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D.2.1 Guideline for controlling Oak Processionary

Including a decision matrix, templates for a management plan, field monitoring reports, a complaints form and communication material

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LIFE
Oak Processionary



Guideline for Controlling Oak Processionary



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Quick start guide

What is the oak processionary?

The oak processionary caterpillar is a moth species that occurs in our region and lives mainly on (single) oak trees. This pest species occurs in peaks every few years. Discover more about the biology, how to recognize the caterpillar in all its stages, its habitat, and natural enemies here.

Why is it a nuisance?

The oak processionary caterpillar causes nuisance because of its microscopic stinging hairs. These appear from the third caterpillar stage onwards and can cause health problems. Skin problems are the most common.

Do you want to know more about types of complaints, prevention, and treatment? Discover it [here](#).

When should you take action?

Most years, the caterpillars are rare and don't cause any nuisance. In those cases, we can and must learn to live together. But in peak years – when there are many caterpillars everywhere - it is recommended to take action in areas with 1) many residents or animals and 2) many pedunculate oaks.

How to determine if and where action is needed:

- **Step 1:** [Determine how intensively a location is inhabited by people and/or animals:](#)

	RESIDENTIAL AREAS	BUSINESS AREAS	PUBLIC FACILITIES	RECREATION	ROADS AND ROUTES	ANIMALS
INTENSIVE PRESENCE	Cores and ribbon development	Commercial buildings	Shopping centers, Restaurants, Schools and daycare centers, Healthcare centers and hospitals, Public transport hubs, Busy (bicycle) parking lots	Campsites, holiday parks, intensive day recreation (playgrounds, amusement parks, swimming pools and lakes), event locations*, parks within residential areas	Busy cycling and walking routes (home-work-school and access routes)	
MODERATELY INTENSIVE PRESENCE	Scattered buildings	Business plots	Public transport stops, carpool areas (Bicycle) parking lots	Seating and picnic benches in nature Parks outside residential areas	Frequently used recreational routes (junction routes, marked hiking and riding routes)	Farms with intensive grazing Riding schools Animal shelters Busy dog walking areas and routes
EXTENSIVE PRESENCE				Forests and nature reserves	Quiet cycling, walking and horse riding routes	Extensive agriculture

*Events that take place during the period when the nuisance is greatest, so generally from the end of May to the end of July

- **Step 2:** [Determine how susceptible the location is to oak processionary infestations;](#)

SHARE PEDUNCULATE OAK* (QUERCUS ROBUR)	
VERY SENSITIVE	>20% pedunculate oak
MODERATELY SENSITIVE	<20% pedunculate oak

* oak trees within an area of a neighborhood or street

- **Step 3:** [Determine the possible impact of the next oak processionary peak.](#) The combination of the intensity of human presence and the pest sensitivity of the area determines the impact



on a specific location and therefore the priority for controlling the oak processionary caterpillar.

	VERY SENSITIVE	MODERATELY SENSITIVE
INTENSIVE PRESENCE	High impact	Moderate impact
MODERATELY INTENSIVE PRESENCE	Moderate impact	Moderate impact
EXTENSIVE PRESENCE	Moderate impact	Low impact

- **Step 4: Determine the expected next season’s pest pressure** – follow the newsletters of the province or higher government or monitor the pest pressure yourself, with varying degrees of difficulty and accuracy. You can find more information about this [here](#).

What can you do about it?

- **Step 1: Choose your approach.**

In the following table you will find which actions you should take and to what extent.

	EXPECTED PRESSURE	COMMUNICATION	MONITORING	COMPLAINTS	NATURAL PEST SUPPRESSION	VACUUMING AND/OR PLUCKING	BACTERIAL PREPARATION	WARNING / ROAD CLOSURE
HIGH IMPACT	High pressure	+++	+++	+++	+++	+++	+++	+
	Moderate pressure	+++	+++	+++	+++	++	++	○
	Low pressure	++	+++	+++	+++	++	○	○
MODERATE IMPACT	High pressure	++	+++	++	++	++	+	++
	Moderate pressure	+	+++	+	++	+	○	○/+
	Low pressure	○	++	+	+	+	○	○
LOW IMPACT	High pressure	+	++	+	+	○/+	○	+++
	Moderate pressure	+	+	○	+	○	○	++
	Low pressure	○	+	○	+	○	○	○/+

--> Short term – direct action:

The bottom line is to protect residents by communicating clearly and, if necessary, closing off certain locations. Caterpillars and nests can be tackled directly in two ways:

1. Preventatively, before the nests occur in April, using biocides.
2. Curatively in May/June by vacuuming or manual removal of the nests

Both options have their pros and cons, but especially biocides have an impact on biodiversity that goes far beyond killing a pest species and therefore should be used only when and where all impact is to be avoided. There are also important legal restrictions on the use of these products. Want to know more? You can find it [here](#).

--> Long term: indirect measures



In the long term, you can try to restore the natural balance by attracting the oak processionary's natural enemies (like the great tit) or making the environment less suitable for the species (like by allowing common ivy in the oak tree).

Want to know more about these measures? Find out more [here](#).

- **Step 2: Plan your work.**

With a specific management plan, you can take the right steps year-round to reduce the nuisance at the short and long term and monitor how your management actions are paying off. See [here](#) how to create, evaluate and maintain your own oak processionary management plan.

- **Step 3: Organize your communication.**

[This section](#) of the guide discusses internal communication (for your own organization), external communication, planning, and the channels to use. You'll also discover how to best set up a complaints application for citizens to report nests.

- **Step 4: Set up your monitoring.**

An accurate prediction of pest pressure for the following season can be a huge help in planning your activities. See [here](#) where to get the information you need, or to set up your own monitoring activities to make even better predictions.

How do employees best protect themselves?

Safety first. Learn what protective equipment employees should wear and the best procedure to follow. This way, they are optimally protected against stinging hairs and toxic products. You'll also find information on protecting bystanders [here](#).

What does the law say?

As the owner of land containing oak processionary, you can be held liable for any damage suffered by residents or passersby. Land managers and clients are also liable for any damage caused by management work to combat the oak processionary caterpillar. The use of pesticides is also subject to numerous regulations. Discover these [here](#).

Who can help me with this?

As a municipality, you are not alone in this task. Read [here](#) how the regions and provinces can help you.



1. Introduction

1.1. About this guideline

This is the first version of the Belgian guideline for controlling the oak processionary.

This guideline is largely based on the Dutch 'Leidraad Beheersing Eikenprocessierups' (2022 edition), published by the 'Kennisplatform Eikenprocessierups'. It has been adapted to Belgian legislation and practices and includes the results of research conducted within the LIFE project Oak processionary between 2020 and 2025.

The guideline provides the most up-to-date information on all aspects of the oak processionary and the resulting health problems. It proposes measures for monitoring, control, and communication, with the aim of limiting the nuisance in the most effective, efficient, and environmentally friendly way possible.

The guidelines are not prescriptive. It is up to the administrator to make their own assessment based on the recommendations in these guidelines, in consultation with other stakeholders.

Target groups are primarily the Belgian regional and local authorities, landowners, land managers and executive green companies.

This guideline includes a proposal for an OPM management plan, which can be used at a local level to implement the proposed measures.

1.2. Reading guide

Chapter 2 'Background information' of this guide provides some background information on the biology of the oak processionary and the health problems that can occur when in contact with its stinging hairs.

Chapter 3 'Getting started' encompasses the core of this guideline and comprises three main sections: risk analysis, risk zoning, and a decision matrix. These provide clear decision-making information that allows administrators to take informed control and minimize unexpected disruptions and disasters.

The risk analysis and zoning results in a division of your territory into three zones, based on the expected impact of a processionary caterpillar infestation. Combined with the annual pest pressure forecast based on monitoring, the decision matrix then provides advice on the best measures to take in each zone. These measures can be aimed directly at the nuisance caused by the caterpillars, or indirectly, aimed at natural pest suppression.

Risk analysis and risk zoning requires a lot of effort at the first attempt but can be prepared outside the busy season.

The results of the decision matrix provide guidance for developing a self- approved management plan. This allows the planned activities to be incorporated into the annual work schedule and the necessary management budgets to be allocated.

Chapter 4 'Direct management measures' describes more drastic management methods such as vacuuming nests and spraying with bacterial preparations. A distinction is made between preventive measures, which are used before nests appear, and curative methods, which are used to remove them.



Chapter 5 'Indirect measures aimed at natural pest ' describes the various options for more sustainable natural pest suppression.

Chapter 6 'Communication' discusses all aspects of communication, both within the organization and with residents. A key component of this is registering and following up on reports of oak processionary nests.

Chapter 7 'Monitoring' covers oak processionary monitoring , including the number and size of nests, butterfly emergence, egg laying, and the results of management efforts. Oak processionary management is based on the expected local pest pressure, and this forecast can only be reliably made with proper monitoring and knowledge of developments in the area.

Chapter 8 'Safety of employees and bystanders'' describes the measures that professionals must take to protect themselves and others when monitoring and controlling the oak processionary.

Chapter 9 'Legal framework' discusses the legal aspects, such as liability regulations, permitted pesticides, and applicable nature legislation.

Finally, chapter 10, 'Oak processionary management in Belgium' describes how oak processionary moth management is organized in Belgium.



2. Background information

2.1. Biology of the oak processionary moth

The oak processionary moth, in short oak processionary, is a moth species from a genus with 41 species worldwide, all characterized by the caterpillars having stinging (urticating) hairs. Most species live in warmer regions, but the oak processionary and pine processionary can also be found in Western Europe.

This chapter describes the biology of the oak processionary: its occurrence and distribution, life cycle, typical characteristics, differences from other species found in oaks, food preferences and enemies.

2.1.1. Distribution and migration

The oak processionary (*Thaumetopoea processionea*) has been present in Western Europa for centuries. After decades of absence, the species has spread from the southeast since the 1970's and now occurs as far north as the Netherlands. It appears to prefer roadsides with long rows of oak trees, likely due to the warmer microclimate and the generally lower diversity of natural enemies. The decline or absence of natural enemies, climate change, and the many avenues primarily planted with oak trees have caused the number of caterpillars and their range to increase significantly.

The oak processionary is also spreading in other countries, such as the Netherlands, the United Kingdom, France, Germany, Switzerland, and Austria (EPPO Global Database). Within Europe, the oak processionary can also be found in Luxembourg, Croatia, Denmark, Hungary, Moldova, Spain, Sweden, Ukraine, Russia, the Channel Islands, Poland, and Italy.

Like most pest species, the oak processionary population density fluctuates. Peaks occurred in most of Europe in 1996, 2007, 2018/2019, and 2021/2022. Since then, the species has returned to a low in Belgium, but new peaks are expected.

A closely related moth, the pine processionary moth (*Thaumetopoea pityocampa*), follows a similar migration path from the south. The moth has already been observed several times in Wallonia in 2024 and 2025, but no nests have been reported yet. It is expected that this species will also appear here within a few years.

Besides natural migration, oak processionary can also enter the country via planting stock. For example, the oak processionary arrived in the London area via imported oak trees and became a pest species there.

2.1.2. Life cycle

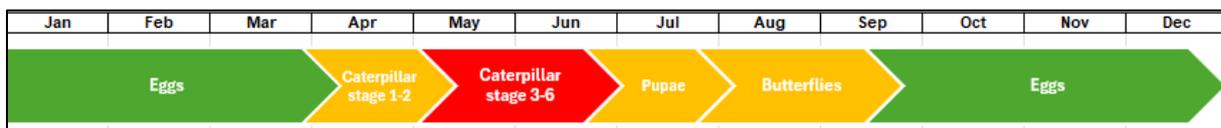


Figure 1: Oak Processionary life cycle.

In our temperate climate, oak processionary typically hatch in the first weeks of April. Hatching usually occurs en masse and simultaneously, but in changeable weather, some eggs may not hatch for several weeks. The caterpillars wait near the buds for the oak tree to emerge, which can sometimes take some time. From that point on, the caterpillars grow rapidly and moult a total of five times. During the first



two instars, the caterpillars lack urticating hairs. During this period, they are most susceptible to predation.

From the third larval stage (late April/early May), the caterpillars develop short, urticating hairs on one segment, and from the fourth stage onward, up to 700,000 hairs are found across their entire body. These are not to be confused with the long, white hairs that are clearly visible. After the third instar, the caterpillars begin building nests, usually on the trunk or in the lower branches of the tree. They become highly social and remain together for the rest of their caterpillar life. Every evening, they leave the nests to feed on leaves, returning in the morning. Sometimes, they form processions throughout the tree. The caterpillars pupate in the nest.

The moths are observed from late July through September, with a peak in early August. The timing of their emergence depends on temperature trends in spring and summer. The moths lack mouthparts and do not feed. Both females and males are adept fliers. Males can exceptionally fly up to 100 km, and females up to 20 km (EPPO Global Database).

Female moths attract males with sex pheromones. After fertilization, they lay approximately 100-300 eggs in two bursts, most of them on or near the tree where they fledged. They do this on the thinner branches of the oaks. Then they fly further away to deposit the remaining eggs. After laying the remaining eggs, the female dies.

Egg packets are found from bottom to top and in all directions. The north side of a tree has the fewest egg packets. The eggs overwinter and can withstand temperatures of over 20 degrees Celsius. The young caterpillars develop within the egg and survive the winter thanks to a kind of "antifreeze."

2.1.3. Identification

Both the caterpillar, the nests, the butterfly and the typical damage done to the oak can be confused with that of other butterfly species.

The following table describes the main characteristics of the oak processionary and compares it with similar species. The numbers next to the species refer to the table with photos later in the text.

	Period	Features	Not to be confused with
Eggs	August-March	<ul style="list-style-type: none"> • +-2 mm, white or grey, tough • In packages of 200-250 eggs • Usually on thinner branches in the crown 	
Caterpillars	April-June	<ul style="list-style-type: none"> • 1st ^{stage} (April) orange • From 2nd ^{stage} (April) grey to brown, black head and longitudinal stripe, long white hairs • Strong social behaviour: nests and processions in the tree 	<ul style="list-style-type: none"> • Ringed caterpillar (2): grey-blue, white central stripe, brown hairs • Bastard Satin Moth (3): double orange longitudinal stripe, long brown hairs, white bristles • Sticker (4): hairs with blue and red dots at the base • Arms Bearer (5): lightly haired, yellow/black, no webs • Pine processionary caterpillar (6): orange/brown, long white hairs, social behaviour with processions also on the ground



Nests	June-summer	<ul style="list-style-type: none"> • From 4th stage (June). • Gray, later brown, with white silk threads • Remain hanging for several years. • Caterpillars sit in the nest during the day. • Contains cast-off skins and pupae. 	<ul style="list-style-type: none"> • Ringed caterpillar (2): earlier in the year, also on upper branches, caterpillars sit on the nest. • Web moths (7): webs often very elaborate, fragile, never on oak
Pupae	June-July	<ul style="list-style-type: none"> • In the nests • Reddish brown, in a cocoon 	
Butterflies	July-August	<ul style="list-style-type: none"> • Wingspan 3 to 3.5 cm • Forewings grey/brown/yellow, variable black transverse lines, small comma-shaped central spot • Hindwings white with dark edge • Flying at night 	
Habitat		<ul style="list-style-type: none"> • Oaks, preferably pedunculate oaks • Trees with sunlit trunks and lower branches: avenue trees, solitary trees in parks 	<ul style="list-style-type: none"> • Pine processionary (6): on conifers • Also on oaks: Dozens of species, including small and large winter moths, spring moths, leaf rollers, sawfly larvae, etc.
Feeding damage	April-June	<ul style="list-style-type: none"> • Trees systematically completely or partially eaten bare -> bare spots in the crown. • Leaves eaten down to the vein 	<ul style="list-style-type: none"> • Other species: less systematic, less severe, leaves not eaten down to the vein

Caterpillar identification			
1	Oak processionary (<i>Thaumetopoea processionea</i>)		
		<i>Figure 2: Oak processionary eggs. Author: Province of Antwerp</i>	<i>Figure 3: Oak processionary caterpillar. Author: Province of Antwerp</i>
			
		<i>Figure 4: Oak processionary nest. Author: Province of Antwerp</i>	<i>Figure 5: Oak processionary butterfly. Author: Province of Antwerp</i>



		 <p>Figure 6: Oak processionary tree damage. Source: Wikipedia, Author: Riquix, Lic: CC BY-SA 4.0</p>	
2	<p>Ringed caterpillar (<i>Malacosoma neustria</i>)</p>	 <p>Figure 7: Ringed caterpillar. Source: Vilda, Author: Rollin Verlinde</p>	 <p>Figure 8: Ringed caterpillar nest. Source: Wikipedia, Auth: G. Elsner, Lic.: CC BY 3.0</p>
3	<p>Brown-tailed satin moth (<i>Euproctis chrysorrhoea</i>)</p>	 <p>Figure 9: Brown-tailed satin caterpillar. Source: Wikipedia, Author: Svdmolen, Lic.: CC BY 2.5</p>	
4	<p>Gypsy moth (<i>Lymantria dispar</i>)</p>	 <p>Figure 10: Gypsy moth caterpillar. Source: Vilda, Author: Rollin Verlinde</p>	
5	<p>Buff-tip (<i>Phalera bucephala</i>)</p>	 <p>Figure 11: Buff-tip caterpillar. Source: Wikipedia, Auth.: G. Slickers, Lic.: CC BY-SA 4.0</p>	



6	Pine processionary (<i>Thaumetopoea pityocampa</i>)	 <p>Figure 12: Pine processionary caterpillar. Source: Wikipedia, Author: Luis Miguel Bugallo Sánchez (Lmbuga), Lic.: CC BY-SA 3.0</p>	
7	Web moths (Yponomeutidae)	 <p>Figure 13: Web moths. Source: Wikipedia, Author: Me, Public domain</p>	

2.1.4. Host plants

In Flanders and the Netherlands, the oak processionary shows a clear preference for the pedunculate oak (*Quercus robur*) (8) but is also commonly found on the sessile oak (*Quercus petraea*) (9) and Hungarian oak (*Quercus frainetto*). Other European oak species, as well as the northern red oak (*Quercus rubra*), are also colonized. It is striking that cultivars of the pedunculate oak, the pyramidal oak (*Quercus robur* 'Fastigiata') and the columnar oak (*Quercus robur* 'Fastigiata Koster'), are less affected by the oak processionary than the pedunculate oak itself. Research shows that most oak processionary are found in oak trees taller than 6 meters and shorter than 24 meters (Batenburg 2022).

