<u>BACKGROUND</u> TO CONTROL OF INVASIVE ALIEN PLANTS IN RIPARIAN ZONES AND WETLANDS

The **NATIONAL WATER ACT** Act No 36 of 1998 recognises the **entire aquatic ecosystem** - not merely the water it provides – as **"the water resource**"and are indivisible natural assets. Both **wetlands** and **riparian zones** are specified as water resources and are under the custodianship and protection of the DWAF.

A **wetland** is described as "land which is transitional between terrestrial and aquatic systems where the water table is at or near the surface, or the land is periodically covered with shallow water, and which in normal circumstances supports or would support vegetation typically adapted to life in saturated soil."
Riparian zones are described as "the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent areas."

CARA (the Conservation of Agricultural Resources Act) and **NEMBA** (the National Environmental Management Biodiversity Act) are two pieces of legislation governing the removal of alien species from ones property. Both list all declared weeds and invader plants and provide removal requirements according to the plant's risk as an invader. CARA is enforced by the Department of Agriculture and is currently in effect and categorises invasive plants as:
Category 1 – Must be removed and controlled by all land users and may no longer be planted, propagated or traded (e.g**. long-leaved wattle**, **hakea**, spider gum, inkberry, **sesbania**, pittosporum, oleander, stinkbean, **lantana**, pampas grass, Spanish broom, Spanish reed, pickly pear, canna & several waterweeds)
Category 2 – These plants pose a threat to the environment but nevertheless have commercial value. These species are only allowed to occur in demarcated areas and a land user must obtain a water use license.
(e.g. **rooikrans**, **Port Jackson, black wattle, blackwood, grey poplar, pine**, several **gum** species, weeping willows, beefwood, sisal, castor oil plant).
Category 3 – These plants have the potential of becoming invasive but are considered to have ornamental value. Existing plants do not have to be removed but no new plantings may occur and the plants may not be sold
(e.g. jacaranda (WC), syringa, manatoka, Brazilian pepper (WC), bottlebrush, cotoneaster, loquat & morning glory).
Our invasives are mainly Category 2 which under NEMBA may not be grown within 30m of 1:100 floodline!

NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998 Page 3 of 12
"**watercourse**" means -
(a) a river or spring;
(b) a natural channel or depression in which water flows regularly or intermittently;
(c) a wetland, lake or dam into which, or from which, water flows; and
etc.----------
LISTED ACTIVITIES
18. The infilling or depositing of any material of more than 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from:
(i) a watercourse
etc.----------
In practice do not put any machinery into a watercourse and do not fill with building rubble. Rather contact the GWUA before doing any type of major repair work on river banks.

BUFFER ZONES & FLOODLINES
Summary of floodline workshop 2012. Jeanne Gouws and Pierre de Villiers

1. It was agreed that the 1:10 year floodline should be an active river management zone where aliens need to be removed and the riparian zone stabilized or rehabilitated.
2. The 1:100yr floodline should be a (hydrological) management zone where best practice guidelines need to be developed. Landowners should be made aware that floodwaters will pass through this zone during their life time. High risk areas need to be identified

Although Buffer zones between orchards and riparian zones have not been determined, Environmental Affairs would look at not less than 32m which they use as a norm in built up areas. Until a norm for buffer zones in our area has been determined, contact GWUA if in doubt.

CLEARING & CONTROL OF INVASIVE ALIEN PLANTS IN RIPARIAN ZONES AND WETLANDS

PLAN:

Control programs need to be viewed as **long term management projects** that detail both the initial clearing exercise **and follow up actions** for rehabilitation of the cleared area. Start off with a map showing the age or size and density of the dominant alien species in the area broken into logical blocks(polygons). This will help with deciding what clearing methods to use and how to manage the work site. *GWUA can help with some maps*

PRIORITIZATION

Focus initial clearing efforts in areas where **follow ups can be guaranteed**. Start clearing the **lighter infested areas first** i.e. those with young/immature, less dense trees which have smaller seed banks and a potentially high rate of spread, such as seedlings after a fire. This will prevent the buildup of seed banks. Starting with less dense areas will require fewer resources and have greatest impact in the long term. Ideally dense mature stands should be left for last, as they will not significantly increase in density or pose a greater threat than at present. Initial work should focus on clearing all alien undergrowth between mature trees which makes it easier to work the mature trees

MONITORING

Mapping and dating cleared blocks as they are completed will help GWUA monitor and help prioritize follow-up work. Ensure that the cleared site is revisited on a regular basis, 6 monthly at a minimum, to monitor the regrowth.

CLEARING METHODS

Remove biomass wherever possible. Where complete removal of biomass is not possible, remove larger diameter biomass (>5cm diameter woody stems), and stack the remaining finer material on rocky areas or sandy soil in heaps no wider than 3m and 1.5m high. They should be at least 4m apart to facilitate stack burning if required. If burning of brushwood is planned it should be spread rather than stacked - see fire below.

Pulling by hand or tree popper: pulling out seedlings & saplings **roots and all,** minimising soil disturbance to reduce seed germination, but saplings likely to leave roots that coppice and spread very quickly.

Foliar application: Dense or open stands (no more than waist high) with sufficient foliage to carry the applied herbicide to the root system.

Basal stem treatment: Treat up to 50mm diameter stems to a height of 250mm. Treat stems from 50mm to 100mm to a height of 500mm. Spray the full circumference of the stem with a low pressure coarse droplet spray from a narrow angle, solid cone nozzle. Use only on thinly barked woody trees, reasonably free of mud and dust, and fairly dry. This is effective method to treat saplings, regrowth and multi-stemmed trees and shrubs.

Cut stump treatment 100cm diameter saplings to medium and large diameter trees: Cut stumps, including all side stems and suckers, as low to the ground as practically possible. Apply herbicide to the cut area as recommended on the label. Apply herbicide by close spray or a brush applicator **within 3 minutes** vs regrowth

Coppicing growth: Roots coppice from some species and follow-up must be undertaken before the plants are too large to be controlled by foliar spraying. Coppicing stumps must be treated before they reach head height.

Ring barking or Frilling(cut through bark and apply herbicide in cut) where can not remove large trees but will fall down eventually and cause problems.

Fire: Think this through carefully! Alien infestation results in hotter fires stimulating alien germination by the thousands & killing indigenous seeds. NB Follow up foliar spray on new seedlings germinated after fire.