



Submission on the Draft Mid-term Performance Review of the Forest Management Plan 2014-2023

WA Forest Alliance
October 2018

Introduction

The WA Forest Alliance (WAFA) appreciates the opportunity to comment on the Draft Mid-term Performance Review of the Forest Management Plan 2014-2023 (FMP) and submits the following recommendations and comments.

WAFA has considerable experience in forest conservation and timber industry matters. We make our comments in good faith and in the context of nearly 30 years as an organisation working to conserve forests, their wildlife and biodiversity. WAFA represents a significant number of conservation groups in WA, as well as the broader community who wants to see improved protection and management of the South West's unique and irreplaceable forest ecosystems.

We trust that the Conservation and Parks Commission will find our comments and recommendations to be useful.

Recommendations

1. It is recommended that the repeatability and reliability of procedures for identifying and protecting old-growth be improved to:
 - a. Map old-growth forests at the 0.5ha grid cell level, in line with the protection of other informal reserves such as Diverse Ecotype Zones and stream reserves,
 - b. Remove the presence of dieback as a disqualifying condition for old-growth jarrah,
 - c. Identify lightly, selectively logged forests that retain old-growth structure and functions, including 'two-tiered' karri forests and jarrah

- forests lightly logged prior to the introduction of the Bradshaw prescription in the mid 1980s, as old-growth forest, and
- d. Re-establish the Conservation and Parks Commission's role in carrying out assessments of community old-growth nominations.
 2. It is recommended that there be no logging or clearing of mature forests in areas where rainfall is below, or projected to soon be below, the required annual amount required for the maintenance of forest ecosystems.
 3. It is recommended that a process for ensuring the timely gazettal of proposed National Parks and other conservation reserve categories as listed in the current and previous FMPs be established and receive sufficient funding for full implementation to occur by the end of the term of the current FMP.
 4. It is recommended that a comprehensive independent review of regionally significant vegetation outside of the formal conservation reserve system be conducted with a view to recommending HCV areas for inclusion in the reserve system in order to maintain and restore biodiversity, populations of threatened species and ecological communities and the healthy functioning of South West ecosystems.
 5. It is recommended that a biodiversity conservation panel be established to ensure that biodiversity monitoring and conservation are an integral part of future FMPs.
 6. It is recommended that the precautionary principle be invoked to guide management activities that affect TECs and PECs.
 7. It is recommended that consideration be given to amending the *Biodiversity Conservation Act 2016* to ensure greater protection of TECs and PECs from the incursion of development.
 8. It is recommended that the results of monitoring of TECs and PECs be included in the Biodiversity Audit II website.
 9. It is recommended that the Commission amend the management plans for Ramsar and nationally listed wetlands under its control to address the issues identified through improved monitoring methodologies.
 10. It is recommended that changes to management activities, including logging and prescribed burning be applied immediately to improve the conservation of threatened flora.
 11. It is recommended that the results of monitoring of threatened flora be included in the Biodiversity Audit II website.
 12. It is recommended that changes to management activities, including logging and prescribed burning be applied immediately to improve the conservation of threatened fauna. These changes should include the protection of high conservation value areas for threatened species, improved procedures for the identification of old-growth (see Recommendation One), retention of all nesting hollows and developing nesting hollows and the maintenance and restoration of mature forest corridors across the landscape that are managed for the protection and recovery of biodiversity.
 13. It is recommended that the results of monitoring of threatened fauna should be included in the Biodiversity Audit II website.

14. It is recommended that the draft review's reference to hollow dependent fauna being only temporary displaced, and there being no evidence of logging having long-term impacts on population viability, be corrected.
15. It is recommended that a timeframe for the implementation of Recovery Plan's recovery actions be set, and that the list of key species to be assessed be developed in consultation with recovery teams and independent ecologists and zoologists.
16. It is recommended that a full assessment of the impacts of the current prescribed burning program on biodiversity and climate change under the FMP be conducted, via an independent expert panel, over the next 12-24 months.
17. It is recommended that KPIs regarding fire be refocused to place the emphasis on biodiversity conservation.
18. It is recommended that disease management remain a high priority for adaptive management over the remainder of this and the following FMP.
19. It is recommended that the results of monitoring of weeds and pests should be included in the Biodiversity Audit II website.
20. It is recommended that surveillance cameras be routinely used to document compliance with disease risk area protocols in logging, clearing and prescribed burning operations.
21. It is recommended that the soil management guidelines be reviewed to ensure that they are effective in protecting forest soils.
22. It is recommended that KPI 9 include level of soil damage resulting from fire management in order to provide for the measurement of soil carbon and nutrient losses as well as erosion.
23. It is recommended that management activities be amended to better protect the water resources of mature forests. This should include ensuring that stream zones are protected from post-logging and prescribed fire.
24. It is recommended that no thinning program in jarrah forest be launched until we have the results of small long-term (10-year) trials in regrowth jarrah forest run by independent forest ecologists with community involvement and EPA assessment.
25. It is recommended that up-to-date climate data be incorporated into forest management planning, including by making targeted additions to the reserve system and recalculating the sustained yield.
26. It is recommended that the continued logging of both jarrah and karri in those rainfall zones that are no longer adequate, or will soon be inadequate, to support these forest types (minimum 600mm for jarrah and 1000mm for karri) be stopped and the overall sustained yield recalculated accordingly.
27. It is recommended that mature forests, which store more carbon than regrowth forests and are more resilient to the impacts of climate change, be protected from logging and clearing and the overall sustained yield be recalculated accordingly.

28. It is recommended that the lack of monitoring and failure to meet climate change and carbon KPIs should not delay management changes to protect natural carbon assets by reducing or ceasing logging activities.
29. It is recommended that the KPI to establish the carbon monitoring plots be updated to require real-time carbon monitoring and reporting using best available remote sensing and other carbon measurement technology.
30. It is recommended that new KPIs be introduced to the FMP on carbon, including:
- (i) Carbon stored in forest ecosystems within the FMP, with an associated target for the KPI, that there must be an increase in net terms over the period of the FMP, and
 - (ii) Carbon in areas where logging takes place, with an associated target of no decline in forest carbon in these areas.
31. It is recommended that the Commission initiate a process to map and protect HCV areas from mining and clearing for infrastructure and roads.
32. It is recommended that there be an update to the measure of representation of ecosystems in the reserve system.
33. It is recommended that the Department refocus its activities so that its priority in all areas is on biodiversity conservation rather than extraction.
34. It is recommended that the Commission, Department and FPC seek funding and support to increase the plantation and farm forestry estates.
35. It is recommended that the Commission recommend against the proposed Integrated Timber Processing Yard and all other increases in the sale of low-value logs and specifically rule out the use of native forest logs for bioenergy.
36. It is recommended that the carbon pollution resulting from post-logging burns, as well as the depletion of soil carbon and nutrients and burning of habitat trees and informal reserves should be quantified and measured as a part of KPI 18.
37. It is recommended that Noongar representatives and representative groups should be consulted on the preferred method for developing genuine joint-management and Noongar-led management of the forests.
38. The socio-economic losses that result from native forest logging, quantified in terms of carbon values and sustainable forest based enterprises that lose access to forests after and during logging, should be given full consideration in this section of the review.
39. It is recommended that FPC annual reports include in both the profit / loss column for native forest logging and in the projected cash flows on which the forests are valued, all incurred costs including an appropriate share of the policy and industry development costs to provide a more realistic assessment of its profitability.
40. It is recommended that additions be made to the reserve system to provide for increasing visitation and that sites be designed and managed to promote protection and appreciation of the forests, wildlife and biodiversity.

