

The King of Grattan

Salthill, Galway City

The Six-spot Burnet Moth Story



**wetlands
for life**

EAZA CONSERVATION
CAMPAIGN 2026 - 2027



**Galway
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Your
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A Grattan Beach Salthill Biodiversity Survey

Inspired by the [#WetlandsForLife](#) Campaign

Featuring the Six-spot Burnet Moth, A Biodiversity Story from Grattan Beach

Discover how a remarkable day-flying moth reveals the hidden richness of Grattan Beach, Salthill, and why protecting these coastal habitats matters.

What began as a small wetland bird survey inspired by the [Wetlands for Life](#) campaign has grown into a wider biodiversity study of Grattan Beach. Our aim is to better understand the plants, insects and birds that depend on this fragile coastal habitat and identify the challenges they face.

Over two months, we recorded more than 40 species, which were all submitted to the National Biodiversity Data Centre.

This citizen science project demonstrates how local observations can contribute to protecting biodiversity for future generations.

Survey Highlights

Over 40 species recorded*as of June 2026

Survey area: 5,960 m²

Survey distance: 400 metres

Records submitted to the National Biodiversity Data Centre

A unique insight into the life of the Burnet Moth

Explore & Discover The Wonderful Biodiversity of Grattan Beach, SALTHILL

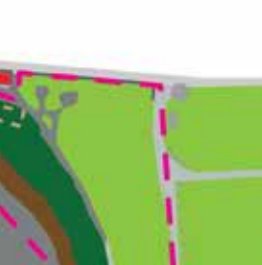
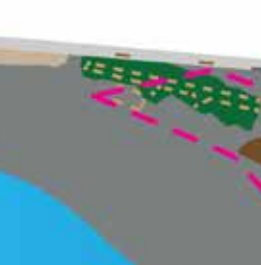
Survey Highlights

Over 50 species recorded

Survey area: 5,960 m²

Survey distance: 400 metres

The Burnet Moth Story



An Extraordinary Life Cycle From Egg to Adult

The Six-spot Burnet completes a remarkable one-year life cycle.

Summer

Adults feed on nectar and lay eggs on Bird's-foot Trefoil.



Autumn & Winter

Caterpillars feed before overwintering safely in the vegetation.

Spring

The caterpillars resume feeding and continue growing.



Early Summer

They spin distinctive papery cocoons attached to grass stems.



A Small Moth with a Big Story

The Six-spot Burnet (*Zygaena filipendulae*) is one of Ireland's most colourful and unusual moths. Unlike most moths, it flies during the day and is instantly recognised by its metallic blue-black wings with six bright red spots.

Its presence is a sign of a healthy, species-rich grassland.

The moth depends almost entirely on Bird's-foot Trefoil, a native wildflower that supports many insects and pollinators. Where burnet moths thrive, diverse coastal ecosystems are usually flourishing too.

The Six-spot Burnet is therefore an excellent indicator species, telling us that Grattan Beach remains an important habitat for wildlife.



DIET

Their diet is strictly limited.

Adults:

They only drink nectar from flowers, such as knapweed, scabious, and thistles.

Caterpillars:

They feed exclusively on the leaves of low-growing plants, primarily Bird's-foot Trefoil.



Six-spot Burnet Moth
(*Zygaena filipendulae*)

Buirnéad



Nature's Chemical Defence Expert

The Six-spot Burnet is far more than a beautiful insect.

Its caterpillars feed on Bird's-foot Trefoil and store **natural cyanide compounds** within their bodies. These chemicals protect both caterpillars and adult moths from many predators.

Their bright red and black colours are a warning signal that says: **“Don't eat me.”**

Scientists call this warning colouration **aposematism**.



The Evolution Twist

Both species independently evolved the identical biological mechanism to synthesize toxic cyanide (linamarin and lotaustralin) as a chemical defense against predators.

Separated by over 1.4 billion years of evolution, the plant and the moth developed this defensive mechanism entirely on their own.

convergent evolution

the process by which unrelated or distantly related organisms independently evolve similar physical traits or behaviors, usually because they adapt to similar environmental pressures or ecological niches. Because they face similar survival challenges, nature “selects” for the same kinds of physical adaptations. Dr Natalie Cooper, evolutionary biologist who specialises in vertebrates explains:

‘In convergent evolution, two organisms look or behave in a very similar way, even though they're only distantly related. This means they've independently evolved those similarities rather than inheriting them from a common ancestor.’

