High Pathology Avian Influenza

H5N1- clade 2.3.4.4b

Preparedness Planning

Barkly Tablelands

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Northern Territory Government- DLPE

NORTHERN TERRITORY GOVERNMENT

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Contact details	NT Department of Lands, Planning and Environment
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Acronyms	Full form
NT	Northern Territory
DLPE	Department of Lands, Planning and Environment
DAF	Department of Agriculture and Fisheries

Contents

Purpose and Audience

In the Northern Territory (NT), the Northern Territory Department of Agriculture and Fisheries (NT DAF) is the lead agency for biosecurity emergencies and leads all phases of emergency management for a H5 bird flu incursion in the NT. The aim in response to the H5 Bird flu will be to minimise impacts on NT wildlife populations, domestic animals, people and the environment. Eradication of H5 bird flu in wildlife is not considered feasible and will not be attempted. Management will eventually transition following H5 bird flu becoming endemic within wildlife populations.

Objectives for a response in wildlife will vary, but may include:

- Ensuring public safety and Work Health and Safety (WHS),
- Identifying the source, extent and spread of diseases,
- Minimising the conservation impact of disease where possible,
- Enhance the surveillance of wild bird populations to identify at risk populations and monitor impacts,
- Managing animal welfare,
- Enhancing biosecurity for captive wildlife.

Within this context, this document is designed to assist wildlife managers to:

- Enable early detection of H5 avian influenza and infection in other susceptible species at priority sites.
- Implement biosecurity measures to reduce the risk of H5 avian influenza establishment and spread.
- Minimise risks to human, animal, and environmental health posed by H5 avian influenza.
- Ensure land/wildlife managers and biosecurity representatives working within the site, or deployed during an incident, are prepared for outbreak response and recovery.
- Establish communication, surveillance, and reporting protocols consistent with relevant legislation, emergency management arrangements, animal welfare requirements, and workplace health and safety obligations.

This document identifies sites of significance, including areas where key species are likely found. Some sites relate to species-specific risks - for example, wetlands important for populations of magpie geese or major shorebird aggregation areas, while others are recognised as matters of national significance, such as islands. Collectively, this information outlines which actions are eligible or ineligible for cost-sharing and highlights any further work required to refine each action. This supports more targeted planning and helps clarify the appropriate cost-sharing arrangements.

Broadly, preparedness and response actions aim to:

- protect people by reducing contact with infected birds and contaminated environments,
- prevent virus spread, including via footwear, clothing, or equipment,
- minimise stress and build resilience in wildlife populations.

This document outlines actions to support conservation and management of a potential an H5 avian influenza outbreak in wildlife populations. It aligns with Commonwealth priorities and obligations and informs future management and investment decisions to mitigate impacts on wildlife.

Introduction

This is a Preparedness document for the Barkly Tablelands of the Northern Territory (NT) that contributes towards a larger body of work regarding landscape scale planning in response to a potential incursion of High Pathology Avian Influenza, H5N1, clade 2.3.4.4b (herein referred to as HPAI). Specifically, the document focuses on site and landscape scale considerations and addresses selected avian species across 10 key sites: Lake Woods, Lake Sylvester, Tarrabool Lake, Lake De Burgh, Corella Lake, Eva Downs Swamp, Frewena Marsh, Longreach Waterhole, South Newcastle Waterhole and the Brunette Homestead Lagoon (Jaensch, 2003; Jaensch & Bellchambers, 1995).

Surveys of the Barkly Tablelands conducted between 1993 and 1995 documented the presence of 32 ephemeral wetlands in the region (Jaensch and Bellchambers, 1995). The surveys also demonstrated that the ephemeral wetlands periodically support large aggregations of waterbirds rapidly after rainfall and flooding occur. These rapid aggregation events have been observed, particularly at Lake Sylvester, Lake Woods and Tarrabool Lake.

HPAI preparedness strategies in the NT therefore should emphasise surveillance linked to hydrological conditions, including rainfall and flooding events that trigger large waterbird movements. Integration of disease planning, surveillance and population monitoring with existing land management frameworks is important.

Additional NT locations and associated target species targeted for HPAI preparedness are addressed in complementary documents. Collectively, these documents identify the species and locations that could be substantially affected by the introduction of HPAI, whether through ecological impacts, proximity to sensitive environments, or their connection to Matters of National Environmental Significance. Accompanying documents include the Wildlife Actions Register to support response activities and inform the response plan.

An Emergency Response to the arrival of HPAI will be activated via the National Management Agreement (NMA) at the scale deemed appropriate by a potential outbreak. The agreement functions in parallel with the Emergency Animal Disease Response Agreement (EADRA), providing interoperability of governance and decision-making Australia-wide.

Vaccination or translocation of any species currently are not considered to be viable options for management of wild bird populations in the NT. Instead, actions focus on HPAI preparedness (e.g., surveillance and population monitoring, mitigating existing threats via feral animal and weed control), response (e.g., carcass removal from some locations, management of public access to infected areas) and recovery (e.g., population monitoring).

Species at Risk

Avian fauna associated with the Barkly Tablelands may play a dual role in HPAI epidemiology, functioning both as vectors that enable virus dispersal and as susceptible hosts that can experience substantial mortality. For HPAI preparedness planning, vulnerable species were grouped into assemblages based on ecological characteristics and habitat use, these include:

- Islands - offshore islands and associated avian assemblages, including colonial breeding seabirds and shorebirds that regularly use islands for roosting (Ray Chatto surveys, 1990-2001).
- Shorebirds - species occurring along mainland beaches and coastal mudflats, estuaries, and wetlands, including EPBC-listed migratory and resident species (Garnett, 2008, 1987).
- Colonial Waterbirds - freshwater and estuarine colonial breeders in wetlands and rivers.
- Barkly Tablelands- inland, episodic wetland-dependent species (Jaensch, 2003).
- Magpie goose- a culturally and ecologically significant species that forms large aggregations in floodplain wetlands and is of particular relevance due to its abundance, mobility, and susceptibility to HPAI disease impacts (Clancy, 2020).

The current document considers species with documented, repeated use of the Barkly Tablelands for breeding or roosting. Ecological traits that heighten HPAI vulnerability in these species include:

- Colonial breeding and high contact rates and potential for rapid transmission.
- Use of habitats overlapping with other susceptible or vector species.
- Documented susceptibility or exposure to clade 2.3.4.4 HPAI viruses (Wildlife Health Australia, 2024).

Target Species

The Barkly Tablelands are dominated by treeless Mitchell grasslands (*Astrebla* spp.*)* established on extensive cracking clay plains, interspersed with shallow, endorheic wetland systems that fill episodically in response to rainfall, with both the area and duration of inundation varying markedly each year. The Mitchell Grass Downs Bioregion occupies a total area of 333,900 km^2, of which 238,100 km^2 is in central and western Queensland and 92,680 km^2 in the central-eastern Northern Territory (Fisher et al., 2002).

The Barkly Lakes province (11,510 km^2) is a large low depression within the Barkly Tableland province, with several intermittent freshwater lakes that flood out to cover a large proportion of the province when full, fed by short rivers and indistinct drainage lines from the surrounding Tableland. When inundated, the wetlands support large and taxonomically diverse waterbird assemblages (Fisher, Baker and Woinarski, 2002).

The biological values of wetlands in the bioregion were previously described by (Jaensch & Bellchambers, 1995), based on aerial and ground surveys between 1993 and 1995. In terms of the number of bird species, total number of individuals and size of breeding colonies, the Barkly Tableland wetlands are the most significant in the Northern Territory outside the northern floodplains. Six of the larger intermittent lakes - Lake Woods, Lake Sylvester, Tarrabool Lake, Lake de Burgh, Corella Lake, Eva Downs Swamp - are listed in the Directory of Important Wetlands in Australia (Usback et al., 1993) (Figure 1) and at least the first four of these meet criteria for Ramsar listing due to the total number of waterbirds and/or migratory birds that they periodically support.

Jaensch and colleagues did not sample wetlands in the east and southeast portions of the bioregion within the NT. While there are no large intermittent lakes within this area, there are many small intermittent wetlands as well as waterholes associated with the Georgina drainage system (Fisher et al., 2002).

