

SUBMISSION ON THE CUMBERLAND PLAIN CONSERVATION PLAN 2020

By [REDACTED]

Background: I am a botanist and ecologist who worked on the Cumberland Plain for the NSW National Parks & Wildlife Service from 1985. I participated in the identification and dedication of Scyeville National Park, Castlereagh Nature Reserve, Agnes Banks Nature Reserve additions, Windsor Downs Nature Reserve, Mulgoa Nature Reserve, Prospect Nature Reserve, Wianamatta Nature Reserve, Wianamatta Regional Park, Kemps Creek Nature Reserve, Gulguer Nature Reserve, Newton Nature Reserve, Wallumatta Nature Reserve, additions to Cattai National Park (Hope Farm), Rouse Hill Regional Park, Edmondson Regional Park, Bents Basin State Conservation Area and Wolli Creek Regional Park, as well as the proposed Colebee and Shanes Park Nature Reserves.

From 2001 until 2018, I was the Area Manager for (initially) Cumberland North and then Cumberland Area of the NPWS, and was responsible for overseeing the management of the majority of the NPWS reserves on the Cumberland Plain. In this capacity, I facilitated investigations, research and adaptive management trials looking at the many issues facing conservation of these reserves in a rapidly changing landscape, including loss of biodiversity, weed invasion, harmful fire regimes, garbage dumping and pollution, fragmentation, feral and domestic animals, loss of habitat and shelter (old trees and coarse woody debris) and harmful use (e.g. mountain bikes, trail-bikes and 4WDs), and worked with others to find management solutions to a number of these.

I maintain a strong interest in the conservation of the Cumberland Plain, the first ecosystem to be comprehensively impacted by European settlement.

INTRODUCTORY COMMENTS

The Cumberland Plain Conservation Plan is not, in fact, a Conservation Plan, in that it does not address the full range of issues that must be addressed to ensure long-term conservation of the native biodiversity of the Cumberland Plain. It is instead a Plan that seeks to address conservation issues to a sufficient degree to meet the requirements for biodiversity certification, and thereby allow ongoing development of western Sydney, so in this sense it is actually a development plan rather than a true conservation plan. This does not mean that it is not of value, or does not propose some very worthwhile conservation actions. The implementation of the Plan will certainly improve the conservation of the Cumberland Plain, but not to the extent needed to prevent the current long-term biodiversity decline from continuing.

There are some very good actions proposed in the Plan, such as the conservation and restoration of the area known as 'the Confluence' around the junction of Eastern and South Creeks, and the expansion of conservation areas and their connectedness around the Georges River. There are also some significant gaps in the overall proposed conservation system, and it is not clear whether these gaps are intended to be filled in the future or not.

However, putting land into a reservation category does not save biodiversity. It is an essential first step, and (usually) prevents it being lost forever under development, but the processes that degrade and threaten the survival of the biodiversity continue, and must be addressed and reversed if the majority of the native species in the reserve are to survive. At the same time, it is important to note that the native biodiversity is itself very much capable of recovery, provided that the processes that threaten its survival are controlled or removed. For example, platypus and native fish have re-occupied South Creek in recent years, and koalas have been seen swimming the Nepean River from

the Blue Mountains in attempts to re-invade their former prime habitat on the Plain. The native biodiversity of the Plain has survived 1-in-1,000,000 year droughts, floods and fires, and recovered. It is intrinsically resilient, if provided with conditions that don't prevent its recovery. It is very important to understand that all of the Cumberland Plain has been greatly impacted by European activities, and it is all in a state of recovery from these impacts. The Plan therefore needs to include significant measures to assist in this recovery.

This submission focusses on the issues that are not adequately addressed in the Plan, and primarily discusses the actions that need to be done to actually ensure recovery and conservation of the Cumberland Plain biodiversity for our future generations of western Sydney and NSW.

PAST AND CURRENT CONDITION

The Cumberland Plain is a very different environment to the more familiar bushland of the sandstone country surrounding Sydney. Its vegetation and fauna were markedly different, and these differences are not appreciated by most people, for whom 'bush is bush'. I consider that these differences have not been adequately considered and addressed in the Plan.

