Kimberley Rangelands Biosecurity Association

Invasive Species Activity Report 2024/25

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Large Feral Herbivores

Overview: The Kimberley Rangelands Biosecurity Association (KRBA) conducts an annual Large Feral Herbivore (LFH) culling program that targets feral donkeys, horses, and camels, along with other species such as water buffalo and pigs that are culled opportunistically when located. The program focuses primarily on donkeys, utilising the Judas program's radio telemetry techniques, with horses and camels culled opportunistically during the tracking process. There are currently approximately 45 active collars deployed throughout the Kimberley, with a focus on the Central and North Kimberley regions.

Dedicated management culls for feral horses and camels are occasionally conducted as required. An example of this is the annual cull of feral horses in the East Kimberley, focusing on the Great Northern Highway and adjacent pastoral leases. The primary objectives of this cull are twofold: firstly, to reduce the impact of feral horses on pastoral land, and secondly, to lower the risk of traffic accidents and associated injuries to road users caused by horses gravitating towards water points and improved grazing areas adjacent to the highway.

Feral donkeys and horses make up the bulk of the KRBA's annual LFH cull program in the Kimberley.

Achievements as per operational plan: Department of Primary Industries and Regional Development (DPIRD) shooters undertook one cull over six days focussing primarily on donkeys in the North and West Kimberley regions.

Results of animals culled on those runs are as follows (see Table 1) –

Donkeys	Horses	Camels	Pigs
119	nil	nil	17

Table 1

In addition to the culls a total of five new collars were deployed on donkeys over the year and zero DNA samples were taken.

Data from the 2024–25 cull showed that, of the 40 collars tracked, 52.5% were not found, and 55.4% of donkeys were shot 'off-collar'. In June 2024, the figures were poorer: of the 40 collars tracked, 60.1% were not found, and 64.2% of donkeys were shot 'off-collar'. In comparison, during the October 2023 cull, of the 44 collars tracked, 45.5% were not found, and 38.3% of donkeys were shot 'off-collar'. When compared to the average 'found/not found' rate from culls conducted between 2016 and 2020—where only 28.5% were not found—this data suggests that disruptions to the program since mid-2021 have created gaps in collar deployment. As a result, a higher proportion of donkeys are now untracked and therefore unmanaged.

The challenge for the KRBA (through addressing funding shortfalls) and DPIRD (through the provision of shooters) is to re-establish the program so that it operates more than once a year, and continues consistently over the next decade, in order to reduce the expected increase in donkey numbers and

range.
The KRBA recognises that land managers, in particular the Australian Wildlife Conservatory also contribute to feral herbivore control through both opportunistic and planned culling programs of their own; however, no data from these activities are currently available.
No aerial shooting operations were conducted by the KRBA over land managed by the Department of Biodiversity, Conservation and Attractions (DBCA). However, DBCA carried out its own management culls over Drysdale National Park, the Ord River Regeneration Area, and other reserves. Data from these operations is provided to the KRBA annually.

Analysis: A cost–benefit analysis of the Judas Program was undertaken by the KRBA in 2019 to help determine the program's strategic direction over the following 30 years. The analysis found that the program had achieved a Benefit–Cost Ratio (BCR) of 3.8, meaning that for every dollar spent, the program generated $3.80 in benefits.
It should be noted that this ratio applies specifically to the Judas Program. Any management cull that removes comparatively large numbers of animals within a shorter timeframe would be expected to generate a significantly higher BCR. A specific example of this is the 2021–22 period, during which donkey cull numbers represented only 26% of the total number of horses culled, but were achieved over 7.5 times longer timeframe.
Based on these findings, it can be reasonably estimated that the $125,000 spent on Large Feral Herbivore (LFH) control in 2024–25 would have delivered an approximate $442,000 benefit to the pastoral industry. This figure does not include the additional, but unquantified, benefits to high-value public environmental assets such as national parks, Nationally Important Wetlands, Ramsar sites, and recognised Wild Rivers in the Kimberley region, which were not factored into the original cost–benefit analysis.