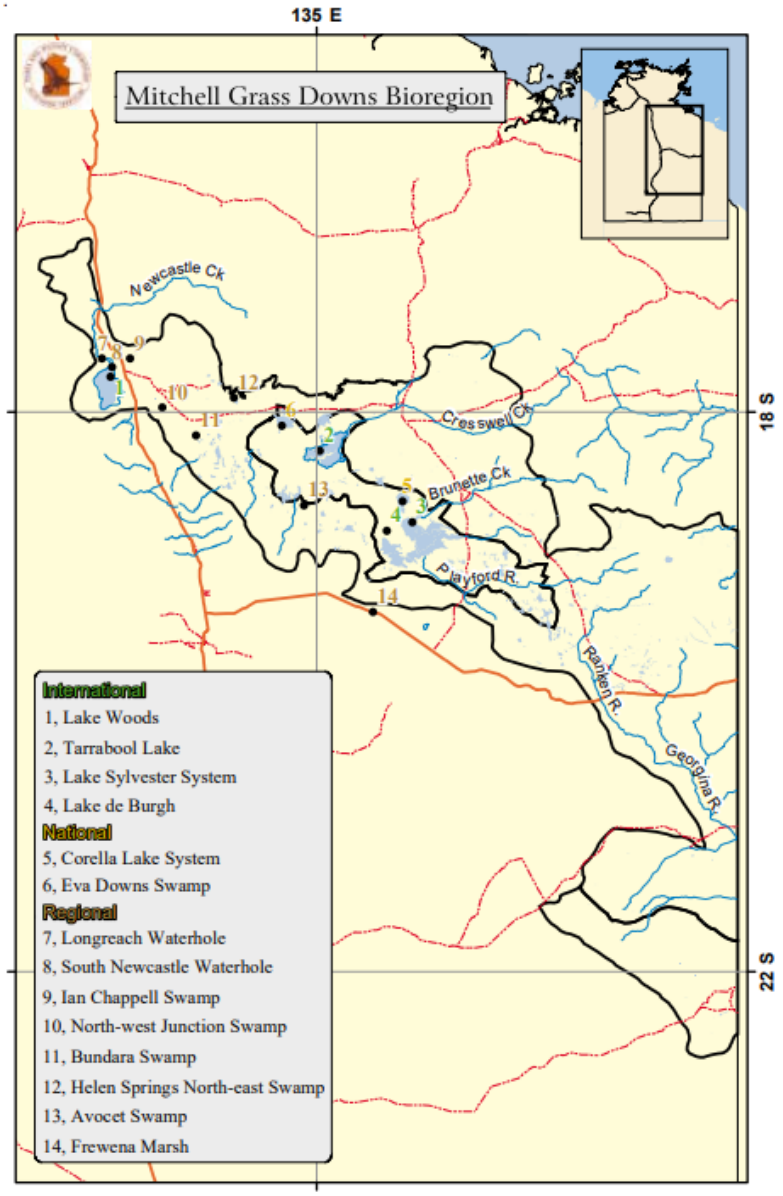


Figure 1: Wetlands in the NT portion of the Mitchell Grass Downs bioregion that are significant for waterbird with indication of significance (Fisher et al., 2002)

The Mitchell grasslands provide habitat for several specialist species. Spillover infections may occur at shared water sources where susceptible species are exposed to virus shed by infected birds, particularly in aquatic environments that facilitate viral persistence (Ahmad, et al., 2022). Predatory and scavenging species may face increased exposure risk through the consumption of infected prey or carcasses (Couty et al., 2026; More et al., 2017).

Species considered under international agreements are also significant. Australia is located at the southern end of the East Asian-Australasian Flyway. International cooperation to enable travelling birds to make stop overs and complete the migration is critical to their persistence. International

migratory bird agreements to which Australia is a signatory, such as the Convention on Migratory Species and JAMBA, CAMBA and ROKAMBA, acknowledge this. Within the Barkly region Jaensch (2003) documented nine waterbird species associated with the agreements between 1993 and 2002, including Garganey (*Spatula querquedula*), Swinhoe's Snipe (*Gallinago megala*), Oriental Reed-Warbler (*Acrocephalus orientalis*), and White-winged Black Tern (*Chlidonias leucopterus*).

The Barkly Tablelands is also associated with providing habitat for several colonial-breeding species that are not considered threatened.

The species profile details basic information about each species (see Wildlife Risk Assessment Template). This table supports a NMA Response Plan by providing a general description and estimated numbers of species that helps define the 'vicinity' as outlined in the AUSVETPLAN response template. Details are indicative only and require case-by-case updating due to significant spatial and seasonal variation in wildlife distribution across the Northern Territory.

Target and Associated Species Table

Table 1: Species of interested regarding HPAI preparedness and response on the Barkly Tablelands (taxonomy and sequencing follow AviList: (Rheindt et al., 2025).

Scientific Name	Common Name	Order	Family Scientific Name	Risk Group/ Family Name	Risk sub-group	Estimated HPAI Susceptibility Index
Anseranas semipalmata	Magpie Goose	Anseriformes	Anseranatidae	Ducks, Geese and Swans	Anatids	0.86
Stictonetta naevosa	Freckled Duck	Anseriformes	Anatidae	Ducks, Geese and Swans	Anatids	0.86
Cygnus atratus	Black Swan	Anseriformes	Anatidae	Ducks, Geese and Swans	Anatids	0.86
Spatula querquedula	Garganey	Anseriformes	Anatidae	Ducks, Geese and Swans	Anatids	0.86
Poliocephalus poliocephalus	Hoary-headed Grebe	Podicipediformes	Podicipedidae	Grebes	Grebes	0.3
Podiceps cristatus	Great Crested Grebe	Podicipediformes	Podicipedidae	Grebes	Grebes	0.3
Phaps histrionica	Flock Bronzewing	Columbiformes	Columbidae	Pigeons and Doves	Pigeons	0.37
Porzana fluminea	Australian spotted crake	Gruiformes	Rallidae	Crakes, Rails and Swamphens	Other bird	0.26
Tribonyx ventralis	Black-tailed Native-hen	Gruiformes	Rallidae	Crakes, Rails and Swamphens	Other bird	0.26
Antigone rubicunda	Brolga	Gruiformes	Gruidae	Cranes	Crane group	0.73
Ardeotis australis	Australian Bustard	Otidiformes	Otididae	Bustards	Other bird	0.23
Platalea flavipes	Yellow-billed Spoonbill	Pelecaniformes	Threskiornithidae	Ibis and Spoonbills	Ibis group	0.26
Platalea regia	Royal Spoonbill	Pelecaniformes	Threskiornithidae	Ibis and Spoonbills	Ibis group	0.26
Threskiornis molucca	Australian White Ibis	Pelecaniformes	Threskiornithidae	Ibis and Spoonbills	Ibis group	0.26
Threskiornis spinicollis	Straw-necked Ibis	Pelecaniformes	Threskiornithidae	Ibis and Spoonbills	Ibis group	0.26

Plegadis falcinellus	Glossy Ibis	Pelecaniformes	Threskiornithidae	Ibis and Spoonbills	Ibis group	0.26
Nycticorax caledonicus	Nankeen Night-Heron	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Ardea pacifica	White-necked Heron	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Ardea alba	Great Egret	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Ardea plumifera	Plumed Egret	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Egretta picata	Pied Heron	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Egretta novaehollandiae	White-faced Heron	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Egretta garzetta	Little Egret	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Pelecanus conspicillatus	Australian Pelican	Pelecaniformes	Pelecanidae	Pelican	Pelican	0.89
Microcarbo melanoleucos	Little Pied Cormorant	Pelecaniformes	Phalacrocoracidae	Cormorants and Shags	Cormorants and Shags	0.48
Phalacrocorax carbo	Great Cormorant	Pelecaniformes	Phalacrocoracidae	Cormorants and Shags	Cormorants and Shags	0.48
Phalacrocorax sulcirostris	Little Black Cormorant	Pelecaniformes	Phalacrocoracidae	Cormorants and Shags	Cormorants and Shags	0.48
Phalacrocorax varius	Great Pied Cormorant	Pelecaniformes	Phalacrocoracidae	Cormorants and Shags	Cormorants and Shags	0.48
Anhinga novaehollandiae	Australasian Darter	Pelecaniformes	Anhingidae	Darter	Darters	0.89
Haematopus longirostris	Australian Pied Oystercatcher	Charadriiformes	Haematopodidae	Oystercatchers	Oystercatchers	0.2
Haematopus fuliginosus	Sooty Oystercatcher	Charadriiformes	Haematopodidae	Oystercatchers	Oystercatchers	0.2
Cladorhynchus leucocephalus	Banded Stilt	Charadriiformes	Recurvirostridae	Stilts and Avocets	Stilts and Avocets	0.14
Recurvirostra novaehollandiae	Red-necked Avocet	Charadriiformes	Recurvirostridae	Stilts and Avocets	Stilts and Avocets	0.14
Rostrulata australis	Australian Painted snipe	Charadriiformes	Rostratulidae	Painted Snipe	Other bird	0.65