What's so special about Bird's-foot?

Bird's-foot Trefoil

Lotus corniculatus

Crobh éin

Bird's-foot Trefoil (*Lotus corniculatus*) is a much-loved wildflower with bright yellow pea-like flowers that brighten roadsides, grasslands, sand dunes, and stone walls. Its flowers provide nectar for a wide range of pollinators, including bees, butterflies, moths, and flies.

The plant naturally produces cyanide-based compounds that deter most herbivores, making it a safe refuge for the Burnet Moth. Unlike other animals, Burnet Moth caterpillars can eat the plant without harm, storing its toxins in their bodies to protect themselves from predators. They retain these chemical defences throughout their lives, and males even pass the toxins to females during mating to help protect their eggs.

Young shoots have a flavour similar to asparagus, while the sweet, lightly fragrant flowers and slightly bitter leaves are also edible.

Lotus corniculatus (Common Bird's-foot Trefoil) is highly beneficial for the environment because it is a hardy, nitrogen-fixing legume that naturally restores degraded soil.

It prevents soil erosion on slopes, supports a wide variety of local pollinators with high-protein pollen, and serves as a vital food source for butterfly caterpillars.



What is HCN?

Hydrogen cyanide (HCN) is a highly volatile, extremely toxic chemical compound (a gas or pale-blue liquid) with a faint odor of bitter almonds.

Burnet moth caterpillars absorb HCN from the glucosides in their food plants, like bird's-foot trefoil.

They can also synthesise HCN themselves, storing it in body cavities and excreting it as chemical weaponry.



The Pollina (Pollinia)

Unlike most flowers that dust insects with loose, powdery pollen, orchids package their pollen into highly specialized structures called pollinia.

During our survey we observed this and added the video to our wetlands for life playlist on our Youtube Channel, its is a pretty cool thing to see.

The Structure:

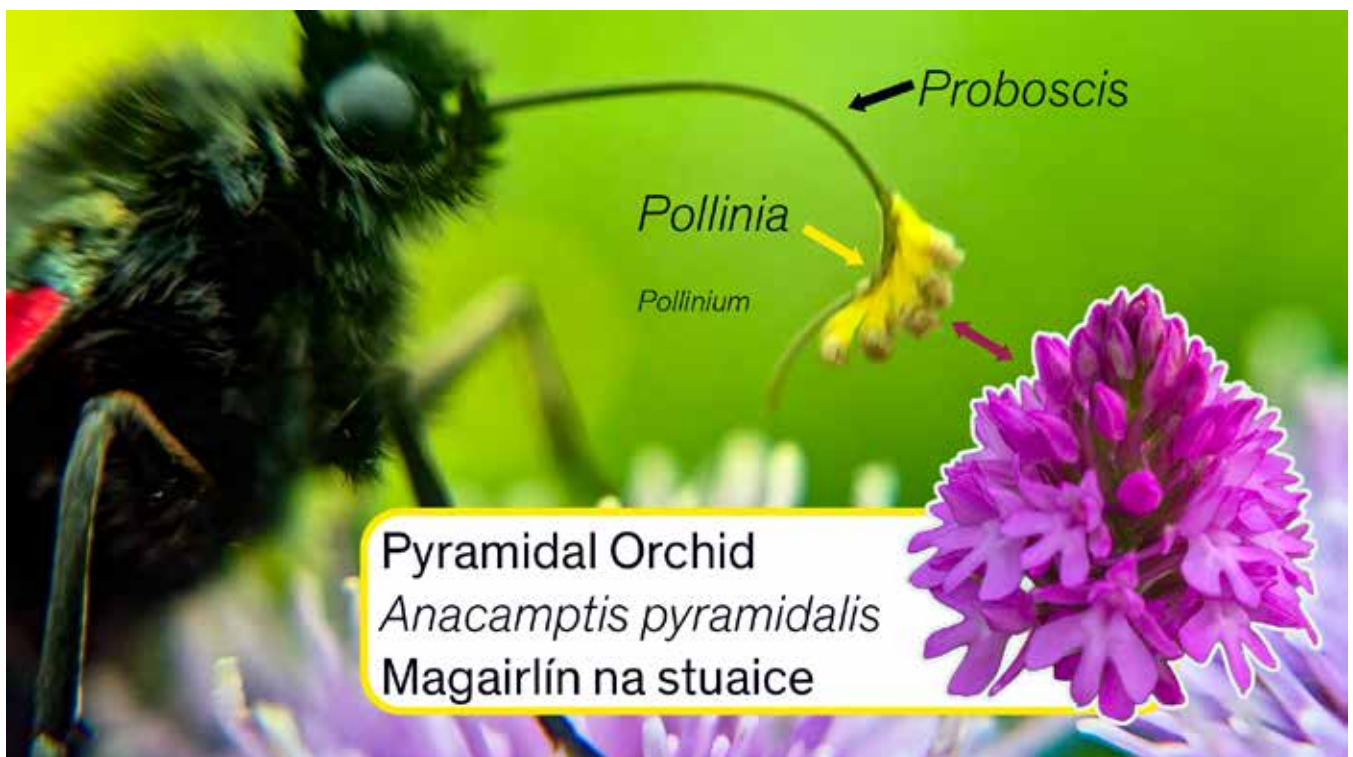
A pollinium consists of a waxy mass of pollen grains attached to a sticky base known as a viscidium.

