Summary of Recommendations

Budget required in 2013-14 financial year to treat identified priority roadside weeds to a minimum acceptable degree:

- **Boxthorn** – 15 days manual removal (operator+vehicle+c15L herbicide) - $4950
- **Pampas** – 2 days spraying (operator+vehicle+c5L herbicide) - $700
- **Chilean Needle Grass** – 8 hrs manual - (operator+vehicle+c1L herbicide) - $370
- **Thistles (focusing particularly on Slender Thistle)** – 5 days steamweeding - $4000
- **Onion Weed** – 3 hrs manual removal (no vehicle required) - $90
- **Willows (pending further investigation)** – 2 days manual control (operator+vehicle+c1L herbicide) - $660
- **Brooms** – 1 day manual control +c1/2L herbicide - $325
- **Bridal Creeper** – 6 days manual removal - (operator+vehicle) - $1920
- **Horehound** – 10 days steamweeding - $8000
- **Asparagus Fern** – 3 days manual removal and/or spraying - (operator+vehicle+c3L herbicide) - $990
- **Dolichos Pea** – 4.5 hrs steamweeding - $450
- **Blue Periwinkle** – 6 days steamweeding - $4800
- **Wild Turnip** – 2.5 days steamweeding - $2000
- **Espirillo** – 1 hr (operator+vehicle) - $40
- **Mullein** – 4 hrs manual removal (operator+vehicle) - $160
- **3 cornered Garlic** – 3 days steamweeding - $2400
- **Fennel** – 4 hrs manual removal of stems/seeds (operator+vehicle) - $160
- **Reseda** – 5 hrs steamweeding - $500
- **Ruby Pea** – 0.5 days steamweeding + 1.5 days manual removal (operator+vehicle) - $1040

**Total** $33,555

However, as this includes in it wages for 82.16 operator days (the steamweeder being costed with dual operators), and assuming my position incorporates 1 day/week of on-ground weed control (therefore 52 days/year) and that this sum is already covered elsewhere in budget considerations, it could potentially be reduced to:

| Amended Total Weed Control (excepting Parramatta Grass) | ~$22,000 |

PLUS

Parramatta Grass – as much as can be afforded, ideally for as much steamweeding as is practicable and affordable (@$800/day for anything up to the impossible amount of 4,125 days@$3.3M). To make a significant strategic dent in Parramatta Grass infestation of Flinders’ roadsides utilizing steam – an absolute minimum of 25 days of steamweeding - $20,000

**NOTE:** trialling of steamweeding as a control technique is not yet complete and the recommendations for its use are based on interim results. Follow-up checking of steamweeder trial sites 1 month after the 2nd of 2 steamings has indicated that most Parramatta Grass tussocks are beginning to put up new shoots. A 3rd steaming will be carried out but if this doesn’t succeed, steam (@230 degrees C) cannot be considered effective for this particular weed.

The alternative, effective management technique of control through use of the residual herbicide Flupropanate cannot be recommended for generalized widespread use on road verges due to limitations regarding the potential concentration of the chemical in/via drains and the fact that native browsers cannot be withheld from grazing while lactating as is required for farmed stock in paddocks. Some sort of signage may also be required for any areas of roadside reserves where this residual chemical is applied to ensure that stock grazed on the ‘long paddock’ don't inadvertently contravene the withholding period.

Despite the limitations indicated, it is however likely that limited, targeted, strategic use can be made of Flupropanate. Use of this herbicide (spot-sprayed or wickwiped) on certain sections of roadside, for instance immediately adjoining grazing paddocks within which Parramatta Grass control has been achieved, could be appropriate and the most time/cost-efficient strategy to employ - $42/hr + $42 herbicide/Ha (Total cost of this should be estimated by determining the likely area to which it would apply and could possibly be reduced...
FURTHER THOUGHTS ON PARRAMATTA GRASS CONTROL

I have recently written to Professor Anne Lawrie of RMIT regarding the possibility of trialling an Australian fungus as bio-control for Parramatta Grass (Sporobolus africanus) on Flinders. She is one of a team of scientists who have been involved in successful trialling of Nigrospora oryzae on Giant Parramatta Grass near Grafton, NSW. I’ve discussed this possibility with David Lane of DPIPWE’s Invasive Species branch, local agronomist Brigid Watson and with Artie Withers (as one of the island’s main contract slashers and a rural landholder with a particularly serious Sporobolus problem).

Brigid advises that we have both S africanus and, to a much lesser extent, Slender Rat’s Tail Grass (S elongatus) occurring as weedy tussocks on road verges and vehicle tracks. She thinks there’s potential in a fungus as bio-control but only if it can pass all the tests/steps/protocols that would be necessary to ensure it posed no environmental hazard. David Lane shares this view and has talked to a bio-security scientist about the likelihood of a trial being approved.