Calidris subminuta	Long-toed stint	Charadriiformes	Scolopacidae	Snipe, Sandpipers, Godwits, Curlew, Stints and Phalaropes	Waders, gulls	0.21
Gallinago megala	Swinhoe's Snipe	Charadriiformes	Scolopacidae	Snipe, Sandpipers, Godwits, Curlew, Stints and Phalaropes	Waders, gulls	0.21
Tringa glareola	Wood Sandpiper	Charadriiformes	Scolopacidae	Snipe, Sandpipers, Godwits, Curlew, Stints and Phalaropes	Waders, gulls	0.21
Stiltia isabella	Australian Pratincole	Charadriiformes	Glareolidae	Pratincoles	Other bird	0.65
Glareola maldivarum	Oriental Pratincole	Charadriiformes	Glareolidae	Pratincoles	Other bird	0.65
Bubulcus coromanda	Eastern Cattle Egret	Pelecaniformes	Ardeidae	Herons, Egrets and Bitterns	Herons	0.56
Chroicocephalus novaehollandiae	Silver Gull	Charadriiformes	Laridae	Gulls, Terns and Noddies	Waders, gulls	0.88
Gelochelidon nilotica	Australian Gull-billed Tern	Charadriiformes	Laridae	Gulls, Terns and Noddies	Waders, gulls	0.88
Hydroprogne caspia	Caspian Tern	Charadriiformes	Laridae	Gulls, Terns and Noddies	Waders, gulls	0.88
Chlidonias hybrida	Whiskered Tern	Charadriiformes	Laridae	Gulls, Terns and Noddies	Waders, gulls	0.88
Chlidonias leucopterus	White-winged Black Tern	Charadriiformes	Laridae	Gulls, Terns and Noddies	Waders, gulls	0.88
Tyto novaehollandiae	Masked Owl	Strigiformes	Tytonidae	Masked Owls	Owl	0.61
Pandion haliaetus	Osprey	Accipitriformes	Pandionidae	Osprey	Raptors	0.68
Haliaeetus leucogaster	White-bellied Sea-Eagle	Accipitriformes	Accipitridae	Eagles, Kites and Goshawks	Raptors	0.68
Acrocephalus orientalis	Oriental Reed-Warbler	Passeriformes	Acrocephalidae	Reed-Warblers	Passerines	0.07
Erythrura gouldiae	Gouldian Finch	Passeriformes	Estrildidae	Waxbills	Passerines	0

Distribution and Movement

Nomadism is a defining feature of many bird species associated with systems where resource availability is highly variable and influenced by the monsoonal climate system. Waterbirds, including ducks and pelicans, track ephemeral wetland habitats formed by irregular rainfall, undertaking extensive movements across inland regions such as the Barkly Tablelands when conditions permit. These resource-driven movements can result in rapid and sometimes large aggregations of waterbirds at newly inundated wetlands, shortly after rainfall events (Kingsford et al., 2010; Roshier et al., 2002).

The Barkly Tablelands also support specialist species associated with extensive Mitchell grass (*Astrebla*). Such species often exhibit movement patterns linked to resource variability, although generally at smaller spatial scales than waterbirds. For example, the Gouldian Finch occupies tropical savanna woodlands with grassy understorey and is closely associated with water availability, undertaking local movements and dispersal in response to seasonal changes in food and water resources (Tidemann, 1996; Tidemann et al., 1999). Similarly, the Flock Bronzewing is highly nomadic across arid grasslands, exhibiting marked spatial and temporal variability in distribution and moving widely in response to rainfall-driven pulses of grass seed production (Pavey & Nano, 2009; Roshier et al., 2002).

These movement dynamics can increase the likelihood of spatial overlap between terrestrial grassland species and wetland-associated bird aggregations, particularly during periods of resource concentration. Such overlap may elevate opportunities for interspecific contact at shared resources (e.g., water points), with potential implications for spillover exposure to highly pathogenic avian influenza (HPAI) (Couty et al., 2026).

Seasonal Activity Patterns and Breeding Phenology

Waterbirds respond rapidly to episodic rainfall events, with species and functional groups colonising newly inundated wetlands as resources become available. Records compiled by Jaensch (2003) between 1993 and 2002 demonstrate that wetlands in the Barkly region can quickly become important seasonal habitats following major flood events.

Surveys conducted by Jaensch and Bellchambers (1995) during 1993–1995 indicate that several species arrived at wetlands shortly after rainfall, sometimes even before full inundation of lake basins. Once wetlands fill, breeding responses are rapid, particularly for colonial nesting species such as ibis, egrets, and cormorants, which can form dense aggregations (Reid et al., 2006).

Threats

Threats to avian populations in the Barkly Tablelands operate through interacting processes. Habitat loss and degradation remain the primary pressures affecting waterbird populations across Australia and the NT (Kingsford et al., 2010). A range of potential pressures may influence avian populations into the future. Key threats include:

- Natural permanent and semi-permanent waterholes are scattered throughout the Barkly Tableland and, along with the riparian zones associated with the larger drainage lines (eg. Rankin, Georgina, Playford Rivers), have been subject to a long history of relatively intensive grazing pressure from cattle. These riparian areas are also most susceptible to invasion by problem weeds, notably *Parkinsonia aculeata* (Fisher et al., 2002).

- Invasive plants can alter vegetation communities, potentially reducing the availability of native plants. Species such as Mimosa (*Mimosa pigra*), Salvinia (*Salvinia molesta*), and Water Hyacinth (*Eichhornia crassipes*) have invaded wetlands in northern Australia and can form dense monocultures that exclude native vegetation.
- Invasive predators such as feral cats and foxes can prey on eggs, chicks, and adults.
- Feral pigs damage wetland vegetation and disturb nesting colonies.
- Direct human disturbance of feeding and breeding sites, as well as broader landscape-scale impacts.
    - Colonial waterbird breeding sites are particularly vulnerable to disturbance. Repeated disturbance can lead to colony abandonment and breeding failure.
- HPAI represents an emerging threat to avian populations globally (Couty et al., 2026).

Major issues of the Mitchell Grass bioregion and the Barkly Tablelands include:

- Between 1992 and 2004, the condition of the Mitchell Grass Downs bioregion was considered to have improved.
- Intense fires and less effective wet seasons have resulted in a decline in land condition (2004–2005).
- There has been a steady increase in the amount of woody weeds, in particular around waterpoints and areas with a long history of grazing.

Current Management Actions

The Barkly Tablelands cover 15% of the Territory. Primarily cattle country, nearly 75% of the region is under pastoral lease, while 17% is Aboriginal freehold. Less than 1% is covered by conservation reserves. There are three small conservation areas in the NT portion of the Mitchell Grass Downs bioregion with a total area of 556 km^2 (Fisher et al., 2002).

Public Interest

The potential impacts of HPAI on Australian wild bird populations are of interest to conservation/land managers and biosecurity authorities. Wild-bird conservation in Australia is supported by a range of national and international policy frameworks. Key mechanisms relevant to the NT include:

- Territory Parks and Wildlife Conservation Act 1976.
- Environment Protection and Biodiversity Conservation Act 1999
- International migratory bird agreements
- Australia's commitments under the Ramsar Convention on Wetlands
- Land-use planning processes that can identify and protect critical habitats and aim to minimise impacts.
- Birds of the Barkly Tablelands generate public interest through birdwatching, ecological research and cultural values.
    - Public perceptions vary, particularly where interactions occur with pastoral or agricultural land use occur (Fisher et al., 2002).

Susceptibility to HPAI

Several ecological factors influence the risk of HPAI introduction and spread in the Barkly Tablelands:

- Waterbirds including migratory waders represent a primary pathway for HPAI introduction to Australia. The documentation of four migratory species in the Barkly Wetlands (Jaensch & Bellchambers, 1995) indicates that migratory birds may reach the region.
- Colonial breeding sites and seasonal concentrations of waterbirds create high-density aggregations of species where disease transmission can occur (Couty et al., 2026; Reid et al., 2006)
- The nomadic behaviour of Australian waterbirds and their movements between sites create pathways for disease spread.

The potential impacts of HPAI on avian populations in the Barkly Tablelands could be severe through direct mortality, population declines, breeding failure, ecosystem impacts, social and cultural impacts.

Recommended Biosecurity Controls

Biosecurity preparedness for HPAI in the Barkly Tablelands should be designed to operate at a landscape scale that could remain adaptable to changing hydrological conditions and associated wildlife movements.

NT HPAI Wildlife Actions Register

The Wildlife Actions Register accompanies this document and summarises the actions considered in HPAI preparedness planning for the NT. It outlines key management activities, their alignment with the National Management Agreement (NMA), cost-sharing eligibility, and the likely lead agency for implementation.

