Buttongrass Moorland
of Tasmania

What is buttongrass moorland?

Buttongrass moorland is low vegetation dominated by sedges (grass-like plants) and heaths and usually growing in poorly drained sites. The most typical species is commonly known as 'buttongrass' (*Gymnoschoenus sphaerocephalus*). Buttongrass is a member of the sedge family – Cyperaceae. Buttongrass moorlands occupy some of the most nutrient-poor situations to be found in the world and are one of the most fire-adapted ecosystems to have evolved.

Buttongrass moorland, Cradle Mountain - Lake St Clair National Park. Photo: Joe Shemesh

Where does buttongrass moorland grow?

Buttongrass is very common in western Tasmania. It also occurs in other areas of south eastern Australia (South Australia, Victoria, New South Wales) though it is less common there than in Tasmania.

In Tasmania buttongrass moorlands occupy more than one million hectares, approximately one seventh of the island. It is the most common vegetation type in many parts of the west and southwest of the State where annual rainfall exceeds 1000 mm. While it does occur in eastern Tasmania it is confined to creek lines and depressions. Two easily accessible locations to see buttongrass moorlands are The Lyell Highway where it intersects Cradle Mountain - Lake St Clair National Park and the Strathgordon Road within the Southwest National Park.

Important habitat

Hidden within the buttongrass moorlands are countless animals and insects busily finding food and shelter. Bennetts wallabies, wombats, ground parrots, burrowing crayfish, frogs, lizards and grasshoppers are just a few of the creatures that live here. Stop and take a close look and you may be surprised by what you find!

A step back in time....

Many of the species of our modern day buttongrass moorlands have ancestors dating back at least to the late Cretaceous (up to 60 million years ago). The most primitive species in the flora include the club mosses Lycopodium (e.g. *L. laterale*), and Selaginella (*S. uliginosa*) and the fern Gleichenia (*G. dicarpa* and *G. alpina*). The club moss species are now tiny in comparison to their giant ancestors and no longer dominate the swampland flora in the way they did 300 million years ago. Plants closely resembling the fern Gleichenia are present in fossil deposits dating back to the early Cretaceous.

The heaths and buttongrass moorlands have a close resemblance to those of the Fynbos in the Cape Province of South Africa. There was a land connection between South Africa and Australia until the mid-Cretaceous, which meant that until that time the areas shared many of the same plant species.

After the break up of these continents both retained a Mediterranean climate which helped to promote a parallel evolution of the flora. There is consequently still much similarity in the plants of both regions including the cord rushes (Restionaceae), the she-oaks (Casuarinaceae) and the proteas (Proteaceae).

Surviving in a harsh environment

Buttongrass moorland is most extensive in very wet situations with poor drainage on nutrient-poor rock types such as quartzite. So, how do buttongrass moorland plants manage to survive such extremes? Moorland plants have a range of strategies. Some, like the cord rushes, are rhizomatous. The rhizomes (running stems) grow at the soil surface where they are close to the air and can be above the water-table.

The sedges, such as buttongrass, are tufted plants and over time develop quite dense and tall stools from which the leaves grow. These tufts are elevated above the water-table. The shrubby paper barks (*Melaleuca)* have a spongy-corky tissue at the base of the stem that maintains air close to the root system. Plants such as the sundews (*Drosera*) and fairy's aprons (*Utricularia*) supplement their nutrients with nitrogen obtained by capturing and digesting tiny animals. Animals also contribute to the improvement of the nutrition and oxygenation of the soils. Of particular note are the burrowing crayfish that turn the soil and increase oxygen while digging their large burrows.

The effect of fire

The plants within buttongrass moorland are highly flammable and most sites have a frequent and relatively recent fire history. The leaves of moorlands plants are woody and sometimes contain oils. Dead leaves remain on the plants well above the wet ground. This fine, dead plant material dries very quickly. Therefore there are relatively few days in the year when buttongrass moorland is too wet to burn, despite high rainfall. Most often it is people who start moorland fires. Lightning is rarely the cause of large moorland fires as it is usually followed immediately by rain.

Bouncing back after a burn

Most of the plant species in moorland recover very quickly after fire. Cord rushes, sedges and shrubs simply resprout from leaf bases, roots or the bases of the stems after fire. However a few species are killed by fire and rely on seed to regenerate.

Typically the seeds of moorland plants are protected from the fire in woody capsules on the plants or within the soil. The plants that rely on seed tend to be quick to reach maturity and flower within two or three years of the fire.

Frequent fires maintain the vegetation as moorland as it kills any invading forest species. It also depletes the nutrients at the site and makes it difficult for trees to grow as they require more nutrients than many of the moorland plants.

Further information

Reid J.B., Hill R.S., Brown M.J. and Hovenden M.J. (1999) *Vegetation of Tasmania*. Australian Biological Resources Study, Environment Australia, Canberra.

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