41. It is recommended that the impacts of logging and burning on the tourism industry be quantified and measured as a part of the measurement of KPI 22.

42. It is recommended that mechanisms for reducing the impacts of roads on forest health, hydrology and biodiversity be investigated and that KPI 23 include measures for assessing the reduction of associated impacts.

43. It is recommended that the Commission develop and maintain a long-term dataset to measure forest health that will be able to meaningfully inform the next FMP by working with independent experts and Regional Nature Conservation teams to determine the key ecological processes and keystone species that can be used as indicators of forest health within the FMP area and review the existence of current data from monitoring of these processes and species.

44. It is recommended that the Commission take carriage of the development of an integrated, properly-resourced data collection and reporting system and work towards achieving a commitment to maintain the system for monitoring, collecting, storing and reporting on these indicators in order to improve the measurement of forest health into the future.

Issue / KPI	Draft mid-term performance review status, commentary and recommendations	Details of concern	Wafa recommendations
KPI 1. Whole of Forest Condition	<p>1.1 Condition of ecosystems</p> <p><u>Target:</u> No decline in the condition of identified healthy ecosystems listed across the whole of forest.</p> <p><u>Achievement:</u> Not achieved, but criteria met in some cases. Decreased progress compared to previous period.</p> <p>Status ...vegetation density has reduced in around 12 per cent of the forested area. This change is most pronounced in the north and east of the FMP</p>	<p>1.1 The recorded reduction in vegetation density is significant and concerning. Wafa acknowledges that the cause is most likely climate change related and that the Department is limited in its capacity to mitigate the impacts of climate change on forest health and vitality. However, there are measures that the Department and the FPC are able to employ, and scientific information available that Wafa suggests the Commission, Department and FPC factor into decision making in this regard. Wafa also submits that assessments of ecosystem condition be expanded beyond vegetation density.</p> <p>Regrowth forests and transpiration rates MacFarlane <i>et al.</i> showed in 2010 that regrowth jarrah forests transpire up to 50 per cent more than old-growth jarrah forests¹. These old-growth jarrah forests include those areas that</p>	<p>1. It is recommended that the repeatability and reliability of procedures for identifying and protecting old-growth should be improved, including to:</p> <p>(i) Map old-growth forests at the 0.5ha grid cell level, in line with the protection of other informal reserves such as Diverse Ecotype Zones and stream reserves,</p> <p>(ii) Remove the presence of dieback as a disqualifying condition for old-growth jarrah,</p> <p>(iii) Identify lightly, selectively</p>