The Cumberland Plain is intrinsically more fertile than the typical bushland around Sydney and the Blue Mountains. Not only does the Wianamatta Shale-derived soils contain higher nutrients, but there are substantial areas of alluvial deposits which are of even higher nutrient status. This is highly significant for a number of reasons, not least because sizable areas of higher-nutrient soil are rarely included in the conservation reserve system. Note that there are also areas of lower-nutrient soils on the Plain, such as the Agnes Banks Pleistocene sand sheets, and the Castlereagh gravel deposits from former streams on the Plain. These soils are also of significant conservation value, and contain many rare species, but they have not yet been as thoroughly impacted as the higher-nutrient areas, and are a lesser focus for this submission.

Higher nutrient soil means that vegetation has more material to grow with, and so trees can grow larger, and groundcover can grow more densely. Importantly, vegetation growing on higher-nutrient soil tends to be better nutritional value for the animals that feed on it, from insects and birds to arboreal mammals. Arboreal mammals in particular are found in greater diversity and abundance in forests and woodlands on higher-nutrient soils, as well as the owls that prey on them.

The Cumberland Plain vegetation on the higher-nutrient soils was virtually all cleared in the years after European settlement, and it is rare to find trees that pre-date this time. In the 1,000 hectares of Scheyville National Park, there are only 5 or 6 old trees that were alive when the First Fleet landed, and a similar or worse loss of old trees has occurred across the Plain.

The typical Cumberland Plain "Woodland" vegetation that we see is all young recovering trees, and usually dates from post-World War 2 or even later. It is very likely that a mature Cumberland Plain tree cover would be classed as a forest rather than a woodland, especially on the alluvial soils. The richest alluvial soils, such as the lowlands around Richmond and Windsor, would also have supported patches of rainforest, which seems unimaginable now.

The Importance of Groundcover

The predominant distinguishing feature of the Cumberland plain vegetation is a highly diverse and variable groundcover. This typically comprises 80 or 90 species, many of which may not be visible for periods of time, but instead appear after events such as significant rainfall or following fire. The groundcover has often been greatly affected by past grazing and clearing, and is generally not well mapped.

The groundcover drives the dynamics of the native vegetation. Healthy groundcover resists weed invasion, maintains a healthy soil microflora and a good nutrient status in the soil for native vegetation, as well as providing food and habitat for invertebrates and the wildlife that feed on them. Since groundcover is the majority of the vegetative diversity, this lack of information and consideration continues to be a major weakness in the Plan's ability to ensure long-term conservation of the vegetation and its dependent fauna.

There is no inventory or reliable measure of the conservation status of many of these groundcover species. Many of the less common species are now only known from a small number of locations, and as development continues, many of these sites are being lost. This means that some Cumberland Plain groundcover species may be on the verge of going locally extinct right now, and will be lost to restoration in the future. As an example, the Yam Daisy was formerly a very important food plant for the Dharug people, and was cultivated and harvested in large numbers along the alluvial flats of the major streams. There are no known populations of Yam Daisy in the Cumberland Plain today (as far as I can determine) and there are almost certainly a number of other species that are similarly imperilled.

Action: There needs to be a complete inventory of the native groundcover species of the Cumberland Plain, particularly on the more fertile soils, and those species that are known from only a few locations need to be collected and propagated at a secure site so that they remain extant and available for future restoration of native vegetation cover.

Seedbank for Restoration

Due to the past disturbance of the Plain, and especially a long history of (over) grazing, many species need to be restored to remnant bushland to bring these areas back to full diversity and health. This is not just an aesthetic wish, but a functional requirement, as areas of Cumberland Plain vegetation with a healthy groundcover and understorey are more resistant to weed invasion, and provide much better habitat for a range of biodiversity. The groundcover not only provides the majority of plant biodiversity in the Plain, but it also drives the ecological processes below ground in the soil, and above-ground in habitat quality and vegetation establishment and dynamics.

Restoration of groundcover by tubestock and by traditional bush regeneration methods can be effective in less disturbed areas, but for more disturbed areas restoration by more aggressive clearing of weeds, rectification of soil imbalances (where necessary) and seeding of native species is much more cost-effective. This requires that there is a source of seed for restoration in the initial years at least. Once areas of high-quality native groundcover have been established, it is possible to mow them when they are in seed, and use the mulch to seed other areas.

