RISK ASSESSMENT SUMMARY SHEET

Orange pore fungus (*Favolaschia claudopus*)

- A wood decay fungus forming dense clusters of yellow-bright orange fruitbodies reminiscent of the shape of a ping-pong bat.
- First reported in 2012, spreading rapidly north and east.
- Global distribution has increased rapidly in the last 10 years.
- Capable of rapid spread, including clonal spread.
- Has the potential to displace native species; however, negative impacts are not fully understood.

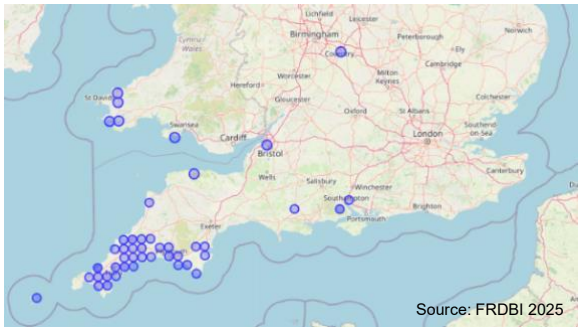
History in GB

First reported on one beech branch on Enys Estate, Cornwall, in November 2012 and on a few similar pieces of wood in close proximity soon after. Reliably reported in central Cornwall and Paignton, Devon, in 2014. As of 2025, it has been recorded in at least 45 hectads extending east to the New Forest and north to Pembrokeshire and Coventry. There are also records on Hampstead Heath, London.

Global Distribution

The native range of this species is unclear (possibly Madagascar).

GB Distribution (sightings from 2012-2025)



Impacts

Environmental (moderate, low confidence)
- Rapidly colonises and decays dead wood.
- Could outcompete and exclude native wood decay fungi, although conclusive evidence is lacking. It may be able to colonise deadwood at a higher rate than other species.
- *F. claudopus* dominance could result in a trophic cascade of other species that also depend on deadwood.

Economic (minor, low confidence)
- Potential impact on untreated wood products, as has been evidenced in New Zealand, although this may be at a comparable level to native wood decay fungi.

Social (minimal, high confidence)
- No social impacts anticipated.

Introduction pathway

Imported timber – GB imports significant volumes of timber, particularly from Italy, where *F. claudopus* is thought to have been imported from New Zealand. Timber is also imported to GB from New Zealand but in much lower volumes.

Spread pathway

Natural (very rapid, very high confidence) – releases enormous numbers of spores. Most settle within a few metres but they can travel tens or even hundreds of kilometres.
Human-aided (moderate, high confidence) – movement and transportation of domestic wood or forest products, on which the fungus has colonised, is likely to exacerbate natural spore dispersal.

Summary

	Response	Confidence
Entry	VERY LIKELY	VERY HIGH
Establishment	VERY LIKELY	VERY HIGH
Spread	VERY RAPID	VERY HIGH
Impact	MODERATE	LOW
Overall risk	MEDIUM	LOW

GB Non-native Species Rapid Risk Assessment (NRRA)

Rapid risk assessment of: *Favolaschia claudopus* (Singer) (orange ping-pong bats, orange porecap, orange pore fungus)
Risk assessment area: Great Britain (England, Scotland and Wales)
Authors: A. Martyn Ainsworth (MA), RBG Kew and Matt Wainhouse (MW), Natural England

Version: Draft 1 (by MA Nov 2014), Draft 2 (by MA and MW June 2025), Peer review (Sep 2025), NNRAF 1 (Sep 2025), Draft 3 (MW October 2025), NNRAF 2 (Jan 2026)
Signed off by NNRAP: January 2026
Approved by Programme Board: April 2026
Placed on NNSS website: August 2026

Introduction:
The rapid risk assessment is used to assess invasive non-native species more rapidly than the larger GB Non-native Risk Assessment. The principles remain the same, relying on scientific knowledge of the species, expert judgement and peer review. For some species the rapid assessment alone will be sufficient, others may go on to be assessed under the larger scheme if requested by the Non-native Species Programme Board.

Guidance notes:
- We recommend that you read all of the questions in this document before starting to complete the assessment.
- Short answers, including one word answers, are acceptable for the first 10 questions. More detail should be provided under the subsequent sections on entry, establishment, spread, impacts and climate change.
- References to scientific literature, grey literature and personal observations are required where possible throughout.

