Between the Sheets

News from the Secret World of The Howard Sand Sheets

The Howard Sand Sheet is a unique landscape type on the outskirts of Darwin. Relatively few people know about this special place and the amazing plants that grow here and the rare toadlets that also find their home here.

Sand Sheet Heath is a vegetation type and "Howard Sand Sheet" is the unique Sand Sheet which is found within the Howard River floodplain, approximately 30 km east of Darwin in the Northern Territory. This area has been classified as a Site of Conservation Significance because of its unique species.

This shows the Site of Conservation Significance (as outlined by the Department of Land Resource Management)

The landscape type is really quite small in size compared to other landscape types and is found in small patches on the Howard River flood plain. Howard Sand Sheet patches cover a total of 2258 hectares within the area..

Why is it so unique?

The landscape type is special and in the wet season it fills up with a shallow layer of water which sits through and over the sand. There is very little organic matter in the landscape, only a deep layer of sand, which means there are very few nutrients. Like animals and humans, plants need nutrients to grow,. Nutrients are the plants' food. Most plants absorb nutrients which are dissolved in the soil through their roots. In these conditions there are very few nutrients to absorb, so the plants have adapted over a long time to find nutrients elsewhere. Many of these plants supplement the lack of nutrients in the soil with insects or microscopic organisms and are "carnivorous".

The small flowering plants start to grow and flower as the rains set in. The greatest abundance of flowers is at the end of the wet season in April, when the area looks like a sea of flowers.

Many of these flowering plants which are “carnivorous” are a group of plants called Bladderworts or called by their scientific name Utricularia.

Below are examples of *Utricularias,* from Top Left, to Right - *U. chrysantha, U. lasiocaulis, U. odorata, U. dunstaniae.*

All of the flowers seem to attract insects, so they can be pollinated. Bladderworts intake extra nutrients by sucking in animals through special traps in their roots. These animals are microscopic and they are moving through the water in and above the sand (they are aquatic). The plants have small sacs attached to their roots that have a door like

mechanism which suck in these tiny creatures into the sac by creating a vacuum.
There are 36 known bladderwort species across northern Australia.

The Howard Sand Sheets is home to the greatest range or diversity of bladderworts in Australia and was even highlighted by Peter Taylor, an expert and author on Bladderworts. At the end of the wet season up to 10 species of bladderworts (Utricularia) can be found occurring within a small area of the sand sheets.
One of these species, *Utricularia dunstaniae* (above) has been listed as a vulnerable species at a Northern Territory level. This means it is rare and only found in some places and the places where it is found are at risk of being changed or cleared.

Other important species

An amphibian is also endemic– this is a small toadlet, which is a type of frog with the name Uperoleia daviesae, also called the Howard River Toadlet. The tiny frog is only two cm long, a brown colour and very difficult to see. It can be recognised by its call and usually is active at night.

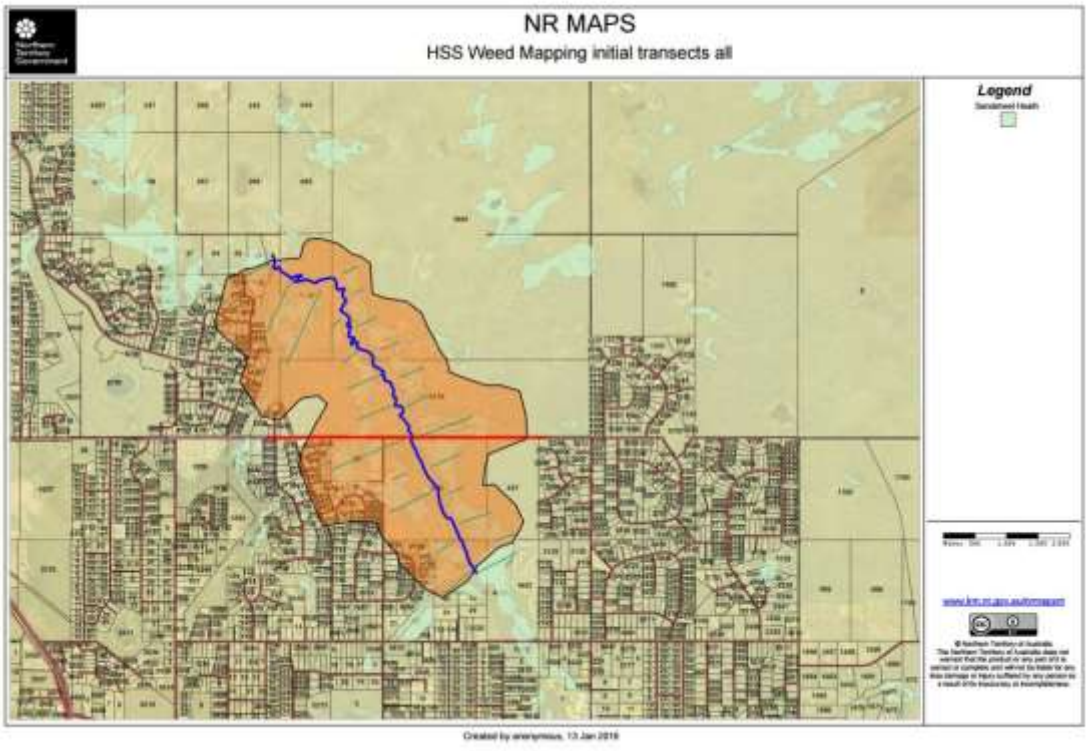
Some other rare plants are also found.