Experimental work by Greening Australia and NSW NPWS, with help from Western Sydney Parklands, has demonstrated that these methods of groundcover establishment by seeding are both cost-effective and transformative. Some work in seed production and storage of seed has also since been done at Mt Annan Botanic Gardens (which runs the seed storage facility known as Plantbank). However, this work is hampered by the lack of an overall co-ordinating strategy, and there have been major issues with the ongoing involvement of Greening Australia due to competing commercial and organisational pressures.

Action: The Plan needs to make provision and provide funding for the establishment of one or several large native seed production areas (SPAs), to produce seed for restoration for the next two decades and more. The production of seed needs to be informed by the inventory of groundcover

species previously referred to, with rare and uncommon species being stored in the Plantbank at the Gardens.

Weed Management

Weeds are a major threat to conservation of the Cumberland Plain. A number of the weeds, such as African Olive, African Love Grass and Lantana are transformative, in that, when they establish in an area of bushland, the structure and composition of the bushland is changed (for the worse), and will remain so without significant action in a planned program to remove the weeds. Privet is also locally transformative in riparian areas. Non-transformative weeds are also a significant problem, but less difficult to control.

Weeds compete with native species for nutrients, water, space and light, and change the characteristics of the vegetation in a fire. They generally provide poorer habitat, and may change the habitat qualities of the bushland significantly. For example, dense stands of African Olive or Lantana encourage invasion by Bell Miners, which aggressively exclude other native birds from the area, and contribute to eucalypt die-back by their protection and 'cultivation' on lerps on the trees.

However, native bushland in good condition can be remarkably resistant to weed invasion, and again, the groundcover is a major contributor to this. Weeds generally invade bushland following disturbance, and are often assisted by ongoing disturbance, such as earth movement, rubbish dumping, mountain bike track construction, and dumping of garden waste. Removal of the source of disturbance, and prevention of its recurrence, is a necessary first step in controlling the weeds. Many weeds thrive on increased nutrients, and removal of the source of these nutrients (garden waste, etc.) can tip the balance to the native species. Weed species are often high in nitrogen and low in carbon, which changes the carbon and nitrogen balances in the soil. The addition of carbon to the soil has been shown to stimulate soil biota to grow, using up the nitrogen and lowering its levels. Again, this restoration of the soil balance disadvantages the weeds against the native species.

Fire is also a very useful tool in weed control. Native species are stimulated by fire, with some (e.g. Kangaroo Grass, *Themeda* sp.) disappearing in the absence of fire, and re-appearing when burning occurs. Most weeds are not evolved for fire, and even those that are, such as African Love Grass and African Olive, can be significantly affected by fire if it is used with herbicide as part of an integrated treatment. Finally, more industrial methods can be used, such as the use of mulching machines for African Olive, and the scraping and removal of African Love Grass together with the top-soil and included weed seedbank.

The condition of the Cumberland Plain vegetation is such that it requires active management to restore and maintain it in good condition, and will require this for some decades to come. Without this management it will degrade into a very poor facsimile of the original vegetation, from which species will continue to be lost. The Plain was actively managed by the Dharug people before Europeans arrived, and while different and more intensive management is now needed to address the problems that Europeans have caused, even good condition restored bushland will require a higher level of ongoing management than surrounding conservation areas on the sandstone country.

Action: The Plan needs to ensure significant ongoing funding and resources are provided for the active co-ordinated management of weeds in and around conservation areas, as well as at major weed sources such as along transport corridors. Much of this latter work is already underway through local government, but is uneven in its effectiveness.

Action: The Plan needs to specify plant species that are not permitted to be grown in new development areas or used in landscaping, and encourage their removal from existing developed areas. Such species as *Robinia pseudoacacia* are highly invasive, but still used as street plantings by landscape architects. An education program needs to be provided for the landscape industry, local government and the wider community on the threat posed by weeds to the conservation of the Plain, and the costs to government and the community of their control and removal

Large Hollow Trees and Nestboxes

The distinguishing characteristic of the original Cumberland Plain vegetation was large trees on fertile soils, which supported large populations of invertebrates, birds and especially microbats and arboreal mammals. These large trees had many hollows, which provided nests for shelter and breeding. In general, a Eucalypt takes at least 70-80 years of growth before hollow formation even commences, and may take many decades more before the hollows reach the right size and shape to accommodate a Greater Glider or a nesting Glossy Black Cockatoo.

