

# THE SPRINGTAILS OF SALT HILL



# Springtails of Grattan Beach, Salthill

On the 11th of December 2025, while recording egg cases washed ashore on Grattan Beach, Salthill (Galway), we noticed a tiny blue insect moving across one of the cases. Using a clip-on micro lens, we were delighted to discover that it was a marine springtail.



**Images.** Have these species always been on Grattan, or did we just notice them now?



## A MYSTERY TO BE SOLVED

Our first instinct was to identify the species as *Anurida maritima*, commonly known as the seashore or rock springtail. However, this raised an immediate contradiction—*Anurida maritima* does not jump, while the individuals we observed clearly did.

**This marked the beginning of an intriguing mystery.**

At the same time, we learned that the National Biodiversity Data Centre had been receiving new records of similar springtails across Galway, suggesting a broader regional occurrence.

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*Key questions emerged*

**How did they arrive on Grattan Beach?**

**How do they feed, shelter, and survive in this environment?**

Accurate identification is challenging and requires chaetotaxy—the detailed counting of specific bristles (setae) on the legs. Unfortunately, we do not currently have the equipment required for this level of analysis.

To help resolve this, Steve Trehwella—a respected British naturalist, underwater photographer, and author—kindly offered to examine specimens for identification.



## What We Know So Far

At present, we can confidently say that this species belongs to the order Collembola (springtails). These organisms are:

- ▶ Small, wingless arthropods
- ▶ Typically 1–6 mm in length
- ▶ Equipped with a forked appendage (furcula) that enables jumping
- ▶ Hydrophobic (water-repellent)
- ▶ They feed on fungi, decaying plant material, and drift seaweed, making them **important decomposers** in coastal ecosystems.

**Images.** Aggregation Pheromones: These are non-sex-specific, produced by all individuals, and critical for reducing water loss by gathering in damp areas.

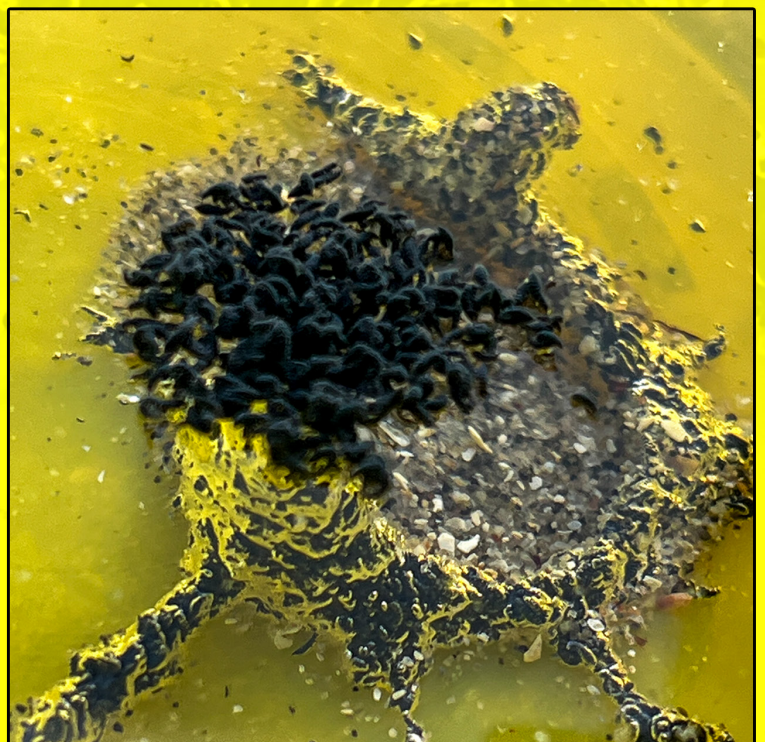


## HYDROPHOBIC SPECIES

Springtails lack a well-developed tracheal system and primarily respire through gas exchange across their outer surface (cuticle). Some groups possess spiracles, but many rely on direct diffusion.

Their waxy, hydrophobic cuticle allows them to trap a thin layer of air around their bodies when submerged. This is an example of plastron respiration, where the trapped air acts as a temporary oxygen reservoir.

When clustered together, they can collectively stabilize larger air bubbles. These shared bubbles function like a “physical lung,” enabling them to survive periods of submersion during high tide.



