NOTICE OF MEETING

BIODIVERSITY ADVISORY COMMITTEE MEETING

An Biodiversity Advisory Committee Meeting of Byron Shire Council will be held as follows:

Venue	**Conference Room, Station Street, Mullumbimby**
Date	**Monday, 4 May 2020**
Time	**3.15pm**

Shannon Burt
Director Sustainable Environment

I2020/614
Distributed 27/04/20

CONFLICT OF INTERESTS

What is a "Conflict of Interests" - A conflict of interests can be of two types:
Pecuniary - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.
Non-pecuniary – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).
Remoteness – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.
Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).
Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person's spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. "Relative", in relation to a person means any of the following:
(a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person's spouse;
(b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)
No Interest in the Matter - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
  (a) at any time during which the matter is being considered or discussed by the Council or Committee, or
  (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.
Non-pecuniary Interests - Must be disclosed in meetings.
There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

RECORDING OF VOTING ON PLANNING MATTERS

Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters
(1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
  (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
  (b) not including the making of an order under that Act.
(2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
(3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.
(4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document, and is to include the information required by the regulations.
(5) This section extends to a meeting that is closed to the public.

BUSINESS OF MEETING

1. APOLOGIES

2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

3. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

3.1 Biodiversity Advisory Committee Meeting held on 10 February 2020

4. STAFF REPORTS

Sustainable Environment and Economy

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

Report No. 4.1 **Biodiversity Projects and Operations Update**
Directorate: Sustainable Environment and Economy
Report Author: Lizabeth Caddick, Biodiversity Officer
File No: I2020/561

Summary:

This report provides the Biodiversity Advisory Committee with an update on current projects and programmes being undertaken by the Biodiversity team, including:

- Flying-fox Management Plan
- Pest Animal Management Plan
- Indian Mynas
- Fisheries Habitat Action Grant
- Fisheries Flagship Habitat Grants
- Combating Pests and Weeds Grant
- Draft Biodiversity Conservation Strategy
- Wildlife Road Signs
- Byron Habitat Corridors Project
- North East Hinterland Koala Conservation Project
- Tallow Creek – dog issues

Also provided is a quick update from the Bush Regeneration Team (David Filipczyk) on:

- Reduction of herbicide use

RECOMMENDATION:

That the Biodiversity Advisory Committee note the update on current projects and programmes being undertaken by Council staff.

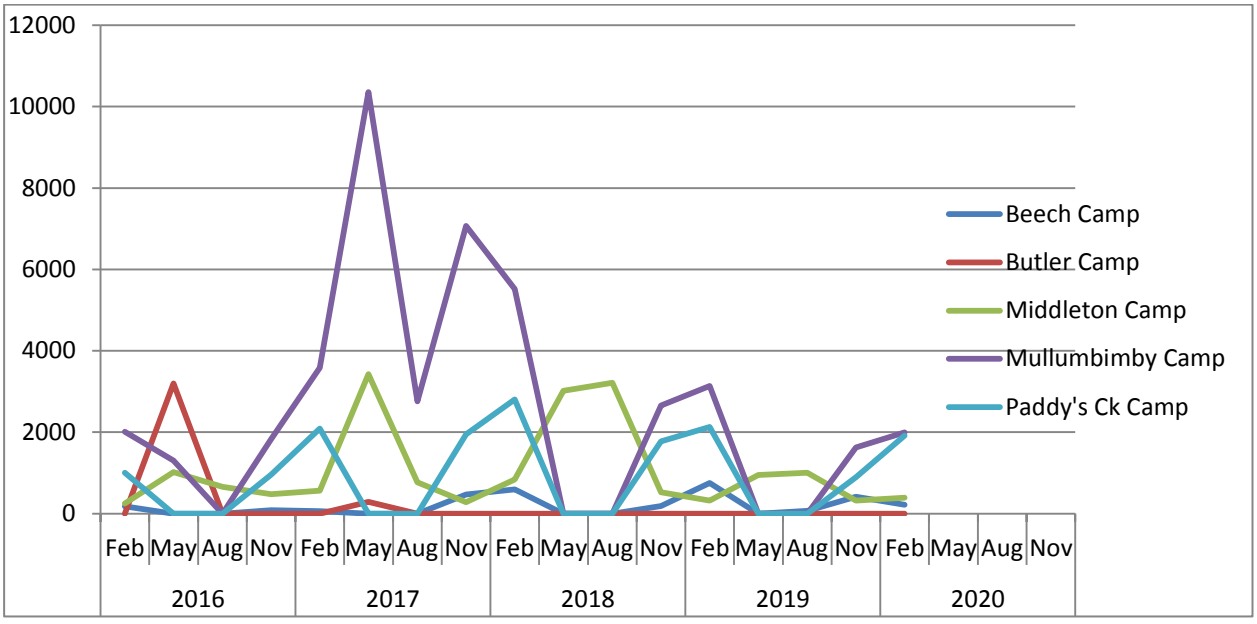
REPORT

Flying-fox Management Plan

February census indicated numbers were down (refer table and graph below). There is no way to tell why numbers are down but it is likely to be a combination of the starvation event from late last year and the effects on food supply from the bush fire affected forests in the region. An assessment of the Australian population from DPIE will indicate whether the overall numbers of Flying-foxes has declined or they have relocated to other parts of the country.

The May Flying-fox count has been cancelled for health reasons associated with COVID 19.

	Feb 2019	Feb 2020	% Change from previous year
Mullumbimby	3132	1995	-36%
Butler St	0	0	0
Middleton St	318	388	+22%
Beech	755	214	-71%
Paddy's Ck	2128	1919	-10%



Revegetation of the Buffer strip and western planting zone at Paddy's Creek Flying Fox Camp was carried out at the end of March following suitable rain. 850 local native plants of 12 species were planted to fill the buffer zone. The height of the plants is max 5m and is not expected be attractive to the flying-foxes as roosts. Over time, this planting will return ecosystem values to the buffer.

Flying-fox Project Reference Group meeting will be held by teleconference late May 2020.

Pest Animal Management Plan

Wild Dogs, Cats and Foxes

Dog trapping on Council land has commenced with a number of dogs and foxes trapped already this season. Figures will be compiled at end of July, entered into Feral Scan and submitted to Local Land Services for their records.

Indian Mynas
The Indian Myna Trapping program did not commence this season due to the short supply of cage traps. Negotiations are in place to commence the trapping program again in Spring 2020.

Feral Deer
BSC is participating in a Deer awareness campaign led by Tweed Landcare Inc. with other Council members of the NRJO along with North Coast Local Landcare Services.

The Draft Northern Rivers Deer Control Plan has been developed and is presented for endorsement by the BAC in a separate paper.

Fisheries Habitat Action Grant (2019)

Council was successful in its application for $40k to rehabilitate the riparian zone of 1.8km of upper estuary riverbank in the Brunswick River in Mullumbimby downstream from the Showgrounds. The project will improve riparian and instream habitats by improving the condition of vegetation and stabilising riverbanks. This project is on Council land and joins Landcare projects upstream and other Council projects downstream. Total project value with on-going maintenance from Council is $201,724.

Fisheries Flagship Habitat Grants (2020)

Council previously approved an application for Bringing Back the Bruns – Stage 2 (comprising four projects) under the Fish Habitat Rehabilitation Grant. This will now not proceed, due to a change in scope recommended by Department of Primary Industries (DPI) which has resulted in Council staff and Brunswick Valley Landcare being unable to source the in-kind contributions, and Council's 2020/21 budget still in development and needing further consideration.

The proposed approach is to now break up each project and apply for the smaller Habitat Action Grants each year (up to $40k, usually released in August), when staffing, project support and council capacity for co-contributions will have greater certainty.

Combating Pests and Weeds Grant (Commonwealth) 2020

An application was submitted for approximately $250k for a 3-part project to be spent over 18 months. The objectives are to assist drought-affected farmers in the Shire with weed and pest control, to improve productivity, NRM and help trigger the local economy by supporting local employment and local retail. The project would include:

1. Fund a contract trapper to work on private lands to control wild dogs, cats and foxes.
2. Fund contract agricultural weed controllers to assist farmers control pasture weeds, weeds of significance and environmental weeds.
3. Engage a Council Farming Extension Officer to manage the weeds and pest components of the project as well as assist local farmers 1:1 to improve their farm productivity using best practice farming methods and systems.

Council is waiting to be informed on the outcome of the application and expects notification before July 2020.

Draft Biodiversity Conservation Strategy

The draft Byron Shire Biodiversity Conservation Strategy is currently on public exhibition. Exhibition has been advertised via the Echo and the Byron Shire News, as well as Council's electronic communications channels and local Landcare newsletters. People can make a submission via the Have Your Say web page, or can phone in to discuss the strategy. Community engagement at farmers markets had to be cancelled due to Covid-19 restrictions.

The strategy is on public exhibition until May 15th 2020. A report on the public exhibition will be presented to the Council planning meeting on 18 June.

Wildlife Road Signs

Staff are currently considering various options to mitigate wildlife road strike on our roads. As per the report presented to the BAC on 11 November 2019, several different signage options are available, with varying degrees of cost and effectiveness, from simple static signs to dynamic vehicle-activated signs.

Transport NSW has also recently used GIS modelling to identify road strike hotspots within the Shire, and local volunteer groups, e.g. Bangalow Koalas, are also able to provide insights into key hotspots.

