



Byron Bird Buddies Submission – 27/4/2020

Byron Shire Council Draft Biodiversity Conservation Strategy 2020-2030

Byron Bird Buddies (BBB) is a local community group involved with bird conservation, education and bird population monitoring throughout the Byron Shire and the Northern Rivers area.

We have studied and generally support this Draft Plan 2020-2030;

- it is well laid out
- interesting and clear to read
- it gives a good overview of biodiversity in the Shire and what it is we aim to protect
- the objectives and action plans are well conceived and would appear achievable and measurable
- definitely need to foster the clean & green image more
- will provide a good focus for protecting our biodiversity for the next 10 years

However we make the following comments/suggestions

- Box 2 - and Action – Citizen Science projects are now possible – maybe Council can better id some citizen science projects besides koalas that the community can monitor.
- BBB Monitoring – Just to clarify our Shorebird and KBA area monitoring are Birdlife Australia monitoring programs – the data is uploaded to Birdata but we also keep the records.
 - Birdata is the data base that all of the birding groups in our area use <https://birdata.birdlife.org.au/> and should be mentioned as a possible source for accessing data. Birdata is BirdLife Australia's mobile app and web portal. It facilities simple data entry in the field and basic reporting facilities. It also provides for various dedicated monitoring projects such as Shorebirds 2020 and birds in Backyards.
- 1.4.3 Climate Change – Climate Change Adaptation Planning - is important and supported. A good monitoring program would need to be in place if we are going to adapt to biodiversity loss.
- Chapter 2 – Threats to biodiversity – the strategy there is no mention of domestic pets being a big threat to biodiversity in this section –
 - Domestic dogs in particular are a huge treat to beach nesting birds – and more and more dog-owners are seeking extensions of their current

allocated places to walk dogs. Also many owners are now prepared to walk dogs unleashed in National Parks and argue for their entitlement. Currently the Open Space draft is asking residents if they have enough spaces for dog walking - Unless we limit to existing sites our areas for biodiversity will decline.

- Domestic cats – not enough cat owners are prepared to be responsible. I live in a small cul-de-sac in Ocean Shores and I see at least 4 cats wondering in the street/driveways and into my garden.
- 2.2 – Land Use and Fragmentation – previously in the document its mentioned that back-yards are important for biodiversity – the new and popular allowance for secondary dwelling in the shire are reducing urban biodiversity – Much is written about urban biodiversity and its importance – if we are to be serious about maintaining our biodiversity than this loss of backyards to a secondary house needs to identified, assessed and compensated.
- 2.2.2 - Providing buffers to the 17% of protected area should be identified as priority – especially to rainforests in a drying continent.
- 5.2 BBB is happy to work with BSC to share monitoring results of bird sighting and habitat observations.
- Spelling errors
 - I have learnt the hard way over the years – bird names need to be spelt correctly i.e. the right capitals and hyphens need to be in the correct places
 - Pg 7 - Rainbow Bee-eater
 - Pg 9 - Superb Fairy-wren
 - Pg 12 & 16 - Rose-crowned Fruit-Dove
 - Pg 16 - Sooty Oystercatcher
 - PG 16 -Beach Stone-curlew
 - Pg 19 – Bush Stone-curlew
 - Pg 19 - Buff-banded Rail
 - Also pg 30 3.1.4 – 4th line – have – after Landcare groups
 - Pg 65 5.1.5 9th line –‘may’ instead of ‘my’ – after where restoration

Thank you for the opportunity to have input to this Draft Biodiversity and Conservation Strategy.

Jan Olley
Byron Bird Buddies Coordinator

Goonengerry Landcare Group Submission 20th May 2020
Byron Shire Council Draft Biodiversity Conservation Strategy
2020-2030

Goonengerry Landcare Group is a local community group (previously Tibian Valley Landcare) protecting and restoring the natural environment in Byron Shire for almost 30 years.

We have studied and generally support this Draft Strategy 2020-2030.

We think the Byron Shire Council Draft Biodiversity Conservation Strategy 2020-2030 (BCS) gives a good overview of biodiversity in the Shire and what it is that we aim to protect. It provides a good focus for protecting the biodiversity for the next 10 years.

Our overall feedback is that as the BCS is the predominant plan for the protection and enhancement of biodiversity in Byron Shire, it should have a direct link to any of Council's Control and/or Development Plans to ensure that protection of the Environment is clear and actionable. Local Planning and Development Controls must include the principles of the BCS as a pre-requisite for all development with the clear aim to address the key threat of habitat loss through land clearing.

We particularly applaud the focus on Climate Change planning while noting that we can also reduce the impacts of Climate Change by reducing its impacts before they occur, such as reducing biodiversity losses rather than only focussing on reducing the impacts after the fact.

Including this approach allows for focus on Council's own activities such as road and other infrastructure construction activity. The BCS should mandate that there be no net loss of Shire biodiversity from any Council development.

We have several concerns that we feel are not adequately covered in the BCS:

- **Biodiversity Offsets:** Council re-considers utilising Biodiversity offsets. The lack of clarity on the ground around the various "offsets" is a work in progress and to be fair Council has little control over that. However it does control its own use of Biodiversity Offsets on its own developments. The Precautionary Principle and In-Situ Conservation should be at the forefront of any planning controls. Prevention is better than a cure. Preventing habitat loss and subsequent biodiversity degradation is the best way to ensure we protect what we already have. The Wilderness Society did an in-depth study of 10 Biodiversity Offset sites, which revealed that only 2 sites benefited, and that 80% did not benefit, with 20% having a worse environmental outcome. Due to the highly interrelated and little understood biodiversity functions, destroying biodiversity cannot compensate for by works on other sites.
- **Feral Animal Action:** Council continues to rely on other bodies, such as LLS, to take the lead, however this is a very slow approach that is seeing untold loss to the Shires biodiversity. Council needs to inject itself into this action over the next decade.

This could be by obtaining grants to assist landholders/community groups and/or taking a lead role in bringing together the stakeholders to form working partnerships to move forward across the entire Shire, not just 'Council

Managed Land'. This is one of the top actual threats to our biodiversity and mostly abdicating responsibility is not an option.

- **Domestic Animals:** This is a huge and growing threat to our biodiversity with too low a profile at Council and too few resources. Larger fines, easier interaction process with rangers, deterrent cases highlighted and no weakening of current rules but more enforcement are needed. More resources are also required to frame this in a community engagement context so that it's about shared responsibilities.

<https://www.theguardian.com/environment/2020/may/15/keep-pet-cats-indoors-say-researchers-who-found-they-kill-230m-native-australian-animals-each-year>

- **Biodiversity Hot Spots:** If the highest value ecosystems in the Shire can be labelled as such, perhaps Local Planning and Development Controls should emphasise the importance of them. This could lead to further monitoring of pet ownership where domestic animals are considered a problem and also potential reductions of traffic speeds where found necessary.
- **Tree Planting:** We applaud the focus on tree planting and carbon sequestration. However, we must ensure that the tree planting focus is not about accounting but real environmental outcomes. In the past State and Federal environment departments funded much more tree planting by Landcare and other groups.

It is well researched and shown that there was a high failure rate in much of this activity due to lack of proper technique, drought, and mostly way too little follow-up. In our area in particular, these bodies now focus their grant funding on natural bush regeneration techniques that have a much higher outcome ratio and can be far more cost effective. Of course there is a place for tree planting, however let's make it work rather than simply an offsetting tool or a feel good community activity.

- **Protecting threatened species:** There is much focus on this from both survey results and discussion in draft. Yet right now there are threatened flora both on Council managed land and private lands. These are logged in the Council database, yet there is no Council 'care program' around them. Other Councils run all sorts of programs to protect and enhance such examples and these are often managed by partnerships between Council and locality groups, often Landcare. There needs to be a long-term action around this issue.
- **Environment Department:** We feel strongly that while the concept of this BCS is good it is not supported by the internal structures at Council. That is, the Environment Department doesn't really exist or at best lacks independence and a clear mandate to work towards these goals.

This can be shown in two examples:

- (1) The extremely small number of qualified staff with any ability to pursue environmental outcomes and the regular turnover of those few qualified staff. These seem to often leave in frustration and lead to a new staff

member who comes often with less experience and no local knowledge. By the time they gain that knowledge, they move on and progress on achieving many of the goals espoused in the BCS are set back or lost entirely.

- (2) Virtually the only direct work in the field that Council does in the Environment area is via its Bush Regeneration Team and it is pleasing to see it mentioned in a serious way in this document. However it seems illogical that it is the responsibility of the Infrastructure Department and not the Environment Department. This seems to point to the subservient nature that “The Environment” is treated within Council as opposed to all the good words printed in this BCS. Perhaps the aims of the BCS have a better chance of success if there was a strong independent Environment Department.

Thank you for the opportunity to comment on the Draft BCS. We look forward to seeing it develop into a strategy and trust that our concerns will be considered in the finalisation of the Byron Shire Council Biodiversity Conservation Strategy 2020-2030

Yours sincerely,
Alan Goldstein
Goonengerry Landcare Group

Name

John Lazarus

Your submission

You people are sick. Lies and propaganda while you bulldoze Critically Endangered species habitat (photo attached) for your fake bypass/new extended CBD Commercial zoning development road. Protect and Restore is the fundamental allegation of your fake Biodiversity Conservation Strategy - what a sick joke you lot, and this propaganda strategy, are.



JAN BARHAM

General Manager
Byron Shire Council
by email
May 2020

SUBMISSION – Draft Biodiversity Conservation Strategy

I support the Draft Biodiversity Conservation Strategy (BCS) as a draft but cannot support it for adoption in its current form. I suggest that changes be made and a re-exhibition of the document or the inclusion of additional information prior to adoption that provides more detail, particularly the recognition of Byron Shire's biodiversity by the inclusion of species lists and maps.