The register is a living document and will continue to be updated as Australia's HPAI situation evolves. It identifies which actions are eligible or ineligible for NMA cost sharing and notes any further work required to develop each activity.
Overall, these actions aim to:

- protect people by reducing contact with infected birds and contaminated environments
- prevent the virus spreading via footwear, clothing, or equipment
- minimise additional stress on wildlife populations

Activities that may be subject to restriction may include, but are not limited to:

- tourism
- access to public spaces e.g., beaches, lakes.
- bird banding
- population monitoring or management activities
- research and environmental studies (with or without interaction with wildlife)
- pest animal control activities
- wildlife translocations
- recreational hunting.

There may be regular activities undertaken at the site that are essential to the health and welfare of the wildlife population, such as monitoring or maintenance activities. Permits or restriction exemptions may be required for certain activities if deemed appropriate by government authorities.

All Activities

Table 2: Activities during all phases

#	Management Category	Management Activity	Relative Priority - e.g., high/medium/low	Expected conservation benefit (to support implementation in emergency settings)	Biodiversity Outcome if No Action is Taken	Biodiversity Outcome if Action is Implemented
1	Control measure	**Long-term Population Monitoring - Magpie goose**	High	Supports conservation management of an iconic species, informs sustainable cultural harvest, and provides baseline data for detecting HPAI-related population impacts.	Mass mortality events may remain undetected until severe population decline occurs, potentially leading to collapse of harvestable populations and loss of ecological function.	Early detection of population impacts enables targeted management interventions, adaptive harvest controls and maintenance of sustainable, resilient populations.
2	Control measure	**Long-term monitoring- Wildlife Populations**	Medium	Supports ecosystem health assessment, early detection of population declines, and evaluation of HPAI impacts and recovery outcomes.	Population declines and local extinctions may occur without detection	Early warning of disease impacts supports evidence-based recovery planning, prioritisation of interventions and improved conservation outcomes.

Preparedness Activities

Table 4: Preparedness - Including resilience building and management activities

#	Management Category	Management Activity	Relative Priority - e.g., high/medium/low	Expected conservation benefit (to support implementation in emergency settings)	Biodiversity Outcome if No Action is Taken	Biodiversity Outcome if Action is Implemented
3	Surveillance	**Risk-Based Wildlife Surveillance (early detection)**	High	Critical for early detection of HPAI incursions, enabling timely response activation, reduced disease spread, and coordinated community engagement in emergency procedures.	Delayed detection may allow uncontrolled spread of HPAI across wildlife populations and into poultry systems, increasing biodiversity loss and economic impacts.	Rapid detection supports early containment, targeted response measures and maintenance of market and tourism confidence through proof-of-freedom evidence.
4	Surveillance	**Develop culturally appropriate wildlife biosecurity protocols**	High	Strengthens culturally informed preparedness and response capacity, integrates traditional ecological knowledge, and supports effective collaborative management.	Reduced compliance, mistrust and delayed reporting in remote and culturally sensitive areas may hinder response effectiveness.	Strong community participation improves surveillance coverage, reporting rates, cultural legitimacy and on-ground biosecurity outcomes.

5	Control measure	**Develop Carcass Management / Disposal Guidelines**	High	May reduce environmental viral loading, minimises secondary transmission risk, and improves responder safety and operational consistency.	Infected carcasses may increase scavenger exposure, environmental contamination and ongoing viral persistence in wetlands and waterways.	Effective carcass management reduces environmental viral load, breaks transmission pathways and protects sensitive wetland ecosystems.
6	Risk Assessment	**Data, Mapping and Modelling**	Medium	Improves risk assessment, resource prioritisation, epidemiological modelling, and evidence-based decision-making during preparedness and response activities.	Responses may be poorly targeted, inefficient and unable to prioritise high-value biodiversity assets.	Data-driven decision-making enables precise targeting of surveillance and protection measures for threatened species and MNES sites.
7	Risk Assessment	**Identify HPAI activities relevant to Threatened Species/ MNES**	High	Supports protection of threatened species and MNES, reduces risk of local population decline or extirpation, and enables rapid implementation of targeted response measures.	Highly vulnerable species or genetically distinct populations may suffer irreversible decline or extinction before interventions are mobilised.	Early prioritisation enables rapid activation of targeted protections and improves survival prospects for vulnerable species
8	Risk Assessment	**Develop Integrated Wildlife Response Plan**	High	Improves preparedness, coordination and operational efficiency while reducing the likelihood of fragmented response actions and ineffective resource allocation.	Fragmented governance and unclear responsibilities may delay response actions and reduce effectiveness.	Coordinated multi-agency mobilisation enables rapid, consistent and effective wildlife response operations across jurisdictions.
9	Risk Assessment	**Establish Decision Triggers & Wildlife Biosecurity Controls**	High	Supports timely and evidence-based decision-making, reduces disease spread risk, and strengthens implementation of proportionate control measures.	Delayed or inconsistent decisions may increase transmission and ecological damage.	Objective and defensible trigger mechanisms support timely implementation of effective biosecurity and containment measures.
10	Communications	**Communications Strategy**	High	Reduces misinformation and public concern, improves stakeholder coordination, and supports effective implementation of response measures.	Public confusion, misinformation and poor compliance may increase wildlife disturbance, illegal access and disease spread.	Clear and coordinated communication improves public confidence, stakeholder cooperation and adherence to biosecurity measures.
11	Control measure	**Feral Pest Control/Culling - Pigs and Buffalo**	Medium	Improves habitat condition and native species resilience while reducing scavenger-mediated spread	Habitat degradation and scavenger-mediated spread may increase wildlife vulnerability to HPAI and reduce recovery capacity.	Improved habitat condition and reduced scavenger pressure strengthen ecosystem resilience and native species survival.
12	Control measure	**Weed Reduction Activities**	Low	Enhances habitat resilience and supports healthier wildlife populations	Habitat degradation may concentrate birds into small refugia, increasing transmission risk and ecological stress.	Improved habitat distribution supports dispersed populations, reducing disease transmission and enhancing resilience.

Response Activities

Table 5: HPAI Incident Response Activities. Where indicated activities may be eligible under NMA cost-sharing arrangements, noting approval is at the discretion of the National Management Group. Eligible costs are those that are above and beyond the resource costs of a party that exists for / or are required to carry out its Normal Biosecurity and normal conservation commitments. NMA- Schedule 3

#	Management Category	Management Activity	Relative Priority - e.g., high/medium/low	Expected conservation benefit (to support implementation in emergency settings)	Biodiversity Outcome if No Action is Taken	Biodiversity Outcome if Action is Implemented
13	Control measure	**Humane Euthanasia**	Medium	Primarily supports animal welfare outcomes while reducing unnecessary suffering and maintaining public confidence in response activities.	Infected wildlife may experience prolonged suffering and continue shedding virus into the environment.	Reduced animal suffering and lower viral shedding contribute to improved welfare and biosecurity outcomes.
14	Surveillance	**Establish Surveillance in Outbreak Areas**	High	Defines extent of infection, improves situational awareness, and reduces risk of undetected spread to wildlife, livestock and humans.	Disease spread beyond the initial outbreak zone may remain undetected, increasing risk to wildlife and poultry sectors.	Enhanced surveillance enables targeted containment and protection of uninfected populations and ecosystems.
15	Surveillance	**Establish Surveillance for Surrounding Outbreak Areas**	High	Improves early detection at surrounding high-risk sites and reduces broader ecological and agricultural impacts.	Secondary outbreaks in isolated or high-value ecological areas may remain undetected until severe impacts occur.	Early detection in surrounding areas supports rapid protective actions and reduces risk to sensitive ecosystems.
16	Control measure	**Strategic and Targeted Feral Animal Control (Buffalo/Pig)**	Medium	Reduces potential for scavenger-mediated disease spread and lowers risk of HPAI transmission into unaffected areas and spillover species.	Feral animals may amplify environmental contamination and contribute to ongoing disease spread.	Reduced scavenger activity lowers environmental viral loads and supports outbreak containment.
17	Control measure	**Consider immediate hunting suspension- Magpie Goose Harvesting**	High	Reduces human-mediated spread risk, limits disturbance to infected wildlife populations, and protects community and cultural values.	Human-assisted spread through contaminated equipment, vehicles and movement between sites may accelerate disease transmission.	Reduced movement-related transmission supports containment and enables earlier recovery of hunting activities.
18	Control measure	**Limit Non-essential Access**	High	Reduces disturbance-driven dispersal and minimises mechanical spread through fomites, vehicles and human movement.	Increased human disturbance may disperse infected birds and spread virus between colonies and wetlands.	Reduced disturbance and human-mediated spread help localise outbreaks and support wildlife recovery.