A report is going to Council on 21 May recommending that Council participate in a trial of new, static signs, which is being led by Rewilding Australia. Rewilding Australia have designed new signs that are more engaging than current standard wildlife road signs, and are trialling them in Shoalhaven and Wingecarribee to manage road strike of wombats and koalas. They are also working closely with Standards Australia to look at opportunities to update the current Australian Standards for wildlife road signs. While there is limited data to indicate that static signs are effective in the long term (due to driver habituation), Bangalow Koalas have recorded driver behaviour change where they have installed more eye-catching static signs, and this trial has a similar focus. Static signs are significantly cheaper than vehicle activated signs and vehicle speeds after the signs will be monitored to assess effectiveness.

Infrastructure Services staff are also preparing a business case for establishment of a koala zone in the shire, which would include two vehicle activated signs and surface road treatments. Again, monitoring the impact of this signage on driver behaviour will enable Council to determine the effectiveness, and cost-effectiveness of vehicle activated signs.

Byron Habitat Corridors Project

This Environment Trust funded project is in its final year. Project funding of $17,025 is being used for ongoing maintenance of revegetation sites at Mullumbimby, Bangalow, Brunswick Heads, Myocum and Skinners Shoot. Staff are currently liaising with landholders involved in this project, finalising site plans and assisting with setting up Land for Wildlife agreements. The project has been extended to October 2020 due to the drought.

North East Hinterland Koala Conservation Project

This DPIE-funded project is a partnership between Tweed, Byron, Lismore and Ballina Councils and Friends of the Koala. Byron Shire Council has a budget of $45,000 over three years for koala habitat planting and restoration on private land. Council is in the process of identifying suitable sites based on landholder interest and recent University of Queensland research conducted as part

of the ARC Koala Linkage project. The first planting for this project took place on 17 March, where 1000 trees were planted at a Myocum farm, with contributions from the NE Hinterland Koala Conservation Project and Zero Emissions Byron.

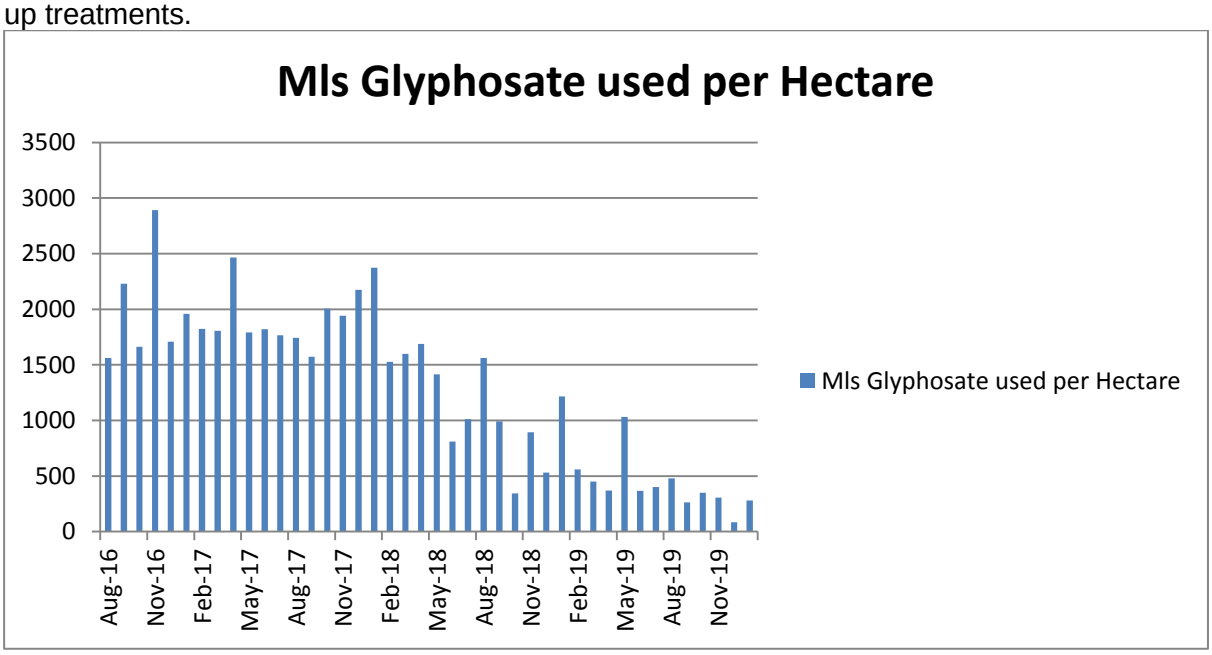
Tallow Creek – Urgent dog management update

Resolution 20-065 made on the 27 February 2020 calls for action to manage the impact of dogs on wildlife at Tallow Creek. Staff have continued ranger patrols at Tallow Creek around the Old South Byron STP site and on the sealed pathway from Broken head Rd to Suffolk Park off-leash area on Tallow Beach. Currently the communications campaign based on positive behaviour and compliance messaging is presently unfunded. However, as a priority staff have progressed with the preparation of new signage which will be installed at various locations along the main walkway/footpath to the off-leash beach area, outlining that “Dogs Must Stay on a Lead’.

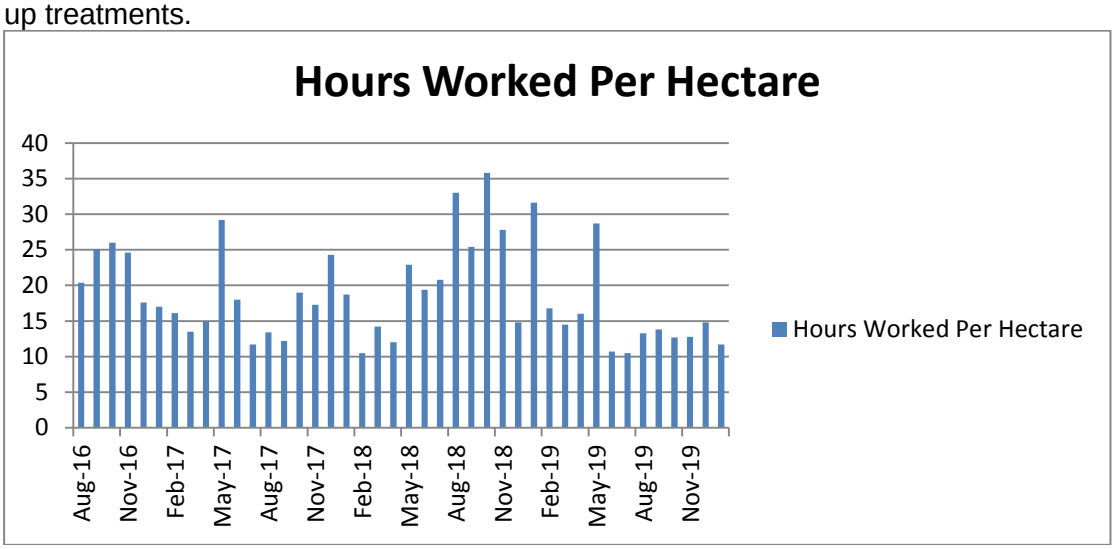
Bush Regeneration Team update

Council’s bush regen team has been working hard to reduce herbicide use in their practices provide the below graphs for discussion. Overall there has been a reduction in herbicide and person hours per hectare. The herbicide reduction is quite dramatic both overall and per hectare.

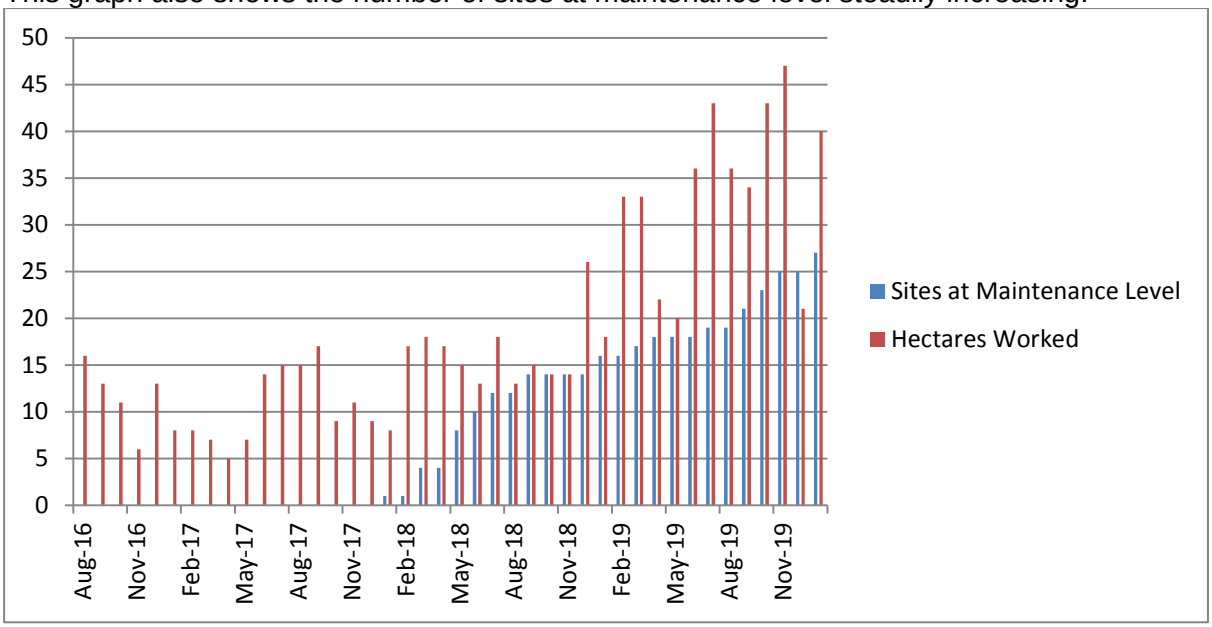
Graph 1
Shows a large reduction in the use of Glyphosate per hectare.
This has been achieved by bringing sites to a maintenance level and implementing regular follow-up treatments.