The inclusion of key data would not require re-exhibition as it is factual and provides enhanced information, not policy.

There are however, other points that I'm including in my submission that, if supported, may require re-exhibition. I believe this input would greatly enhance not only the document but the outcomes for biodiversity in the operation of council.

My submission and the suggestions are presented in the hope that they are actioned and that councillors and staff respect and understand that the shire has a long history of environmental activism and political engagement. I hope that council is seeking a higher standard for the future as we are now living in an **Extinction Crisis** and efforts to protect and preserve biodiversity are crucial and must be strong.

Byron Shire's record on delivering environmental protection has a long history and that should also be acknowledged in the document. BSC was the first council in NSW to feature environmental protection zones in its LEP, were early initiators of wildlife corridors and embedded ESD in the BLEP in 1998 and a list of documents considered essential in the assessment of development applications and planning proposals (rezonings) including the Biodiversity Conservation Strategy (BCS).

As is acknowledged, biodiversity and the environment are key issues for the 'branding' of Byron Shire, for residents and visitors. It's council's responsibility to ensure that it delivers a high standard of document development and implementation to retain that status of being 'clean and green' as identified on page 9 in relation to our image. Biodiversity protection and enhancement is about a lot more than image, it must be borne out in the documents and actions of council.

I appreciate that this current DBCS has identified actions to protect and preserve. However, I believe a stronger commitment is required and that this document would

be enhanced by a more thorough analysis of the previous document and its implementation. This can only be undertaken by a comprehensive audit of all actions, not the percentage of 'completed' or 'achieved' reporting that is presented. This information does not **Inform** and it appears that some of the current actions are lesser versions of some of the actions that were identified in the BCS 2004 and in some cases, repeat actions. This leads to the question of whether they were previously completed or achieved. Without the prior information and audit this is unable to be analysed and the 2004 BCS isn't even on BSC Website.

I acknowledge that the DBCS is a well presented document but without additional information I believe it fails to achieve the desired aims of **Lead, Inform, Support and Manage** and falls short of being a comprehensive document that truly meets those aims. I believe the document should be enhanced and strengthened to provide a stronger commitment by council to outcomes and be more user friendly and educative.

The document and layout presentation looks very professional but the omission of relevant local information about Byron Shire's biodiversity and councils' responsibilities and opportunities means that the overall aim to LEAD and '*conserve and enhance our biodiversity*' is less achievable due to the omissions.

I also note that the Draft Local Strategic Planning Statement – extract below, refers to this new BCS will "reflect current science and community priorities". Without the additional information eg. Lists and maps, that are requested for inclusion along with other key points, I don't think this document meets that commitment. The current science would accept that evidence, data and information are vital to providing a science informed position. Without making relevant information available to the community, the awareness and the ability to understand why protecting biodiversity is so important will be limited.

The Fact Sheet produced in association with the BCS commits to a goal to provide better information. To achieve this, Council must provide more detailed and comprehensive information in the new BCS, if it is going to 'better' what was previously available.

BSC Website Fact Sheet

In the Fact Sheet provided **How will the Biodiversity Conservation Strategy help?** It provides guidance regarding the need for better information, this must start with what is actually in the document to provide the information, education and references that are essential to meet these goals.

"Providing better information to residents and visitors on our biodiversity values and what people can do to protect them." and

"Keeping the community informed about threats to biodiversity and their responsibilities, including weeds, pest animals, domestic pets and appropriate fire management."

Public Exhibition process

I have some general concerns about the process of exhibition and public consultation and exhibition of the draft document.

It's unfortunate that council **missed an opportunity to provide more education** and engagement with the exhibition of the DBCS. The summary document, fact sheets and survey form for the exhibition could've been more detailed information and feedback, noting that the survey is limited by only seeking interest from landowners for involvement. The survey could've provided input about what people know and value and what additional information they would like. A more comprehensive survey would also have provided important information from the community about valuing biodiversity, which would provide important justification when seeking funding.

It's unclear why council has **omitted detailed information** about the implementation of the previous BCS and not provided an assessment and audit. A comprehensive audit and review of the previous document and its implementation would provide an understanding of the long term commitment of council and the community. It would provide an **acknowledgement of the successes**. In some areas, it would also provide some learnings about certain aspects of delivery of actions and the opportunity to improve in the future.

Also, some of the **links provided in the document are incorrect**. When activation of the link is undertaken, it leads to a non-relevant document or are inaccessible. (I can provide a list of the links that are affected but one eg is below (p74), if you link it takes you to info about the Residential Strategy.

Development of Byron Shire Bush Regeneration Guidelines - The [Byron Shire Bush Regeneration Guidelines 2010](#) provide best-practice information and action plans for anyone conducting restoration activities including councils, landowners and community groups.

SUGGESTIONS and Comments

Essential inclusions in the Biodiversity Conservation Strategy

I think the document would be enhanced by a number of inclusions

1. **Lists and Maps** - A listing of all the species and vegetation communities in the shire and the status of those species, both flora and fauna. This is important to provide an understanding and reference for the value of biodiversity in the shire by including the category status of each species. Each listing should include the status of the species under state and federal powers and include EEC / TEC status as well. Important also to list any international status eg. Mitchells Rainforest Snail being listed on the IUCN Red List. Wildlife corridor maps should also be included.

I note that the information in the Environment section on Biodiversity on BSC website – see below, provides some detailed information about why Byron Shire biodiversity is important and some of this information would be valuable in the DBCS. I think the page on page 16 of the DBCS – Our Biodiversity, which is also the poster, is good but could be enhanced by the a further page that defines the shire's biodiversity, at least a link to lists that occur or at least a recognition of the species most at threat. In relation to the value of our biodiversity, it may be useful to list those species that are at highest risk and have designated status as Endangered or Critically Endangered.

See Attachment 2 below for the list of maps provided in the 2004 BCS. This should be the minimum for this new BCS and could also provide updated info on Endangered Ecological Communities.

2. **Wildlife Corridors** – a section of the BCS should include an understanding of corridors and Wildlife Corridor maps showing the current wildlife corridors should also be included as well as an explanation of the importance and why the moves to further enhance corridors is beneficial for biodiversity conservation and how it meets climate change adaptation.
3. A **glossary** is vital in this document with links and references to primary source info. Currently there is no clear definition of terms or explanation of source reference eg. Designation of status of species and clarity about – the document fails to define categories and what they mean eg. Threatened, Critically Endangered etc. Some terms that are used may have a different meaning for the reader based on common language, rather than providing reference to the legislative or policy directions of other levels of government.
4. **A more detailed history** of the development of the previous BCS including the development of the Byron Shire Flora and Fauna Study. I think there is value in explaining that Council embedded in the 1988 LEP the priority to consider ESD and defined the documents that council committed to produce including the Flora and Fauna Study and the Biodiversity Conservation Strategy. The inclusion in the LEP of these documents and others required consideration for development applications and planning proposals. The reporting of the success of the BCS 2004 in terms of how much was spent and on what and the success of actions as well as a list of the funding that was achieved. This would involve the reference to what areas were the focus of regeneration or other works, what funding was achieved and if the success or not of actions delivers direction for future actions. In short, a detailed analysis of the 2004 BCS and the implementation of it's actions would provide not only importance guidance for future biodiversity works but also provide a report card on achievements.
5. An **audit** of the implementation of the previous BCS as an Appendix, even if it is the last full audit (2013). Also a report on the funding that was gained, (which is significant) under the previous BCS, including the funded projects undertaken with other councils eg. Koala tree planting with Tweed Council which could be included in the main section of the document. I find the reference to the percentage of actions completed unhelpful, it doesn't provide any insight into the outcomes of the actions. I think there are also various past resolutions (pre 2012) that leveraged the implementation of the 2004 BCS. It would be useful to have some of those outcomes embedded in resolutions also highlighted in the document.
6. **Status and hierarchy** - A clearer view on the legislative of status and hierarchy of species and plant communities by defining how the status process works in terms of state, national and international status. Eg. An explanation of what an EEC / TEC is and where they are located and links to OEH and DOEE info.

7. **BSC commitment** requires

- a) A clearer statement of **priority** to the protection of biodiversity by the **whole organisation** and the inclusion of a section in the document that explains the opportunities council has available to minimise the loss of biodiversity and deliver enhancement (see points 8 & 9 below that would provide stronger commitment. This would require a much broader explanation of council's role across the whole organisation, for example - not only does council have it's own staff to do regeneration work on public land, it also has a major role in the **development assessment process** to ensure that applications are correct in terms of known, or likely to be present species and PCT's on a property (see next point for new action for staff in Development Assessment) and conditioned to undertake additional restoration work and or to undertake additional plantings if there is vegetation removal.
 - b) The next area of council responsibility is BSC's own works, especially when it regularly does roadside works that are often not only potentially damaging significant vegetation but also are done with vehicle operated machines which can be a very blunt and ugly roadside aesthetic, aside from the environmental damage that may be done. I understood that a system of GIS sharing to the works team was already in place and guided by the **Roadside Vegetation Management Plan** (which is not identified in the document under the relevant council documents). I need to check but I recall that a actions for the appropriate GIS mapping was to indicate where there is significant vegetation in roadsides and prescribed appropriate works management. I also recall that there was support for actions, perhaps a resolution of council or the RVMP to ensure that roadside signage identifies the importance of areas eg. Wildlife corridors. Note - This also applies to work that is undertaken by energy companies who do vegetation removal to 'maintain' overhead lines and reduce threat for their infrastructure.
8. **New Action - Ecologist in the Planning Assessment division** of council to review Development Applications. This is an essential action to ensure that biodiversity is considered in the area of council's operation where it is acknowledged that the loss of vegetation and habitat is a key threat. Also, a dedicated officer could ensure that consents apply key conditions to ensure the enhancement of biodiversity, including where council prescribes replacement for loss associated with development. This should also be clarified in the report in relation to the BSC documents require it eg. BRSS, BRLUS, BCS 2004 etc.
9. **New Section – Council's role and responsibility** - a new section that explains and identifies council's commitment to biodiversity at all levels and how it is addressed to ensure a whole of organisation awareness and commitment. This should also provide a requirement for an action for an annual review of the BCS and reporting on all council's actions and if it happens as it did with the bypass situation, an admission of failing in relation to the process of 'rigorous' assessment.