Section A – Organism information

1 - What is the principal reason for performing the risk assessment? (Include any other reasons as comments)

Response: To assess potential threats from this species in GB, following first detection in Cornwall in 2012.

2 - What is the name of the organism (scientific and accepted common; include common synonyms and notes on taxonomic complexity if relevant)?

Response: *Favolaschia claudopus* (Singer) Q.Y. Zhang & C. Dai (formerly considered to be a variety of *F. calocera*, but recently given species status (Zhang & Dai 2021)). Common names include orange ping pong bats (Australia), orange porecap, orange pore fungus or orange pore conch (New Zealand).

3 – Briefly describe the organism

Response: A wood decay fungus forming dense clusters of yellow-bright orange fruitbodies reminiscent of the shape of a ping-pong bat (hence its common name) (Fig 1). It has a network of very large pores on the underside of the cap. *F. claudopus* is able to produce these fruitbodies without mating (homothallic), meaning it can produce fertile basidiocarps from a single basidiospore (Ainsworth et al, 2015).

Fig 1: *Favolaschia claudopus*.

4 – Where is the organism native?

Response: It is not clear where the species is currently native. Until recently, it was thought to be native to Madagascar as *Favolaschia calocera* (Heim, 1945). A variety *F. calocera* var. *claudopus* was known from New Zealand (Singer, 1974). Recent taxonomic work identified *F. calocera* as a species complex (Zhang and Dai, 2001). This resulted in raising the status of *F. calocera* var. *claudopus* to species level as *F. claudopus. Favolaschia claudopus* had been recorded from Australia, New Zealand, Kenya, and Italy (a large portion of the invaded range of *F. calocera* s.l.), but was not believed to be native to any of these locations. *F. calocera* s.str. is only known from Madagascar. Zhang and Dai (2001) noted the very limited genetic diversity in the specimens from Australia, New Zealand, Kenya, and Italy, which is consistent with human-mediated transport of *F. claudopus*.

5 - What is the global distribution of the organism (excluding the risk assessment area)?

Response: *F. claudopus* has increased rapidly in the last 10 years. It is known from: New Zealand, Australia, Kenya, Reunion, Italy, Spain, Portugal, USA, South Africa, France, Ecuador, Taiwan, Uganda, Malaysia, Seychelles, Tanzania, Switzerland, Austria, Brazil, Isle of Man, Indonesia, Ireland (GBIF, 2025).

6 - What is the current distribution of the organism in the risk assessment area?

Response: First seen on one beech branch on Enys Estate, Cornwall in November 2012 and on a few similar pieces of wood in close proximity soon after (Ainsworth et al, 2015). In 2014 it was reliably reported from central Cornwall and in a park in Primley Park, Paignton, Devon. As of June 2025, it has been recorded in at least 45 hectads (based on data from the Fungal Records Database of Britain and Ireland, FRDBI) extending east to the New Forest and north to Pembrokeshire and Coventry (see Fig. 2) (The British Mycological Society, 2009). There are also records for *F. claudopus* on Hampstead Heath, London (Maculon, 2022). It has also established in Ireland and Isle of Man. A similar rate of spread has been seen in Portugal where it was first recorded in 2013 and now found throughout the country north of Lisbon (GBIF, 2025).