19	Environmental Management	**Implement Carcass Disposal**	High	Reduces environmental contamination and wildlife exposure risk while supporting effective outbreak containment.	Persistent carcasses may contaminate wetlands and maintain long-term environmental reservoirs of virus.	Removal and safe disposal reduce environmental contamination and improve conditions for ecosystem recovery.
20	Environmental Management	**Decontamination Procedures**	High	Maintains operational biosecurity and reduces risk of cross-site contamination and spillover transmission.	Personnel, vehicles and equipment may become vectors for disease spread between sites.	Strong biosecurity protocols maintain operational integrity and minimise human-assisted transmission.
21	Communications	**Distribute Communications Products**	High	Supports compliance with response measures, improves public understanding, and maintains stakeholder confidence.	Poor awareness and misunderstanding may result in non-compliance, unauthorised access and increased spread risk.	Consistent messaging improves compliance, supports containment measures and enhances public trust.

Post Incursion Activities

Table 6: Post-incursion activities to build population resilience and ensure population management is appropriate.

#	Management Category	Management Activity	Relative Priority - e.g., high/medium/low	Expected conservation benefit (to support implementation in emergency settings)	Biodiversity Outcome if No Action is Taken	Biodiversity Outcome if Action is Implemented
22	Environmental Management	**Weed Reduction/ Land Management**	Medium	Restores habitat quality, supports ecosystem resilience, and reduces conditions that may facilitate disease spread.	Degraded habitats may limit recovery of surviving populations and reduce long-term ecosystem resilience.	Restored habitats improve ecosystem functionality and support recolonisation and population recovery.
23	Environmental Management	**Feral Pig and Buffalo control**	High	Supports wildlife recovery, improves habitat resilience, and maximises post-outbreak survivor recruitment and population stability.	Feral pests may suppress recovery of vulnerable native species through predation, habitat destruction and disturbance.	Reduced pest pressure supports rapid recovery and stabilisation of native wildlife populations following HPAI impacts.

Disease Surveillance

Active Surveillance

- Targeted sampling: Regular collection of faecal samples or swabs at key sites
- Sentinel species monitoring: Focused surveillance of species known to be highly susceptible to HPAI (e.g., waterfowl, gulls) that may serve as early indicators of virus presence.

Passive Surveillance

- Mortality monitoring: Systematic reporting and investigation of shorebird mortality events.
- Behavioural monitoring: Observation for signs of illness in shorebird populations, including lethargy, neurological signs, or unusual behaviour.

Surveillance Priorities

- High-priority sites: sites supporting large shorebird concentrations or threatened species.
- High-risk periods: Peak migration periods (September-November, March-May) when birds are arriving from or departing to regions where HPAI may be present.
- Trigger events: Increased rainfall within region and increased surveillance following HPAI detections in nearby regions or along the flyway.

Population Monitoring

Population monitoring forms a critical component of early detection, surveillance and response planning for HPAI. Regular monitoring of wild bird populations can assist in identifying mortality events, changes in species composition or abnormal behaviour that may indicate disease presence as well as developing an updated species baseline and measuring long-term impacts of HPAI.

Monitoring efforts in the Barkly Tablelands should prioritise locations known to support large bird aggregations, particularly following significant rainfall events.

Population monitoring of waterbirds in the Northern Territory may employ various approaches, including aerial surveys, ground surveys, and satellite telemetry. Where feasible, monitoring activities may include:

- aerial surveys of major wetlands during wet periods
- opportunistic field inspections where access is possible
- recording of bird numbers, species composition and breeding activity
- reporting and investigation of unusual wildlife mortality events.

Engagement with landholders, ranger groups and land managers may also assist in improving the spatial coverage of monitoring activities across remote areas of the Barkly Tablelands.

Limitations in Population Monitoring

Standardised ongoing avian population monitoring in the Barkly Tablelands is limited, creating significant knowledge gaps. Jaensch's research documenting waterbird occurrence between 1993 and 2002 (Jaensch, 2003) provides important baseline data, but systematic ongoing monitoring over a large temporal and spatial scale is lacking. Population monitoring within the Barkly Tablelands is constrained by several practical and ecological factors. The region is large and remote, and many wetlands are difficult to access during periods of inundation when waterbird numbers are highest.

Lack of systematic monitoring means that population trends for most species in the Barkly Tablelands are unknown. It is unclear whether populations are stable, increasing, or declining. While large breeding events have been documented (Reid et al., 2006) systematic monitoring of breeding success, including colony size, species composition, and fledging success, is lacking. The episodic nature of Barkly wetlands means that many sites may remain dry for extended periods and support few birds during those times. Monitoring efforts must therefore be adaptive and responsive to changing hydrological conditions.

Restricted Access / Site Closure

In a scenario where sites are impacted by HPAI, closing an area through controlled/ restricted access may be an appropriate measure to reduce indirect disease spread and minimise additional stress on avian populations, acknowledging that the virus is likely to spread very quickly across the Top End via natural movement of highly mobile bird species such as shorebirds and other water birds.
Restricting human access to key habitats may limit human-mediated transmission of the virus via contaminated footwear, vehicles, boats, or equipment, and reduce disturbance that might cause birds to flush, disperse, or mix with other species. Lowering disturbance aligns with conservation guidance that seeks to avoid increasing contact rates or forcing birds into new areas where transmission risk could increase, particularly during outbreaks already driven primarily by bird-to-bird and environmental transmission (Animal Health Australia, 2023).
Restricting access would function as a supporting risk-management measure, rather than a standalone solution. AUSVETPLAN recognises the use of restricted or control areas, enhanced surveillance, and biosecurity actions as appropriate responses where HPAI poses a risk to wildlife, while avoiding ecologically damaging interventions such as culling wild birds (Animal Health Australia, 2023).
In the Barkly Tablelands context, area closures may facilitate targeted monitoring, carcass management where appropriate, while acknowledging that overall outbreak outcomes depend on integrated actions including surveillance, biosecurity, and adaptive management rather than access restrictions alone.

Feral Pest Species Reduction

Feral animal species may influence disease dynamics in wetland ecosystems through predation, scavenging and disturbance of wildlife colonies. Reducing feral animal populations in key areas may assist in maintaining habitat condition and improve population resilience. Where feasible, pest management activities should be conducted in a manner that minimises disturbance to waterbird colonies during breeding periods.

Routine destruction (culling) of wild birds is not considered an emergency response action for HPAI, other than for animal welfare reasons, and that no wild bird culling will occur as a general control measure (Animal Health Australia, 2023b).

Targeted feral pest control is however considered as a supporting, risk mitigation action where there is a clear and defensible link to biosecurity or outbreak management objectives. For example, controlling feral scavengers may be considered where they is a risk of spreading contaminated material, interfering with surveillance or carcass management, or increasing the risk of transmission to domestic species such as poultry, or sensitive wildlife areas.

Any such action must be considered site-specific, proportionate, coordinated with surveillance and access restrictions, and designed to minimise disturbance to infected or susceptible bird populations.

Carcass Management

Due to the remote and vast landscape in the NT, in most scenarios, it is considered appropriate to leave wild bird carcases in situ, carcass removal may be justified in some situations e.g., public places, near poultry operations and densely populated public spaces to reduce potential disease transmission and improve social amenity.

Key Sites/ Locations at Risk

The key sites targeted for HPAI preparedness include: Lake Woods, Lake Sylvester, Tarrabool Lake, Lake De Burgh, Corella Lake, Eva Downs Swamp, Frewena Marsh, Longreach Waterhole, South Newcastle Waterhole, and the Brunette Homestead Lagoon.

These sites occur within two NT catchment regions. Consequently, the information presented primarily reflects catchment-level and bioregional characteristics of the Mitchell Grass Downs bioregion (Area: 335 320 km^2 (Figure 2 and Figure 3)).