10. Include **Roadside Vegetation Management Plan** in document, Appendix 2 – plans etc relating to relevant BSC documents. See above (point 7 for explanation). This is a relevant and key document in the management of the environment that is most often seen by residents and visitors. If this ‘travellers’ image of our environment is not of a high standard, then it defeats the objective of having a comprehensive plan.
11. Include the **number of private property conservation agreements** for biodiversity protection in Byron Shire eg. Voluntary Conservation agreement, wildlife refuges etc.

BSC Website suggestions

For some time the BSC website hasn’t contained the Biodiversity Conservation Strategy 2004 or the reporting / audit that was undertaken. The last complete audit of the BCS 2004 appears to have been done in 2013, this was a complete audit of each of the actions and provided valuable information about the implementation of the document. I requested info from staff about annual audits and was told this hadn’t been done.

I suggest that council can, with minimal funding enhance the knowledge base of residents by the inclusion of additional info on the website. Council also has the regular email newsletters that could be used to provide seasonal info on biodiversity and practical outcomes for residents eg. Weed removal and replacement native planting.

Website Suggestions – these could be undertaken without being specified in the BCS but it would be useful to have them identified.

12. Include the 2004 Biodiversity Conservation Strategy on the BSC website, including the last complete audit of the actions(2013) and any other reporting on actions eg. 2014 summary and a summary of the ‘learnings’.
13. **Establish a Section on Biodiversity**, (the current website, see screenshot does not display a biodiversity section and the section is ‘Biodiversity Conservation Strategy’) and note that the other items listed are not listed as documents but as issues
14. Establish more engagement with residents. If the Biodiversity section is established and regularly updated and circulated through the email bulletins to create an ongoing education with information eg. A regular update, that is kept on the website to create a **Monthly Notification with info on Fauna, Flora and weed of the Month** and tips for when and how to view and how to remove weeds and replace with a native (preferably done with seasonal occurrence). This would provide a relevant connection for the community and also become a log of information that people could refer to. Much of the info is already available with links to species info and identification photos. For birds it would be useful to also provide links to audios of bird calls.
15. **Species information and Maps on website** - The section that exists under the Environment Section provides limited information and this is an area where the inclusion of known information, including species lists and maps would be of great value. If a new section on Biodiversity is not created then

the current Environment Section should be enhanced with species lists and maps. – see Attached Action 2 from 2004 BCS and note that the website did previously contain considerable info but the new website, omits a significant body of information that was previously available.

16. Our Shire's Biodiversity - I note that the information in the Environment section on Biodiversity provides some detailed information about why Byron Shire biodiversity is important and some of this information would be valuable in the DBCS.

SPECIFIC points on the DBCS

AIMS – p5 –

My view on the aims is that overall they are not strong enough and could be strengthened and deliver a higher standard of stated commitment from council.

Aim 2 – Inform as an aim, should be about enhancing and improving the knowledge available. The note is a statement about the community and should be strengthened to include a statement regarding BSC commitment to inform as an ongoing priority.

Suggestion - "Council is committed to providing ongoing information to residents via the website relating to the shire's biodiversity and how the community can contribute to actions (eg weed removal) and identification of species to enhance the database". I fully support citizen science engagement, but as defined by IAP principles, the first and most important step is to inform and the standard of information will determine how well the outcomes are achieved.

Through reviewing our current resources, achievements and legislative requirements, and talking with our community and with local expert ecologists, Council has developed four Biodiversity Aims:

AIM 1 – Lead

We are an organisation that provides clear direction, guidance and resources to conserve and enhance our biodiversity.

AIM 2 – Inform

Our community is well informed about biodiversity and what they can do to protect it.

AIM 3 – Support

Our land managers are well supported to conserve biodiversity across the landscape.

AIM 4 – Manage

We use best practice land management to improve ecological resilience and reduce threats to biodiversity.

ACTIONS and queries

17. New Action - Section 4 Manage – include a new priority action for the improvements to the application and planning proposals to ensure a higher standard of review of applications and an awareness of the need to condition consents to provide adequately for tree loss replacement and any additional regeneration works that are undertaken. This is where a dedicated ecologist

working the planning assessment section of council could assist with improving biodiversity and ensuring that works associated with consents are monitored appropriately to deliver the benefits for biodiversity.

18. New action – Biodiversity Levy - I support comments in the document to review seeking a special rate variation to assist in implementation of the BCS.
19. New action - to deliver an **annual report** on the BCS with reporting on **each action**. – I note that on page 49 there is a reference to annual reporting, but I can't locate it as an action. It should also be clarified that this information is to be made publicly available on the website.
20. New Action – HEV Data accessibility – p45 indicates an aim to make this happen but I can't see it as an action, it should be included with reference to Action 2 from the 2004 BCS

To protect our HEV land we need to have an accurate picture of where it is. Investment in our Geographic Information Systems (GIS), including mapping local wildlife corridors and identifying priority restoration areas will help Council to prioritise on-ground conservation activities. Council also aims to make this **data accessible on-line**, to help the community plan and prioritise on-ground land management.

21. New Action - to erect signs to identify in the areas where there is biodiversity significance eg. Wildlife corridors and koala movement areas, to ensure that residents and visitors are informed – check Roadside Vegetation MP and or prior resolutions.
22. Action 1.1– **DCP** – will that include the relevant info as required by the new Koala SEPP as per BSC submission and if so, it should be stated?
23. Action 1.22 re roadside flora mapping – my understanding that this process is already defined in the Roadside Vegetation Management Plan.
24. MRS actions XX and 2.6 re MRS – considering the situation revealed in the development of the Byron bypass and the significant discovery of MRS local population council should develop a Recovery Plan for this species and seek support from State and Federal Governments for funding
25. Action 2.13 refers to opportunities for visitors, but I couldn't see an action that similarly exists for creating the opportunities for engaging and learning for local residents, if it doesn't exist it should be added as an action. Again roadside signage is an effective tool for building awareness with community and visitors.
26. Action 3.14 – re extension officer – I think this is a priority but it may also be useful for this role to be available to applicants who are undertaking development and or rezonings

Comment on DBCS Boxes

27. Box 8 – Ecological Restoration in Byron Shire - This states that 633 ha of council managed lands have been identified for restoration. The document does not identify what area of lands have already been restored or had regeneration works undertaken. This would be useful info
28. Box 9 – Carbon sequestration - An additional point in this box to reflect that the protection and restoration of identified areas of biodiversity significance would assist in the natural carbon sequestration process.
29. Box 12 – Voluntary Conservation Agreements

This information is good but it doesn't inform if any such agreements currently exist in Byron Shire

30. References page 70 – this doesn't include the 2004 BCS, please include in the BCS and with a link to the document being provided on BSC website.

DBCS ANNEXURES – comments and suggestions

OMISSIONS

31. Doesn't provide a list of actions audit
32. Doesn't provide a list of all grants received eg. Koala planting program funding, undertaken with Tweed Council – this is an achievement and recognition of the ability of Byron Shire and collaborations with our adjoining councils to gain funding due to the high biodiversity status of the shire and region.

APPENDIX 1 – BCS 2004

33. This is a useful overview, but it would benefit from the inclusion of a few details re staffing, funding (how much was spent for the implementation to date including a separate amount indicating the funding received from other levels of government).

APPENDIX 2

34. NSW Legislation Biodiversity Conservation Act – references to offsets is highlighted but not the fact that it is an option and there are other elements re EIS and Species Impact Statement etc. A better explanation of how the process works and the choice by applicants to undertake more detailed science based assessment prior to consideration of works. I understand that changes to legislation are difficult to document but at least a statement / action that council will ensure that it undertakes the highest standard of science based assessment for council works and seeks to require that of all applicants.
35. Regional Plans and Strategies
What happened to the Draft Regional Conservation Plan? As per 2006 Regional Strategy, is this document in place? Is there a regional document that guides biodiversity protection? And if so, it should be referenced, if not, I would appreciate why not.
36. LOCAL PLANS and strategies – doesn't include Roadside Vegetation Management Plan and doesn't reference the BRSS and or Byron RLUS – regarding the replacement of trees – 10:1 ?
37. CORRECTIONS p45 – this needs the 'is' deleted and I suggest that you include the opportunities to gain financial support from both the state and federal government due to the high biodiversity value of the shire as part of the action.

5. Additional is funding secured to support biodiversity projects.

ATTACHMENTS

Attachment 1 – BSC Website info

<https://www.byron.nsw.gov.au/Services/Environment>

Byron Shire Council homepage / Services / Environment

Environment Listen

Climate change

Find information about Council's action on climate change including mitigation and adaptation.

Fire and flood

Council plays a key role in protecting our local environment.

