



Shared Problem, Shared Solutions

**Submission to the
NSW Natural Resources Commission
Pest Animal Management Review Draft Report**

May 2016

The submitters

The **Invasive Species Council** campaigns for better laws and policies to protect the Australian environment from weeds, feral animals and other invasive species. Email isc@invasives.org.au.

The **Nature Conservation Council of NSW** is the peak environment organisation for New South Wales, representing 150 member societies across the state. Together we are committed to protecting and conserving the wildlife, landscapes and natural resources of NSW. Email ncc@nature.org.au.

BirdLife Australia is Australia's largest organisation dedicated to the protection of birds and their habitat. Email: info@birdlife.org.au.

Introduction

The Invasive Species Council, BirdLife Australia and the Nature Conservation Council of NSW appreciate the important role played by the Natural Resources Commission in developing solutions to the difficult issue of pest animal management and appreciate the opportunity to make this submission. Our organisations are committed to the conservation of the State's diverse biota, and to the protection and restoration of its natural habitats.

In general we are supportive of the draft report, in particular the sound recommendations towards an overall improvement in pest animal management in NSW.

The consideration the commission has given to pest management science, relevant stakeholder views and to the many challenges in pest animal management is reflected in the good insights in the draft report. We particularly note and affirm the report's statements that:

"...the risks from future incursions and diseases remain extreme. As the problem of pest animals is a shared one, the solutions demand shared responsibility", and that

"Government must also address new and emerging pest risks, place a stronger focus on high-risk pathways and ensure administrators can rapidly access funds to enable future rapid response" (page 1)

We also note on page one of the report the emphasis on strengthening governance arrangements, including through guidance "by expert committees, which include community and industry representation"- we urge that "environmental representation" be added to this sentence on page one.

We endorse the importance of strong governance. One necessary way of strengthening the governance of pest animal management is to ensure that environmental and community expertise is specifically included throughout national, state and local governance institutions. Industry and economic interests have historically played a central role in invasive species policy, leading to biosecurity decision-making residing within agricultural departments.

Governance arrangements in NSW can be enriched with greater environmental and community expertise, enabling them to more successfully avert and address the impacts of pest animals on the natural environment as well as on the agricultural sector.

This submission is structured under relevant headings of the draft report for ease of reference. Following comments under these headings, we add remarks on matters not touched on in the draft report. A summary of our responses to the recommendations is provided in Table 1 overleaf.

Table 1: Summary of responses to recommendations in the draft report

Draft recommendation	Our response
1. Incorporate core components for state planning into Invasive Species Plan 2015-22	Support
2. Incorporate transparent state leadership and accountability into the Invasive Species Plan 2015-22 and formalisation of role of Biosecurity Advisory Committee	Support
3. Changes to regional leadership and local delivery of pest management	Support and strengthen
4. Clarify freshwater role	Support
5. Align regulation of non-indigenous species with the risk they pose	Support and strengthen
6. Capacity for responses to incursions	Support
7. Cost effective surveillance for detecting new pest animal incursions	Support
8. Improve the biosecurity information system	Support
9. Formalise arrangements to fund eradication of new incursions	Support and strengthen
10. Expedite action on freshwater pests.	Support and strengthen
11. Establish regional pest coordinators	Support and strengthen
12. Promote share responsibility across community, industry and government	Support
13. Community education re freshwater pests	Support
14. Promotion of vocational training	Support
15. Regulations for pest animals and mandatory measures	Support
16. Declare feral deer a pest animal	Strongly support, and strengthen
17. Declare feral cats a pest animals	Strongly support
18. Retain schedule 2 provision for wild dogs/dingos	Support and strengthen
19. Support biological control for carp	Support
20. Reduce impacts of feral horses	Requires significant strengthening
21. Manage Indian myna birds	Support, and expand
22. Involve recreational hunting in regional pest management plans	Review this recommendation
23. Facilitate use of recreational hunting on private land	Query relevance of this recommendation
24. Facilitate markets for feral animals	Oppose
25. Use kangaroo carcasses for baiting	No view
26. Expand research capabilities	Support all, and strengthen R26(i) and of R26(iii)
27. Standardise data collection	Support
28. Support aquatic pest research and development	Support
29. Formalise arrangements for funding new incursions	Support and strengthen
30. Provide increased funding streams for pest animal management	Support, and strengthen

Specific comments in relation to the draft report's text and recommendations

1 Background of pest animal management

1.1 Scope of the review

We make no particular comment on this subsection

1.2 Guiding principles and pest definition

We support a prioritisation approach that focuses on prevention and eradication.

