



Appendix G OAG Justification summary tables

G.1 OAG Justification summary tables - Australian painted snipe

Input	Area (ha) or Score (rounded)	Discussion
Impact calculator		
Impact (ha)	22.6	This is the area required to be offset for Stage 1 of the Project in accordance with the EPBC Act approval (EPBC 2019/8416 Stage 1).
Quality of Stage 1 Construction Zone	4	<p>The quality score for Australian painted snipe within the Stage 1 Construction Zone was assessed as a 4 out of 10. The condition of the relevant REs was assessed as part of the detailed field surveys using the methodology discussed in <i>Habitat Quality Report - Impacts for CopperString Alignment Stage 1</i> (Base, 2024) (attached in Appendix A).</p> <p>Microhabitat features such as wetlands were found to be limited within the Stage 1 Construction Zone and are limited to large ponds and pools with fringing wetland vegetation. In addition, areas with minimal vegetative cover in proximity to wetland areas with extensive weed incursion, grazing or road/fence construction resulted in unsuitable foraging and sheltering microhabitats.</p>
Offset calculator		
Start quality of Offset Area	3	<p>The habitat quality score for the Offset Area was assessed as a 3 out of 10. Suitable habitat within the Offset Area primarily consists of <i>Eucalyptus coolabah</i> dominated woodland fringing ephemeral watercourses. Additionally, minor areas include stock dams, waterholes, shallow gilgai microrelief, and seasonal swamps. Significant threat to this habitat is cattle grazing, as livestock movements around dams and drainage lines degrade wetland vegetation, reducing suitable roosting and foraging areas.</p> <p>Detailed habitat quality calculations are presented in Appendix E.</p>
Future quality with offset	4	<p>With the securement of the Offset Area, a number of management actions will be implemented to improve the habitat quality for the species. Effective stock management to reduce wetland vegetation degradation and maintain suitable roosting and foraging areas. Additionally, managing feral cat populations could enhance habitat conditions for the Australian painted snipe and other MNES species. The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>
Future quality without offset	3	<p>Without the securement of the Offset Area, habitat for Australian painted snipe is likely to continue to degrade over time. The modelled site condition, context and species stocking rate scores for the scenario without an offset demonstrates that while decline in habitat quality will occur, it is unlikely to result in a full one-point decline in habitat quality.</p> <p>The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>



Input	Area (ha) or Score (rounded)	Discussion
Confidence in result	85%	As management measures such as weed management and livestock management reduce threats on the species while increasing habitat quality through improving species diversity, the confidence in the Offset Area habitat quality being improved is rated at 85%.
Risk of loss without offset	0.167%	<p>The RoL guidance document prescribes a RoL value of 0% for the Mckinlay LGA (itemised in Appendix 1 of the guidance document (Maseyk et al., 2017)). E2M is of the opinion that the prescribed RoL value of 0% nominated in the guidance document does not accurately represent the RoL across the Offset Property.</p> <p>As such, E2M revised the methodology prescribed to determine an accurate RoL for the Offset Property. This assessment concluded that the background rate of loss used in the guidance document is an underestimation for the Offset Area. Based on the analysis undertaken as part of this assessment an accurate RoL for the project is considered to be 0.167%.</p> <p>The full methodology and findings of the RoL are presented Appendix J.</p>
Risk of loss with offset	0%	Risk of loss with offset is estimated to be 0%, as the Offset Area is proposed to be protected through a Voluntary Declaration under the VM Act, or another suitable security mechanism accepted by the QLD and Commonwealth governments, which will prevent clearing.
Risk-related time horizon (years)	20	The Offset Area is proposed to be protected by a legally binding mechanism which will remain in effect as required by the applicable state and Commonwealth legislative requirements, therefore, the time over which loss is averted is considered to be the maximum allowable time of 20 years.
Time until ecological benefit (years)	20	It is estimated approximately 20 years is required for community structure and native species regeneration as well as effective implementation of weed control measures.