Pests and weeds

Pests such as feral animals and weeds can have a significant impact on local livestock, wildlife and natural bushland.

Native animals and plants

Byron Shire is home to many native animals, some of which are listed as threatened species.

Coast and waterways

Find information about planning for our coasts, estuaries and intermittently closed and open lakes and lagoons, or ICOLLS.

Natural environment

Byron Shire has an extremely high level of biodiversity, with this north eastern part of NSW known to support high numbers of rare or threatened plants and animals.

Biodiversity Conservation Strategy

Find out more about Council's review of its Biodiversity Conservation Strategy.

Byron Shire Council homepage / Services / Environment / Natural environment

In This Section

- Building & development
- Water & sewer
- Major projects
- Roads & parking
- Footpaths and cycleways
- Waste & recycling
- Environment
- Climate change
- Fire and flood
- Pests and weeds
- Native animals and plants
- Coast and waterways
- Natural environment**
- Biodiversity Conservation Strategy

Natural environment Listen

- [Our Shire's Biodiversity](#)
- [Biodiversity Conservation Strategy](#)

Our Shire's Biodiversity

Our Shire has an extremely high level of biodiversity, with our region is known to support high numbers of rare or threatened plants and animals, with approximately 70 plant species and 90 animal species recognised as vulnerable or endangered.

A combination of high rainfall, mild climatic conditions, and variation in topography, geology, and altitude interact to support a rich and diverse range of ecosystems including rainforest, wet and dry sclerophyll forest, grasslands, paperbark swamps, wetlands, sedgeland, mangroves, saltmarsh, heath, marine, and freshwater ecosystems.

Did you know?

- NSW's Far North Coast is centred in a region with the highest frog, snake and marsupial diversity per unit area of land in Australia
- The region's bird diversity is second only to the wet tropics.
- Over half the state's plant species occur here in the northeast corner.
- Species from tropical and temperate zones intermingle with many reaching their southern and northern distributional limits respectively in the region.

On the one hand, this reflects the region's status as a hotspot for biodiversity in Australia, but on the other, it reflects adverse consequences of land use.

For instance, species centred on the Mt Warning Caldera have been particularly threatened from clearing and logging of rainforests, particularly in the fertile lowlands. Other species are listed as threatened because they have particular habitat requirements such as:

- needing hollows in old trees to nest/roost,
- requiring beaches/estuaries to nest, feed and roost (which are being increasingly disturbed by humans), or
- only feeding on certain plants e.g. Koala and Glossy Black-Cockatoo.

There are also a number of endangered ecological communities here. For example, only about 5 ha remain of the Byron Bay Dwarf Graminoid Clay Heath, which as the name suggests is unique to Byron Bay.

Related Information

- [Biodiversity Conservation Strategy](#)

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Related Information

Attachment 2 - BCS 2005 Map references

Byron Biodiversity Conservation Strategy 2004

MAP REFERENCE	
Map 1.	High Conservation Value Vegetation and Habitats
Map 2.	High Conservation Value Vegetation and Habitats Ranking
Map 3.	Forest Ecosystems
Map 4.	High Conservation Value vegetation and Habitats overlaying Forest Ecosystems
Map 5.	Existing environmental Protection zones (7A, 7B, 7C, 7D, 7F1, 7J, 7K)
Map 6.	High conservation value vegetation and Habitats and existing environmental Protection zones (7A, 7B, 7C, 7D, 7F1, 7J, 7K)
Map 7.	Wildlife corridors
Map 8.	Wildlife corridor classes
Map 9.	High conservation Value vegetation and Habitats and Wildlife Corridors
Map 10.	High conservation Value vegetation and Habitats, Wildlife corridors and existing environmental protection zones (7A, 7B, 7C, 7D, 7F1, 7J, 7K)
Map 11.	Council Managed Land
Map 12.	Council Managed land overlaying high conservation Value Vegetation and habitats
Map 13.	Modelled Threatened Fauna Habitat
Map 14.	Modelled Threatened Fauna Habitat overlaying high conservation Value vegetation and habitats

Attachment 3 – Local Strategic Planning Statement

Biodiversity Conservation Strategy Review

We are currently revising our 2004 Biodiversity Conservation Strategy to ensure that it is up to date with current legislation, plans and policies.

The updated strategy will reflect current science and community priorities. It is expected to go on public display in 2020.

The revised strategy will address a wide range of issues impacting on biodiversity and deliver a range of actions that demonstrate how Council and the community can improve biodiversity conservation across the Shire.

Over 84% of the 2004 strategy has been implemented with some of the key achievements being:

- An established Bush Regeneration Team
- Development of Byron Shire Bush Regeneration Guidelines
- Byron Coast Comprehensive Koala Plan of Management
- Byron Shire Pest Animal Management Plan 2018-2023
- Byron Shire Flying Fox Camp Management Plan 2018-2023

Attachment 4 – 2013 Action 2 report on 2004 BCS

No	Action	Priority	Status October 2013
2.	Establish an Internet site for biodiversity related GIS products (in PDF format) – eg. vegetation mapping, threatened species mapping, ecological ranking, wildlife corridors, etc.	Medium	Complete - http://www.byron.nsw.gov.au/byron-shire-environmental-mapping

Biodiversity & Sustainability Advisory Committee Meeting Date of Meeting: **25 October 2013**

Submission on Byron Shire Draft Biodiversity Conservation Strategy

20-5-20

by Kathryn McConnochie

Comments on Pg 10 of Draft Byron Shire Biodiversity Strategy (BCS)

Simple, practical things all of us can do- Add the following:

1st Point - Conserve Habitats:

- Plant 3 layers of native species in your garden, include ground covers, shrubs & trees for habitat diversity. Native species provide food & habitats for native birds & animals.
- Mulch your gardens to reduce water
- Provide habitat features eg, hollow logs or rocks
- Provide water for birds

Reduce your carbon footprint – Box

Ways you **can** (replace 'could') reduce your carbon footprint could include

Add:

- Install solar energy and solar hot water panels
- Insulate your roof for climate control
- Fans rather than air conditioning uses less energy
- Plant native trees, shrubs for shade in summer

Additions to Pg 23 Climate Change, Box 9

More information needed here on the importance of carbon capture & storage by Trees.

More information on the value of wetlands, mangrove and seagrass in carbon sequestration.

Pg 25 Climate Change – What can we do?

Identify sustainable farming opportunities, eg Carbon 8 program.

The dot points need a concrete example & who is responsible for doing it.

Pg 35, Table 3.1 Biodiversity Planning Tools

The BSC GIS database should be made available to the public, not only for Council use.

Pg 37, Planned Burn Guidelines for SE QLD – replace with Guidelines for Northern NSW.

Chapter 4, Pg 58, Manage

No. 4.6 – 4.11 Actions

Add:

- Develop a threatened species management plan for the Mitchell's Rainforest Snail.
- Council to provide funding for baseline study of critically endangered Mitchell's Rainforest Snails in Cumbebin Swamp and areas surrounding the new Bypass Road.
- Use CCTV cameras or similar to monitor the effectiveness of the underpass in Byron Bypass for snail connectivity to wetland habitats divided by the Bypass.

Comparison of the Draft to the 2004 Byron Shire Biodiversity Strategy (BCS)

I have only recently seen a copy of the current Biodiversity Conservation Strategy - 2004, as I was working in Sydney at the time it was written & adopted. I found this to be an extremely thorough & well researched document, scientifically based, that provides an invaluable resource for all levels of the community. It is especially important for Council staff & Councillors as a guide to preserving and enhancing the biodiversity of Byron Shire, particularly in light of assessing new Development Applications in sensitive areas and protecting the biodiversity of Council owned land.

I am disappointed with the content of the current draft strategy in comparison to the 2004 BCS. It appears that large areas of important research from the 2004 strategy have been omitted or glossed over. The draft is a very appealing looking document, however the magazine-style layout & glossy photos with abbreviated information does not equate with the depth & extent of the content in the 2004 document, that constitutes a crucial scientific resource. In my opinion this is the main purpose of having the Council's strategy.

Important areas that have been omitted from the Draft BCS

In general, all of the basic information in the 2004 BCS should be included in the draft strategy. The information from 2004 needs to be updated with current studies, mapping surveys, fauna & vegetation surveys & legislation changes, along with general advances in knowledge regarding biodiversity.

In particular, the following should be included from the current 2004 BCS:

1.8 PLANNING AND LEGISLATIVE FRAMEWORK

(LOCAL GOVERNMENT LEGISLATIVE RESPONSIBILITIES FOR
CONSERVATION OF BIODIVERSITY)

- An explanation of Council's legal role in Biodiversity Conservation under the Local Government Act and the EPA Act.

2. COMMUNITY INVOLVEMENT AND EDUCATION

Actions

- 2) Establish an Internet site for biodiversity related GIS products (in PDF format) – e.g. vegetation mapping, threatened species mapping, ecological ranking, wildlife corridors, etc;

3. NATURAL RESOURCE MANAGEMENT AND RESTORATION

3.1 RETAINING, MANAGING AND RESTORING ECOSYSTEMS

Actions

- 4) Monitor the effectiveness of the No Net Loss Policy by assessing the extent of vegetation cover when undertaking comprehensive State of the Environment reports.
- 9) Encourage the revegetation of secondary wildlife corridors and the rehabilitation of vegetated wildlife corridors.
- 10) Conduct biodiversity assessments for all Council owned and managed lands.
- 12) Prepare template pro-forma's for assessing ecological attributes of a site (and assist in preparing BMP's).

- 15) Produce or adapt information (ie designs etc) on the construction of nest/roost boxes

for dissemination to the public and to schools.