In our temperate regions, they primarily prefer trees that receive plenty of sun, such as avenue trees or trees in open lanes. Trees in denser oak forests, on the other hand, are rarely colonized.

Host plant identification	
8	Pedunculate oak (<i>Quercus robur</i>)  <p>Figure 14: Pedunculate oak. Source: Vilda, Author: Yves Adams</p>



9	Sessile oak (<i>Quercus petraea</i>)	 <p>Figure 15: Sessile oak. Source: Vilda, Author: Rollin Verlinde</p>
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2.1.5. Natural enemies

Various birds prey on oak processionary, particularly great tits (10) and blue tits (11), which they offer to their young. They particularly seek out the first two larval stages of the caterpillar. Tits are generally opportunists, focusing on the most abundant species. In years with high pest pressure, they can therefore be expected to be a significant predator for the oak processionary.

Large bat species such as the brown long-eared bat, the common noctule (11) and the serotine bat hunt the butterflies.

A limited number of insect species prey on or parasitize oak processionary. The parasitic flies *Carcelia iliaca* (13) and *Pales processioneae* play a particularly significant role. These species lay their eggs in the caterpillars, preventing them from developing into moths but serving as food for new parasitic flies. Especially in larger nests, the parasite burden can be significant—up to 90%. Parasitic wasps of the genus *Pimpla* (14) also parasitize oak processionary. Finally, there are parasitic wasps such as *Anastatus bifasciatus* that parasitize the eggs of the oak processionary, not the caterpillars.

Beetles also prey on oak processionary. Some species of smaller beetles live in the nests themselves. The forest caterpillar hunter (*Calosoma sycophanta*) (15), a predatory beetle, specializes in hairy caterpillars such as the oak processionary. However, it is a rare species in Belgium and the Netherlands, and the natural population is not stable enough to have an impact.

Natural enemies' identification		
10	Great Tit (<i>Parus major</i>)	 <p>Figure 16: Great tit. Source: Vilda, Author: Rollin Verlinde</p>



11	Blue tit (<i>Cyanistes caeruleus</i>)	 <p>Figure 17: Blue tit. Author: Johan Neegers</p>
12	Red bat (<i>Nyctalus noctula</i>)	 <p>Figure 18: Red bat. Source: Vilda, Author: Rollin Verlinde</p>
13	Parasitic fly <i>Carcelia iliaca</i>	 <p>Figure 19: <i>Carcelia iliaca</i>. Author: Province of Antwerp</p>
14	Ichneumon wasp <i>Pimpla</i> sp.	 <p>Figure 20: <i>Pimpla</i> sp... Author: Province of Antwerp</p>



15	Forest caterpillar hunter (<i>Calosoma sycophanta</i>)	 <p data-bbox="738 535 1166 591">Figure 21: Forest caterpillar hunter. Author: Province of Limburg</p>
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Chapter 5.2 'Indirect measures aimed at natural pest suppression' describes measures to attract these natural enemies.

2.2. Health risks

Health problems that occur because of contact with the caterpillar's stinging hairs are a continuing point of concern in areas with processionary caterpillars.

This chapter discusses the causes and possible consequences, how complaints can be avoided and what to do if they do occur.

This information has been partly taken from the Dutch 'Leidraad Beheersing Eikenprocessierups'.

2.2.1. Causes

The oak processionary's venom lies in the caterpillar's numerous microscopic stinging hairs, which appear from the third larval stage (from May onwards) and form an active defence mechanism.



Figure 22: Stinging hair. Source: Kennisplatform Eikenprocessierups, Author: Henk Jans, Department of Cell Biology, Radboud University

The stinging hairs are approximately 0.1–0.3 millimetres long, with a diameter of 0.015–0.02 millimetres, and have a characteristic arrow-shaped structure with barbs. Their unusual shape allows them to easily penetrate the superficial layers of skin, eyes, and upper respiratory tract. Besides causing mechanical injuries through contact, the hairs secrete a foreign protein (thaumetopoein), which releases histamine, among other substances, in the body. Thaumetopoein can trigger both a pseudo allergic and a direct allergic reaction.

The stinging hairs develop as early as the third instar, but their concentration is highest in the later stages—usually the last two weeks of June and the first two weeks of July. They remain dangerous even after the caterpillars pupate or die, even for several years.

Contact with the stinging hairs occurs mainly through inhalation or through skin contact with flying hairs, and to a lesser extent through direct contact with the caterpillars themselves.



2.2.2. Types of complaints

In humans, skin complaints are the most common health complaint. After contact with the stinging hairs, local symptoms can develop within eight hours, resulting from severe irritation and inflammation. A painful red rash with intense itching develops. The skin irritation can vary considerably, from bumps and pimples to fluid-filled blisters that can become infected. This can occur not only on exposed skin, but other parts of the body can also be affected. Sweat, scratching, and/or rubbing can easily spread the hairs to other parts of the body. Prolonged skin contact can also occur if hairs become entangled in clothing.



Figure 23: Skin irritation. Source: Kennisplatform Eikenprocessierups, Author: Henk Jans, Department of Cell Biology, Radboud University



Figure 24: Eye injury. Source: Kennisplatform Eikenprocessierups, Author: Henk Jans, Department of Cell Biology, Radboud University

Only in a limited number of cases do skin symptoms occur in combination with eye (2-3%) and/or respiratory (1-2%) symptoms. Sometimes symptoms related to an allergic reaction are also observed, such as fever, general malaise, dizziness, and vomiting.

Belgian and Dutch general practitioners classify patients' symptoms according to the [International Classification of Primary Care](#) (ICPC-2) of the World Health Organisation (WHO). However, there is no unique code specifically for symptoms resulting from contact with oak processionary. Symptoms resulting from contact usually fall into one or more of the following categories:

ICPC Code	ICPC Title
S01	Skin pain/sensitivity
S02	Pruritus/itching
S06	Local redness/erythema of the skin
S29	Other skin/subcutaneous symptoms/complaints
S98	Urticaria
A88	Harmful consequence of physical factor
F73	Other infection/inflammation of the eye
R97	Hay fever/allergic rhinitis

Mouth problems are particularly common in animals. Dogs and cats may roll in the hair, and dogs sometimes nip at the nests, causing serious mouth injuries such as swelling of the mucous membranes and redness. The eyes can also become infected. Mouth problems can also occur in cows, sheep, and horses by eating contaminated grass or hay. Horses may also develop diarrhoea or colic.



2.2.3. Prevention

The oak processionary will remain in our region. The best form of protection is therefore to be aware of its presence. The following overview provides several tips for avoiding risky areas, adjusting your behaviour if you do encounter them, and how to adapt your clothing. For professionals, please refer to Chapter 8 'Safety of employees and bystanders'.

Factor	What to do in case of high pest pressure
Risk locations	<ul style="list-style-type: none"> • In case of high pest pressure, avoid locations with high sensitivity to the oak processionary (substantial proportion of pedunculate oaks) • Avoid areas with leftover nests from previous years as much as possible. • If possible, keep a safe distance – stinging hairs can spread up to 100 m
Behaviour in risk areas	<ul style="list-style-type: none"> • Do not approach nests, even old nests. • Do not plan cycling and walking tours or picnics in risk areas. • Do not leave clothes or toys outside. • Cover sandboxes when not in use. • Avoid camping with a tent
Clothing	<ul style="list-style-type: none"> • Wear covering clothing (long sleeves, long pants) • Wear sunglasses • Wash contaminated clothing after use with warm water, preferably at 60°
Professionals	<ul style="list-style-type: none"> • Wear adequate Personal Protective Equipment (PPE) when conducting management work. • Also, for regular maintenance work in the immediate vicinity
Animals	<ul style="list-style-type: none"> • Keep dogs on a short leash in risky locations. • Avoid using hay that may be contaminated

2.2.4. Treatment

In general, the symptoms disappear on their own within a few days to two weeks. If this doesn't happen, or if the symptoms are more severe:

Complaint	Treatment
Skin complaints	<ul style="list-style-type: none"> • Strip the skin with masking tape or masking tape. • Rinse with plenty of lukewarm water. • Wash your hair but avoid contact with the rest of your body. • Use a cooling gel or soothing cream or ointment. • If itching or pain persists, contact your doctor. • Wash your clothes to prevent re-contamination. • Avoid scratching or rubbing
Eye complaints	<ul style="list-style-type: none"> • Rinse with lukewarm water. • If redness and pain persist, contact your doctor.
Shortness of breath, tightness in the chest	<ul style="list-style-type: none"> • Contact your GP. • In case of serious or rapidly developing complaints, call 112 for help
Heart problems, falling blood pressure	<ul style="list-style-type: none"> • Call 112 for help
(Oral) complaints in animals	<ul style="list-style-type: none"> • Rinse mouth or eyes with lukewarm water. • In case of severe or rapidly developing symptoms, contact the veterinarian.



3. Getting started

The following sections describe the best actions to take to develop a local management plan that supports the annual management of oak processionary caterpillars.

The general outline of this action plan and the associated risk analyses are taken from the Dutch "Leidraad Beheersing Eikenprocessierups". Any deviations are noted.

3.1. Annual planning

This section discusses the planning of the annual regular management of oak processionary. It is assumed that the initial risk analysis and -zoning have been completed.

Regular management of the oak processionary moth infestation begins in June of year 0 with (local) monitoring of the nests, followed by monitoring of the moths. These results can be used to estimate the pest pressure for the following operational year (year 1).

The most intensive period for the oak processionary manager runs from April to July.

Regular management ends in December of year 1 with the evaluation of the management plan and the communication surrounding it.

Some control measures for natural pest control can be implemented year-round or should be incorporated into other management schedules (e.g. modified mowing).



Figure 25: Annual planning.

In the following sections, the steps leading up to the management plan are described.

3.2. Creating a management plan for controlling oak processionary

Drawing up a management plan for oak processionary infestations is an annual activity, but certain steps can be taken before the infestation peaks.

The following chapters and sections describe these preparatory steps.



3.2.1. Initial risk analysis and risk zoning

Processionary caterpillars do not have the same impact at every location and every year. To assess the potential impact on human and animal health, it is best to conduct a risk analysis beforehand. This allows for spatial and temporal differentiation in pest management, which in turn offers numerous advantages: it limits the negative impact of pesticides and management methods on the environment, saves costs, and can even have a positive impact on local biodiversity.

This risk analysis uses three factors to estimate high-risk locations in the management area:

- The intensity of the presence of people and animals;
- The pest sensitivity of the area, especially due to the presence of (pedunculate) oaks
- The expected pest pressure.

Each of these factors contributes to the risk of nuisance, but only with a combination of the three factors can we make a good assessment of the risk.

The first two factors can be determined in advance and do not need to be reassessed every year. The expected pest pressure is a factor that will need to be reassessed every year – see 3.2.1.4 'Expected pest pressure.'

A fourth factor to consider when choosing possible management measures is the presence of protected habitats and species.

Together, the above factors provide tools for developing an active area-based implementation plan.

3.2.1.1. Presence of people and animals

The intensity of human presence largely determines the potential nuisance – primarily health complaints – caused by the oak processionary. Therefore, concentrate your management measures primarily on locations that are used more intensively by people and animals. In remote areas, it is rarely necessary to take measures.

In this analysis, adapted from the Dutch 'Leidraad Beheersing Eikenprocessierups' to the Belgian situation, the level of presence is assessed as "intensive," "moderately intensive," or "extensive" for six areas (homes, businesses, public facilities, recreation, roads and routes, and the presence of animals). Intensive presence carries an elevated risk of exposure to the oak processionary if present, moderately intensive presence carries a moderate risk, and extensive presence carries a minimal risk.

When demarcating, provide a buffer of at least 10 meters around intensively used zones.

For events, you should primarily consider those held during the period when the nuisance is greatest, so generally from late May through autumn. Keep in mind that if nests aren't removed, the risk will persist for years to come.

There is a significant risk, specifically for animals, when using hay from highly susceptible locations. It is best to maintain a 10-meter buffer around colonized trees when making hay.

Locally, other types of risk locations may be identified at the discretion of the managing organization.



	RESIDENTIAL AREAS	BUSINESS AREAS	PUBLIC FACILITIES	RECREATION	ROADS AND ROUTES	ANIMALS
INTENSIVE PRESENCE	Cores and ribbon development	Commercial buildings	Shopping centers, Restaurants, Schools and daycare centers, Healthcare centers and hospitals, Public transport hubs, Busy (bicycle) parking lots	Campsites, holiday parks, intensive day recreation (playgrounds, amusement parks, swimming pools and lakes), event locations*, parks within residential areas	Busy cycling and walking routes (home-work-school and access routes)	
MODERATELY INTENSIVE PRESENCE	Scattered buildings	Business plots	Public transport stops, carpool areas (Bicycle) parking lots	Seating and picnic benches in nature Parks outside residential areas	Frequently used recreational routes (junction routes, marked hiking and riding routes)	Farms with intensive grazing Riding schools Animal shelters Busy dog walking areas and routes
EXTENSIVE PRESENCE				Forests and nature reserves	Quiet cycling, walking and horse riding routes	Extensive agriculture

*Events that take place during the period when the nuisance is greatest, so generally from the end of May to the end of July

Table 1: Determination of the intensity of human presence

This zoning can be done once, but it is best to review and supplement it during the annual preparation of the regular planning: have new (walking) paths been added, new events planned, additional recreation areas added, have trees been cut down or planted, etc.

Preferably, use a digital map (GIS map). Existing regional map layers can be used extensively. Additional elements can be added at the municipal level, such as event locations, carpool areas, local walking, cycling, and bridle paths, etc.

3.2.1.2. Pest sensitivity of the environment

The second key factor is the environmental susceptibility to oak processionary infestations. For the oak processionary, this is primarily determined by the proportion of their host trees, oaks (*Quercus*), and especially the pedunculate oak (*Quercus robur*), relative to other trees in the tree population.

This risk analysis applies primarily to oaks in urban green spaces (avenues, street trees, public gardens, parks), landscaped green spaces (avenues), and forest edges. In a forest environment, trees at the forest edge are most at risk of infestation, while those in the centre of the forest are much less susceptible. Therefore, oaks in a forest are considered moderately susceptible to pests.

In areas with a high susceptibility to pests, there is an elevated risk of nuisance from the oak processionary if people or animals are frequently present there; in moderately sensitive areas, there is a moderate risk.

This analysis is based on the Dutch 'Leidraad Beheersing Eikenprocessierups', but unlike these, we propose a risk analysis with only two levels.



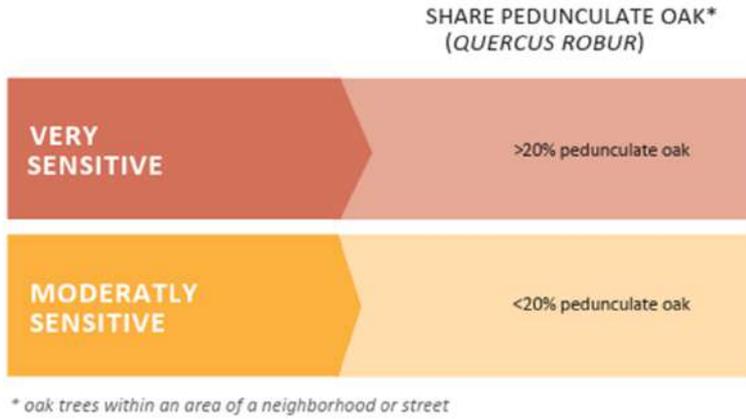


Table 2: Determination of pest sensitivity

Designating pest-prone zones is also best done once and then reviewed and supplemented during the annual preparation for the management season. It is recommended to use data on tree populations at the district or avenue level, so that individual trees are identifiable and can be identified upon inspection if they contain oak processionary.

3.2.1.3. Risk zoning and prioritization.

The combination of the intensity of (human) presence and the pest sensitivity of the environment results in the impact that a particular location can experience when there is high pest pressure.

In areas with intensive or moderate human and/or animal activity, and which are highly susceptible to pests due to the presence of many pedunculate oaks, we expect a high impact and will therefore prioritize treatment. On the other hand, in areas with low human activity and where oaks are scarce, we expect few or no problems.

The following table allows the identification of three categories of potential impact and priorities based on these two factors, which will be used in the decision matrix for the actions to be taken.

Please note that the final impact is also largely determined by the expected pest pressure, which varies annually and can only be estimated at the earliest in the summer of the previous year.

	VERY SENSITIVE	MODERATELY SENSITIVE
INTENSIVE PRESENCE	High impact	Moderate impact
MODERATELY INTENSIVE PRESENCE	Moderate impact	Moderate impact
EXTENSIVE PRESENCE	Moderate impact	Low impact

Table 3: Determination of impact of Oak Processionary

Designating high, moderate, and low impact/priority zones is by preference done once and then reviewed and supplemented during the annual management season.



3.2.1.4. Expected pest pressure.

This section describes the third factor of the risk analysis, the expected pest pressure.

Processionary caterpillar infestation usually occurs in waves, with several peak years followed by years of declining and low infestation. When estimating the expected infestation pressure for the following year, it's best to consider the trend of the past two to four years. If that trend is downward, there's a high probability that the infestation pressure will continue to decrease in the following year, or at most increase slightly. If the trend has been upward in recent years, there's a higher probability that the infestation pressure will increase at the same rate or even faster. Based on this rule of thumb, you can adjust your expectations for the following year.

Monitoring pest pressure is labour-intensive. Provincial newsletters, if available, also provide information on expected pest pressure. Therefore, so you don't necessarily have to do this monitoring yourself.

This risk analysis provides an estimate of the expected pest pressure on your locality. This estimate is based on an analysis of:

- The number and size of nests from the previous year (or the proportion of affected oaks). The average number of nests per tree is a better indicator than the number of colonized trees.
- The number of moths found in pheromone traps (see 7.2.1 'Pheromone traps') or in light traps (see 7.2.2 'Light traps') in the previous year.

If you want to monitor this yourself, we recommend to measure the condition of several trees in an area, e.g. a few trees in an avenue of oak trees or a neighbourhood with many oak trees. The map of sensitive zones (see Chapter 3.2.1.2 'Pest sensitivity of the environment') can help in selecting which trees to monitor.

