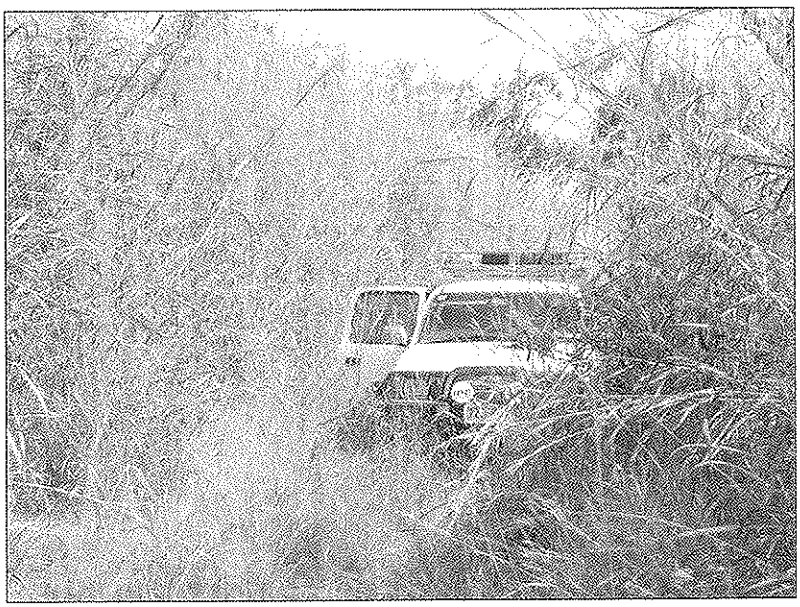
WEEDS

SAY NO TO GAMBA GRASS!

Penny Hussey

Kimberley residents and everyone concerned about the ecology of the northern part of Australia will be pleased to hear that In January 2008, gamba grass (*Andropogon gayanus*) was added to the declared plant list in WA. It can no longer be brought into the State and all known plants must be eradicated. At last! The scientific evidence is definitely in*, this grass is having a major detrimental impact on the ecology of northern savanna woodlands.



Gamba grass in the dry season. Note height.

Since Europeans colonised Australia, there has been a deliberate government policy to introduce plants in order to transform the Australian landscape to increase land productivity and therefore the density of human settlement, including in the tropical and arid zones. This supported the 'populate or perish' philosophy of governments. In northern Australia, it often meant introducing forage plants into rangeland grazing systems to increase stock carrying capacity, and over 2,200 grass and 2,200 legume species have been brought into Australia for trial. Some – a few – have become useful, but many have invaded away from the point of introduction, altering landscape processes, threatening biodiversity and reducing both the productivity and amenity values of landscapes. Such a one is gamba grass.

There was a gamba grass story on the ABC TV programme 'Catalyst' a year or so ago. It is a powerful depiction of the problems caused by this plant and is available on DVD.

Gamba grass is a tall (to four metres) perennial African grass brought to Australia in 1931 as a pasture plant. It is now well established in the Northern Territory and Queensland, and was established (partly by seeding from aircraft) on a few stations in the Kimberley in 1991. For the last ten years, the plant has been studied by researchers from the Cooperative Research Centre for Tropical Savanna Management (CRC-TSM), who have found that it has significant environmental impacts. Briefly, what it does is:

change the fire regime

Gamba grass forms annual fuel loads of 11-15 tonnes/ha (may be as high as 30 tonnes/ha) compared with native grass fuel loads of two to four tonnes/ha. This means the grass will support early dry season fires that are about eight times more intense than natural ones. Later in the dry season, when the grass has fully cured, fire intensities are almost 25 times as high as those recorded in adjacent native grass savannas.

reduce tree cover

This change in fire intensity has led to a 50% reduction in tree canopy around Darwin over the last 12 years. The treed savanna is being converted to (exotic) grassland.

alter hydrology

Gamba grass uses more water, over a longer period into the dry season, and from a deeper soil horizon than native grasses. This is putting greater stress on the woody components of the savanna.

alter nitrogen cycling

Gamba grass prefers ammonium as its nitrogen source, and in its native Africa it is known to inhibit the process of nitrification in the soil, and so give itself a competitive advantage over other grasses. It seems it is also doing that here, increasing soil ammonium and decreasing soil nitrate, each by a factor of three. The nitrogen actually stored in the grass is seven times higher than in native grasses. This stored nitrogen, of course,

continued on page 11

continued from page 11

Gamba grass

goes up in smoke during a fire, which will eventually reduce the levels of soil nitrogen.

can establish in intact ecosystems

Gamba grass spreads rapidly along disturbed areas such as roadsides, but it has been shown that it can establish under trees and in undisturbed soil. All in all, gamba grass is changing the northern savanna ecosystem, especially by causing the loss of trees, meaning that the fauna that depend on the woody vegetation will also be lost from large areas. Another stress the environment doesn't need!

Landholders are now responsible for eradicating gamba grass from their properties. The Dept. of Agriculture and Food has carried out preliminary surveys of infestations in the Kimberley and some control work is already under way. Residents and visitors, please keep an eye out for this grass and call DAFWA's Pest and Disease Information Service on freecall 1800 084 881 for more information or to report any suspect finds.

** There are numerous papers relating to this. If you would like a list, please contact the Editor. This article is adapted from one in Savanna Links, the magazine of the CRC-TSM.*

Photo: courtesy Charles Darwin University, Darwin.

condition of capital and population implies no stationary state of human improvement. There would be as much scope as ever for all kinds of mental culture, and moral and social progress, as much room for improving the Art of Living and much more likelihood of its being improved, when minds cease to be engrossed by the Art of Getting On."