- 16) Prepare a Roadside Vegetation Management Plan with input from Asset Management

Services (AMS) staff and the community.

- 19) Encourage and promote NPWS Voluntary Conservation Agreements (VCAs), DIPNR

Property Agreements and various non-government organisations that promote biodiversity conservation on private lands.

3.2 ENVIRONMENTAL WEEDS AND INTRODUCED PESTS

Actions

24) Council will review its current ornamental planting policy to exclude those species that have the potential to become environmental weeds or negatively impact on native ecosystems.

25) Council will commence replacing weed species from its parks and gardens with non-invasive

and locally native species.

26) Prohibit the planting of weed species as part of any development application that requires approval for a landscape plan through the DCP.

31) Screen, control and monitor weeds in soil prior to and following dumping of soil.

33) Investigate the feasibility for developing weed wash down procedures and facilities for Council (or contractors) machinery after working in weed affected areas.

34) Compile and regularly update a comprehensive weed list for the Council website

35) Initiate catchment based nutrient-reduction programs.

38) Investigate the establishment of buffers to reduce the potential for pollutants to impact on biodiversity.

39) Support compliance to respond to (and prevent) pollution events.

42) Identify all high quality threatened species habitat outside of identified HCV habitats.

43) Implement recovery actions (e.g. Actions 12.8 & 12.9 for Mitchell's Rainforest Snail) and Little Tern Management Plan for Belongil Spit.

44) Maintain and update threatened species database and related GIS layers every two years.

46) Undertake threatened species habitat assessments of all Council lands and for properties where Council prepares Biodiversity Management Plans.

48) Prepare biodiversity assessment and reporting guidelines for development applications (including minimum standards for Threatened Species Survey and Assessment).

49) Establish a threatened plant arboretum on Council land.

51) Employ ecologists to carry out duties in Local Approvals, Waste and Water, Asset Management and Environmental Planning.

53) Prepare threatened species profiles and management guidelines for all threatened species that are known or considered likely to occur in the Shire.

4. PLANNING AND DEVELOPMENT CONTROL

☐ Review current ornamental planting policies to exclude those species that have the potential to become environmental weeds or impact on a native ecosystem in a negative way;

☐ Develop planning controls to prohibit the planting of environmental weed species pursuant to a development application;

☐ Introduction of minimum standard guidelines for biodiversity assessment and reporting as a requirement for submission with a development application;

☐ Introduction of planning controls for buffers;

☐ Development of a "no-net loss" policy in accordance with the criteria specified in Figure 4 (Section 4.2.2) below.

☐ All identified wildlife corridors are to be afforded environmental protection zoning and where possible enhanced;

☐ Clearing, draining, filling or destruction of High Conservation Value vegetation or

habitats, vegetated wildlife corridors and threatened species habitat will be controlled unless there are no other alternatives;

☐ Controls need to ensure that the ecological, scientific, faunal, floristic and aesthetic values and other environmental attributes of high conservation significance are not compromised;

☐ Development that is likely to have a detrimental effect on ecosystem's habitats, functions and connectivity for local and migratory species will not be permitted unless there are no other alternatives;

☐ Development of effective planning controls shall promote and allow for the active management of HCV vegetation and habitats;

☐ Development of effective planning controls shall maintain, protect and enhance corridor values in order to facilitate the movement and dispersal of species across the landscape;

☐ Appropriate buffers are required for development and other activities that have the potential to impose 'footprint effects' on HCV vegetation and habitats, these will have regard to relevant scientific literature and agency policy and procedures;

☐ Develop ecological restoration/weed control and threatened species management guidelines to exempt a development application for ecological restoration activities within environmental protection zones.

☐ The need to review Councils DCP (or similar planning control) for exempt and complying development to ensure the appropriateness of any forms of development in 'secondary wildlife corridors';

☐ All identified wildlife corridors are to be afforded environmental protection zoning and where possible enhanced;

☐ Clearing, draining, filling or destruction of High Conservation Value vegetation or habitats, vegetated wildlife corridors and threatened species habitat will not be permitted unless there are no other alternatives;

☐ Development of effective planning controls shall promote and allow for environmental repair and enhancement and active management;

☒ Development of effective planning controls shall maintain, protect and enhance corridor values in order to facilitate the movement and dispersal of species across the landscape;

☒ Development of effective planning controls that control development that will impact on potential corridor values;

☒ To ensure that any development that occurs in a 'secondary wildlife corridor' will be required to undertake environmental repair and enhancement actions as part of that development (similar to that in the Byron Rural Settlement Strategy with 900 trees per dwelling).

5. OTHER MATTERS FOR CONSIDERATION WHEN DEVELOPING PLANNING CONTROLS.

The development of a no-net vegetation loss policy must have regard to the following three principals:

1. AVOID impacts (direct or indirect) on native vegetation before, during and after the development process. All available alternatives need to be considered;

2. MINIMISE impacts (direct or indirect) on native vegetation before, during and after the development process, where there is no alternative to the development and no alternate location of lesser environmental value;

3. COMPENSATE for any impacts on native vegetation if the impact is unavoidable.

The development of a tree replacement program must have regard to the following criteria:

☒ 1:1 for native trees of low ecological/heritage/aesthetic value;

☒ 1:5 for native trees of medium ecological/heritage/aesthetic value;

☒ 1:10 for native trees of high ecological/heritage/aesthetic value.

Actions

- 54) To draft new Shire-wide planning control provisions for HCV vegetation and habitats, and 'secondary wildlife corridors' in accordance with decision making criteria outlined in sections 4.1.3 & 4.1.4.
- 55) To review Councils DCP (or similar planning controls) for exempt and complying development to ensure the appropriateness of any forms of development in 'secondary wildlife corridors' and HCV vegetation and habitats.
- 56) To introduce new Shire-wide planning controls for buffers.
- 57) Adopt No Net Vegetation Loss Policy and tree replacement fee through local planning controls.
- 58) To draft new definitions for new Shire-wide planning controls.
- 60) Develop biodiversity assessment and reporting guidelines (minimum standard requirements) for development applications.
- 61) Amend TPO application fee and introduce a replacement schedule for tree removals.
- 62) Review the types of developments permissible in environmentally sensitive areas.
- 63) Ensure that the development of community land plans and other Council plans and strategies must have regard to HCV vegetation and habitats mapping.
- 64) Develop an environmental repair and enhancement schedule.

6. ORGANISATION AND MANAGEMENT

DELIVERY OF INCENTIVES

Actions

- 70) Investigate all options for delivering a range of incentives (as listed above) within the budgetary constraints of Council. This will include, but not be limited to:
 - Assessing the feasibility of introducing a reduced differential rate for lands managed for conservation purposes (including seeking external funding to cover costs where reduced rates are offered);

- Investigating the options for offering grants to private landholders;
- Investigating Councils ability to set up a voluntary land acquisition trust fund; and
- Investigate the introduction of various non-financial motivational incentives.

71) Develop and nurture partnerships with other agencies that offer various incentive schemes - such as NPWS/DEC Voluntary Conservation Agreements (VCA), DIPNR Property Agreements and Land for Wildlife. This will include application to DEC to implement VCA's on identified Council lands, funding for a Land for Wildlife Officer and seeking advice from DIPNR regarding Property Agreements on Council managed lands.

Part 3 Appendices and Additional Technical Information

All of the Appendices including Biodiversity Maps & Species Lists should be updated and Included in the draft BCS.

The Draft BCS need a resource page

Put links and information on Byron Council website's:

Native Plants Guide

Sustainability at Home

Other relevant sections on Council's website.

'My Local Native Garden' booklet by Brunswick Valley Landcare

Links to citizen science apps: Questagame app & iNaturalist app

The Carbon 8 Program

Add many other resources

Referencing of Photographs

It's a minor but important point. There are many photographs in the draft BCS which have not been attributed to the photographer or referenced as to where they are from. This needs to be rectified.

Conclusion

I am disappointed that this document has been principally produced by a Gold Coast company, in preference to local established ecologists. Surely it would be a necessary requirement to employ local ecologists & scientists, who have in depth knowledge & experience of Byron Shire to write the strategy? At the least, a company based in Northern NSW that is more conversant with this region & NSW legislation would be more appropriate.

Submission on Draft Byron Shire Biodiversity Strategy.



Mullumbimby Residents Association

Mullumbimby Residents Association (MRA) appreciates the initiative of Council in reviewing the Byron Shire Biodiversity Strategy and the opportunity to comment. A key concern in our submission is to identify aspects of existing principles, policy and practices that we hope will be retained in any amended Byron Shire Biodiversity Strategy.

We, therefore, request the following Principles be integrated into the Strategy:

That Council Adopts, as the Strategy's First Principle, the recognition of the actual hierarchy of how the environment functions. The higher order functions of actual ecological responses are unchanged by human-made policies and strategies. The practice of Biodiversity Management must recognise, and be based on, the existing peak hierarchy of natural biodiversity functions. Anything less renders Councils Policies and Strategies invalid.

All Council Policies, Strategies and DA Condition consents must comply with, and be subservient to, the earth's natural ecological functions. In other words, the plans that we develop comply with how the environment actually functions.