	NUMBER OF NESTS* PER TREE	SHARE OF COLONIZED TREES	AV. NUMBER OF BUTTERFLIES PER TRAP
HIGH PRESSURE	>5 nests per tree	> 50% of trees colonized	>20 butterflies
MODERATE PRESSURE	2-5 nests per tree	Between 20% and 50% of trees colonized	6-19 butterflies
LOW PRESSURE	Max. 1 nest per tree	< 20% of trees colonized	max. 5 butterflies

* converted to tennis ball size

Table 4: Determination of pest pressure

The larger the nest, the more caterpillars it contains. Chapter 7.1 'Monitoring nests' explains the best way to monitor nests and how nest size can be taken into account when determining pest pressure.

Especially in the long term, data on the presence and location of nests and captured butterflies provide a picture of the evolution of pest pressure, and an assessment can be made of whether there is a downward, upward or stable trend.



3.2.1.5. Restrictions due to biodiversity impact of management measures

A factor that is not important in the risk analysis but does determine which management measures are possible at a particular location, is the presence of habitats for other (butterfly) species that could potentially be impacted.

Biocides may not be used if protected species are suspected or if the oaks are in a Natura 2000 area. In Flanders, pesticides may also not be used in VEN and IVON areas unless a permit is granted. It is strongly recommended to maintain a buffer zone of 250 m from the protected zone. Furthermore, the products must be handled carefully, as butterfly species that are not legally protected are also of immense value to the ecosystems in and around the oak.

For nature reserves not covered by Natura 2000, certain butterfly and other insect species may be included as target species in management plans. This should also be considered.

In addition, In Flanders biocides may not be used on public service premises, in water extraction areas and within a 6-metre zone along waterways.

To put this into practice, it is best to demarcate in advance on a digital map (GIS map) the zones where certain measures cannot be used.

3.3. Decision matrix and legend

This decision matrix can be used to determine the actions to be taken for a given pest pressure per risk zone. This is done once the expected pest pressure is known. The result of this decision is included in the management plan (see 3.4 'Management plan').

The decision matrix and legend have been adapted from the Dutch 'Leidraad Beheersing Eikenprocessierups' to the situation in Belgium.

To interpret this decision matrix, you need:

- Per area, the potential impact (see 3.2.1.3 'Risk zoning and prioritization.')
- The expectation of the plague pressure (see 3.2.1.3 'Risk zoning and prioritization.')

The combination of the intensity of (human) presence and the pest sensitivity of the environment results in the impact that a particular location can experience when there is high pest pressure.

In areas with intensive or moderate human and/or animal activity, and which are highly susceptible to pests due to the presence of many pedunculate oaks, we expect a high impact and will therefore prioritize treatment. On the other hand, in areas with low human activity and where oaks are scarce, we expect few or no problems.

The following table allows the identification of three categories of potential impact and priorities based on these two factors, which will be used in the decision matrix for the actions to be taken.

Please note that the final impact is also largely determined by the expected pest pressure, which varies annually and can only be estimated at the earliest in the summer of the previous year.



	VERY SENSITIVE	MODERATELY SENSITIVE
INTENSIVE PRESENCE	High impact	Moderate impact
MODERATELY INTENSIVE PRESENCE	Moderate impact	Moderate impact
EXTENSIVE PRESENCE	Moderate impact	Low impact

Table 3: Determination of impact of Oak Processionary

Designating high, moderate, and low impact/priority zones is by preference done once and then reviewed and supplemented during the annual management season.

- Expected pest pressure.)
- The legend with, per category, the nature and level of the actions to be foreseen (at the bottom of this section)

	EXPECTED PRESSURE	COMMUNICATION	MONITORING	COMPLAINTS	NATURAL PEST SUPPRESSION	VACUUMING AND/OR PLUCKING	BACTERIAL PREPARATION	WARNING / ROAD CLOSURE
HIGH IMPACT	High pressure	+++	+++	+++	+++	+++	+++	+
	Moderate pressure	+++	+++	+++	+++	++	++	○
	Low pressure	++	+++	+++	+++	++	○	○
MODERATE IMPACT	High pressure	++	+++	++	++	++	+	++
	Moderate pressure	+	+++	+	++	+	○	○/+
	Low pressure	○	++	+	+	+	○	○
LOW IMPACT	High pressure	+	++	+	+	○/+	○	+++
	Moderate pressure	+	+	○	+	○	○	++
	Low pressure	○	+	○	+	○	○	○/+

Table 5: Decision matrix



Action to be taken		Exceptions
Communication activities		
o	No specific communication activities necessary.	
+	Provide general information on the website, local press. Place any warning sign.	
++	Provide general information on the website, local press. Place warning sign or hang warning tapes. Encourage citizens/public to report nuisance. Make reports and infected trees publicly visible on the website.	
+++	Provide general information on the website, local press. Place warning sign or hang warning tapes. Encourage citizens/public to report nuisance. Make reports and infected trees publicly visible on the website.	
Natural pest suppression		
o	N/A	
+	Include natural pest suppression in general policies for a natural environment whenever possible. Tree diversity and biodiversity are priorities here.	
++	Get active with natural pest control. The development of natural vegetation is a priority. Where possible, leave nests hanging (or store in parasite boxes) to stimulate natural enemies. Promote ivy growth in the oak tree to greatly reduce the attraction for oak processionary caterpillars.	
+++	Get started in these areas with the highest priority. Concrete agreements on tree stock and the development of natural vegetation are a priority. If possible, improve the natural vegetation in the area in the short term (promote flowery grasslands instead of rough grass/lawn; promote undergrowth). Promote ivy growth in the oak tree to greatly reduce the attraction for oak processionary caterpillars. Provide nesting boxes for birds and bats as a potential measure to further increase biodiversity and involve the neighbourhood in tackling nuisance.	
Monitoring		
o	N/A	
+	Digitally visualize your tree stock to facilitate further monitoring.	
++	Monitor the oaks of your digital tree file for the presence of the oak processionary caterpillar. The number of nests per tree is preferred, the alternative is the percentage of affected oaks.	
+++	Monitor the oaks of your digital tree file for the number and size of nests of the oak processionary. For a good forecast, hanging pheromone traps or following up monitoring with light traps is recommended.	
Complaints		
o	No special action needed.	
+	Make sure there is a separate complaints category for the oak processionary. Information about the caterpillar, health complaints and the possibility to report nests is the minimum recommendation.	
++	Ensure good interaction with citizens and a clear complaints reporting system. Ideally, complaints are made visible on a map and feedback to the complaint takes place in the short term.	
+++	A well-organized notification system that is in direct connection with managers and suction capacity. Good feedback and interaction with citizens is extra important here.	
Vacuuming / Manual removal		
o	No special action needed.	
+	For occasional nuisance, limited capacity for vacuuming nests must be available.	
++	Make agreements about the capacity with regard to the vacuuming. Check for nesting early in sensitive locations. In the event of reports of nuisance, action must be taken in the short term. Good communication is important.	In case of local nuisance and low pest pressure, nests may only be vacuumed up to the first branch whorl.
+++	Make strict agreements about the capacity with regard to vacuuming. Ideally, the pest controller is in direct contact with the notification system. Check early for sensitive locations with regard to vacuuming.	
Bacterial preparation		
o	Do not take this measure.	
+	Consider this measure only around areas where nuisance must be absolutely avoided. For example, if a high concentration of oak processionary caterpillars could become unmanageable, or if vacuuming or manual removal is not feasible in a specific area.	. Do not take measures in or adjacent to Natura 2000 areas or in the presence of actively and passively protected butterfly species. . Measures do not go well with policies that promote natural pest suppression and/or set ambitious biodiversity targets - see chapter 4.1.3
++	Consider the measure and apply it as sparingly as possible at locations where vacuuming or manual removal cannot sufficiently prevent nuisance.	
+++	Consider and implement measures in locations where vacuuming or manual removal cannot sufficiently prevent nuisance.	
Warnings and/or closing roads.		
o	Do not take this measure.	
+	Only apply as a temporary measure in anticipation of vacuuming or manual removal	
++	Consider the measure and apply it as little as possible. Keep the vacuuming in reserve.	
+++	Apply measure to places with limited impact and where the bacterial preparation or vacuuming are not an option	

Table 6: Legend for the decision matrix

3.4. Management plan

The Oak processionary Management Plan describes the measures that must be taken in specific situations to limit the nuisance caused by oak processionary, when these measures should be implemented, who is responsible, and what resources should be deployed. The goal is to prevent unexpected nuisance and disasters. The plan translates this guideline to the local level.



The management plan is best documented at the administrative level, allowing for the necessary management budgets to be reserved. The plan is valid for one year at a time. A substantial portion of the plan can be adopted again in subsequent years.

The following are required for revising the annual management plan:

- The management plan of the previous year;
- The recommendations from the decision matrix (see 3.3 'Decision matrix and legend') based on the updated risk zoning and prioritization (if necessary) (see 3.2.1.3 'Risk zoning and prioritization.') and pest pressure forecast for next season (see 3.2.1.3 'Risk zoning and prioritization.')

The combination of the intensity of (human) presence and the pest sensitivity of the environment results in the impact that a particular location can experience when there is high pest pressure.

In areas with intensive or moderate human and/or animal activity, and which are highly susceptible to pests due to the presence of many pedunculate oaks, we expect a high impact and will therefore prioritize treatment. On the other hand, in areas with low human activity and where oaks are scarce, we expect few or no problems.

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INTENSIVE PRESENCE	High impact	Moderate impact
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EXTENSIVE PRESENCE	Moderate impact	Low impact

Table 3: Determination of impact of Oak Processionary

Designating high, moderate, and low impact/priority zones is by preference done once and then reviewed and supplemented during the annual management season.

- Expected pest pressure.').

The new management plan can therefore be drawn up starting in November/December. Depending on the results of monitoring caterpillar hatching, leaf unfolding or the number of nests, it can be updated in the spring. Administrative determination can be made at the beginning of the operating year.

The oak processionary management plan includes at least the following chapters:



Ch.	Title	When
1.1	Objectives and context	At initial drafting, reviewed annually
1.2	Results and evaluation of the previous management plan	Annually
1.3	Results of the monitoring	Annually
1.4	Conclusions and management recommendations	Annually
2	Administrative approval	After approval/determination
3.1	Risk analysis, risk zoning and expected pest pressure	At initial drafting, reviewed annually
3.2	Planned actions	Annual
3.3	Agreements with pest control services and waste processing companies	At initial drafting, reviewed annually
3.4	Action calendar	At initial drafting, reviewed annually
3.5	Communication plan	At initial drafting, reviewed annually
3.6	Contacts	At initial drafting, reviewed annually
3.7	Complaints reporting system	At initial drafting, reviewed annually
3.8	Monitoring	At initial drafting, reviewed annually
3.9	Budget	Annually
3.10	Long-term actions	At initial drafting, reviewed annually
4	Evaluation of management plan and approach	Annually

A template for a Management Plan is included in the annexes.



4. Direct management measures

By direct (also known as active) management measures, we mean those measures and methods that have an immediate impact on the nuisance caused by the oak processionary, as opposed to indirect measures, which work more by encouraging predation and parasitisation.

Among direct management measures, we distinguish preventive measures, pesticides used early in the season before nests appear, and curative measures, which aim to remove nests.

The cost-effectiveness analysis conducted as part of the LIFE project Oak Processionary showed that, while preventive methods are significantly cheaper than curative ones, the latter are far more effective. The combination of vacuuming and manual removal is the most effective technique, but also one of the most expensive. When biodiversity is also taken into account, preventive methods, despite their positive connotation, have a significantly greater negative impact on biodiversity than curative methods. Indirect measures, described in Chapter 5 'Indirect measures aimed at natural pest suppression.', score even better in terms of impact on biodiversity.

The Dutch 'Leidraad Beheersing Eikenprocessierups' includes several information sheets that discuss the various direct management measures in detail. These can be found here: <https://processierups.nu/algemene-informatie/>

In Flanders and Wallonia, one preventive method is currently available – a biocide – and a combination of two curative methods, each with its own advantages and disadvantages. In Wallonia and the Brussels-Capital Region, burning is also considered an acceptable measure.

In addition, it's still an option to place warning signs in sensitive areas with minimal impact, and/or temporarily close the road or path, in case of high pest pressure. Clear communication is essential in this regard.

Method	Operation	Period	Recommended conditions	Disadvantages/points of interest	Do not use in
Bacterial preparation	Preventive	April/May	Dry, calm, sunny, >15° C	Health Biodiversity	Natura 2000 areas Presence of protected butterflies Within 6 m of waterways
To suck away/to pluck away	Curative	June/July	Wet, windless	Health Workload Waste Costs Long duration/nuisance Repeatable	
Burn away	Curative	June/July	Wet, windless	Health Workload Costs Long duration/nuisance Risk of tree damage Risk of fire	Do not use due to additional risks



Warn/ Temporarily close a road or path		June/July	In case of major inconvenience and little passage	Clear communication with passers-by Alternative connections	
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In the management plan you can indicate per zone which measure will be implemented in practice.

4.1. Bacterial preparation

This preventative method involves spraying oak trees with a biocide, a bacterial preparation. Caterpillars that ingest the bacteria by feeding on the leaves die before developing stinging hairs.

The product also kills caterpillars of other butterfly species and therefore has a serious negative impact on the ecosystem. Therefore, there are legal restrictions on its use. Furthermore, the use of this method is incompatible with ambitious biodiversity goals or with promoting natural pest suppression.

4.1.1. Operation and effectiveness

Bacillus thuringiensis (Bt) is a spore-forming bacterium used in agriculture as a crop protection agent to control various insects. The subspecies *aizawai* (Bta) and *kurstaki* (Btk) specifically kill butterfly caterpillars (Lepidoptera).

The Bt preparation does not contain actual bacteria, but rather crystalline protein toxins produced by the bacteria. When the caterpillars feed on the sprayed leaves, the high pH releases the toxins into the caterpillar's gastrointestinal tract, perforating the intestinal wall and killing the caterpillar.

The Bt preparation (a diluted liquid) is sprayed throughout the entire tree canopy using a tree mist sprayer. The spray liquid is electrostatically charged and is distributed across the upper and lower surfaces of the leaves using a low-volume spraying technique. Depending on the sprayer, trees up to 30 m tall can be sprayed. The product remains effective for up to seven days. The product degrades through runoff from rain and UV light.

If used at the right time, according to Dutch research, an average of 77% fewer nests would be formed.

4.1.2. Timing and circumstances

Timing your spraying correctly is crucial. Ideally, it should be applied a few weeks after the caterpillars emerge, at the end of the second or beginning of the third larval stage, when they don't yet have stinging hairs and are feeding on young leaves. For maximum effectiveness, trees should have approximately 40-50% leaf development.

This method is less effective and even harmful from the fourth larval stage onward, as the caterpillars are then less susceptible to Bt and already have the nuisance-causing stinging hairs that can be spread by spraying. For oak processionary in visible nests and in later larval stages, the only remaining option is vacuuming or manual removal.

Considerations and restrictions for use:

- Preferably in dry (to prevent wash-off) and clear weather (visibility);
- No rain expected within 12 hours so that the product is not washed away;
- Calm or little wind (preferably less than 3 m/sec, or wind force 2 Bft);
- Daytime temperature around 15°C;
- Drive slowly - 2 to 3 km/h depending on the tree height;
- Registration in a spray report (see 7.4' Monitoring management measures');



- Effectiveness up to 7 days;
- The work must be stopped if the weather conditions are no longer suitable.

4.1.3. Harmfulness, side effects, limitations and points of attention

Bt is not very species-specific and can also be spread beyond the tree when sprayed. This has many negative side effects on the oak ecosystem and the wider environment.

- The method is not accurate, it is probable that many more trees are treated than necessary;
- The timing of the application during caterpillar development and the weather conditions during spraying are particularly important for the effectiveness of the product. Therefore, there is a real risk that the treatment will be ineffective;
- Bt also kills caterpillars of other butterfly species that live in and around oak trees and thus has a direct and serious negative effect on the ecosystem;
- High-pressure spraying also blows other invertebrates out of the tree;
- By killing their preferred food, it has a negative impact on natural predators such as birds and bats;
- Directly and indirectly, it has a negative impact on natural parasites such as parasitic flies and wasps, which are also killed when their host dies or has less food.

Bt may not be used in Flanders (unless an exemption has been granted):

- In Natura 2000 areas, VEN and IVON areas and other nature reserves;
- In public forests;
- In and around the habitat of the ilex hairstreak (see 9.3.1.2 'Impacted protected and priority');
- In a buffer zone of 25 m around surface water;
- In places where tit nest boxes were provided.

The use of pesticides within a 250-meter buffer zone around a Natura 2000 area is not strictly prohibited, but European legislation does require minimizing this use to protect the natural habitat. However, implementation of this measure is still lacking, with consequences for water and nature quality.

That is why we recommend using Bt only:

- In case of high pest pressure and
- In places with intense human presence and
- Places with a high sensitivity of the environment (relatively high proportion of oaks in the tree population) and
- Where no natural pest control measures (nesting boxes, etc.) are provided.
- Outside a buffer zone of 250 m around Natura-2000, VEN- and IVON

4.1.4. Legal context and policy frameworks

In Flanders, only one Bt-based product is currently temporarily authorised for the control of oak processionary in the provinces of Antwerp, Limburg, Flemish Brabant and East Flanders.

Product name	Number	Expiration date	Active substance(s)	Scope of application	End date of admission
Foray ES	BE2021-0018	30/11/2028	3.3200% Bacillus thuringiensis	In contaminated places in public areas (parks and public gardens, green public spaces, sports fields)	30/11/2028



			subsp. kurstaki, strain ABTS-351	open to the public, school and playgrounds, cemeteries, areas around health facilities, along public roads), on private property with infected trees	
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Table 7: Authorised BT preparations (Gestautor Public Search, accessed 20-03-2025)

The application instructions can be found in the Summary of Product Characteristics (SPC): [Résumé des caractéristiques du produit pour un produit biocide/BE2021-0018 SPC](#)

This concerns an authorisation until 30/11/2028 based on Article 55 of Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products.

When using this product, municipalities and higher authorities must first request permission from the Flemish Environment Agency (VMM) via Procedure 3. In this application, you must clearly state that other, more environmentally friendly management methods are not sufficient. More information and the steps to be taken can be found on the "[Zonder is Gezonder](#)" website.