The Transfer:

When a moth lands on an orchid to drink nectar, the sticky base glues the entire pollinia packet directly onto the moth's head, eyes, or tongue (proboscis).

The Adaptation:

As the moth flies away, the stalk of the pollinia automatically bends. This ingenious mechanical adjustment perfectly positions the pollen to strike the female stigma of the next orchid the moth visits.



The exuvia

When the adult moth finishes its metamorphosis and emerges, it breaks out of its shell and leaves a ghostly, translucent brown pupal skin (exuvia) jutting halfway out of its papery, straw-colored silk cocoon.

During metamorphosis, a moth pupates inside a silk cocoon. When it emerges, it leaves behind its rigid outer shell—the exuvia. (plural exuviae)

The exuvia remains anchored to the plant stem and the inner yellow silk because it was physically glued to the structure during the caterpillar's transition into a pupa.

The empty shell stays exactly in place on the yellow silk for several structural and biological reasons.

Attachment to Silk:

Before shedding its final larval skin, the caterpillar creates a sturdy silk mat or structure and cements its rear end (the cremaster) firmly to the plant stem.

When the pupal shell forms and splits open for the moth to escape, this original anchor remains undisturbed.

Safety Post-Emergence:

The emerging moth is incredibly vulnerable. Its new wings are wet, soft, and crumpled. The moth must hang perfectly still to pump hemolymph (insect blood) into its wings and allow them to harden.

Leaving the exuvia anchored to the yellow silk provides a stable, secure platform for the moth to hang vertically while its wings dry without folding or tearing.

Structural Composition:

The exuvia is made of chitin, a tough, flexible, and indigestible polymer. Because it is composed of this hard material, the shell does not decompose or blow away easily and will often stay anchored for weeks after the moth has flown off.



SUMMARY

A Fragile Coastal Ecosystem - Every Species Matters

The Six-spot Burnet depends on much more than one food plant.

It needs:

Wildflowers for nectar

Bird's-foot Trefoil for its caterpillars

Tall grasses for cocoon sites

Undisturbed vegetation for overwintering

Warm, sunny coastal grassland

Together these habitats create a delicate web of life where insects, birds, wildflowers and other wildlife depend on one another. **Protecting one species often protects many others.**

Citizen Science in Action

Every Observation Counts

This project shows how people can make meaningful contributions to science.

Recording wildlife helps scientists understand where species occur, how habitats are changing and what conservation actions may be needed.

Identifying species is a continual learning process, and citizen science encourages everyone to observe, record and improve their knowledge together.

Every wildlife record submitted helps build a clearer picture of Ireland's biodiversity.

Protect Our Beaches

Small Actions Make a Big Difference

The story of the Six-spot Burnet reminds us that healthy ecosystems depend on clean, undisturbed habitats. By keeping beaches litter-free and protecting native wildflowers, we help countless species survive—from tiny caterpillars to birds, bees and butterflies.

Every visit to Grattan Beach is an opportunity to appreciate and protect one of Galway's remarkable coastal habitats.

Please help keep our beaches clean, do not litter, stay on the paths, do not walk across the grassland.

All hail the King of Grattan Beach, SALTHILL





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Learn More:
<https://wetlandsforlife.eaza.net/>

Convention on Wetlands (2025) Global Wetland Outlook 2025: Valuing, conserving, restoring and financing wetlands. Gland, Switzerland: Secretariat of the Convention on Wetlands. DOI: 10.69556/GWO-2025-eng