We also support a cross-tenure regional approach and efforts to build capacity through education and targeted community engagement, along with regulation and utilisation of the full range of policy tools.

We support a risk-based approach to pest animal management.

We urge that three further guiding principles be described in the final report:

- An inter-generational equity principle, referring to the inequity of avoidable failures in pest management by one generation impacting on subsequent generations;
- The precautionary principle (see the Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) s.3A(b) and the NSW Protection of the Environment Administration Act 1991 s. 6(2)(a)) which is especially relevant to the early stages of the invasion curve), and, similarly;
- A prevention principle, that succinctly declares that a preventative approach is central to all successful long term pest management policy.

1.3 Framework for pest management in NSW

See our comments on governance (section 3), below.

2 Pest animals, impacts and risk

2.1 How it began

For this subsection we note that once a pest is established, it is very rarely if ever possible to eradicate it and so its impacts will occur in perpetuity. Therefore the time to most effectively influence a pest's impacts is prior to or in the early stages of invasion. We have learnt that lesson the hard way, and it should be brought into sharp relief in the final report.

2.2 Managing the problem

We strongly agree that ‘actions do not always reflect best available knowledge’.

It should also be noted that we have been poor at preventing the establishment of new invasive species in NSW and poor at understanding the consequences before these pests were deliberately or accidentally introduced.

It is also worth noting that the significance of the environmental impact of pests has only recently been well understood. For example, the Action Plan for Australian Mammals 2012¹ was one of the first comprehensive efforts to understand the significance of the impact of feral cats on the future survival of native mammals.

2.3 Impact of pest animals in NSW today

Under 2.3.1 economic impacts, it should be noted that the difficulty in determining the economic costs of the impacts on the environment largely renders these costs invisible, if relying on a cost-benefit approach to determining pest management priorities. It is crucial therefore that a broader risk-based approach to prioritisation be taken.

Under 2.3.3 environmental impacts, the impacts of feral cats should be mentioned, given the significance of their impact on small mammals and birds.

3 The value of strengthened governance and planning

We urge that a new section be added under governance in the final report, relating to the national leadership role that the State can play on biosecurity issues.

NSW should play a strong leadership role in national policy on pest animal and biosecurity management. National biosecurity policy is dependent on a cooperative approach between governments, largely guided by the Intergovernmental Agreement on Biosecurity (currently under review). NSW should exert its influence to achieve much needed reforms, for example by:

- Advocating acceptance of all of the recommendations to the 2015 Senate Inquiry into environmental biosecurity,
- Supporting the proposal to establish Environment Health Australia²,
- Improving the National Environmental Biosecurity Response Agreement to reduce the barriers to triggering a response,
- Improving transparency and involvement of the environmental sector in biosecurity decision-making,
- Closing off pathways for high risk environmental invasive species.
- Develop and implement a national plan to reduce the biosecurity risks of both legal and illegal keeping of exotic fish, birds, mammals, reptiles and amphibians, taking a national approach to many of the issues described in the NRC recommendations.
- Advocating strong national and multi-lateral funding commitments for biosecurity.

The state’s leadership in these areas would not only benefit NSW but all of Australia.

¹ Woinarski *et al.* (2012)

² <http://invasives.org.au/publications/keeping-nature-safe/>

3.1 State planning and governance to set the agenda

We strongly support Recommendation 1 (i–viii) with the caveat that reduction of “red tape” may be taken as a pejorative reference to all regulation, whereas strong regulation is of central importance in the policy mix to address pest animal management. We therefore strongly prefer that the phrase “red tape” (and similar “loaded” terms such as “regulatory burden” not be used in the final report. Instead more matter-of-fact and descriptive language can be used, such as “ensuring that any barriers, such as perverse regulatory provisions that inadvertently increase the risk of impacts from pest animals, are identified and removed”.

We support Recommendation 2 (i–v) with the following comments:

We support the first sentence of recommendation 2 (ii), although the suggestion about including an aquatic representative in the second sentence of R2(ii) seems odd in that it specifies one type of representative’s inclusion without reference to other skills and expertise that may be relevant. We urge that a fuller discussion be included in the final report with more comprehensive recommendations as to the skills, experience and interests needed and any institutional matters relevant to ensuring a strong BAC (we point for example to the more comprehensive recommendations around state level committees in section 3.2 of the commission’s 2014 review of weed management).

We also urge establishment of a State-level pest animal advisory committee linked to the Biosecurity Advisory Committee (BAC) and replacing the existing pest animal council as suggested in R2(v). The new advisory committee should ideally have a statutory basis and its functions should be to review and advise on pest management activities, identify gaps and opportunities, respond early to future risks identified during foresighting, and improve stakeholder engagement and cooperation.