	<p>area as shown in Figure 2, in the Jarrah North East, Jarrah North West and Western Wandoo Forest and Woodland ecosystems</p> <p>Commission Recommendation That the Department further investigate the cause of decline in vegetation density and provide a report to the Commission which attributes the additional factors that may have contributed to the outcomes of lower vegetation density in the affected forest ecosystems by January 2020.</p> <p>DBCA response As climate change is considered the primary cause of the reductions in forest vegetation density, particularly in the eastern jarrah and wandoo forest and woodland ecosystems, it is considered unlikely that either management actions or authorised activities have contributed to the change in vegetation density.</p>	<p>have an old-growth structure but may not meet the Department’s definition and procedures for identifying old-growth and remain available for logging and clearing for mine-sites.</p> <p>Maintaining and developing the old-growth structure of forests, particularly in those areas where rainfall decline and temperature increases are leading to reductions in forest cover and vitality will improve their resilience to climate change as well as other causes of decline.</p> <p>The increased draw on groundwater also has a number of impacts on flora, fauna, biodiversity and the region’s water supply.</p> <p>Rainfall and land-clearing Andrich and Imberger, through the UWA Centre for Water Research showed in 2013 that 55 - 62 per cent of rainfall decline in the South West over the past 40 years can be attributed to land-clearingⁱⁱ.</p> <p>Forests, particularly mature forests, play a key role in rainfall. The loss of old forests, either through permanent land-clearing or intensive logging, which reduces canopy cover and height for multiple decades has significant detrimental impacts on rain and climate more broadly. Given the realities of climate change, all mature forests are highly valuable for rainfall, for maintaining the ground water levels, and for climate change mitigation.</p> <p>Forests and carbon storage Old forests store more carbon and have greater climate benefits than regrowth forests (Dean & Wardell-Johnson, 2010; Keith <i>et al.</i> 2015; Keith <i>et al.</i> 2014; Mackey <i>et al.</i> 2008; Ore, 2014. Roxborough <i>et al.</i> 2006; Lindenmayer & Mackey 2015).</p> <p><i>Native forests, in terms of their value as carbon storage, significantly outweigh their value as pulp and timber. When you add that to the value of biodiversity and water, it’s pretty clear what forest policy should be. (Prof David Lindenmayer. Interview by Ore, 2014)</i></p>	<p>logged forests that retain old-growth structure and functions, including ‘two-tiered’ karri forests and jarrah forests lightly logged prior to the introduction of the Bradshaw prescription in the mid 1980s as old-growth forest.</p> <p>(iv) Re-establish the Conservation and Parks Commission’s role in carrying out assessments of community old-growth nominations.</p> <p>2. It is recommended that there be no logging or clearing of mature forests in areas where rainfall is below, or projected to soon be below, the required annual amount required for the maintenance of forest ecosystems.</p>
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	<p>1.2 Reserve System</p> <p><u>Target:</u> An increase in the formal protection of</p>	<p>The Forest Products Commission has recently published articles on social media and its website claiming that native forest logging benefits climate. This is inaccurate and warrants correction.</p> <p>Response to Commission Recommendation Wafa considers the Commission’s recommendation to be appropriate. It is important that all causes of decline are fully understood. However, there is a need for a greater degree of urgency. There should be no logging or clearing of mature forests in areas where rainfall is below, or projected to soon be below, the required annual amount required for the maintenance of those ecosystems (600mm for jarrah, 1000mm for karri). The EPA found in 2010 that, ...it is most unlikely that the jarrah forest in the low and adjacent medium rainfall areas, particularly in the northern forest, can continue to contribute to the jarrah sustained yield and also be consistent with ecologically sustainable forest management (ESFM).ⁱⁱⁱ</p> <p>The EPA’s 2010 finding remains relevant and the significant decline in forest cover since then highlights the need for urgent action to protect and restore forests, particularly in the low and medium rainfall zones.</p> <p>Given the threat of serious harm, management actions to protect forest health and biodiversity should not be delayed, in keeping with the precautionary principle.</p> <p>Comment on KPI and performance measures Further indicators that measure the structure and function of ecosystems are needed. These would include soil carbon and exchanges, wildlife and flora assemblages and biodiversity. Wafa would be happy to participate in the development of the key ecosystem health indicators.</p> <p>1.2 Reserve System The lack of progress in this regard is conspicuous and concerning. Well-managed formal reserves are the best mechanism for protecting biodiversity and given the</p>	<p>3. It is recommended that a process for ensuring the timely gazettal of proposed National Parks and other conservation</p>
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	<p>regionally significant vegetation as identified within the applicable regional nature conservation plans. <u>Achievement:</u> Not achieved. Steady compared to previous period.</p> <p>Commission Recommendation That the Department continues to manage the proposed formal reserves consistent with their intended reservation purpose while pursuing opportunities to progress land category changes as proposed in the FMP</p>	<p>incredible richness of the South West’s biodiversity, and the significant threats that it faces, more needs to be done to secure and maintain a viable and functioning conservation reserve system and to conserve remaining High Conservation Value areas from threatening processes including logging and clearing. The recognition of the need to progress gazettal of proposed reserves is appropriate, but the draft review has not considered new proposals for additions to the reserve system. The mid-term review of the FMP is the appropriate time to be developing a system for reviewing the comprehensiveness, adequacy and representativeness of the reserve system with a view to making the necessary additions of HCV areas that can contribute to protection and recovery of threatened species and healthy ecosystem function.</p> <p>Regional Nature Conservation Plans The FMP review relies on the RNCPs for biodiversity performance measures and targets and the performance measure for this KPI specifically calls for those areas identified in the RNCPs to be added to the reserve system. These RNCPs call for biological surveys and additions of HCV areas to the conservation reserve system. Regional nature conservation teams are calling, through these plans, for urgent improvements to be made to biodiversity conservation in the South West and they prioritise the protection of HCV areas in their strategic plans and objectives.</p> <p>The first strategic objective (p43) for the Swan region is to: Identify areas that contain high priority vegetation types, complexes, associations, floristic communities and/or significant values as desirable for inclusion into the conservation reserve system.</p> <p>The Performance Measure for this is that: An analysis identifying the representativeness of biodiversity values in the current conservation reserve system is completed and reported.</p>	<p>reserve categories as listed in the current and previous FMP be established and receive sufficient funding for full implementation to occur by the end of the term of the current FMP.</p> <p>4. It is recommended that a comprehensive independent review of regionally significant vegetation outside of the formal conservation reserve system be conducted with a view to recommending HCV areas for inclusion in the reserve system in order to maintain and restore biodiversity, populations of threatened species and ecological communities and the healthy functioning of South West ecosystems.</p> <p>5. It is recommended that a biodiversity conservation panel be established to ensure that biodiversity monitoring and conservation are an integral part of future FMPs.</p>
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		<p>panel whose findings form the basis of mechanisms for conserving biodiversity and measuring performance should become a routine part of future FMPs. This panel's findings would be given priority over the recommendations of the silvicultural review panel in line with the ESFM principle for biodiversity conservation to be the fundamental consideration in management planning.</p>	
<p>KPI 2. Threatened ecological communities</p>	<p>Target: The target condition of TECs and PECs identified as priorities for management in the relevant regional nature conservation plans. Achievement: Not achieved, but criteria often met. Steady compared to previous period.</p> <p>Commission Recommendation That the measurement protocols for the KPI for threatened ecological communities be reviewed to clarify the methodology to be applied for the end of term performance assessment report to provide clear links to manageable significant pressures on ecological communities by January 2020.</p> <p>DBCA response The Department will further develop standardised methods for monitoring the condition of TECs and PECs, The Department will continue to monitor the condition of and threats to TECs and PECs</p>	<p>2. There has been a significant decline in the condition of threatened and priority ecological communities with just over half stable and 46% having declined. For eleven of the sixteen communities that are found to be in a declining condition, fire is considered a major contributing factor to declining vegetation cover. Wafa acknowledges that the Department is limited in its capacity to maintain the condition of these ecosystems given the impact of drought and climate change. However, delaying the implementation of management activities that could prevent serious harm to these threatened and priority ecosystems is not in keeping with the principles of ESFM upon which the FMP is based.</p> <p>Fire and other introduced impacts Given the priority of these ecosystems, all management activities, disturbance proposals and existing threats should be subject to a requirement that the healthy functioning of the ecosystem be given first consideration. The only fire introduced into the systems should be designed and managed for specific biodiversity purposes. Particular effort should be made to reduce the spread of dieback, weeds and introduced species into the systems and there should be no incursion of development into any TECs or PECs.</p> <p>Response to Commission recommendation Wafa believes that the Commission's recommendation is appropriate but submits that further recommendations are needed to confine management activities in TECs and PECs to those that can be shown to support the healthy functioning of the ecosystems.</p>	<p>6. It is recommended that the precautionary principle be invoked to guide management activities that affect TECs and PECs.</p> <p>7. It is recommended that consideration should be given to amending the <i>Biodiversity Conservation Act 2016</i> to ensure greater protection of TECs and PECs from the incursion of development.</p> <p>8. It is recommended that the results of monitoring of TECs and PECs be included in the Biodiversity Audit II website.</p>