Therefore, the Byron Shire Biodiversity Strategy's objectives are:

- That there be no net loss of Shire biodiversity from any Council development.
- That biodiversity is prioritised by Council engaging in Compulsory Purchase of existing private properties that compromise critical Biodiversity functions, such as flood affected properties
- That Council acts to restore use of the State Standard LEP E Zone "Environmental Living", that still allows restricted housing development on environmentally sensitive sites, but restricts the larger footprint of 'border to border' development allowed under other existing LEP housing development zones.
- That Council rejects utilising Biodiversity offsets. The Wilderness Society did an in-depth study of 10 Biodiversity Offset sites, which revealed that only 2 sites benefited, and that 80% did not benefit, with 20% having a worse environmental outcome. Due to the highly interrelated, and little understood biodiversity functions, destroying biodiversity is not compensated by works on other sites.
- That Council reintroduce the practice of only planting locally endemic species in public places (we note the planting of South Australian Kangaroo Paw in new street plantings in Byron Bay).
- That Council comply with the existing Policy of planting 20 trees for every public tree Council removes.
- That, noting greenhouse emission impacts on biodiversity, that Council comply with the previous Adopted Greenhouse management strategy, by

a) The reintroduction of Greenhouse gas accounting for all of Councils operations, including the now ignored aspects of road/footpath construction and removal of forest, and

b) Greenhouse gas accounting assessment of new private developments. While Council has little say on private construction materials, and on lawfully allowed vegetation removal, it is in the best position to monitor, and keep an account of, the residents, and thus the broad Shire's, greenhouse gas emissions.

And:

- That Council reintroduce Council Compliance on Developer Covenants that prohibit the keeping of dogs and cats on environmentally sensitive developments, or on developments abutting environmentally protected areas, such as Nature Reserves and National Parks.
- Or Adopt a Budget for legal assistance of residents to enforce such dog and cat prohibitions.
- That Council utilise the Companion Animals Legislation to declare private developed areas and their public roads and places, in high biodiversity areas, as Wildlife Protection Areas under the act, and enforce the Acts provisions that prohibit cats and dogs being owned, or taken into, these areas.
- That while Council is restricted by State Government to only consider development under a 100 year scenario, that Council informally identifies the extent of impacts from Global Warming, which is an approximate 4 degree temperature rise, with an approximate 8 metre sea level rise, and starts to implement Biodiversity Management on the facts of such 'work in progress' projections.

Circulated for comment and suggestions to 165 MRA contacts.

Sonia Laverty,

Convener, MRA

20th May 2020

Your submission

I see no mention of domestic (companion) animals in this Biodiversity Conservation Plan, yet these animals pose regular threats to the flora and fauna in the shire. We frequently see freely-roaming cats and dogs in our area (including where they are specifically not allowed), and we witness the damage they do to plants and wild critters. Dogs leave their urine and feces on the beach, in the dunes, on footpaths, on verges, and all too often on our property. The dogs' presence and their left-behind scent has a negative effect on the behaviour of many species. We are especially frustrated with dogs being allowed by careless owners to explore fragile dune areas where birds, turtles, and other wild animals make their nests. We appreciate the dog owners who keep their pets on leads and who pick up after them, but far too many ignore Council's companion-animal regulations with impunity. Enforcement of the current regulations are non-existent. The ubiquitous presence of dogs and cats, too often roaming free, continues. And now, in a plan that purports to protect biodiversity, there is no mention of the need to protect flora and fauna from the significant threat of domestic animals. The plan should acknowledge companion animals as threats, should specify regulations that are at the very least based on the existing regulations, and should include measures for strict enforcement of those regulations. Without attention to domestic animals, the plan will not adequately address the stated purpose of conserving biodiversity.

Your submission

I just looked over the Biodiversity Conservation Plan and was shocked that it doesn't mention pet dogs and cats as the biodiversity threats that they are. You must be aware of the research estimating that pet cats kill 61 million birds each year, almost all of which are native bird species. That's not as many birds as feral cats kill (316 million annually) but is still an enormous number. The lead researcher stated that "the amount of predation is staggering, and is likely to be driving the ongoing decline of many species" (Professor John Woinarski of Charles Darwin University, as reports in *The Guardian*, 3 Oct 2017). We regularly see roaming cats on our property and do our best to find and notify the owners, but our pleas to keep them in the house do no good. Dogs, too, wreak havoc by chasing wild animals and roaming in areas where wild animals have their burrows and nests. Dogs urinate and defecate everywhere, too, leaving scents that discourage wild animals from staying in the area. If Council is serious about protecting biodiversity, then they must put a robust plan in place to control the damage that pet cats and dogs do in the shire. The plan should have clear regulations for keeping companion animals under control and a clear plan for enforcing those regulations!

Please comply . Jay

In answer to your questions,

“Will the strategy help you to protect your local biodiversity?”

“Is there anything else we should consider?”

I submit the following comments and suggestion.

There has been very little reference to bushfires in the entire draft Byron Shire Biodiversity Conservation Strategy. Bushfires are a major threat to our local environment and local biodiversity. Bushfires have always been a part of the Australian landscape. They are inevitable and essential to the regeneration of our land. Many Australian plants and animals have adapted to fire as part of their life cycle. Predictions are that bushfires will be more frequent and more severe in the future.

The Main Arm area from Coopers Lane South to Upper Main arm has experienced many fires over the years. The areas effected have been zoned Scenic Escarpment, High Conservation and Habitat. The land use has changed dramatically in the past forty years. In the past accessible banana plantations and avocado orchards extended to the base of Koonyum Range in some areas. Today this land has reverted to rural residences surrounded by highly flammable regrowth with limited access.

Fuel placement is very dangerous in some areas because of change of use of the land in recent times. This environment encourages crown fires which leave everything burnt as opposed to controlled fires that just reduce the ground fuel loading doing little or ideally no damage to the biodiversity.

Due to the inaccessibility and rugged terrain some areas were never cleared for banana growing. This area consists of North Coast Dry Sclerophyll Forest, Northern Warm Temperate Rainforest, North Coast Wet Sclerophyll and some Subtropical Rain Forest.

As a local land owner and experienced fire fighter I know fire trails are an essential tool for protection of life, property and adjoining forests and parks. They are vital for the protection of the biodiversity of this land that many landowners are maintaining as well as improving.

I am suggesting the extension of the most important fire trail in Main Arm. The trail I refer to is Saperstein fire trail. This trail could utilise existing roads on properties giving continuity of the trail extending to the West to Upper Main Arm.

This area to quote former Fire Control Officer “...is a known fire path”. The area has burnt many times including 2018 when many hectares were burnt, much damage to the biodiversity was avoided on that occasion because the fire was in the cooler month of August. However severe damage was caused to a very sensitive ecosystem in Palmwoods Gap by bombardment of the vegetation by water from the helicopter. A technique necessary when a fire needs to be contained in inaccessible terrain. The fire took six weeks to contain.

A continuous fire trail from Saperstein’s Lane to Main Arm would help protect the environment along the entire escarpment and greatly assist suppression of fires threatening Palmwoods and residences West through to Upper Main Arm. In addition it would give valuable access to two static

water supplies. Should the Rural Fire Service plan any mosaic burns, hazard reduction or prescribed burning the fire trail would be an essential tool.

This extension of the Saperstein fire trail has been neglected for many years. In the current climate with more recognition of the unique Byron Shire biodiversity I think the extension of the Saperstein fire trail should be given priority. It is a very practical and essential way of protecting, maintaining and improving our Main Arm biodiversity.

Mick and Vivianne Pyke

Subject: Re: Byron Shire Biodiversity Conservation Strategy
Date: Friday, 22 May 2020 1:56:41 PM

I just wanted to briefly connect on the BCS, to which I made a submission on via the Council website (attached FYI).

Firstly, congratulations on putting together such a great draft! I thought it struck a great balance between clear communication to the public, being grounded in good science and presenting meaningful actions to move forward - it was a pleasure to read!

I also want to highlight a small amendment to one of my recommendations - or at least the background to it. I recommended (# 1) that the BCS define and monitor Bell Miner Dieback as a potentially emerging issue. In my background to the issue, I mention a new colony on the Bruns River and also that it has recently expanded. While I personally observed the colony 12 months ago, the observed expansion was stated by a member of the public who was with me when I first saw the new colony. Just this morning, I went for a kayak to confirm any expansion, and while I only managed to survey a short stretch of the river, I found no evidence of significant expansion. So, while I strongly believe the BCS should still define BMAD as a potential issue, I would like to retract (or modify accordingly) the statement relating to any observed expansion over the last year (see highlighted text in attached).

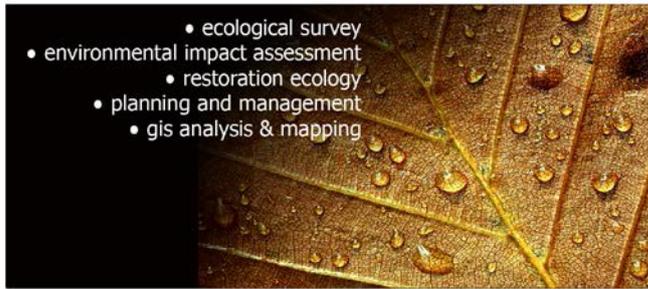
Finally, I'm always available/happy to discuss any fire-biodiversity issues as the Plan moves forward, whether it be regarding prioritising management sites, staff training or messaging to the public.

Cheers,
Andy

Andy Baker

Lecturer & Researcher

School of Environment Science and Engineering



ACN: 103 257 950

Mullumbimby NSW 2482
Phone (02) 6684 6827
wildsite.com.au

Wednesday, 20 May 2020

General Manager
Byron Shire Council
PO Box 219
Mullumbimby NSW 2482

To Whom It May Concern

SUBMISSION - draft Byron Shire Biodiversity Conservation Strategy

Thank you for the opportunity to make a submission to the *draft Byron Shire Biodiversity Conservation Strategy* (DBCS). I am a vegetation, fire and restoration ecologist with 23 years' experience working variously as an ecological consultant, researcher and lecturer. Due to this extensive experience, I am a leading regional authority on the management of fire-dependent vegetation communities and their associated values on the NSW Far North Coast. I have worked extensively advising on restoration, management and environmental impact assessment associated with ecological fire management across both public and private tenures.