Artie has come (with some chagrin) to see the role slashing has played as primary vector in Parramatta Grass’s spread. While very frequent low mowing can prevent Parramatta Grass outcompeting with other grasses, as can be observed on the playing surface of the oval at the sportsground and on the golf course fairways for instance, this requires maintaining a turf height below that possible for a standard slasher. My hopeful estimate that 4 times per annum might suffice to prevent seed set has also proven to be out by a factor of at least 2. I’ve been carrying out a small scale trial at Emita, de-heading Parramatta Grass and observing the time taken to develop the next lot of seed. 4-6 weeks is all this takes and one of the secrets to Sporobolus species’ success as invasive weeds is that while much of their tiny seed will be dropped/shed as it ripens, some remains on the stems so there is no time of year when it can be slashed/mown without further distributing it.

Artie is happy for trials of various control methods and strategies to be conducted on part of his property ‘Braefield’. He’s recently slashed half of his heavily infested and readily visible Black Stump paddock beside the Palana Rd and we’re discussing ways to treat the uns slashed portion to compare effectiveness. Possible strategies include cultivation (with and without herbicide); intensive grazing (sheep/cattle); patch burning for green pick; steaming; spot-spraying; wick-wiping and spraying with herbicide/s; fungus if available.

Leanne Sherriff who conducts the PMP farm assessments on Flinders has said she’d be very keen to see such a trial here. CfoC’s Sustainable Agriculture stream presents a possibility for some funding although we need to juggles the relative hazards and legislative statuses of Parramatta Grass and Chilean Needle Grass. I’ve had some input into the application being put together by DPIPWE’s Invasive Species Branch (July 2013) and while control strategies and trials will almost certainly focus on CNG (currently confined to Emita), funding has also been sought for the sort of slasher fan unit that would also be extremely beneficial to limit spread of Parramatta Grass during roadside slashing. Other possible sources of funding will be explored and followed up as they become available.

Last year Artie trialed a patch in another of his Braefield paddocks with Fluproponate (as Taskforce, sprayed rather than wick-wiped) where the infestation was heavy (av. 26 Parramatta Grass tussocks/square metre) and has had an excellent kill of the target species. Clover is clearly not affected and is growing up through the dead tussocks. He’s since cultivated part of this patch to compare the results of cultivation vs non-cultivation in terms of eventual species mix. To recover productivity as useful grazing paddocks, he’d need to re-sow because the other dominant grass is rubbishy Browntop (Agrostis capillaris). This isn’t affordable, feasible or practical for him at present due to dry conditions and his lack of internal fencing post the 2003 fires. He’s also not currently running stock and has been managing these drier paddocks for some time by slashing, hence the extent of Parramatta Grass coverage.

The complete range of potential control strategies relevant to Parramatta Grass, based on current knowledge, on Flinders Island road-vertges are
• Grazing (stock access to the “long paddock” as has been utilised lately in many parts of Memana-Lackrana is a great low-tech option for reduction of roadside vegetation generally and could well be further encouraged although there is the potential downside to this for farmers that stock can excrete viable Sporobolus seed up to 5 days after ingesting it so they should ideally either be yarded for this period when coming off the road verges or at least confined to a single paddock where any Parramatta Grass that comes up can be spot-sprayed with Glyphosate or Fluproponate);

• Steaming (which appears could be effective (though requiring at least 3 steamings) but will almost certainly be more practicable for smaller/localised infestations than as a method to roll out holus-bolus across the island);

• Fluproponate (clearly effective though it would require precise timing and care to ensure effective application as well as avoidance of table drains etc where the chemical may concentrate. Its broadscale use does also mean the introduction of a powerful residual herbicide to a large area making it virtually impossible to prevent deleterious impacts on and contamination of native browsers, as well as unknown effects on

• Glyphosate can be very effective when spot-sprayed (and is non-residual) but is not recommended for any broadscale application because it leaves a bare sward which is a perfect opportunity for further weed establishment;

• Frequent close mowing (most applicable within townships and on rural verges where the adjacent landholder takes on the responsibility for mowing).

At some future time, if at all possible, Flinders Council could usefully purchase or manufacture some sort of extractor fan unit for the slasher to reduce seed spread (this is an as yet uncosted piece of equipment but prototypes have been developed and a dvd of them in operation has been produced by the federal WONS CNG unit.) If the CFoC Sustainable Agriculture funding application being put together in July 2013 for control of Chilean Needle Grass on Flinders Island succeeds, it is planned that among the things it will fund is a slasher fan unit which could also potentially also be used in Parramatta Grass slashing and would be useful for roadside slashing to limit Parramatta Grass spread.