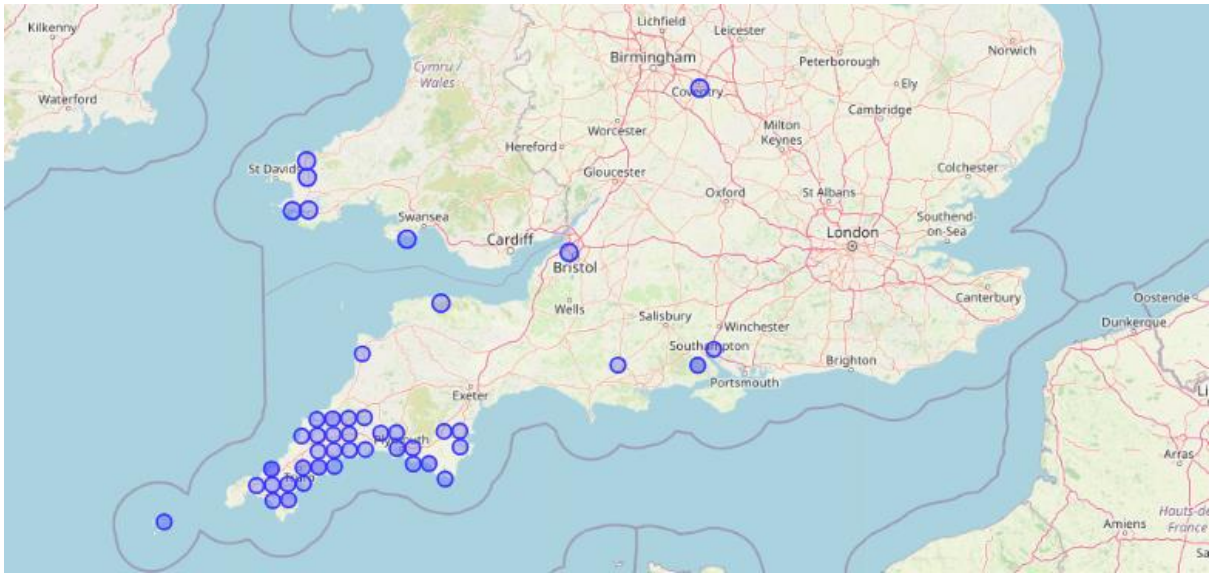


Fig. 2: *Favolaschia claudopus* records for GB on the FRDBI. Circles show hectads where *F. claudopus* has been recorded from 2012-2025.

7 - Is the organism known to be invasive anywhere in the world?

Response:

F. claudopus was first recorded in New Zealand in 1969 but by 2006 was found all over the country on wood of over 50 native and introduced plant species in many habitat types (Johnston et al, 2006). On the South Island it favours mild and moist coastal areas (like Cornwall & Devon). In Europe it was first recorded in Genoa, Italy, in 1999 and by 2009 in six areas around Genoa (Vizzini and Zotti, 2002). It has now spread to GB, Portugal, Spain, France, Switzerland and Ireland, most significantly in the last 5 years (see European maps below in 'Spread' box.).

In GB, it has spread rapidly since it was first identified in 2012 (see GB map, above; The British Mycological Society, 2009). Big jumps from the species northwards and eastwards will likely create new invasion fronts. As in New Zealand, this species is able to colonise a range of woody species (The British Mycological Society, 2009).

In almost all of these locations, it is referred to as 'invasive' based on its rapid expansion and its capability to reproduce clonally. However, there has been very little research to understand the negative impacts of *F. claudopus* so it is not clear whether it should be considered invasive.

In Italy, Vizzini, Zotti and Mello (2009) reported that sites that were invaded by *F. claudopus* '*displayed poor biodiversity*'. This is based on the author's personal observation rather than data and is not clear on whether biodiversity refers to native saprotrophic fungi, or other saproxylic taxa as well.

Section B – Risk assessment

Entry

Estimate the overall likelihood of entry into the risk assessment area for this organism (comment on key issues that lead to this conclusion).

Response: *very likely*
Confidence: *very high*

Comments (include list of entry pathways in your comments):

The species has already entered GB where it was first seen in Cornwall in November 2012. In Italy, it is believed to have arrived via the Port of Genoa through imported timber from New Zealand (Vizzini and Zotti, 2002). Elsewhere in the world, imported wood or woody plants are generally thought to be the primary route into a new region (Vizzini, Zotti and Mello, 2009). In GB, imported timber and wood products are also likely to be the primary route into the country (Ainsworth et al, 2015). The UK imports significant volumes of timber. Italy is one of the top 10 major exporters of timber and wood products to the UK accounting for c.3-4% of imports in the 10 years prior to 2012 when it was first detected (World Integrated Trade Solution, 2025). Timber is also imported from New Zealand but much lower volumes. Timber and wood products continue to be imported from these countries at similar rates which could lead to new invasion fronts.

Establishment

Estimate the overall likelihood of establishment (comment on key issues that lead to this conclusion).

Response: *very likely*
Confidence: *very high*

Comments (state where in GB this species could establish in your comments, include map if possible):

The species has already established in GB. In GB and elsewhere it is found on a wide range of woody substrata (monocots, dicots, gymnosperms, natives and non-natives) preferentially in milder (predominantly Atlantic climate) areas at present (Johnston et al, 2006; Vizzini, Zotti and Mello, 2009; The British Mycological Society, 2009), but the species is expanding across the country. Since *F. claudopus* is a generalist species, it is not limited by resource availability having already been recorded in GB from disturbed and semi-natural locations in association with *Fagus, Quercus, Acer, Prunus, Sambucus, Pseudosasa, Carpinus, Corylus, Ilex, Fraxinus* and *Aesculus* (The British Mycological Society, 2009). In New Zealand, *F. claudopus* was initially more strongly associated with disturbed habitats such as forest remnants and gardens (Johnston et al, 2006), but is now established and expanding in natural and intact habitats (Hera, 2024). This appears to be the case in GB where prevalence is higher in disturbed habitats but is increasingly found in natural woodlands, including temperate

rainforest in the southwest (The British Mycological Society, 2009).