Figure 2 (Left): Location of the Barkly Tableland

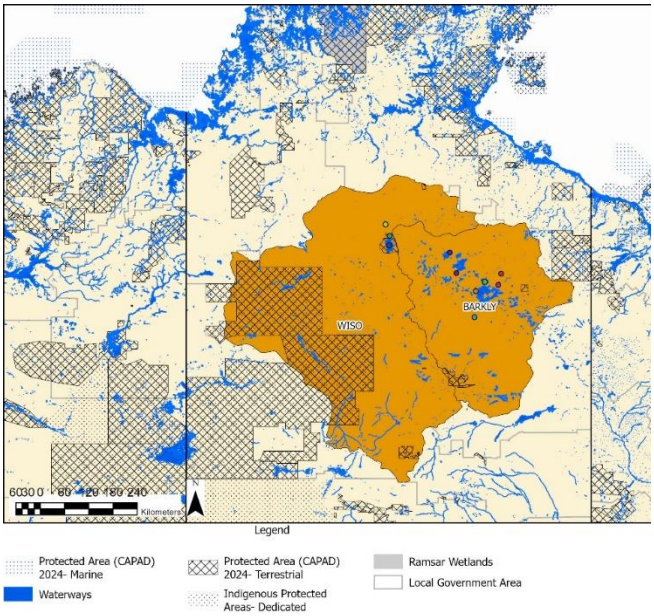


Figure 3 (right): Key sites/ geographic locations in the Northern Territory relevant to this report are shaded orange, Catchment regions. CAPAD, Indigenous Protected Areas, Hatched areas constitute separate management areas/ units and are not considered in this document.

Barkly Tablelands Profile

The following information is intended to support development of a potential NMA Response Plan by providing an overview of the catchment and defining the 'vicinity' for emergency response documentation. Content must be updated case by case due to significant spatial and seasonal variation in wildlife across NT catchments.

Land use and site-specific physical and operational features influence HPAI risk and exposure pathways (Wildlife Health Australia Toolbox). Jaensch and Bellchambers (1995) and the Wildlife Risk Assessment template summarise colony and species baseline information under the TPWCA (1976). The information provides regional context rather than precise site-level estimates.

Reflecting the small total area and number of conservation reserves, there is very little formal conservation management activity in this bioregion. There are no NT Parks & Wildlife Commission staff based within the bioregion and the reserves are managed from Tennant Creek. Management activities undertaken by staff may include maintaining boundary fences and firebreaks, weed observation and control, fire management, fauna observation and visits to landholders.

Barkly Catchment:

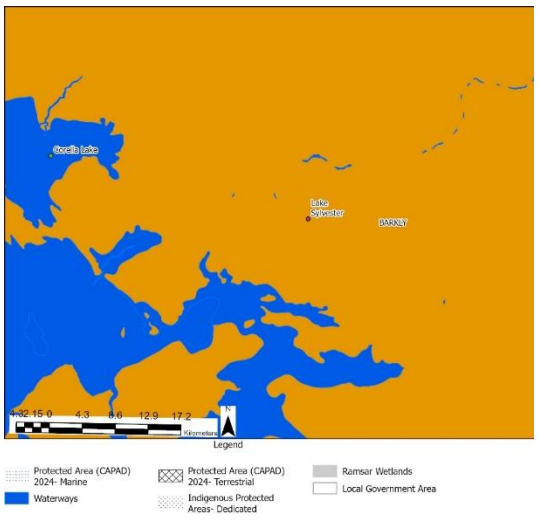
Sites Included within Catchment	Lake Sylvester, Tarrabool Lake, Lake De Burgh, Corella Lake, Eva Downs Swamp, Frewena Marsh and Brunette Homestead Lagoon.

Key Detail:

Location	**Barkly Catchment**
Site Overview	
Coordinates (approx.):	~ -16.5° to -17.6° S, 134.4° to 135.0° E (location varies by site).
Catchment Area	Barkly catchment region - extensive tropical savanna with seasonal rainfall and floodplain wetlands.
Proximity to urban areas	Very remote, nearest town- Tennant Creek (~150 km southwest) and pastoral stations.
Ecological and Land Context	
Ecological and Tenure Description	All sites occur on pastoral leases or Aboriginal land. Characterised by seasonal inundation.
Ecosystem Description	Seasonal freshwater wetlands, billabongs, floodplain swamps and marshes, with dominant vegetation including floodplain grasses, sedges, and scattered woodland. Hydrology is strongly seasonal with wet-season flooding and dry-season contraction.
Key biological features	Important for waterbird breeding and feeding during wet season, habitat for reptiles, amphibians, and aquatic invertebrates adapted to ephemeral wetlands.
Fauna and Ecological Significance	Supports resident and migratory waterbirds. The wetlands contribute to regional biodiversity as breeding and refuge habitats.
Wildlife Density & Diversity	Moderate - with seasonally variable concentrations of waterbirds, especially during and after wet season rains.
Reservoir Hosts (e.g., Nearby Domestic Bird Presence)	Predominantly wild waterbird populations.
Cultural and Social Context	
Cultural and Social features	The wetlands are culturally significant to local Aboriginal communities. They are used for traditional hunting, and pastoral water supply.
Key Stakeholders	Aboriginal Traditional Owners, pastoral leaseholders, Northern Land Council, and regional ranger groups.
Local Government Authority	Barkly Regional Council.
Conservation Management organisations	Indigenous ranger programs, pastoral management groups, NT Parks and Wildlife (limited direct management).
Land Use and Human Activity	
Key Land Use Types	Pastoral grazing dominates, with wetlands supporting seasonal grazing water sources. Limited conservation reserves.
Human Use	Cattle grazing, seasonal pastoral operations, Indigenous customary use, limited recreational use.
Access Infrastructure	Unsealed roads servicing pastoral stations, limited direct access to wetlands, mainly accessible by 4WD vehicles.
Human Activity frequency	Low to moderate, pastoral activities occur year-round but with seasonal variation due to wet season accessibility.
Risk and Management	

Site biosecurity implications	Seasonal waterbird aggregations may act as reservoirs for avian pathogens including avian influenza. Minimal domestic poultry reduces direct spillover risk.
Management Implications	Management focuses on sustaining wetland hydrology and water quality amid grazing pressures. Collaboration with Traditional Owners and pastoralists is essential.
Surveillance and Monitoring	Limited targeted monitoring

Lake Sylvester



The Lake Sylvester system is a large ephemeral wetland complex on the Barkly Tableland, approximately 180 km north-east of Tennant Creek. Corella Lake, Lake de Burgh, Lake Sylvester, an adjacent unnamed basin, and a network of hydrologically connected wetlands, as well as the semi-permanent billabongs Corella Hole and Big Hole are considered part of the Lake Sylvester System. This site qualifies as a Key Biodiversity Area of international significance that meets the thresholds for at least one criterion described in the Global Standard for the Identification of KBAs(BirdLife International, 2026).

The lakes are shallow freshwater systems that undergo seasonal inundation and retain water for periods extending beyond 12 months following major flood events. Under typical conditions, Corella Lake (~10,000 ha), Lake de Burgh (~30,000 ha), and Lake Sylvester (~15,000 ha) occur as discrete basins. In wetter years, overflow facilitates connectivity with the adjacent basin (~5,000 ha), and during extreme flood events the system coalesces into a single waterbody of up to ~200,000 ha.

The system occurs on cracking grey clay substrates supporting a mosaic of shrubland, grassland, and open woodland communities dominated by Northern Bluebush, Lignum, and Coolibah, with aquatic vegetation including Nardoo and Spiny Mudgrass.

The surrounding wetlands have been recognised as an Important Bird Area (IBA) by BirdLife International due to their support of significant breeding colonies of waterbirds - including plumed whistling-ducks, grey teals, hardheads, little black cormorants, Australian pelicans, straw-necked ibises, Eurasian coots, Oriental plovers, Australian terns and flock bronzewings and the potential to support up to hundreds of thousands of waterbirds during large flood events.

The only confirmed breeding site in the Northern Territory for the freckled duck is within this system. The site lies within the Brunette Downs pastoral lease, reflecting a land-use mosaic of grazing and high conservation value wetlands that are critical for regional waterbird ecology.

Actions to mitigate threats to the site include:

- Develop a wetlands management strategy with landholders to identify additional stock exclusion areas and appropriate management of wetlands to maintain conservation values (NRETA 2005).
- Monitor for *Parkinsonia aculeata*,
- prevent major wildfires and regulate boating activity to minimise disturbance of waterbirds.
- assess the benefits of possible nomination of the system as a Ramsar site (NRETA 2005).
- Monitor and maintain fish stocks in waterways which feed the lake system.

