

Navua sedge

Recommendations and regional management approaches for local governments

FNQROC

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Background

Navua sedge (*Cyperus aromaticus*) is vigorous tropical sedge native to tropical Africa. It was first reported in Cairns region in 1979 and has since spread to a wide range of suitable habitat across the Wet Tropics where it exists in all coastal councils and beyond. It is a perennial plant, but its primary growing season is during the wetter months of the monsoon. It will continue to grow and reproduce year round in favourable conditions. It has a rapid age to maturity, prolific seed production and a long-lived seed which spreads readily on machinery, stock, vehicles and water.

Being a highly competitive weed Navua sedge can quickly smother pasture grasses in grazing systems and is a management issue in sugar cane production. It is a significant and widespread weed of roadsides.

In response to a Board direction (FNQROC Board item 2520 (a, b), FNQROC independently compiled a series of recommendations for local government on options and approaches to management to be considered in a regional context which are compiled in this report.

Purpose

This report provides a series of recommendations and regional management approaches for local governments and is intended to assist in their decision making, management actions and communication regarding Navua sedge. The recommendations are grouped into 8 themes;

- Fundraising and co-investment in research and development.
- Understanding impacts (including broader community impacts).
- Management challenges & Best Management Practice.
- Management strategies & approaches.
- Management costs and implications to for councils.
- Communication, awareness and capacity building.
- General Biosecurity Obligations, legislation & policy.
- Weed spread, hygiene & managing risk.

The recommendations within each theme are supported by key points and observations which are designed to assist in understanding their context; or to provide speaking points for advocacy and community engagement.

Fundraising and co-investment in research and development

Securing resources for research and development has been relatively successful to date but due in the most part to the advocacy of local industry groups.

One of the challenges with Navua sedge is that it currently impacts a discrete region (the Wet Tropics) so gaining broader industry support through peak bodies has been a significant challenge. In addition the economic returns for the development of new herbicide tools and approaches provides little incentive for industry-led development and registration of new tools, or value adding to current registrations.

The Navua sedge research and development prospectus provides guidance for local government on options for future investment:

1. Synthesis of R+D priorities with direct linkage to known management obstacles and impacts is required. (The Navua sedge research and development prospectus provides an overview of the investment requirements identified by the Navua Sedge Select Committee).

Key points and observations

- Securing funds for research has been relatively successful based almost entirely on an effective lobby from local industry groups. Wider (national) industry support has not been forthcoming.
- NS is currently a 'novel' issue with a discrete area of impact so significant advocacy from local industry has been essential to progress management tools and R+D.
- The current area of impact for the industry is relatively small at national level so local industry has had to work very hard to secure interest and resources for research and management tools.
- The development of management tools for NS has not been commensurate with the rate of spread and escalation of impacts on production systems.
- Grassroots advocacy has demonstrated the effectiveness of local industry brokering support for producers but greater support and partnerships could significantly enhance these efforts and arrive at solutions/management tools sooner.
- Supporting identified research priorities with sound evidence of management obstacles and issues as well as economic and social impacts will assist the current advocacy efforts of local industry groups.
- Grassroots advocacy and fundraising would benefit from support from relevant national industry groups.

Understanding impacts (including broader community impacts)

Navua sedge is a significant weed of production for tropical grazing and cane farming. Impacts go beyond lost production and require attention to social and health considerations as well.

Councils should consider options to:

2. Provide advocacy in partnership with industry to secure resources for required R+D into herbicides and biocontrol.
3. Seek opportunities to better understand the nested and accumulative costs and impacts on impacted industries within their communities.

Key points and observations

Understanding impacts

- Navua sedge is considered by many to be grazing's worst weed in the Wet Tropics (one the industry cannot live with).
- Poses current impacts and a future risk to diversification in cane farming.
- Management costs and resource demands are perennial which makes it hard to get ahead in management and very easy to relapse is management effort is reduced.
- It has spread rapidly to a wide range of suitable habitat in the region and continues to expand.
- There is considerable landholder concern and frustration at the impacts and inability to prevent it's spread.
- There are well documented overseas impacts on grazing and horticultural land.