	and will implement actions to mitigate or manage threats, where feasible.	Comment on KPIs and performance targets A standard set of measurement protocols and targets across the TECs and PECs would be beneficial, with specific information provided for ecosystems where required. Key ecosystem functions and values should be used to guide the development of these targets and protocols.	
KPI 3. Ramsar and nationally listed wetlands	<u>Target:</u> The target condition of Ramsar and nationally listed wetlands as identified in the relevant RNCs. <u>Achievement:</u> Not achieved, but criteria often met. Decreased compared to previous period. Commission Recommendation That the measurement protocols for the KPI for Ramsar and nationally listed wetlands be reviewed to clarify the methodology to be applied for the end of term performance assessment report of the FMP to provide clear links between condition targets and the pressures on prioritised Ramsar and nationally listed wetlands by January 2020.	3. A broad range of disturbances is affecting the condition of Ramsar and nationally listed wetlands, some of which are more within the Department's immediate realm of influence than others. The high conservation value of these systems warrants urgent action to mitigate impacts from abstraction, eutrophication, weeds spread and fire. Where these issues are outside of the Department's control it would be beneficial for the Department to work with its Minister's office and other agencies to achieve improved protections for the systems. Comment on Commission's recommendations Wafa recognises that the disconnect between the FMP and the RNCs has caused issues with measurement of this KPI and believes it is appropriate that the Commission has recommended a review of the measurement protocols. Wafa believes that would be beneficial to incorporate a further recommendation that provides for those pressures that are known to be impacting on the wetlands to be removed or mitigated as a matter of urgency. Focusing only on improved measuring systems can result in a process of monitoring the wetlands decline, rather than taking the necessary actions to protect the systems in a timely way.	9. It is recommended that the Commission amend the management plans for Ramsar and nationally listed wetlands under its control to address the issues identified through improved monitoring methodologies.
KPI 4. Threatened flora	<u>Target:</u> As defined in the relevant RNCs. <u>Achievement:</u> Not achieved, but criteria often met. Steady compared to previous period.	4. Data in the RNCs, as well as independent scientific data, show that logging, clearing and fire are current, avoidable threats to threatened flora in the FMP area. Importantly, the RNCs also point to major knowledge gaps. For threatened flora, in the Swan RNC for example, 22% of threatened flora was found to be declining, and for 27% the	10. It is recommended that changes to management activities, including logging and prescribed burning be applied immediately to improve the conservation of threatened flora.

	<p>What contributed to this rating? The changes in population size can be the result of a range of factors. For species that are fire respondents, such as <i>Calytrix breviseta</i> subsp. <i>breviseta</i>, population increases were because of immediate recruitment after fire. However, in other species, like <i>Synaphea stenoloba</i>, a fire ephemeral, populations declined as the time since fire increased. For some species further survey resulted in discovery of new populations and the overall population numbers increased.</p> <p>Commission Recommendation That the measurement protocols for the KPI for threatened flora be reviewed to clarify the methodology to be applied for the end of term performance assessment report of the FMP to provide clear links between condition targets and the pressures on relevant threatened flora by January 2020.</p>	<p>trend was unknown. This points to a serious and urgent need to improve funding and resourcing of the Department's science branch and to prioritise the improvement of measurement and monitoring systems. The draft review's assessment of factors that have contributed to the rating is not representative of the RNCs or other independent information. Further information regarding specific threats from logging, clearing and fire should be included in the final review document to properly cover the issues and provide for meaningful improvements to the FMP. The review's assessment of factors that have contributed to the rating suggests that flora species benefit from short intervals between fire and that that is the only major consideration. This is not evidence-based and does not contribute to a useful review process. A number of flora species require 20 years or more between fire to set seed.</p> <p>Comment on Commission recommendation There is no need to delay action on improved protection of threatened flora. Ample DBCA and independent data exists to guide management activities and alter threat mitigation processes to conserve threatened flora. Wafa acknowledges the need to improve the performance measures in the FMP, but this should not delay or prevent the implementation of specific and immediate changes to burning and logging practices or improvements in hygiene and weed management.</p>	<p>11. It is recommended that the results of monitoring of threatened flora should be included in the Biodiversity Audit II website.</p>
<p>KPI 5. Threatened fauna</p>	<p><u>Target:</u> (Change in fauna populations for species) defined in the relevant regional nature conservation plans.</p>	<p>5. Impacts of logging, clearing and burning on threatened fauna are well documented and understood and the draft review falls well short of dealing with these fundamental issues that are of great ecological and community significance.</p>	<p>12. It is recommended that changes to management activities, including logging and prescribed burning be applied immediately to improve the</p>