*Performance indicators: I*n 2018, DPIRD conducted an evaluation of the Judas feral donkey management program in the Kimberley and Pilbara regions of Western Australia, covering the period 1994–2017. Data from that evaluation has been used to address several of the following indicators. However, it is acknowledged that the ongoing challenges experienced within the program over the past three years may take up to a decade to fully rectify. This is due to the cumulative effects of lost ground resulting from collar battery failures as collars were not replaced when required, difficulties in reacquiring contact with donkeys still carrying active collars, the loss of program expertise following personnel changes, and insufficient funding.

Reduction in feral donkey populations: While there is reliable data on the number of Large Feral Herbivore (LFH) animals culled, population estimates at the commencement of the program and at present remain uncertain. However, based on cull data (see Figure 1), it is estimated that when the program began in 1978**,** there were approximately 250,000 animals in the Kimberley region. The current population has been estimated to be between 3,000 and 5,000 animals.

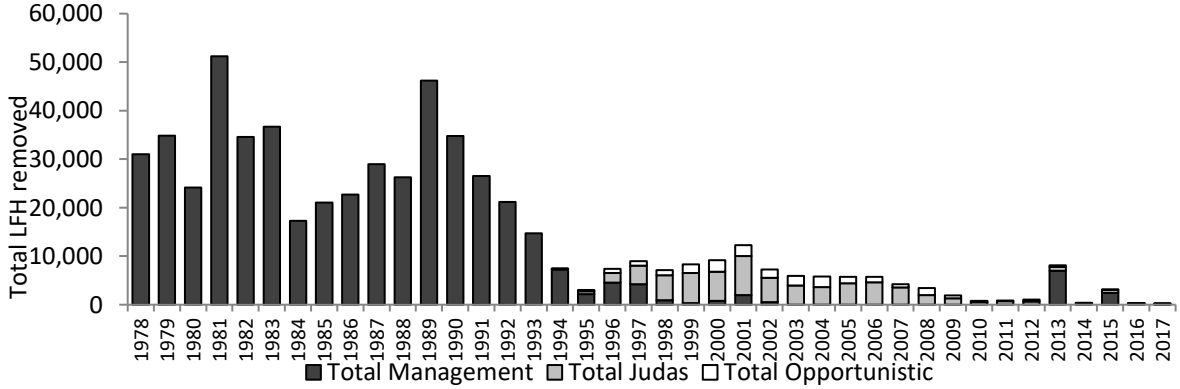


Figure 1: Annual removal of LFH in the Kimberley during the management program (1978 – 2017); black bars – management shoots; light grey bars – Judas program, and white bars – opportunistic shoots associated with the Judas program.

Number of properties locally eradicated: In 2017 in was believed that nearly 75% (n = 58) of all properties participating in the Judas program have reached the stage of being considered eradicated. It took on average 9.2 (± 4.5) years to achieve local eradication (see Table 2, Figure 2A). On that basis 25% (n = 19) properties are considered to be under the Judas control program. Some are nearly eradicated and some are under a monitoring phase to confirm localized eradication (see Table 2 and Figure 2B).

The number of donkeys controlled diminished considerably, which indicates that the Judas program has been highly successful. The relative cost per donkey controlled now is considerably higher than during the initial phases of the Management shoots and the beginning of the Judas program.

Shire	Properties participating in Judas program n	Properties considered eradicated n (%)	Properties considered to be under control (nearly eradicated) n (%)
West Kimberley	32	23 (72%)	9 (28%)
Halls Creek	23	21 (91%)	2 (9%)
East Kimberley	22	14 (64%)	8 (36%)
Total	77	58 (75%)	19 (25%)

Table 2: Number of properties that participated in the Judas program, properties that have been considered eradicated, and properties that remain under the control program

