

New Zealand Pigmyweed

(*Crassula helmsii*)



Family name: Crassulaceae (Stonecrop family)

Common name/s: New Zealand Pigmyweed, Australian Swamp Stonecrop, Australian Pigmyweed, Swamp Stonecrop



New Zealand Pigmyweed (*Crassula helmsii*) is an invasive aquatic plant known for its rapid growth and ability to form dense mats in freshwater habitats. In Ireland, it is considered a high-risk invasive species that poses threats to aquatic ecosystems, water quality, and recreational activities. The plant spreads primarily through fragmentation, making management difficult.

Control measures include mechanical removal, herbicide use, and preventative actions to limit spread. If left unmanaged, New Zealand Pigmyweed can significantly impact local biodiversity and aquatic habitat dynamics.

Description - New Zealand Pigmyweed is a perennial aquatic or semi-aquatic plant known for its rapid growth and ability to form dense mats in freshwater habitats. It was introduced to Europe as an ornamental plant for ponds and aquariums. However, it has become invasive in many regions, including Ireland, where it poses significant risks to aquatic ecosystems.

The plant's ability to thrive in both submerged and emergent conditions allows it to outcompete native species and dominate freshwater habitats.

Key characteristics include:



Size: Can grow up to 20 cm tall above water when emergent and forms mats up to 10 cm thick when submerged.

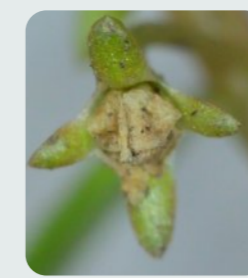
Leaves: The leaves are small, fleshy, and linear, measuring 4-24 mm in length and about 1-2 mm wide arranged in opposite pairs along the stem and are typically bright green, although they may appear reddish in strong sunlight. Leaves fleshy when emergent or terrestrial, flatter when permanently submerged



Flowers: Produces tiny, white to slightly pink, star-shaped flowers, each about 4-5 mm across, with four petals.

The flowers appear in the leaf axils from July to September.

Fruit: The fruit is a dry, dehiscent capsule in a small and cylindrical or oblong in shape. Capsules contain numerous tiny seeds that are smooth and brownish in colour. Seeds are minute, usually around 0.2–0.5 mm in length, facilitating easy dispersal by water or wind, although it produces viable seeds in Ireland or the UK.



Stem: The stems are slender, branching, and brittle, allowing the plant to spread easily through fragmentation.

Root: The plant has a fibrous root system that anchors it in the substrate, whether submerged or in damp soil.

Habitat - New Zealand Pigmyweed is native to Australia and New Zealand, where it grows in a variety of aquatic and semi-aquatic habitats. In its introduced range, it thrives in:



- Ponds, Lakes, and Canals: Commonly found in still or slow-moving freshwater, where it can form dense mats that cover the water surface.
- Ditches and Wetlands: Can establish in wetland areas and drainage ditches, where soil is consistently damp or flooded.
- Shallow Margins of Water Bodies: Grows well in the shallow margins of lakes, rivers, and reservoirs, both as an emergent and a submerged plant.

The plant prefers nutrient-rich waters and can grow in a range of conditions, from fully submerged to damp, exposed soils. It tolerates a wide range of water pH and light levels, making it highly adaptable.

Status in Ireland - In Ireland, New Zealand Pigmyweed is considered a high-risk invasive species, especially in freshwater habitats.

It is listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, which makes it an offence to introduce, plant, or cause its spread.

The plant's ability to form dense mats can displace native species, alter water quality, and impede water flow.

Reproduction and Spread - New Zealand Pigmyweed reproduces through both vegetative propagation and seed production, though vegetative spread is more common:

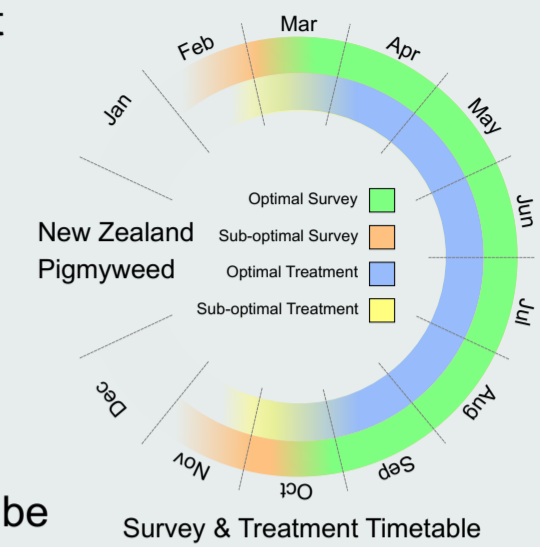
- Fragmentation: The plant spreads rapidly through stem fragments, with even small pieces capable of forming new colonies. This allows the plant to spread quickly in water bodies, especially through human activities such as boating or fishing gear.
- Seed Production: Although the plant can produce seeds, seed germination is less common as a method of spread compared to vegetative propagation.

Management and Control - Controlling New Zealand Pigmyweed is challenging due to its ability to regenerate from small fragments and its rapid growth rate. Management often requires a combination of techniques:

- Mechanical Control: Manual removal or cutting can reduce the plant's biomass, but care must be taken to remove all fragments to prevent regrowth.

Covering the affected area with a light-blocking material (e.g., black plastic) can help kill submerged growth.

- Chemical Control: Herbicides approved for aquatic use, such as those containing glyphosate, may be applied to manage infestations.

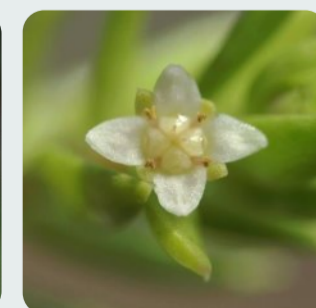
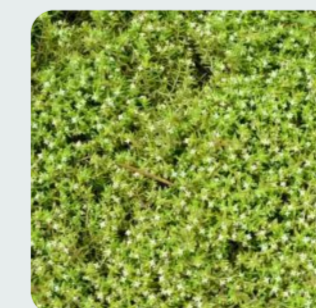


Multiple treatments are often necessary for effective control, and caution must be taken to minimise impacts on non-target species.

- Biological Control: Currently, there are no widely accepted biological control methods for New Zealand Pigmyweed.
- Preventative Measures: Avoid moving soil, water, or equipment from infested areas to uninfested areas. Monitoring water bodies for early signs of infestation is essential for early intervention.

Ecological Impact - New Zealand Pigmyweed can have significant ecological impacts, particularly in areas where it becomes invasive:

- Competition with Native Species: Forms dense mats that outcompete native aquatic plants, leading to a reduction in biodiversity.
- Impact on Water Quality and Flow: The mats can alter water flow, reduce oxygen levels, and increase sedimentation, negatively affecting fish and other aquatic life.
- Impediment to Recreation and Water Management: Can block canals, ditches, and waterways, affecting boating, fishing, and other recreational activities, as well as drainage and flood control.



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