For the province of Antwerp it is additionally mandatory to indicate the locations to be sprayed on the provincial website [eikenprocessierupsenkaart](#).

4.1.5. Safety and health

These toxins can cause allergic reactions and skin and eye irritation in humans and animals. Therefore, the use of appropriate Personal Protective Equipment (PPE) is essential. Prevent passersby and animals from encountering the spray mist. Inform the surrounding area when the product is being used. Consult the Safety Data Sheet.

See Chapter 8 "Safety of employees and bystanders" for an overview of the measures required for oak processionary caterpillar control regarding employees and bystanders.

Residues of this biocide must not be released into the environment. Empty packaging should be considered agrochemical waste, and product residues should be considered small chemical waste.

4.1.6. Monitoring the management measure

Ensure proper recording of which oaks have been treated and when. Ask the contractor to include this in the spray report (see 7.4 "Monitoring management measures"), as well as the weather conditions at the time of application. Spray equipment can also be equipped with a GPS tracker so that the spraying can be tracked.

In the weeks following the treatments, inspect the location for the presence of new caterpillars. If necessary, these can be vacuumed away afterwards. For this monitoring, preferably use the inspection report suggested in 7.1.1 "Determining pest pressure by monitoring nests".

In Flanders, reporting of management measures is mandatory when using biocides. This monitoring includes recording the nests, the type of control used, and the product use. The results are reported to the Flemish Environment Agency (VMM). The province of Antwerp provides a tool called the oak processionary caterpillar map, allowing you to consult relevant information and maintain monitoring data.



4.2. Vacuuming and manual removal

During the vacuuming process, oak processionary nests in the tree or at the base of the trunk are vacuumed away using a modified industrial vacuum cleaner. After vacuuming, the nests are safely stored and disposed of as oak processionary waste. This allows for highly targeted and accurate control.

Larger nests can be removed manually from the trunk or branches and collected by other means.

These techniques have no significant negative effects on other insects in the trees. However, any oak processionary parasites present in the nests, as well as the food source for insectivorous birds and bats, are removed along with the nests. This slows down the build-up of natural pest suppression.

Vacuuming and manual removal have a larger and less easily planned workload than using the Bt preparation and is also more expensive.

4.2.1. Operation and effectiveness

These techniques can significantly reduce the nuisance caused by stinging hairs in the immediate vicinity. The sooner the (often still small) nests are removed, the more the nuisance to the surrounding area is reduced. However, small nests are often overlooked.

The vacuuming can be done with:

- A heavy-duty industrial vacuum cleaner used from the ground or with an aerial platform; usually the nests are pre-sprayed with a fixative (glue);
- A manure tank with a vacuum pump, partially filled with water at a negative pressure of at least 3 bar;

For a limited number of nests or nests that are difficult to reach, vacuuming and manual removal can also be done manually by tree climbers.

	Method	Period	Recommended conditions	Disadvantages/points of interest	Do not use in
Industrial	Vacuuming and discharge	End of May – July	Windless Nests easily accessible	Health of performers and bystanders Waste processing	-
Manually	Vacuuming and discharge	End of May – July	Nests difficult to reach. Availability of vacuum cleaner	Health of workers and bystanders Waste processing	-
	Manual removal and discharge	End of May – July	Nests difficult to reach	Health of workers and bystanders Waste processing	-

4.2.2. Timing and circumstances

These control methods can be applied from the fourth larval stage, from late May/early June, and are best completed before the butterflies' hatch in July. This also has a pest-suppressing effect the following year, as the butterflies cannot lay eggs.

During the season, the method may need to be repeated several times to ensure that any caterpillars that crawl from the crown to the trunk are destroyed.



Old web nests can be removed year-round using this method. To minimize environmental impact, it is recommended to do this during wet conditions.

4.2.3. Harmfulness, side effects, limitations and points of attention

When done correctly, vacuuming nests does not harm trees, vegetation, soil, or water. However, there are some things to keep in mind:

- If you act too early, caterpillars may be missed, leading to subsequent nest formation. After removing nests, check the locations again before the end of June/beginning of July;
- The waste must be disposed of separately and incinerated by an approved animal waste processing company;
- Removing nests and caterpillars also kills natural enemies in the nests. This can be avoided by placing the removed nests in parasite boxes at risk locations (see natural pest suppression);
- Large-scale vacuuming of the nests is an expensive measure;
- During peak years, there may be limited capacity for aerial work platforms, vacuuming equipment, and/or experienced personnel. Monitoring, timely planning, and agreements with a specialized pest control company can address this.

We therefore recommend using this measure primarily in cases of moderate to low pest pressure, where nests need to be vacuumed away in a limited number of places.

In cases of high pest pressure, it is best to target it at locations with intensive human and animal presence and/or high or moderate sensitivity (i.e. with relatively many oaks/pedunculate oaks) or where a bacterial preparation is not possible.

Costs can be reduced in the medium term by combining this measure with other measures, especially natural pest suppression.

4.2.4. Legal context and policy frameworks

Other than the safety and personal protection rules summarized in Chapter 8 “Safety of employees and bystanders”, there are no legal restrictions for this method.

The collected nests and caterpillars are considered hazardous animal waste and must be processed by a processing facility licensed to incinerate caterpillar remains.

4.2.5. Safety and health

Using this technique can still spread urticating hairs, posing significant exposure risks for pest control workers and the immediate environment. The caterpillars can release urticating hairs, and there is a risk of nests falling from the tree.

See chapter 8 “Safety of employees and bystanders” for an overview of the measures required to control the oak processionary.

Communicate the work schedule to residents in a timely manner and ensure that passersby maintain sufficient distance. Road safety measures, such as signs and road closures, are often necessary.

Also consider vacuuming nests before pruning and felling colonized trees later in the year. When planning the vacuuming, consider planned pruning work for the following season.



4.2.6. Monitoring of the management measure

Even when no biocides are used, thorough monitoring is required to evaluate the management measures implemented. Monitoring data can be used to evaluate the current management year, as an indicator of pest pressure for the following year, and for planning the work.

Require the responsible to prepare a 'Report curative treatment' (See 7.4" Monitoring management measures"). When conducting the work, record the number of nests removed, the removal method, and the date of removal.

4.3. Warnings and/or closing roads.

Not controlling the caterpillars is the most ecological solution. The easiest way to prevent people and pets from encountering the oak processionary is to place warning and information signs on paths and roadsides to alert people to the danger. If necessary, these areas can also be temporarily closed off.

Since the most critical period lasts only a few months each year (mainly June and July), this can be achieved by taking temporary measures, possibly until the nests are removed.

This measure can be used primarily in cases of significant nuisance and in places where the impact is limited, such as along forest paths and infrequently used footpaths and cycle paths in oak avenues where there are few passers-by. As a short-term measure, pending the removal of the pollutants, it can also be used in places with a higher impact.

Of course, effective communication with passersby and residents is crucial. A combination of warning signs, barriers or barrier tape, information signs, and information provided through municipal communication channels is ideal.

- Warning signs with a clear drawing of the caterpillars, danger symbols and the request not to enter the area, in a striking (red) colour;
- Information boards stating the reason for the closure, characteristics of the caterpillars and nests, the danger posed by the caterpillars, what to do if you encounter the stinging hairs, and the contact details of the person responsible
- Make the relevant locations or paths known via the municipal information sheet or the municipal website.

In places where many tourists come, it is also a clever idea to place multilingual warning and information signs.

For paths that form a crucial connection, alternatives can also be indicated.

Examples of an information board and ribbons can be found in Appendix 4: Communication materials.

4.4. Not recommended techniques

Before using new techniques or products in the field, it's advisable to check whether they are approved and effective. It is not uncommon for vendors to try to sell illegal or ineffective substances.

The following techniques are discouraged for use in Belgium.

4.4.1. Incineration

Until recently, nests were incinerated in trees in both Flanders and Wallonia. This technique has the major advantage of destroying most of the urticating hairs in the nest. It was considered suitable for



densely populated areas and for isolated trees. The technique was primarily used from the fourth stage onward.

Due to the risk of roadside fires – especially during periods of drought – the risk of tree damage, and the elevated risk of the resulting turbulence spreading fire bristles, we advise against this technique.

4.4.2. Neem extract

In addition to the bacterial preparation Foray ES, NeemProtect was also approved in Belgium for oak processionary control until 2025. NeemProtect is an extract of the exotic Neem or Margosa tree (*Azadirachta indica*), with the active ingredient azadirachtin. The product can be used in the first or second larval stage of the caterpillar, but only under ideal weather conditions – above 15°C, no wind or precipitation within 24 hours.

The product was removed from the list of approved biocides for controlling oak processionary in 2025. Regardless of this, we do not recommend this product, particularly due to its limited applicability and the fact that the extract is less selective than the bacterial preparation – meaning it also affects the caterpillar's natural enemies – and is also harmful to aquatic life.

4.4.3. Nematodes

In the Netherlands, nematodes (roundworms) are used in addition to the bacterial preparation. These nematodes are applied in the same way as Bt, during the first three weeks after the caterpillar's hatch. These nematodes penetrate the caterpillar, killing it before they can produce stinging hairs. This makes this method suitable for locations where nuisance must be strictly avoided. This method is though sensitive to the right conditions, such as suitable weather conditions. Spraying should be done at night.

Like Bt, this method also has a strong negative impact on all tree-dwelling butterfly species, but also on other insects.

Nematode-based products are permitted in Belgium but are not recommended for the reasons stated above.

4.4.4. Glue tapes and adhesive strips.

Private individuals sometimes apply adhesive tape or sticky strips to tree trunks to prevent caterpillars from migrating along the trunk, a practice that is also used in fruit growing to control insect pests.

Due to the unwanted bycatch of innocent insects and even birds and bats, we strongly advise against this technique.

4.4.5. Pheromone traps for pest control

A trial is underway in the Netherlands to disrupt the mating of oak processionary using pheromones. The substances are fired into trees with paintball guns. This method is expected to significantly reduce the number of oak processionary. The research could serve as a basis for authorizing the product for the Dutch market.

In Belgium, pheromones are not (yet) permitted in the control of oak processionary, only for monitoring purposes.



5. Indirect measures aimed at natural pest suppression.

Direct management measures as described above have a positive impact in the short term but are not a sustainable solution for the long term.

Indirect measures, aimed at natural pest suppression, work in the long term and are therefore, in principle, more sustainable. They are not aimed at eradicating the species, but at limiting its numbers and nuisance. The LIFE Project Oak Processionary has shown that these methods score much more positive on biodiversity impact, even though effectiveness for caterpillar control are somewhat lower.

The most sustainable way to achieve this is to make the habitat unattractive to the oak processionary by providing more opportunities for its natural enemies – as mentioned in chapter 2.1.5 'Natural enemies', especially insectivorous birds, bats, parasitic flies and wasps, and predatory beetles such as the forest caterpillar hunter.

Predation and parasitisation of the oak processionary can be stimulated by (a combination of) various measures. These measures are discussed in the following chapters.

5.1. Environment

Method	Period	Goal	Expected impact	Other benefits	Disadvantages/Points of interest
Adapted mowing management	May-September	Better insect survival Attract insects and birds	Limited	Biodiversity Awareness Educational aspect	Workload
Common Ivy	Year-round	Making the habitat less suitable for EPR	Positive	Attract other insects & birds. Food source/pollen source for insects during periods of low food supply Shelter	Safety
Conversion of tree population	Year-round	Making the habitat less suitable for EPR	Positive	Pest control in general Biodiversity	Significant impact Very long term Awareness

5.1.1. Adapted mowing and pruning management.

The Dutch 'Leidraad Beheersing Eikenprocessierups' indicate that natural vegetation on roadsides provides opportunities for numerous natural enemies that suppress oak processionary infestations. Research conducted on the impact of roadside management as part of the LIFE project Oak processionary also demonstrates this.

Specifically for the parasites that specialize on oak processionary caterpillars, the LIFE study shows that flower-rich and herb-rich roadside verges—with a high diversity of flowering plants and especially many composites—attract more parasites. This means that by converting the roadside verges around the oaks to a more natural, herb-rich vegetation, the oaks become less vulnerable to pests and thus the nuisance can be limited. The best management method depends on the current situation and specific characteristics of the location, but removing the cuttings is an important factor.



For Flanders, we refer to the page [Ecologisch bermbeheer](#) on Ecopedia for the methodology. Specifically for roadside management geared towards wild pollinators, we refer to the INBO report '[Advies over de aanpassing van het Bermbesluit in functie van wilde bestuivers](#)'.

In the Netherlands, the brochure '[Kosten en baten bijvriendelijk beheer](#)' developed by Wageningen Environmental Research, provides a detailed overview of possible measures. This brochure focuses on encouraging bees, but these measures are effective for many more insect species, thus boosting overall biodiversity and naturally suppressing the oak processionary.

Specifically for parasites that specialize in caterpillars, the LIFE study shows that flower-rich roadsides—with a high diversity of flowering plants—attract more parasites. See Chapter 5.2.3 'Parasitic wasps and flies'.

The following table summarizes the methods that can be used in different circumstances to give more opportunities to the natural enemies of the oak processionary:

Situation	Period	Goal	Methods
Grassy verges	May – September	Attracting and surviving insects Attracting insectivorous birds	Ecological roadside management, including: Less mowing; Extensive mowing & removal; Phased mowing/ mowing in strips; Sinus mowing; Do not clap
Rough verges	May – September		Ecological roadside management, including: Prevent nutrient enrichment Mowing and removal Phased mowing. Sinus mowing Do not use flail mowers
Forest plantation/scrub			Diversify shrub composition Planting native shrubs Structuring the transition from shrub to verge Lobe-shaped pruning
Banks	May – September		Construction of environmentally friendly banks Mowing and removal Phased mowing. Sinus mowing Do not clap

5.1.2. Common ivy

With common ivy (*Hedera helix*) on the trunk and lower branches of oak trees, the number and size of oak processionary in the tree are considerably limited. The ivy may create a cooler microclimate in the tree that the caterpillars cannot tolerate, or it may present a physical barrier to the caterpillar.

Ivy has no or limited impact on other butterfly species, according to the results of the LIFE project.

In pest-prone locations (a substantial proportion of oaks, especially pedunculate oaks, in the total tree population) it is therefore advantageous to leave existing ivy standing.

The safety aspect – the presence of loose branches hidden by the ivy – must be respected.



5.1.3. Conversion of tree population

Pedunculate oaks, the main host plant for the oak processionary, play a vital role in our ecosystem. They are a food source for approximately 150 species of moths, several butterflies, and many other insect species, which in turn attract birds and bats. This is reason enough to preserve oak trees as much as possible.

On the other hand, it is where the butterfly lays its eggs and the main food source for the caterpillars. Without oak trees, there would be no oak processionary.

In natural conditions, particularly in our region's birch-oak and beech-oak forests, oak processionary rarely pose a problem. The risk of nuisance occurs primarily in monotonous oak avenues and plantations. By increasing the diversity of the tree population, the risk of pests is reduced and a more robust and balanced ecosystem is created.

Diversity is also essential for the management and planning of the municipality's tree population. A stable street tree population is defined as a low probability of a decline in the number of functional trees that would significantly disrupt management, for example, in the event of a pest outbreak. In the event of a deadly disease or pest outbreak, swift action is required, such as felling or treating affected trees. This often leads to unexpected changes in budget and personnel allocation. By limiting the use of the same species, the risk of significant disruption to regular management in the event of an outbreak is reduced. Therefore, the frequent use of a single species (or even a genus or family) within a municipality or neighbourhood should be avoided as much as possible (Joos, 2014).

The following rule of thumb is recommended for evaluating tree diversity within the municipal tree population (Santamour, 1990):

General rule		
Max 5%	Trees of the same cultivated variety	Ex. Quercus robur 'Concordia' (Golden Oak)
Max 10%	Trees of the same species	Pedunculate oak (Quercus robur)
Max. 20%	Trees of the same genus	Oak genus (Quercus)
Max. 30%	Trees of the same family	Fagaceae family – oaks (Quercus), chestnuts (Castanea), beeches (Fagus)

Transforming the municipal tree population isn't something that can be achieved immediately and is also very expensive. Where replacements are needed, for example, due to roadworks or neighbourhood renovations, the 5-10-20-30 rule can be implemented.

However, diversification shouldn't be a goal in itself. The selection process should also consider the characteristics of the site, its adaptability (climate), and the suitability of a particular species for use in an urban environment. Some sites simply require species that have already proven their suitability. Biodiversity and heritage value can also influence the choice of tree species.

5.2. Stimulate predation and parasitisation

	Method	Period	Goal	Impact	Other benefits	Disadvantages/ points of interest
Birds	Offering nesting boxes	April/ May	Increase predation pressure	Important	Awareness Educational aspect	Workload



Bats	Offering nesting boxes	July/ August	Increase predation pressure	Not investigated	Awareness Educational aspect Biodiversity	Workload
Ichneumon wasps and flies	Adjusted roadside management	Year-round	Increase parasitisation rate	Limited	Biodiversity	Not effective at low pest pressure
	Leaving nests hanging	June	Increase parasitisation rate	Expect positive	Biodiversity	Health risk
	Storing nests in parasite boxes	June	Increase parasitisation rate	Not investigated	Awareness Educational aspect Biodiversity	Workload
Predatory beetles	Monitoring	April/ June	Increase predation pressure	Limited	Awareness Educational aspect Biodiversity	

5.2.1. Birds

As opportunists, great tits and blue tits certainly impact the population size of oak processionary under high pest pressure, as the research in the LIFE Project Oak Processionary has shown. At sites with nest boxes, OPC nests become smaller more quickly—about 40% faster each year. The conclusion from this research was that providing nest boxes for great and Eurasian blue tit greatly helps to reduce the OPC populations at an infested site.

The chicks only eat caterpillars up to and including the third larval stage (especially in April-May). The developmental cycles of the caterpillars and chicks are not synchronized every year, so the impact is not the same each year.

Under low pest pressure, birds will focus on other caterpillars, and the impact on oak processionary caterpillars is more limited.

Under ideal conditions – with sufficiently old trees with cavities and a plentiful food supply – great and blue tits will already be present in the area. This is rarely the case with lane trees. In areas prone to pests, such as those with many pedunculate oaks, installing nest boxes will generally provide additional opportunities. Nest boxes can also be beneficial for raising awareness and educating birds. When installing nest boxes, maintain a distance of at least 15 meters between them – tits are territorial birds.