We support Recommendation 3 (i – iii) with the following provisos:

Regarding Recommendation 3 (i), please specify that each regional pest animal management committee must include at least 1/3 of members who have expertise in environmental management and biodiversity conservation.

Regarding Recommendation 3 (ii), We note that the Local Land Services Act 2013 ascribes responsibility for natural resource management (NRM) to LLS Boards, and defines NRM as including native vegetation and biodiversity. We also note that under the act the Minister may provide criteria for appointment of Members of LLS Boards through regulations under the act. The current regulations (2014) do provide that Board members must possess knowledge or skills in “natural resource management and biodiversity conservation” (s. 90 (g)), but this is among nine other skill sets that the Minister must choose between to ensure that “one or more” of the skills are present on each Board. So there is no certainty that environmental expertise will be present. Indeed, as many of the skill sets described in the regulations are multi-barrelled, and as even s. 90 (g) may see a person with a skill emphasis in NRM rather than biodiversity appointed, there is no real requirement that any environmental expertise be included on the committee.

We therefore urge that the commission include in the final report a recommendation that the LLS Act be amended to prescribe that at least one third of members of each LLS Board be Members appointed for their knowledge or expertise in biodiversity conservation, ecological science and environmental biosecurity. Failing this, this provision should be made in the regulations under the act.

We support Recommendations 3 (iv-viii). While we support the use of an “adaptive landscape scale approach” (p. 39) we urge that the final report take care to note the interactions between species and their ecosystems and between the stocks and flows of nature. The report should caution that adopting an adaptive landscape scale approach does not mean that urgent precautionary measures will not be taken to protect the environment from immediate pest animal impacts (i.e adaptive management may not be used to push environmental outcomes into the distant future).

Also, landscape-scale pest animal management should not be taken as negating the need for actions aimed at reducing impacts on one particular site, or species of native plant or animal at times. Species need landscape scale ecosystems in which pest animal impacts are well managed, just as landscape scale ecosystems need each of their component species to be retained in sustainable and functional numbers.

Provided our other comments here are taken into account, we support the suggestion that regional plans become the minimum requirement for people in a region to meet their general biosecurity duty. We add the suggestion that a system of rewards, facilitation and penalties be devised around this requirement, with penalties applying to those whose practices fall well below the duty, facilitation and education applying to the majority of people whose practices meet the duty, and rewards being directed at those whose practices place them as leaders in pest animal management- delivering outcomes well above the expected regional standard. We urge that a system including rewards be described in the final report. As the draft report stands, (see diagram p. 41) the duty seems linked only to penalties, not so much to education, facilitation and support, and certainly (in the draft report) not to any concomitant system of rewards aimed at shifting the envelope of practice in a region towards a higher standard.

3.2 Regional planning and governance guides on-ground management

We support the development of regional pest animal management committees, regional pest animal management coordinators, and the regional alignment of local program delivery.

We support Recommendation 4(i). On a broader point we note the impacts of salmonid fish on the conservation values of freshwater ecosystems. We also note the potential tensions, conflicts or perverse outcomes that may arise from the roles and responsibilities of government departments or agencies and their staff, when attempting to concurrently maintain exotic fish stocks in native waterways and to reduce or eliminate the impacts of exotic vertebrate pests on native freshwater biodiversity. This is a matter similar in nature to management of deer both as a game animal and as a pest. From an environmental point of view the impacts of exotic salmonid fish on the State’s biodiversity and ecosystems should be reduced to a minimum. Governance arrangements most suited to driving strong protection of freshwater ecosystems from invasive exotic fish (for example through identification of areas where exotic fish should be excluded on an environmental risk-basis) should be outlined in the final report.

4 Better risk management

4.1 New and future risks

See our comments on foresighting under section 8.2 and on freshwater pests under section 4.6.

4.2 Prioritisation and risk assessment

We support evidence-based risk assessment as the foundation for pest management, and we emphasise the central importance of science in this regard. Risk assessments under the new Act should be scientifically robust, precautionary, and must be applied comprehensively and systematically. Adequate environmental and ecological expertise must be employed in making assessments of environmental biosecurity risks.

The systematic risk assessment of non-indigenous organisms must cover both taxa already introduced to NSW and those taxa proposed to be introduced to NSW from time to time. Risk assessment should apply also to new variants or subspecies of already introduced organisms, to prevent the introduction of more invasive cultivars or hybrids and to limit the potential for combination with existing varieties to increase biosecurity risk.

