Second Report of the FSC Pesticides Policy UK Pilot Project Working Group

V1-0, January 2019

Background

This report has been produced in line with the project terms of reference agreed with Performance and Standards Unit at FSC International (*Desk studies to test concept introduced in drafts of the FSC Pesticides Policy*, June 2018), specifically the outcome required under clause 4.2:

> 4.2. The SDG shall submit to PSU by January 2019 the set of indicators according to 3.5.

On the basis of the latest draft revised FSC Pesticides Policy (FSC-POL-30-001 V3-0 EN), the UK Working Group has carried out a national level Environmental and Social Risk Assessment (ESRA) for the use of glyphosate and has developed national indicators to address the identified risks, taking particular account of exposure elements and variables, research, engagement, training, monitoring, and PPE. The ESRA, based on the template in Annex 2 of the draft FSC Pesticides Policy and including the proposed national indicators, is in the Annex to this report, and is prefaced by some general comments on its contents and interpretation. The national indicators are closely linked to existing UK regulations, best practice guidance and National Forest Stewardship Standard indicators; it is hoped that sufficient background information has been provided for these to be adapted to produce more generic indicators.

The report has been written by FSC UK Forest Standards Manager Dr Owen Davies on the basis of a Working Group meeting on 12 December 2018. All three Working Group members were present – Stuart Wilkie (economic), Andrew Sharkey (environmental), and Andrew Heald (social) – as was technical expert Rina Guadagnini. Technical expert Ian Willoughby 'phoned in for part of the meeting.

General comments

There was a strong desire within the UK Working Group not to 'reinvent the wheel'. The UK is a heavily regulated country with a large number of legal controls on pesticide usage, as is reflected in the National Forest Stewardship Standard. To the greatest extent possible and appropriate, the Working Group has sought to reference existing regulatory and best practice controls in developing risk mitigation strategies and indicators, rather than developing entirely new text.

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The Working Group recognises that many of the issues which need to be addressed to manage risk are site specific, which of course cannot be addressed at the national level. It is their hope that the risk mitigation strategies and indicators suggested are appropriate to the scale of the ESRA and a suitable basis for management unit level risk assessments and operational site plans.

The ESRA is based on the listing of glyphosate as a HHP as a probable carcinogen (although the Working Group notes that their technical experts are divided with regard to the weight which should be given to analyses which reach different conclusions on this score). As such, it gives greatest weight to mitigating risks to human health, primarily through the pathway of direct worker exposure but also through water and wild foods. Other potential impacts of glyphosate, including environmental impacts, are also considered, but the proposed mitigation strategies and indicators are proportionate to the perceived lower level of risk.

As a further general point, the Working Group notes that careful wording is required in risk descriptions, mitigation strategies and indicators to avoid creating unnecessary and disproportionate alarm among stakeholders.

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Annex – ESRA for glyphosate in the UK, with proposed mitigation strategies and indicators

The Working Group makes the following observations regarding the context and interpretation of this ESRA:

- It is based on the listing of glyphosate as a HHP as a probable carcinogen, and as such it gives greatest weight to mitigating risks to human health, primarily through the pathway of direct worker exposure but also through water and wild foods. Other potential impacts are also considered, but the proposed mitigation strategies and indicators are proportionate to the perceived lower level of risk.
- It applies to glyphosate itself and not to individual formulations, which may present other hazards.
- It applies solely to standard forestry uses of glyphosate, i.e. those covered by the certificates of competence mentioned in the ESRA. It does not apply to non-standard uses, which may require additional safeguards.
- It applies not only to application of glyphosate, but also to mixing, storage and waste disposal, all of which are covered by the best practice guidance cited in the proposed mitigation strategies and indicators.