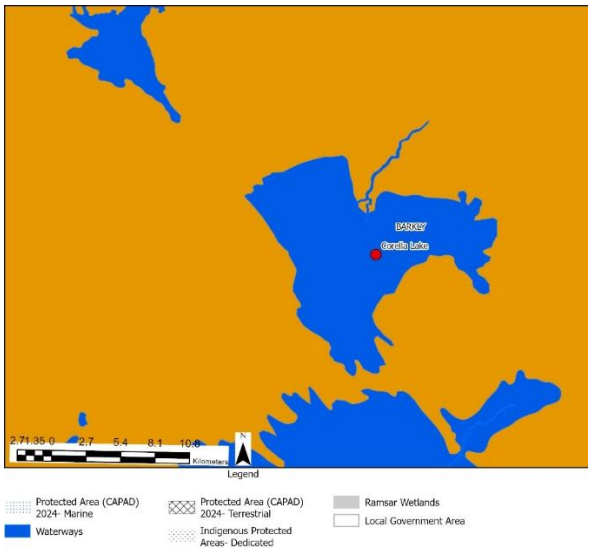
Threats:

- Agriculture & aquaculture
- Livestock farming & ranching
- Agro-industry grazing, ranching or farming
- Natural system modifications
- Fire & fire suppression
- Increase in fire frequency/intensity
- Invasive & other problematic species, genes & diseases
- Invasive non-native/alien species/diseases
- Human intrusions & disturbance
- Recreational activities.

Lake De Burgh

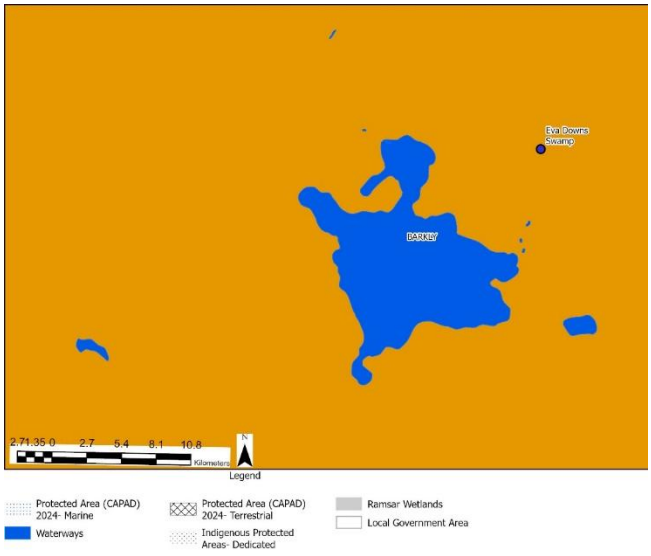
Lake De Burgh is a key component of the Lake Sylvester System on the Barkly Tableland, forming the southern portion of this the ephemeral lake network. Like its counterparts Sylvester and Corella lakes, De Burgh is seasonally inundated following heavy rains and may retain water for long periods where floodwater persists. During exceptional flood events the lake merges with adjacent basins to form a contiguous wetland of significant extent.

Corella Lake



Corella Lake, part of the Lake Sylvester System also functions as a dynamic ephemeral waterbody, seasonally filled by floodwaters that may persist into the dry season. Corella Lake contributes to the ecological connectivity of the wetland system. Although data specific to Corella Lake alone are more limited compared with Sylvester and De Burgh, its role within the wider IBA underlines its value for supporting waterbird diversity and abundance

Eva Downs Swamp

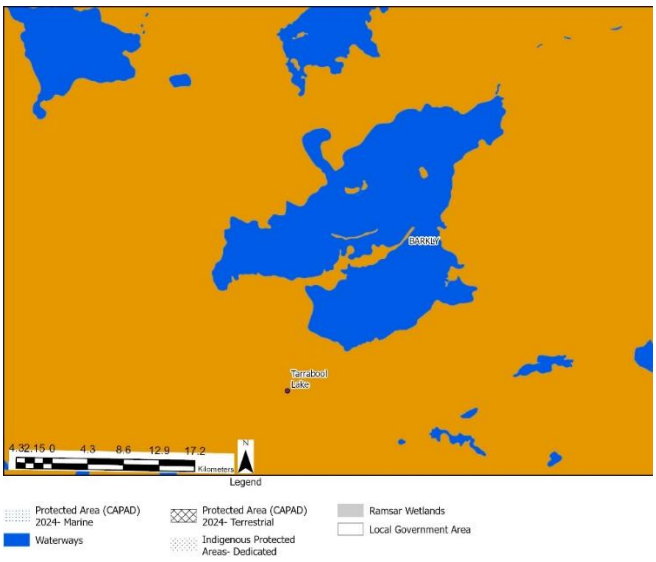


The Eva Downs Swamp is part of the Lake Sylvester System. The site lies within the Brunette Downs pastoral lease, reflecting a land-use mosaic of grazing and high conservation value wetlands that are critical for regional waterbird ecology.

Brunette Homestead Lagoon

Brunette Homestead Lagoon is situated within the Brunette Downs Station, one of the largest pastoral leases on the Barkly Tableland. The lagoon is maintained by seasonal rainfall and runoff and serves as an important water source in the dry interior. While specific BirdLife or national wetland directory listings for this feature are less widely documented, wetlands within the Brunette Downs region - including the Lake Sylvester System and associated basins - are identified as key inland waterbird habitat (BirdLife International, 2026). These wetlands provide feeding, roosting and breeding opportunities for a diversity of waterbirds, particularly following wet-season inundation, and form part of the broader mosaic of ephemeral lakes and marshes that characterize inland NT wetland ecology. The combination of pastoral land use and significant wetland values underscores the need for integrated management to sustain biodiversity and productive land uses.

Tarrabool Lake



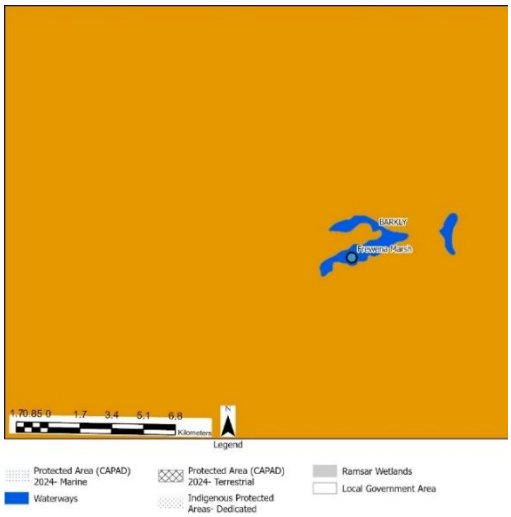
Tarrabool Lake -18.33°, 134.92° is located on the western fringe of the Barkly Tableland, is a highly variable ephemeral wetland. Its extent fluctuates with seasonal rainfall and is primarily fed by Creswell Creek. When fully inundated, it forms the largest wooded swamp in tropical Australia.

The lake forms part of the Tarrabool Lake-Eva Downs Swamp system, which is listed on the Directory of Important Wetlands in Australia and recognised as an Important Bird Area (IBA) by BirdLife International due to its importance as a waterbird breeding site (BirdLife International, 2026; Usback et al., 1993).

When extensively flooded, the system can support over 200,000 waterbirds, including large breeding colonies of Australian pelicans and straw-necked ibises, as well as freckled ducks, great and intermediate egrets, glossy ibises, magpie geese and plumed whistling-ducks.

The site has also supported breeding of nationally threatened species such as the Australian painted snipe. Vegetation across the wetland complex includes coolibah woodland, lignum and northern bluebush shrublands, and extensive marshy groundcover communities that provide important habitat and foraging resources for waterbirds.

Frewena Marsh



Frewena Marsh is listed by the NT Government as an important wetland, reflecting its role in supporting wetland vegetation communities and associated fauna in an arid to semi-arid environment (Duguid et al., 2005; Usback et al., 1993).

Like other Barkly wetlands, Frewena Marsh is characterised by episodic inundation driven by seasonal rainfall, creating temporary aquatic habitat that supports waterbird movement and regional ecological connectivity. The marsh occurs within pastoral land

WISO Catchment

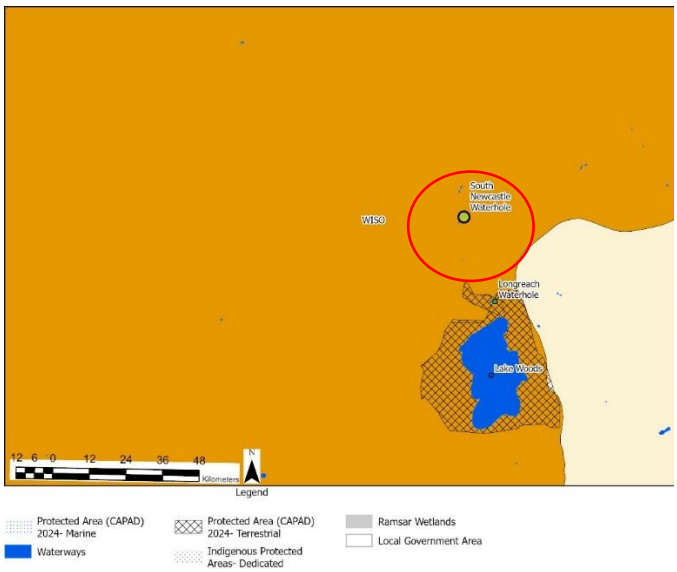
Site Overview	The catchment encompasses several ephemeral rivers, floodplains, and wetland systems, many with seasonal inundation driven by tropical monsoonal rains. Key water bodies and floodplains serve important ecological and cultural functions.