Graph 2
Shows a large reduction in the number of hours required per hectare.
This has been achieved by bringing sites to a maintenance level and implementing regular follow-up treatments.



Graph 3
Shows a large increase in the number of hectares treated each month.
This has been achieved by bringing sites to a maintenance level and implementing regular follow-up treatments.
This graph also shows the number of sites at maintenance level steadily increasing.



STRATEGIC CONSIDERATIONS

Community Strategic Plan and Operational Plan

CSP Objective	L2	CSP Strategy	L3	DP Action	L4	OP Activity
Community Objective 3: We protect and enhance our natural	3.1	Partner to protect and enhance our biodiversity,	3.1.1	Protect and enhance our natural	3.1.1.3	Implement priority actions from the Biodiversity

CSP Objective	L2	CSP Strategy	L3	DP Action	L4	OP Activity
environment		ecosystems and ecology		environment and biodiversity		Conservation Strategy
Community Objective 3: We protect and enhance our natural environment	3.1	Partner to protect and enhance our biodiversity, ecosystems and ecology	3.1.1	Protect and enhance our natural environment and biodiversity	3.1.1.6	Implement the Flying Fox Camp Management Plan
Community Objective 3: We protect and enhance our natural environment	3.1	Partner to protect and enhance our biodiversity, ecosystems and ecology	3.1.1	Protect and enhance our natural environment and biodiversity	3.1.1.7	Continue to undertake the Flying Fox National Census
Community Objective 3: We protect and enhance our natural environment	3.1	Partner to protect and enhance our biodiversity, ecosystems and ecology	3.1.1	Protect and enhance our natural environment and biodiversity	3.1.1.8	Implement the Koala Plan of Management
Community Objective 3: We protect and enhance our natural environment	3.1	Partner to protect and enhance our biodiversity, ecosystems and ecology	3.1.1	Protect and enhance our natural environment and biodiversity	3.1.1.9	Implement the Pest Animal Management Plan
Community Objective 3: We protect and enhance our natural environment	3.1	Partner to protect and enhance our biodiversity, ecosystems and ecology	3.1.2	Restore degraded areas and habitats that have or provide significant or high environmental and or community value	3.1.2.2	Respond to biosecurity threats in a timely and efficient manner
Community Objective 3: We protect and enhance our natural environment	3.1	Partner to protect and enhance our biodiversity, ecosystems and ecology	3.1.2	Restore degraded areas and habitats that have or provide significant or high environmental and or community value	3.1.2.4	Identify new high profile sites for restoration works
Community Objective 3: We protect and enhance our natural environment	3.3	Partner to protect and enhance the health of the Shire's coastlines, estuaries, waterways and catchments	3.3.1	Implement Coastal Management Program	3.3.1.3	Investigate Brunswick River Project

Legal/Statutory/Policy Considerations

5 N/A

Financial Considerations

Where relevant, budgets for specific projects noted above.

10

Consultation and Engagement

N/A

5

Report No. 4.2 **Endorsement of the Northern Rivers Feral Deer Plan**
Directorate: Sustainable Environment and Economy
Report Author: Peter Boyd, Project Officer - Environmental Projects
File No: I2020/562

Purpose:
This report requests endorsement of the *'Northern Rivers Feral Deer Plan- Preventing the establishment of feral deer in the Northern Rivers, NSW'.*

Information/Background:
Feral deer are found in the hinterland of the Southern Gold Coast, Scenic Rim (QLD), Tenterfield Shire, Clarence Valley Council area and are a huge problem in the Port Macquarie area, north to Coffs Harbour.

Deer cause fatal car accidents, threaten World Heritage areas, destroy crops, damage fences, spread ticks and disease and compete with livestock and wildlife for food.

The Northern Rivers region contains suitable habitat for the six deer species already present in Australia and are already found adjacent to neighbouring Shires and Council areas. It is inevitable, that unless a strategic coordinated approach is undertaken, feral deer will establish across the Northern Rivers region, including Byron Shire.

Led by Tweed Landcare Inc., the Northern Rivers Deer Prevention Stakeholder Group was formed with representatives from the following Councils and organisations on the working group:

- Tweed Landcare Inc.
- NSW National Parks & Wildlife Service
- North Coast Local Land Services
- Tweed Shire Council
- Byron Shire Council
- Kyogle Council
- Border Ranges – Richmond Valley Landcare Network

The vision of the group is to '*Prevent all species of feral deer from establishing in the Northern Rivers'.*

In preparing the *Northern Rivers Feral Deer Plan*, advice was sought from Local Land Services, NSW Department of Primary Industries, Invasive Species Council and the Centre for Invasive Species Solutions. Strategic actions are consistent with Statewide and regional plans and based on prevention, eradication and containment principles, community awareness raising, reporting of feral deer and preparedness for control operations.

Deer are listed as an emerging threat in the Byron Shire Council *Pest Animal Management Plan 2018-2023*. Actions in the Feral Deer Plan are consistent with the actions and activities described in Councils Pest Animal Management Plan.

There is no financial commitment required from Council for the implementation of the Northern Rivers Feral Deer Plan. Council's commitment is for contributions in-kind via Council's Biodiversity and Agriculture Project Officer (Peter Boyd) to assist in the implementation of some of the actions of the plan. Most of these actions contribute towards achieving the actions of Councils Pest Animal Management Plan.

Consultation:
During development of the plan, discussions on the issue were held with:

- Liz Caddick (Biodiversity Officer)
- Sharyn French (Manager Environmental and Economic Planning
- Andy Erskine (Open Space Technical Officer)
- Dave Filipczyk (Supervisor Bush Regenerator)
- Alison Ratcliff (Brunswick Valley Landcare)

The Biodiversity Advisory Committee (BAC) was verbally updated on issues and threats relating to feral deer, their current distribution in and around the Northern Rivers and the development of the Feral Deer Plan (BAC meeting 10 Feb 2020).

RECOMMENDATION:

That, the Biodiversity Advisory Committee recommend to Council that the Feral Deer Management Plan (Attachment 1 E2020/15987) be endorsed.

Attachments:

1 Final Draft Northern Rivers Feral Deer Plan, E2020/15987 , page 14⇩

THIS DOCUMENT IS A FINAL DRAFT AND SUBJECT TO ENDORSEMENT FROM THE ORGANISATIONS LISTED WITHIN.

Final Draft NORTHERN RIVERS FERAL DEER PLAN

Preventing the establishment of feral deer in the Northern Rivers, NSW

NSW Northern Rivers Deer Prevention Working Group 2020-2025

Citation: NSW Northern Rivers Deer Prevention Stakeholder Group (2020) *Northern Rivers Feral Deer Plan 2020-2025: Preventing the establishment of feral deer in the Northern Rivers NSW.*

Acknowledgments

Funding from the NSW Department of Primary Industries and Landcare NSW Managing Established Pest Animals and Weeds Project (MEPAAW) was critical to the formation of the NSW Northern Rivers Deer Prevention Working Group and the development of the Northern Rivers Feral Deer Plan 2020-2025 (Plan).

The Plan is the result of consultation with numerous individuals and agencies concerned with the establishment of deer in the Northern Rivers region including all Local Government Areas (LGAs) in the project area, Landcare, NSW National Parks and Wildlife Service, North Coast Local Land Services, NSW Department of Primary Industries and partners from Queensland.

Special mention goes to Andrew Cox, the CEO from the Invasive Species Council, for his advice, support and belief in early intervention pest management programmes.

We acknowledge and respect the past and present Traditional Owners and Custodians of the Northern Rivers and the Local Aboriginal Land Councils that represent them.

Front cover photo: Fallow deer buck (with dark colouring) Photo credit: Peter Jesser.

More information:

Tweed Landcare Inc.

projects@tweedlandcare.org.au

This project is supported by the NSW Department of Primary Industries and Landcare NSW through funding received from the Established Pest Animals and Weeds initiative, part of the Australian Government's Agricultural Competitiveness White Paper, the government's plan for stronger farmers and a stronger economy.

N.B. The MEPAAW funding supported the writing of The Plan, not the actions within

EXECUTIVE SUMMARY

Deer are spreading across parts of Australia including most of NSW. The Northern Rivers region contains suitable habitat for the six deer species already present in Australia. It is inevitable that unless an ambitious, strategic, coordinated approach is undertaken feral deer will establish across the Northern Rivers region. An opportunity exists to witness the impacts of feral deer in other regions and set in place actions to protect grazing land, crops, orchards, motorists, public health, cultural sites, gardens, infrastructure, threatened species and natural areas from the threat of feral deer.

The Northern Rivers Deer Prevention Stakeholder Group, and auxiliary Working Group, has been formed with representatives from the Local Government Areas, Landcare, National Parks and Wildlife Service, Local Land Services, and partners from Queensland. The vision of the group is to '*Prevent all species of feral deer from establishing in the Northern Rivers*'.

Advice has been sought from Local Land Services, NSW Department of Primary Industries, Invasive Species Council and the Centre for Invasive Species Solutions about the best way to move forward. Strategic actions are consistent with statewide and regional plans and based on prevention, eradication and containment principles; community awareness raising and reporting of feral deer; and preparedness for control operations.

Grants from the Department of Primary Industries and NSW Landcare MEPAAW program enabled the coordination of the stakeholder meetings, writing of this plan and the production of a feral deer poster and postcard for Northern Rivers LGAs, Landcare networks and North Coast Local Land Services to distribute. This funding has been vital to commencing this planning process.