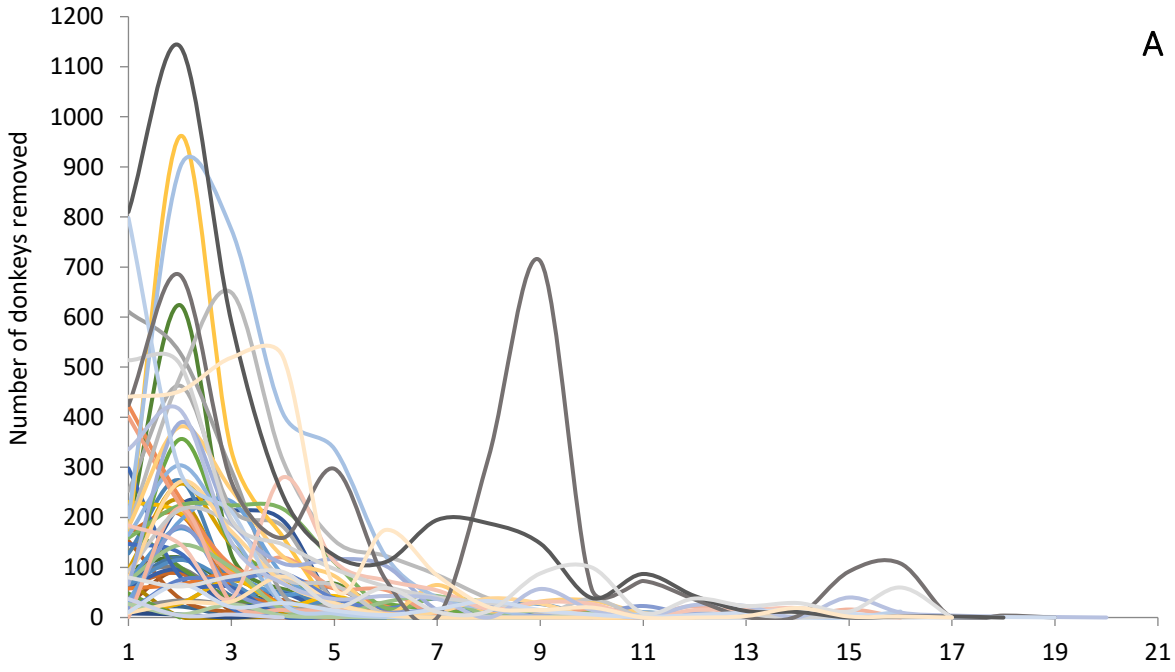


Figure 2A

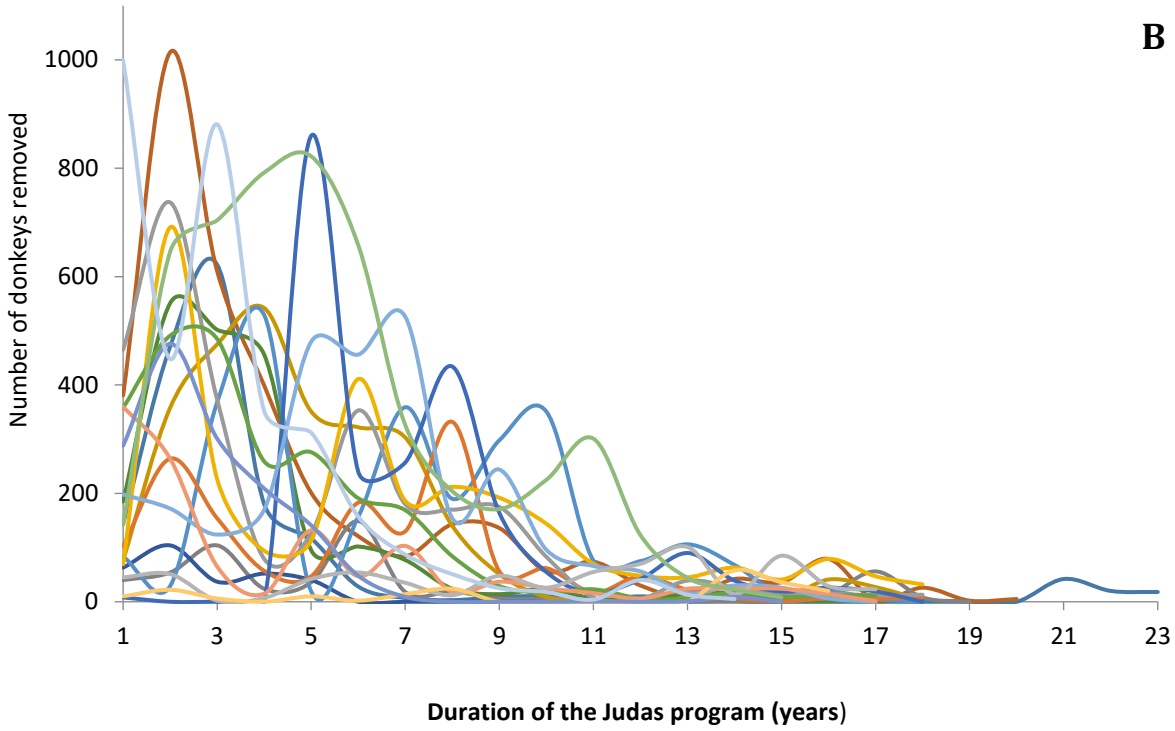


Figure 2B: Properties (n = 58) that are considered eradicated, and properties (n = 19) which are under control with low donkey numbers; each line represents one pastoral property

Reduction in feral camel and horse populations: There is not the data at this stage to indicate the full extent of culls on both the camel and horse populations in the Kimberley as their culling programs are less intensive than the donkey program. However anecdotal evidence from land managers indicates that these culls have been extremely effective at a local level.

Recommendations: Maintain the program within the funding confines 2025 - 2026 provides and seek ways to re-establish funding to be able to maintain two to three runs annually in future years.

The Judas program tracks collared donkeys from the air using radio telemetry techniques employed by the shooter and pilot.

Wild Dogs

Overview: The KRBA runs two aerial baiting programs a year to support the individual ground baiting programs run by pastoral stations. They are usually programmed for April and September to avoid rains that will render the baits useless. The programs are coordinated by a contractor. In addition to the baiting service the contractor also provides according to the demand bait injection courses for pastoralists as part of the baiting service provided by the KRBA.

Achievements as per operational plan: The September 2024 program covered 21 stations baiting on 33 leases. A few 'regular' stations did not participate in this bait run because of the amount of rainfall during the start of the program. This was unseasonal and uncommon at this time of year. The program also usually runs about a week earlier, however the arial contractor availability meant that the program commenced slightly later than usual. The contractors encountered a low number of last-minute cancellations, where stations cancelled having baits injected due to the rainfall. There were no stations that either cancelled during the bait run or had forgot and weren't ready on this occasion. This resulted in the following bait quantities dropped or supplied to pastoralists –

- 44,250 baits were injected by the contractor.
- 4,000 pre-made field prepared dried meat baits were supplied to stations by the contractor.
- 2 Litres of 1080 CLC were supplied to pastoralists to inject their own baits.