	<p>Achievement: Not achieved but criteria met in some cases. Decreased compared to previous period.</p> <p>What contributed to this rating? Land clearing and timber harvesting activities can cause localised impacts on fauna abundance and population stability. While land clearing will permanently remove habitat and so displace species from an area permanently, there is no evidence to suggest timber harvesting has long term impacts on population viability of temporarily displaced species such as black cockatoos and western ringtail possums (Christensen 1992, Wayne <i>et al.</i> 2000, Wayne <i>et al.</i> 2006). A drying climate and subsequently changing ecosystems also affect species populations, along with additional pressures from invasive species and disturbance activities, including fire. The Commission notes that population declines in brush-tailed phascogale, two species of dunnart, southern bush rat, western brush wallaby, Carnaby's cockatoo, and white-bellied frog were not attributed to a particular</p>	<p>The impacts of logging and burning on threatened fauna, particularly hollow-dependent birds and mammals are permanent, not temporary as the draft review claims. Hollows take a minimum of 130 years to form, and the mean age of trees with hollows suitable for cockatoos is over 200 years. Fully formed and still-forming nesting hollows are destroyed in logging and clearing operations, and by planned fire. After logging, regrowth areas are managed on an anticipated 100-year crop rotation, meaning that the forests will be logged before a new cohort of hollows is able to develop. Even if the crop rotation was longer, endangered fauna that are threatened with extinction by a scarcity of nesting habitat cannot wait 130 - 200 years for new hollows to form.</p> <p>The scarcity and on-going loss of nesting hollows is the principal driver of extinction for Baudin's Cockatoos according to</p> <p>Loss of foraging habitat is forcing Red-tailed Black Cockatoos to seek food resources in the Perth Metropolitan area where they are feeding on Cape Lilac, and other plants. Recent information from cockatoo expert Ron Johnstone indicates that Cape Lilac is having negative consequences on breeding success.</p> <p>These long-term, interacting and compounding consequences of logging, clearing and burning in the South West have been overlooked in the draft review.</p> <p>The DBCA's Biodiversity Audit data, as well as other agency science, Recovery Plans and independent scientific information shows that logging and burning are having direct impacts on a number of forest-dependent threatened species. Threats to these species have either not been properly described and addressed in this draft review, or the species have not even been mentioned. Habitat requirements and threat matrices for Numbats and Quokkas, for example, have been well described both by Departmental and independent scientists, and the Biodiversity Audit data lists logging as a major current</p>	<p>conservation of threatened fauna. These changes should include the protection of high conservation value areas for threatened species, improved procedures for the identification of old-growth (see recommendation one), retention of all nesting hollows and developing nesting hollows and the maintenance and restoration of mature forest corridors across the landscape that are managed for the protection and recovery of biodiversity.</p> <p>13. It is recommended that the results of monitoring of threatened fauna should be included in the Biodiversity Audit II website.</p> <p>14. It is recommended that the draft review's reference to hollow dependent fauna being only temporarily displaced, and there being no evidence of logging having long-term impacts on population viability be corrected.</p> <p>15. It is recommended that a timeframe for the implementation of recovery actions be set, and that the list of key species to be assessed be developed in consultation with recovery teams and independent ecologists and zoologists.</p>
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	<p>threat category or cause to assist in ascertaining whether any further specific measures may be required. In this FMP there was acknowledgement that the conservation of some fauna species may require specific measures and modifications were recommended to enhance biodiversity and other outcomes through revision of relevant documents pertaining to silviculture and to fire management. This would ensure that where practicable, local scale operations consider appropriate measures to minimise loss of legacy habitat elements (such as tree hollows and fallen, hollow logs). The information provided for the mid-term review is deficient for assessment for these particular species.</p> <p>Commission Recommendation That the condition of key fauna species in the FMP area which have recovery plans in place be reviewed by the Department to determine if the actions in the recovery plans have been implemented, and if this implementation has been effective.</p>	<p>threat to Numbats, but this has been left out of the draft review.</p> <p>Given the exemption for logging activities from the EPBC Act, State regulation is the only mechanism for protecting threatened species and biodiversity from logging and associated activities. The serious decline in population numbers and viability of threatened fauna in the forests is not given proper consideration in the draft review. This is not in keeping with ESFM principles or expectations of the community.</p> <p>The failure of this draft review to deal with threatened fauna in the FMP area is profound. The final review must include an overhaul of this section to make it accurate, thorough and prescriptive.</p> <p>Comment on Commission’s recommendation It is critical that Recovery Plans be reviewed, but there is insufficient urgency in the recommendation and a prescribed outcome is required, for example, that procedures for the implementation of all recovery actions be developed, in consultation with recovery teams, by January 2020. It is also unclear what basis would be used to determine which are the key fauna species. Numbats and Quokkas have not even been mentioned in this review and DBCA has wrongly claimed that hollow-dependent fauna including the critically endangered WRT Possum are only temporarily displaced. The list of key species should be developed in consultation with outside experts and all species with Recovery Plans should be considered in time.</p>	
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	<p>Commission Recommendation That the measurement protocols for the KPI for threatened fauna be reviewed by the Department to clarify the methodology to be applied for the end of term performance assessment report of the FMP to provide clear links between condition targets and the pressures on relevant threatened fauna by January 2020</p>		
<p>Fire management and planning</p> <p>KPI 6. Distribution of fire age</p> <p>KPI 7. Effectiveness of fire planning and management</p>	<p><u>Target:</u> Conformance to the theoretical distribution of time since fire for the whole of forest and for major LMUs. <u>Achievement:</u> Achieved for whole of forest, not achieved but criteria often met for LMUs. Steady compared to previous period.</p> <p>Commission Recommendation That the performance target used by the Department for the KPI for distribution of fire age be reviewed in consultation with the Commission prior to the next FMP.</p>	<p>6. The frequent burning of a substantial proportion of the ecosystems in the FMP area is having long-term impacts on a number of species that require longer intervals between fires, as well as having broader biodiversity and ecosystem function impacts. Broad-scale and regular burning is also causing significant volumes of carbon to be released into the atmosphere, contributing to climate change. These ecological consequences of the fire management program have been overlooked in this draft review. Departmental and independent scientists recognise the many and complex biodiversity impacts of the fire regime.</p> <p>The DBCA South West RNCP says, for example, that: Inappropriate fire regimes at a region-wide scale also continue to impact on biodiversity especially where fire is both extensive and intervals too short to allow sufficient recovery of plant regeneration capacity and specialised fauna habitat. The consequences on biodiversity of all these factors combined remain unknown.</p> <p>Major processes that threaten biodiversity include:</p>	<p>16. It is recommended that a full assessment of the impacts of the current prescribed burning program on biodiversity and climate change under the FMP be conducted, via an independent expert panel, over the next 12-24 months.</p> <p>17. It is recommended that KPIs regarding fire be refocused to place the emphasis on biodiversity conservation.</p>

		<p>inappropriate fire regimes, especially where fire intervals are too short to allow recovery of plant regeneration capacity and/or specialised fauna habitat (p8).</p> <p>KPI's regarding fire need to be refocused to ensure that biodiversity values receive adequate weighting in the development and implementation of regional fire management plans. For example, the previous practice of leaving a successful mosaic burn in place without further ignition should be restored.</p>	
<p>KPI 8. Weeds, pests or disease pathogens</p>	<p>Commission Recommendation That the Department's measurement protocols for the KPI for weeds and pests be reviewed to clarify the methodology to be applied for the end of term performance assessment report of the FMP to provide clear links between performance targets and the pressures from relevant priority weeds and pests by January 2020.</p> <p>Commission Recommendation That the Department undertakes an investigation to improve the effectiveness of road closures to reduce the impact of unauthorised road access on compromising the disease status of protectable areas.</p>	<p>The spread and increasing severity of impacts associated with weeds, pests and disease pathogens is significant. Field management and resourcing for mitigation efforts, including scientific studies is insufficient.</p> <p>Logging, clearing, roading and fire contribute to the spread of weeds, pests and pathogens and increase the forests' vulnerability to their effects.</p> <p>The combined impacts of these pressures, along with climate change are having marked impacts on flora, fauna and biodiversity.</p> <p>The Commission has acknowledged the improvements in hygiene management over time, which it says 'have clearly resulted in significantly reduced rates of spread especially in Disease Risk Areas.' This is good, however a cumulative infection rate of protectable areas of six per cent is too high.</p> <p>Greater protection of healthy, uninfested forests is necessary.</p>	<p>18. It is recommended that disease management remain a high priority for adaptive management over the remainder of this and the following FMP.</p> <p>19. It is recommended that the results of monitoring of weeds and pests be included in the Biodiversity Audit II website.</p> <p>20. It is recommended that surveillance cameras be routinely used to document compliance with disease risk area protocols in logging, clearing and prescribed burning operations.</p>

	<p>Commission Recommendation That the Department provides an annual consolidated compliance monitoring report on the number of operations with a Hygiene Management Plan and the implementation of those plans.</p>		
<p>KPI 9. Level of soil damage resulting from timber harvesting</p>	<p><u>Target:</u> Soil damage not to exceed prescribed maximum levels for 95 per cent of harvest cells surveyed, except where the prescribed levels cannot be achieved with the application of good harvest practices. <u>Achievement:</u> Not achieved but criteria often met. Steady compared to previous period</p> <p>There is no recommendation for this KPI</p>	<p>The 2004-2013 FMP sought to significantly improve soil management by preventing ground disturbing activities under wet soil conditions. The emphasis was on soil protection, not logging. Since then the importance of soil carbon has been recognised as a significant component of climate change mitigation. Additional research has also highlighted the importance of micorrhizal fungi in both soil health and the movement of nutrients between trees. Increased machine use in logging operations, especially in jarrah forests has lead to increased soil compaction and FORESTCHECK found that compaction remains substantial for approximately 50 years. Wafa has documented poor management practices have led to the erosion of creek lines.</p>	<p>21. It is recommended that the soil management guidelines be reviewed to ensure that they are effective in protecting forest soils.</p> <p>22. It is recommended that KPI 9 include level of soil damage resulting from fire management in order to provide for the measurement of soil carbon and nutrient losses as well as erosion.</p>
<p>KPI 10. Stream condition and groundwater level</p>	<p><u>Target:</u> No gauging stations with annual flow weighted mean salinity that is not fresh as a result of management activities. No sites with a decline in streamflow as a result of management activities. No decline in groundwater level as a result of management activities. No rise in groundwater level to the extent that it could lead to annual stream salinity not</p>	<p>The focus on salinity is not sufficient. In much of the FMP area salinity does not present as significant a risk as in areas further East. The KPI should be extended to include other measures such as turbidity, nutrient loads, erosion risk and riparian vegetation condition. It should be acknowledged, and factored in to planning, that regrowth forests use 50% more water than old growth and mature forests should not be logged, especially where rainfall is low and diminishing.</p>	<p>23. It is recommended that management activities be amended to better protect the water resources of old forests. This should include ensuring that stream zones are protected from post-logging and prescribed fire.</p>