G.2 OAG Justification summary tables - Julia Creek dunnart

Input	Area (ha) or Score (rounded)	Discussion
Impact calculator		
Impact (ha)	410.3	This is the area required to be offset for Stage 1 of the Project in accordance with the EPBC Act approval (EPBC 2019/8416 Stage 1).
Quality of Stage 1 Construction Zone	5	<p>The quality score for Julia Creek dunnart within the Stage 1 Construction Zone was assessed as a 5 out of 10. The condition of the relevant REs was assessed as part of the detailed field surveys using the methodology discussed in <i>Habitat Quality Report - Impacts for CopperString Alignment Stage 1</i> (Base, 2024) (attached in Appendix A).</p> <p>Microhabitat features such as tussock grasslands and cracking clay soils were found within the Stage 1 Construction Zone but were limited by significant disturbance from weed incursion, intensive cattle grazing and track/fence construction.</p>
Offset calculator		
Start quality of Offset Area	5	<p>The habitat quality score for the Offset Area was assessed as a 5 out of 10. The Offset Area contains suitable habitat for the Julia Creek dunnart, primarily in tussock grasslands with cracking clay soils that provide foraging and shelter, particularly in floodplain regions near Gidya Creek and Gilliat River. However, habitat quality is threatened by heavy grazing, which reduces grass cover and soil cracks, as well as by feral cat predation and the spread of prickly acacia, which outcompetes native grasses.</p> <p>Detailed habitat quality calculations are presented in Appendix E.</p>
Future quality with offset	6	<p>With the securement of the Offset Area, a number of management actions will be implemented to improve the habitat quality for the species. Managing livestock grazing, controlling weeds, and implementing targeted pest control will enhance habitat quality and site conditions over time, strengthening ecosystem resilience and providing lasting benefits for the species.</p> <p>The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>
Future quality without offset	5	<p>Without the securement of the Offset Area, habitat for Julia Creek dunnart is likely to continue to degrade over time. The modelled site condition, context and species stocking rate scores for the scenario without an offset demonstrates that while decline in habitat quality will occur, it is unlikely to result in a full one-point decline in habitat quality.</p> <p>The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>
Confidence in result	85%	As management measures such as weed management and livestock management reduce threats on the species while increasing habitat quality through improving species diversity, the confidence in the Offset Area habitat quality being improved is rated at 85%.



Input	Area (ha) or Score (rounded)	Discussion
Risk of loss without offset	0.167%	<p>The RoL guidance document prescribes a RoL value of 0% for the Mckinlay LGA (itemised in Appendix 1 of the guidance document (Maseyk et al., 2017)). E2M is of the opinion that the prescribed RoL value of 0% nominated in the guidance document does not accurately represent the RoL across the Offset Property.</p> <p>As such, E2M revised the methodology prescribed to determine an accurate RoL for the Offset Property. This assessment concluded that the background rate of loss used in the guidance document is an underestimation for the Offset Area. Based on the analysis undertaken as part of this assessment an accurate RoL for the project is considered to be 0.167%.</p> <p>The full methodology and findings of the RoL are presented Appendix J.</p>
Risk of loss with offset	0%	<p>Risk of loss with offset is estimated to be 0%, as the Offset Area is proposed to be protected through a Voluntary Declaration under the VM Act, or another suitable security mechanism accepted by the QLD and Commonwealth governments, which will prevent clearing.</p>
Risk-related time horizon (years)	20	<p>The Offset Area is proposed to be protected by a legally binding mechanism which will remain in effect as required by the applicable state and Commonwealth legislative requirements, therefore, the time over which loss is averted is considered to be the maximum allowable time of 20 years.</p>
Time until ecological benefit (years)	20	<p>It is estimated approximately 20 years is required for community structure and native species regeneration as well as effective implementation of weed control measures.</p>



