

## Supplementary Material

### **A most enigmatic mouse: additional information on collection of blue-grey mouse (*Pseudomys glaucus* Thomas 1910) from New South Wales in 1956**

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Supplementary Fig. S1. Correspondence from Ellis Le G. Troughton, curator of mammals at the Australian Museum, to Mr B.N. Parkins dated 9 July 1956.

Telegraphic Address  
"MUSEUM"

TELEPHONES:-  
B.056 { DIRECTOR ..... EXTENSION 2404  
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ALL COMMUNICATIONS ON OFFICIAL MATTERS SHOULD BE ADDRESSED TO THE DIRECTOR AND NOT TO ANY OFFICER BY NAME.

IN YOUR REPLY REFER TO  
*No*

*The Australian Museum*  
*Sydney* 9th July, 1956.

Mr. B. N. Parkins,  
Coorallie,  
Cryon, NSW.

Dear Sir,

At first opportunity, on receiving the skin of a mouse forwarded on by the Taronga Park Trust, I am writing to let yourself and local friends know that the skin almost certainly is that of one of the "lost species" of native Australian mice. It was described as new to science by the mammal-authority at the British Museum, from a single specimen sent there in 1892 from Brisbane. I quote the following from my book "Furred Animals of Australia";-

"Blue-grey Mouse (*Gymys glaucus*) ... 'South Queensland' was the only locality attached to the original (1892) specimens. This rare mouse of uncertain locality differs from other north-eastern native-mice by its bluish-grey coloration, in which it resembles the ashy-grey species of Western Australia. The combined length of the head and body is about  $3\frac{1}{2}$  in; the tail slightly longer."

In the "old days" the area of the Darling Downs and borders of Qld/NSW were not clearly understood, and it seems obvious that you and your friend have been responsible for the re-discovery of a rare native species. I am sure you will both understand my enthusiasm about it, and do hope you will both examine all trapped and poisoned mice in future, and interest all local contacts in doing so. The species is so easily recognized by its ashy-grey colour, with bluish underfur, and the females in this and all native species have only four teats in the groins (2 pairs) instead of 10 (5 pairs) in the introduced pest.

These native mice rarely enter houses, but may sometimes be found in post-holes unfilled over-night. Some Museum collectors have dug pitfalls about 9in sq, and 3ft deep in sandy-loam or "heath-country", and as many as 10 mice were found in the early

(Over)

10/2

morning, when some attractive bait such as dry oatmeal and cheese-crumbs had been scattered in the holes. The pitfalls were left uncovered throughout the year, but most catches were made in the autumn and early winter. The mice seem to live in rather isolated colonies, the only signs of burrow-locations being small heaps of sandy or loamy soil, thrown-up behind circular apertures about 1 in diameter, usually at the base of a bush or tussock.

The specimens should not be skinned, but preserved in methylated spirit, but it is essential to make a neat cut along the middle of the belly to admit preservative to the innards. Then leave the mice in at least an equal volume of spirit for about 3 weeks, when they can be packed in a leak-proof tin (press-in-lid) for postage, but first pour-off all surplus liquid from packing of rag or cotton-wool, to avoid nuisance in the post.

Looking forward to the results of any efforts you and your friends are willing to make, re-establishing the existence of the rare native species, as some compensation for the destructive activities of the foreign pest.

Yours sincerely,

*Ellie Droughton*  
Curator of Mammals.

P.S. Do not damage skulls if possible -  
if by any chance you could find the skull or  
skeleton belonging to the skua - it would be most welcome,  
B.J.

**Supplementary Table S1. Plant community types occurring within 10 km of Coorallie homestead, New South Wales (State Government of NSW and Department of Planning Industry and Environment (DPIE) 2015).**