- 400 of 6mg impregnated oats were supplied to pastoralists to make baits
- Average time baits sat on the racks after injecting was 2.8 days.
- 25% of respondents replied to the initial yes/no enquiry (poor).
- Bait quality (rated out of 10) ranged between 6 and 10 with five stations below 8.

The May 2025 program covered 16 stations baiting on 26 leases. More unseasonal rain caused some delays in the injection schedule and, subsequently, the plane's schedule. However, the contractors were able to reschedule the majority of the stations after the rain and continued with the program, resulting in only one lost day. Four stations cancelled last minute, either due to rainfall or because of time constraints and there were no new stations that participated in the May program that had not participated previously. This resulted in the following bait quantities dropped or supplied to pastoralists –

- 65,500 baits were injected by the contractor.
- 9,800 pre made baits were supplied to stations.
- 6 litres of 1080 concentrate was supplied to pastoralists to inject their own baits.
- Average time baits sat on the racks after injecting was 5.1 days due to rain delays.
- 30% of respondents replied to the initial yes/no enquiry (about average).
- Bait quality (rated out of 10) ranged between 6 and 10 with just two stations below 8.

Analysis: A cost benefit analysis was undertaken for DPIRD'S WA Wild Dog Action Plan 2016 – 21. It estimated that dog control in the Kimberley had a Benefit Cost Ratio of 5.1. On that basis it could be reasonably expected that the $243,000 funds spent of wild dog control in the 2024-25 year gave a benefit to industry of $1,215,000.

Contractors demonstrating how baits are made at one of the KRBA's training days.

In 2021 Murdoch University, Western Australia carried out a year-long study on the diet of dingoes in the West Kimberley. In scat samples cattle were detected in 65.3% of those samples. Compared with the national average diet of cattle being present in 13% of samples for the arid and tropical regions of Australia, the consumption of cattle (live and carrion) in the West Kimberley is very high, with greater consumption in the control and treatment sites at the end of the dry season compared to the early dry season the researchers noted. The concern from land managers is that if dingo numbers are not managed adequately there is huge potential for increased calf predation at the end of the dry season.