The Working Group makes the following observations regarding changes to the ESRA template:

- As glyphosate has been identified as a HPP on the basis of one type of hazard (carcinogenicity), it did not seem necessary to retain the nine columns listing all of the hazard groups and types of hazards, and these have been removed. Despite this, as noted in the general comments in this report, other potential impacts of glyphosate, including environmental impacts, are also considered in the ESRA.
- A column has been added to the right hand side of the ESRA template which contains only indicators. This was to allow for the separation of a broad description of mitigation strategies (including the rationale for them and their links with regulation, published best practice, and existing requirements of the UK National Forest Stewardship Standard) from specific, auditable indicators. In other words, the column 'Mitigation strategies defined to minimize risk' provides the rationale for the column 'Indicators'.

Proposed new indicators are numbered as Gly.1, Gly.2, etc.

The ESRA includes references to:

- FSC-STD-GBR-03-2017 V1-0 EN *UK all forest types and scales* (the UK NFSS), with cross-references to the user-friendly *UK Woodland Assurance Standard* (UKWAS).
- *The UK Forestry Standard* (UKFS), the governments' approach to sustainable forestry.
- Forestry Commission Practice Guide 15 *Reducing Pesticide Use in Forestry* (FCPG015).
- FISA Safety Guide 202 *Application of pesticides by hand-held equipment* (FISA202).

Exposure Elements	Minimum list of values	Description of why/why not a risk	Mitigation strategies defined to minimize risk	Indicators
Environmental	Soil (erosion, degradation, biota, carbon storage)	Control of vegetation using glyphosate may create bare soil, which **may potentially lead to soil erosion or degradation**. Standard forestry usage of glyphosate is **not** known to have significant impacts on soil biota or carbon storage.	**Overview** From the descriptions of risk, it is clear that the principal issues are worker safety/welfare and the potential for the contamination of water. Mitigation strategies are focussed on these key risks, but also address the other, lesser risks identified: the potential for soil erosion, effects on non-target vegetation, the potential for the contamination of wild foods, risks to public health, and effects on public access. **General strategies** While this ESRA comes at a point in the IPM process where it has already been decided that the use of glyphosate is necessary, most of the risks described can be mitigated to some degree by minimising the volume used, both in terms of the total used on a site and the amount applied in individual spots and strips. For this reason, the overarching UK NFSS requirement to minimise pesticide use (indicator 10.7.2) is a key general mitigation strategy. This is monitored via sub-indicator 10.7.8.2. Mitigation of risks to worker safety and water, as well as risks such as spray drift affecting non-target vegetation, can be achieved largely through conformance to FISA Safety Guide 202 *Application of pesticides by hand-held equipment*, which addresses the following issues: • Certificates of competence,	**New indicators** *Note: Most of the mitigation strategies are implemented by requiring conformance to FISA202 as per indicator Gly.1. Additional indicators are used to emphasise specific issues covered by FISA202, such as training (indicator Gly.2), or to address issues covered more adequately elsewhere, such as buffer zones in UKFS (indicator Gly.5). Other indicators are included to address particular FSC requirements in relation to monitoring (indicators Gly.9-10) and research (indicators Gly.11-12).* **Indicator Gly.1** Operations conform to FISA Safety Guide 202 *Application of pesticides by hand-held equipment*. **Indicator Gly.2** Operators hold NPTC PA1 and PA6 certificates of competence or LANTRA equivalents. **Indicator Gly.3** Operators observe the requirements and recommendations of the product label.
	Water (ground water, surface waters, water supplies)	Glyphosate usage has the **potential to contaminate ground water, surface water and water supplies**.		
	Atmosphere (air quality, greenhouse gasses)	Impacts on the atmosphere are likely only if glyphosate is sprayed at height. As this is not the case in standard forestry usage of glyphosate (where application is by spot spraying or low boom), there are **not** considered to be any significant impacts.		
	Non-target species (vegetation, wildlife, bees and other pollinators, pets)	Control of vegetation using glyphosate **may potentially have impacts on non-target vegetation**. Standard forestry usage of glyphosate is **not** considered to present a hazard to bees. Standard forestry usage of glyphosate may present a		