DEFINITIONS AND ACRONYMS

Definitions

NSW General Biosecurity Duty - Any person who deals with biosecurity matter or a carrier and who knows, or ought reasonably to know, the biosecurity risk posed or likely to be posed by the biosecurity matter, carrier or dealing has a biosecurity duty to ensure that, so far as is reasonably practicable, the biosecurity risk is prevented, eliminated or minimised.

Feral Deer - a deer that: (a) is living in a wild state and (b) is not being farmed or kept for any other purpose within a deer-proof enclosure, cage or other structure.

Northern River Joint Organization (NRJO) – The Northern Rivers Joint Organisation represents the Ballina, Byron, Kyogle, Lismore, Richmond Valley and Tweed NSW local government areas. With representation by the mayors and general managers of each Council, NRJO's role is to facilitate and lead advocacy, political representation and cooperative action on matters of regional significance.

Northern Rivers Region - is the most north-easterly region of NSW. It encompasses Clarence, Richmond and Tweed Rivers. It extends from Tweed Heads in the north (adjacent to the Queensland border) to the southern extent of the Clarence River catchment which lies between Grafton and Coffs Harbour. It includes the seven Local Government Areas of Tweed Shire, City of Lismore, Ballina Shire, Byron Shire, Richmond Valley Council, Kyogle Council and Clarence Valley Council (Wikipedia, 2020).

Acronyms

BMP - Best Management Practice

BRRVLN - Border Ranges Richmond Valley Landcare Network

DPI - NSW Department of Primary Industries

ISC - Invasive Species Council

LGA's - Local Government Areas

NCLLS - North Coast Local Land Services

NPWS - NSW National Parks & Wildlife Service

NRJO - Northern Rivers Joint Organisation

NR - Northern Rivers

SSAA- Sporting Shooters' Association of Australia

TSC - Tweed Shire Council

CONTENTS

LIST OF FIGURES

1 INTRODUCTION

1.1 BACKGROUND

Feral deer are among the world's most successful invasive mammals and can have substantial deleterious impacts on natural and agricultural ecosystems (Davis et al., 2016). A major issue associated with deer encroachment into urban areas is that they can be traffic hazards (Brockie & Sadleir, 2009).

In NSW, populations of feral deer have established in the Illawarra, Upper Hunter, Northern Tablelands, Snowy Mountains, Liverpool Plains, Tamworth, Port Macquarie and elsewhere prompting costly control operations with mixed, and often short term, success.

The Northern Rivers is thought to be relatively free of feral deer (Figure 1). The closest established feral deer populations to the Northern Rivers are on the Gold Coast and Scenic Rim to the north (Queensland), Coffs Harbour to the south and the Northern Tablelands, NSW to the west.

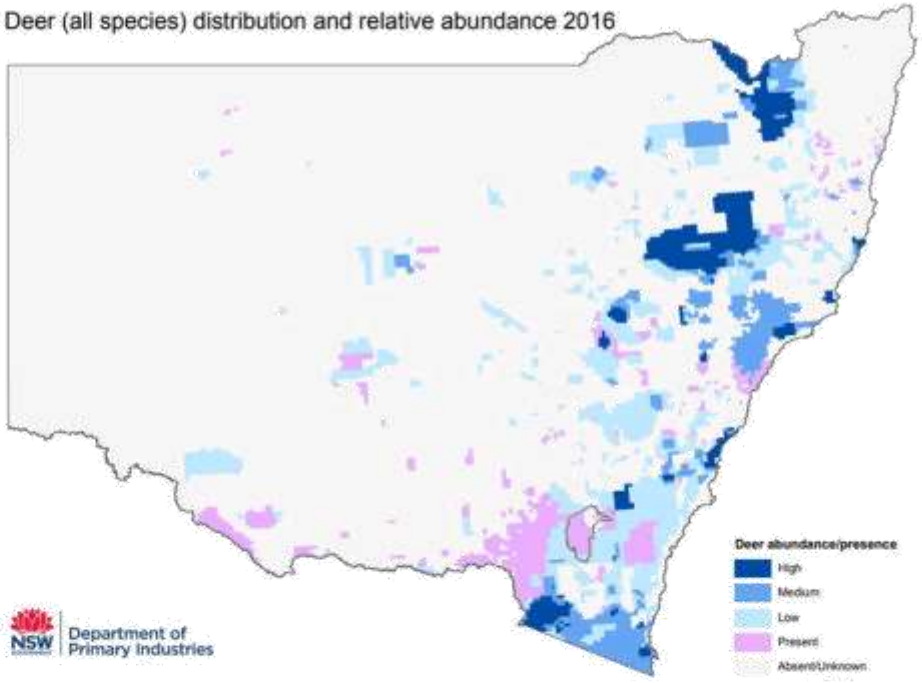


Figure 1. Deer abundance/presence in NSW in 2016 showing the Northern Rivers region to have mostly absent/unknown deer abundance/presence. Credit: NSW DPI 2016

Once deer establish in an area, their numbers can increase exponentially in a relatively short period making eradication management options extremely difficult. Therefore, it is vital for all levels of government, industry and the community to work together to prevent the establishment of feral deer populations in the Northern Rivers.

The Plan has been developed with the vision '*To protect the Northern River's lifestyle, community, natural, cultural and agricultural environment, built assets and local industries through effective and collaborative management of feral deer*'.

To help achieve the vision, a key target identified in the development of the Plan, is to achieve by 2025 the eradication of all known incursions of feral deer.

A Working Group was developed from the Northern Rivers Deer Prevention Stakeholder Group and tasked to write this plan and other actions as identified in the Plan.

The Working Group includes:

- Tweed Landcare Inc.
- NSW National Parks & Wildlife Service
- North Coast Local Land Services
- Tweed Shire Council
- Byron Shire Council
- Kyogle Council
- Border Ranges – Richmond Valley Landcare Network

1.2 PURPOSE OF THE PLAN

The Plan has been developed to ensure actions are undertaken to prevent the establishment of feral deer in the Northern Rivers. The Plan provides the strategic direction for a consistent and effective approach to feral deer management by all land managers in the Northern Rivers. It includes several strategic actions designed to coordinate efforts between all land managers in the Northern Rivers. In doing so, the Plan will help land managers meet their statutory obligations, while seeking to avoid the impacts of feral deer on natural and agricultural systems and cultural and social values within the Northern Rivers.

1.3 STRATEGIC PLANNING FRAMEWORK

The Plan is consistent with priorities for feral deer set out in statewide and regional pest plans (Figure 2 and Appendix A).

Figure 2. The alignment of the Plan in relation to State and Regional planning

The Plan supports the *NSW Biosecurity Act 2015*, the North Coast Regional Strategic Pest Animal Management Plan 2018-23 (North Coast Local Land Services, 2018). In particular, the strategic actions in the Plan align with Program F for deer in the North Coast Regional Strategic Pest Animal Plan described as 'Remaining areas of the region where Wild Deer are absent'.

1.4 SCOPE OF THE PLAN

The Plan applies to the following local government areas in the Northern Rivers:

- Tweed Shire Council
- Byron Shire Council
- Kyogle Council
- Ballina Shire Council
- Richmond Valley Shire Council
- Lismore City Council
- Clarence Valley Council

All managers of private or public land have a General Biosecurity Duty to prevent, minimise or eliminate any biosecurity risk under the *Biosecurity Act 2015*. The general biosecurity duty may be used by all land managers to encourage best practice to achieve effective feral deer management.

The Plan focuses on the prevention and elimination of small incursions of feral deer in the Northern Rivers before they have a chance to establish and grow in number. It is widely recognised that early intervention is the most cost-effective pest control management option in the long term. Border protection, good biosecurity processes and sound monitoring, along with community vigilance and clear reporting mechanisms are instrumental to effective prevention.

The Plan proposes to convene an expert feral deer panel to provide advice on the delivery of the strategic actions in the plan.

1.5 COMMENCEMENT AND DURATION

The Plan will stay in effect for five years (2020-2025). During this period actions and timeframes will be reviewed to ensure they remain relevant, on track and a measure of the effectiveness in achieving the intended goal.

2 FERAL DEER ON THE NSW NORTH COAST

Feral deer are now widespread over much of coastal Australia. At least six species of deer now occur as feral populations in Australia (Appendix B). This has resulted from releases from acclimatisation societies, escape or release from farming operations, or deliberate release for recreational hunting.

Established populations of feral deer are present in Queensland including south east Queensland. In Northern NSW, feral deer are present south at Coffs Harbour and west in the Northern Tablelands local government areas. The Northern Rivers is thought to be relatively free of feral deer (Figure 3) although a comprehensive survey across the area has not yet been undertaken.