Plant Community Type ID	Plant Community Type Name	Vegetation Description
27	Weeping Myall open woodland of the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion	Mid-high and low woodland to open woodland to about 10 m high dominated by Drooping Myall ( <i>Acacia pendula</i> ) often with Belah ( <i>Casuarina cristata</i> ) and Wild Orange ( <i>Capparis mitchellii</i> ). Poplar Box ( <i>Eucalyptus populnea</i> subsp. <i>bimbil</i> ), Western Rosewood ( <i>Alectryon oleifolius</i> ), Whitewood ( <i>Atalaya hemiglauca</i> ) or Black Box ( <i>Eucalyptus largiflorens</i> ) may also occur. Shrubs are sparse and include Wilga ( <i>Geijera parviflora</i> ), <i>Rhagodia spinescens</i> , <i>Capparis lasiantha</i> , <i>Acacia oswaldii</i> , <i>Acacia salicina</i> , <i>Myoporum montanum</i> and <i>Pimelea neo-anglica</i> . Small shrubs include species of copperburrs including <i>Sclerolaena brachyptera</i> , <i>Sclerolaena muricata</i> var. <i>muricata</i> and <i>Sclerolaena stelligera</i> . Other small shrubs include <i>Maireana aphylla</i> , <i>Atriplex stipitata</i> , <i>Leiocarpa panaetioides</i> and <i>Enchylaena tomentosa</i> . The ground cover may be dense after rain but normally is mid-dense to sparse. It contains many species of grasses and forbs. Forbs include <i>Einadia nutans</i> subsp. <i>nutans</i> , <i>Leiocarpa tomentosa</i> , <i>Marsilea hirsuta</i> , <i>Solanum esuriale</i> , <i>Daucus glochidiatus</i> , <i>Goodenia fascicularis</i> , <i>Oxalis perennans</i> , <i>Eryngium paludosum</i> and <i>Craspedia variabilis</i> . The most common grass species are <i>Monachather paradoxus</i> , <i>Chloris truncata</i> , <i>Enteropogon acicularis</i> , <i>Astrebla lappacea</i> , <i>Astrebla pectinata</i> , <i>Walwhalleya proluta</i> , <i>Dichanthium sericeum</i> subsp. <i>sericeum</i> , <i>Sporobolus caroli</i> , <i>Austrodanthonia setacea</i> and <i>Aristida leptopoda</i> . Occurs on grey to brown cracking clay, black earth or clay loam soils that are sometimes gilgaied, on flats or undulating rises on broad alluvial plains or outer floodplains that rarely flood. Mainly in the Darling Riverine Plains and Brigalow Belt South Bioregions with some outliers beyond these regions. It is estimated that > 75% has been cleared due to its occurrence on arable alluvial soils. Some remnants are in good condition where they are not continuously or heavily grazed such as on roadsides or in travelling stock reserves. May have contained more of a chenopod understorey prior to European settlement in some places.
36	River Red Gum tall to very tall open forest / woodland wetland on rivers on floodplains mainly in the Darling Riverine Plains	Very tall or tall open forest or woodland up to 30 m high lining major watercourses dominated by River Red Gum ( <i>Eucalyptus camaldulensis</i> subsp. <i>camaldulensis</i> ) sometimes with Black Box ( <i>Eucalyptus largiflorens</i> ) or Coolabah ( <i>Eucalyptus coolabah</i> ) with southern areas containing Yellow Box ( <i>Eucalyptus melliodora</i> ). Shrubs may be absent or if present are sparse including Cooba ( <i>Acacia salicina</i> ), River Cooba ( <i>Acacia stenophylla</i> ) and Lignum ( <i>Muehlenbeckia florulenta</i> ). The ground cover may be dense after rain or flooding and is dominated by native