G.3 OAG justification summary tables - painted honeyeater

Input	Area (ha) or Score (rounded)	Discussion
Impact calculator		
Impact (ha)	81.8	This is the area required to be offset for Stage 1 of the Project in accordance with the EPBC Act approval (EPBC 2019/8416 Stage 1).
Quality of Stage 1 Construction Zone	4	<p>The quality score for painted honeyeater habitat within the Stage 1 Construction Zone was assessed as a 4 out of 10. The condition of the relevant REs was assessed as part of the detailed field surveys using the methodology discussed in <i>Habitat Quality Report - Impacts for CopperString Alignment Stage 1</i> (Base, 2024) (attached in Appendix A).</p> <p>Important food and foraging resources, mistletoe, were found to be limited within the Stage 1 Construction Zone and are limited to open woodlands within and adjoining the riparian vegetation.</p>
Offset calculator		
Start quality of Offset Area	3	<p>The habitat quality score for painted honeyeater habitat within the Offset Area was assessed as a 3 out of 10. The Offset Area contains suitable habitat for the painted honeyeater, primarily in <i>Eucalyptus coolabah</i> dominated woodlands along ephemeral watercourses, where mistletoe, the species' primary food source, is present, along with some <i>Acacia cambagei</i> low woodlands that may serve as foraging or dispersal corridors. However, key threats within the Offset Area included habitat degradation from heavy grazing, particularly near water sources where essential habitat trees are located, and competition from aggressive bird species like the noisy miner.</p> <p>Detailed habitat quality calculations are presented in Appendix E.</p>
Future quality with offset	5	<p>With the securement of the Offset Area, targeted management actions will be implemented to enhance habitat quality for the painted honeyeater. Managing grazing will support tree regeneration and maintain mistletoe availability, the species' primary food source, while exploring mistletoe propagation and protecting host trees will further improve foraging opportunities. These measures will contribute to long-term improvements in habitat quality, strengthening ecosystem resilience and providing lasting benefits for the species.</p> <p>The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>



Input	Area (ha) or Score (rounded)	Discussion
Future quality without offset	3	<p>Without the securement of the Offset Area, habitat for painted honeyeater is likely to continue to degrade over time. The modelled site condition, context and species stocking rate scores for the scenario without an offset demonstrates that while decline in habitat quality will occur, it is unlikely to result in a full one-point decline in habitat quality.</p> <p>The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>
Confidence in result	85%	<p>As management measures such as weed management reduce threats on the species while increasing habitat quality through improving species diversity and recruitment of canopy species, the confidence in the Offset Area habitat quality being improved is rated at 85%.</p>
Risk of loss without offset	0.167%	<p>The RoL guidance document prescribes a RoL value of 0% for the Mckinlay LGA (itemised in Appendix 1 of the guidance document (Maseyk et al., 2017)). E2M is of the opinion that the prescribed RoL value of 0% nominated in the guidance document does not accurately represent the RoL across the Offset Property.</p> <p>As such, E2M revised the methodology prescribed to determine an accurate RoL for the Offset Property. This assessment concluded that the background rate of loss used in the guidance document is an underestimation for the Offset Area. Based on the analysis undertaken as part of this assessment an accurate RoL for the project is considered to be 0.167%.</p> <p>The full methodology and findings of the RoL are presented Appendix J.</p>
Risk of loss with offset	0%	<p>Risk of loss with offset is estimated to be 0%, as the Offset Area is proposed to be protected through a Voluntary Declaration under the VM Act, or another suitable security mechanism accepted by the QLD and Commonwealth governments, which will prevent clearing.</p>
Risk-related time horizon (years)	20	<p>The Offset Area is proposed to be protected by a legally binding mechanism which will remain in effect as required by the applicable state and Commonwealth legislative requirements, therefore, the time over which loss is averted is considered to be the maximum allowable time of 20 years.</p>
Time until ecological benefit (years)	20	<p>It is estimated approximately 20 years is required for community structure and native species regeneration as well as effective implementation of weed control measures.</p>