Spread

Estimate overall potential for spread (comment on key issues that lead to this conclusion).

Overall response: *very rapid*
Confidence: *very high*

Sub scores:

Natural spread only:
Response: *very rapid*
Confidence**:** *very high*

Human facilitated spread only:
Response: *intermediate*
Confidence**:** *high*

Comments (in your comments list the spread pathways and discuss how much of the total habitat that the species could occupy has already been occupied):

F. claudopus has increased rapidly in the last 10 years. It is known from: New Zealand, Australia, Kenya, Reunion, Italy, Spain, Portugal, US, South Africa, France, Ecuador, Taiwan, Uganda, Malaysia, Seychelles, Tanzania, Switzerland, Austria, Brazil, Isle of Man, Indonesia, Ireland (See Fig 3; GBIF, 2025)

Data from UK and Europe indicate spread is already very rapid, particularly within the last 5 years (see Fig. 3; GBIF, 2025). Based on data from the Fungal Records Database of Britain and Ireland (The British Mycological Society, 2009), since the first detection in Cornwall in 2012, it has spread to at least 45 separate hectads, i.e. ~3.5 hectads per year, (N.B. increase over this period is exponential not linear). These records show *F. claudopus* has now extended its range east to the New Forest and north to Pembrokeshire and Coventry with notable spread around coastal areas of Cornwall and Devon. There are also additional records from Hampstead Heath, London (Maculon, 2022). The pattern of invasion appears to follow the situation in New Zealand where it will have spread throughout most of GB within 50 years.

A similar rate of spread has been seen in Portugal where it was first recorded in 2013 and now found throughout the country north of Lisbon (GBIF, 2025). Initial GB progress closely followed that of Italy – commencing in old parkland estates near the sea and then spreading inland in a series of "jumps" rather than an invasion "front" (Vizzini & Zotti 2002; Vizzini, Zotti and Mello, 2009; Ainsworth et al, 2015; The British Mycological Society, 2009).

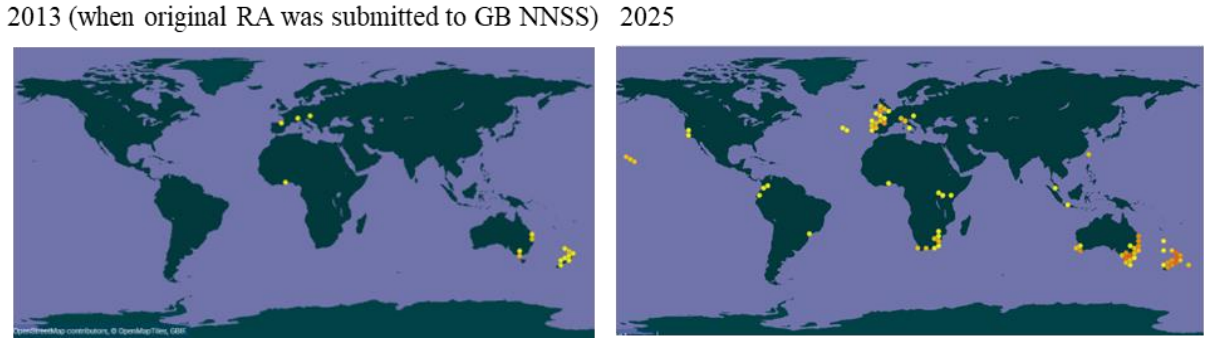
Wood decay fungi release enormous numbers of spores which tend to be wind dispersed. The majority of these are likely to settle within meters of the parent fruitbody, however they can travel tens or even hundreds of kilometres (Stenlid and Gustafsson, 2001). There is no

specific research on the dispersal ability or seasonal fruiting patterns of *F. claudopus*. Natural spread of *F. claudopus* in GB is most likely by airborne spores, which it can produce with and without mating i.e. homothallic reproduction. A reasonable estimate, based on rate of spread is that *F. claudopus* spores are able to travel 10-20 km in air and remain viable and able to establish and colonise new resources. Longer distance dispersal is possible but spore viability may decrease over longer distances (Norros et al, 2015) leading to less frequent establishment events. Looking at temporal and spatial distribution of records (The British Mycological Society, 2009), it is reasonable to assume that colonies in south Wales have established via aerial spores in south-west England.