Risk assessments will help to identify the most appropriate interventions for prevention, eradication, containment and management. Consistent with a cost-effective focus on prevention, a very low threshold of risk should be applied in identifying environmental risks, and only organisms assessed as very low risk should be permitted to be introduced into NSW (or into the wild if already held in captivity in the state). Higher levels of risk may be appropriate to trigger requirements for control of invasive species already established in the wild, with priority for resources accorded to those with higher levels of risk. Statutory provision for a rigorous and comprehensive risk assessment process helps to ensure that barriers to action on more contentious aspects of biosecurity (e.g. deer management, cat management) are minimised and seen in the proper context.

Environmental biosecurity risk assessments relating to pest animal management should be made or endorsed by an independent expertise-based committee that includes sufficient independent people with expertise in environmental biosecurity and ecological science, and through a transparent process. This committee should be bound to a rigorous science-based and precautionary approach, and should make the final decision about the degree of risk that a taxon poses (subsequent decisions about any action to be taken on the basis of this independently-rated risk would appropriately be made by the Minister or their delegate, and any action taken with Ministerial discretion that is not in accordance with the risk assessment should be strongly discouraged, publically reported along with a justification for it, and open to merits review).

Provision should be made for the public to make proposals as to taxa warranting assessment and as to the level of risk that might be accorded to taxa (including through public comment on on-line publication of draft risk assessments and subsequent decisions).

4.3 Assessing the risk of new incursions

We support recommendation 5 (i-ii) but urge that part ii be strengthened to reflect a properly precautionary approach to biosecurity, *by replacing the words “extreme threat” with the words “anything other than a very low threat”*. Consistent application of pest animal policy based on risk is crucially important and should be strongly emphasised in the final report with a view to proscription of the deliberate spread of species with other than a very low environmental risk assessment consistent with Australia’s ALOP.

Barbary doves are on the list of approved birds for NSW, but there is every prospect of them forming feral populations if birds escape or are freed. Another approved bird in NSW is the laughing dove, despite the existence of a feral population occupying a large area of South-western Australia. Both species pose a risk for NSW. We urge that the final report include a recommendation for investigation of the status of Barbary and Laughing Doves both in and out of captivity in NSW to see if a policy or program is warranted to reduce the risk of feral populations forming or increasing. These exotic

species are already breeding in the wild in other parts of Australia. Recommendations should include measures to reduce the risk of inadvertently prompting deliberate release of birds into the wild.

We again emphasise the extreme risk to the state's environment from Indian ringneck parrots, and refer to our comments under section 6, below, where we suggest specific recommendations be made about regulating this species. Regulation of Indian ring neck parrots should be coupled with a strategic government project to remove any escaped animals or wild populations (on the basis of prevention and early intervention being highly cost-effective) and to effectively manage the risk of further release of captive birds as regulatory measures are set in place. We urge that specific recommendations be made by the commission around this species.

4.4 Managing incursions and preventing infestations

The last sentence in Box 4.4 regarding Red-eared slider turtles describes a grave failing of policy and action on a known extremely invasive pest animal. We refer the commission again to the discussion on this species in our initial submission to this inquiry and our recommendation that government:

“Develop a red-eared slider policy to ensure there is no further spread, to review the prospects of eradication and provide more public information about the threats they pose”

We urge the commission to make specific recommendations in its final report on management of specific pest animal species posing a real and present danger to the state's natural environment. The commission's more general recommendations provide many good directions that can help to reduce the incidence and improve the management of pest animals in future, but recommendations should be specified for the ideal management of particular species already present either in the wild or captivity in NSW that are known to pose high or even extreme risks to the environment. This inquiry is a precious opportunity to elicit and place on public record approaches to management of such species that can guide relevant management programs.

We urge that the final report contain discussion and recommended action about the threat to Pacific Black Ducks through hybridization with introduced Mallard. Hybridization with Mallard is threatening the extinction of New Zealand's Grey Duck, and the Pacific Black Duck here could suffer a similar fate. Consideration should be given to the potential for eradication of Mallard from NSW, or, should that be assessed as unviable, local eradication and containment should be recommended along with data collection and analysis to inform such work. In particular, eradication of Mallard from Lord Howe Island should be examined as a priority.³

4.5 Institutional complexity a barrier to effectiveness

We support Recommendation 6 (i) and urge that the suggestion to undertake “...periodic testing and evaluation of the rapid response capacity [of agencies]...” be translated into a recommendation in the final report.

A further point around institutional complexity is the sluggish intergovernmental arrangements for decision making about addressing and funding incursions. The final report must refer to this issue and should recommend that NSW take an active role in advocacy for intergovernmental decision-making arrangements that remove dysfunctional veto powers and other barriers to prompt action on incursions.