Most of the large trees remaining on the Plain occur as isolated specimens in cleared paddocks, while conversely, most of the 'bushy' vegetated remnants are regrowth from the 1940s or even more recently, and have large numbers of small trees with none or very few old trees. These young regrowth stands will not provide hollows or other characteristic 'large tree' habitat qualities (analogous to "old growth" characteristics in forests) for another 50 or more years. Unfortunately, the history of conservation efforts on the Plain is that there has been a great focus on the regrowth stands, while large, old trees have tended to be written off and cleared for development.

It is therefore important to recognise that these large old trees provide unique and irreplaceable value in a conservation landscape, and to give more priority to including them in future conservation areas. Even a single large old tree in a small park may provide habitat for 40 or 50 microbats. When areas are selected for conservation, varying the boundaries to include some large old trees is probably more important than including every bit of mapped remnant vegetation, especially if restoration of the understorey and connection back into remnants is also done.

It is laudable that the proposed "Confluence" conservation area does include many large trees on fertile soils, and will provide an exceptional opportunity to establish a conservation area which contains the really characteristic biodiversity of the Plain.

In the absence of large trees with hollows, many species will use nestboxes for shelter and breeding. Designing and installing a nestbox which provides the right habitat for the targeted species can be difficult, as hollows are by their nature complex spaces having a range of temperature and humidity conditions. However, it is possible to build more complex nestboxes containing a range of internal spaces, and these have been demonstrated to provide shelter that will even support a microbat maternity colony. Many species will naturally use a range of hollows, moving from one hollow to another as conditions change or as they move through the vegetation. A relatively large number of nestboxes is therefore needed, as many will be used more like an Air BnB than a permanent residence. Carving of nest hollows in existing dead limbs is also another alternative method of providing this habitat.

Action: The Plan needs to have a greater focus on identifying and including large old trees in conservation areas, and educating developers, planners and councils on the importance of retaining them in the Plain outside conservation areas.

Action: The Plan needs a program to greatly increase the shelter for tree-dependent fauna across the Plain by construction and installation of nest-boxes. There are many schools (tech. classes), Mens Sheds and hobbyists in western Sydney who would willingly contribute to this program if materials and guidance on design and construction were to be provided.

Coarse Woody Debris (Logs)

The Cumberland Plain has been subjected to 2 centuries of firewood collection, and burning and removal of fallen timber, especially logs (known as coarse woody debris). This timber is an essential driver of soil processes through its decomposition, which feeds soil micro-biota and invertebrates, which in turn are fed upon by many species of birds, reptiles, frogs and mammals. The debris also provides essential shelter for ground-dwelling fauna, which hide in the hollow logs and under fallen timber. Smaller fauna such as Antechinus avoid cats and foxes by moving quickly from debris pile to debris pile, which requires the piles to be sufficiently close that the open space between can be quickly traversed. The large logs also provide shelter from rain, heat and cold, damper areas during dry periods, and shelter from fires (logs take a considerable period to ignite, and usually do not do so until the main fire front has passed). The decomposition of the timber is also an important process for sequestration of carbon.

There are no surface rocks on the Plain to provide habitat and shelter, so without timber the ecosystem is extremely difficult for small ground-dwelling or feeding fauna. It has been found that the required density of coarse woody debris is around 30 tonnes/hectare or higher, distributed across the landscape. Species such as Bandicoots are on the edge of extinction on the Plain, and will not return and be secure without positive action to restore coarse woody debris.

Currently, fallen timber is taken readily from bushland areas by the public for firewood and barbecues. At the same time, trees and dead timber are cleared from land for development and dumped in landfill. Some timber is also removed because of fears it may fuel bushfires, but the time it takes for such large timber to ignite means it generally make little contribution to the heat of the fire front. The major issue with logs in fires is that they tend to burn for some time after the fire has passed, which can worry people who see this.