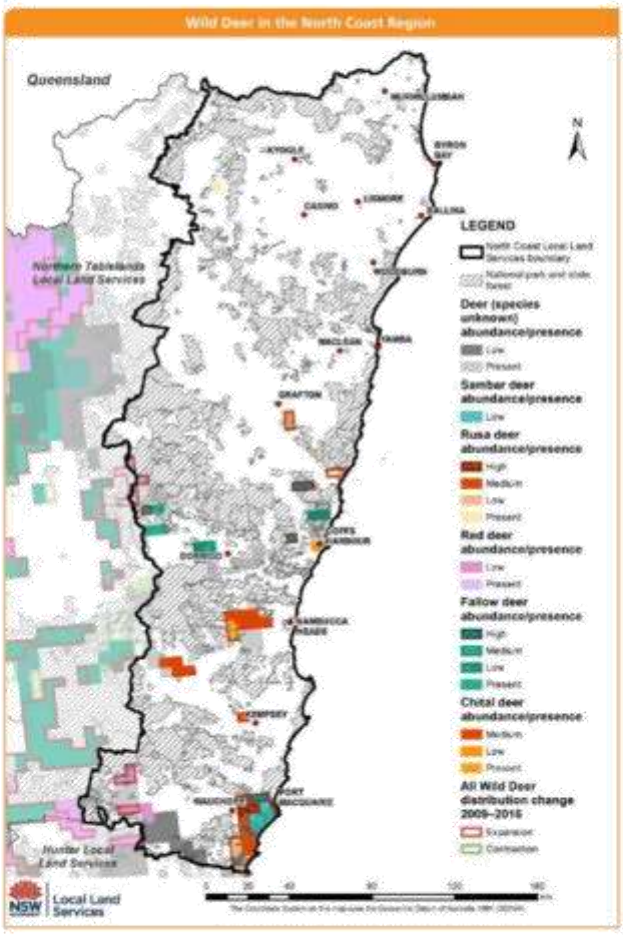


Figure 3. Feral deer distribution in the North Coast region (DPI 2016). From the Regional Strategic Pest Animal Management Plan (2018). Credit: NCLLS & NSW DPI 2016

While feral deer populations on the Northern Rivers have not been specifically surveyed, there are anecdotal reports of deer sightings across the Northern Rivers including around Uki, Chillingham, North Tumbulgum, Wiangaree, Kyogle and Nymboida. Recent reported sightings from DeerScan (2019) and the Local Land Services FARMS database (2011-2019) (Figure 4) show a scattering of deer sightings across the region. Each report (Figure 4) is buffered to 20km^2 to protect the precise location of the sighting. It is important to note that these sightings are unconfirmed and, although occasional sightings do occur, deer are not known to be established.

Figure 4. Indicative areas of known deer sightings reported to DeerScan and Local Land Services FARM records within the planning area. Map credit: Local Land Services February 2020

The reporting of deer sightings to relevant land managers needs to be encouraged to verify the deer distribution and help identify 'hotspots' of deer incursions for monitoring and future control. From the existing mapping, the Northern Rivers region is in a good position to be on the forefront of feral deer prevention because:

- Deer are expected to be largely absent or be present in low population densities
- Historically deer farms were not allowed in the area due to regulations to prevent the spread of cattle tick
- Tick gates on the NSW-QLD border and current NSW tick biosecurity regulations restrict the free movement of livestock
- Natural boundaries including wide rivers, plunging cliff lines and mountainous country may hinder feral deer movement from adjacent areas.

3 FERAL DEER IMPACTS

3.1 ENVIRONMENTAL

Herbivory and environmental degradation caused by feral deer is recognised as a key threatening process under the NSW *Biodiversity Conservation Act 2016*. Environmental impacts occur through a range of mechanisms. Most deer are mainly or entirely browsers but red deer (*Cervus elaphus*) and fallow deer (*Dama dama*) may obtain the greater proportion of their summer diet from grass (Gordon and Prins 2008). Feral deer browse opportunistically on the flowers, shoots, bark and leaves of trees and shrubs and impact on natural regeneration and plant seedling recruitment. They also cause damage to vegetation through trampling and antler rubbing; impacts to water quality through wallowing and faecal contamination; and transport weed seeds (NSW DPI, 2020). Given their broad ranging palate, feral deer can potentially have a profound impact on plant community structure and floristics, from the ground layer ultimately to the tree canopy (Davis et al., 2016; Claridge 2010). Environmental impacts can be variously quantitatively and qualitatively assessed.

3.2 ECONOMIC

Economic impacts are traditionally qualitatively assessed. Economically, feral deer impacts include damage to crops, horticulture, fences, watering points and infrastructure. They also prey on livestock and diminish livestock production due to either harassment of livestock or loss of primary productivity as a result of grazing pressure, and the overall cost burden of pest animal control and damage mitigation (Davis et al., 2016). Deer also impact on managed native and pine forestry plantations through browsing and antler rubbing (Davis et al., 2016).

3.3 SOCIAL

Feral deer have been identified as having several local impacts (NCLLS 2016) such as:

- creating traffic and train hazards and causing vehicle accidents
- browsing and trampling residential gardens and rural fences
- damaging local industry assets such as golf courses, vineyards and commercial gardens, and
- displaying intimidating or aggressive behavior to residents, livestock and pets.

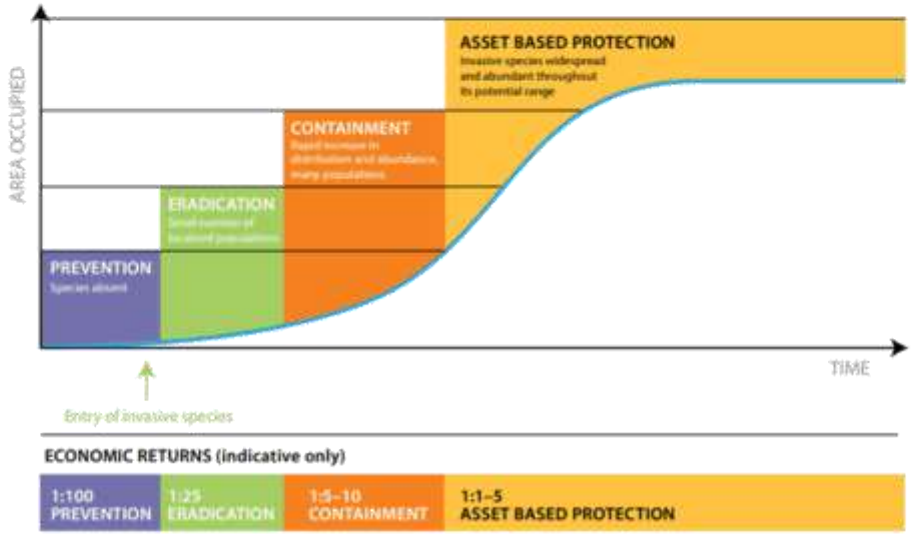
Feral deer traffic accidents, near misses and reports maintained by the NSW Police show in some area such as Port Macquarie there is an average of 15 car accidents per year involving feral deer (NCLLS 2016). Feral deer may act as reservoirs and vectors for a variety of parasites and infectious diseases of agricultural livestock and humans. These include: giardia, cattle tick, leptospirosis, Johne's disease (JD), malignant catarrhal fever and screw worm fly. However, the degree to which they actively transmit such parasites and diseases is unclear (Claridge 2010).

3.4 CULTURAL

Pest animals such as deer can impact on aboriginal culture by degrading culturally significant sites and totems across the landscape such as aboriginal rock art sites, burial places, caves, middens and other historically significant structures. However, the cultural impacts of feral deer in Australia have not been fully studied or quantified.

4 PRINCIPLES OF FERAL DEER MANAGEMENT

Like other pest animal management, the principles of feral deer management can be broadly divided into core and supplementary categories depending on what stage of the invasive timeline the species is at. The generalised invasive species curve (Figure 5) is used to assess the current invasion status of a pest, guide strategic planning and determine what resources are required and what actions are achievable. There are four phases from 'prevention' using quarantine and other biosecurity measures to 'asset-based protection' for established and widespread biological invaders (Braysher 2017). These management principles are summarised below.



*Invasion Curve sourced from Biosecurity Victoria, Department of Primary Industries, Victoria

Figure 5. The 'Invasion Curve' showing the economic efficiency of control before the pest species establish large populations. Credit: The Department of Primary Industries, Victoria 2010

Prevention

Perusal of the generalised invasion curve reiterates the importance of working at the earlier end of the curve through prevention and eradication of small incursion before they establish. Actions at this stage are more likely to be logistically feasible and cost-effective. Border protection, good biosecurity processes, and sound monitoring, along with community vigilance and clear reporting mechanisms are instrumental to effective prevention.

Eradication

Once a pest, such as feral deer, are detected inside the area of interest, eradication is vital to stop that species becoming established and being the subject of ongoing control. By its very nature, eradication is

potentially the most expensive and disruptive in the short term, but when successful is the most cost-effective strategy in the long term.

Containment

If the feral deer, having escaped biosecurity measures, becomes established, focus can be shifted to containment in regions of establishment to limit the impacts to only those areas. In many ways, this is like the initial strategy of prevention on a smaller scale with the aim of preventing it spreading into non-infected areas. Sometimes a strategy of initial containment can be part of a longer-term eradication strategy.

Asset based protection

Once a pest, such as feral deer, have become established, investment should target the protection of high-value assets - whether they are economic, cultural or environmental. Often, the impacts of the established pest are such that investment must be continuous to protect the assets (Fleming et al. 2001; Braysher 2017). Cost-Benefit Analysis is also useful, particularly when looking at economic asset protection.

The reports of deer sightings from the 2019 DeerScan data suggests that feral deer invasion in the Northern Rivers is somewhere between the prevention, eradication and containment phases of the Invasion Curve. Rather than underestimate the scale of the problem, it is proposed that management operates in the 'Containment' phase of pest animal incursion and all efforts are made to define borders and eradicate deer found to be present. One option that might be suitable is to create a containment zone or a biosecurity zone under the *NSW Biosecurity Act 2015,* similar to the Cane Toad Biosecurity Zone, where eradication measures are used for individuals found inside the zone and there are restrictions on moving and releasing the species.