Nest boxes require annual maintenance and regular replacement, which requires a certain amount of work.

Nest boxes need to be maintained annually and replaced regularly, which requires a certain amount of work.

On the [LIFE Oak Processionary project website](#), you can find a construction plan and detailed instructions for hanging tit nest boxes, along with several instructional videos.

5.2.2. Bats

Several bat species have specialized in catching large moths. However, the impact of this on the population size of oak processionary has not yet been studied.



In the absence of sufficient natural shelter, some bats can be attracted by hanging special bat boxes. Regardless of the presence of oak processionary, this will have added value for biodiversity, and the educational and awareness-raising aspects are also important. On the other hand, species such as the brown long-eared bat and the common noctule bat are mainly found in places where there are already sufficient trees with hollows, and rarely in residential areas where the nuisance of oak processionary is a problem.

Bat nest boxes also require annual maintenance and regular replacement.

5.2.3. Parasitic wasps and flies

The results of the LIFE Project Oak Processionary show that the proportion of caterpillars in a nest killed by parasitic flies and wasps is significant – on average, 70% of all caterpillars in a nest are parasitized and therefore never develop into moths.

The project also demonstrated that under high pest pressure, this proportion can even rise to 90% in species-rich, flower-rich, and nectar-rich roadside verges. Adapted roadside management aimed at the development of structure-rich and species-rich verges can therefore significantly contribute to reducing pest pressure, especially when in locations which are very susceptible to the oak processionary.

At the request of the project, a study is underway at the Meise Botanical Garden using DNA analysis to determine the presence of plant material on the mouthparts of parasitic flies. We hope this will provide more insight into the parasitic flies' preference for certain flower species.

The Dutch 'Leidraad Beheersing Eikenprocessierups' states that the easiest way to attract natural enemies is to leave caterpillar nests in places where they pose no risk. This also ensures that the natural enemies of the oak processionary moth are retained, and there is an opportunity to maintain a population of natural enemies.

A method of preserving parasites with fewer health risks is storing removed nests in parasite boxes. Natural enemies survive in these boxes and hatch in the spring. However, the moths cannot leave the boxes, reducing the risk of health problems. The boxes are filled with removed nests in June and remain in place until the spring or autumn of the following year.

This method also requires an annual activity to fill and clean the boxes for the following season. Protective clothing must be worn during this activity.

5.2.4. Predatory beetles

Since the 1970s, the question has been asked whether it is possible to use predatory beetles against oak processionary infestations, both in the Netherlands and Germany.

In countries like Türkiye, the forest caterpillar hunter is widely bred and used to control pine processionary caterpillar infestations. This beetle is common in areas where both the oak processionary and the pine processionary caterpillars occur. Research shows that beetles from Turkish regions with high oak processionary populations can also be effective in Flanders, as they also feed on the caterpillars there.

DNA research is currently underway to determine the genetic differences between the beetles from Flanders and those from other parts of Europe. The results of this research will determine whether we can reintroduce forest caterpillar hunters from elsewhere to Belgium in the future.



The LIFE project demonstrated that it is possible to rear the forest caterpillar hunter from adult beetles—via eggs, larvae, and pupae—to a next generation of beetles under laboratory conditions in Flanders. This was a first for Western Europe.

The entire cycle takes only about 40 days, which is amazingly fast for a beetle and offers great opportunities. For example, the beetles emerge from the ground in the spring and immediately begin searching for food and a mate. Once they have found both, eggs are laid, which hatch after just four days. The larvae are highly active hunters from birth and consume several small caterpillars daily. Therefore, eviction could occur as early as a month during the larval stage.

Under ideal conditions, this research will continue, in collaboration with neighbouring countries where the beetle is more common. By bringing several beetles together in the laboratory, egg rearing can begin. The necessary expertise is now available to produce a larger number of animals, which can be quickly released during outbreaks. This can be done in areas with high infestation pressure from both the oak processionary moth (EPR) and the pine processionary moth (DPR). However, before we can consider commercialization, there are still several significant hurdles to overcome. A key point to consider is that local processionary pest pressure fluctuates from year to year, making small-scale commercialization challenging.

While we wait for a similar breeding program in the Benelux or neighbouring countries, disseminating information about this species can help raise awareness of natural ways to control oak processionary infestations.



6. Communication

This part of the guideline discusses internal communication (for your own organization), external communication, planning and the channels to be used.

Internal communications should be aimed at preparing your own organization and employees for the upcoming caterpillar season, so that inconvenience to residents is kept to a minimum.

External communication involves informing citizens, passersby, and visitors about the possible presence of the oak processionary, the chosen approach, the risk zoning, and the measures to be implemented. It's important to first determine the communication's purpose and target audiences: what impact should the communication have, and who is it intended for? To prevent employees from receiving the wrong signals through the press, involve the internal organization in this decision-making process.

The most direct form of communication is citizen reports. Reports are often the first sign of a high pest pressure, whether anticipated or not, and are therefore best followed up promptly.

Oak processionary nuisance has a "nuisance season," but managing the problem requires a year-round approach, even though most communication will take place between April and September, when the oak processionary is active. Establish a communication calendar in advance and incorporate it into your management plan.

In your communications, utilize available communication channels as much as possible and use information available at the provincial, regional, or national level. Link this to current events, such as when the first eggs hatch or the first nests are observed.

6.1. Internal communication

Proactively involve your own organization and employees at the policy and executive levels in controlling the oak processionary. They must be aware of the social and ecological interests, the organization's policies, and who has what responsibilities.

The management plan is a valuable tool in this regard. Work instructions or working agreements regarding specific aspects, such as handling reports, can provide support.

The category of employees will determine who needs what information and who should be consulted:

- The board;
- The internal services including employees of complaints handling, information and communication department;
- The field services, in-house supervisors, hired contractors.

The following table summarizes which category of employees should be consulted to obtain the information (R), and which should then be informed of the results (I).

Target audience	Management	Internal services	Field services etc.
Type of information			
General EPR course – recognition, biology, ...		I*	I*
Anticipated monitoring	I	I	I
Risk analysis & zoning	R	I	R
Contents of management plan	R	R	R



Work instructions	I	I	R
Tackling EPR on private property	R	I	I
Design and content of external communication	I	I	I
Handling reports	I	R	R
Health risks, prevention and treatment			I
Use personal protective equipment (PPE)	I		R/I
Knowledge of pest control techniques	I		R/I
Evaluation of the management plan and resources deployed	R	R	R
Damage claims/liabilities	R	I	I

R: Consult / I: Inform

*: new employees

Employees who encounter oak processionary for the first time in their work need proper training. This can be achieved, for example, by taking a course for operational staff.

Internal communication begins after the risk analysis, zoning, and development of the management plan in December and continues until the plan's evaluation in the fall. The busiest period for internal communication is spring.

6.2. External communication

Timely and clear external communication is important, especially when high pest pressure is expected. Determine the purpose and target groups of your communication in advance.-What effect should the communication have and who is it intended for?

Depending on your choice and the expected pest pressure, it's best to communicate proactively or reactively. An initiative-taking approach can address concerns early on when the expected pest pressure is high and allows questions to be answered efficiently through pre-written messages, brochures, and similar materials. For example, when the pest pressure is low or in an area with few sensitive zones, a more reactive approach to visitors might be the better option.

If high or moderate infestation pressure is expected, at least inform residents about the possible presence of the oak processionary, the chosen approach, the risk zoning, and the measures to be implemented. Also, make it clear where nests will and will not be controlled. Make them aware of the health risks and how to avoid contact with stinging hairs. This reduces the burden on general practitioners and other healthcare institutions.

A press release should be informative, current, and relevant to the area. Don't include too much information in a single message. When actions are separated in time, such as preventive and curative control, it's better to send separate press releases for each event.

Specific target groups at higher risk can be informed separately about measures to take if they do encounter the stinging hairs. This can help prevent more serious symptoms.

The target group will determine who needs what information:

- Residents
- Passers-by and visitors to sensitive areas



- Specific target groups with a higher risk profile:
 - Youth and nature movements
 - Walking and cycling clubs.
 - Horse riding and fishing associations
 - Farmers, foresters
 - Schools and daycare centers
 - Event organizers (e.g. walking and cycling tours)
 - Operators of recreational facilities (campsites, etc.)
 - Local nature and environmental conservation organizations
- Citizens reporting nests.
- General practitioners and healthcare institutions are generally instructed by higher authorities.

Target audience	Residents	Passers-by/visitors	Other target groups	Reporters
Type of information				
EPR Recognition				
Raising awareness of the issue				
Anticipated monitoring				
Risk analysis & zoning				
Contents of management plan				
Tackling EPR on private property				
Option complaints reporting system				
Handling reports				
Health risks, prevention and treatment				
Stimulate natural pest suppression				
Evaluation of the management plan and resources deployed				
Damage claims/liabilities				

R: Consult / I: Inform

When communicating, utilize available communication channels as much as possible and use information available at the provincial, regional, or national level. Link this to current events, such as when the first eggs hatch or the first nests are observed.

6.3. Complaints reporting system.

Provide residents with the option to report caterpillar nests online or by phone. When reporting by phone, ask about the nature of the sighting (number of nests, size of the nests, location in/near the tree, address/location) or any complaints.

When reporting online, these aspects must be clearly stated so that a report/complaint is recorded with sufficient specificity. Ask for photos of the caterpillars or nests to be added so the sighting can be verified. Provide tips on recognizing oak processionary via the website to minimize the number of false reports.



Oak processionary complaints form

Information about the complainant:

Mr./Mrs.: *Klik of tik om tekst in te voeren.*

Email address: *Klik of tik om tekst in te voeren.*

Telephone.: *Klik of tik om tekst in te voeren.*

Address: *Klik of tik om tekst in te voeren.*

Date of notification: *Klik of tik om tekst in te voeren.*

Nature of the complaint: *-> tick the correct choice and fill in the italicized information*

Nest of oak processionary caterpillars: *Klik of tik om tekst in te voeren.*

Nuisance from pest control services: *Klik of tik om tekst in te voeren.*

Health complaints: *Klik of tik om tekst in te voeren.*

Old or blown out nests or nest remnants: *Klik of tik om tekst in te voeren.*

Other complaint: *Klik of tik om tekst in te voeren.*

Location: *Klik of tik om tekst in te voeren.*

(Internal: Handling process: *Klik of tik om tekst in te voeren.*)

Note to the complainant: If possible, please add photos of the caterpillars and/or nests so that the sighting can be verified. Check out our website for tips on how to recognize the oak processionary caterpillar.

Figure 26: Example of an Oak Processionary complaints form.

Regardless of the channel, reports must be registered uniformly. When recording data from private individuals, this must be done in accordance with the requirements of privacy legislation (General Data Protection Regulation or GDPR). The completed form must then be forwarded to the internal contact person for oak processionary, who will assess whether the report is of sufficient priority to be verified by having the location inspected on-site. The findings (considerations based on the decision matrix and the company's own policy choices, inspection, and whether control is warranted) are then reported back on the complaint registration form and subsequently to the reporter, even if a report does not lead to action.

Ideally, reports should be displayed on a digital map accessible to site managers. This ensures that nuisance reports are quickly resolved and feedback is provided promptly. To avoid duplicate reports, these distribution maps, including information on measures taken, can be displayed on the website for residents' information. This map of affected trees also serves as a baseline map for the next EPR season, as female oak processionary moths lay most of their eggs on their natal trees or in the immediate vicinity.

During periods of high pest pressure, the number of reports can increase rapidly, so when handling reports, designate a separate category for the oak processionary. Scale up promptly if nuisance is reported elsewhere in the area.

However, verified reports usually do not provide sufficient insight into the actual pest pressure, so self-monitoring is necessary.

Reports are expected as soon as the nests form – from May through July. After that, it's likely to be abandoned nests, but even those likely still contain stinging hairs.

A template for a complaints form is included in the appendices.



6.4. Communication planning

Plan your external communication throughout the year. Determine when it's useful for your own management organization to communicate. In years with a high (expected) oak processionary population, different choices may be made than in years with a low pest pressure.

The designated communication moments and topics are:

Period	Cause	Communication	Target groups	Channels/ Resources
January-March	Start of caterpillar season	Contents of management plan Expected pest pressure. Work instructions	Internal employees	Internal channels
End of March/beginning of April	Start spraying	Press release: The oak processionary hatch from their eggs. Possible sprayings.	Residents Specific target groups	Website Newsletter Local press Local broadcaster Social media Information boards Warning tapes Public brochures Consultation moments
End of May/beginning of June	Opening the reporting system. Start vacuuming	Press release: The first oak processionary stinging hairs and nests have appeared. Start vacuuming. Preventing the build-up of stinging hairs Making reports	Residents Reporters	Website Newsletter Local press Local broadcaster Social media Reporting system
Mid-June		Peak nuisance season warning. Be extra vigilant for the next 4 weeks.	Residents Visitors/passers-by	Website Newsletter Local press Local broadcaster Public brochures Information boards Warning tapes
Early August	Placing pheromone traps/light traps	Butterflies fly out and the presence of light or pheromone traps. End of peak nuisance season	Residents	Website
October	Evaluation of the EPR management plan	Press release: Development of the number of nests Light/pheromone trap results Results complaints reporting system	Residents Reporters	Website Newsletter Local press
October	Evaluation of the EPR management plan	Evaluation + adjustments to management plan Cost analysis	Internal employees	Internal channels



		Expectations & planning for next year Words of thanks		
November/December	Preparation of an EPR management plan	Press release: Prediction of pest pressure next year. Highlights management plan Participation	Residents	Website Newsletter Local press
Ad hoc	During a summer storm when there are (fresh) nests in the trees	Warning: blown out (old) EPR nests	Residents Visitors/passers-by	Website Local press Local broadcaster Warning tapes
All year round		Awareness-raising: increasing local biodiversity in roadsides and parks (municipality) and in gardens (citizens themselves)	Residents	Website Newsletter Local press

In the management plan you can determine a communication calendar specific to your organization.

6.5. Communication channels

There are several channels for disseminating your information to the public and specific target groups, or for requesting information. Depending on the target group, the most suitable are:

Target audience Information channel	Residents	Passers-by/visitors	Other target groups	Reporters
Own website	I			I
Reporting system	I/R			I
Newsletters	I		I	I
Door-to-door leaflets	I			
Local/regional broadcaster	I		I	
Social media	I		I	
Public brochures	I	I		I
Information boards at the entrance to the site	I	I		I
Warning tapes on colonized trees		I		
Neighbourhood consultation, village council, information meetings	I/R			I
Consultation moments			I/R	

R: Consult / I: Inform

In the management plan you can indicate which channels your organization will use and for which purpose.

This communication may refer to:

- The website of the LIFE Oak processionary project: [LIFE Oak Processionary Project](#)
- Ecopedia: [Ecopedia - Eikenprocessierups](#)
- Provincial/regional websites about the EPR:
 - ANB: [ANB – Schade en overlast-door-insecten](#)



- L'Observatoire Wallon de la Santé des Forêts (OWSF) : [OWSF – Processionnaire du chêne](#)
- Vlaams Instituut Gezond Leven: [Vlaams Instituut Gezond Leven - Eikenprocessierups](#)
- Provincie Antwerpen: [Provincie Antwerpen - Eikenprocessierups](#)
- Provincie Limburg: [Provincie Limburg/ Provinciaal Natuurcentrum - Eikenprocessierups](#)
- Provincie Oost-Vlaanderen: [Provincie Oost-Vlaanderen/Provinciaal Centrum voor Milieuonderzoek - Plaagsoorten](#)



7. Monitoring

Good monitoring is an important first step in determining the expected pest pressure and planning management measures.

By monitoring we mean:

- Monitoring the oak processionary populations and their development: the time of emergence of the caterpillars, the number of nests and the number of butterflies;
- Monitoring of the management measures implemented and their effect;
- Monitoring of health complaints.

Not all these forms of monitoring need to be done locally, but it is best to take the results of monitoring at a higher level (province/region/etc.) into account when preparing for the following year's planned management.

7.1. Monitoring nests

The most direct method for gaining insight into pest pressure in a specific region is monitoring oak processionary moth nests in oak trees. This monitoring is preferably done locally, as pest pressure can vary regionally.

These nests are formed from the fourth larval stage onwards, around late May/early June. Both the number of nests per tree and their size are important when monitoring them. The size indicates the number of caterpillars present. The more caterpillars, the more stinging hairs and pest pressure.

Oak processionary prefer pedunculate oaks in sunny locations—especially avenue trees—but under high pest pressure, they also colonize other locations and other oak species. Under these circumstances, it's best to expand monitoring to other species and locations.

A disadvantage is that this type of monitoring can only take place in late May/early June, meaning a definitive assessment of the expected disruption can only be made in early June. This means that only the curative treatment schedule can be adjusted for the current year.

Another disadvantage is that this method does not consider weather conditions during the butterflies' flight period, so it is best supplemented with additional monitoring using light or pheromone traps.

It's important that this monitoring contributes to the risk analysis for the following season, so that budgets and measures can be provided in a timely manner. Sharing monitoring data with surrounding municipalities or making agreements to centralize this monitoring is a good opportunity to organize better coordination in oak processionary moth management between municipalities in the region.

An addition/alternative to this monitoring is the use of a local complaints reporting system for citizens (see 6.3 'Complaints reporting'), and/or following up observations on citizen science platforms such as Waarnemingen.be.

7.1.1. Determining pest pressure by monitoring nests

The average number of nests per tree in the previous year is a useful indicator of the expected pest pressure the following year. If this inventory is too complex, the proportion of affected oaks in the total oak population can provide a reasonable prediction.



Inventorying caterpillar nests is quite simple and can be done by both the inspector and the pest controller. Select one or more locations in your area where several oak trees are present, such as an avenue or a neighbourhood with oak trees. The map of sensitive zones (see Chapter 3.2.1.2 'Pest sensitivity of the environment') can be helpful. Randomly select at least 10 trees per location to inspect. On the ground, record the number of trees with and without nests, and the number of nests per size category.