There are many threats to the Howard Sand Sheet, including mining, urban development and disturbance which lead to vegetation loss and change through clearing, changes in hydrology, weed competition and increased fire frequency.

Weed Mapping on the Sand Sheet

Greening Australia is carrying out a project weed mapping in one of the defined key localities of conservation significance. This will lead to a management plan and some targeted weed management within the area The project connects with landholders across the area to gain access and often collaborate in the project. The current mapping project is made possible by support from Territory NRM Community grants.

A methodology has been set up to map as much of the target area as possible for weeds. This is done with a series of 22 Transects that are being walked in the defined area and 3 target weeds being mapped along them. Additionally every navigable track is being driven and all weeds mapped along these.



The focus weed of the mapping is Tully grass, *Urochloa humidicola.* This is an exotic species which has been introduced as both a pasture grass for wetter areas and a plant to stabilise drains at roadsides. It has been identified as a future threat to wetland areas and is spreading rapidly in floodplains of the rural area. It is a robust sprawling grass and quickly outcompetes the often sensitive native flora of the Sand

Sheet areas. The study will start to collect base line data of the presence of this grass species, as well as mapping the listed weeds Mission Grass and Gamba Grass (which are more likely to be in the drier areas adjacent to the Sand Sheet). This is done with methodology recommended by and in consultation with the Weeds Branch (DLRM).

The transects run perpendicular to the course of The Howard River across all areas of Sand Sheet, running from 50m before the Sand Sheet are in the Savannah Woodland and 50m into to the River Margin area. The transects are 500m apart and centred on the Girraween Road-Howard River crossing.

We have engaged a number of volunteers from the community and from Charles Darwin University, as well as being assisted by the Top End Native Plant Society. We have so far spend 5 days in the field collecting data in the months of February and April.

In the above photos a thick covering of Tully Grass can be seen encroaching the floodplain near Girraween Road, leaving almost a monoculture in parts. Walking transects allows us to sample areas in an even and consistent sample. The pictured volunteers are from the Top End Native Plant Society.

Another volunteer from CDU and local resident gets to know Tully Grass, how to ID and some of the secrets of the Sand Sheet

Above our volunteer Sarah Perkins, a CDU Environmental Science student is pictured in a beautiful example of intact Sand Sheet (with the exception of the quad

bike track). The lower layer in this category of Sand Sheet is a sedge-like plant called *Dapsalanthus* and an abundance of flowering plants including carnivorous plants.

On undisturbed Sand Sheet, or those with rarely used tracks, the presence of weeds is significantly lower.

For 2 days we are additionally mapping "Every navigable track" - This allows us to access a great area, but also tracks and roads are a form of disturbance and often a great presence of weeds is found along these.

Here Justin Moore, another volunteer from CDU, maps Gamba and Mission Grass. Within the Howard River floodplain there has been a history of mining and subsequent further disturbance. These previously mined areas have a high density of weed species.

Project coordinator Emma Lupin walks a transect across intact Sand Sheet ready to map weeds.

As we criss cross the Sand Sheet vegetation weed mapping on our transects, these majestic, old and wonderful *Eucalyptus alba* trees are a common occurrence on the

edge of the Sand Sheet in the margin near the Savanna woodland. Above another volunteer, Sophy Millard, an Environmental Scientist and Educator, takes in the tree's great energy.

Sand Sheet Guided Walk 2016

If you would like to come and check out the Howard Sand Sheets and their carnivorous plants in the company of knowledgeable plant and floodplain enthusiasts and also hear more about our project then "Save The Date"

Saturday 14th May 9am - 12.30pm

Girraween/ Herbert area

Exact location to be confirmed.

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