency's consent is required if you intend to apply the herbicide to control aquatic weeds or weeds on the banks of watercourses and lakes. The only herbicide cleared for both aerial application and use near water is asulam. Clearance for the aerial application of asulam is given for the control of bracken in grassland. During application the spray may enter a watercourse and thus the prior agreement of the Agency must be obtained before application.
- e) As a general rule, helicopter landing sites should not be located at:

<>

<>

<>

<>

It is expected that there will be liaison between landowners/agents/contractors regarding the fulfilment of the above requirements.

We will subsequently inform you of our decision regarding your application in writing.

Yours sincerely

### 3. Standard letter of agreement for aerial application of herbicides

Our ref: <>

Your ref: <>

<>

<>

<>

<>

<>

<>

<>

Dear <>

Aerial application of <> on <>

Thank you for your letter dated <> and enclosed map and form.

The Environment Agency has no objection to aerial spraying in the areas proposed provided the following conditions are adhered to.

The manufacturer's recommendations should be strictly followed. In order to minimise the risks, spraying should be avoided when rain is expected, during windy periods [ref. Schedule 4, Control of Pesticides Regulations 1986 (as amended)] and when the soil is saturated. If these conditions are avoided, much greater absorption by the bracken and soil will occur. Watercourses, <> lie within the proposed treatment areas. These watercourses contain sensitive invertebrate animal life, and great care should be taken to avoid spray drift/runoff into these waters.

In the case of bracken, spraying must be done in accordance with the best practice laid out in the *Bracken management handbook* (copy enclosed / previously supplied+), produced by Rhône Poulenc which manufactures Asulox, with the exception of the buffer zones given on page 35. Agency buffer zones will be used in their place. Particular attention must be given to the aftercare of treated areas where the cover of bracken is dense, with little or no underlying vegetation to replace it. Failure to do this will lead to bare areas of land being exposed to erosion once the bracken litter has disappeared from the treated areas, allowing soil and associated debris to be washed into nearby watercourses. Any person allowing such circumstances to occur through bad management practices may well be contravening Section 85 of the Water Resources Act 1991 and as such will be subject to prosecution by the Agency.

It is the responsibility of the person spraying to notify and consult with any downstream water user and to avoid contaminating water abstraction sources. \*The following abstractions are registered with the Agency in this area: / There are no licensed abstractions within 1 km of the proposed treatment area. There are almost certainly unlicensed, spring abstractions within the affected areas, of which we have no record. Your local Environmental Health Office <name and number> should have details of these.

\*In order to protect public water supplies, the Agency considers it necessary to impose a buffer zone of < m > around <>. (Other restrictions may be added if necessary.)

Helicopters should be washed off on waste ground at least 10 metres from a watercourse. The spray tanks should be filled with clean water and the contents sprayed within the treated area; they should not be emptied onto land.

contd/...

Follow the conditions in the Civil Aviation Authority booklet CAP 414 *Information on requirements to be met by Applicants and Holders of the Aerial Application Certificate* at all times.

The Agency must be notified immediately in the event of any accidental spillage of chemical by means of the freephone 24hour emergency number 0800 80 70 60.

Subject to these conditions being met, the Agency has no objection to bracken spraying being carried out this year in the areas proposed. The Agency maintains the right to take water samples before, during and after spraying and may prosecute under the relevant legislation if pollution occurs as a result of spraying, particularly if pollution ensues from deliberate or negligent practice.

It is the responsibility of the user to inform the Agency when the operation has been completed.

Yours sincerely

For telephone enquiries please contact - <>

\* use whichever is appropriate

+ delete as appropriate

**4. Standard letter of objection for aerial application of herbicides**

Our ref: <>

Your ref: <>

<>

<>

<>

<>

<>

<>

<>

<>

Dear <>

Aerial application of <> at <>

Thank you for your notification form H3 dated <> concerning your proposal to aerially apply the herbicide ... at <>. I regret to inform you that the Environment Agency is unable to give approval for this herbicide application for the following reason(s):

Yours sincerely

For telephone enquiries please contact - <>

## Appendix 2

### Buffer zones to protect water supplies using different types of application systems

The following buffer zones have been agreed by the Environment Agency and with the product manufacturer to protect water supplies:

Aerial spraying (conventional nozzles)	160 metres
Aerial spraying (RD raindrop nozzles)	50 metres
Hand-held ULVA drift sprayer	50 metres
Tractor and knapsack (conventional system)	20 metres
Tractor and knapsack (low-drift system)	5 metres

#### **1. Conventional systems**

##### **Aerial (160m) and Tractor and knapsack (20m)**

This category of systems includes spray gear fitted with conventional hydraulic nozzles not having a recognised drift-control capability.

#### **2. Low-drift systems**

##### **2.1 Tractor and knapsack (5m)**

###### **2.1.1 Large droplet (250µm) spinning-disc systems**

This category includes spinning disc or controlled droplet applicators (CDA) set to produce droplets of 250 micron or more.

###### **2.1.2 Ground-based, low-drift boom and nozzle systems**

This category includes spray gear fitted with conventional hydraulic nozzles having a recognised drift-control capability. Some examples of these include:

##### **Spraying systems**

LP TEEJET fan nozzles

DGTEEJET drift-guard fan nozzles

FLOODJET anvil nozzles (larger sizes or any sizes at low pressure)

TURBO TEEJET anvil nozzles

##### **Lurmark**

LO-DRIFT fan nozzles

LOW PRESSURE FANTIP fan nozzles

DEFLECTIP anvil nozzles (larger sizes or any sizes at low pressure)

POLIJET anvil nozzles (larger sizes or any sizes at low pressure)

##### **Sprays International**

ENVIROGUARD fan nozzles

DEFLECTOR anvil nozzles (larger sizes or any sizes at low pressure)

##### **2.2 Aerial spraying (RD raindrop nozzles) (50m)**

This category specifically refers to helicopters with reduced-drift boom fitted with RD raindrop nozzles.

#### **3.0 Drift systems**

##### **3.1 ULVA drift sprayer (50m)**

Drift spraying requiring a steady breeze for application to bracken. The operator walks across the wind applying swaths at 3 metre intervals. This category covers both the older Micron 'ULVA-8' and the newer 'ULVA+' hand-held spinning-disc applicators:

More detailed guidance on spray drift systems is provided on page 40 of *The Bracken Management Handbook* produced by Rhône-Poulenc.