Action: The Plan needs to make it a condition of development that all (large) timber removed from areas being developed is cut into logs of transportable size and made available for re-distribution to conservation areas and corridors across the Plain. A small amount of ongoing funding for the costs of transport and placement of the timber also needs to be provided.

Action: The Plan needs to facilitate a major education and enforcement program about the importance of fallen timber as habitat, and the problems with its removal and burning for wildlife and for climate change. This education also needs to counter the fear of logs contributing to the heat of fire fronts.

Fire

The Cumberland Plain vegetation requires fire to maintain ecological processes such as new seedling recruitment, thinning of regrowth, maintaining vegetation structure, stimulating flowering and fruiting and turnover of groundcover and grass swards. Fire is also a very useful technique for weed control, especially when used as part of an integrated program with other techniques such as herbicides and biological control.

In the absence of fire, both introduced and native species can dominate the understorey. Many areas of the Cumberland Plain vegetation have been underburnt in recent decades, leading to

dominance of Blackthorn, *Bursaria spinosa*, which is important understorey habitat but needs to be alternated with open grassy understorey areas. Absence of fire also provides a window for weeds such as African Olive seedlings to establish. Perversely, the vegetation that develops in the absence of fire tends to be more difficult to burn in a controlled manner, but is just as much of a hazard on an extreme day as more-frequently burnt vegetation.

Cumberland Plain Woodland tends to be moister than the sandstone-based bushland around Sydney, and takes longer to dry sufficiently to be effectively burnt. This causes some issues, as on a day when the CPW is finally ready for a much-needed controlled burn, there is often already an out-of-control bushfire burning in the same Fire District, which makes doing the burn very much harder to organise.

The fact that conservation areas in the Cumberland Plain are generally surrounded by housing is another issue. More recent developments have fuel-reduced Asset Protection Zones (APZs) along the bushland boundary, but these require policing of encroachments, and the RFS and Councils have generally been reluctant to do this, leading to the conflict and inhibition of fire management options, as well as increased risk to neighbouring properties. Note that these remarks about fire apply a bit less to the vegetation on the less-fertile soils, which share a few more broad characteristics with the sandstone-based vegetation.

Action: The need for ongoing fire management to provide regular burning of parts of the Cumberland Plain vegetation needs to be recognised in the Plan, and provided for in District Fire Plans.

Action: Further research of fire regimes in Cumberland Plain vegetation needs to be done, and this needs to be facilitated by the Conservation Plan.

Action: Councils and the RFS need to provide more stringent policing of APZs separating development from bushland, and more education provided to Cumberland Plain residents about management of fire in this special environment, and the fact that the higher fertility soils are quite different to the more common sandstone-based vegetation.

Context and Connections (the Ecological Matrix)

The end result of the development proposed in the Plan will be a number of conservation areas of various sizes, mostly surrounded by intense urban development. This presents major ecological problems for many of the species in these reserves, which may not be able to move safely from their home reserve to another, e.g. in dispersal of young after breeding. The provision of connections between patches of habitat is a hugely important requirement for survival of the Cumberland Plain biota. At this stage, the Plan is quite vague on how this will be achieved, although there are some major steps towards improved connection in some areas of the Plain.

Connections depend a large amount on context, now and in the future. For example, Scheyville National Park is currently largely surrounded by farmland and rural residential blocks, most of which have some native tree cover, with occasional bush remnants. This presents a much more sympathetic matrix for native species to move through when coming to or leaving the Park. In the future, it may be that significant areas around Scheyville are turned into close urban development, as has happened east of Boundary Road near Maraylya. Under these circumstances, detailed provision of corridors of habitat will be required to prevent the risk of Scheyville's biodiversity being isolated.

The biggest issue for connectedness is at the large scale across the Plain, and again, the Plan fails to make explicit provision for this, although there are measures that will assist. There are a number of diagrams explicitly drawing in proposed major transport and movement corridors across the Plain.