**The Springtail Content will be uploaded and available to watch on our YouTube Channel.**



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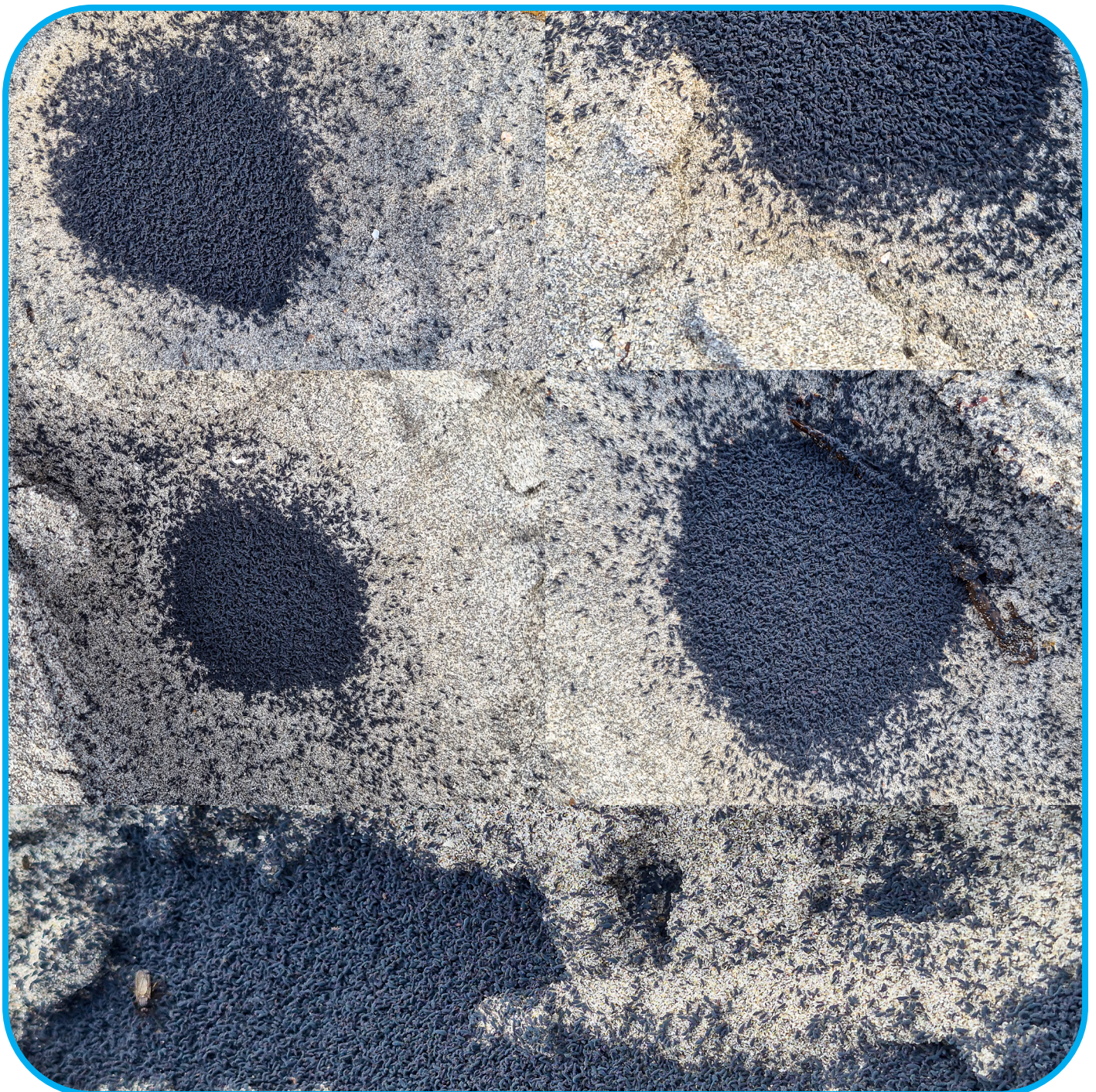
## Aggregation Behaviour

These springtails frequently gather in large numbers—a behaviour known as aggregation. Groups can range from a few individuals to several hundred.

This behaviour may:

- ▶ Improve survival during tidal submersion
- ▶ Increase reproductive success
- ▶ Help retain moisture in exposed conditions

Some species are known to use chemical signals (aggregation pheromones) and even internal biological rhythms to anticipate tidal changes.



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## How Did They Arrive at Grattan Beach? Only Guessing!