	Bioregion	<p>grass species including <i>Austrostipa ramosissima</i>, <i>Austrostipa verticillata</i>, <i>Austrodanthonia caespitosa</i>, Warrego Summer Grass (<i>Paspalidium jubiflorum</i>), Umbrella Cane Grass (<i>Leptochloa digitata</i>), Native Millet (<i>Panicum decompositum</i>) and Couch (<i>Cynodon dactylon</i>). Sedge species include <i>Cyperus gymnocaulos</i>, <i>Eleocharis pallens</i> and <i>Eleocharis plana</i>. Rushes such as <i>Juncus radula</i> be present. The fern Nardoo (<i>Marsilea drummondii</i>) is common in poorly drained sites. A range of forbs include <i>Pratia concolor</i>, <i>Centipeda cunninghamii</i>, <i>Rumex brownii</i>, <i>Haloragis glauca</i>, <i>Boerhavia dominii</i>, <i>Swainsona galegifolia</i>, <i>Alternanthera denticulata</i> and <i>Goodenia fascicularis</i>. Occurs on Quaternary alluvial grey cracking clay, loamy clays and sometimes sandy loam soils in the riparian zone of rivers (banks, levees, benches), ox-bow lakes and and depressions on adjacent floodplains. A widely distributed community with large floristic variation depending on flooding regimes. Distributed on the floodplains of major rivers and creeks of central-northern western NSW mainly in the Darling Riverine Plains Bioregion extending into adjoining bioregions. A substantial proportion of this community has been cleared and/or adjoining vegetation has been cleared rendering this community susceptible to "edge" effects. Many areas are affected by trampling by stock and weed invasion by <i>Lippia (Phyla canescens)</i> or African Boxthorn (<i>Lycium ferrosimum</i>). Changed flooding regimes due to irrigation draw off is leading to a lack of regeneration of River Red Gum in some locations.</p>
37	<p>Black Box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion.</p>	<p>Open forest to open woodland dominated by Black Box (<i>Eucalyptus largiflorens</i>) often with Poplar Box (<i>Eucalyptus populnea</i> subsp. <i>bimbil</i>), Coolabah (<i>Eucalyptus coolabah</i>) or Belah (<i>Casuarina cristata</i>). The shrub layer may be sparse or dense depending on grazing regimes or other disturbance events. It may include River Cooba (<i>Acacia stenophylla</i>), Lignum (<i>Muehlenbeckia florulenta</i>), Old Man Saltbush (<i>Atriplex nummularia</i>), Thorny Saltbush (<i>Rhagodia spinescens</i>), Cooba (<i>Acacia salicina</i>), Wilga (<i>Geijera parviflora</i>), Budda (<i>Eremophila mitchellii</i>), Wild Orange (<i>Capparis mitchellii</i>), Spotted Fuchsia (<i>Eremophila maculata</i>) and Eurah (<i>Eremophila bignoniiflora</i>). The ground cover is usually sparse but may be dense after flooding or rain and includes low shrubs such as Black Roly Poly (<i>Sclerolaena muricata</i> var. <i>muricata</i>), Cotton Bush (<i>Maireana aphylla</i>) and saltbushes such as <i>Atriplex spinibractea</i> and <i>Atriplex semibaccata</i>. Grass species include <i>Enteropogon acicularis</i>, <i>Austrodanthonia setacea</i>, <i>Walwhalleya subxerophilum</i>, <i>Paspalidium jubiflorum</i>, <i>Lachnagrostis filiformis</i>, <i>Panicum decompositum</i> and <i>Leptochloa digitata</i>. Forbs include <i>Solanum esuriale</i>, <i>Oxalis chnoodes</i>, <i>Sida corruga</i>, <i>Goodenia fascicularis</i>, <i>Calotis scabiosifolia</i> var. <i>scabiosifolia</i> and <i>Einadia nutans</i> subsp. <i>nutans</i>. Nardoo (<i>Marsilea drummondii</i>) is common after flooding and sedges such as <i>Eleocharis pallens</i> and <i>Cyperus concinnus</i> grow in depressions. Occurs on grey and brown alluvial clays and red and brown loams on floodplains near watercourses, ox-bow lakes, and</p>

		drainage depressions. Distributed across the north-western plains of NSW mainly in the Darling Riverine Plain Bioregion. Abundant along the Darling, Barwon, Macquarie and Bogan Rivers. In northern occurrences this community grades into Coolabah Box woodland on slightly higher ground. A threatened community because it has mostly been cleared and heavily grazed.
39	Coolabah - River Coobah - Lignum woodland wetland of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion	Coolabah Box open forest and woodland dominated by Coolabah ( <i>Eucalyptus coolabah</i> subsp. <i>coolabah</i> ) often with River Red Gum ( <i>Eucalyptus camaldulensis</i> subsp. <i>camaldulensis</i> ) with understorey thickets of Lignum ( <i>Muehlenbeckia florulenta</i> ), River Cooba ( <i>Acacia stenophylla</i> ) or Cooba ( <i>Acacia salicina</i> ). <i>Melalueca triostachya</i> occurs on river banks in some areas. The ground cover contains tall tussock grasses such as <i>Leptochloa digitata</i> and <i>Paspalidium jubiflorum</i> , sedges such as <i>Cyperus concinnus</i> and <i>Cyperus victoriensis</i> and rushes ( <i>Juncus</i> spp.). Coolabah occurs on areas slightly less flooded than River Red Gum. It also may adjoin Black Box communities that tend to occupy slightly higher ground. Lippia ( <i>Phyla canescens</i> ) and African Boxthorn ( <i>Lycium ferocissimum</i> ) are problem weeds in places. Occurs on alluvial silty clay soils with neutral pH on floodplains of the major rivers mainly in the Darling Riverine Plain Bioregion but with outliers in other bioregions. This community is frequently flooded and may be subject to occasional prolonged inundation. Grades into a less frequently flooded Coolabah Open Woodland (ID40) that occurs distant from the channelised section of the floodplain. It has been extensively cleared in central northern NSW but stands remain in the Western Division in the Darling River system although clearing is extending into this region. Endangered due to the rate of its decline and long term impacts from changed flooding regimes affecting its condition.
55	Belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions.	Tall woodland of about 12 m high, dominated by Belah ( <i>Casuarina cristata</i> ). Other tree species include Black Box ( <i>Eucalyptus largiflorens</i> ) and Coolabah ( <i>Eucalyptus coolabah</i> ) in depressions and on higher ground Western Grey Box ( <i>Eucalyptus microcarpa</i> ) and Poplar Box ( <i>Eucalyptus populnea</i> subsp. <i>bimbil</i> ). Weeping Myall ( <i>Acacia pendula</i> ) may be present as an associate but not as a dominant species. Tall shrubs include Wilga ( <i>Geijera parviflora</i> ), Western Rosewood ( <i>Alectryon oleifolius</i> ), Budda ( <i>Eremophila mitchellii</i> ), Warrior Bush ( <i>Apophyllum anomalum</i> ), Wild Orange ( <i>Capparis mitchellii</i> ) and Supplejack ( <i>Ventilago viminalis</i> ). Shrubs include Western Boobialla ( <i>Myoporum montanum</i> ), Thorny Rhagodia ( <i>Rhagodia spinescens</i> ), <i>Maireana enchylaenoides</i> , Spotted Fuchsia Bush ( <i>Eremophila maculata</i> ) and <i>Eremophila deserti</i> . Lignum ( <i>Muehlenbeckia florulenta</i> ) may be present in frequently flooded areas. Ground cover includes the low shrubs such as Ruby Saltbush ( <i>Enchylaena tomentosa</i> ), many species of copperburrs including Galvanized Burr ( <i>Sclerolaena birchii</i> ), <i>Sclerolaena divaricata</i> , grasses such as Curly Windmill Grass ( <i>Enteropogon acicularis</i> ), wallaby grasses including <i>Monachather paradoxus</i> and <i>Austrodanthonia setacea</i> , <i>Austrostipa scabra</i> , <i>Austrodanthonia fulva</i> , <i>Austrostipa</i>