In the same way, biodiversity connections need to be explicitly planned, drawn in and provided for in the Plan. The most sensible way of doing this is to use the existing major and minor drainage lines, which should be reserved from development in any regard, and which will provide an easier path through western Sydney for most biodiversity. This requires preventing major engineering works of the type that are insensitive to the needs of wildlife (concreting stream channels, etc.) and providing extra fauna-friendly tunnels under roads when culverts are installed. In one of two places, wildlife bridges over roads may be needed, and these have been shown to be successful in a number of situations overseas.

Action: The Plan needs to explicitly plan for and provide biodiversity-friendly connections between conservation areas, especially along drainage lines. Biodiversity connection should be the highest-priority use of these areas, as there are so few alternative possibilities, whereas other uses will generally be able to find alternative sites.

The Importance of Position

A major issue in planning for conservation on the Plain has been that modern biodiversity assessment methods tend to assume an interchangeability of different areas. Conservation areas can be assessed to give a biodiversity score, and areas with similar scores may then be treated as having similar value to the long-term conservation of biodiversity.

However, THIS IS NOT THE CASE. The position of an area of conservation value in the landscape and its relationship to other areas and to landscape processes is of primary importance. The proposed reserve at the 'Confluence' is prime example of an area that is essential for maintaining the long-term connection between Eastern Creek and South Creek, which themselves provide potential connection to the majority of the Plain. The remnant vegetation and landscape in and around the Elizabeth Macarthur Agricultural Institute similarly occupies a position that allows for future long-term connection along the River and out onto the Plain in a number of directions.

Similarly, the Cumberland Plain Woodland on higher elevations in the southwest Plain north of Razorback does not provide the same quality of habitat and connection to the rest of the Plain.

It needs to be clearly understood that, while scoring for biodiversity quality is a useful tool, it is only providing a representation of the current condition of the area in question. Most of Scheyville National Park would have received a very low score in the 1940's and 1950's when it was largely cleared paddocks. The position of an area in the overall ecological matrix, and its potential for restoration, are much more important factors to consider in the construction of a long-term conservation system for the Plain. Even then, some areas that have been subject to major disturbance may still be essential inclusions to provide essential connections for conservation.

Action: The Plan needs to identify and target the areas that are essential for the establishment of a conservation network across the Plain, both as large conservation areas in themselves, and as essential connections in the network. These areas must not be traded off (e.g. under bio-banking provisions) for alternative areas as they are by their nature not tradeable.

Inappropriate Use

The bushland reserves in western Sydney tend to be small, and are often surrounded by dense urban populations. These neighbours look to the reserve for recreation, while often lacking any appreciation of the significance of the bushland it contains. This appreciation comes over time, but there is usually a large amount of damage done by inappropriate use in the meantime (dumping of garbage, builders waste and garden refuse, construction of mountain bike tracks, etc.). In one Nature Reserve, over 15% of the area was damaged by construction of bike jumps and trails.

Prevention of this damage requires very effective boundary fencing (usually mining cable in steel girder posts), education of neighbours and the community, and especially, provision of ample alternative recreation areas that provide for such activities in an appropriate environment.

Action: The Plan, and urban planning in western Sydney, needs to ensure that there are adequate and generous recreational areas provided outside the conservation reserve system, including areas for adventurous bike riding and dog walking.

Management

The conservation system that will be developed under this Plan will need active and informed adaptive management. A range of management options are potentially under consideration.

As has been explained in this submission, all Cumberland Plain remnants will require ongoing active management, and some will require major intervention in the early stages to address contamination, weeds, fire regimes, boundary issues and inappropriate use. More importantly, there will be a need for very active and interventionist ecological restoration action as described briefly above across almost all conservation areas, and then active maintenance activities once the bushland has been restored and stabilised. This is generally outside the experience, capabilities and resourcing of many potential management authorities.

For example, while the Western Sydney Parklands Trust has done some excellent bushland management work, particularly in control of African Olive, its bushland management is done almost entirely by contractors, based upon a variable and sometimes uncertain annual budget. Bushland management is an important aim of the Trust, but it is a large and diverse operation managing many competing priorities, and in the process, several important conservation values in the Western Sydney Regional Park have declined markedly. This is not a criticism of the staff, but of a management model which is not able to provide sufficient focus on conservation management among its many competing management demands.