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		potential pathway to affect wildlife and pets, but this is **not** considered to be a significant issue.	• Personal protective equipment (PPE) and hygiene requirements, • The applicator, • Emergency procedures, • Planning to spray, • Preparing to spray, • Spraying, • After spraying, and • Weather conditions. All risks are mitigated to some degree by appropriate operator training, as evidenced by certificates of competence. All operators working with glyphosate should hold the National Proficiency Tests Council (NPTC) or Scottish Skills Testing Service (SSTS) certificates PA1 (Foundation module) and PA6 (Hand-held applicators) or LANTRA equivalents. PA1 leads to the following outcomes: • Outcome 1. Know the legislative requirements and codes of practice relating to the use of pesticides • Outcome 2. Understand the relevance of product information • Outcome 3. Know how to minimise the risk of human contamination and implement emergency procedures • Outcome 4. Know how to store and transport pesticides safely	**Indicator Gly.4** Operators have and use adequate personal protective equipment as specified on the product label. **Indicator Gly.5** Operations conform to *UK Forestry Standard* requirements and guidelines in relation to buffer zones around watercourses, waterbodies and abstraction points. *Guidance note: Of particular relevance are UKFS good forestry practice requirement 8 for Forests and Water, and guideline 67 for Forests and Water. Within riparian zones and water supply catchments refer also to guideline 60 for Forests and Water and table 6.7.2.* **Indicator Gly.6** Operators take reasonable steps to avoid spray drift. *Guidance note: Refer to FISA Safety Guide 202 paragraphs 32, 33 and 57.*
	Non-timber forest products (as FSC-STD-01-001 V5-2 FSC Principles and Criteria, criterion 5.1)	Control of vegetation using glyphosate **may potentially kill moss or berry producing plants**, although in the case of bramble (*Rubus fruticosus* agg.) this may be the purpose of application.		
	High Conservation Values (particularly HCV 1-4)	As noted previously, there are **potential impacts on non-target plant species (HCV 1 and 3) and on soil erosion (HCV 4)**. HCV 2 is **not** considered to be present in the UK.		
	Landscape (aesthetics, cumulative impacts)	Standard forestry usage of glyphosate is **not** considered to have any significant impacts.		
	Ecosystem services (water, soil, carbon sequestration, tourism)	As noted previously, there are **potential impacts on water and soil**. Standard forestry usage of glyphosate is **not** considered to have any significant impacts on carbon sequestration or tourism.		

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Social	High Conservation Values (especially HCV 5-6)	As noted previously, there are **potential impacts on water supplies (HCV 5)**. Standard forestry usage of glyphosate is **not** considered to have any significant impacts on cultural values (HCV 6).	• Outcome 5. Know how to manage and dispose of surplus pesticide and waste materials • Outcome 6. Know the record keeping requirements • Outcome 7. Know how to minimise the risk of environmental contamination and implement emergency procedures PA6 leads to the following outcomes: • Outcome 1. Know the legislative and safety regulations relating to applicator use • Outcome 2. Be able to assess the environmental factors relating to mixing and application • Outcome 3. Be able to read and interpret product information • Outcome 4. Be able to prepare and calibrate a hand held pedestrian applicator • Outcome 5. Be able to operate the application equipment • Outcome 6. Know how to carry out post-operational procedures **Worker safety/welfare** Worker safety and welfare are addressed primarily in the PPE and hygiene requirements of FISA202 (paragraphs 2-11), but also throughout the guide, including paragraph 58 regarding the effects of PPE and weather on worker stress.	**Indicator Gly.7** Operations conform to Forestry Commission Practice Guide 15 guidance on protecting the public, particularly around recreational infrastructure or where wild foods that are likely to be picked are present. *Guidance note: Refer to section 2.3 'Protection of the public'.* **Indicator Gly.8** Where it is desirable to restrict public access to minimise health and safety risks, such restrictions are kept to the minimum extent and duration necessary to achieve their aims. **Indicator Gly.9** Worker exposure to glyphosate and any health concerns are monitored using FEPA records. *Guidance note: There are legal requirements under the Food and Environment Protection Act (FEPA) 1985 to record pesticide usage.*
	Health (fertility, reproductive health, respiratory health, dermatologic, neurological and gastrointestinal problems, cancer and hormonal imbalance)	Glyphosate is a probable carcinogen, with **professional users potentially at risk through direct contact**. *Note: This risk is considered particularly significant as it is the basis for the listing of glyphosate as a Highly Hazardous Pesticide.*		
	Welfare	Standard forestry usage of glyphosate **may have indirect effects on worker welfare through the weight of spraying gear or overheating as a result of wearing personal protective equipment**. In addition, workers must have access to clean water for both washing and drinking.		
	Food and water	*Note: This value is taken to refer to wild forest foods*		