The larger the nest, the more caterpillars it contains, and this is largely dependent on the nest's volume. For this exercise, it's sufficient to distinguish three different sizes: tennis ball, soccer ball, or blanket. Of course, there are intermediate sizes, but counting the number of nests per tree in each category provides a good indication of the expected pest pressure. To adjust for the varied sizes, all nests are recalculated to the size of a tennis ball, according to the table below, where, for example, 1 soccer ball = 5 tennis balls.

Format	Diameter (cm)	Equivalent to # nests
Ping pong ball	3	1
Golf ball	4	1
Tennis ball	7	1
Handball	15	5
Football	20	5
Small blanket	30	5
Basketball	40	10
Large blanket	100	10

The figure below visually compares the sizes.



Figure 1: Comparative sizes of oak processionary nests in analogy with ball sizes.

A blanket is a nest that isn't spherical but draped over the trunk like a downy blanket. Depending on the diameter, a distinction is made between a small and a large blanket.

In the attached inspection report you can record this data digitally, and the pest pressure for that location is immediately determined.



Inspection Report		Input	Dropdown list				Comments
Municipality							
Location (street, neighborhood)							
Responsible							
Date (dd-mm-yyyy)							
Caterpillars present? (choice)			<input type="checkbox"/> Caterpillars present	<input type="checkbox"/> No caterpillars present	<input type="checkbox"/> Uncertain		
Total number of nests per size:	Tennisball or smaller						Expected pest pressure based on the number of nests per tree:
	Soccer ball/ small blanket						
	Basketball/ large blanket						
Number of trees:	With nests						Expected pest pressure based on the number of colonized trees:
	Without nests						
Accessibility nests (choice)			<input type="checkbox"/> Can be reached from the ground	<input type="checkbox"/> Can be reached with ladder	<input type="checkbox"/> Accessible with aerial platform	<input type="checkbox"/> Spread throughout the tree	
Priority treatment (choice)			<input type="checkbox"/> Urgent	<input type="checkbox"/> Normal	<input type="checkbox"/> Low	<input type="checkbox"/> Not	
Treatment status (choice)			<input type="checkbox"/> Inspected	<input type="checkbox"/> Treated	<input type="checkbox"/> Partly treated		
Bijzonderheden							

Figure 2: Example of an inspection report (based on the appendices to the Dutch 'Leidraad Beheersing Eikenprocessierups')
A template for an inspection report is included in the appendices.

7.2. Monitoring butterflies

The second indicator of the intensity of the expected pest pressure at a particular location is the number of butterflies that emerged in the summer of the previous year. The weather conditions during the butterflies' flight period determine the success of oviposition.

To count the number of adult moths, light traps or pheromone traps can be used.

This type of monitoring usually takes place at the national and/or provincial level, with information disseminated through newsletters and/or websites. However, local municipal monitoring may differ. To better assess the expected pest pressure within your own management area, light traps or pheromone traps can be placed locally. They are particularly valuable for long-term use, allowing trends and developments to be identified over time.

The results of both light traps and pheromone traps are generally available at the end of the flying season. An initial estimate of the potential pest pressure for the coming year can therefore be available by the end of September. These results are indicative, but winter weather conditions, the presence of parasites and predators, and any preventative biocide treatment also play a role.



7.2.1. Pheromone traps



Figure 27: Pheromone trap. Author: Province of Antwerp

A reliable method for counting butterflies, in this case the males, is using pheromone traps. This method is mainly used in the Netherlands.

Pheromone traps attract males with species-specific scents produced by female moths. The number of males caught in a trap provides a good indication of the number of fledged moths in the immediate vicinity, which is a 1000-meter radius around the trap. The traps are species-specific, so no specific knowledge is required to use this method.

Pheromone traps are hung just before the moths start to fly, usually around the third week of July, and are used until September (or longer in severe weather).

According to the Dutch 'Leidraad Beheersing Eikenprocessierups', the average number of moths per pheromone trap can be used as an indicator of the expected pest pressure in the following year (see 7.2.1 'Pheromone traps'), but this is highly dependent on the location and the number of traps used.

7.2.2. Light traps



Figure 28: Light trap. Source: Film 'A Community of Life' Author: Rik van der Linden, Firma Film

In Belgium, light traps are primarily used to survey and monitor moths. These are artificial light sources with high UV radiation, which also attract oak processionary moths. Because light traps can capture dozens of species under good conditions, this method is reserved for specialists.

In Flanders, Natuurpunt's Moth Monitoring Network is particularly active. You can follow the monitoring results via Waarnemingen.be (see Waarnemingen.be - Eikenprocessierups).

In Wallonia, the sister organization Natagora actively surveys butterflies. The results can also be found on Waarneming.be.

It is at this moment unclear how the number of moths per light trap can be used as an indicator of expected pest pressure, as is done for pheromone traps. Further research is needed. For now, we must therefore look at trends – an increasing number of observations is an indication of higher pest pressure in the coming caterpillar season.

7.3. Monitoring caterpillar emergence and leaf development

The third important moment in the annual cycle of the oak processionary is when the caterpillars hatch from the egg. This usually happens around the same time as the oak leaves unfold, but often young caterpillars, just hatched from eggs, wait at the buds for the leaf emergence. As soon as the oak buds swell and burst, food becomes available for the caterpillars, and they begin developing.

In the Netherlands, this monitoring is conducted by the Oak Processionary Moth Knowledge Centre. Egg packets from various areas in the Netherlands are brought to the two oak processionary moth



testing stations. The hatching date is announced annually in a nature report on www.naturetoday.com. This information is also shared via the Processionary Moth Knowledge Platform at www.processierups.nu and in the newsletter.

In Flanders, this monitoring is conducted by the provinces of Antwerp and Limburg. The results are disseminated through their respective newsletters and websites.

These events largely determine the timing of further management measures, particularly those for preventative measures. For bacterial spraying to be effective, a tree must have approximately 40-50% leaf development. If there is less leaf development, too many later-developing leaves remain untreated. The calendar in the management plan is based on the hatching date of the eggs.

7.4. Monitoring management measures

To accurately determine the pest pressure for the current year and estimate that of the following year, it is important to carefully monitor and record the management measures taken. This includes any preventative measures taken (spraying with bacterial preparations) and the removal of nests by vacuum.

For preventative measures, a spray report, prepared by the operator for each spraying location and treatment, can be helpful. Request that the spray report be prepared as frequently as possible to reflect changes in weather conditions that could impact the effectiveness of the applied product.

Spray Report	Input	Dropdown list				Comments
Municipality						
Location (street, neighbourhood)						
Responsible						
Date (dd-mm-yyyy)						
Time from (hh:mm)						
Time to (hh:mm)						
Product						
Set mist spray (l/hour)						
Travel speed (n,n km/h)						
Number of trees sprayed						
Amount of product used (l or kg)		<input type="checkbox"/> liters	<input type="checkbox"/> kg			
Spray round		<input type="checkbox"/> 1st treatment	<input type="checkbox"/> 2nd treatment			
Outside temperature (choice)		<input type="checkbox"/> 0 - 4°C	<input type="checkbox"/> 4 - 6°C	<input type="checkbox"/> 6 - 15°C	<input type="checkbox"/> > 15°C	
Wind force (choice)		<input type="checkbox"/> calm	<input type="checkbox"/> 1 - 3 Bft	<input type="checkbox"/> 3 - 6 Bft	<input type="checkbox"/> > 6 Bft	
Humidity (choice)		<input type="checkbox"/> Dry (to 12 h after treatment)	<input type="checkbox"/> Dry, rain expected + 12 h after treatment	<input type="checkbox"/> Leaves moist	<input type="checkbox"/> Rain	
Details						

Figure 3: Example of a spray report (based on the appendices to the Dutch 'Leidraad Beheersing Eikenprocessierups')

A template for a spray report is included in the appendices.

In Flanders, when using biocides, it is mandatory to report how much of the product was used (see 9.2.1 'Biocides or crop protection products').

For curative measures, you need to record the number and size of removed nests per tree, as well as the number of trees without nests. It's also important to record whether the nests were removed while active caterpillars were still present. If the caterpillars are still active, the treatment still has a preventative effect on pest pressure for the following year. If there are no longer any active caterpillars, the moths may have already fledged, and the only effective measure is to remove the nest



containing the stinging hairs. This monitoring can be conducted by either the inspector or the contractor.

Report Curative Treatment	Input	Dropdown list				Comments
Municipality						
Location (street, neighbourhood)						
Responsible						
Date (dd-mm-yyyy)						
Time from (hh:mm)						
Time to (hh:mm)						
Method (choice)		<input type="checkbox"/> Vacuuming	<input type="checkbox"/> Manual removal	<input type="checkbox"/> Vacuuming and manual removal	<input type="checkbox"/> Other	
Number of trees with nests						
Number of nests removed						
Number of trees without nests						
Active caterpillars present? (choice)		<input type="checkbox"/> Active caterpillars present	<input type="checkbox"/> No active caterpillars present	<input type="checkbox"/> Uncertain		
Details						

Figure 4: Example of a report for a curative treatment (based on the appendices to the Dutch Guideline for Oak Processionary Moth Control)

A template for a curative action report is included in the appendices.

7.5. Monitoring health complaints

The main objective for oak processionary management is to limit its impact on human health. Especially under high infestation pressure, in intensively used, pest-prone locations, these consequences can be not only significant for individuals but even impact the workload of general practitioners and emergency services. The societal impact can therefore extend beyond just health. Monitoring the health effects related to caterpillar infestations is especially important in such circumstances.

In Flanders, information on the incidence and prevalence of diseases is collected by Intego in collaboration with KU Leuven. Intego is a Flemish general practitioner registration network comprising approximately 500 general practitioners across Flanders. The data is available to researchers, policymakers, master's students, and anyone who believes it could be useful. Thanks to Intego, disease trends in general practice can be mapped.

The Intego data were used by the project to monitor health problems related to oak processionary.



8. Safety of employees and bystanders

Occupational safety concerns the working conditions of employees involved in the implementation of control measures.

Other field workers who may encounter the oak processionary, such as green services, cable maintenance contractors, sewer maintenance workers, farmers, and postal workers, are also at risk. It is important to inform these groups as well so they can respond appropriately.

A third group consists of residents, passers-by and bystanders who must be warned during work activities so that they do not encounter blowing stinging hairs or spray mist.

This section shows which measures should be taken for each of these target groups.

8.1. Material

8.1.1. Industrial vacuuming of nests

The tractor must be equipped with a pressurised cabin with carbon filters to prevent any stinging hairs from entering.

8.1.2. Spraying with bacterial preparation

A tractor with a pressurized cab and carbon filters is also used for spraying, preventing spray fluid from entering. The boom sprayer must be equipped with an electric fluid shutoff valve that immediately shuts off the spray fluid supply when passersby pass. Ideally, a camera will alert passersby early on and shut off the spray fluid supply in a timely manner.

8.2. Personal protective equipment (PPE)

Anyone professionally dealing with oak processionary and their stinging hairs (green services, contractors, firefighters, and road, avenue tree, and verge maintenance services) must have access to the necessary Personal Protective Equipment (PPE). Include these requirements in the specifications for the project and have supervisors randomly monitor its use.

8.2.1. Industrial vacuuming of nests

The operator removing nests on or near the equipment or aerial platform, and all those involved in the waste processing flow, must be fully protected against the stinging hairs.

See below for a complete overview.

PPE	Specification	Description	Additional
*Positive pressure mask or hood	NEN-EN 146 EN12941 +A2	A minimum full-face mask or full hood with a collar that extends over the shoulder. Always in combination with a hose and air supply unit.	EN397 helmet EN166 eye/face protection EN352-3 Hearing protection
*Blow unit overpressure mask	NEN-EN 146 EN12941 + A2 Minimum flow 120ltr/min	Motor-driven air supply with electronic flow control and warning. Usually, battery powered.	Possibly equipped with pre-filter(s)
*Air hose	EN12941 Rubber/HDP	Connection between mask and blower unit. The	



		composition must meet the following requirements: EU Directive 2016/425 PPE directive 89/686/EEC	
*Breathing filters	NEN-EN 143 EN12941/EN12942 P3 fine dust filter HR (high efficiency) ODHR + organic vapours	Filters: number and specification depend on the manufacturer. Composition must comply with: EU Directive 2016/425 PPE directive 89/686/EEC	Pre-filters: Coarse filter; stainless steel mesh Hepa
Disposable overalls	EN ISO 13982-1 + A1 type 5 EN ISO 13034 + A1 Type 6	Disposable clothing: Body protection against fabric particles with hood, zipper and elastic in sleeves and trouser legs	Adhesive strips over the zipper
Gloves:			
Overglove	EN 388/EN ISO 374-1 /EN ISO 374-5	Thick PVC liquid seal Nitrile liquid tight	Gloves with long shaft
Underglove	EN 388 cat 1	Cotton glove for comfort and extra protection during the undressing procedure	
Underglove	EN 455/ EN ISO 374-1 EN ISO 374-2	Nitrile glove against chemical risks and micro-bacterial risks	
Footwear/boots	EN 345 Class S4 or higher	Waterproof protective footwear with sufficient grip	

8.2.2. Spraying with bacterial preparation

In humans and animals, the Bt preparation can cause sensitization reactions and even skin and eye irritation. The worker conducting the application must be fully protected against the chemicals.

PPE	Specification	Description	Additional
Disposable overalls	EN14605 Spray-tight connection Type 4	Protective clothing against chemicals	E.g. Tychem 6000 F Tychem F coverall type 3 to 6
Half or full-face mask	EN 149: 2001+A1: 2009	At least half mask type FFP2 or FFP3 (class 2)	
Gloves	EN 374-1: 2003	Nitrile glove against chemical risks and micro-bacterial risks	
Safety glasses		Plastic chemical safety goggles	
Footwear/boots		Waterproof protective footwear,	

The bacterial preparation is generally used before the caterpillars develop stinging hairs. However, there may still be an old nest present in the trees, which could fall under the pressure of the spray.

8.2.3. PBM Procedure

This is the ideal procedure, allowing for the change of suit, face mask, and gloves. This is a guideline, and in practice, deviations may be necessary.



8.2.4. Dressing procedure

- a. Putting on 1st pair of nitrile gloves
- b. Put on a protective suit, type Tyvek, but do not put on the hood yet!
- c. Putting on boots
- d. Pull the suit over your boots.
- e. Putting on a full-face mask or half-face mask and safety glasses
- f. Put on sturdy gloves.
- g. Putting on hood
- h. Connecting the filter when using a full-face mask

8.2.5. Undressing procedure

- a. Step into the garbage bag.
- b. Removing work gloves
- c. Taking off the hood
- d. Open package
- e. Taking off the suit and boots without touching the inside of the suit
- f. Removing the face mask and safety glasses (or full-face mask)
- g. Taking boots out of the garbage bag
- h. Removing the nitrile gloves
- i. Tying the garbage bag

8.3. Training

The following rules apply to Flanders:

- Anyone conducting spraying work with Bt must have a P1 Phyto licence.
- The person in the organization responsible for business operations (including purchasing, storage, application, information and advice on the pesticide) requires a P3 Phyto license.
- More information about these licenses can be found on the [Opleidingsdatabank Vlaamse opleidingsincentives](#)

8.4. Bystander safety

- Communicate your planned work to residents in a timely manner. Use your website, local press, and social media to do so.
- Clearly indicate on the tractor that work is being done to combat oak processionary.
- Stop work if passersby get too close. When using the bacterial preparation, avoid contact between passersby and the mist cloud, and when vacuuming, avoid contact with any blown hairs.
- When using biocides or nematodes, the zone must not be entered by the public or by unprotected workers during spraying or during the drying period.



9. Legal framework

This chapter describes the legal aspects, such as liability regulations, permitted pesticides and applicable nature legislation.

9.1. Liability for health damage

In Belgian law, civil liability is defined as the ability to hold a person accountable for their conduct. A distinction is made between contractual and non-contractual liability.

9.1.1. Contractual liability/Law of obligations

In Belgium, contractual liability is governed by Book 5 of the Civil Code (CC) (previously Articles 1134 to 1155 of the CC), also known as the Law of Obligations.

Contractual liability only applies when there is a contractual error that gives rise to damage or in the event of a breach of contract that is not explicitly binding under the agreement.

This may apply, for example, to short- or long-term leases of land, the rental of camping pitches or holiday homes, and the operation of a catering business with a terrace. Users should be able to expect that the offered property is not less usable due to nuisance caused by oak processionary.

A landowner who concludes agreements or specifications regarding the maintenance of green areas should include provisions regarding oak processionary if there is a risk of damage.

9.1.2. Non-contractual liability

In Belgium, non-contractual liability is governed by Book 6 of the Civil Code (BW), which entered into force on 1 January 2025 (formerly Articles 1382 to 1386 of the BW).

- Article 6.5 establishes the principle: Everyone **is liable for the damage they cause to another through their own fault**. In other words, the owner/manager of land containing oak processionary nests can be held liable for the resulting damage if it can be demonstrated that they were at fault;
- Article 6.6 states that a fault consists of 'the violation of a statutory rule that imposes or prohibits certain behaviour, or of the **general standard of care** applicable in social intercourse';
- The general standard of care requires everyone to behave in a way that corresponds to that of a "*prudent and reasonable person*" in the same circumstances; i.e., someone who acts as a responsible person who does everything necessary to prevent foreseeable harm (also known as a "good father");
- Article 6.6 stipulates that when applying this standard, the following may be considered, among other things:
 - 1° The **reasonably foreseeable consequences** of the behaviour or the absence thereof (e.g. not removing nests at the edge of a path or road, in places where many people gather, etc.)
 - 2° **The proportionality of the risk** of damage occurring, its nature and extent, **compared to the efforts** and measures needed to avoid it (e.g. leaving nests where they can reasonably cause little or no damage)
 - 3° The state of the art and scientific knowledge
 - 4° The requirements of good workmanship and good professional practices
 - 5° The principles of **good governance** and good organization;
- Articles 6.14 and 6.15 state that appointees and legal entities can also be held liable for errors committed by their executive agents (employees, directors, and appointed third parties) during the performance of their duties;



- Article 6.20 further stipulates that there must be a connection (necessary condition) between the cause and the damage, even if other causes may also be involved.

The conclusion is that regarding health complaints resulting from the presence of oak processionary:

- The owner of land on which processionary caterpillars are present can be held liable for damage suffered by residents and passers-by, even if there are other nests nearby;
- The site managers who work with oak processionary and their clients, and in the case of municipal employees the board, can be held liable for damage suffered by residents and passers-by because of these management works, even if measures have been taken to limit the nuisance;

To avoid this liability as much as possible, it is therefore important for both the owner (of municipal land and public roads) and the manager/client to take the necessary measures to prevent damage, in accordance with the rules of the general standard of care mentioned above.