Several dispersal mechanisms could explain their presence:

### Rafting on Ocean Currents

They may have travelled on floating debris such as seaweed, driftwood, or marine litter.

### Wind Transport

Due to their small size, springtails can become airborne and travel long distances as “aerial plankton.”

### Phoresy (Hitchhiking)

They can attach to other organisms—such as insects or even marine animals—and be transported to new environments.

### Local Migration

They may have migrated from nearby habitats during periods of environmental stress, such as heavy rainfall or drought.

## Why Grattan Beach?

Grattan Beach provides ideal conditions for colonisation:

**Food availability:** Drift seaweed and organic debris

**Habitat structure:** Sand depressions and shelter from wind

**Hydrophobic adaptation:** Ability to float and move across water

**Rapid reproduction:** Fast life cycles allow quick population growth

Their eggs are also highly resilient:

- ▶ Capable of surviving harsh winter conditions
- ▶ Able to absorb water, increasing resistance to desiccation
- ▶ Easily transported within damp crevices or debris

## Summary

This discovery highlights the value of careful observation and the importance of initiatives like the Explore Your Shore! campaign by the National Biodiversity Data Centre.

While this may represent a newly recorded species for Grattan Beach, it is also possible that it has simply gone unnoticed until now. Given our previous surveys, however, its sudden abundance is particularly striking.



### **Proof of concept** - How they might have found Grattan to be an ideal habitat?

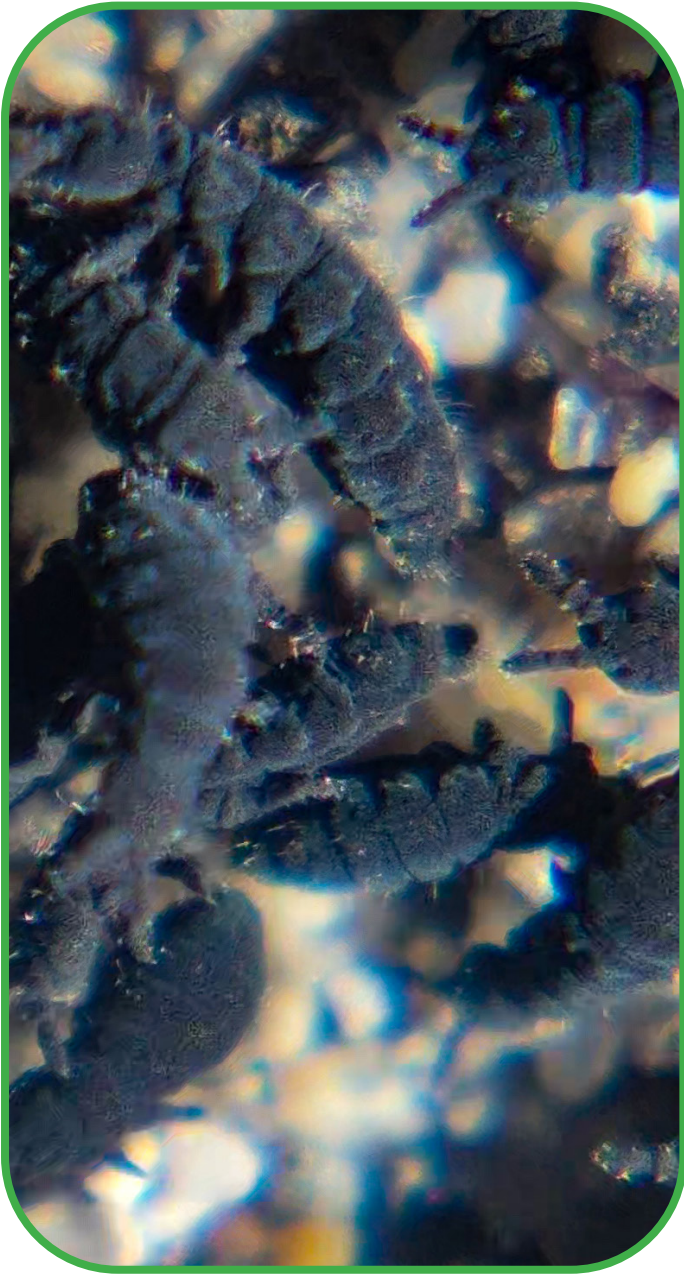
Grattan Beach & what has been observed provides some conclusive evidence of how they are thriving on Grattan Beach.