Performance indicator: No data is available to verify what calf survival rates are due to the program at a regional level however in the 2024 membership survey carried out by the KRBA it was identified that sixteen managers who regularly used the plane as part of their baiting program generally rated the threat of wild dogs lower than those who didn't and the twenty managers that rated the aerial baiting program service gave it an average score of 9.1/10, much the same as the 2022 rating of 9.25/10. Both these observations indicate that the satisfaction level with the program is extremely high.

Recommendations: Maintain the program within the funding confines 2025 - 2026 provides and seek ways to re-establish funding to be able to maintain the preferred two runs annually in future years.

Pigs

No work was undertaken on pigs this year.

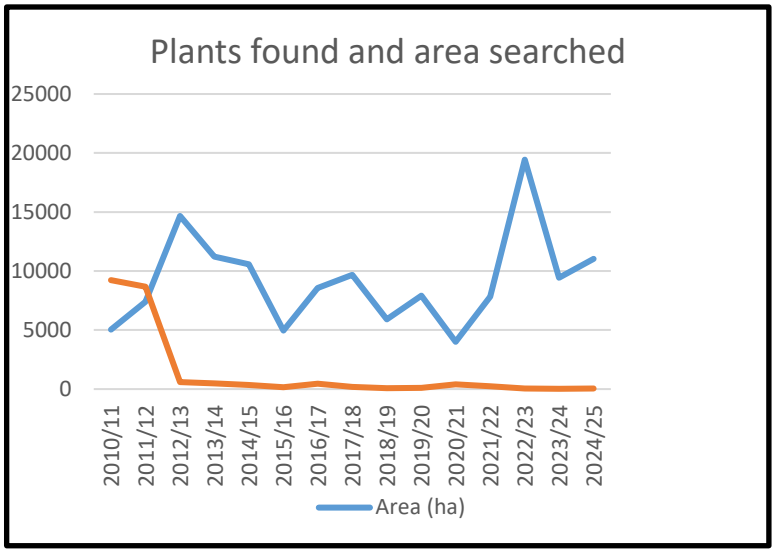
Recommendations: Initiate a pilot control program in two locations within the Kimberley region once a suitable contractor can be found.

Prickly Acacia

Overview: Prickly acacia is known to exist in two locations in Western Australia, both in the East Kimberley region. The KRBA runs the control program on the Nulla Nulla site and monitors the Gordon Downs site where control has been undertaken by the land manager. The Nulla Nulla site covers 10,578 hectares and work has been ongoing on that site since approximately 2004. The KRBA has supported this work in terms of funding since the onset and took control of the operational aspects of the program in 2017.

The Gordon Downs site was first identified by a DPIRD Biosecurity Officer in 2012 when a small number of juvenile plants were found. A number of monitoring runs have been undertaken since that time with no further plants found until last year.

Achievements as per operational plan: Two control runs were carried out on the Nulla Nulla site over the 2024/25 year. In total 60 plants were controlled over a 11,038ha area. For reference, at the start of the program in November of 2010 9,230 plants were controlled in that year (see Graph 1).
No survey work was carried out on the Gordon Downs site due to budget constraints.



Graph 1

Analysis: No benefit cost analysis has been carried out on impact of Prickly Acacia on this site however the economic impacts of Prickly Acacia on QLD's grazing industry was estimated at $5 million per year (2003). Even at medium densities, it halves productivity of grasslands, interferes with mustering and restricts access to water. This comes on top of the expected ecological benefits the removal of this weed from the Landscape would provide to the numerous high value public environmental assets such as National Parks, Nationally Important Wetlands, Ramsar Sites and recognised Wild Rivers situated in the Kimberley.

Performance indicator: The performance indicator will be the eventual eradication of prickly acacia from the Kimberley region. This work is ongoing and confidence is reasonably high that the target is achievable given the results to date.

Recommendations: Maintain the eradication program within the funding confines 2025 - 2026 provides and seek ways to re-establish funding to be able to maintain two to three runs annually in future years.

