Stage 2. Pest risk assessment

Pathways for entry

Camille Picard (EPPO)

OEPP/EPPO
21 bd Richard Lenoir, Paris,
75011, France
www.eppo.int

Pathways for entry

Definition

Pathway = '*any means that allows the entry or spread of a pest*' [FAO, 1990; revised FAO, 1995]

Criteria

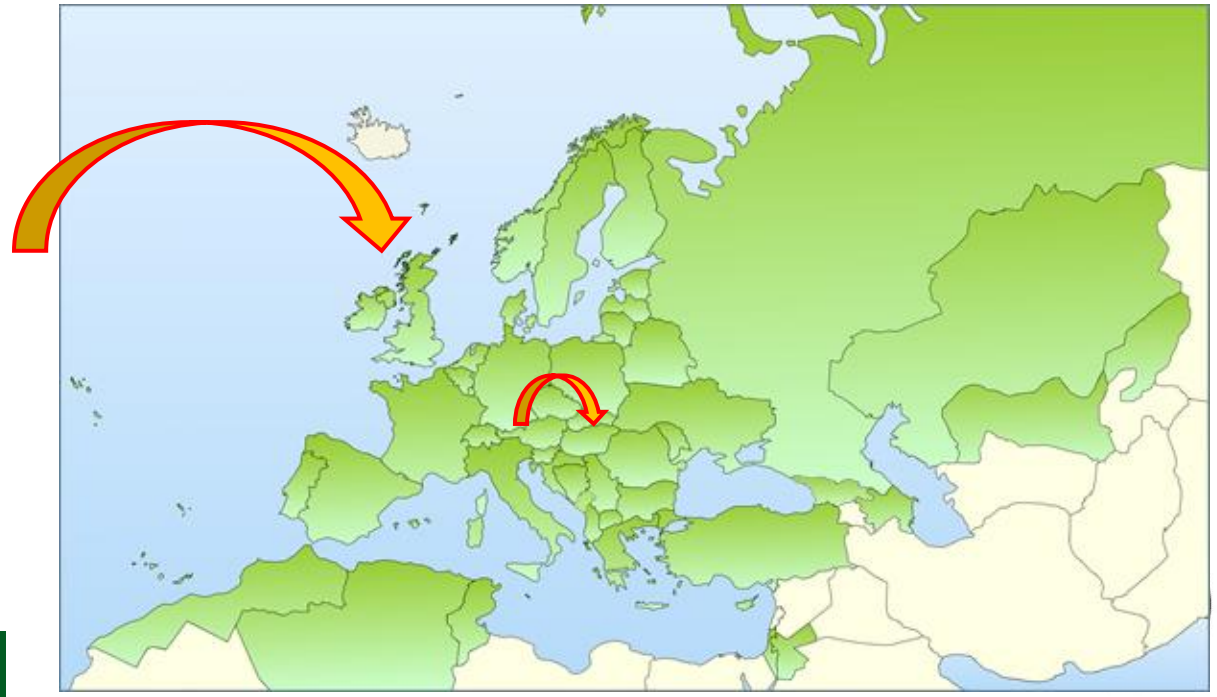
Can be defined based on geographical distribution, host range, type of commodity that may carry life stages of the pest

Why? To recommend risk management measures to be implemented at country level

Minimal information

- List the pathways
- Short description why it is a pathway
- Information whether this pathway is prohibited in the PRA area
- Information on interceptions

Consequence for EPPO PRAs: entry section should not only cover the risk of entry from outside the EPPO region, but also the risk of entry from EPPO countries where the pest is present into EPPO pest-free countries.



Categories of pathways

When necessary, also consider non-plant commodities (packing material, persons, baggage, conveyance, exchange of scientific material…)

Categories of pathways

Suggested categories are provided in Table 5 of Guidance PM 5/5

Pathway 1st level	Elements of definition	Pathway 2nd level	Elements of definition	Pathway 3rd level	Elements of definition
Wood	ISPM 5. Wood (as a commodity): Commodities such as round wood, sawn wood, wood chips and wood residue, with or without bark, excluding wood packaging material, processed wood material, and bamboo and rattan products.	**Round wood**	- Incl. firewood	**Round wood with bark**	
			- ISPM 5. Wood not sawn longitudinally, carrying its natural rounded surface, with or without bark		
			- May include branches, stumps and roots		
				Round wood without bark	
		Sawn wood	- ISPM 5. Wood sawn longitudinally, with or without its natural rounded surface with or without bark	**Sawn wood with bark**	
				Sawn wood without bark	
		Wood chips, processing wood residues, hogwood	EPPO study on wood commodities other than round wood, sawn wood and manufactured items (Technical Document No. 1071, 2015):		
			Wood chips. wood with or without bark in the form of pieces with a definable particle size produced by mechanical treatment with sharp tools		
			Processing wood residues. parts of wood and bark that are left after the process of transforming round wood into sawn wood and further transformation of sawn wood		
			Hogwood. wood with or without bark in the form of pieces of varying particle size and shape, produced by crushing with blunt tools such as rollers, hammers or flails		





- **Entry by natural means** should also be assessed… see effectiveness of recommending other pathways to be regulated
- **Closed pathways** may be considered… might be withdrawn in the future

Detailed analysis of pathways

Pathway

Coverage e.g. if plants for planting, does it cover seeds, tissue culture, pollen, packaging material, with/without growing media etc...

