

PHC2026/07: Assessing the Role of Recreational Forest Users in the Spread of Pathogens in Scotland

Background and knowledge gap: Pathogens of trees, such as *Phytophthora* species, represent a major and growing threat to Scotland's forest, woodland and semi-natural ecosystems. While primary introduction pathways such as plant trade are relatively well characterised, there remains a significant evidence gap around secondary, human-mediated pathways of pathogen spread, particularly those associated with recreational forest use.

Previous work commissioned by the Plant Health Centre (PHC2018-17: *Assessing spread of phytophthoras in Scottish forests by recreational and harvesting activities using comparative qPCR and metabarcoding techniques*) demonstrated that soil adhering to walkers' boots and mountain bike tyres can contain *Phytophthora* DNA. While this work did not establish pathogen viability, it provided strong evidence that recreational activities represent a credible pathway for disease spread across forest landscapes.

Forest recreation in Scotland has increased substantially in recent years, with high and growing use by walkers, runners, dog walkers and mountain bikers. Recreational activities can involve repeated movement between sites, use of informal trail networks, and soil disturbance, all of which may increase the risk of pathogen transfer. In particular, mountain bikers may represent a higher-risk group due to tyre-mediated soil transfer, longer distances travelled, and trail construction or use in sensitive areas. However, the relative risk posed by different recreational user groups, and what interventions may reduce high-risk behaviours, has not yet been established.

Current biosecurity guidance for forest recreation is typically generic and not tailored to specific user behaviours, motivations or access patterns. There is therefore a clear need to:

- Characterise how different recreational users interact with forest environments.
- Assess the relative risks associated with different activities.
- Understand behavioural drivers and barriers to biosecurity compliance.
- Identify targeted, evidence-based interventions that are proportionate, acceptable, and effective.

Impact:

This project will generate new, policy-relevant evidence on human-mediated spread of tree pathogens via recreational forest users. The outputs will:

- Support development of risk-based, user-specific biosecurity guidance.
- Ensure risk-based biosecurity interventions are proportionate by identifying higher-risk recreational pathways.
- Provide recommendations to improve uptake of practical biosecurity behaviours among forest users (with a primary focus on mountain bikers).
- Strengthen cross-sector collaboration between plant health, land management and recreation communities.

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The project will act as a scoping exercise, informing future investment in practical mitigation and behaviour change initiatives.

Objectives and research required for this call:

The overall aim of this project is to provide a first scoping-level assessment of the role of recreational forest users in the potential spread of tree pathogens (*Phytophthora* etc) in Scotland and to identify targeted opportunities for risk reduction.

Applicants should address the following objectives. Note that indicative research questions are provided to guide proposal development; however, it is recognised that, within the scope of the budget, these questions cannot be answered in full. Applicants are therefore expected to take a proportionate approach, going some way towards addressing the intent of the questions through exploratory or evidence-gathering activity. The research questions may be adapted or refined as appropriate, and delivery could include approaches such as surveys and/or focused case studies – but must go beyond review of existing literature.

Objective 1: Pathway characterisation

- How do different recreational users (e.g. walkers, runners, dog walkers, mountain bikers) utilise forest environments?
- Which behaviours, locations and environmental conditions represent higher risk for soil and pathogen transfer?
- How does risk associated with mountain biking compare with other recreational activities?

Objective 2: Behavioural research

- What is the current level of awareness of plant health and biosecurity risks among different recreational user groups?
- What motivations, norms and barriers influence biosecurity-related behaviours?
- Why might higher-risk behaviours be more prevalent in certain user groups?

Objective 3: Identification of intervention points

- What practical and acceptable intervention points exist for different user groups?
- Which behaviours are most amenable to change through targeted interventions?

Objective 4: Intervention measures

- What types of targeted mitigation measures (e.g. signage, cleaning stations, nudges, campaigns) could be effective?
- Should interventions be differentiated by user group or can some be generalised?
- What evidence-based recommendations can be made for future implementation?

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Deliverables required from individual project:

- Final Report with executive summary detailing methodology, analyses, results and interpretation, recommendations for next steps including practical, user-specific biosecurity guidance and future behaviour change initiatives. Reports should be a maximum of 20 pages of text (30 pages including figures but excluding appendices and references). Cover image(s) with associated photo credits should also be supplied.
- Brief policy summary (2 pages maximum) summarising key findings and clear, actionable policy recommendations.
- Presentation at Scotland's Plant Health conference (likely 2027) 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.

Project Management Meetings:

- Project initiation and progress meetings with the PHC Manager, PHC Sector Lead and relevant Scottish Government policy contacts.
- Engagement with PHC Impact Officer and Communications Officer to support dissemination of project findings and impact planning.
- Where appropriate, participation in a short briefing with the PHC Steering Group to communicate key findings and implications.

Indicative key dates:

- Deadline for submission of applications: **5pm on Monday 8th June 2026**
- Project start: **Monday 6th July 2026**
- Overview of plans and project start-up meeting with PHC Directorate: **Friday 31st July 2026**
- Final report, policy summary and other outputs: **Friday 11th December 2026**
- Project outputs signed off by PHC Sector Lead: **Friday 15th January 2027**

Detailed milestones to be confirmed by bidder.

Date all work needs to be completed by: Friday 11th December 2026

Maximum funding available (exclusive of VAT¹, where applicable), including all staff time for research and reporting and knowledge exchange activities: £40,000

¹ Please note that costs should be submitted net of VAT recovered by the applicant. Applicants should seek advice on appropriate VAT treatment of proposed funding.

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.

It is possible to request a start date or project duration that differs from the project specification. This should be requested in the application form (section 1.4) and is subject to approval and the requirements of individual projects.

Applicants should note that the project final report and policy summary will undergo a multistage review process, and this should be taken into consideration when costing projects

Completed applications should be submitted to info@planthealthcentre.scot for evaluation by 5pm on Monday 8th June. Successful applicants will be notified by Friday 26th June 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.

Review of application

Applications will be reviewed by a panel selected from the PHC Directorate, Scottish Government, PHC partners and/or commissioning stakeholders, 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.
Project Management	The staff, resources and expertise are appropriate for conducting the proposed project. The proposal should name the project lead.

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General and specific expertise and experience	<p>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:</p> <ul style="list-style-type: none"> - general research experience and expertise - specific experience and expertise relevant to the call
Risk	<p>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.</p>

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