See tabled paper.

LEGISLATIVE COUNCIL
Question On Notice

Thursday, 16 February 2023

1247. Hon Dr Brad Pettitt to the Parliamentary Secretary representing the Minister for Environment

I refer to the draft *Forest Management Plan 2024-2033,* and I ask will the Minister please list the scientific research that shows the impacts that the proposed ecological thinning and associated silvicultural burning of regrowth forest will have on each of the following:
(a) birds;
(b) mammals;
(c) reptiles;
(d) frogs;
(e) invertebrates;
(f) forest understory flora;
(g) fungi, in particularly *Armillaria luteobubalina*;
(h) phytophthora dieback; and
(i) soil?

Answer

The Department of Biodiversity, Conservation and Attractions has undertaken and published a body of research on the impacts of commercial harvesting and associated post-harvest burning, including the Forestcheck integrated monitoring project, that has informed understanding of the likely impacts of proposed ecological thinning. For references to this published research, listed by groups (a) – (i), please see tabled paper no #.

Tabled paper no #

Following is the list of references of scientific research that have informed understanding of the likely impacts that ecological thinning and silvicultural burning of regrowth forest will have on groups (a) – (i).

(a) birds

Robinson R, McCaw L, Wills A. (2023). Monitoring biodiversity to inform forest management in south-west Western Australia: ten-year findings of Forestcheck monitoring. *Forest Ecology and Management* 529.

Abbott I, Mellican A, Craig M D, Williams M, Liddelow G, Wheeler I. (2003). Short-term logging and burning impacts on species richness, abundance and community structure of birds in open eucalypt forest in Western Australia. *Wildlife Research, 30*(4), 321-329.

(b) mammals, (c) reptiles and (d) frogs

Robinson R, McCaw L, Wills A. (2023). Monitoring biodiversity to inform forest management in south-west Western Australia: ten-year findings of Forestcheck monitoring. *Forest Ecology and Management* 529.

Wayne AF, Wheeler IB, Ward CG, Rooney JF, Mellican A. (2001). The impacts of timber harvesting and associated activities on the small terrestrial vertebrates of the jarrah forest: Kingston Project progress report. Western Australian Government Department of Conservation and Land Management, Manjimup.

Wayne A, Liddelow GL, Williams MR. (2011) Forestcheck: terrestrial vertebrate associations with fox control and silviculture in jarrah (*Eucalyptus marginata*) forest, *Australian Forestry* 74, 336-349.

Wayne AF, Maxwell MA, Ward CG, Vellios CV, Williams MR, Pollock KH. (2016). The responses of a critically endangered mycophagous marsupial (*Bettongia penicillata*) to timber harvesting in a native eucalypt forest. *Forest Ecology and Management* 363, 190-199.

Webala P, Craig MD, Law BS, Wayne AF, Bradley SJ. (2010). Roost site selection by southern forest bat *Vespadelus regulus* and Gould's long-eared bat *Nyctophilus gouldi* in logged Jarrah forests, south-western Australia. *Forest Ecology and Management* **260**, 1780-1790.

Webala P, Craig MD, Law BS, Armstrong KN, Wayne AF, Bradley JS. (2011). Bat habitat use in logged jarrah eucalypt forests of south-western Australia. *Journal of Applied Ecology* **48**, 398-406.

(e) invertebrates

Robinson R, McCaw L, Wills A. (2023). Monitoring biodiversity to inform forest management in south-west Western Australia: ten-year findings of Forestcheck monitoring. *Forest Ecology and Management* 529.

Abbott I, Burbidge T, Strehlow K, Mellican A, Wills A. (2003). Logging and burning impacts on cockroaches, crickets and grasshoppers, and spiders in Jarrah forest, Western Australia. *Forest Ecology and Management*, 174, 383-399.

Heterick BE, Majer JD, Kabay ED, Loh M. (2015). Ant (Hymenoptera: Formicidae) diversity influenced by tree thinning in the Western Australian jarrah (Eucalyptus marginata) forest. *Journal of the Royal Society of Western Australia*, 98, 101-119.

(f) forest understorey flora

Robinson R, McCaw L, Wills A (2023). Monitoring biodiversity to inform forest management in south-west Western Australia: ten-year findings of Forestcheck monitoring. *Forest Ecology and Management* 529.

(g) fungi, in particularly *Armillaria luteobubalina*

Robinson R, McCaw L, Wills A. (2023). Monitoring biodiversity to inform forest management in south-west Western Australia: ten-year findings of Forestcheck monitoring. *Forest Ecology and Management* 529.

(h) phytophthora dieback

Moore N, Barrett S, Howard K, Craig MD, Bowen B, Shearer B, Hardy G. (2015) Time since fire and average fire interval are the best predictors of *Phytophthora cinnamomi* activity in heathlands of south-western Australia. Australian Journal of Botany 62, 587-593.

Keighery G, Gosper CR, Barrett S, Coates D, Mackinson RO. (2023) The compounding impacts of disease and weeds after the 2019–20 wildfires on Australian vascular plants and communities. Pp. 243-254 in *Australia's megafires: biodiversity impacts and lessons from 2019-2020* (eds L. Rumpff, S.M. Legge, S. van Leeuwen, B.A. Wintle and J.C.Z. Woinarski). CSIRO Publishing, Melbourne.

Moore N, Barrett S, Howard K, Craig MD, Bowen B, Shearer B, Hardy G. (2014). Time since fire and average fire interval are the best predictors of *Phytophthora cinnamomi* activity in heathlands of south-western Australia. *Australian Journal of Botany* **62**, pp. 587–593.

(i) soil

Abbott I, Williams MR. (2011). Silvicultural impacts in jarrah forest of Western Australia: synthesis, evaluation, and policy implications of the FORESTCHECK monitoring project of 2001-06. *Australian Forestry* **74**, pp. 350–360.

McCaw WL. (2011). Characteristics of jarrah (*Eucalyptus marginata*) forest at FORESTCHECK monitoring sites in south-west Western Australia: stand structure, litter, woody debris, soil and foliar nutrients. *Australian Forestry* **74**, pp. 254–265.

Whitford KR, Mellican AE. (2011). Intensity, extent and persistence of soil disturbance caused by timber harvesting in jarrah (*Eucalyptus marginata*) forest on FORESTCHECK monitoring sites. *Australian Forestry* **74**, pp. 266–275.