Pathway prohibited in the PRA area ?

Pathway subject to phytosanitary measures, incl. inspection at import ?

Pest already intercepted?

Most likely stages that may be associated ?

Plants covered (host species)

Important factors for association with the pathway (look at biology, location on commodity, symptom expression & distinctiveness, etc.)

Survival during transport and storage (look at transport/storage conditions, vulnerability, life cycle duration, etc.)

Trade (volume, frequency, etc.)

Transfer to a host: dispersal mechanism that allows movement from a pathway to a suitable host (dispersal mechanisms, distribution of hosts in PRA area, period of import, intended use etc.)

Detailed analysis of pathways

Table 4. Table format to assess pathways for entry when performing a detailed PRA (content is based on EPPO Standard PM 5/3 with additions based on experience when performing EPPO PRAs).

Pathway	**Pathway 1**
Coverage	The pathway should be clearly defined.
Pathway prohibited in the PRA area?	Yes/No. Give references.
Pathway subject to phytosanitary measures, including inspection at import?	Pre-shipment phytosanitary measures already in place that may be efficient against the pest should also be considered. Note that practices may change over time.
Pest already intercepted?	To show if the pest has already been observed to move on the pathway. This does not necessarily relate to the PRA area, but may be wider. Give references to any known interception reports of the pest. e.g. national databases, europhyt, EPPO Reporting Service, publications from outside the EPO region.

Interesting resources

Pathway (see also similar pests)

Coverage (see definitions in ISPM 5)

Pathway prohibited in the PRA area ?

Pathway subject to phytosanitary measures, incl. inspection at import ?

Pest already intercepted?

Most likely stages that may be associated ?

Plants covered (see host plants)

Important factors for association with the pathway

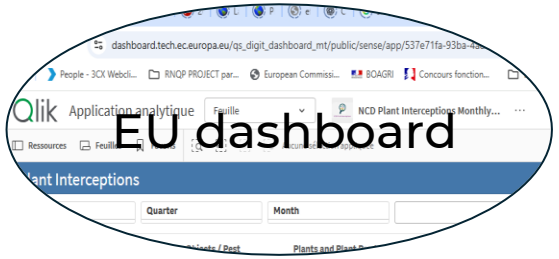
Survival during transport and storage

Trade

Transfer to a host



https://pra.eppo.int/



https://food.ec.europa.eu/plants/plant-health-and-biosecurity/europhyt/interceptions_en

eurostat

UN Comtrade Database

FAOSTAT

https://ec.europa.eu/eurostat
https://comtradeplus.un.org/
https://www.fao.org/faostat/en
But also TRACES, etc...

Remarks on transfer

Transfer as part of entry, not establishment (ISPM 11)

Although regularly intercepted at entry on a commodity, transfer of a pest to a place of production may be very unlikely.

When transfer is very unlikely, it may not be necessary to regulate a pathway at entry

Transfer is a succession of events:

- Period of import,
- Pest development stage associated,

Etc.



- Intended use (indoor vs outdoor, for planting vs consumption or processing etc…),
- How much time commodity remains suitable for pest development,
- Likelihood that the pest completes its development,
- Likelihood that two individuals find each other & reproduce,

Etc.

- Dispersal mechanisms,
- Distribution of hosts in PRA area,

Etc.





Likelihood of entry & uncertainties

Relative importance of factors
Trade may change over years. Not too much weight should be put on trade vs. other criteria.

Lack of data
The lack of information on specific criteria should be flagged and reflected in the uncertainty.
E.g. When limited trade data or when the pest has a limited distribution in a country making it difficult to evaluate the amount of trade from this area, rate the likelihood of entry mainly based on the information on association, survival during transport and transfer.

What should be rated ?
When performing detailed PRAs, it is convenient to rate individually each pathway.

If considering a broad pathway, and if there is evidence of different likelihood/uncertainty depending on origin, commodity, host etc... several sub-pathways can be rated. *When doing this, keep in mind that this will be used to define measures for likely pathways.*

Likelihood of entry (as a whole) can be obtained based on the most likely individual pathway.