Local government are important bushland managers, and many do excellent conservation management in local bushland reserves. However, conservation management is once again one priority among many diverse pressures upon local government, and resourcing of conservation activities is again generally uncertain amongst other budget priorities.

Neither the Trust nor local government have a large organisational resource of conservation management expertise available to assist staff in addressing new and emerging problems. These organisations are also not easily able to organise and manage burning, whether it is controlled burning for hazard reduction of ecological purposes, or bushfire emergency response. In addition, the management of the Cumberland Plain conservation reserves needs to be co-ordinated across all of the reserves in the conservation system, which requires a single management agency. The NSW National Parks and Wildlife Service is therefore the agency which is currently best placed to be the management agency for the proposed Cumberland Plain conservation system.

However, even though the NPWS has local expertise and experience in the type of management required, there are still obstacles in that the standards and foci of management in the Cumberland Plain are quite different from those normally required in other parts of NSW. This means that the NPWS has to recognise that the management structures and priorities in the Cumberland Plain have to vary from the normal standards to meet the very different management requirements that restoration and conservation of the Cumberland Plain biodiversity will require.

Action: The Plan needs to recognise that a single management agency with appropriate skills and resources will be required to ensure that the future conservation reserves will be restored and managed appropriately and efficiently, and that the NSW NPWS is the only agency currently able to provide this level of conservation management.

Action: The local staff of NPWS will need to be provided with the appropriate resources and support to deal with the significant management challenges of restoring and maintaining the degraded bushland of the Cumberland Plain.

The M9 and Future Projects

The Cumberland Plain Conservation Plan proposes that some future projects, such as the proposed M9 transport corridor, be included in the biocertification.

This is surely illegal, and absolutely inappropriate. The purpose of the assessment process involved in the plan is to understand the impacts of proposed development on the biodiversity of the Plain, and take appropriate action to mitigate these impacts.

The M9 is not proposed to be constructed for several decades. In this time, the biodiversity of the Cumberland Plain is certain to be significantly different. Hopefully it will be improved in conservation status by the Plan, but there is a very significant likelihood that some or even many species will be more threatened. It is impossible for any accurate assessment to be made of the impacts of constructing this proposed development on the future biodiversity of the Plain, and such an assessment cannot possibly be done until the actual time that the development will be constructed.

Attempting to make such binding decisions today, based on highly uncertain predictions about the future of such a dynamic environment is ridiculous and insulting to the many professional people who have worked incredibly hard to understand and conserve the amazing biodiversity of the Cumberland Plain.

Action: It is in no way possible to make any reliable prediction about the impacts of the M9, and other similar projects planned for the long-term future. Therefore this project needs to be removed from the proposed biocertification, and an appropriate and realistic assessment made of its impacts on biodiversity at the time that construction is actually proposed.

Action: The Cumberland Plan Conservation Plan needs to have a regular review process, involving the assessment of progress and changes in conservation status, resulting in adaptive adjustments to the Plan to improve its conservation effectiveness.

Action: The Cumberland Plain Conservation Plan, including the actions proposed in this submission, must receive adequate ongoing funding for the duration that the Plan is required to ensure that the biodiversity of the Cumberland Plain is conserved. While this is likely to be a significant amount, it is an investment in a very significant part of the ecological infrastructure of NSW, and will be very much less costly than many other infrastructure investments routinely made by NSW.

Concluding Comments

A great deal of work has gone into the Cumberland Plain Conservation Plan, and there are a number of initiatives proposed which will significantly improve the prospects for conservation in some areas of the Plain.

However, the Plan is predominantly about providing certainty for development through biocertification, and does little to deal with the detail of actually ensuring the biodiversity of the Plain survives. Without this detail, it is not possible to be confident that the measures proposed will actually achieve biodiversity conservation, rather than the setting aside of areas in which the biodiversity continues to be stressed and degrades as a result.

This submission has attempted to point out the most significant areas that need to be addressed to make the Plan a document that will actually achieve conservation of the biodiversity of the Plain. There is no doubt that there are more important issues that I have failed to address herein (e.g. feral animals, climate change).

I would be pleased to provide clarification or further advice on any issues raised in my submission, or on any other issue relevant to the conservation and management of the biodiversity of the Cumberland Plain.

Yours Sincerely

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