		<p><i>aristiglumis</i>, <i>Austrostipa verticillata</i>, <i>Aristida leptopoda</i>, <i>Paspalidium gracile</i>, <i>Sporobolus caroli</i> and <i>Panicum queenslandicum</i>. Forbs include <i>Einadia nutans</i>, <i>Oxalis chnoodes</i>, <i>Vittadinia cuneifolia</i>, <i>Boerhavia dominii</i>, <i>Goodenia fascicularis</i> and <i>Solanum esuriale</i>. Sedges such as <i>Eleocharis pallens</i>, rushes such as <i>Juncus radula</i> and Nardoo (<i>Marsilea drummondii</i>) occur in depressions. Common weed species include <i>Rapistrum rugosum</i>, <i>Carthamus lanatus</i> and <i>Medicago polymorpha</i>. Occurs on alluvial brown or grey clay soils that may be gilgaid on floodplains and alluvial plains and on black loam soils derived from basalt. Often lines intermittent drainage lines or on flats. Distributed in the northern and central wheatbelt of NSW mainly in the Darling Riverine Plains and Brigalow Belt South Bioregions but extending south into the NSW South-western Slopes Bioregion. Mostly cleared and an endangered community.</p>
204	Water Couch marsh grassland wetland of frequently flooded inland watercourses	<p>Mid-high, dense grassland marsh dominated by Water Couch (<i>Paspalum distichum</i>) with Ribbed Spike-rush (<i>Eleocharis plana</i>), Tussock Rush (<i>Juncus aridicola</i>) and Blown Grass (<i>Lachnagrostis filiformis</i>). Other common species include the water plants <i>Ludwigia peploides</i> subsp. <i>montevidensis</i>, <i>Myriophyllum variifolium</i> and <i>Lemna disperma</i>. Nardoo (<i>Marsilea drummondii</i>) and Swamp Buttercup (<i>Ranunculus undosus</i>) are usually present. Besides Water Couch and Blown Grass, other native grass species include Brown Beetle Grass (<i>Diplachne fusca</i>) and Channel Millet (<i>Echinochloa inundata</i>). Sedges include <i>Carex appressa</i> and <i>Cyperus victoriensis</i>. Bullrush (<i>Typha domingensis</i>) may be present. The chenopods Roly Ploy (<i>Sclerolaena muricata</i>) and Soft Roly Ploy (<i>Salsola tragus</i> subsp. <i>tragus</i>) occur on drier sites along with weeds such as Lippia (<i>Phyla canescens</i>), <i>Cirsium vulgare</i>, Bathurst Burr (<i>Xanthium spinosum</i>), <i>Sonchus oleraceus</i> and <i>Conyza bonariensis</i>. As the wetlands are degraded chenopods and weeds are invading. Occurs on grey clay along slow-draining watercourses (inland marshes) on anastomotic plains or flood plains mainly in the Darling Riverine Plain Bioregion. The largest areas are in the Gwydir River wetlands including the Gingham watercourse and in the Macquarie Marshes - both Ramsar wetlands. These and other wetland areas are threatened by changed flooding regimes due to major storages in catchment headwaters and draw off of water for irrigated crops such as cotton. There has been rapid a decline in this wetland community over recent decades. Steps are required to prevent the destruction of wetlands and to maintain environmental flows to river systems.</p>
241	River Coobah swamp wetland on the floodplains of the Darling Riverine Plains Bioregion and Brigalow	<p>Very tall, mid-dense to sparse shrubland dominated by River Cooba (<i>Acacia stenophylla</i>) in near-monospecific stands. River Red Gum (<i>Eucalyptus camaldulensis</i>) may be present as scattered trees with &lt;10% canopy cover. Other shrub species include <i>Acacia salicina</i>, <i>Muehlenbeckia florulenta</i> and species of <i>Sclerolaena</i>. The ground cover varies in its density and floristic composition depending on time since inundation. It contains Nardoo (<i>Marsilea</i></p>