5 STRATEGIC ACTIONS

STRATEGIC ACTION TABLE

One of the most important influences on successfully achieving the Plan's vision is the substantial coordination, collaboration and on-ground delivery by private individuals and groups. With government, industry and the community committing to work together, the likelihood of successfully mitigating the impact of feral deer in the Northern Rivers is increased. While the Plan provides management objectives, responsibility for implementing the actions will be shared amongst stakeholders. The Biosecurity Act 2015 establishes this principle of shared responsibility through the General Biosecurity Duty. The timing of the actions in this plan will be reviewed annually and updated in response to the availability of funds.

Action	Description	Success measure	Estimated Cost ($)	Funding source	Timeframe	Responsibility	
						Lead	Support
Objective 1: Provide regional coordination of feral deer management							
1.1 Engage a Deer Project Officer to implement actions in The Plan	Working Group to apply for funds for a part-time Officer for 18 months	Funding secured to engage a Project Officer	$76,113 (+$30,444 for on costs and vehicle)	NSW Environment Trust Common-wealth	July 2020-Dec 2021	Northern Rivers LGAs	-NRJO -Working Group
1.2 Coordinate quarterly meetings of the Stakeholder Group	Stakeholder Group to meet quarterly to ensure efficient plan administration	Four meetings will be held annually and attended by stakeholders	-$1800 Venue hire, catering -Project Officer in-kind time	In kind	Duration of the plan	Project Officer	-Northern Rivers LGAs -Northern Rivers Landcare groups -NSW National Parks & Wildlife Service
1.3 Standardize and maintain records of feral deer reports	Standard mechanisms for reporting feral deer will be established across all Northern Rivers local government areas and records will be maintained	A single mechanism is adopted and used to record all sightings of deer in		In kind	Duration of the plan	NSW DPI	-Working Group -Project Officer -NCLLS -DeerScan

Action	Description	Success measure	Estimated Cost ($)	Funding source	Timeframe	Responsibility	
						Lead	Support
	to ensure up-to-date and comprehensive data is available to inform decisions.	the Northern Rivers.					
1.4 Update and review the Plan	Major review will be undertaken in 2024 and be completed by 2025 to ensure consistency with the most recent and relevant information, provide opportunities to improve management across all land tenures and to measure performance against desired success measures	Plan reviewed by Working Group and updated to reflect changes in management as required	Project Officer in-kind time		Annually and 2025	Project Officer	Working Group
Objective 2: Increase community understanding of the impacts of feral deer and the benefits of feral deer management							
2.1 Understand community perceptions about feral deer and their impacts	Develop regional community survey to gauge community perceptions about feral deer and their impacts. The survey will help inform a Feral Deer Management Education and Awareness campaign.	Survey developed, implemented and results analysed.	Project Officer in-kind time		30th Nov 2020	Project Officer	-Northern Rivers LGAs -Northern Rivers Landcare groups
2.2 Develop and implement a Feral Deer Management Education and	Education and awareness are critical to increasing understanding of the impacts of feral deer. Through communication and engagement activities,	One feral deer flyer. Four newspaper articles promoting on ground works	$10,500 -Project Officer in-kind time		31st December 2020, and ongoing during	Project Officer	-NCLLS -Working Group

Action	Description	Success measure	Estimated Cost ($)	Funding source	Timeframe	Responsibility	
						Lead	Support
Awareness campaign	private land managers are more likely to report and manage feral deer. Inform absentee landholders of their obligations under the Biosecurity Act 2015.	Facebook and newsletters. Community report an increase in awareness of feral deer, their impacts, reporting and control.			duration of plan		
2.3 Develop communication package for use by stakeholders to ensure consistent messaging and efficiency around feral deer	A communication package for newsletters, websites, Facebook, fact sheets, FAQs and photographs will be developed to ensure consistent messaging across the Northern Rivers	5x packages are distributed via various forms of media in each LGA	-$5,000 (design and printing costs) -Project Officer in-kind time		November 2020	Project Officer	Working Group
2.4 Distribute educational materials to broader community	Educational materials will be distributed to the community by attending markets, shows, field days, training days, Council front counters. Encourage the community to report all feral deer sightings to NCLLS or DeerScan	-Minimum of 1 event attended in each LGA -LLS hotline and DeerScan promoted on educational materials	-$15,000 -Landcare groups -Project Officer in-kind time		Annually	Working Group	-NCLLS -Northern Rivers LGAs -Northern Rivers Landcare groups
2.5 Promote the project and community	Advertise workshops and training across the region to raise awareness among community of feral deer, their impacts and how to	1 TV advert (65 ads) x 3, 5x local newspapers,	$23,500 -Contractor		2020-2025	Project Officer	Working Group

Action	Description	Success measure	Estimated Cost ($)	Funding source	Timeframe	Responsibility	
						Lead	Support
engagement events	become involved in preventative action	Facebook boost posts	-Project Officer in-kind time				
2.6 Develop guidelines for deer farming and deer as pets	Create a pamphlet for dispersal by LLS to provide guidance to Northern River's deer farmers to prevent deer release and legal obligation to report deer in annual stock return.	1 x pamphlet distributed through region. Registration options discussed at one stakeholder meeting	-$2500 (design and printing) -Project Officer in-kind time		30th June 2021	Project Officer	-NCLLS -Working Group
2.7 Roll out workshops across the region on feral deer awareness and control options	Agency, targeted and community awareness workshops and training providing face to face information on feral deer, signs, impacts, reporting of sightings, animal welfare, and control options	Roadshow developed and delivered at least 1 in each LGA	-Contractor $6,000 -Project Officer in-kind time		30th June 2021	Project Officer	-NSW DPI -Northern Rivers LGAs -Northern Rivers Landcare groups
2.8 Build capacity in land management agencies to respond to feral deer reports	Script for LGA, LLS, NPWS and Landcare Customer Service staff	Script distributed to participating LGAs and organisations	Project Officer in-kind time	$600 In-kind		Tweed Shire Council (TSC)	-TSC Contact Centre Team -Tweed Landcare -Working Group
2.9 Document key project activities on video	Contract a videographer to document the prevention campaign from beginning to end as a record and for community awareness and education. Capture training	5x 3 minute videos advertised on LGA Landcare websites and beyond	$22,000 -Contractor -Project Officer in-kind time		Dec 2021	Project Officer	Working Group

Action	Description	Success measure	Estimated Cost ($)	Funding source	Timeframe	Responsibility	
						Lead	Support
	sessions, workshops, on farm interviews, visuals of the damage done.						
Objective 3: To accurately identify the distribution of deer in the Northern Rivers							
3.1 Collate existing feral deer records	Collate all existing records from NCLLS and DeerScan. Verify recent sightings and follow-up on recent unsubstantiated records. Identify all properties that currently have deer as livestock or pets.	Map of known feral deer records in the Northern Rivers produced and circulated to land managers	Project Officer in-kind time	NSW DPI	30th Nov 2020	Project Officer	-NSW DPI -NCLLS -DeerScan -Working Group
3.2 Produce a map of known feral deer records in the Northern Rivers	Map of known feral deer records in the Northern Rivers, including FARMS and DeerScan records, produced and circulated to land managers	Map readily available for planning purposes	-NSW DPI -Project Officer in-kind time		30th Nov 2020	NSW DPI	-NCLLS -DeerScan -Project Officer
3.3 Camera monitoring to support planning and control efforts	In incursion areas confirm species presence/absence, species type, numbers, stag/hinds. Use to support survey effort and success of control work	9 cameras (SD cards and security cases purchased and shared between a minimum of 3 LGAs	-$5000 -Project Officer in-kind time		2021-2025	Project Officer	Participating LGAs
3.4 Confirm active deer sightings in the region	Hire contractors to verify reported clusters through ground truthing and monitoring of potential hot spots e.g., using cameras, helicopter, drones etc.	Minimum of 2 locations	-$15,600 -Contractor -Project Officer in-kind time		30th June 2021	Project Officer	-Private landholders -Working Group

Action	Description	Success measure	Estimated Cost ($)	Funding source	Timeframe	Responsibility	
						Lead	Support
3.5 Produce predictive map of deer movement	Creation of map to guide planning and future control operations	Map readily available to overlay known records, including deer farms and guide control efforts	-$2000 GIS Officer (in-kind) -Project Officer in-kind time			Project Officer	Tweed Shire Council
Objective 4: Develop strategic planning mechanisms to ensure preparedness to respond to the level of incursion							
4.1 Identify, establish and coordinate an expert panel	Panel advises on key project activities	6x meetings over 18months	$9,000 -Contractor fees, travel, catering		2020-2025	Project Officer	Working Group
4.2 Investigate the creation of a Northern Rivers Feral Deer Biosecurity or Containment Zone	Similar to the Cane Toad Biosecurity Zone concentrating on eradicating deer inside the zone.	1x summary report on expert findings of panel	-$2,000 -Expert panel -Project Officer in-kind time		30th Dec 2020	Project Officer	-Working Group -Expert panel
4.3 Develop a Northern Rivers regional control plan	Develop a plan based on the expert panel findings. Include BMP techniques, trigger points for control, control techniques, costs. Panel of Providers for contract shooters	1x Draft Control Plan or Appendix to this plan prepared	-$15,000 -Contractor -Project Officer in-kind time		30th June 2021	Project Officer	-Working Group -Expert Panel
4.4 Early incursion feral deer control pilot	Pilot eradication effort of early incursion deer population using expert contract shooters at hotspot location with	1x Pilot study with report	-$56,000 -Contractor		30th June 2021	Project Officer	-Working Group -Expert Panel

Action	Description	Success measure	Estimated Cost ($)	Funding source	Timeframe	Responsibility	
						Lead	Support
	before and after monitoring		-Project Officer in-kind time				
4.5 Landholder and Sporting Shooters Association Australia (SSAA) conservation hunter training in feral deer detection and control methods	Train landholders and local SSAA conservation hunters in deer control, marksmanship & camera trap methodology at 3 locations across the Northern Rivers	Minimum of 30 landholders confident in deer control techniques and camera trap use in 3 locations	-$17,500 -Contractor -Project Officer in-kind time		30th May 2021	Project Officer	Working Group
4.6 Establish feral deer control fund	Investigate ways to fund deer control. Apply for external funding, LGA contribution/governance arrangement	1x control fund	Project Officer in-kind time			Project Officer	-NSW DPI -NR Joint Organisation -Working Group
Objective 5: To support ongoing deer prevention and control research and development							
5.1 Review and support ongoing research for feral deer prevention and control	Contact Griffith and Southern Cross Universities for interest in related projects	Research proposal reviewed and where applicable support in writing			Ongoing	Stakeholder Group	Working Group

FUNDING SOURCES

One of the most important influences on successfully achieving the Plan's vision is securing funding to implement this plan. The following options are recognised as potential funding sources.