Understanding broader community impacts

- The mental health and stress in community are elements of the Navua sedge problem which cannot be ignored.
- Tourism and environmental impacts are not usually associated with Navua sedge but might have an increasing relevance in the future.

Social dimension

- Management can be a hopeless situation for producers with landholders often feeling they are not having a win, regardless of the amount of effort or resources put in.
- Obligations to future generations not considered by some; some family farms have been rendered next to useless because of unmanaged or unmanageable Navua sedge infestation.

Management challenges & Best Management Practice

Herbicide suitability and effectiveness can accurately be described as the single biggest barrier to management for industry.

Councils have a range of options to influence the current situation:

4. Apply directly (or in partnership with local industry groups) for herbicide control research via the Land Protection Fund.
5. Support industry applications for research into development of additional herbicide tools and application technology.

Biocontrol research indicates a relatively high likelihood that agents could be developed which might reduce the impact of Navua sedge.

Councils have several options to influence and support industry in current research programs:

6. Support industry applications for research into development of biocontrol agents.
7. Support future roll-out of biocontrol agents if they are successfully developed.

Key points and observations

Management challenges

- Navua sedge management currently relies on the use of additional herbicides to those already in use in grazing.
- Currently there is only a single selective herbicide available for the control of nutgrasses in cane.
- Both cane and grazing herbicide management is in addition (above and beyond) to routine management.
- The cane industry is already heavily regulated for herbicide use.
- The currently registered herbicides are not adequate for the task; have onerous application restrictions and carry risks to reef and freshwater ecosystems if label directions are not closely adhered to.
- The cane industry is heavily reliant on machinery in all aspects of the operation which makes weed hygiene very challenging.
- TRC's roadside management program has highlighted the challenges of managing the operational and political aspects of NS concurrently.
- The long-time taken for action to occur on the ground has been a source of frustration for landholders.
- Landholders have taken on slashing and management of LG managed roadsides in order to prevent spread and reduce risk to their properties.
- Conditions required for private management of State owned roads a source of frustration and impediment to landholders managing sedge on road corridors adjoining their properties.
- Spread risk originates from multiple pathways concurrently making it difficult to manage, key spread pathways include; roadsides (particularly slashing operations); machinery and vehicles; feral pigs; waterways; contaminated machinery and produce.

BMP

- Management success can be measured in more than one dimension; council support for impacted industries is valued and council: landholder relationships have improved considerably in the TRC as a result of their investment.
- Even best management grazing and cane production causes disturbance which weeds like Navua sedge take advantage of; risks and impacts can be reduced but not removed.
- TRC's roadside management program has reduced the risk of spread from council managed corridors.
- Navua sedge is a perennial problem; a collective approach across councils was recommended, identified or valued by almost all participants in the expert panel.
- Simple wash-down facilities and protocols are considered effective at reducing risk of spread during council operations; and are a valued contribution to management for impacted landholders.

Management strategies & approaches

Navua sedge is a perennial and complex management problem which requires well-coordinated and long-term approaches to be effective.

There are several ways councils might be able to provide support to impacted landholders:

8. Develop catchment-based or regional approaches to managing risk or impacts in partnership with industry.
9. Identify and prioritise key assets and high risk spread areas on locally managed roads and reserves for strategic management.

Tablelands Regional Council has a dedicated management program for roadsides which provides a practical example of the resources required to reduce the risk of spread on council managed road reserves.

The TRC program provides councils with an opportunity to:

10. Engage a consultancy to conduct a detailed cost : benefit analysis of the TRC roadside program (with consideration to triple bottom line).
11. Design or optimise management strategies, regimes and approaches which are best fit for LG operations and contractors.