³ Guay, Taysom, Robinson & Tracey (2014)

We urge also that the commission suggest that NSW take a forward-looking approach to the State's own decisions regarding provision of assistance to neighbour states where bilateral eradication and containment efforts may be cost-effective in preventing incursions in NSW.

We support recommendation 7(i) that timely resources be made available to address new incursions.

We support recommendation 8(i) to ensure that management is informed by the best available information.

We support recommendation 9(i) and urge that it be strengthened in the following way:

The NSW Government should:

- i. clarify and formalise the arrangements for accessing NSW government agency funding for eradicating new incursions, ***making particular reference to how environmental impacts are to be taken into account in decision making.***

4.6 Preventing new incursions of freshwater pests

We urge that Recommendation 10(i) be strengthened and expanded upon in the final report. The intergovernmental processes around the pest animal issues from ornamental fish need to be much more strongly supported- with NSW leading that support. The legal trade in species with high to extreme pest animal risk must be more rapidly curtailed and strong preventative measures taken on a national, state and catchment basis- with cultural and behavioural change amongst collectors an urgent priority.

We support Recommendation 10(ii) but urge it be strengthened by an *emphatic* recommendation to list those who sell potential aquatic pests as biosecurity entities (that is exotic aquatic species having other than a very low risk of becoming harmful invasive species).

We also urge a further recommendation that a regulation be introduced requiring that shops selling aquarium and pond fish display a sign warning against disposal of fish, snails and plants in waterways and suggesting safe alternatives.

We support recommendation 10(iii) about using environmental flows to the advantage of native freshwater species over introduced species.

We urge also that discussion and recommendations be included in the final report on containment of carp. Carp cause widespread degradation of wetlands, aquatic vegetation, water quality and waterbird habitat. We are not aware of any coordinated program to ensure that carp-free rivers remain so. Recommendations around the identification, declaration, management and enforcement of carp-free wetlands, waterways and reaches would be very welcome.

We also urge that a recommendation be made for building a barrier according to the guidelines of Knight (2010) to prevent redfin perch colonising the Kedumba River and harming endangered Macquarie perch.

5 People are fundamental for successful pest management

5.1 Coordination as a driver of local success

We support Recommendation 11 (i-ii), and urge that a further sub-recommendation be added along the following lines:

iii ensure adequate environmental biosecurity skills and knowledge are secured through the recruitment and training of regional pest management coordinators

5.2 Enabling practice change

We support Recommendation 12 (i).

5.3 People and freshwater pest management

We support Recommendation 13(i, ii).

We support Recommendation 14(i, ii) and urge that the central importance of training in *environmental* biosecurity be noted in the final report.

6 Recommended changes to legislation and regulation

We urge introduction of a phase-out of Indian ringneck parrots, allowing pet owners to keep the ring-necks they have, but not to breed or replace them, leading to a prohibition on this species when no captive birds remain

6.1 Declaration of pests in NSW

We support Recommendation 15(i) and urge that the species that are specifically referred to in our submission to the discussion paper for this inquiry be included as declared pest animal species and their release into the wild prohibited.

We agree that it is difficult to see how the general biosecurity duty is going to be as effective as a pest control order in simply explaining landholder obligations. Without mandatory obligations on landholders in the short term, compliance will become difficult. Over time it may be possible to rely more heavily on the general biosecurity duty, but only after a period of awareness-raising and education.

The growing goat industry poses the threat of further land degradation resulting from increasing numbers of escaped or abandoned goats supplementing existing feral goat populations or creating new ones. We urge a recommendation be included in the final report that a policy be developed by Government to ensure adequate regulation and management of the goat industry to avoid this threat.

In line with our comments under sections 4.2 and 4.3, we urge that classifications under the Non-indigenous Animals Regulation 2012 in Schedule 1 be revised to align with the risk assessments conducted for the Vertebrate Pests Committee

6.2 Management of deer in NSW must change

We strongly support Recommendation 16(i, ii) “Manage deer as a pest animal”. We urge that the recommendation be given strong emphasis in the final report. We urge also that further related recommendations be included in the final report along the following lines:

- a. remove any limitations on deer harvest so that they can be more easily controlled
- b. implement a statewide containment program for deer.
- c. Review regulations for deer farming to reduce the probability of escapes
- d. Develop and promote a better deer control toolkit incorporating a wider range of control techniques – including baits (under appropriate protocols), new delivery agents and the use of aerial shooting to ensure effective control is achievable.

6.3 Reducing the risks from cats

We strongly support Recommendations 17 (i-iv), (v), and (vi,vii) “Manage cats as a pest animal”.