Firstly, I fully support Council's initiatives within the strategy which seek to reinstate appropriate ecological and cultural fire in Byron Shire. Inappropriate fire regimes, especially low frequency and fire-exclusion, are emerging as major threatening processes to the biodiversity of Byron Shire and I commend Council for taking the first steps toward tackling these important conservation issues.

In addition to this general support, I would like to also provide more detailed recommendations to help improve messaging, general content and specific actions of the Plan. These recommendations are outlined in the table on the following pages.

Please feel free to contact me if you would like to discuss anything further.

Kind regards,

Andy Baker
Director / Vegetation Ecologist
Wildsite

Table 1. Detailed recommendations to the draft Byron Shire Biodiversity Conservation Strategy.

#	Recommendation	Document Reference
1.	<ul style="list-style-type: none"> • Insert brief description of BMAD as a potential emerging threat and associated with low-frequency fire. • Background: The recent and novel establishment of Bell Miner (<i>Manorina melanophrys</i>) in coastal Byron Shire, signals a high potential for Bell Miner Associated Dieback (BMAD) as an emerging threat to the open-forests of the Shire. BMAD is listed as a Key Threatening Process under the NSW <i>Biodiversity Conservation Act (2016)</i> and is decimating thousands of square kilometers of Euclaypt forest from the sunshine coast to Melbourne. And while it extends to coastal valleys and headlands on the NSW south coast, in this region it has historically been restricted to the hinterland and ranges. However, over the last decade Bell Miner colonies have been rapidly moving towards coast including recent new colonies at Uki, Yelgun and the floodplain of the lower Brunswick River. The colony on the Brunswick River first established in a highly localised patch of floodplain Euclaypt forest around 12 months ago, however, now appears to be rapidly expanding into adjacent forest areas. Long-unburnt open-forest with a dense mesic midstorey provides ideal nesting habitat for Bell Miners (Stone, Kathuria, Carney, & Hunter, 2008; Silver & Carnegie, 2017). Most open-forest in Byron Shire are now in this condition (BSC, 2017). 	p. 20, or p. 85
2.	<ul style="list-style-type: none"> • Add action under objective 'Partner with community environmental groups...' • <i>Implement a monitoring program for the emerging threat of Bell Miner Associated Dieback (BMAD).</i> • Reason: see above. We urgently need to ,omitor the spread and impact of this major threateneing process. 	p. 58

#	Recommendation	Document Reference
3.	<ul style="list-style-type: none"> • Add 'Umbrella Tree' to the weed list. • Reason: Bird-dispersed from gardens, Umbrella Trees (<i>Schefflera actinophylla</i>) have expanded dramatically across Byron Shire in the last 20 years and pose a major threat to the open-ecosystems of Byron Shire. In a recent NPWS survey of c. 80 native vegetation plots in Byron, Tweed and Ballina Shires, Umbrella Trees and their seedlings were observed in c. 90% of plots. 	p. 20, paragraph 1
4.	<ul style="list-style-type: none"> • Add 'natural disturbance regimes' to list of essential ecosystem processes. 	Box 6, p. 20, paragraph 1.
5.	<ul style="list-style-type: none"> • Edit sentence to include reference to natural disturbance. • <i>'Generally, if an ecosystem is subject to many disturbances over a short time period, or <u>natural disturbances withheld</u>, the ecosystem processes don't work as well and the ecosystem becomes less and less resilient.'</i> • Reason: altered disturbance regimes can involve both increased or decreased disturbance frequency; this provides support for the existing comment on fire at end of paragraph 4. 	Box 6, p. 20, end paragraph 2.
6.	<ul style="list-style-type: none"> • Replace the phrase 'fast-growing local rainforest species' with 'appropriate local trees'. • Reason: Although rainforest pioneers may be suitable for creating buffers around rainforest remnants, they are an active threat to the biodiversity values of many open forests. It would be equally inappropriate to recommend plantings of fire-prone trees and shrubs as buffers to rainforest remnants. 	p. 22, paragraph 3
7.	<ul style="list-style-type: none"> • Add sentence to end of Box 9 '<i>Carbon Sequestration</i>' • <i>'And charcoal from landscape fires can sequester large amounts of carbon in soils, wetlands or marine deposits.'</i> 	Box 9, p. 23.

#	Recommendation	Document Reference
8.	<ul style="list-style-type: none"> • Edit sentence to more appropriately reflect Appendix. • <i>'Appendix 4 provides a <u>more</u> detailed review of <u>emerging</u> fire ecology <u>issues</u> in Byron Shire.'</i> • Reason: A <i>detailed</i> review was not the aim of the brief, but rather a brief outline of emerging fire issues in 'well under 2 pages'. 	p. 26, end paragraph 4.
9.	<ul style="list-style-type: none"> • Edit title of Appendix 4 to <i>'Emerging Fire & Biodiversity Issues in Byron Shire'</i>. • Reason: As above 	p. 84
10.	<ul style="list-style-type: none"> • Add 'updated fire interval status' under <i>Vegetation Mapping</i> in <i>Table 3.2 Information Gaps</i>. • Reason: This was a key information gap identified in the expert workshop (see p. 92), but not captured in Table 3.2. 	Table, 3.2, p. 39
11.	<ul style="list-style-type: none"> • Add 'Southern Cross University' to list of project partners. • Reason: Southern Cross University is currently involved with monitoring and aims to be involved in ongoing research opportunities. 	Case Study, p. 27
12.	<ul style="list-style-type: none"> • Edit last sentence, para 2, p. 27 <i>'Bush regeneration, planning and assessment <u>are</u> currently underway in preparation for future burns.'</i> 	Case Study, p. 27, end paragraph 2.
13.	<ul style="list-style-type: none"> • Add action under objective - <i>Council uses current best practice desktop tools to support and facilitate HEV landscape and habitat protection</i> • <i>'Periodically update vegetation mapping to identify current fire frequency status to allow identification of areas subject to inappropriate fire frequency/regimes and prioritise ecological restoration and fire management.'</i> • Notes: ideally this would be updated annually and based on baseline vegetation mapping; for methods see (Baker & Catterall, 2015) or those used by Tweed Council for coastal koalas. 	p. 51

#	Recommendation	Document Reference
14.	<ul style="list-style-type: none"> • Add action under objective - <i>Council uses current best practice desktop tools to support and facilitate HEV landscape and habitat protection</i> • ‘Map 1750 vegetation formations as a baseline for ecological restoration. • Reason / notes: This was discussed as key need to enhance the Tweed-Byron native planting guide and would allow staff and community to generate planting lists via a clickable map. Ties in closely to Action 3.5. 	p. 51
15.	<ul style="list-style-type: none"> • Edit action 2.5 & 4.4 to include all ‘open ecosystems’ and not be limited to ‘some dry sclerophyll forest’. • Rationale: Many areas identified as being in decline due to low frequency fire are not dry open-forest, but include areas of wet sclerophyll forest, and swamp sclerophyll forest. The appropriateness of using fire in all open-ecosystems should be determined on a case-by-case basis, and not limited by a narrow definition in the plan. 	p. 53, 58
	<ul style="list-style-type: none"> • Update (Baker, Catterall, Benkendorff, & Law, in press) from ‘manuscript submitted...’ to ‘in press’. 	Reference list, p. 87 In-text references p. 85

References

- Baker, A. G., & Catterall, C. (2015). Where has all the fire gone? Quantifying the spatial and temporal extent of fire exclusion in Byron Shire, Australia. *Ecological Management & Restoration*, 16(2), 106–113. doi: 10.1111/emr.12161
- Baker, A. G., Catterall, C., Benkendorff, K., & Law, B. S. (in press). No room to move: bat response to rainforest expansion into long-unburnt eucalypt forest. *Pacific Conservation Biology*.

BSC. (2017). *Byron Shire Vegetation Cover (GIS layer): Byron All Stages Shirewide Veg_18May17*. Mullumbimby, NSW: Byron Shire Council.

Silver, M., & Carnegie, A. J. (2017). *An independent review of bell miner associated dieback* (p. 125).

Stone, C., Kathuria, A., Carney, C., & Hunter, J. (2008). Forest canopy health and stand structure associated with bell miners (*Manorina melanophrys*) on the central coast of New South Wales. *Australian Forestry*, 71(4), 294–302.

Appendix A. Common and characteristic fauna of CSOF and the potential impact of fire-exclusion based on habitat requirements and likely structural changes associated with fire exclusion. See section 4 for related text and references.

Species	Potential impact of fire exclusion
MAMMALS	
<i>Agile antechinus (Antechinus agilis)</i>	None identified
<i>Yellow-footed antechinus (northern) (Antechinus flavipes)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.
<i>Brown antechinus (Antechinus stuartii)</i>	None identified
<i>Eastern pygmy possum (Cercartetus nanus)</i>	None identified
<i>Large-eared pied bat (Chalinolobus dwyeri)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Hoary wattled bat (Chalinolobus nigrogriseus)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Spotted-tailed quoll (se mainland) (Dasyurus maculatus maculatus (S))</i>	None identified
<i>Southern brown bandicoot (Isodon obesulus obesulus (S))</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Eastern false pipistrelle (Falsistrellus tasmaniensis)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Northern brown bandicoot (Isodon macrourus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Eastern grey kangaroo (Macropus giganteus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Red-necked wallaby (Macropus rufogriseus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Little bentwing bat (Miniopterus australis)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Large-footed myotis (Myotis adversus)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Eastern bentwing bat (Miniopterus schreibersii oceanensis)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Eastern free-tail bat (Mormopterus norfolkensis)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Southern myotis (Myotis macropus)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Greater glider (Petaurides volans)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.
<i>Yellow bellied glider (Petaurus australis)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.
<i>Squirrel glider (Petaurus norfolcensis)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.