Mesquite

Overview: Mesquite is known to exist in four locations in the Kimberley region of Western Australia. The KRBA ran a control program over the Nicholson site until 2020 when it was handed over the lease owner Heytesbury Cattle Company after eight years of work had reduced the infestation down to a manageable size. At that same time the KRBA took on the operational work from DPIRD of the Yeeda and Thangoo infestations as well as previously providing financial support to those programs. In this year only the Yeeda

A mature mesquite plant found on coastal flats on the Thangoo lease.

site had work undertaken due to budget constraints

Achievements as per operational plan: In 2024/25 the following field work was undertaken –

- 23,643ha was surveyed on the Yeeda site with 223 plants controlled over two trips involving four days' work.

Analysis: No benefit cost analysis has been carried out on impact of mesquite on these sites however it is well known that the Pilbara mesquite infestation covers in excess of 55,000ha and creates a significant cost to production and for control annually. This comes on top of the expected ecological benefits the removal of this weed from the Landscape would provide to the numerous high value public environmental assets such as National Parks, Nationally Important Wetlands, Ramsar Sites and recognised Wild Rivers situated in the Kimberley.

Performance indicator: The performance indicator will be the eventual eradication of mesquite from the Kimberley region. This work is ongoing and confidence is reasonably high that at least in some locations the target is achievable high given the results to date.

Recommendations: Maintain the program within the funding confines 2025 - 2026 provides and seek ways to re-establish funding to be able to maintain two to three runs annually in future years.

Rubber vine (Cryptostegia grandiflora)

Background: Rubber vine control in the Kimberley has been supported by the KRBA since 2009. There are two distinct programs, one in the East and the other in the West Kimberley managed by a partnership group made by of the following organisations –

- DBCA
- DPIRD
- KRBA

Both programs are run by a single management and operational group (Western Australian Rubber Vine Advisory Group – WARVAC). Ground work is largely undertaken by contractors but partner organisations also provide in-kind as well as financial support. Coordination of the programs is provided to the group by DPIRD on a fee for service basis.

Contractors working to pull down a mature rubber vine plant to ensure there are no seed pods present. If found they would be destroyed on site.

The KRBA provides both funding and in-kind support to both programs. In 2020 the KRBA agreed to take on the role of sponsor organisation for SNRM funding applications and to provide financial management to the programs. Other partner organisations also provide funding and in-kind contributions such as personnel to carry out the control and survey work. In 2024-25 the KRBA on behalf of the group was successful in applying for two grants. One was through the SNRM Community Stewardship Grants for $261,000 and the second through the Environment Heritage and Culture Flexible Grants for $362,400. These grants came on top of an initial successful application in 2021-22 through Community Stewardship Grants for

$267,500. These grants have enabled WARVAC to forward plan their operations until 2028-29.

Achievements as per operational plan: - Survey and control East and West Kimberley:

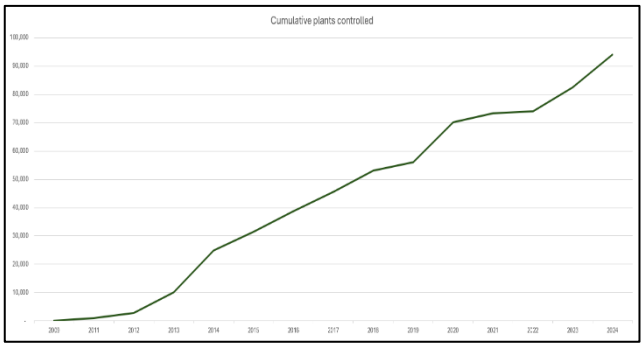
Description	East Kimberley	West Kimberley
Aerial survey	14,871 ha	48,771 ha
Area controlled (est)	165 ha	947 ha
Person days	-	-
Plants controlled	6,500 approx.	44,000 approx.
Seeders	-	-

Table 3

Achievements as per operational plan: - Remote survey

No work was undertaken on remote sensing this year due to conflicts in personal timing.

Analysis: A 2014 DAFWA benefit-cost analysis, estimated that the eradication of current infestations in the Kimberley would prevent damage of $10.9 million/year over a 30-year period based on agricultural impacts alone. This comes on top of the expected ecological benefits the removal of this weed from the landscape would provide to the numerous high value public environmental assets such as National Parks, Nationally Important Wetlands, Ramsar Sites and recognised Wild Rivers situated in the Kimberley. It is on this basis that the three organisations have agreed to undertake the program in partnership.