Some rules of thumb can be taken from the Dutch 'Leidraad Beheersing Eikenprocessierups':

- Where the severity of the damage may be greater, such as in the case of personal injury, a higher level of care should be exercised – for example, near schools and healthcare facilities;
- If the risk of damage is greater, a higher level of care also applies, such as at events;
- If the behaviours are more dangerous, e.g. a tree climbing competition;
- As preventive measures are easy to organize in relation to the likelihood and severity of the damage, such as hanging warning signs;
- The risk of claims for damages is higher when there is an "invitation." Examples of invitations include playgrounds, schoolyards, benches and picnic tables, play areas and lawns, and swimming areas. A higher level of care is required in these cases.

9.2. Approved pesticides and methods

9.2.1. Biocides or crop protection products

In Belgium, pesticides fall under either the legislation on plant protection products (crop protection) or biocides (human protection). Products used to control oak processionary fall under the second category: biocides.

For both categories, the European agencies EFSA (European Food Safety Agency) and ECHA (European Chemicals Agency) are responsible for approving the active substances.

In Belgium responsibility for implementing and monitoring pesticide regulations is divided between the federal government and the regions. The primary responsibility lies with the Federal Public Service Health, Food Chain Safety and Environment (FOD VVVL). This service is responsible, among other things, for authorizing the placing of plant protection products and biocides on the Belgian market.

The Flemish, Brussels, and Walloon governments are each implementing their own reduction programs (broadly comparable) to prohibit pesticide use in public spaces and areas where vulnerable groups may be present. Restrictions may be imposed elsewhere.

A crop protection product or biocide may only be sold, purchased, and used in Belgium if:

- It is on the list of authorised plant protection products (www.fytoweb.be) or biocides (www.biocide.be);
- It is used for its intended purpose and the conditions of use are respected;



- The seller and/or user has the necessary approval or complies with the registration requirement (where applicable);
- There is no specific prohibition of use imposed by other legislation.

Product name	Number	Expiration date	Active substance(s)	Scope of application	End date of admission
Foray ES	BE2021-0018	30/11/2028	3.3200% Bacillus thuringiensis subsp. kurstaki, strain ABTS-351	In contaminated places in public areas (parks and public gardens, green public spaces, sports fields open to the public, school and playgrounds, cemeteries, areas around health facilities, along public roads), on private property with infected trees	30/11/2028

Table: Authorised biocides for oak processionary control ([Biocide.BE/Gestautor Public Search](https://biocide.be/GestautorPublicSearch), accessed 26-08-2025)

The application regulations can be found in the Summary of Product Characteristics (SPC): [Résumé des caractéristiques du produit pour un produit biocide/BE2021-0018 SPC](#).

In Flanders, local authorities are required to obtain prior permission from the Flemish Environment Agency (VMM) for use. This permission is processed through VMM's procedure [VMM/Procedure 3 - probleemsoort of veiligheidsprobleem](https://www.zonderisgezonder.be/pesticiden-gebruiken/afwijking-van-verbod/procedure-3-probleemsoort-of-veiligheidsprobleem) <https://www.zonderisgezonder.be/pesticiden-gebruiken/afwijking-van-verbod/procedure-3-probleemsoort-of-veiligheidsprobleem>. A form "Application for a Deviation from the Pesticide Ban via Procedure 3 - Oak processionary - *Thaumetopoea Processionea* - Danger to Public Health" must be completed. In this application, you must clearly state that other, more environmentally friendly management methods are not sufficient. More information and the steps to be taken can be found on the VMM-website "[Zonder is gezonder](#)".

When using biocides, monitoring (registration of nests and control, reporting product use to VMM) is mandatory – see chapter 7.4 'Monitoring management measures'. Municipalities in the province of Antwerp are required to indicate the locations to be controlled on the oak processionary map.

When using biocides in the vicinity of nature reserves, the precautionary principle applies – see 9.3 'Precautionary principle'.

In addition, biocides are generally prohibited for use on public service areas, in water catchment areas, and within a 6-meter zone of surface water. Specifically for Foray ES, this zone has been extended to 25 meters.

9.2.2. Pheromone traps

Pheromones used to reduce populations (mating disruption, attracting to kill, repelling, etc.) are classified as plant protection products and must be approved by the competent federal minister before they can be traded and used on the Belgian market. See the [Fytoweb/Home page](#).

Pheromone traps used for monitoring purposes are exempt from this.

9.2.3. Light traps

In Flanders, the problem of light pollution is primarily governed by environmental legislation, particularly the General Provisions Environmental Policy Decree (DABM) and its implementing decrees VLAREM II and VLAREM III. However, these do not include temporary lighting such as light traps.

The Nature Decree stipulates that anyone who interferes with wild native fauna is obliged to take all reasonable measures to prevent, limit, or, if this is not possible, restore damage.



9.2.4. Resources with a physical or mechanical action

Products that fall into the physical or mechanical action category and are intended for professional use, such as industrial vacuum cleaners or sprayers, are subject to the European REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals) (Regulation (EC) 1907/2006). They must be accompanied by a Safety Data Sheet (SDS).

In Flanders, the Department of Environment's Environmental Inspectorate is responsible for monitoring various aspects of the REACH regulation, including registration requirements, compliance with authorization requirements, and safety data sheets.

9.3. Precautionary principle

Biocides like Bt inevitably have a negative impact on butterfly species other than the oak processionary, including several protected species. Therefore, restrictions on the use of pesticides in nature reserves or in the habitats of protected species are in place in Flanders, Wallonia, and the Brussels-Capital Region. These are often summarised under the heading 'Precautionary principle in relation to unintended collateral damage to the physical environment'.

9.3.1. Flanders

The precautionary principle, as stipulated in the Nature Decree, obliges managers to avoid damage to protected species. This damage can occur to protected species on the oak, in the undergrowth, or on the ground beneath the tree.

9.3.1.1. Protected areas, Nature Decree and Species Decree

In Flanders, the Nature Decree applies to areas covered by the VEN (Flemish Ecological Network) and IVON (Integrated Interweaving and Supporting Network). Article 51 thereof prohibits the use of all non-selective means in such areas that could result in the local disappearance or serious disturbance of the peace of the populations listed in Annex III of that decree.

The Nature Decree also determines which habitats and species are legally protected under the European Natura 2000 Directive. These are listed in Annexes III and IV of the decree.

In addition, the Species Decree determines which animal and plant species are protected in Flanders (Appendix I). This decree prohibits, among other things, the intentional killing, capture, or significant disturbance of the species, or the intentional destruction of their breeding grounds. An act is considered unintentional if the person responsible for that act did not know, and could not reasonably have known, that it could have negative consequences for specimens of protected species.

Exemption from these restrictions can only be granted by the Agency for Nature and Forests (ANB).

Specific Species Conservation Programmes (SBP's) provide greater protection for specific Red List species and determine what measures should be taken to better protect the species.

9.3.1.2. Impacted protected and priority species.

Specifically for the management measures surrounding the oak processionary, the ilex hairstreak (*Satyrrium ilicis*) is particularly important. This butterfly is a Red List species in the "Critically Endangered" category. Under the Species Decree, this species falls into Category 1, a species to which the basic protection provisions of the decree apply, including the intentional killing or disturbance of the species using biocides. The ilex hairstreak is also a Provincial Priority Species (PPS) for Antwerp and Limburg.



This small butterfly uses the pedunculate oak as its host plant. Its caterpillars are active in April and May, along with those of the oak processionary moth. Controlling it with Bt during this period in areas where the ilex hairstreak occurs has a serious negative impact and must be avoided at all costs.

A Species Protection Programme (SBP) for the ilex hairstreak is being developed. It is based on the INBO report "[Scientific Basic Report for the Species Protection Program for the Brown Hairstreak \(*Satyrium ilicis* \) .](#)"

In addition, the common hairstreak (*Favonius quercus*) is also a butterfly that is dependent on oaks and risks being killed by biocides.

Table: Protection for butterfly species associated with oaks in Flanders

Protection level	Species	Area	Details
Species Decree	Ilex hairstreak	Flanders	Vlaamse Codex - Soortenbesluit
SBP (Species Protection Programme) (in preparation)	Ilex hairstreak	Flanders	INBO/ Wetenschappelijk basisrapport voor het SBP Bruine eikenpage (Satyrium ilicis)
PPS (Provincial Priority Species)	Ilex hairstreak	Antwerp	Provincie Antwerpen/ Provinciaal Prioritaire Soorten 2021
		Limburg	Provincie Limburg/ Provinciaal Prioritaire Soorten
PBHS (Provincially Important Habitat Typical Species)	Oak Page	Antwerp	Provincie Antwerpen/ Provinciaal Prioritaire Soorten 2021
Red List	Multiple species	Flanders	Instituut voor Natuur- en Bosonderzoek/ Rode lijsten

The Red List also includes dozens of moth species in the categories 'Endangered', 'Critically Endangered', 'Endangered' or 'Vulnerable', some of which also use oak trees and the plants in the surrounding roadsides as host or food plants and may therefore be impacted.

9.3.2. Brussels-Capital Region

In the Brussels-Capital Region, the [Wetgeving en verbodsbepalingen ter bescherming van dier- en plantensoorten](#) prohibitions, applicable within forest reserves, such as the killing of protected species or the destruction of their habitats, shelters, breeding and resting places, nests, and eggs: [Verbodsbepalingen die tot doel hebben de dier- en plantensoorten en de gebieden met het statuut van bosreservaat](#). Derogations may be granted in certain circumstances.

In its '[Ordonnantie betreffende het Natuurbehoud](#)', the Region further distinguishes four levels of protection at the species level:

- [Annex 2.1](#) : species of Community interest;
- [Annex 2.2](#) : species with strict protection;
- [Annex 2.3](#) : species with geographically limited strict protection;
- [Annex 2.4](#) : species of regional importance.

Annex 2.3 applies to green zones, green zones of high biological value, park zones, cemetery areas, woodland zones, and easement zones around forests and woodlands, Natura 2000 areas, nature reserves, and forest reserves. This list includes the ilex hairstreak, a species that is also vulnerable to biocides used against the oak processionary.



9.3.3. Wallonia

The '[Loi sur la conservation de la nature](#)' aims to protect the character, diversity, and integrity of the natural environment through measures to protect flora and fauna, their communities and habitats, as well as the soil, subsoil, water, and air. This protection includes, among other things, the prohibition on the deliberate killing of endangered species in Wallonia.

The [Annexe IIa](#) to this Act lists the butterfly species covered by it. Currently, no oak-related species are listed.



10. Oak processionary management in Belgium

The last chapter describes how oak processionary management is organised in Belgium.

10.1. Federal level

The organization of oak processionary management in Belgium is regulated in the ministerial circular of 12 October 2020 concerning the deployment of emergency response zones in the context of the fight against the oak processionary: [Civiele Veiligheid - Omzendbrief van 12 oktober 2020 betreffende de inzet van de hulpverleningszones in het kader van de strijd tegen de eikenprocessierups](#).

The principles of this management are mainly aimed at combating:

- If an oak processionary nest is located on private property, it is up to the owner of the property to contact a specialist company to have the nest destroyed at his own expense;
- If a nest is located on public property, it is primarily the municipality's responsibility to ensure its removal. For this purpose, the municipality can call on its services (technical department or green space department) or a specialized firm.
- Only when a nest in public domain poses a threat to safety or public health can assistance be requested from the territorially competent emergency response zone.

The circular includes a basic decision tree based on the Dutch 'Leidraad Beheersing Eikenprocessierups', the principles of which correspond to those in Chapter 3.3 'Decision matrix and legend'.

The circular further describes how and when the emergency response zone can be requested, and what basic precautions staff must take during an intervention.

10.2. Flanders

In Flanders, the Agency for Nature and Forests (ANB) is responsible for the policy aspects of limiting the impact of control measures on nature and the environment in priority areas and for priority species. They grant the necessary permits and exemptions to land managers who wish to control oak processionary in forests or protected areas, or near protected species.

The ANB also acts when oak processionary are found in their own areas: for example, informing and advising visitors to minimize nuisance, closing off areas, or possibly combating them, but always taking into account the negative impact on people, the environment, and nature.

More information can be found on the ANB website: [Dienstensite Agentschap Natuur & Bos - Schade of overlast door insecten](#) and in [Ecopedia - Eikenprocessierups](#).

The Roads and Traffic Agency (AWV) combats the oak processionary along motorways and regional roads with both preventive and curative measures: [Wegen en Verkeer - Eikenprocessierups](#).

The Flemish Waterway (DVW) manages the waterways and the towpaths, verges, and trees along them. Due to their proximity to surface water, they do not use biocides, but only curative methods. Reports of nests along canals can be submitted via info@vlaamsewaterweg.be. More information can be found on their website, [De Vlaamse Waterweg - Eikenprocessierups](#).



10.2.1. Provinces

10.2.1.1. Province of Antwerp

The province of Antwerp coordinates and supports the management of the oak processionary for its municipalities in the most ecological, humane, and environmentally friendly way.

On the website you can find, among other things:

- The procedure for applying for preventive control for municipalities in the province of Antwerp;
- A link to the oak processionary map where you can enter the locations where you want to spray preventively, and check whether this is permitted;
- A list of contractors who specialize in oak processionary control;
- A list of waste processing companies that are allowed to process caterpillar and nest waste;
- An example of a cutlery for combating the oak processionary

More information can be found here: [Provincie Antwerpen - Eikenprocessierups](#)

10.2.1.2. Province of Limburg

In the province of Limburg, the Provincial Nature Centre informs and supports cities and municipalities in many ways. Its coordinating role is crucial for efficiently and successfully sharing experiences and promoting the most suitable methods.

The Provincial Nature Centre is responsible for, among other things:

- Information sessions for civil servants and representatives;
- Newsletters with information about the situation on the ground and guidelines regarding control

More information can be found on the website: [Provincie Limburg / Provinciaal Natuurcentrum - Eikenprocessierups](#).

10.2.1.3. Province of East Flanders

In the province of East Flanders, the Provincial Centre for Environmental Research is the contact for the management of the oak processionary.

On their website you can find, among other things, a list of specialized contractors in East Flanders

More information can be available on the website: [Provincie Oost-Vlaanderen / Provinciaal Centrum voor Milieuonderzoek - Plaagsoorten](#)

10.2.2. Municipalities

Most municipalities in the affected provinces in Flanders mention the oak processionary and how they deal with it on the environmental department pages of their municipal websites. Examples can be found on the website of the municipality of Wuustwezel: [Gemeente Wuustwezel / Processierupsen](#) and the municipality of Bree: [Gemeente Bree / Eikenprocessierups](#).

It's important to note that landowners are responsible for controlling nests where necessary. Some municipalities do contribute to the costs of control or have price agreements and/or framework contracts with pest control providers that residents can use.



can often report nests in public areas through the municipal reporting system, such as that of the municipality of Hoogstraten: [3P.eu - Apps](#) . This system allows users to enter the exact location on a map and include photos of the nest and/or caterpillars.

10.3. Wallonia and the Brussels-Capital Region

Before 2013, the oak processionary was a relatively unknown species in Wallonia. Meanwhile, the caterpillar is also on the rise in the south of our country.

In Wallonia, the 'Service public de Wallonie ' (SPW) 'Agriculture, Ressources naturelles et Environnement' is responsible for the management of public forests and nature reserves.

For Wallonia and Brussels, the task of the 'Walloon Forest Health Observatory' (OWSF) of the 'Department of Natural and Agricultural Environment Studies' is to centralize data and knowledge on forest health, draw up risk maps, and formulate advice.

All information about oak processionary management can be found on the oak processionary page on the OWSF [Processionnaire du chêne - L'Environnement en Wallonie](#).

The division of responsibilities and procedure are described here: [Procédure-communes.pdf](#) .

An overview of the control measures used can be found here: [operators-procedure-destruction-epi.pdf](#)



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- [Provincie Antwerpen/ Provinciaal Prioritaire Soorten 2021 \(nl\)](#)
- [Provincie Antwerpen/Eikenprocessierupsenkaart \(nl\)](#)
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- [Wallex/ Loi sur la conservation de la nature \(fr\)](#)
- [Wallex/ Loi sur la conservation de la nature / Annexe IIa \(fr\)](#)
- [WHO/ International Classification of Primary Care, 2nd edition \(ICPC-2\) \(en\)](#)



Appendices

- Appendix 1: Oak Processionary Management Plan (en)
- Appendix 2: Field Reports (en)
- Appendix 3: Complaints Form (en)
- Appendix 4: Communication materials (nl)



User Guidelines

This template can be used to create your own specific management plan.

The Show/Hide function allows you to hide the blue instructions in this text. Use the '¶' button or go to File > Options > View and select "Hidden text".

Furthermore, the following applies to this document:

Black italic text: Adjust as needed.

Blue italic: Clarification, to be removed in the definitive version.

→ *Blue italic: Instruction, to be removed in the definitive version.*



Municipality of *nnnnnn*
**Oak Processionary
Management Plan**
yyyy



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1. Objectives and context

1.1. Objectives

This management plan describes the measures the municipality intends to take to limit oak processionary caterpillar nuisance, where and when these measures are planned, who is responsible, and what resources must be deployed. The goal is to prevent the municipality from unexpectedly encountering nuisance and disasters.

This plan is formally established at the municipal level and allows for the necessary management budgets to be reserved. Each plan is valid for one year, but a substantial portion can be prepared and carried over from previous years.

It also describes several measures for natural pest suppression in the long term.

For more details, the plan refers to the 'Guideline for controlling Oak Processionary' but adapts it to the local level.