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		(rather than agricultural crops) and to drinking water. Standard forestry usage of glyphosate **may potentially lead to contamination of fruits etc**., and contact with residues immediately after treatment may be harmful. As noted previously, there are **potential impacts on water supplies**.	Minimum PPE requirements for application, according to various glyphosate product labels, are coveralls, gloves and rubber boots. Gloves and in some cases a faceshield are required when handling product concentrate and when handling contaminated surfaces. Engineering controls may replace personal protective equipment if a COSHH assessment (i.e. an assessment carried out in accordance with the Control of Substances Hazardous to Health Regulations 2002) shows they provide an equal or higher standard of protection. **Contamination of water, including water supplies** Water protection is addressed explicitly in paragraphs 20, 26 and 33 of FISA202, but also throughout the guide. While a wide range of measures, including careful transport and storage, are important in protecting water resources, the principal measure to protect surface waters and water supplies is to identify them and to respect appropriate buffer zones around them, as per paragraph 20: 20 Check the precise location of any domestic water supply, rivers, streams, ditches or ponds. Plan to leave a suitable buffer strip (see product label) to avoid contamination. Glyphosate product labels do not specify buffer widths, but buffer widths are set out in	**Indicator Gly.10** Impacts on water quality are monitored using data collected by drinking water inspectorates and/or statutory environment protection agencies. *Guidance note: Pesticides in water are known to be monitored by the Drinking Water Inspectorate in England and Wales, the Drinking Water Inspectorate for Northern Ireland, and the Drinking Water Quality Regulator for Scotland. Further relevant monitoring information may be available from the statutory environment protection agencies.* *It is not expected that owners/managers will have the resources to collect data of the quality collected by statutory authorities, and owners/managers should rely on official data whenever possible. Owners/managers should collect their own data in response to significant incidents (e.g. spillage of pesticide etc.) where contamination of water supplies or environmental*
	Social infrastructure; (schools and hospitals, recreational infrastructure, infrastructure adjacent to the management unit)	Glyphosate usage **may potentially have impacts on human health through application on and around recreational infrastructure or through spray drift onto neighbouring properties**.		
	Economic viability (agriculture, livestock, tourism)	Glyphosate usage **may potentially have impacts on some water-based enterprises (such as fish farming), or on water supplies for enterprises (such as breweries or distilleries)**.		
	Rights (legal and customary)	Standard forestry usage of glyphosate **may lead to actual or perceived restrictions on rights of access**.		