Graph 2

Performance indicator – Eradication of rubber vine: Ideally the performance indicator would be the eventual eradication of rubber vine from the Kimberley region. Data, particularly generated in the East Kimberley program demonstrates that eradication is achievable at local levels, particularly utilising the control methods learnt in that program. On that basis the work is ongoing and there is some confidence that the target is achievable high given the results to date. See Graph 2 indicating how the cumulative total of plants controlled flattened between 2022 and 2022.

Recommendations: Maintain funding the program within the funding confines 2025 - 2026 provides and seek ways to re-establish funding back to 2024 – 2025 levels for future years.

Gamba grass

Gamba grass mixed amongst native vegetation.

Overview: Eradication of the gamba grass infestation on El Questro Station has been supported by the KRBA since 2013 and is managed by a partnership group made by of the following organisations –

- DBCA
- DPIRD
- KRBA

Work is largely undertaken by contractors but partner organisations also provide personnel on the ground as well as financial support.

The KRBA provides both funding and in-kind support to the program. In 2020 the KRBA agreed to take on the role of sponsor organisation for the group's SNRM funding applications and to provide financial management to the program. Other partner organisations also provide funding and in-kind contributions such as personnel to carry out the control and survey work.

Achievements as per operational plan: A total of just 15 plants were found across for locations, a significant decrease on last year's 90 plants.

In this project it was agreed by the committee that for gamba grass to be considered fully eradicated from the location it must not be observed for a period of five consecutive years.
At the close of the 2024 survey and control program –

- 6 out of 15 regions had achieved the fifth year of 'no Gamba Grass plants found.
- 10 out of 15 regions had achieved the fifth year of 'no seed bank' contributions.

Analysis: No benefit cost analysis has been carried out on the impact of gamba grass on this site however a quote from the executive summary of the report – Economic Impacts of Gamba Grass in the Northern Territory states – Insufficient resourcing of gamba grass control efforts costs the Northern Territory tens of millions of dollars annually, most significantly in fire management and weed control, but also in lost opportunities from the growing carbon sector. These costs will continue to increase if gamba grass expands further across the Territory.

Performance indicator: The performance indicator will be the eventual eradication of gamba grass from the Kimberley region. This work is ongoing and confidence is very high that the target is achievable given the results to date.

Recommendations: No funding to be allocated to this program in 2025 – 2026. Seek ways to re-establish funding back to 2024 – 2025 levels for future years.

Weed selection criteria

As a means to determine what weed programs the KRBA will support the following criteria is used as a guide –

- Has to be a **Declared Weed** in Western Australia.

- **Potential impact:** what were the projected costs to industry and environment if the weed became widespread?
- **Physiology:** (distribution, density, seed longevity, maturity, seed production etc.) What were the plant's strengths, can they be overcome? What are its weaknesses, can they be exploited?
- **Program length:** How long would the program be expected to run for? Some weed seed has a viability of one-year others can remain viable in the soil for over twenty years i.e. *Mimosa pigra*.
- **Costs**:
- **Support partners:** Are there other organisations willing to be a partner in the program over its lifetime?
- **Strategic nature of infestation:** Where, or over what area is it located?
- **Chances of meeting funder expectations:** Does the program have a good chance of being successful, will it be money well spent?

Subsidies

Overview: A 100% chemical subsidy was first introduced for control of parkinsonia in May 2000 by the Kimberley Zone Control Authority (that was later to become the KRBA in 2010), later it was opened up to all declared plants. In 2004-05 the annual budget allocation for the subsidy was $12,000; that amount has increased to $100,000 for the KRBA 2021-22 budget with amounts of up to $7,500 available for individual leases. An ammunition subsidy was also established from 1st November 2019, members are entitled to claim up to $1,000 each year per entity.

Achievements as per operational plan: $22,500 was allocated to three leases for weed subsidies and $1,116 to two entities for ammunition subsidies in 2024-25.