	<p>remaining fresh, as a result of management activities. <u>Achievement:</u> Achieved. Steady compared to previous period</p> <p>Commission Recommendation That the Department continue to investigate opportunities for improving stream conditions through cost-effective management activities.</p>		
<p>KPI 11. Effectiveness of silviculture for water production</p>	<p><u>Target:</u> Catchment management plans are prepared and approved for areas to be treated. Compliance of treemarking, harvesting and related treatments with targets specified in the relevant guidance documents. Streamflow is at least maintained, or the rate of decline is reduced as a result of treatment. <u>Achievement:</u> Not applicable</p> <p>There is no recommendation for this KPI</p>	<p>Any thinning of forests requires a sound scientific basis that demonstrates a clear ecological benefit to the forests and biodiversity. In order for the ecological outcomes to be given first priority, no contracts for wood coming from these thinning operations should be entered into.</p>	<p>24. It is recommended that no thinning program in jarrah forest be launched until we have the results of small long-term (10-year) trials in regrowth jarrah forest run by independent forest ecologists with community involvement and EPA assessment.</p>
<p>Climate change and carbon stores KPIs 12, 13 and 14.</p>	<p><u>Target:</u> Trend and knowledge report compiled at mid-term and used to inform reporting on achievement of KPI targets. <u>Achievement:</u> Achieved. Steady compared to previous</p>	<p>Under the precautionary principle action should be taken now to respond to our changing climate. The likelihood that jarrah and karri forest logged now will be able to regrow as forest with similar biodiversity is low in those regions most affected by climate change.</p> <p>While the FMP forecast a net increase in the carbon stores</p>	<p>25. It is recommended that up-to-date climate data be incorporated into forest management planning, including by making targeted additions to the reserve system and recalculating the sustained yield.</p>

	<p>period</p> <p>Commission Recommendation That there is a continued focus of research towards understanding the implications of a drying climate on ecological function, biodiversity and forest health including consideration of treatments to improve the forests resilience in a future drier climate.</p> <p>Target: Twenty plots established and reported by mid-term and 40 plots by end-of-term</p> <p>Status No new carbon plots were established during the reporting period. However, further measurements of above-ground woody biomass (hence carbon) have accrued in forest types for which substantial data was available.</p> <p>Commission recommendation Based on the range of settings adopted in the FMP (including the forest area, sustained yields and silvicultural practices), it was forecast that on a whole of forest scale, the quantity of carbon stored in live trees in the</p>	<p>of FMP forests under the period of the FMP, there is no KPI that relates to this. Instead, the only KPI that comes close to measuring this outcome, is the KPI to increase knowledge of impact. Clearly, outcome-based KPIs are required.</p> <p>The concept of measuring ‘net’ carbon storage over the FMP forests presumably allows for natural sequestration that occurs in un-logged forest to offset losses of carbon storage in logged forests. It follows from this that even if the net carbon stored in FMP-managed forests increase, the increase will be significantly less than what it would have otherwise been absent logging activities. New KPIs are required that not only seek to maintain net carbon stores, but ensure that logging operations do not result in a decline in carbon stores in logged areas during the life of the FMP.</p> <p>If data is not available to measure carbon due to the failure to establish carbon monitoring plots as required by the FMP, then alternative data sources must be utilised, including areal and satellite (remote sensing) technology with ground truthing in areas where logging has taken place, there is excellent technology now available for measuring carbon stores in forests and natural ecosystems using remote sensing. The failure to establish carbon monitoring plots is not a reason not to measure and report on forest carbon. Such technology should be utilised and reporting should be made publicly available.</p> <p>The FPC claims that logging results in increased carbon sequestration due to carbon being stored in long-lived timber products. If this claim is to be accepted it needs to be supported by evidence. Sine the majority of forest products by volume are sold for chips, firewood, feedstock for silicon manufacturing, or burnt on the forest floor in post-logging burns, it is clear that the vast majority of carbon stored in forests is released into the atmosphere shortly after logging. The establishment of forest carbon monitoring plots (even if it were complied with) will not account for these emissions, so alternative methods are needed to measure and understand the carbon balance of</p>	<p>26. It is recommended that the continued logging of both jarrah and karri in those rainfall zones that are no longer adequate, or will soon be inadequate, to support these forest types (minimum 600mm for jarrah and 1000mm for karri) be stopped and the overall sustained yield recalculated accordingly.</p> <p>27. It is recommended that mature forests, which store more carbon than regrowth forests and are more resilient to the impacts of climate change, be protected from logging and clearing.</p> <p>28. It is recommended that the lack of monitoring and failure to meet climate change and carbon KPIs not delay management changes to protect natural carbon assets by reducing or ceasing logging activities.</p> <p>29. It is recommended that the KPI to establish the monitoring plots be updated to require real-time carbon monitoring and reporting using best available remote sensing and other carbon measurement technology.</p> <p>30. It is recommended that new KPIs be introduced to the FMP to measure and maintain forest carbon, including:</p>
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	<p>forests would increase by between three and five per cent during the plan's 10-year period. Reporting on carbon stores informs the contribution of forests to the mitigation of climate change effects.</p> <p>Recommendation 16: That the Department prioritise reporting on carbon stores over the coming years so that this information will be available for the next draft FMP.</p>	<p>the forest with and without logging activity.</p> <p>In 2012, the Australian National University undertook an assessment of carbon pollution from forest management in WA. In direct contrast to the FPC's claim, the results suggest that the cessation of logging in FMP forests would lead to very significant reduction in carbon pollution due to enhanced carbon sequestration by mature un-logged forests, and by avoided carbon pollution that logging causes.</p> <p>The ANU study found that on average, cessation of native forest logging in WA could generate of between 1.8 and 2.9 million Kyoto ACCUs (carbon credits) per year, which had the potential to bring between \$16 million and \$438 million per annum in revenue to the state, depending on different carbon price assumptions.</p> <p>Put another way, the ANU research suggests that the logging of FMP forests in WA results in a net carbon pollution of between 1.8 and 2.9 million tons of CO₂ per year.</p>	<p>(i) Carbon stored in forest ecosystems within the FMP, with an associated target for the KPI that there must be an increase in net terms over the period of the FMP, and</p> <p>(ii) Carbon in areas where logging takes place, with an associated target of no decline in forest carbon in these areas.</p>
<p>The area of native forest and plantations</p> <p>KPIs 15 and 19</p>	<p>Commission commentary The Commission acknowledges the achievement of this key performance indicator with an overall increase of native forest for biodiversity and only a minor reduction in forest available for harvesting.</p> <p>Departmental commentary The acquisition of forested lands to add to Department managed lands will continue, with a focus on maintaining the net area available for wood production and ensuring less-well represented vegetation types and forest</p>	<p>All high conservation value areas should be protected from clearing.</p> <p>Wafa supports the Departmental response that it will ensure less-well represented vegetation types and forest ecosystems are added to the reserve system. However, the method for measuring the adequacy of representation needs to be updated to reflect the increased pressures on ecosystems and biodiversity from climate change, pathogens, pests and weeds and the fact that the reserve system is currently insufficient for the maintenance and recovery of many threatened species. The Department's response is troubling in that it says it's focus will be on maintaining the net area 'available for wood production'. The emphasis is the wrong way around. The Department should always have as its first priority conservation and the protection of biodiversity.</p> <p>Increases to the plantation estate and re-establishment of government support for broad-scale farm forestry are required. The plantation and farm forestry sectors are</p>	<p>31. It is recommended that the Commission initiate a process to map and protect HCV areas from mining and clearing for infrastructure and roads.</p> <p>32. It is recommended that there be an update to the measure of representation of ecosystems in the reserve system.</p> <p>33. It is recommended that the Department refocus its activities so that its priority in all areas is on biodiversity conservation rather than extraction.</p> <p>34. It is recommended that the Commission, Department and</p>