G.4 OAG Justification summary tables - plains death adder

Input	Area (ha) or Score (rounded)	Discussion
Impact calculator		
Impact (ha)	374.3	This is the area required to be offset for Stage 1 of the Project in accordance with the EPBC Act approval (EPBC 2019/8416 Stage 1).
Quality of Stage 1 Construction Zone	4	<p>The quality score for Plains death adder within the Stage 1 Construction Zone was assessed as a 4 out of 10. The condition of the relevant REs was assessed as part of the detailed field surveys using the methodology discussed in <i>Habitat Quality Report - Impacts for CopperString Alignment Stage 1</i> (Base, 2024) (attached in Appendix A).</p> <p>Microhabitat features such as cracking clay soils in association with grasslands intersecting drainage lines and floodplains were found to be limited within the Stage 1 Construction Zone and are limited by significant disturbance from weed incursion, intensive cattle grazing and track/fence construction. This has resulted in trampling and compaction of potential foraging and sheltering microhabitats.</p>
Offset calculator		
Start quality of Offset Area	3	The habitat quality score for plains death adder habitat within the Offset Area was assessed as a 3 out of 10. The Offset Area primarily consists of floodplains and clay plains with tussock grasslands, moderate to deep soil cracks, shallow gilgai microrelief, seasonal swamps, and alluvial plains. However, habitat quality is impacted by key threats, including potential poisoning from cane toads, predation by feral cats, degradation from grazing, and the effects of inappropriate fire regimes on ground cover and prey availability. Detailed habitat quality calculations are presented in Appendix E.1.
Future quality with offset	5	<p>With the securement of the Offset Area, a number of management actions will be implemented to improve the habitat quality for the species. To improve habitat suitability, targeted control of feral cats along with management of livestock grazing, will help maintain ground cover and support prey populations, ensuring a more stable environment for the plains death adder.</p> <p>The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>
Future quality without offset	3	<p>Without the securement of the Offset Area, habitat for plains death adder is likely to continue to degrade over time. The modelled site condition, context and species stocking rate scores for the scenario without an offset demonstrates that while decline in habitat quality will occur, it is unlikely to result in a full one-point decline in habitat quality.</p> <p>The detailed habitat quality calculations for this modelled scenario are provided in Appendix E.</p>



Input	Area (ha) or Score (rounded)	Discussion
Confidence in result	85%	As management measures such as weed management and livestock management reduce threats on the species while increasing habitat quality through improving species diversity and recruitment of canopy species, the confidence in the Offset Area habitat quality being improved is rated at 85%.
Risk of loss without offset	0.167%	<p>The RoL guidance document prescribes a RoL value of 0% for the Mckinlay LGA (itemised in Appendix 1 of the guidance document (Maseyk et al., 2017)). E2M is of the opinion that the prescribed RoL value of 0% nominated in the guidance document does not accurately represent the RoL across the Offset Property.</p> <p>As such, E2M revised the methodology prescribed to determine an accurate RoL for the Offset Property. This assessment concluded that the background rate of loss used in the guidance document is an underestimation for the Offset Area. Based on the analysis undertaken as part of this assessment an accurate RoL for the project is considered to be 0.167%.</p> <p>The full methodology and findings of the RoL are presented Appendix J.</p>
Risk of loss with offset	0%	Risk of loss with offset is estimated to be 0%, as the Offset Area is proposed to be protected through a Voluntary Declaration under the VM Act, or another suitable security mechanism accepted by the QLD and Commonwealth governments, which will prevent clearing.
Risk-related time horizon (years)	20	The Offset Area is proposed to be protected by a legally binding mechanism which will remain in effect as required by the applicable state and Commonwealth legislative requirements, therefore, the time over which loss is averted is considered to be the maximum allowable time of 20 years.
Time until ecological benefit (years)	20	It is estimated approximately 20 years is required for community structure and native species regeneration as well as effective implementation of weed control measures.