Species	Potential impact of fire exclusion
<i>Sugar glider (Petaurus breviceps)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.
<i>Brush-tailed rock wallaby (Petrogale penicillata)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources. Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Long-nosed bandicoot (Peramales nasuta (population))</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Brush-tailed phascogale (Phascogale tapoatafa)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Koala (Phascolarctos cinereus)</i>	Rainforest understorey may cause the premature decline of koala feed trees (e.g. Eucalyptus tereticornis, Melaleuca quinquenervia, Lophostemon suaveolens)
<i>Common planigale (Planigale maculata)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Long-nosed potoroo (Potorous tridactylus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>New Holland mouse, Pookila (Pseudomys novaehollandiae)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Grey-headed flying fox (Pteropus poliocephalus)</i>	None identified
<i>Swamp rat (Rattus lutreolus)</i>	None identified
<i>Yellow-bellied sheathtail bat (Saccolaimus flaviventris)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>Greater broad-nosed bat (Scoteanax rueppellii)</i>	Increased stem densities may render habitat unsuitable for open-space and edge-space bat foraging bats.
<i>White-footed dunnart (Sminthopus leucopus (S))</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Eastern blossom-bat (Syconycteris australis (N))</i>	None identified
<i>Short eared (or mountain) brush tailed possum (Trichosaurus caninus SEQ)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.p
<i>Water mouse (false water rat) (Xeromys myoides.)</i>	None identified
REPTILES	
<i>Jacky lizard (Amphibolurus muricatus)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Land mullet (Bellatorias major)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Eastern long-necked turtle (Chelodina longicollis)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Pink-tongued lizard (Cyclodomorphus gerrardii)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Mainland she-oak skink (Cyclodomorphus michaeli)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Tree skink (Egernia mcphreei)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>White throated snapping turtle – SEQ only (Elseya albagula)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Mary River turtle (Elusor macrurus)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Murray River turtle (Emydura macquarii)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Black-bellied swamp (or marsh) snake (Hemiaspis signata)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating

Species	Potential impact of fire exclusion
<i>Pale-headed snake (Hoplocephalus bitorquatus (N))</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Eastern water dragon (Intellagama leseurii)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Bellinger River turtle (Myuchelys georgesii)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Blotched blue tongue lizard (Tiliqua nigrolutea)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Clarence River or rough-scaled snake (Tropidechis carinatus (N))</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Eastern brown snake (Pseudonaja textilis)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
<i>Red-bellied black snake (Pseudechis porphyriacus)</i>	Canopy closure may reduce basking opportunities for ectotherm/homeotherm heating
AMPHIBIANS	
<i>Wallum froglet (Crinia tinnula)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Fletcher's frog (Lechriodus fletcheri)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Eastern banjo frog (pobblebonk) (Limnodynastes dumerilii)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Brown-striped frog (Limnodynastes peroni)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Green and golden bell frog (Litoria aurea)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Green-thighed frog (Litoria brevipalmata)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Green tree frog (Litoria caerulea)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Blue Mountains tree frog (Litoria citropa)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Cooloo sedgefrog (Litoria cooloolensis (N))</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Dwarf green tree frog (all colour morphs) (Litoria fallax)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Wallum rocket frog (Litoria freycineti)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Broad-palmed frog (Litoria latopalmata)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Olongburra frog/ wallum sedgefrog (Litoria olongburensis (N))</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Revealed frog (Litoria revelata)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Wilcox's frog (Litoria wilcoxi)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Ornate burrowing frog (Platyplectrum ornatum)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
BIRDS	
<i>Grey goshawk (Accipiter novaehollandiae)</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Australian reed warbler (Acrocephalus australis)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Magpie goose (Anseranas semipalmata)</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Regent honeyeater (Anthochaera phrygia)</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Eastern great egret (Ardea alba)</i>	None identified
<i>Australasian bittern (Botaurus poiciloptilus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Cattle egret (Bubulus ibis)</i>	None identified
<i>Great knot (Calidris tenuirostris)</i>	None identified

Species	Potential impact of fire exclusion
<i>Yellow-tailed black cockatoo (Calyptorhynchus funereus)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.p
<i>Glossy black cockatoo (Calyptorhynchus lathami lathami)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.pRainforest understorey, or widespread death of C. glauca canopy trees in intense wildfire may reduce feeding habitat.
<i>The greater sand plover (Charadrius leschenaultia)</i>	None identified
<i>Australian magpie (Cracticus tibicen)</i>	None identified
<i>Brown quail (Coturnix ypsilophora)</i>	None identified
<i>Eastern bristlebird (Dasyornis brachypterus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Wandering whistling duck (Dendro cygna arcuata)</i>	None identified
<i>Emu (Dromaius novaehollandiae (N))</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Little egret (Egretta garzetta)</i>	None identified
<i>Black-necked stork (Ephippiorhynchus asiaticus)</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>White-fronted chat (Epthianura albifrons)</i>	None identified
<i>Red goshawk (Erythrotriorchis radiates)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Painted honeyeater (Grantiella picta)</i>	None identified
<i>White-bellied sea-eagle (Haliaeetus leucogaster)</i>	None identified
<i>Brahminy kite (Haliastur indus)</i>	None identified
<i>Comb-crested jacana (Irediparra gallinacea)</i>	None identified
<i>Black bittern (Ixobrychus flavicollis)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Swift parrot (Lathamus discolor)</i>	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. Eucalyptus spp., Lophostemon suaveolens) Fire exclusion may reduce tree scaring required for the formation of new hollows.p
<i>Wonga pigeon (Leucosarcia picata)</i>	
<i>Black-tailed godwit (Limosa limosa)</i>	
<i>Square-tailed kite (Lophoictinia isura)</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Superb blue wren (Malurus cyanus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Variigated wren (Malurus lamberti)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Red-backed fairy wren (Malurus melanocephalus)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Rainbow bee-eater (Merops ornatus)</i>	None identified
<i>Red browed firetail (Neochmia temporalis)</i>	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
<i>Barking owl (Ninox connivens)</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Powerful owl (Ninox strenua)</i>	Increased stem densities may render habitat unsuitable for foraging and commuting
<i>Eastern curlew (Numenius madagascariensis)</i>	None identified

Species	Potential impact of fire exclusion
Eastern osprey (<i>Pandion cristatus</i>)	None identified
Rufous whistler (<i>Pachycephala rufiventris</i>)	None identified
Little lorikeet (<i>Parvipsitta pusilla</i>)	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. <i>Eucalyptus</i> spp., <i>Lophostemon suaveolens</i>) Fire exclusion may reduce tree scaring required for the formation of new hollows.p
Flame robin (<i>Petroica phoenicea</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Eastern ground parrot (<i>Pezoporus wallicus wallicus</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Grey-crowned babbler (<i>Pomatostomus temporalis temporalis</i>)	Increased stem densities may render habitat unsuitable for foraging and commuting
Grey fantail (<i>Rhipidura albiscapa</i>)	None identified
Australian painted snipe (<i>Rostratula australis</i>)	None identified
Freckled duck (<i>Stictonetta naevosa</i>)	None identified
Southern emu wren (<i>Stipiturus malachurus</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Rainbow lorikeets (<i>Trichoglossus haematodus</i>)	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. <i>Eucalyptus</i> spp., <i>Lophostemon suaveolens</i>) Fire exclusion may reduce tree scaring required for the formation of new hollows.p
Scaley breasted lorikeets (<i>Trichoglossus chlorolepidotus</i> (N))	Rainforest understorey may cause the premature decline of suitable hollow trees for nesting (e.g. <i>Eucalyptus</i> spp., <i>Lophostemon suaveolens</i>) Fire exclusion may reduce tree scaring required for the formation of new hollows.p
Straw-necked ibis (<i>Threskiornis spinicollis</i>)	None identified
Common greenshank (<i>Tringa nebularia</i>)	None identified
Marsh sandpiper (<i>Tringa stagnatilis</i>)	None identified
Eastern grass owl (<i>Tyto longimembris</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Masked owl (<i>Tyto novaehollandiae</i>)	Increased stem densities may render habitat unsuitable for foraging and commuting
Terek sandpiper (<i>Xenus cinereus</i>)	None identified
INVERTEBRATES	
Laced fritillary (<i>Argynnis hyperbius</i> (N))	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Large curtain web spider (<i>Australothele Nambucca</i> (N))	None identified
Spotted jezebel (<i>Delias aganippe</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Moonlight jewel (<i>Hypochrysops delcicia</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Giant water spider (<i>Megadolomedes australianus</i>)	None identified
Golden orb weaving spider (<i>Nephilla</i> spp.)	None identified
Black grass (Knights) dart butterfly (<i>Ocybadistes knightorum</i> (N))	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Coastal petaltail (dragonfly) (<i>Petalura litorea</i> (N))	None identified

Species	Potential impact of fire exclusion
Small green-banded blue (butterfly) (<i>Psychonatis caelius taygetus</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Varied sword grass brown (butterfly) (<i>Tisiphone abeona</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Lily caterpillar (moth) (<i>Spodoptera picta</i>)	Loss of ground cover may reduce foraging, breeding and/or sheltering resources
Stingless native bees (<i>Tetragonula carbonaria</i>)	None identified