

PHC2023/06: Scoping the risk of bulk aggregate (soil, sand, stone) movement into and within Scotland

Background and knowledge gap: Recent PHC projects and stakeholder engagement have highlighted the biosecurity risks from the movement of plants, machinery, and people. There has also been consideration of the risks of alternative growing media (replacements for peat) – whether from composting or import of peat alternatives (e.g. Coir) as part of a previous PHC project ([PHC2021/02](#)), and this is being further explored through a future commissioned project call currently in preparation. Discussions around these topics has identified several other pathways for unwitting movement of potential pests and diseases. One of these is the bulk movement of sand, stone and soil (and associated dunnage) for use in building and civil engineering projects and in hard landscaping.

A recent review highlighted the very large volumes of material, such as sand, moved globally (Torres et al 2021 <https://doi.org/10.1016/j.oneear.2021.04.011>). The article identified the biosecurity threats but suggested relatively little was known about the scale of the threat or preventative measures and remediation. The CABI datasheet [Soil, sand and gravel \(pathway vector\) | CABI Compendium \(cabidigitallibrary.org\)](#) which it referenced confirms there are hazards (pests, pathogens and invasives) which may be transported but gave little specific UK or Scottish perspective. There may also be risks associated with the timber pallets and packaging necessary to ship some stone material (e.g. slates and decorative slabs); for example, the origin of the outbreak of Asian Longhorn Beetle outbreak in Kent was in close proximity to the storage of yard of a stone importers (see Straw et al, 2016. *Agricultural and Forest Entomology* 18, 280-293).

While there are international standards over the preparation and treatment of timber pallets to prevent insect infestation/transport, concerns have been raised about the other wood packaging, which combined with the relatively benign environment of shipping containers. Ornamental bark is also a commodity material moved in bulk and over distances and where heat treatments may not be uniformly applied so could be considered in scope. As well as risks from imports, there are unknown risks of the movement of materials within Scotland (and the UK) – including local movement of soil during construction projects, sales of topsoil, and movement of aggregate for road and track building (including in remote natural environments) and along rail lines.

The biosecurity and plant health risks associated with the movement of bulk aggregates both into and within Scotland, for civil engineering and hard landscaping projects, needs to be better understood, with recommendations made for policy and practice on minimising risks.

Impact: The findings of this project would fill knowledge gaps regarding the biosecurity and plant health risks associated with the movement of bulk aggregates (soil, sand and stone) into and within Scotland, and generate recommendations for policy and practice on minimising these risks.

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Objectives and research required for this call:

1. To consider the threat to Scotland's plant health of the importation of bulk aggregates (materials and their packaging) **into** the country, and characterise the sources, volumes and risks involved.
2. To consider the threat to Scotland's plant health of the movement of bulk aggregates (materials and their packaging) **within** the country and characterise the risks, the volumes and distances involved.
3. To identify examples of national or international best practice in the context of the costs and benefits they accrue.

Note: Importation of soil into the country is already subject to Defra-led study and is not a priority for inclusion in this project. However, if data are gathered in the course of enquiries, then these should be provided. Movement of soil within the country is of interest and should be covered by the study.

It is anticipated that the project may include elements of the following, but the applicants should not be constrained to these and should propose what they consider most appropriate to meet the evidence need.

4. Review literature and other relevant data sources (e.g. trade statistics, industry profiles) to characterize movement of materials and establish typology of materials in scope.
5. Identify international examples of best practice (e.g. biosecurity practices for the movement of machinery; prevention of invasive species protocols)
6. Seek perspectives and data on quantities and practices from those involved in the construction/civil engineering sector.
7. Consider preliminary investigation of samples (soil, sand, gravel) to establish presence of harmful organisms. [Note, if testing of bulk aggregate materials could detect notifiable pests then protocols for notifying authorities and participating business / stakeholders will need to be considered].