1.2. Results and evaluation of the previous management plan (yyyy)

An overview of the measures taken in our municipality in recent years to manage the oak processionary caterpillar, the results of the inspections, and the evolution of notifications related to the oak processionary caterpillar:

	YYYY-1	YYYY -2	YYYY-3	YYYY-4	YYYY-5
Control measures					
# Pedunculate oaks treated					
# Other trees treated					
# Trees preventively sprayed (Bt)					
# Liters/kg of Bt used					
# Remaining nests/% estimated reduction in nests after spraying					
# Trees curatively treated (vacuuming/manual removal)					
# Remaining nests/% estimated reduction in nests after vacuuming					
% of control measures implemented in accordance with the decision tree*					
Indication of quality of implementation (--- to +++)					
Inspections					
Inspection: comprehensive or selective					
# Trees inspected					
Notifications					
# Notifications received					
# Notifications verified					
# Notifications with follow-up					

*The control measures proposed in the risk analysis/decision tree were deviated from at the following locations and for the following reasons:

Deviation	Location	Reason



Here are the main comments from the evaluation of the previous management plan:

- ...

1.3. Results of the monitoring

An overview of the results of the monitoring conducted by our own services and the monitoring at a higher level, with an indication of the trends:

	YYYY-1	YYYY-2	YYYY-3	YYYY-4	YYYY-5	Trend
Own monitoring						
# nests						Rising/falling/stable
# colonized trees						Rising/falling/stable
# butterflies trapped						Rising/falling/stable
# treated trees preventive						Rising/falling/stable
# treated trees curative						Rising/falling/stable
# natural pest suppression measures						Rising/falling/stable
Monitoring at provincial/regional level						
# nests						Rising/falling/stable
# colonized trees						Rising/falling/stable
# butterflies trapped						Rising/falling/stable
# treated trees						Rising/falling/stable
# health complaints						Rising/falling/stable

Based on these monitoring results, we expect **the pest pressure to be high/moderate/low in the next operational year.** *(Delete as appropriate).*



1.4. Conclusions and management recommendations

For the management of the oak processionary caterpillar in the next operational year, **we recommend to continue/scale down/strengthen our actions.**

Points of interest that emerged from the previous management plan:

- *Which locations need to be revised considering the risk zoning, and why?*
- *Which changes do you want to make to the management measures, and why?*
- *Which natural pest control measures do you want to include in the long-term planning?*
- *What changes do you want to make regarding monitoring, communication, and the handling of reports, and why?*
- *Which agreements with pest control services do you want to revise, and why?*
- *What budgetary changes do you anticipate, and why?*

This management recommendation aims to provide a structured approach to tackling oak processionary caterpillar nuisance.



2. Administrative approval

This plan has been approved by ... at



3. Planned actions

3.1. Risk analysis, risk zoning and expected pest pressure.

The initial analysis, based on the presence of people and animals on the one hand, and the location's susceptibility to oak processionary caterpillars (the proportion of pedunculate and other in the tree population) on the other, divided the territory into locations where high, moderate, or low impact was expected. These locations are designated as areas with high, moderate, and low impact, respectively.

The following table and the attached plan provide an overview of these locations by category, as well as the locations where inspections are planned. The zoning itself can be found on a digital map(s) in ArcGIS.

Expected impact	Zone	Comments	Inspections
High impact	<i>Name roads, streets, squares, and parks here</i>	<i>List exceptions to the above locations, such as zones where biocides are not permitted</i>	<i>List specific locations where inspections are planned in the spring</i>
Moderate impact	<i>Idem</i>	<i>Idem</i>	<i>Idem</i>
Low impact	Other locations within the territory	<i>Idem</i>	<i>Idem</i>

Based on monitoring of caterpillar nests in recent years and monitoring of butterflies this past summer, **the expected pest pressure for the operational year is *high/moderate/low* (delete as appropriate).**

3.2. Planned actions.

Based on this expectation, we propose the following management measures per impact category.

Expected impact	Objective	Vacuuming/ manual removal	Bacterial solution
			Do not take these measures in Natura 2000 areas or where protected butterfly species are present.
High-impact zones	Very limited nuisance from oak processionary caterpillars is acceptable	<i>Under high and moderate pest pressure and where preventative control was not possible, but also to remove any nests that do occur. Everywhere under low pest pressure</i> # trees	<i>Under high pressure. Where needed under moderate pest pressure</i> # trees
Moderate-impact zones	Limited nuisance from oak processionary caterpillars is acceptable	<i>Under high and moderate pest pressure</i> # trees	<i>Only under high pest pressure</i> # trees
Low-impact zones	Some nuisances from oak processionary	In areas that cause nuisance.	-



	caterpillars are acceptable	# trees	
--	-----------------------------	---------	--

Based on the inspections in the spring, the decision can still be adjusted.

3.3. Agreements with pest control and processing services

→ *Include the necessary requirements in the specifications regarding:*

Here is an overview of landscaping companies with sufficient expertise to manage and treat oak processionary caterpillars responsibly and effectively. This list will be used in tenders, preferably well before the start of the season, but also during the season in unexpected situations, if work unexpectedly needs to be done.

Preventive control (Bacterial preparation)

Company name	Address	Agreements

Curative management (vacuuming/manual removal):

Company name	Address	Agreements

Inspections:

Company name	Address	Agreements

Processing oak processionary caterpillar waste:

Company name	Address	Agreements



3.4. Action Calendar

Guidelines for addressing oak processionary caterpillar nuisance. The numbers listed are the week number after the emergence date.

Week after hatching	Expected period	Action	Condition
N/A	October/ November	Draft management advice	Evaluation of previous year completed. Monitoring data available
N/A	November/ December	Finalize & approve Management Plan	Management advice communicated
N/A	December/ February	Agreements with contractors regarding control, inspection	Management plan approved
N/A	March/ mid-April	Monitoring egg hatching	
1-3*)		At locations where spraying is planned: Inspection: are caterpillars present?	
1		Press release: Start preventive spraying. Start internal communication.	
3 *)	April/ May	Preventive spraying with Bt	
	End May/2nd week June	Inspection for curative application: are caterpillars present?	
7-8 *)		Press release: Start curative control, prevent the formation of stinging hairs, report complaints	
7-10 *)	June/ July	Curative control – vacuuming and/or manual removal	
9-20		Check (inspection): are there still caterpillars or (old) nests with stinging hairs present?	
7-52		In case of storm: press release: blown out (old) nests?	
28		Install pheromone traps	
30-41		Empty the pheromone traps 3-4 times (approximately every 2-3 weeks)	
N/A	October	Evaluation of previous year	Actions completed
N/A		Press release: increasing local biodiversity in roadsides and parks (municipality) and in gardens (citizens themselves).	

*) The development of oak processionary caterpillars can vary considerably from year to year. A distinction could be made between cold and warm springs, but in practice, there are many types of springs, sometimes with a rapid start followed by a delay due to an onset of cool weather, or vice versa.

3.5. Communication plan

Period	Reason	Communication	Target Groups	Channels/ Means
January- March	Start of caterpillar season	Management plan contents Expected pest pressure. Work instructions	Internal staff	Internal channels
End March/ early April	Start of spraying	Press release: The oak processionary caterpillars are hatching. Possible spraying.	Residents Specific target groups	Website Newsletter Local press Local broadcaster Social media Information signs Warning tape Public leaflets



				Consultation sessions
End May/ early June	Opening of reporting system Start of vacuuming	Press release: The first stinging hairs and nests of the oak processionary caterpillar have appeared. Start of vacuuming Preventing the exposure to stinging hairs Notification system	Residents Reporters	Website Newsletter Local press Local broadcaster Social media Notification system
Mid-June		Warning of peak nuisance season. Be extra vigilant for the next 4 weeks.	Residents Visitors/passers-by	Website Newsletter Local press Local broadcaster Social media Information signs Warning tape
Early August	Place pheromone traps	Butterflies are flying out and are monitored. End of peak nuisance season	Residents	Website
October	Evaluation of the OPC management plan	Development in the number of nests Results of pheromone traps Results of notifications	Residents Reporters	Website Newsletter Local press
October	Evaluation of the OPC management plan	Evaluation + adjustments to the management plan Cost analysis Expectations & planning for next year Acknowledgments	Internal staff	Internal channels
November/ December	Drafting of the OPC management plan	Press release: Predicting pest pressure next year. Highlights of the management plan Resident participation	Residents	Website Newsletter Local press
Ad hoc	During a summer storm if (fresh) nests are present in the trees	Warning: blown-out OPC nests	Residents Visitors/passers-by	Website Local press Local broadcast Warning tape
Year round		Awareness: increasing local biodiversity in roadsides and parks (municipality) and in gardens (citizens themselves)	Residents	Website Newsletter Local press

3.6. Contacts

List of internal stakeholders

Service/Function	Name	Email	Phone



List of external stakeholders

Service/Function	Name	Email	Phone



3.7. Complaints reporting system

Complaints form.

Oak processionary caterpillar complaints form

Information about the complainant:

Mr./Mrs.: *Klik of tik om tekst in te voeren.*

Email address: *Klik of tik om tekst in te voeren.*

Telephone.: *Klik of tik om tekst in te voeren.*

Address: *Klik of tik om tekst in te voeren.*

Date of notification: *Klik of tik om tekst in te voeren.*

Nature of the complaint: -> *tick the correct choice and fill in the italicized information*

Nest of oak processionary caterpillars: *Klik of tik om tekst in te voeren.*

Nuisance from pest control services: *Klik of tik om tekst in te voeren.*

Health complaints: *Klik of tik om tekst in te voeren.*

Old or blown out nests or nest remnants: *Klik of tik om tekst in te voeren.*

Other complaint: *Klik of tik om tekst in te voeren.*

Location: *Klik of tik om tekst in te voeren.*

(Internal: Handling process: *Klik of tik om tekst in te voeren.*)

Note to the complainant: If possible, please add photos of the caterpillars and/or nests so that the sighting can be verified. Check out our website for tips on how to recognize the oak processionary caterpillar.

Registration and processing of complaints

Step	Channel/ System	Responsible
Complaint capture	Phone:	...
	Website:	...
Registration	<i>Application/app/website</i>	...
Verification	<i>Application/app/website</i>	...
Indicate on map	<i>Map:</i>	...
Enable pest control service		...
Feedback to complainant		...
Evaluation complaints (end of season)		...
Retention	Retention period:	--



3.8. Monitoring

Here is an overview of the planned monitoring for this working year:

Monitoring	System	Responsible
Inspection reports		...
Spray reports		...
Reports curative control		...
Other monitoring		...

3.9. Budget

The budget required to address OPC consists of the following items:

- Deployment/rental of inspection and advisory services, and registration systems
- Deployment/rental of pest control services, including pesticides, personal protective equipment, and the removal and processing of OPC caterpillars and nests.
- Internal personnel costs: field service/green space management (for supervision), information provision, and internal contact person hours
- Communication costs: placement of press releases, brochures, warning signs, etc.

Cost item	Expenses last year	Budget for this year	Specifics
<u>Hiring Pest Control Services:</u>			
Personnel Costs/Labor			
Personal Protective Equipment			
Pesticides			
<u>Hiring Inspection and Advisory Services:</u>			
Setting Up OPC Registration and Management System			
Deploying Inspectors			
Conducting Pheromone Traps/Light Trap Research			
Preparing Results of Control Measures (Short and Long-Term) and Management Recommendations			
<u>Removal of Caterpillars and Nests:</u>			
Transport (Removal) of Caterpillars and Nests			
Destruction of Caterpillars and Nests			
Destruction of Personal Protective Equipment (PPE)			
<u>Hours Owned by the Organization:</u>			
Deployment Internal OPC Contact Person			
Field Service/Green Management Information and Communication			
<u>Communication Costs:</u>			
Publication of Press Releases			
Creating and Distributing Brochures, Warning Signs, etc.			



3.10. Long-term actions

Costs for long-term management (increasing local biodiversity):

Cost item description	Expenses last year	Budget for this year	Specifics
<u>Drafting a plan with the assistance of an ecologist</u>			
<u>Physical interventions in green spaces:</u>			
Adjust/transform roadside verges			
Transform tree population*			
Transform public gardens/parks*			
Road verge management			
Install/maintain nest boxes			
Register measures within the OPC registration system			
<u>Communicating/assisting citizens:</u>			
Press releases			
Creating and distributing leaflets			
Subsidy for greening gardens and grounds for private individuals/foundations			

*) It is recommended to conduct these conversions if they are already planned for other reasons. Then, from the perspective of oak processionary caterpillar control, there are no additional costs.



4. Evaluation management plan and approach

→

- Which issues/experiences went well and would you like to incorporate into your approach for the coming year?
- Was risk zoning implemented, which provides structure to pest control and allows citizens to be informed about the choices made in addressing nuisance? Which measures need to be adjusted in relation to the risk zoning?
- Has strengthening natural pest control been addressed? What are the results of this on pest pressure?
- Have complaints been properly and clearly recorded? How many complaints were recorded?
- Have complaints been managed satisfactorily? What improvements can be made?
- Was communication with citizens, pest control services, and our own employees (field staff, communications department) effective? Are there areas for improvement? If so, which ones?
- Were the agreements with pest control services and treatment services conducted effectively?
- What were the results of the preventative pest control? Was spraying conducted during the correct period and under suitable conditions?
- What was the quality of the implementation? Were nests carefully removed, and did employees use the correct PPE and traffic regulations? Was the control and treatment capacity sufficient?
- Was the budget adequate? If not, how much did the overrun exceed?
- Were agreements made with other organizations and were they satisfactory?
- Have ground nests been observed? What action has been taken on these results?
- Have oak processionary caterpillars been observed walking on walls, streets, or gardens? If so, where were the nearest nests?
- What other bottlenecks arose?



Spray Report	Input	Dropdown list				Comments
Municipality						
Location (street, neighbourhood)						
Responsible						
Date (dd-mm-yyyy)						
Time from (hh:mm)						
Time to (hh:mm)						
Product						
Set mist spray (l/hour)						
Travel speed (n,n km/h)						
Number of trees sprayed						
Amount of product used (l or kg)		<input type="checkbox"/> liters ONWAAR	<input type="checkbox"/> kg ONWAAR			
Spray round		<input type="checkbox"/> 1st treatment	<input type="checkbox"/> 2nd treatment			
Outside temperature (choice)		<input type="checkbox"/> 0 - 4°C	<input type="checkbox"/> 4 - 6°C	<input type="checkbox"/> 6 - 15°C	<input type="checkbox"/> > 15°C	
Wind force (choice)		<input type="checkbox"/> Calm	<input type="checkbox"/> 1 - 3 Bft	<input type="checkbox"/> 3 - 6 Bft	<input type="checkbox"/> >6 Bft	
Humidity (choice)		<input type="checkbox"/> Dry (to 12 h after treatment)	<input type="checkbox"/> Dry, rain expected < 12 h after treatment	<input type="checkbox"/> Leaves moist	<input type="checkbox"/> Rain	
Details						

Report Curative Treatment	Input	Dropdown list				Comments
Municipality						
Location (street, neighbourhood)						
Responsible						
Date (dd-mm-yyyy)						
Time from (hh:mm)						
Time to (hh:mm)						
Method (choice)		<input type="checkbox"/> Vacuuming	<input type="checkbox"/> Manual removal	<input type="checkbox"/> Vacuuming and manual removal	<input type="checkbox"/> Other	
Number of trees with nests						
Number of nests removed						
Number of trees without nests						
Active caterpillars present? (choice)		<input type="checkbox"/> Active caterpillars present	<input type="checkbox"/> No active caterpillars present	<input type="checkbox"/> Uncertain		
Details						

Inspection Report		Input	Dropdown list				Comments
Municipality							
Location (street, neighborhood)							
Responsible							
Date (dd-mm-yyyy)							
Caterpillars present? (choice)			<input type="checkbox"/> Caterpillars present	<input type="checkbox"/> No caterpillars present	<input type="checkbox"/> Uncertain		
Total number of nests per size:	Tennisball or smaller						Expected pest pressure based on the number of nests per tree:
	Soccer ball/ small blanket						
	Basketball/ large blanket						
Number of trees:	With nests						Expected pest pressure based on the number of colonized trees:
	Without nests						
Accessibility nests (choice)			<input type="checkbox"/> Can be reached from the ground	<input type="checkbox"/> Can be reached with ladder	<input type="checkbox"/> Accessible with aerial platform	<input type="checkbox"/> Spread throughout the tree	
Priority treatment (choice)			<input type="checkbox"/> Urgent	<input type="checkbox"/> Normal	<input type="checkbox"/> Low	<input type="checkbox"/> Not	
Treatment status (choice)			<input type="checkbox"/> Inspected	<input type="checkbox"/> Treated	<input type="checkbox"/> Partly treated		
Details							

Oak processionary complaints form

Information about the complainant:

Mr./Mrs.: [Klik of tik om tekst in te voeren.](#)

Email address: [Klik of tik om tekst in te voeren.](#)

Telephone.: [Klik of tik om tekst in te voeren.](#)

Address: [Klik of tik om tekst in te voeren.](#)

Date of notification: [Klik of tik om tekst in te voeren.](#)

Nature of the complaint: *-> tick the correct choice and fill in the italicized information*

- Nest of oak processionary caterpillars: [Klik of tik om tekst in te voeren.](#)
- Nuisance from pest control services: [Klik of tik om tekst in te voeren.](#)
- Health complaints: [Klik of tik om tekst in te voeren.](#)
- Old or blown out nests or nest remnants: [Klik of tik om tekst in te voeren.](#)
- Other complaint: [Klik of tik om tekst in te voeren.](#)

Location: [Klik of tik om tekst in te voeren.](#)

(Internal: Handling process: [Klik of tik om tekst in te voeren.](#))

Note to the complainant: If possible, please add photos of the caterpillars and/or nests so that the sighting can be verified. Check out our website for tips on how to recognize the oak processionary caterpillar.

Opgelet voor de eikenprocessierups

De eikenprocessierups groeit uit tot een inheemse nachtvlinder die zijn plaats heeft in ons ecosysteem. Helaas veroorzaakt de rups door zijn brandharen bij grote aantallen hinder. Daarom wordt deze soort bestreden op publieke plaatsen met een grote kans op gezondheidshinder.

Wat kan jij doen?

- Probeer contact met rupsen en nesten te vermijden.
- Bedek de huid zo veel mogelijk, bij contact veroorzaken de brandharen ernstige jeukhinder.
- Probeer niet te krabben of te wrijven na contact. Spoel je huid en ogen met water en was je kleren.

Nest gespot?

Meld een nest via
www.info-eikenprocessierups.be

Extra info? Neem contact op met je gemeente, raadpleeg www.info-eikenprocessierups.be of scan de QR-code.



PAS OP!

eikenprocessierupsen



Provincie
Antwerpen

Contacteer je gemeente voor meer info

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