

CONTROLLING SPINY RUSH AROUND THE LOWER LAKES

What is Spiny Rush?

The scientific or botanical name for Spiny Rush is *Juncus acutus*.

What it looks like

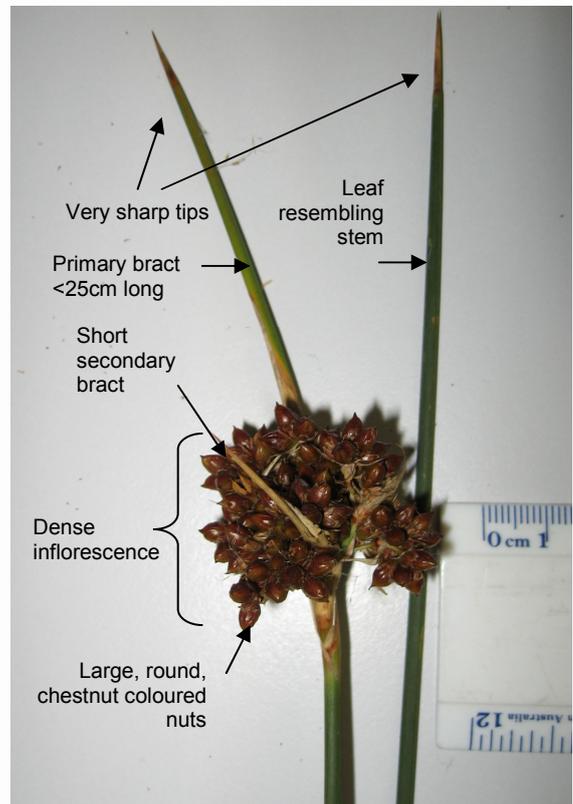
Spiny Rush forms a dark green, erect tussock that grows all year, but most actively in Spring. It is usually between 1 and 1.5 m high, but may be up to 2 m high.

The most distinctive feature of Spiny Rush is the very sharp and hard tips on the ends of the leaves and stems for which it is appropriately named. The leaves and stems are similar in appearance, being cylindrical and smooth, and 2-4 mm in diameter.

The flowers and later nuts form a dense cluster (or inflorescence) between 4 cm and 13 cm long. The end of the stem (technically referred to as a bract) is at least as long as the inflorescence and up to 25 cm long. Another smaller bract is also usually present. The nuts are nearly as wide as they are long (4-6 mm) and when they ripen are usually a shiny chestnut colour, but they fade to grey-brown over the year.



Large Spiny Rush (photo J. Tesoriero)



Parts of the Spiny Rush plant

Other species Spiny Rush may be confused with

There are a few native species that could be mistaken for Spiny Rush:

Sea Rush (*Juncus kraussii*) is the most similar native species, especially as it grows in similar environments, forms a dark green tussock and also has stem-like leaves. Sea Rush has darker (nearly black) and smaller (2.5-3 mm long) nuts, narrower leaves and stems (2-4 mm diameter). It rarely grows over 1m high and the ends of the leaves and stems are not as sharp.

Other large native rush species such as **Pale Rush (*Juncus pallidus*)**, **Common Rush (*J. usitatus*)** and **Finger Rush (*J. subsecundus*)** do not have leaves resembling the stems, instead the leaves are reduced to short sheaths wrapped around the base of the stems.

The stems are a lighter green, softer if compressed and not as sharp at the ends. The nuts are also smaller (less than 3.5mm for Pale Rush, and smaller for other species).

Knobby Club-rush (*Isolepis nodosa*) also has sharp tips to the end of the stems and forms a dense tussock. However the inflorescence is a ball approximately 2cm in diameter of small pine-cone-like structures in which the seeds are held. It doesn't have any obvious leaves, and the plant is usually less than 1m high.



Spiny rush (left) and native species it may be easily confused with: (2nd left to right) Sea Rush, Pale Rush, Rush, and Knobby Club-rush (photo C. Miles)

Where it comes from

Spiny Rush is native to Europe, North America and Africa.

Where it grows

Spiny Rush has established in parts of Victoria, New South Wales, Western Australia and South Australia. It grows in damp soils and tolerates seasonal soil drying and semi-saline conditions such as those found around the Lower Lakes.

Spiny Rush are currently found in small populations around the Lower Lakes, as well as in the upstream catchments of the River Murray, Bremer River, Finniss River and possibly other catchments of Lakes Alexandrina and Albert. Spiny Rush has the potential to invade the fringes of the entire Lower Lakes and adjacent wetlands.

How it spreads

Each Spiny Rush plant produces numerous tiny seeds in nuts (also known as capsules) which ripen in Summer. The nuts can hold seed all year, but seed will drop if the heads of the plant are knocked or blown about. The seed is most likely spread in mud attached to animals and vehicles, as well as at least short distances by water. Spiny Rush is particularly competitive at

colonising bare, damp mud, but can also spread into vegetated areas.