Key points and observations

Management strategies

- The scale of the management task is daunting to many landholders and can go from a manageable situation to unmanageable in a short space of time.
- Individual landholders are going to extraordinary lengths (and expense in time and materials) to control or prevent the spread of NS. e.g. –hand weeding along their river boundary to prevent of spread of seed into their pasture.
- Single property efforts are not always effective because they can be undone by lack of coordination across multiple properties.
- Cross-industry awareness (cattle and cane) would increase awareness and might assist in developing news tools and approaches to management.
- TRC's dedicated management unit and approach is recognised by many landholders across the broader Wet Tropics region.

Management approaches

Treatment regimes

- Main roads operations require a different level of resource to manage (due to road safety requirements).
- Weather and seasons has a strong influence on management program. With the current suite of tools planned programs often need to change.
- Navua sedge management cannot be bundled in with other control efforts – it requires a discrete action and specific formulation to address.
- Navua sedge is a perennial problem with an ongoing and fixed management cost. Once established Navua sedge is challenging to manage, this applies to all situations including roadsides.

- TRC - M+E for the program has needed to evolve rapidly to enable the data to tell the story – baseline set now 2018 will need several years to provide clear feedback.

Control biology

- Lack of control options suited to industry requirements is one of the biggest obstacles to management.
- Early detection and response is essential to keep on top – it can be almost impossible to recover some land types once NS is established.

Considerations for future programs and projects

- May be able to value-add to the program in future (additional management targets, weed hygiene, internal communications).
- TRC program provides clear lessons for other councils - benefit/cost and management optimisation study would be integral to this.
- NS management is a high stakes game from primary producers – the current management toolkit is complex to deliver in the Wet Tropics – Navua sedge can take hold very quickly if landholders are not alert.

Management costs and implications to for councils

Management costs for Navua sedge are ongoing and councils are required to make careful consideration of expected returns on what is likely to be perennial investment.

Councils and local industry would benefit from additional advice and information by developing as components of a benefit : cost analysis (action 11);

12. The potential/realised impacts of forced land use change, real estate values and future industry diversification limitations brought about by Navua sedge.
13. The impacts/benefits on other biosecurity priorities (resources and capacity) as a result of the investments made or diverted to Navua sedge management.
14. To identify opportunities to deliver co-benefits through value-added programs, actions and strategies relating to weed hygiene, biosecurity awareness and partnerships with industry.

Key points and observations

Management costs and implications to for councils

- Councils should be mindful of the potential impacts on rates revenue if forced change of land use is brought about by NS infestation - particularly if land use changes are forced or land is left vacant.
- What are the impacts/benefits on other priority biosecurity projects/targets as a result of the investment made? Can the outcomes of shifted capacity be measured or understood?

Communication, awareness and capacity building

Despite its significance to local industries there remains a low level of awareness of the impacts and risks, or control and hygiene strategies required to manage Navua sedge.

There are several options accessible to councils which might support the raising local awareness and action.

15. Build on existing communication tools within biosecurity plans to provide more targeted information to landholders and council operations.
16. Facilitate shared learnings across industries through local government advisory groups.
17. Identify (through biosecurity action plans) locations where early detection, prevention and intervention can be achieved and facilitate the implementation of these activities.

Key points and observations

Communication and capacity building

- Understanding the costs of management as a drain on other routine activities is very important to people on the ground. The vigilance that is required to respond to NS is very resource intensive.
- There are emerging opportunities for a more integrated approach across R+D, there is not necessarily sharing of learnings and lessons across industries or sectors.

Awareness and education

- Despite the significant production impacts and management costs Navua sedge still remains a novel issue for many producers, even in impacted localities.
- Capacity to detect outbreaks before they become complex management remains low for many landholders.

General Biosecurity Obligations, legislation & policy

Currently the General Biosecurity Obligation (Biosecurity Act 2014) cannot be applied legally to non-regulated invasive plants and animals by authorised officers of councils. Local governments do have the option however to declare species under local laws and stipulate desired management requirements. In addition, the outcomes of the legislative review of the Biosecurity Act 2014 also recommend that any species identified within a Local Government Biosecurity Plan should be subject to the General Biosecurity Obligation. The recommendations are currently with minister's office.