We welcome these new strategies to help reduce the impacts of domestic cats in peri-urban areas such as mandatory de-sexing, the provision of cat confinement areas and targeted education. We also broadly support the measures around feral cats. We urge caution on one element proposed by the Commonwealth: The Commonwealth policy of killing 20 million feral cats is not a practical outcome in itself as it is not targeted and tied to any response of native species. We urge the NSW Government to ensure that measures around feral cat control are outcomes focussed and evidence-based. Linking feral cat control policies and measures to the Federal feral cat threat abatement plan and a strengthened and aligned Invasive Species Plan is wise.

6.4 Wild dogs – Schedule 2 lands

We support the inclusion of Schedule 2 lands under the NSW *Biodiversity Act 2015* and welcome the commission’s recognition of the importance of dingo conservation. To this end we urge the NRC to recommend in the final report that reserves in western NSW, such as Sturt National Park, be listed under Schedule 2. At present no reserves in the far west are listed under Schedule 2, and there is therefore no current requirement for dingo conservation in the region.

We draw attention here to the large proportion of government pest animal management funding directed towards wild dog control (p. 110 of the draft report) and we urge that government expenditure on wild dog control be reviewed in order to ensure that such expenditure aligns with the risk assessment and impacts of wild dogs in comparison to other pest animals, and the relative cost-effectiveness of delivering public good outcomes through wild dog control versus through control of the highest priority species following thorough risk assessments. Given the scarcity of funds for public-interest feral animal control, wild dog and dingo control should be increasingly funded on a beneficiary-pays basis.

We note the reference later in the report (top of p. 111) to the apparent reduction in wild dog numbers on the NSW side of the barrier fence compared to the SA side, and we urge that consideration be given in the final report to a recommendation that studies of the comparative abundance and status of small native mammals be conducted to assess the biodiversity effects of wild dog control in NSW.

See also our comments under section 9.2 regarding funding priorities.

7 Improved management

Both sound management and strategic governance require SMART goals. The commission is urged to recommend the state commit to a target of achieving a net reduction in the environmental impacts of invasive species within five years, and to conducting the necessary baseline assessment of impacts, methods and funding required, and to producing a strong Invasive Species Plan aligned with achieving the target. This strategic and outcomes-focused approach should also align with the state biodiversity strategy.

7.1 Biocontrol for carp

We support Recommendation 19 (i-iv) describing measures to including biocontrol for managing carp (p. 86).

7.2 Valuing science and heritage – feral horses

We note the recent release of the Draft Wild Horse Management plan for Kosciusko National Park, and we urge that Recommendation 20(i-iii) be reviewed in light of its release. We feel that the commission's recommendations in the draft report defer too heavily to the heritage value of feral horses and give insufficient emphasis to the environmental damage that they cause and the subsequent diminution of the State's environmental heritage.

We strongly support the treatment of feral horses as a pest species and support strong measures to reduce to a minimum their impacts on the natural environment of NSW.

We also very strongly urge, in light of the commission's reference (p. 91) to the need to determine appropriate feral horse management methodology, that aerial shooting be discussed and recommended in the final report as one effective means of control that should be employed, along with other means, in relevant situations. Aerial shooting will be one particularly important method in rugged and remote terrain, as a control method that can enable strategic control targets to be met and environmental outcomes to be achieved. Without the use of aerial shooting it is difficult to believe that it is possible to achieve the ten year and twenty year targets.

7.3 Greater consistency in managing introduced birds in NSW

Regarding Common Mynahs, Starlings and other widespread introduced pest bird species, we appreciate the challenges in control of these species' impacts. We support the recommended role for government in prompting a more consistent, strategic and risk-based approach to managing urban and peri-urban pest animals (Recommendation 21(i)). We urge that the final report give greater guidance around development of strategic targets and methods of achieving such targets in management of introduced pest birds (though we again stress the importance of focussing pest management effort and expenditure on prevention and early intervention).

We note the suggestion that cost-effective techniques to manage pest birds should include "planting local native trees and shrubs to make the environment less attractive to Indian Mynahs and encourage native species" (p. 94). We support the underlying notion of applying environmental or ecological means of favouring indigenous species over exotic species, we caution that planting of native trees and shrubs species has often favoured more showy flowering plants thus favouring a preponderance of more aggressive nectar-feeding native birds at the expense of less aggressive birds. The resulting

ecological implications can be complex. We therefore recommend that the final report refer to this matter and point to some principles to guide the use of plantings in managing exotic bird species.

We note the description of insufficient data for managing pest birds (p. 94) and urge that discussion with BirdLife Australia be undertaken in developing a recommendation to address this in the final report. BirdLife manage a large database of bird records and can provide insights into the means of addressing data gaps on pest birds.