Deliverables required from individual project:

- Factual summary of the potential pathways into and within Scotland categorized by type of material, volume and main locations.
- Qualitative risk assessment of the threats to Scotland's plant health of these movements of materials. The threats should distinguish risks associated with import from within country movements, and novel from endemic pests/pathogens transport, and may also describe wider threats of possible invasive species.
- Recommendations for policy and practice, including identification of target audiences for awareness raising with respect to risks and good biosecurity practices.

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In addition, the PHC anticipate all commissioned projects will provide:

- Final Report with executive summary on investigations, to contain key sources, analysis, findings and recommendations for implementation or further work (<30 pages of text and figures, excluding appendices and references). Cover image(s) with associated photo credits should also be supplied.
- Brief policy summary (2 pages maximum) explaining how the work has contributed to filling evidence gaps and the context in which the findings can be used by policy makers and practitioners.
- Presentation at Scotland's Plant Health conference and any other relevant stakeholder meeting(s) to disseminate findings and contribution to other KE output such as the PHC virtual poster room or blogs.
- 200 word lay summary for project overview at outset, and of findings at completion (for website and newsletter).
- Slide deck of the key project findings.

Meetings:

- Project meetings throughout project lifecycle to include PHC manager and PHC Sector Lead, with possible attendance of Scottish Government policy contact and other key stakeholder.
- Meeting/s with relevant PHC Impact Officer and Communications Officer to plan dissemination of project findings and impact strategy.
- Attendance at briefing discussion with PHC Steering group as project draws to completion to discuss findings and possible next steps.

Indicative key dates:

- Deadline for submission of applications: **12pm on 27th November 2023**
- Project start: **01st February 2024**
- Overview of plans and project start-up meeting with PHC Directorate: **by 16th February 2024**
- Final report and policy summary: **30st August 2024**
- Project outputs signed off by PHC Sector Lead: **30th September 2024**

Detailed milestones to be confirmed by bidder.

Date all work needs to be completed by: 30st August 2024

Maximum funding available exclusive of VAT (where applicable) and including any knowledge exchange activities: £25,000

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Submitting an application form

Applicants should use the PHC Application Form when applying for projects and must ensure they are able to accept the PHC Funding Terms and Conditions before submitting an application.

Completed applications should be submitted to info@planthealthcentre.scot for evaluation by **12pm on 27th November 2023**. Successful applicants will be notified by **18th December 2023** and we may request further clarification on any aspect of the application prior to contract award. You should highlight any potential conflicts of interest in your proposal.

Please contact the Centre Manager if you have any queries (info@planthealthcentre.scot). Answers to any non-confidential questions will be published on our website.

Review of application

Applications will be reviewed by a panel selected from the PHC Directorate, Scottish Government, PHC partners and/or commissioning stakeholder, as appropriate.

Expectations for section 1 of the application form:

Expectation	Descriptor
Duration	The proposed duration will align closely to the details provided in the anticipated timescales section of the specification.
Staff time and effort	The proposed allocation of staff time and effort is appropriate and includes all deliverables. The proposal must also provide a commitment that named staff members will be available to work on the contract if the bid is successful.
Project costs	The estimated breakdown of project costs is realistic and inclusive of all deliverables.

Expectations for section 2 of the application form:

Expectation	Descriptor
Background	The proposal should include an introduction which demonstrates a clear understanding of the project requirements. This should include the need for this research; the project aim; and how the proposal will address this aim.
Proposed methodology and outcomes	The proposal should demonstrate a high quality and workable methodology, including: how the evidence will be identified, reviewed and assessed, consulting relevant stakeholders and/or experts where appropriate, to address the key questions and produce the deliverables in the timescales required.
Milestones	The project milestones are logical, practical and include all deliverables.

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Project Management	The staff, resources and expertise are appropriate for conducting the proposed project. The proposal should name the project lead.
General and specific expertise and experience	The proposal should provide details of individual staff members who will work on this project and demonstrate how they will meet the project requirements, specifically: - general research experience and expertise - specific experience and expertise relevant to the call
Risk	The proposal should provide a risk assessment matrix detailing any risks identified in relation to the delivery of this contract, and proposed mitigation measures to minimise their probability and impact, focused particularly on risks to completion on time.

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