Human facilitated spread is likely to exacerbate natural spore dispersal. This would most likely occur through movement and transportation of domestic wood or forest products such as timber or firewood that the fungus has colonised and this may explain some of the larger 'jumps' north and east. Wood imports from Italy, New Zealand and other countries where *F. claudopus* is resident continue to come into the country risk creating new invasion centres.

The total habitat that this species could occupy is unknown. Based on the information presented under establishment (above) potential habitat could include much of GB, particularly areas with a southern oceanic climate. In New Zealand, *F. claudopus* has struggled to fully invade the central South Island (GBIF, 2025), where climate is similar to Scottish subpolar regions of the Highlands. Currently a small fraction of this area [1.7%% (GB excluding Highlands)] has been invaded in 13 years since detection.

(a)



(b)

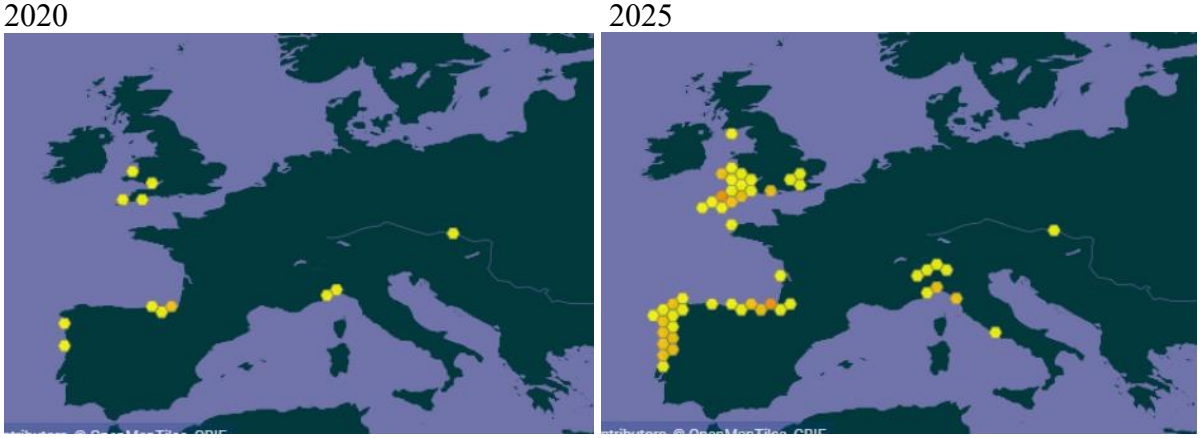


Fig. 3: Distribution of *Favolaschia claudopus* (a) worldwide in 2013 (left) and 2025 (right) and (b) in Europe in 2020 (left) and 2025 (right).

Impact

Estimate overall severity of impact (comment on key issues that lead to this conclusion)

Overall response: *moderate*
Confidence: *low*

Sub-scores

Environmental impacts:
Response: *moderate*
Confidence**:** *low*

Economic impacts:
Response: *minor*
Confidence: *low*

Social impacts:
Response: *minimal*
Confidence: *high*

Comments (include list of impacts in your comments):

Environmental:

This saprophytic fungus rapidly colonises and decays dead wood, which is an important and significantly depleted resource for biodiversity in GB (Hodge and Peterken, 1998).

The interaction of saprotrophic fungi in wood is through competitive exclusion by individuals (Boddy, 2000). The main concern is for native saprotrophic fungi that could be outcompeted and excluded by *F. claudopus* (interference competition). The only study thus far into its interaction with other native fungi is from New Zealand (Johnston and Buchanan, 1998). In competitive interactions on agar and sawdust, *F. claudopus* was rarely able to outcompete and replace its opponent, but was able to defend its own occupied territory well, even against species that are typically more aggressive competitors (unpublished data reported in Johnston & Buchanan, 1998). As a result, the authors concluded *F. claudopus* was a 'fungal weed' that was not competitive against native fungi. However, this is unlikely to be an accurate reflection of its competitive abilities since saprotrophic fungi behave very differently depending on the substrate they are on (agar, sawdust, wood) and the environmental conditions they are in (temperature, substrate moisture) (Chan et al, 2021; Gilmartin, 2020). Importantly, both temperature, temperature fluctuations and substrate strongly lead to reorganisation of competitive hierarchies. Thus, lab results may have little relevance to competitive hierarchies in wood under semi-natural conditions (Boddy, 2000; Hiscox and Boddy, 2017; Gilmartin, 2020).