Analysis: Parkinsonia control has been ongoing under this subsidy program on leases that Sturt Creek flows through for a number of years. This has reduced the impact of the weed on the pastoral activities on those leases as well as reducing the seed burden flowing downstream onto other leases and Lake Gregory. It should be noted that the Lake Gregory system is recognised as one of the best examples of a large brackish system, with inland (terminal) drainage lakes in Australia which has regular inflow and is near-permanent. It has been identified as meeting four Ramsar Criteria for listing as a Wetland of International Importance and is considered by DBCA to be a Significant Western Australian Wetland.

Parkinsonia has been the highest priority weed for land managers in every survey undertaken to date.

In addition, neem control under this program on Spring Creek Station over a number of years has reduced that weed's impact on pastoral land on that lease and the adjacent Lake Kununurra- Lake Argyle Ramsar site.

Recommendations: Reduced funding to be allocated to this program in 2025 – 2026. Seek ways to re-establish funding back to 2024 – 2025 levels for future years.

Risk Management

A number of initiatives were undertaken in the 2024/25 financial year to reduce risks associated with the organisation's programs and membership activities; they were –

- Insurances maintained for 2024-25.
- EO attended and documented two helicopter training sessions in 2024-25.
- EO updated CPR certification in 2024-25.
- Insurance and licensing details for 2024-25 obtained from contractors.
- Risk management maintained as permanent agenda item at committee meetings.
- Review of the KRBA Work, Health, Safety and Environment Management Plan implemented.

Recommendations: Maintain all of the above activities into 2025-26.

Member/stakeholder engagement

Overview: Since its activation as a Regional Biosecurity Group in 2010 the KRBA has steadily increased its engagement with its members, stakeholders and the wider community through the following initiatives –

In 2018 24 signs similar to above have been placed in 24-hour rest sites and some regional roads in the Kimberley.

- 2013: The organisation started to send newsletters out to the membership and stakeholders, initially two per year; that was increased to four per year in 2019.
- 2017: The Committee further increased its engagement by undertaking to carry out membership surveys every two years to formalise a two-way information flow between the organisation and the membership. The role of the surveys is to provide the committee with an understanding of the current pest priorities at station and regional levels, how they align with current KRBA programs and feedback on the effectiveness of those programs.
- 2017: 'Kimberley Cattle' information pamphlets were created to advertise biosecurity and production activities such as wild dog control that were routinely undertaken on pastoral land. They are targeted at visitors to the region and are distributed through Visitor's Centres and some roadhouses throughout the Kimberley.
- 2018: Signage was placed at 20 sites across the Kimberley including 24-hour rest sites warning the general public of baiting activities been undertaken on pastoral land.
- 2019 the group's website was established to provide information to the wider public of the KRBA's activities.
- 2024: Weed posters, A2 in size and laminated were produced and made available to land managers.

Achievements as per operational plan: The following engagement strategies were implemented in the 2024/25 financial year –

- Quarterly newsletters were sent to members and stakeholders.

- Website was updated.
- Pamphlets distributed to Visitor's Centres (ongoing activity).
- 10 weed identification posters were sent to land managers.

Analysis: Information from the survey undertaken in 2024 showed that of the managers surveyed 76% indicated that they had good knowledge, or were reasonable familiar with the role of the KRBA, much the same figure as the 2022 survey and up from the 65% in the 2019 survey. The percentage of managers that had no idea of what the KRBA does increased from 0 to 24% since the 2022 survey likely correlating with the increase of new managers to the Kimberley that had increased to 38% of all surveyed in 2024.

From the SWOT analysis undertaken in early 2023 the following points regarding engagement were identified –

Strengths

- The committee/organisation has good relations with Government departments it works with, in particular DBCA and DPIRD. In some respects, this sets it aside from some other Regional Biosecurity Groups in WA.

Opportunities

- Collaboration with other groups (KPCA etc.) should be explored.
- The membership survey is best done face to face.
- The committee should seek membership from a wider audience through associate and full membership. EO to contact Shires for representation.
- The organisation should attempt to become a regular presence at Kimberley workshops/seminars/conferences/meetings i.e., National Rangelands Conference, KPCA AGM, PGA meetings etc.

Recommendations: Maintain all of the above activities into 2025-26.

Committee members working through the SWOT analysis workshop in January 2023.