	<p>ecosystems are added to the reserve system.</p> <p>There is no Commission recommendation for this KPI.</p>	<p>negatively impacted by low-prices for native timbers.</p>	<p>FPC seek funding and support to increase the plantation and farm forestry estates.</p>
<p>Logging levels and regeneration</p> <p>KPIs 16, 17 and 18.</p>	<p>The FPC will continue to seek to better utilise the available material through expanding access to markets for OBV, the application of new technologies and processes to reduce production costs and undertake trials of suitability for various engineered wood products.</p> <p>Commission commentary The Commission notes the achievement of silvicultural objectives for karri forest. In terms of jarrah forest, the Commission has concerns around the implications of not fully achieving the silviculture objectives in harvested coupes with implication on productive capacity.</p> <p>The Commission supports the silvicultural objectives outlined in the FMP with preference for timely thinning of regenerating native forest and integration of thinning with current operations.</p> <p>The FPC will continue to seek to better utilise the available material through securing</p>	<p>Clear-felling karri and intensive logging of jarrah forests has multiple negative impacts for water, climate, wildlife and industries other than logging (such as honey production). These ecological considerations should be the priority for the Department and the Commission.</p> <p>The FPC notes that it logs 1 per cent of the forest estate per year and that it has 38 per cent of the forest available to it for timber extraction. The scale and intensity of logging has been too great for forests to recover in time for the next round of logging they are subjected to. Cautious, selective logging and a high value, low volume industry would have had less extensive impacts across the forest estate. Based on FPC's figures, all of the available forest will have been logged with 38 years and, if the industry continues to operate, it will be doing so in forests comprised of younger and younger trees. This is not sustainable and the fact that there are fewer markets for smaller volumes of timber is not surprising.</p> <p>To maintain logging in these circumstances, markets for lower value products will have to be secured. This fact should not and cannot exist in isolation from the impacts of such an approach on the forests the industry relies on. It is clear that mature forests are of high conservation value and the short-term gain to the industry from logging them is not comparable to the long-term benefits of keeping them in their mature condition.</p> <p>The sustained yield was set too high in the current FMP by including forests in the low rainfall zones that are uneconomic distances from processing centres and offer very little millable timber against the recommendation of the EPA's mid-term review of the previous FMP.</p>	<p>35. It is recommended that the Commission recommend against the proposed Integrated Timber Processing Yard and all other increases in the sale of low-value logs and specifically rule out the use of native forest logs for bioenergy.</p> <p>36. It is recommended that the carbon pollution resulting from post-logging burns, as well as the depletion of soil carbon and nutrients and burning of habitat trees and informal reserves should be quantified and measured as a part of KPI 18.</p>

	<p>access to markets for OBV, such as the existing energy market, the application of new technologies and processes to reduce production costs and undertake trials of suitability for various engineered wood products.</p> <p>No Commission recommendation for this KPI.</p>	<p>This section of the draft review needs to be reconsidered to take ecological consequences of the KPIs into account - they are conspicuously absent in the draft - and to refocus the Department on its principal objective of conservation.</p> <p>There should be no moves to sell native forest logs for bioenergy and the sale of native forest logs for bioenergy should be explicitly ruled out.</p> <p>Compliance with biodiversity conservation guidelines, such as informal reserves and habitat trees, should be included in reporting on these KPIs.</p> <p>The carbon pollution resulting from post-logging burns, as well as the depletion soil carbon and nutrients and burning of habitat trees and informal reserves should be quantified and measured as a part of KPI 18.</p>	
<p>KPI 20. Consultation and involvement of Noongar people.</p>	<p>The Department will continue to work with Noongar people in the management of the plan area.</p> <p>No Commission recommendation for this KPI.</p>	<p>The Department would benefit from joint-management with Noongar people and listening to Noongar people, including those with whom the Dept. disagrees. Noongar people are well equipped to design systems for managing the forests, and to carry out management plans, and should be given greater carriage of forest management.</p>	<p>37. It is recommended that Noongar representatives and representative groups be consulted on the preferred method for developing genuine joint-management and Noongar-led management of the forests.</p>
<p>KPI 21. Social and economic benefits from the timber industry.</p>	<p>The study found that positive perception of the forest industry in the community can be improved. While those living in communities where the industry operates view these communities just as, or slightly more, liveable than those living in communities with little industry activity, they do not generally view the forest industry as making substantial contributions beyond employment.</p>	<p>Native forest logging has become financially unviable. Employment in the sector is small and unstable and the industry is more detrimental than beneficial in socio-economic terms.</p> <p>The Shirmer study has been misrepresented in the draft review. The survey found that affected communities view that industry as having negative impacts on community liveability, with only 25% of respondents believing the industry has positive impacts on community liveability.</p> <p>“In communities in the Great Southern and South West, residents generally perceived the forest industry as having fewer positive effects than the farming and tourism and industries and more negative effects.</p>	<p>38. It is recommended that the socio-economic losses that result from native forest logging, quantified in terms of carbon values and sustainable forest based enterprises that lose access to forests after and during logging should be given full consideration in this section of the review.</p> <p>39. It is recommended that FPC annual reports include in both the profit / loss column for native forest logging and in the</p>