There are several actions councils can take to build participation in effective management:

18. Consider the design and development of incentive and compliance resources and where they are best directed.
19. Expand no slash zones and co-managed roadsides (where technically/legally feasible).

20. Investigate the transferability of other compliance and participation programs to assisting biosecurity programs (e.g. – Southern Downs RC Invasive Pests Control Scheme, Flinders Shire Good Neighbour Program).
21. Determine (through the existing select committee process) the requirements for regional and cross-council or industry collaboration (e.g. select committee, advisory groups, working groups or taskforces).

Key points and observations

Meeting General Biosecurity Obligations

Landholders

- Landholder's efforts are not always consistent across boundaries, catchments or jurisdictions; there is a wide range of management effort and awareness.
- Boundary related factors influence the success on-property management.
- Lack of buy-in or meeting even basic risk management requirements both within and outside of industry is frustrating to landholders making an effort to manage or reduce the risk.

Councils

- TRC's roadside management program has been effective and is supported by industry
- TRC have successfully used incentives (herbicide subsidy) to encourage landholders to enter into management plans (note these programs relied on external funding). Operational staff also expressed support for of the programs and the positive engagement it enabled.
- TRC can demonstrate it is meeting its obligation to reduce the risk of spread
- HSC has implemented no-slash zones on LG managed roads which is assisting with reducing spread.

Legislation and policy

- Declaration and more legislative instruments would be useful to bring more emphasis to management priority.
- Industry consultation, conflict resolution and political nature of TRC's management program have drawn significant resources from all levels of council (operational, management and executive) – the real opportunity costs of this are difficult to qualify.
- Political processes and stop start in staffing and resources from LG's are frustrating to landholders.
- Select committee process – essential to consider the charter of the committee to ensure it delivers.

Weed spread, hygiene & managing risk

Weed spread prevention and risk management remain the single most effective measure of mitigating the impacts of Navua sedge. Navua sedge produces large amounts of seed which is easily dispersed on vehicles, machinery, water and animals.

Managing the weed spread risk is one of the biggest challenges for councils; and one of the primary concerns for landholders.

There are several management options available to councils which may reduce risk:

22. Develop a roadside management manual with specific consideration of both road design/construction activities and management/maintenance specific to council and council contractor operations.
23. Developing landholder roadside management agreements.
24. Installing simple wash-down facilities and protocols for roadside slashing operations.
25. Installing risk/hygiene signage.
26. Working with DTMR to resolve barriers to landholder management agreements on state roads.
27. Consider collaboration with industry on development of compliance programs.

Key points and observations

Managing risk

- Most landholders believe Navua sedge requires a regional approach.
- There were concerns raised by all sectors on the future and immediate risks to other areas of Queensland not currently impacted by Navua sedge.
- Property boundaries, waterways and roads provide a constant source of re-infestation for improved pastures or sedge-free farms.

Weed spread and hygiene

Hay and fodder production

- Hay and fodder production is at great risk – the management of weed seed is already compromised, NS is another high risk species not currently given the level of risk management required.
- Not confident in being able to source clean hay and feed if required. Not significant within their operation.

Stud cattle

- Stud cattle producers must contend with a range of hygiene risks; importing and exporting stock; importing hay and fodder. The reputational risk of the enterprise is crucial to producers.

Roadsides

- Roadsides and transport corridors are usually the first point of introduction and a continual source of risk
- Slashing and machinery movements pose a significant spread risk, particularly in highly mechanised industries like cane and roadside slashing operations.

Council

- TRC - internal communications and partnerships – program requires strong collaboration and understanding between infrastructure services and biosecurity services.
- Navua sedge is present on many public and publically accessible places which is aiding its spread around the region. Some council's carry out control work in public places to manage this risk.

Community

- More comprehensive understanding (and commitment from all parties) of weed hygiene practices and processes would assist to understand the most effective way to management levels of risk.
- Not all land uses are impacted equally and this can make it difficult to get the level of buy-in and diligence required to manage threats moving off a property and impacting others.