Likelihood of entry & uncertainties

Ratings

As performed in EPPO PRAs, during the training workshop you will use:

Rating of the overall likelihood of entry	*Very low* ☐	*Low* ☐	*Moderate* ☐	*High* ☐	*Very high* ☐
Rating of uncertainty			*Low* ☐	*Moderate* ☐	*High* ☐

Reasons for the uncertainty rate (when moderate or high) can be recorded.

Users can refer to PRAs of similar pests which may guide for ratings



https://pra.eppo.int/

Group exercise

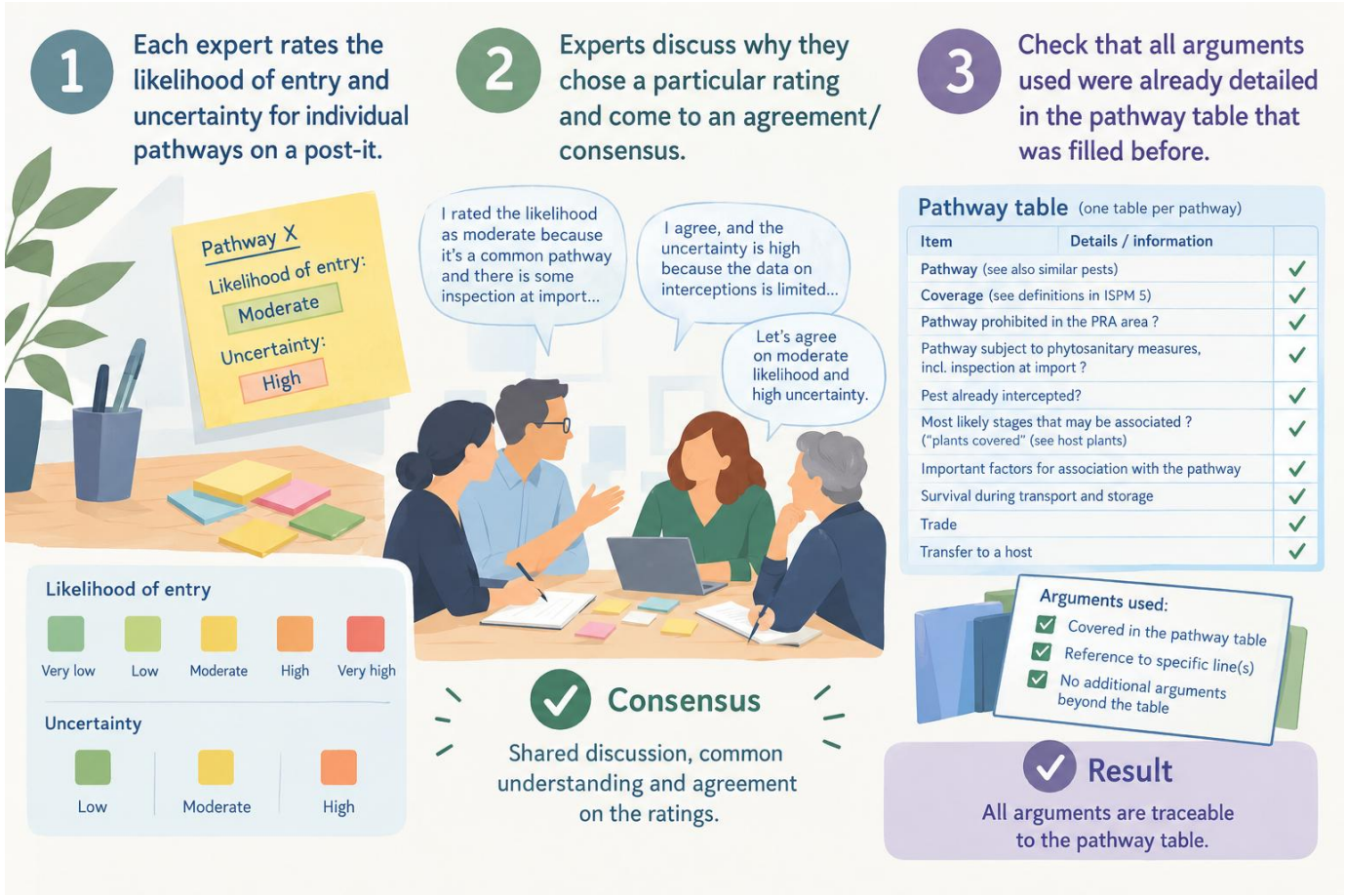
1 - **List the possible pathways** (reviewing the pathway categories from Table 5 in Guidance PM 5-5)

2 – **Prioritize** them

3 – **Fill the detailed pathway table** for the most likely pathways

4 – **Score likelihood** and **uncertainty** for **individual pathways (rating)** →

5 - **Score likelihood** and **uncertainty** for **the whole entry section** based on worst case scenario



Created with ChatGPT

linkedin.com/company/eppo-oepp/

bsky.app/profile/epponews.bsky.social

www.facebook.com/EPPOsecretariat/