Australian Government Community Grants Hub

The Australian Government provides opportunity for local government areas via a restricted competitive process to apply to deliver projects under the Communities Combating Pests and Weed Impacts during Drought Program - Biosecurity Management of Pests and Weeds.

The objectives of the program are to:

- stimulate economic activity in areas where projects take place
- facilitate local employment in areas where projects take place
- increase farm business profitability
- assist communities manage the negative impact of pest animals and weeds during drought on agricultural production
- contribute to the government's broader biosecurity objectives
- provide pest animal and weed control benefits to communities where projects take place.

NSW Environmental Trust

Environmental Restoration and Rehabilitation Grants – Pest animal management is an eligible activity under the program which includes the strategic long-term control of pest species through physical intervention to facilitate the recovery of native animal and plant species.

Individual grants of up to $100,000 (1:1) with a total of $2,000,000 for community organisations and $2,000,000 for government entities are available.

LGAs and/or private land managers should be interested in making an application to increase community awareness and/or reduce the impacts of feral deer especially where there is community-led action by the formation of community based feral deer groups which has been identified as a key strategy for industry and government efforts to implement coordinated pest animal control in Australia (Howard et al., 2017).

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APPENDIX A. OVERVIEW OF RELEVANT LEGISLATION, POLICIES AND PLANS

The *NSW Biosecurity Act 2015* (the Act) and Biosecurity Regulation 2017 came into effect on 1 July 2017. The Act supports national commitments under the Intergovernmental Agreement on Biosecurity and addresses a key goal (Goal 4) of the NSW Biosecurity Strategy 2013–2021.

The Act has replaced 10 existing Acts and parts of four other Acts with a single Act. A consistent approach will make it easier for stakeholders and regulators to effectively manage biosecurity risks to the economy, environment and the community.

*The Act:

- embeds the principle that biosecurity is a shared responsibility
- provides modern, flexible tools and powers that allow effective management of pest animals and diseases, weeds and contaminants across the landscape regardless of whether it is private or public land
- minimise delays and define responsibilities in emergency situations
- provides for risk-based decision-making that enables a flexible approach to respond to and manage biosecurity risks regardless of the type of biosecurity matter
- supports a national approach to biosecurity and gives effect to intergovernmental biosecurity agreements.

*Key NSW legislation relevant to invasive species management which will operate in tandem with the

- *NSW Biosecurity Act 2015 includes:*
- *NSW Biodiversity Conservation Act 2016*
- *NSW National Parks and Wildlife Act 1974*
- *NSW Local Government Act 1993*
- *NSW Local Land Services Act 2013*
  - *particularly Part 3 (Community Advisory Groups) and Part 10 (Pests)*
  - *and Local Land Services Amendment Act 2016*
- *NSW Forestry and National Park Estate Act 1998*
- *NSW Crown Land Management Act 2016*
- *NSW Prevention of Cruelty to Animals Act 1979*
- **NSW Game and Feral Animal Control Act 2002*
- *NSW Border Fence Maintenance Act 1921 (formerly known as Wild Dog Destruction Act 1921).*

(*N.B., Deer were recently delisted as a game animal on private land under the *NSW Game and Feral Animal Control Act 2002*, effective from 6 September 2019. "Feral deer will now be treated like all other pest animals such as rabbits, foxes, goats and pigs," Andrew Cox - CEO Invasive Species Council)

*The Regional Strategic Pest Animal Management Plan

APPENDIX B. FERAL DEER IDENTIFICATION

The following six species of deer are present in NSW and have the capacity to inhabit the Area outlined in this plan. *This information is reprinted with permission from the Game Management Authority, Victorian State Government* http://www.gma.vic.gov.au/hunting/deer/deer-species

1 Rusa Deer (*Cervus timorensis*)

Rusa Deer (stag)

Rusa Deer (hind)

Introduction and distribution

Rusa Deer were introduced to Australia from Malaysia in 1868. Rusa are found in New South Wales, Queensland and South Australia. Only isolated populations of Rusa are found in Victoria.

Appearance

There are a number of Rusa species, and they are similar to the Sambar and are able to inter-breed. The Rusa is a uniform greyish/brown and has light creamy under-parts.

They are a medium to large-sized deer. A mature stag will stand up to 110cm at the shoulder and weigh around 135kg. The hind is about two-thirds the size of the stag.

The stags' antlers are typically three points on each side (six-tined) and the inner tops are generally parallel. They are known to grow antlers to the 36-inch mark.

Habitat and herding

Rusa inhabit numerous different habitat types, from farm fringe to thickly vegetated swampy areas.

Rusa Deer form small herds.

2 Fallow Deer (*Dama dama*)

Fallow Deer (buck)

Fallow Deer (hind)

Introduction and distribution

Fallow Deer were introduced to Australia from England in the 1830's. Fallow are now found in all states with the exception of the Northern Territory. Their strongest foot-holds are Tasmania, South Australia and New South Wales.

Appearance

The Fallow is a very pretty deer of medium size. A mature buck will stand up-to about 95 cm at the shoulder and weigh up to about 90kg. The hinds will be half the size of a stag standing up-to 80cm and weighing in at about 40kgs. There are four different colour variations: red, black, white and menil (meaning spotted). The stags' antlers are quite different from any other wild Australian deer and are palmated (similar to the moose).

Habitat and herding

The Fallow Deer are a herd deer inhabiting semi-open scrubland and frequent and graze on pasture that is in close proximity to cover. They breed during the April/May rut, fawns are born in December and the bucks cast their antlers in October. In rut, the buck makes an unmistakable croak, similar to a grunting pig which makes them an easy target for hunters.

3 Red Deer (*Cervus elaphus*)

Red Deer (stag)

Red Deer (hind

Introduced

Red Deer were introduced to Australia from England in 1860.

Appearance

Adult Red Deer typically have a reddish-brown coat. Calves are spotted at birth.

They are a medium to large-sized deer. Mature stags will stand around 120cm at the shoulder and weigh approximately 160kg. Hinds are approximately two-thirds the size of the male.

Red Deer antlers can grow as long as 40 inches and have 14 points individually, however, antlers around 25 inches with eight points is the norm.

Habitat and distribution

Red Deer are a herd animal and have a strong herding instinct and highly developed social order. The rut occurs around April and the stags are quite vocal. Stags roar to attract receptive females and will fight to protect their harems from rivals.

Red Deer are adaptable to different habitat types, although they are seen predominately in mountainous forested terrain they are equally at home in choked gullies. They are a browsing animal that will also graze on pasture; for this reason, they prefer areas of open forest.

4 Chital Deer (*Axis axis*)

Chital Deer (stag)

Chital Deer (hind)

Introduction and distribution

Chital Deer were introduced to Australia from India in the 1860s. Healthy wild populations of Chital exist in Queensland near Charters Towers, with other smaller isolated population in NSW, South Australia and Victoria.

Appearance

Chital are arguably the prettiest deer in Australia. They have a dark chocolate brown coat with extensive small white spots spread over their body.

They are a medium size deer. A mature stag will stand up to about 90cm at the shoulder and weigh about 85kg. The hind will stand up to about 80cm, weighing up to about 60kg. The antlers are typically three points on each side (six tined) and are thin and slender growing up to about 35 inches.

Habitat and herding

Chital prefer to be in a herd and inhabit the warmer inland areas of Australia, preferring swampy areas that are well grassed with a good canopy of thick cover.

5 Sambar *Deer* (*Cervus unicolor*)

Sambar Deer (stag)

Sambar Deer (hind)

Introduction and distribution

Sambar Deer were introduced to Australia from India, Ceylon and Malaysia in the 1860s.

Appearance

Sambar Deer are a very large deer. A mature stag can stand 130cm at the shoulder and weigh up to 230kg. The hinds are smaller in size and stand up to 110cm and weigh up to 180kg. They are uniform dark brown with ginger and cream under-parts. The hair is very stiff and coarse. The antlers have typically three points on each side (six-tined), are heavy and may reach lengths of greater than 30 inches.

Habitat and herding

Sambar Deer are solitary by nature, extremely wary and inhabit difficult and complex terrain. They frequent many different habitat types from heavy forest, rough mountainous terrain to more open-country.

6 Hog Deer (*Axis porcinus*)

Hog Deer (stag)

Hog Deer (hind)

Introduction and distribution

Hog Deer were introduced to Australia from India and Ceylon in the 1860's. Hog Deer populations occur throughout the Gippsland coastal area in low to moderate concentrations.