	Belt South Bioregion	<i>drummondii</i> ), sedges such as <i>Eleocharis</i> spp. and <i>Cyperus</i> spp., grasses such as <i>Paspalidium jubiflorum</i> , <i>Leptochloa digitata</i> and <i>Paspalum distichum</i> and forbs such as <i>Alternanthera nodiflora</i> , <i>Pratia concolor</i> , <i>Polygonum aviculare</i> and <i>Eclipta platyglossa</i> . Occurs on alluvial clay soils in depressions, some of which are prior stream meander cutoffs on the floodplains in the Darling Riverine Plains and western Brigalow Belt South Bioregions. This community could be considered a sub-association to the more widespread River Red Gum community on these floodplains. Occurs in patches of limited extent.
247	Lignum shrubland wetland on regularly flooded alluvial depressions in the Brigalow Belt South Bioregion and Darling Riverine Plains	Tall shrubland or open shrubland usually to 2 m high dominated by Lignum ( <i>Muehlenbeckia florulenta</i> ). Other shrub species that may be present include <i>Eremophila bignoniiflora</i> , <i>Eremophila maculata</i> , <i>Rhagodia spinescens</i> and <i>Chenopodium nitrariaceum</i> . Scattered trees may be present with less than 10% canopy cover including River Red Gum ( <i>Eucalyptus camaldulensis</i> ), Black Box ( <i>Eucalyptus largiflorens</i> ) and Coolabah ( <i>Eucalyptus coolabah</i> ). The ground cover may be dense after rains or inundation but very sparse during drought. The scrambler <i>Einadia nutans</i> subsp. <i>nutans</i> may be present along with copperburr shrubs such as <i>Sclerolaena muricata</i> and <i>Sclerolaena divaricata</i> . Grass species include Warrego Summer Grass ( <i>Paspalidium jubiflorum</i> ), Native Millet ( <i>Panicum decompositum</i> ), Windmill Grass ( <i>Chloris truncata</i> ), Curly Windmill Grass ( <i>Enteropogon acicularis</i> ) and Rats Tail Grass ( <i>Sporobolus mitchellii</i> ). Forbs include <i>Persicaria hydropiper</i> , <i>Alternanthera denticulata</i> , <i>Eclipta platyglossa</i> , <i>Haloragis glauca</i> , <i>Pratia concolor</i> , <i>Sida fibulifera</i> , <i>Boerhavia dominii</i> and <i>Solanum esuriale</i> . Sedges may be common and include <i>Eleocharis plana</i> , <i>Eleocharis pusilla</i> , <i>Carex inversa</i> and <i>Cyperus</i> spp. The rush <i>Juncus aridicola</i> is often present. Nardoo fern ( <i>Marsilea drummondii</i> ) is abundant. Occurs on deep, self-mulching alluvial grey clays (and rarely black earth) that are often gilgaied, in depressions on floodplains or as narrow bands near watercourses that are subject to regular inundation. Distributed within the temperate (hot summer), dry sub-tropical and eastern semi-arid (hot) climate zones which corresponds with the Darling Riverine Plain Bioregion extending eastwards to the Liverpool Plains where small stands occur on the edge of Lake Goran. Grades into Lignum (ID17) in south western NSW and Lignum in far north western NSW (ID25). Compared to those other Lignum communities, this community is more restricted and threatened. Most of its original extent has been cleared and reduced flooding threatens many stands over the long term.