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		Glyphosate usage **may potentially have impacts on rights to uncontaminated water**.	the *UK Forestry Standard* Guidelines on Forests and Water, particularly guideline 67: 67 No pesticide shall be applied in, onto or over ground, or allowed to drift onto or over ground that is within 1 m of any surface water or wetland; is within 50 m of any spring, well or borehole; is frozen, waterlogged or covered with snow (except where the application in, onto or over waterlogged ground is necessary to control fungal disease and all precautions are taken to minimise the risk of contamination of any surface water or wetland); is sloping (unless it is ensured that any run-off of pesticide will be intercepted by a sufficient buffer zone); has an impermeable surface which drains directly into a surface water drainage system (unless measures are taken to minimise this risk); or is along roads, railway lines, permeable surfaces or other infrastructure (unless measures are taken to minimise the risk of pollution of any surface water or wetland). *Note: While recognising technical expert reservations regarding the adequacy of 1 m buffer around surface water, the Working Group believes that the principal risk – to water supplies – is adequately mitigated by the requirement for a 50 m buffer.* In addition, existing NFSS indicator 9.3.9 requires that a precautionary approach be adopted in relation to water supplies.	*damage is likely to have occurred, in order that any damage can be assessed, and mitigated and/or repaired.* **Indicator Gly.11** There is awareness of research into chemical and non-chemical alternatives to glyphosate carried out by Forest Research or other agencies. **Indicator Gly.12** Large enterprises provide financial or in kind contributions to research into chemical and non-chemical alternatives to glyphosate carried out by Forest Research or other agencies. *Guidance note: Large enterprises are defined in the UK NFSS as organisations with at least 250 employees.* *In kind contributions may include providing sites for field trials.* *While large enterprises and other owners/managers may consider carrying out their own investigations into chemical and non-chemical alternatives to glyphosate, to*

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			Soil erosion and degradation The risk of soil erosion or degradation is considered to be relatively minor, and adequately addressed by existing UK NFSS requirements under Criterion 10.10 and Principle 9. **Non-target vegetation, non-timber forest products and High Conservation Values** The purpose of glyphosate applications is to control vegetation. Inappropriate damage to vegetation may be avoided, firstly, by correctly identifying environmental values and potential products which should be protected and, secondly, by ensuring that applications are targeted as intended by avoiding issues such as spray drift. The identification of environmental values, including those outside the management unit and potentially affected by spray drift, is considered to be adequately addressed by existing UK NFSS requirements under Criteria 6.1, 6.2, 6.3 and 10.7. The identification of potential non-timber forest products is considered to be adequately addressed by existing UK NFSS requirements in indicator 5.1.1. *Note: It is assumed that owners/managers will not without good reason deliberately target NTFPs they intend to harvest. Effects on wild foods which may be harvested by*	*maximise the benefits of such investigations they should be coordinated with the work of agencies and other owners/managers wherever possible.* **Existing indicators** *Note: Specific UK NFSS indicators are included below where it is believed that they are particularly relevant to mitigating risks related to glyphosate usage. However, it is of course assumed that the other requirements of the NFSS, especially those under Criterion 10.7, will be regularly audited as per FSC requirements. Indicators 9.1.6 and 9.3.7 are included as they relate specifically to the risk of soil erosion, but all indicators under Principle 9 are potentially relevant if glyphosate applications take place in or near HCV areas.* **Indicator 4.5.2** The owner/manager shall mitigate the risks to public health and safety and other negative impacts of woodland operations on local people. [UKWAS 5.2.1]

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			other parties are considered under a separate heading below. Spray drift is addressed in FISA202, notably in paragraphs 32, 33 and 57: 32 Check the wind speed is within the prescribed limits (see the Code of Practice for Using Plant Protection Products for guidance). 33 Allow for wind direction to avoid overspraying water courses, water supplies, non-target crops and livestock. 57 Stop operations if the wind speed exceeds the range specified or changes to an unsuitable direction. In extremis, poorly thought out or careless applications of glyphosate have the potential to cause significant damage to HCV 1 or HCV 3 sites, but this risk is considered to be adequately addressed by the strength of existing UK NFSS requirements under Principle 9. **Contamination of wild foods** The risk of members of the public picking fruit or fungi which have been recently contaminated with pesticides can be mitigated through conformance to Forestry Commission Practice Guide 15 *Reducing Pesticide Use in Forestry*. Section 2.3 'Protection of the public' explicitly addresses this issue:	**Indicator 5.1.1** All areas in the WMU shall be covered by management planning documentation which shall be retained for at least ten years and shall incorporate: **5.1.1.1** Assessment of relevant components of the woodland resource, including potential products and services which are consistent with the management objectives. [UKWAS 2.2.1 (part)] **Indicator 6.1.1** All areas in the WMU shall be covered by management planning documentation which shall be retained for at least ten years and shall incorporate: **6.1.1.1** Assessment of environmental values, including those outside the WMU potentially affected by management, sufficient to determine appropriate conservation measures and to provide a baseline for detecting possible negative impacts. [UKWAS 2.2.1 (part)] **Indicator 6.2.1** The impacts of new planting and other woodland plans on