Impact of Spiny Rush

Impact on Lower Lakes Ecology

Spiny Rush can quickly out-compete native wetland plant species in a range of habitats, including Lignum shrublands, mud-flats, reedbeds, samphire shrublands and creeklines. The loss of native wetland plant species reduces resources for native animals including food plants, foraging habitat, nesting habitat and seasonally flooded aquatic habitats.

A secondary impact of Spiny Rush is in the removal of the weed, which is extremely difficult to do without causing harm to the surrounding environment from physical disturbance and herbicide.



Spiny Rush thrive in Lower Lakes environments (photo B. Gunn)

Impacts on Farming

Because of its sharp spines, stock do not eat Spiny Rush, giving it a competitive advantage over other native and introduced pasture plants. Spiny Rush can form impenetrable stands in grazing areas and around water sources, reducing the feed and water available to stock. Spiny Rush may also block channels and make areas uncomfortable for humans to work in. Dense stands may also harbour pest animals.

Impacts on Recreation

Humans find Spiny Rush just as hostile as stock and native animals do. Spiny Rush has the potential to invade swimming, boating and other recreational areas where it could form spiny thickets near the water's edge. The sharp spines are particularly dangerous for children, who's eyes and face are at the same height.

How to Control Spiny Rush

Early Detection and Control are Critical

Once established, Spiny Rush is difficult to control without causing damage to the surrounding environment. It is therefore critical that Spiny Rush be controlled as soon as it is detected.

Low Lake Levels

The low water level below Lock 1 since 2006 has resulted in considerable areas of the Lower Lakes bed being exposed. The damp mud-flats are an ideal environment for Spiny Rush, which has begun to grow on the exposed beds in some areas already. While Spiny Rush plants are small and in low numbers they can be most easily, cheaply and effectively controlled, so it is critical that exposed lake beds are monitored for Spiny Rush, and any plants removed immediately. All persons controlling Spiny Rush must be able to correctly identify young Spiny Rush from similar native species before they set seed.

Prevent the spread of seed

Where possible, prevent Spiny Rush setting seed by controlling young plants before the first fruits mature. Where Spiny Rush is already established, slashing before seed set could help prevent spread in the short term, but is not a long term control method on it's own.

Prevent new populations of Spiny Rush by reducing the spread of seed. Keep stock, people and vehicles away from mature Spiny Rush plants, especially when the soil is muddy and might stick to hooves, boots and tyres. Where this is unavoidable (such as during control work), wash or scrape mud off before leaving the site. It is unknown how long seed remains viable for, but take similar precautions for several years after the plants have been removed.

Work from the least infested areas first

Identify lone and young Spiny Rushes and control these first to prevent new patches forming. Then work from the outside edges of existing patches.

Don't accidentally cause harm

Correctly identify Spiny Rush from native species. If controlling a patch of Spiny Rush, thoroughly examine the area and mark the

location of similar looking native species. Where surface water is present or nearby, only use herbicides and rates approved for use near a watercourse. Ensure there is no spray drift or fall onto native vegetation.



Lone Spiny Rush such as this are a priority to control before they set seed and a patch develops (photo C. Miles)

Control methods

Physical removal

Young plants can be hand-pulled or dug out with a spade. Ensure protective clothing (including leather gloves and protective glasses) are worn when removing by hand.

Larger plants could be removed with a spade or small backhoe, and slicing Spiny Rush off at ground level using a bucket on a front end loader has also been found to be effective. However, these methods pose a high risk of off-target damage, seed being spread about from the plant and mud, and plants re-shooting from left-over roots and rhizomes. Removed plants should be heaped and burnt.

Cultivation

Cultivation may be used where Spiny Rush are growing in pastures or cropping land and the soil type is not susceptible to erosion. It is only effective on young plants.

Chemical control

Use extreme caution when applying herbicides near water bodies. Apply herbicides when Spiny Rush are actively growing in late spring and early summer, ideally before seeds set

Hexazinone is presently the only registered chemical available for use in controlling Spiny Rush in NSW and Victoria. Please read the label carefully as situation, chemical rate and application method will be dependent of the commercial product purchased.

Hexazinone is a soil residual herbicide and should only be used as per label recommendations.

Application of chemical by wick wiping equipment, spot spraying or hand applying chemical solution to leaves and stems will reduce damage to surrounding desirable vegetation.

For more information about appropriate herbicides and rates, contact your local NRM Officer (see contacts list).

Burning

Burning on its own is ineffective at killing Spiny Rush, but has been used to stimulate new growth which is then sprayed, however this has had mixed results. Burning can be used to remove dead plants and probably kills seeds remaining in the nuts.



Spiny rush plant re-growing after burning (photo B. Gunn)

Follow-up

Control is ineffective without follow-up as there is usually some re-growth of Spiny Rush. Monitor control sites and remove any re-growth or new plants.

For more information contact

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Natural Resources Management (NRM) Officers (Pest Animal and Plant Control)

South Australian Murray-Darling Basin Natural Resources Management (SAMDB NRM) Board
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Murray Bridge Ph: 8532 1432
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