Key Detail:

Location	WISO Catchment
Site Overview	
Coordinates (approx.):	~18.0°–20.0° S, 130.0°–134.0° E
Catchment Area	Approximately 35,000 - 40,000 km²
Proximity to urban areas	Remote; nearest town is Tennant Creek (~150 km east) and smaller Aboriginal communities. No significant urban centres within catchment.
Ecological and Land Context	
Tenure Description	The Wiso catchment lies mostly within pastoral leases and Aboriginal land.
Ecosystem Description	Tropical savanna with ephemeral rivers and seasonal wetlands. Vegetation includes open eucalypt woodlands, floodplain grasses, and aquatic plants in wetland depressions.
Key biological features	Seasonal wetlands provide breeding habitat for waterbirds and refuge for fish and amphibians. The floodplains support diverse native flora and fauna adapted to seasonal inundation cycles.
Fauna and Ecological Significance	Important habitat for resident and migratory waterbirds, reptiles, and mammals adapted to arid and semi-arid systems.
Wildlife Density & Diversity	Moderate to high seasonally.
Reservoir Hosts (e.g., Nearby Domestic Bird Presence)	Predominantly waterbirds; domestic poultry presence is limited.
Cultural and Social Context	
Cultural and Social features	The area holds cultural significance for several Aboriginal groups, including Warumungu and Warlpiri peoples. Traditional land use practices include hunting, and cultural ceremonies.
Key Stakeholders	Aboriginal Traditional Owners, pastoral leaseholders, Aboriginal ranger groups, Northern Land Council.
Local Government Authority	Barkly Regional Council and unincorporated Aboriginal lands.
Conservation Management organisations	Indigenous ranger programs, pastoral management groups, NT Parks and Wildlife (limited coverage).
Land Use and Human Activity	
Key Land Use Types	Pastoral grazing dominates, Aboriginal land management occurs on native title lands. Wetlands used seasonally for livestock watering and cultural purposes.
Human Use	Cattle grazing, Indigenous cultural activities, subsistence harvesting, limited tourism and recreation.
Access Infrastructure	Unsealed roads connecting cattle stations and communities; seasonal river crossings; limited infrastructure near wetlands.
Human Activity frequency	Low to moderate, varying seasonally with wet and dry periods.
Risk and Management	
Site biosecurity implications	Seasonal aggregations of wild waterbirds present. Minimal domestic poultry.

Management Implications	Key focus on maintaining natural flood regimes and wetland health amid grazing pressures. Engagement with Traditional Owners essential for integrated HPAI management.
Surveillance and Monitoring	Limited targeted surveillance; recommended integration into regional monitoring during wet season/ peak waterbird presence.

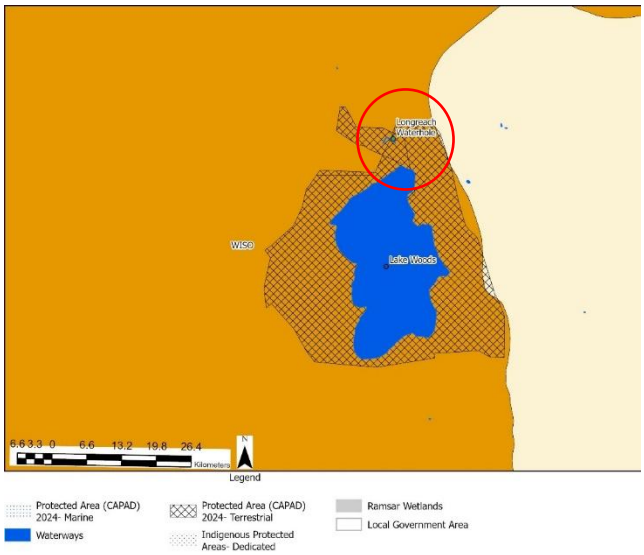
South Newcastle Waterhole



South Newcastle Waterhole is a semi-permanent waterbody within the Barkly Tableland that functions as a dry-season refuge in an otherwise highly variable semi-arid landscape. Such waterholes are critical for maintaining aquatic fauna, including fish and freshwater turtles, and support seasonal aggregations of waterbirds (Duguid et al., 2005; Fensham et al., 2011; Usback et al., 1993).

Associated riparian woodlands and floodplain grasslands provide important habitat for terrestrial and avian species. Waterholes in the region are also culturally significant to Traditional Owners and occur predominantly within pastoral land, where grazing management influences water quality and habitat condition. As relatively persistent water sources, these systems play an important role in regional biodiversity conservation by providing refuge habitat during dry periods (Duguid et al., 2005).

Longreach Waterhole



Longreach Waterhole is a semi-permanent wetland within the Barkly Tableland catchment, serving as an important dry-season refuge for aquatic and terrestrial fauna. Persistent water in this system supports native fish, amphibians, reptiles, and seasonal aggregations of waterbirds, including ducks, herons, and cormorants (Duguid et al., 2005; Fensham et al., 2011).

Riparian woodlands dominated by eucalypts and paperbarks, together with adjacent floodplain grasses, provide habitat and foraging opportunities for birds and terrestrial species. Located largely within pastoral land. Longreach Waterhole is also recognised by Indigenous communities for its cultural significance and is used for traditional practices.

As a reliable water source in dry periods and a breeding habitat during wet seasons, the waterhole plays a central role in regional biodiversity conservation and land management.

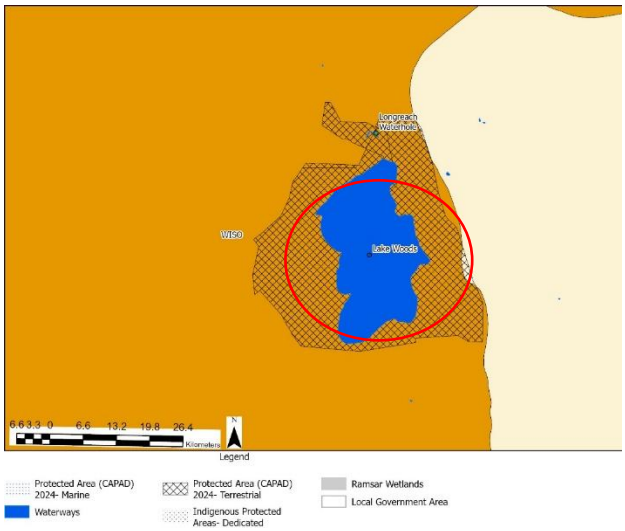
Longreach Waterhole Protected Area (9 320ha) was created in 1984 by a joint management agreement with Newcastle Waters Station (under s.73 of the TPWA). The protected area includes the near-permanent waterholes on Newcastle Creek and adjacent floodplains, including the initial floodout into Lake Woods (Fisher et al., 2002).

The area was protected due to high biological values, particularly for waterbirds and some other significant bird species (such as Yellow Chat); significant recreation potential of the waterhole; and concern about erosion and vegetation degradation due to concentrated cattle use. Subsequent surveys (Jaensch, 2003; Jaensch & Bellchambers, 1995) supported the high biological value of the protected area, which falls within a larger area listed as a wetland of national importance.

Notwithstanding the management agreement, cattle and horses have continued to have at least intermittent access to the area, and vegetation loss, trampling and soil erosion has continued (Pitts 1990). The weed *Parkinsonia aculeata* is also widespread at low densities in the area, with dense clumps occurring along creek banks.

There are no formal visitor facilities at Longreach Waterhole but locals and passing tourists use the waterhole for camping and boating. Longreach Waterhole Protected Area incorporates a portion of the larger Lake Woods / Newcastle Waters system.

Lake Woods



Lake Woods is one of the largest freshwater wetlands in the Barkly Tablelands within the Mitchell Grass Downs bioregion. The lake is a semi-permanent system providing critical refuge for waterbirds and other fauna during the dry season.

Lake Woods lies predominantly on pastoral leases, where extensive cattle grazing occurs. Grazing management is important to protect water quality, habitat integrity, and the lake's ecological function. The site is also culturally significant to local Aboriginal communities.

As a relatively permanent wetland in a highly seasonal environment, Lake Woods is central to regional biodiversity conservation, functioning as both a drought refuge and breeding habitat.

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