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			In all cases, if practical and legally possible, it is preferable to totally exclude forest users from the work-site, or close the recreation site or footpath/right of way on the work-site margins. The method of exclusion, through barriers or signage, will depend on the type of user identified… The duration of exclusion will depend on the presence or absence of edible fruit or fungi. (i) If edible fruit or fungi that are likely to be picked are present, close the site until the produce dies. Alternatively, treat the site at a time of year when no edible produce is present, or strim off the plants to prevent fruiting. (ii) If no edible fruit or fungi are present, close the site for 48 hours after spraying, or until the pesticide dries and there is no liquid residue that might cause accidental contamination of the public. **Public health** Risks to public health can be mitigated by reducing the potential for contact with deliberately or accidentally contaminated surfaces. This can be achieved through a combination of careful control of operations in public areas, in conformance to section 2.3 of FCPG015, and avoidance of spray draft, in conformance to paragraphs 32, 33 and 57 of FISA202. This is also addressed in general terms by the existing NFSS indicator 4.5.2. **Public access**	environmental values shall be assessed before operations are implemented, in a manner appropriate to the scale of the operations and the sensitivity of the site. [UKWAS 2.5.1(a)] **Indicator 6.3.1** The results of the environmental assessments shall be incorporated into planning and implementation in order to avoid, minimise or repair adverse environmental impacts of management activities. [UKWAS 2.5.1(b)] **Indicator 7.6.1** The owner/manager shall consult appropriately with local people, relevant organisations and other interested parties, and provide opportunities for their engagement in planning and monitoring processes. [UKWAS 2.3.1(c)] **Indicator 9.1.6** Areas and features of critical importance for watershed management or erosion control shall be identified in consultation with relevant statutory bodies. [UKWAS 4.5.1(a)]

Exposure Elements	Minimum list of values	Description of why/why not a risk	Mitigation strategies defined to minimize risk	Indicators
			Some restrictions to public access, in line with section 2.3 of FCPG015, are desirable in order to minimise other risks. However, where such restrictions are imposed, they should be kept to the minimum extent and duration necessary to achieve their aims. In addition to actual restrictions on public access, some forest users may feel excluded because of their uncertainties about operations or their concerns about safety. This risk is best mitigated through appropriate stakeholder engagement, as addressed by the existing NFSS indicator 7.6.1.	**Indicator 9.3.7** Where critically important areas or features are identified [in Indicator 9.1.6], their management shall be agreed with the relevant statutory bodies. [UKWAS 4.5.1(b)] **Indicator 9.3.9** A precautionary approach shall be adopted in relation to water supplies. [UKWAS 5.1.1(b)] **Indicator 10.7.2** The use of pesticides, biological control agents and fertilisers shall be minimised. [UKWAS 3.4.1(b)] **Indicator 10.7.8** Where pesticides and biological control agents are to be used: **10.7.8.1** The owner/manager and workers shall be aware of and implement legal requirements and non-legislative guidance for use of pesticides and biological control agents in forestry **10.7.8.2** The owner/manager shall keep records of pesticide usage and biological control agents as required by current legislation. [UKWAS 3.4.3]

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				Indicator 10.10.2 The planning of woodland operations shall include: … **10.10.2.3** Taking measures to protect water resources and soils, and prevent disturbance of and damage to priority species, habitats, ecosystems and landscape values, including adapting standard prescriptions where required. Any disturbance or damage which does occur shall be mitigated and/or repaired, and steps shall be taken to avoid recurrence. … [UKWAS 3.1.2]