

## THE PROBLEM WITH COW CANE AND NAPIER GRASS

By David Wingate

Cow cane, *Arundo donax*, and Napier grass, *Pennisetum purpureum*, are two very tall African fodder grasses which are now widely used all over the tropics for cattle fodder and other uses such as paper manufacture. But they cannot be easily eaten by cattle *in situ* because of their height and almost woody stems. As a result, they have grown so very tall along our marsh edges, where they have mainly been imported and planted as fodder for marsh-edge cow grazing, that they block the view into most of our peat marshes along with the more aquatic and tall growing cattail.

All we need to do to solve this problem is introduce elephants and hippopotamus, because those are the mammals that it co-evolved with to be eaten by! I say this facetiously, of course, but it does serve to point out the problems that selective introduction of new species can cause when introduced out of context. Now that cattle are being withdrawn more and more from marsh edge grazing the problem of spread by these two giant grasses is becoming even more acute and both species quickly become monopolistic, displacing the native peat marsh plants.

We are fortunate in one respect that Cow cane does not spread by self-seeding on Bermuda. Rather it grows laterally from rhizomes. (In Bermuda, it has mostly been spread in rubble fill dumped in the marshes). This means that established patches can theoretically be contained within their original planting site. I say theoretically controllable, however, because in practice this has proven to be extremely difficult to do.

At the Bermuda Audubon society's Somerset Long bay reserve, where it originally became established in rubble fill from when that marsh was being used as a garbage dump, and now more recently at the Buy Back Bermuda's Eve's pond nature reserve at Shelly Bay, where it had a similar origin, many thousands of dollars have been spent on contracts to try and eliminate it. The reason this is so difficult is that cow cane rootstock can sprout successfully even when buried as deep as 5 feet! Thus, the only way to remove it successfully is to dig it out to this depth by backhoe and then screen the soil to be sure to separate out the rootstocks. In practice many rootstocks still get missed or broken during removal and each individual piece can start a new plant. This means that it is also essential to follow through with year-long monitoring to capture the re-growth. Where it is established amidst other trees and shrubs that we want to preserve, the only option is labour-intensive hand removal of rhizomes with a mattock (which usually cannot dig to the depth required) or mowing off of the re-sprouts between the new tree plantings until the rootstocks gradually weaken and die. Spot treatment of the cut stumps with a systemic herbicide is another, but equally labour intensive option.

The more recently introduced NAPIER GRASS is an even greater challenge to control because it can spread by seed. This means that it might appear anywhere, but in Bermuda it most commonly invades wet bottomlands where cattle are periodically grazed. In addition to blocking views of the marshes from our roadsides, like the cow cane, it also poses more of a fire hazard. At the Bermuda Audubon Society's Freer Cox Nature Reserve in Devonshire Marsh, it became established only recently from seed after the roadside fodder

crop field was abandoned. During the most recent marsh fire there, the Napier grass burned right up to the roadside, posing a potential threat to the Old Devonshire church.

One wonders why on earth the grass cutting in the large marsh edge fields has nearly been abandoned when the wet bottomlands provide the richest and lushest fodder grass, not effected by drought or erosion, and when we still seem to have the same number of milking cows, though sadly concentrated in muddy and smelly holding barns and pens where the cut fodder is brought to them. I hypothesize that there are three contributing factors:

One might be labour costs and logistical challenges in marsh grass cutting.

Another might be the accelerating sea level rise which is raising the water table in the marshes and making the “wet pasture fields” even wetter and more difficult to operate grass cutting machinery on without getting bogged down.

A third might be the lack of a suitable grass cutting machine which can handle muddy fields without bogging down. It may be that such a machine is just not economical to import because our wet pasture fields are too limited in extent to be able to achieve economies of scale.

I believe that all the foregoing problems could be resolved if we were to pool resources to import a wide-track tractor, designed to cut the grass in front and feed it automatically into a large bin on balloon tires which is towed behind. With such a machine ALL those fields could be restored efficiently and economically for their original purpose, providing enough green fodder to serve all the dairy farms without the need to import any. In the process those fields would be restored as optimum habitat for marshland birds, along with the view of same. As all those marsh edge fields can form a very effective fire break between the fire prone peat marsh interior and its dry-land edge, they can also serve as a very effective firebreak. Only where these fields are directly adjacent to the road would there be an additional problem to deal with in the form of roadside litter, mainly thrown bottles, which can cause severe damage to mowing machinery. That litter would be easier to find and remove, however, once the grass is regularly cut.

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