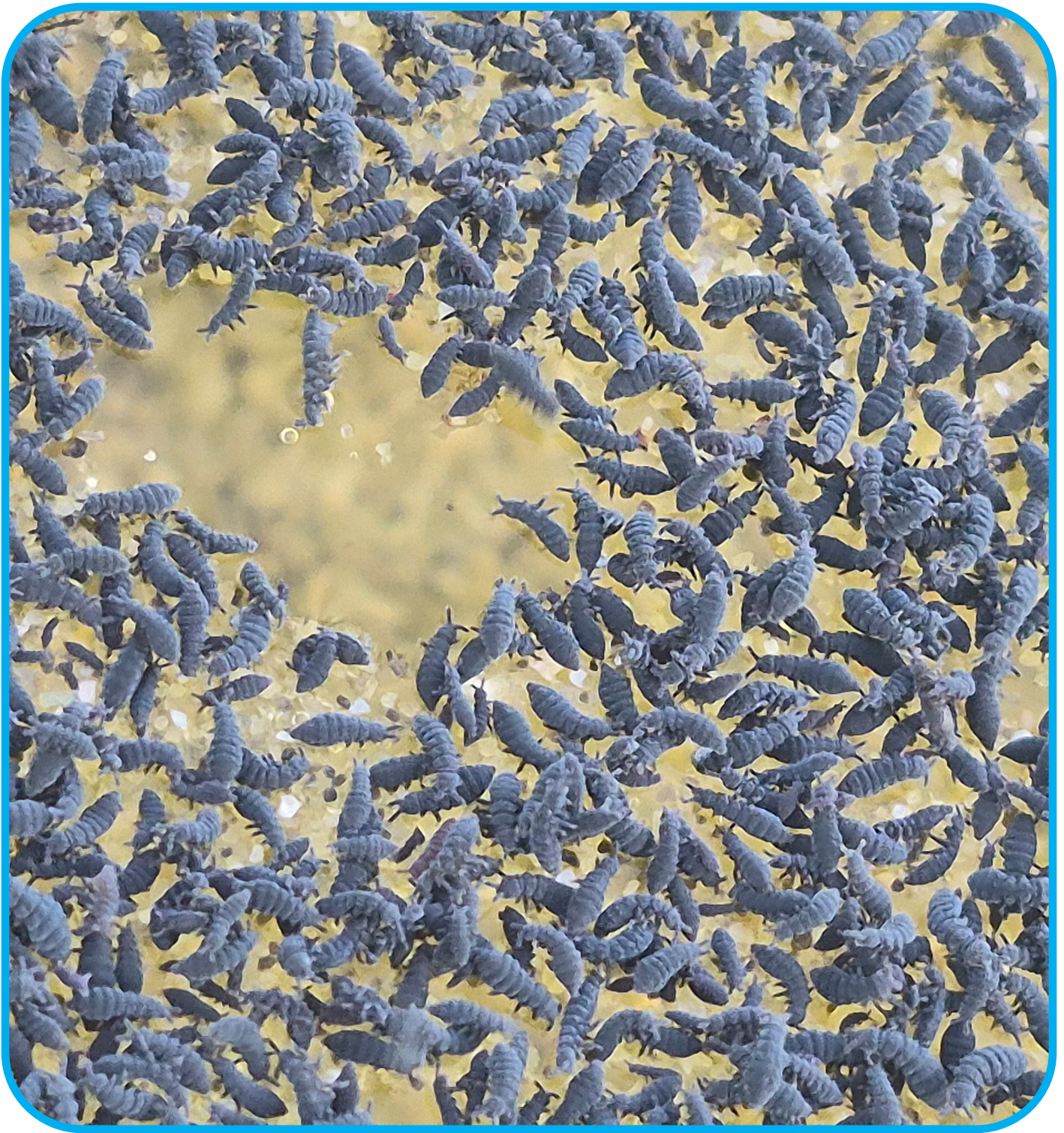
**Food availability:** Drift seaweed and organic debris is very common on Grattan Beach.

**Habitat structure:** Sand depressions and shelter from wind with the development of the sand fences project.

**Rapid reproduction:** Fast life cycles allow quick population growth, this has been observed since December, 2025 and until the 28th of March, 2026.







The springtails of Grattan Beach are a fascinating example of coastal biodiversity—small, easily overlooked, yet ecologically significant.

Galway Atlantaquaria encourage others to take part in the Explore Your Shore! experience and rediscover the richness of life along our coastlines, both large and small.