	<p>Commission commentary The Commission acknowledges the KPI related to the social and economic benefits from the timber industry has been achieved and notes that there are further opportunities for increased local processing capacity.</p> <p>No Commission recommendation for this KPI.</p>	<p>While the large majority of residents... felt the forest industry had positive impacts on local employment, fewer than 25% felt the industry had positive impacts on other aspects of community liveability including cost of living, friendliness of the local community, health of local residents, safety and quality of roads, bushfire risk, landscape attractiveness, water quality, land prices or health of the local environment. The industry was viewed by a majority of residents as having negative impacts on roads and local landscape aesthetics.”^{iv}</p> <p>This cannot be rectified by changing perceptions, the change needs to be substantive. Protecting native forests and transitioning the timber industry to a sustainable base would bring multiple benefits to South West communities. The details are set out in forestsforlife.org.au</p> <p>In 2017-2018, the FPC sold 552, 160 tonnes of native forest logs for an operating profit of \$350,000. However, this ‘operating profit’ does not include a share of “Policy and Industry Development” costs, which totalled \$4.915 million. Assuming these costs were shared one third each between the sectors (NF, plantations, sandalwood), ie \$1.638 million to native forestry, then native forestry would have operated at a loss of \$1.288 million.</p> <p>In 2017-2018, after allowing for a claimed increase in the value of forests and after income tax, FPC native forestry division reported an accounting profit of \$621,000. Again, this ‘accounting profit’ does not include a share of “Policy and Industry Development” costs. Similarly, the projected 50-year forecast logging rates and cash flow on which the value of the forests has been calculated and which has been allowed for in the ‘accounting profit’, also excludes these costs. FPC stated (FPC 2005 Annual Report) that these cash flow analysis “exclude an allocation of corporate overheads”. Whether “corporate overheads” and “Policy and Industry Development” costs are the same could be regarded as immaterial, the point being that native forestry cannot operate without corporate overheads (or policy and</p>	<p>projected cash flows on which the forests are valued, all incurred costs including an appropriate share of the policy and industry development costs to provide a more realistic assessment of its profitability.</p>
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<p>KPI 22. Visitation, facilities and visitor satisfaction</p>	<p>Commission commentary The Commission acknowledges the key performance indicator for visitation, facilities and visitor satisfaction has been achieved and notes the increase of visitation while maintaining high levels of visitor satisfaction with their experience.</p>	<p>‘Australia’s South West’ tourist region is WA’s most popular tourist destination outside of the metropolitan area and the undoubted jewel in the crown of the South West’s attractions are the forests. Visitor numbers are increasing and already forest national park campsites are often fully occupied in holiday seasons. We need more protected areas, promoted for their beauty and tranquillity, to keep pace with the demand, ensure that no particular areas are put under too much pressure from unsustainable numbers of visitors and to support a sustainable tourism industry in the south-west.</p> <p>This region generated \$1,530 million from tourism in 2016, up 27% from the previous year. Three million tourists spent 12 million nights in the region in 2016.^[1] Tourists would have made up a large portion of the 7.1 million visits to the SW forests in 2013.^[2]</p> <p>The Australia Institute found in 2016 that,</p> <p>“Given the enormous contribution of tourism to the region, not logging the forests could increase the attractiveness to tourists; even a small increase could have a substantial financial benefit.”</p> <p>The WA tourism industry directly employs some 64,000 people and accounts for a further 33,000 indirectly. The tourism industry offers considerable economic and social benefits to the south-west and in turn, the south-west forests support a broader tourism trade for the rest of the State.</p> <p>The impacts of logging and burning on the tourism industry should be quantified and measured as a part of the measurement of this KPI.</p>	<p>40. It is recommended that additions be made to the reserve system to provide for increasing visitation and that sites be designed and managed to promote protection and appreciation of the forests, wildlife and biodiversity.</p> <p>41. It is recommended that the impacts of logging and burning on the tourism industry be quantified and measured as a part of the measurement of KPI 22.</p>
<p>KPI 23. Maintaining an effective strategic road network</p>	<p>Commission Recommendation That additional funding be sought and allocated towards maintaining the strategic road</p>	<p>WAFA acknowledges the importance of an effective road network. However, the fact that roads can have detrimental impacts on hydrology and are a vector for disease, pest and weed spread needs to be considered as a part of this KPI. Spraying of road verges with herbicides is also likely to be</p>	<p>42. It is recommended that mechanisms for reducing the impacts of roads on forest health, hydrology and biodiversity be investigated and</p>

	and bridge network to improve public safety and to improve access for bushfire suppression.	having an impact on forest health and resilience to pathogens.	that KPI 23 include measures for assessing the reduction of associated impacts.
KPI 24. Extent to which the institutional framework supports the conservation and sustainable management of forests.	<p>Commission commentary The Commission acknowledges the achievements of the KPI related to the extent to which the institutional framework supports the conservation and sustainable management of forests.</p> <p>Proposed management response The Department will continue to: prepare and review guidance documents on a priority basis; seek opportunities and resources to address identified high priority research topics including those identified through the KPI findings from the mid-term review process and those identified in the processes leading to the approval of the FMP; and support existing programs for volunteering and environmental education to continue to build communication links and understanding between the Department and the community.</p>	<p>The Department and the Commission appear to have entirely overlooked issues raised in Regional Nature Conservation Plans regarding insufficient scientific capacity and methodology for measuring impacts on biodiversity and using results of monitoring to be able to carry out effective planning and prioritising.</p> <p>The process for carrying out this mid-term performance review has been seriously hamstrung by a lack or paucity of data, a lack of appropriate performance targets and measures and profound disconnects between documents that the review process has relied upon.</p> <p>The institutional framework that supports the conservation and sustainable management of forests is evidently insufficient to the task and much needs to be done, and urgently, to correct the problems that have been identified through this review process.</p> <p>There is a major inconsistency in the reporting here that KPI 24 is considered to have been achieved given the fact that the Commission has said, for example, that there was insufficient data to make reliable conclusions on the impacts of management activities on threatened fauna.</p>	<p>43. It is recommended that the Commission develop and maintain a long-term dataset to measure forest health that will be able to meaningfully inform the next FMP by working with independent experts and Regional Nature Conservation teams to determine the key ecological processes and keystone species that can be used as indicators of forest health within the FMP area and review the existence of current data from monitoring of these processes and species.</p> <p>44. It is recommended that the Commission take carriage of the development of an integrated, properly-resourced data collection and reporting system and work towards achieving a commitment to maintain the system for monitoring, collecting, storing and reporting on these indicators in order to improve the measurement of forest health into the future.</p>

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