Appearance

Hog Deer have a brownish/straw colour coat and may have white spots in the summer. The underside is white/cream. The Hog Deer is the smallest deer species in Australia. A mature stag stands around 70cm at the shoulder and weighs about 50kg. The hind is somewhat smaller, weighing only 30kg. The antlers typically have three points on each side (six-tined), are thin and may grow to around 16 inches.

Habitat and herding

The Hog Deer is a herding animal and is found in the coastal tea-tree swamp areas. They prefer to graze at dawn and dusk. Hog Deer do not cast their antlers in a regular fashion, however, around August to October is most common.

Report No. 4.3 **Minutes of previous meeting held 10 February 2020**
Directorate: Sustainable Environment and Economy
Report Author: Michelle Chapman, Project Support Officer
File No: I2020/570
Theme: Sustainable Environment and Economy
Planning Policy and Natural Environment

Summary:

The minutes of the previous Biodiversity Advisory Committee meeting held on 10 February 2020 and referred to at Item 3 of this meeting's agenda, are attached.

RECOMMENDATION:

That the Biodiversity Advisory Committee note the minutes of the 10 February 2020 meeting.

Attachments:

1 Minutes 10/02/2020 Biodiversity Advisory Committee, I2020/136 , page 48⇩

Report

The minutes of the previous Biodiversity Advisory Committee meeting held on 10 February 2020 are attached and available at:
https://byron.infocouncil.biz/RedirectToDoc.aspx?URL=Open/2020/02/BAC_10022020_MIN_1184.PDF

The minutes were reported to 26 March Council meeting, resulting in Resolutions 20-121 and 20-122.

STRATEGIC CONSIDERATIONS

Community Strategic Plan and Operational Plan

CSP Objective	L2	CSP Strategy	L3	DP Action
Community Objective 3: We protect and enhance our natural environment	3.1	Partner to protect and enhance our biodiversity, ecosystems and ecology	3.1.1	Protect and enhance our natural environment and biodiversity
Community Objective 3: We protect and enhance our natural environment	3.2	Strive to become a sustainable community	3.2.2	Support community environmental and sustainability projects

Legal/Statutory/Policy Considerations
Nil

Financial Considerations
Nil

Consultation and Engagement
Not applicable

MINUTES OF MEETING

BIODIVERSITY ADVISORY COMMITTEE MEETING

Venue	**Conference Room, Station Street, Mullumbimby**
Date	**Monday, 10 February 2020**
Time	**3.15pm**

Minutes of the Biodiversity Advisory Committee Meeting held on Monday, 10 February 2020
File No: Error! Unknown document property name.

PRESENT: Cr J Martin, Cr S Ndiaye, Cr M Lyon

Staff: Sharyn French (Manager Environmental and Economic Planning)
Liz Caddick (Biodiversity Officer)
Chloe Dowsett (Coastal and Biodiversity Coordinator)
Peter Boyd (Project Officer – Environmental Projects)
Phil Warner (Manager Assets & Major Projects)
Shannon Burt (Director Sustainable Environment and Economy)
Sarah Nagel (Team Leader Community Enforcement)

Community: Peter Westheimer
Luke McConell

Cr Ndiaye (Chair) opened the meeting at 3.23pm and acknowledged that the meeting was being held on Bundjalung Country.

APOLOGIES:

Apologies were received from Cr Coorey and Margaret Greenway.

DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

There were no declarations of interest.

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

Committee Recommendation:

That the minutes of the Biodiversity Advisory Committee Meeting held on 11 November 2019 be confirmed with the following additional recommendation in relation to *Report No. 4.5 Byron Bay Bypass - Environmental Compensation Options over and above project requirements*:

The Biodiversity Advisory Committee recommend that staff liaise with local universities and landholders to find out what research and information pertaining to the Mitchell Rainforest Snail exists and how we can work together.

(Ndiaye/Westheimer)

The recommendation was put to the vote and declared carried.

BUSINESS ARISING FROM PREVIOUS MINUTES

Discussion was held on previous meeting *Report No. 4.5 Byron Bay Bypass - Environmental Compensation Options over and above project requirements* in relation to Mitchell Rainforest Snail.

Report No. 4.1 Bow Wow! Look at me now! Event Results
File No: I2020/28

Committee Recommendation:

That the Biodiversity Advisory Committee note this report and that a bid for $4,000 is included in the 2020/2021 budget to reduce dog-wildlife/koala interactions, which will be used to participate in the existing Federal community dog show.

(Ndiaye/Martin)

The recommendation was put to the vote and declared carried.

PROCEDURAL MOTION

Committee Recommendation:

That Council change the order of business to deal with Report 4.6 next on the Agenda.

(Ndiaye/Westheimer)

The recommendation was put to the vote and declared carried.

Report No. 4.2 Brunswick Valley Landcare Support Officer report December 2019
File No: I2020/38

Committee Recommendation:

That the Biodiversity Advisory Committee note the report.

(Westheimer/Martin)

The recommendation was put to the vote and declared carried.

Report No. 4.3 Minutes of previous meeting held 11 November 2019
File No: I2020/40

RECOMMENDATION:

That the Biodiversity Advisory Committee note the minutes of the 11 November 2019 meeting.

Report No. 4.4 Biodiversity Projects and Operations Update
File No: I2020/75

Committee Recommendation:

That the Biodiversity Advisory Committee notes the update on current projects and programmes being undertaken by the Biodiversity team.

(Westheimer/McConell)

The recommendation was put to the vote and declared carried.

Report No. 4.5 **Biodiversity Conservation Strategy**
File No: I2020/76

Committee Recommendation:

That the Biodiversity Advisory Committee note that the draft Biodiversity Conservation Strategy with minor adjustments will be reported to Council in March recommending it be placed on public exhibition in April-May 2020.

(Westheimer/McConell)

The recommendation was put to the vote and declared carried.

Report No. 4.6 **Urgent Bird Protection from Dogs at Tallow Creek (Res 19-602) - update to the committee**
File No: I2020/99

Committee Recommendation:

That the Biodiversity Advisory Committee note the proposed approach for actioning of Res 19-602 which calls for urgent management of dogs at Tallow Creek.

(Ndiaye/Westheimer)

The recommendation was put to the vote and declared carried.

5

There being no further business the meeting concluded at 5.39pm.

Report No. 4.4 **Taro Removal - Salt Water Creek**

Directorate: Sustainable Environment and Economy
Report Author: Chloe Dowsett, Coastal and Biodiversity Coordinatior
David Filipczyk, Bush Regeneration Team Supervisor
File No: I2020/590

Summary:

This short report provides an update on the recent work completed by Council's Bush Regeneration Team at Saltwater Creek, Mullumbimby.

Primary works were completed in December 2019; however required follow-up/maintenance works are currently unfunded.

RECOMMENDATION:

That the Biodiversity Advisory Committee note the update on Taro Removal at Saltwater Creek.

REPORT

Key issues

Saltwater Creek, Mullumbimby suffers from weed infestation (primarily Taro), poor water quality and generally only flows during rain events.

Primary Works Completed

In December 2019, Council's Bush Regeneration team undertook primary works to remove all Taro in Saltwater Creek, between the causeway on Stuart Street and the bridge on Fern Street, Mullumbimby (adjacent to the Mullumbimby Museum).

The work followed after a number of complaints from local residents, the Mullumbimby Historical Society and correspondence from Tamara Smith MP concerning this environmental weed damaging biodiversity, restricting water flow and creating an offensive odour.

The decision was made to carry out the work while Saltwater Creek was empty (due to lack of rain). This made the work easier and should be more successful.

The Bush Regeneration team received assistance from members of The Brunswick Valley Historical Society, Mullumbimby Landcare and 2 local residents.

The team carried out a total of 100 hours of work over 3 days and took 13 trailer loads of Taro and 2 trailer loads of rubbish to the Resource Recovery Centre.

The Brunswick Historical Society, Mullumbimby Landcare, Mullumbimby Markets and local residents are all very happy with the work which has been carried out, although they are already requesting the removal of the remaining Taro (up and downstream).

Next Steps

There is more Taro which needs removal upstream, and downstream of this area. On-going maintenance will also be required by the Bush Regeneration team (or local Landcare if possible) on the area already worked, however currently this is unfunded.

Council will continue to seek grant opportunities to progress further removal work.

Please refer pictures below.

Photo 1: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Nov 2019: Four BSC Bush Regenerators and one local resident removing Taro

5

Photo 2: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Nov 2019 (**before removal**)

Photo 3: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Dec 2019 (**after removal**)

Photo 4: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Nov 2019 (**before removal**)

Photo 5: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Dec 2019 (**after removal**)

Photo 6: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Nov 2019 (**before removal**)

Photo 7: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Dec 2019 (**after removal**)

Photo 8: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Nov 2019

Photo 9: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Dec 2019 (**after removal**)

Photo 10: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Nov 2019

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Photo 11: Saltwater Creek Mullumbimby – Adjacent Mullumbimby Museum - Dec 2019 (**after removal**)

10

STRATEGIC CONSIDERATIONS

Community Strategic Plan and Operational Plan

CSP Objective	L2	CSP Strategy	L3	DP Action	L4	OP Activity
Community Objective 3: We protect and enhance our natural environment	**3.1**	**Partner to protect and enhance our biodiversity, ecosystems and ecology**	**3.1.2**	**Restore degraded areas and habitats that have or provide significant or high environmental and or community value**	**3.1.2.1**	**Undertake bush regeneration activities to maintain and expand restoration of HEV sites on Council owned or managed lands forming part of the Council bush regeneration program**

Legal/Statutory/Policy Considerations
N/A

Financial Considerations
There is currently no budget for the follow-up work required for this project.

Consultation and Engagement
N/A