7.4 Recreational hunting as a management tool

Despite the commission's discussion of recreational hunting revealing various misgivings about the role and effectiveness of it in pest control, the Recommendation (22(i)) appears to encourage the involvement of hunters and hunting groups in pest control. This appears to be illogical. Even were some outcomes of closely managed, supervised and monitored trials to show some potential for recreational hunting as supplementary pest control method (when coupled with agencies' integrated pest control programs), the scaling-up of any such outcomes through unsupervised and ad-hoc recreational pursuits is highly unlikely.

We urge that Recommendation 22(i) be reviewed and replaced in the final report with a recommendation that recreational hunting's effectiveness in delivering actual measureable and strategic outcomes through pest control be validated prior to its widespread use in pest control programs. Such evaluation could be conducted in an adaptive way, but only if part of transparent and scientifically valid set of trials of hunting's effectiveness, conducted in strictly contained geographical areas and under strict guidelines aimed at determining effectiveness as a pest control tool.

We note the tacit suggestion in the draft report's introduction (p.2) that Government has a role in "encouraging" recreational hunting. We do not feel that that is a proper and relevant suggestion in this report. Rather, we feel that Government's proper and relevant role (insofar as this report is concerned) is to rigorously examine recreational hunting as a potential tool for managing pest animals in the public interest, and to only promote it if and when, and under circumstances in which it can deliver public good pest control outcomes competing cost effectively with other pest control measures.

We welcome the commission's pointing to the ineffectiveness of bounties as a pest control method and urge that bounties be dismissed as a tool in the final report.

We note the discussion (pp. 96-97) of regulation of hunting on private land, and associated Recommendation (R. 23(i,ii)). We urge that the relevance of such discussion to a report on pest animal management be spelled out in the final report if such discussion is to be included. We would be extremely wary of any suggested public spending on pest control on private lands through recreational hunting. To the extent that recreational hunting may be engaged in on private land through private or voluntary decisions, it should ideally be linked to regional pest management plans (to the extent that it may actually contribute to strategic outcomes).

7.5 Market mechanisms - wild boar and deer management

The draft report implies that commercial markets for wild boar and deer meat can contribute strategic outcomes through effective pest animal control. The discussion on page 97 gives no justification for this. We urge that the final report apply much greater rigour to this discussion, including taking a very cautious approach to the development of markets that may have perverse outcomes through encouraging maintenance of populations of feral animals having market value.

Throughout the world, wherever a commercial market is created for an invasive species, those commercial interests tend to act to *limit the control* of that invasive species, not to limit its impacts. For that reason we oppose Recommendation 24(i).

7.6 Non-commercial use of kangaroo meat for baits

We have not developed a position on this matter and express no view on it. .

7.7 Conservation and pest management collaboration

We appreciate the potential merit of manipulating predator-prey relationships and other aspects of ecology in addressing the ecological impacts of invasive species.

As with other tools, the application of “rewilding”-type techniques must be based on evidence, or in the absence of sufficient knowledge, must be introduced as rigorous experimental pilots under carefully controlled circumstances and in limited geographic areas, until the likely complex outcomes of such approaches can be verified prior to their wider adaptive application.

8 Improved knowledge base

8.1 Long-term research capacity

We support Recommendation 26(ii), and urge the strengthening of Recommendation 26(i) to read:

Lead advocacy for the establishment of a *national research centre for prevention of environmentally invasive species*

This would focus on the cost-effective prevention end of the invasion curve, and on management of invasive species that have environmental impacts.

We urge the funding of social research into the behaviours of those who deliberately or unwittingly spread pests, to guide policy responses.

8.2 Setting effective research priorities

When managing pests, prevention is far better than cure, and early intervention is far more cost effective than managing pests that have become abundant. We support the development of foresighting capacity to anticipate new and emerging pest problems, including through the national research centre we refer to under 8.1, above. We urge that NSW develop its own foresighting capacity to complement any that may be set in place at national level, and that recommendation 26(iii) be strengthened to recommend that foresighting capacity be established at *both* national and state level.

The 2009 Hawke review of the EPBC Act identified the need to focus on future threats and recommended the establishment of a federal foresighting unit to identify potential and future threats and set in place preventative strategies⁴. The establishment of a NSW foresighting capability would help to address this gap at the national level and provide specific advice relevant to NSW.

⁴ Recommendations 23 (2) and (3) in Hawke (2010)

A foresighting unit could monitor new trends in aquaculture and animal husbandry, and newly established pests in other states. Examples of what should be monitored include: online pet stores; hunting magazines that discuss new hunting opportunities; the goat industry; interstate pest incursions and establishments such as that of the smooth newt; the aquarium industry; changing public expectations about animal welfare; climate change and its impacts on pests and production.