If the results from this experiment are accurate, exploitative competition could also be having

a major impact on native wood decay fungi. The large numbers of fruitbodies produced by *F. claudopus* and its homothallic reproduction (ability to produce fertile spores without mating) are typically adaptions that aid rapid colonisation in environments with ephemeral resources (Rayner, Watling and Frankland, 1985). *F. claudopus* may be able to colonise deadwood resources at a higher rate than other species, and exclude them from it given its ability to defend established territory (Johnston and Buchanan, 1998).

Given the limited direct studies on the impact of *F. claudopus*, research in the US on the invasive non-native saprotrophic fungus *Pleurotus citrinopileatus* may give some indication of likely impact. Study of *Pleurotus citrinopileatus in situ* has associated it with significant decrease in native fungal biodiversity in the deadwood it inhabits (Veerabahu, 2025). *Pleurotus citrinopileatus* appears to share some of the traits which make *F. claudopus* invasive, including rapid growth and production of fruitbodies.

Other species also depend on deadwood and dominance of *F. claudopus* could result in a trophic cascade. Priority effects frequently occur in deadwood, so another concern is that by altering the physicochemical properties of *F. claudopus*, it alters the successional impacts on invertebrates and later colonising fungi (Weslien et al, 2011).

Displacement of native wood decomposing fungi and associated invertebrate species is a particular concern for characteristic 'Atlantic rainforest' species which could be at risk given the habitat preferences of *F. claudopus*. It is also plausible that *F. claudopus* could have knock-on effects for decomposition processes and carbon turnover since growth rate strongly correlates with decomposition rate in wood decay fungi (Lustenhouwer et al*,* 2020).

Economic:

In New Zealand, there is some evidence of economic harm via wood decay of untreated timber (firewood, fence, letterbox and wooden pallets) (Johnston et al, 2006), although the reference to this is as a substrate for the fungus and does not comment specifically on economic damage. There is potential in GB for similar economic impact on untreated wood products, though this may be at a level comparative to native wood decay fungi.

Social impacts:

No social impacts anticipated.

Climate Change

What is the likelihood that the risk posed by this species will increase as a result of climate change?

Response: *high*
Confidence: *high*

Comments (include aspects of species biology likely to be effected by climate change (e.g. ability to establish, key impacts that might change and timescale over which significant change may occur):

F. claudopus has a broad climatic tolerance. It is known to rapidly spread under temperate (e.g. New Zealand), subtropical (e.g. Reunion Island, Australia, Kenya) and Mediterranean climates (e.g. Italy, Portugal) elsewhere in the world. In New Zealand, *F. claudopus* has been unable to establish in the colder climate of the central South Island which is comparable to the Scottish Highlands. Climate change is expected to allow establishment in these areas as winter temperatures increase.

Conclusion

Estimate the overall risk (comment on the key issues that lead to this conclusion).

Response: *medium*
Confidence: *low*

Comments:

The initial establishment in GB from SW England has been very rapid from the initial record in 2012 to present in at least 45 hectads in the past 13 years. Similar rates of expansion are being seen elsewhere in Europe e.g. Portugal. The species is widely regarded as 'invasive' throughout its expanding range, but there has been very little research into its impact. Its homothallic reproduction is likely contributing to its rapid spread. This may also be leading to exploitative competition where *F. claudopus* prevents access to deadwood resources. This may be exacerbated by the fungus's ability to hold territory as seen in combative interactions, which could lead to exclusion of native wood decay species in the real-world scenarios. Direct combative exclusion is also highly likely to occur, but competitive experiments on wood under natural climatic conditions are needed to fully understand this risk. Trophic and successional cascades within the deadwood community are highly likely. Recent research on another invasive wood decay fungus, *Pleurotus citrinopileatus*, has identified significant loss of biodiversity associated with its establishment, highlighting the potential for major environmental impact from *F. claudopus*. Ecological research into *F. claudopus* is urgently needed to reduce the uncertainty around the impact it could have on our native fungi and associated deadwood species.

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