A foresighting unit would achieve more efficiency if it had a focus on all pests (weeds, invertebrates and marine species as well as feral animals). We urge that a recommendation be included Develop a foresighting unit to monitor pest trends and better predict future problems.

We support Recommendation 26(iv)

8.3 Sharing research

We support Recommendation 26(v) and urge that the commission recommend that NSW DPI 2009 website maps of feral animal distributions be updated.

8.4 Pest mapping and citizen science

We support Recommendation 26(vi, vii).

8.5 Standardising data protocols

We support Recommendation 27(i-iv).

8.6 Research and development in freshwater pest management

We support Recommendation 28(i, ii).

9 Targeted funding

9.1 Current investment in pest management

We commend the NRC for accurately determining the breakdown of expenditure on pest animal management, and for specifically stating that the perception that the NPWS does not 'pull its weight' is false.

9.2 Current investment weightings and suggested future priorities

We again stress the importance of basing investment in pest animal management on transparent risk assessments and cost-effectiveness analyses enabling the public to have full confidence that resources are being allocated to the management methods, areas and species that will deliver the greatest public good outcomes through pest animal management. Under such a system we believe that it is likely that government investment in wild dog control would be greatly reduced, freeing up resources to apply to higher environmental risk pest species.

We therefore support Recommendation 29(i,ii), and we urge that part ii of it be strengthened by making reference to alternative sources of emergency funding such as are applied in the case of natural disasters like major bushfires and floods. New incursions of high risk invasive species warrant access to any and all sources of control funding.

9.3 Public funding drives widespread public benefits

We support reform of funding processes so that long-term funding of pest control is achieved, and public funding achieves public good rather than private good.

We therefore urge that a caveat be added to section 9.3 in the final report, that where emergency responses are involved the sequence of logic around who should fund a response should not be allowed to delay that response, but that cost recovery should be debated after the fact. Prevention is the most important thing here.

9.4 Recommendations to increase funding streams

We support Recommendation 30(i) regarding reducing the minimum rateable property size.

We support Recommendation 30(ii) about provision of funding for regional pest management coordinators.

We support Recommendation 30(iii) about the maintenance of an accessible source of funding to stop new incursions and the creation of rapid response funds, and Recommendation 30(iv) about providing low interest loans for pest management purposes.

We urge the commission to give clear advice and recommendations about the overall provision of funding that would be required to achieve effective pest animal management on both private public lands in the state, the gap between that funding and current expenditure, and ways to bridge the gap.

9.5 Funding freshwater pest management

This last section of the report ends somewhat abruptly, and without delivering relevant recommendations. We urge that the final report provide authoritative recommendations around the quantum and appropriate sources of funding required for adequate management of freshwater pests (the discussion on pp. 111-112 of the report is relevant here).

Matters not covered in the draft report

Pest animals on islands

We support eradication of pest animals from near-shore and offshore islands as a very effective pest control measure. We urge that NSW advocate the establishment of a national island biosecurity initiative to prevent new invasions of offshore islands such as Lord Howe Island.

Once island eradications have been successfully effected their benefits should be secured by declaring biosecurity zones, so that the efforts of eradication are effective and not undermined by new incursions.

For example the declaration of a biosecurity zone around Lord Howe Island would help to maintain the benefits of the successful invasive species eradication work to date.

Acknowledging animal welfare concerns

The NSW DPI should acknowledge growing public concerns about animal welfare by becoming more pro-active in its operations and the messaging it undertakes. Welfare is an issue that will only grow in importance. Research into the most humane methods of pest control should be funded. There is a need to explain that killing a smaller number of animals today can be far kinder than the alternatives: feral herbivores starving because they have run out of food, or very large culls becoming necessary when populations become very damaging, or appalling impacts on native species. It should be explained that feral animals cause suffering and death when they prey on native animals, or consume pastures and other plants that native mammals would otherwise eat. Australia is fortunate in having the RSPCA playing a constructive role in this area by trying to balance welfare with the need to control some species.

Conclusion

The comments in this submission are offered as refinements and additions to the commission's excellent draft report. We look forward to the final report and its recommendations and to supporting a strong Government response towards more effective pest animal management in New South Wales. We are confident that this will lead to greatly improved long-term pest animal management outcomes in NSW, and position the State as a leader in this area of policy at national level.

Thank you for the opportunity to make this submission. Please contact Andrew Cox at andrewcox@invasives.org.au if you would like to discuss this submission.

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