

# 'A wonderful swamp': Military ornithologists and others at Bromfield Swamp, Atherton Tablelands, 1914–1967

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## Abstract

Bromfield Swamp is a nationally-important wetland in an extinct volcanic crater near Malanda on the Atherton Tablelands, far north Queensland, noted for paleoenvironmental studies, showing vegetation and climate changes over millennia, and as a wintering roost for significant numbers of Australia's two species of crane. We draw on published and unpublished sources, particularly records by army Captain A. Frank Austin while stationed on the Tablelands during WW2, to present new information on aspects of the swamp's natural and conservation history.

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Handling editor: Peter Valentine

Citation: Scambler EC, Austin Jnr AF 2021. 'A wonderful swamp': Military ornithologists and others at Bromfield Swamp, Atherton Tablelands, 1914–1967. *North Queensland Naturalist* 51: 110-118.

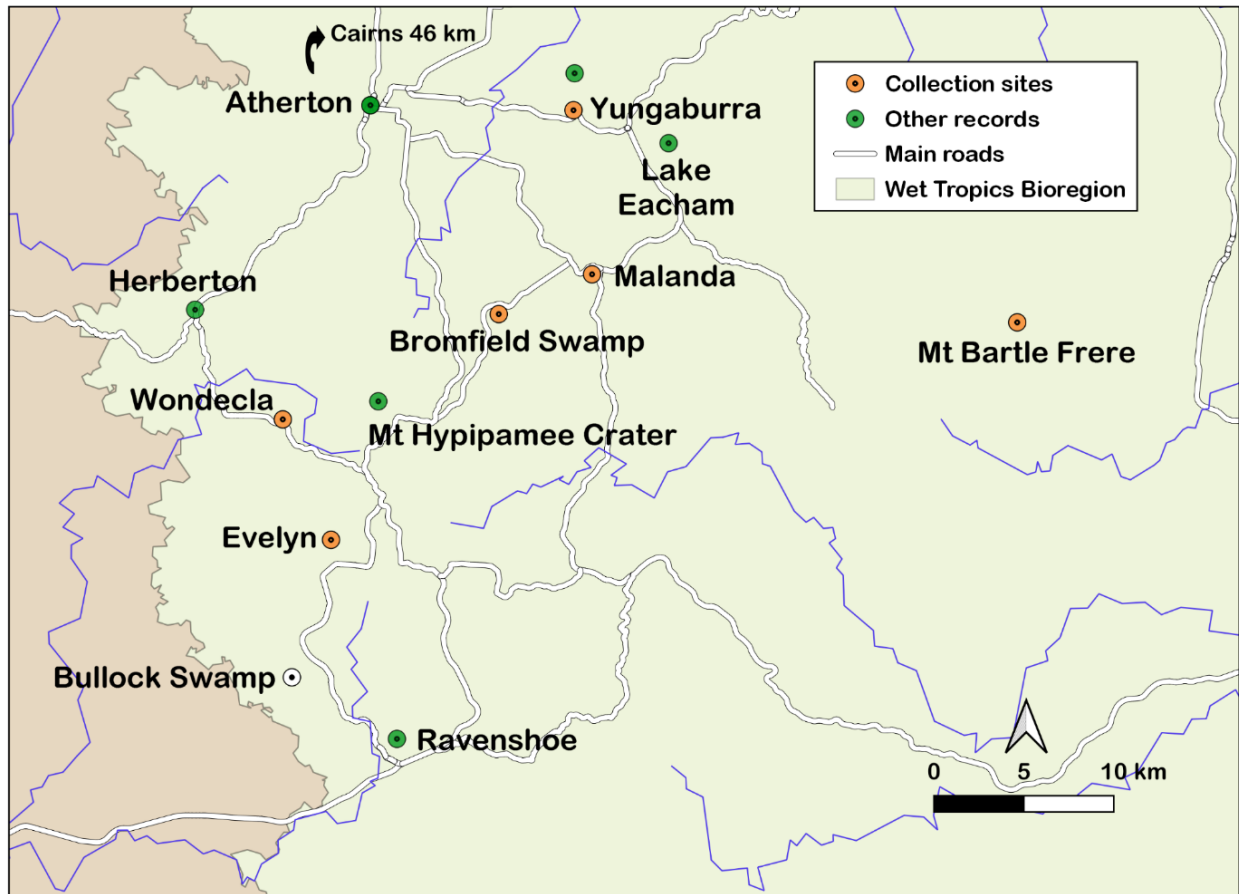
## Introduction

Bromfield Swamp (~65 ha; Fig. 1) is a nationally-important wetland (Australian Government 2005) in an extinct volcanic crater some 1.5 km wide, breached on the east side by a tributary of the North Johnstone River (Kershaw 1975). An indigenous walking trail for trading between different groups ran from 'Top Camp' in the foothills of Mt Bartle Frere east of Malanda, to near Bullock Swamp (Fig. 1), "skirting around the edge of Bromfield Swamp" ('Biinyabul': Pannell 2005). Bromfield is also noted for paleoenvironmental studies showing changes in vegetation and climate over millennia (Kershaw 1975; Burrows *et al.* 2014); and since 1983, for significant numbers of roosting Brolgas (*Antigone rubicunda*) and Australian Sarus Cranes (*A. a. gillae*) (Swaby 1983; Scambler *et al.* 2020).

Among the many thousands of troops posted to the Atherton Tablelands during WW2 (Bradley 1995) were two amateur ornithologists from New South Wales. Captain Austin Frank Austin (1914–1945: a grazier, known as Frank) and Corporal

Patrick Albert Bourke (1916–1988: a teacher, known as Pat) were independently compiling notes for a post-war publication on Tablelands birds, and arranged to collaborate. Attached to different units (NAA 2019a; NAA 2020), they wrote frequently and met occasionally (letter P.A. Bourke to H.M. Austin; AFA letters; AFA notes). They also began work on a paper reporting their observations of Macleay's Fig-parrot (*Cyclopsitta diophthalma macleayana*), found only in the Wet Tropics bioregion. While in northern Queensland, Austin collected 39 bird skins which he sent to the Australian Museum in Sydney (ALA 2020; AFA notes; AFA letters). Bourke did not collect specimens. Our investigations have revealed that Austin had another, previously unknown, naturalist colleague in his own regiment, Sergeant Arthur Maurice Michael ('Bluey') Barnett (1916–2004; NAA 2019b), who was co-collector of eighteen skins.

In May 1945 Austin was killed in action on Tarakan, Borneo (NAA 2019a), but before embarking from Cairns he had sent his draft text for both papers to



**Figure 1. A.F. Austin bird observation and collection sites on the Atherton Tablelands, far north Queensland, 1944–1945.**

Field observations were also made at collection sites. Barnett collected with Austin at Wondecla, Bromfield Swamp and Mt Bartle Frere. We argue that there is no evidence for records from Bullock Swamp (white icon; see text). Sources: AFA notes; AFA letters; specimen records (ALA 2020); Bourke & Austin (1947a,b); AWM (1944a).

Bourke (AFA notes; Bourke 1945). In 1947, Bourke published their combined observations on the avifauna of the Atherton Tablelands (Bourke & Austin 1947a) and on Macleay's Fig-parrot (Bourke & Austin 1947b). Austin's final notes (sent to Bourke) cannot be located (Ian J. Mason personal communication), but the Austin family recently discovered two sets of his draft notes, written in 1944–1945. Work is ongoing to explore the contributions of Bourke, Austin, Barnett and other military personnel to the ornithology of the Atherton Tablelands during WW2. Unexpectedly, and together with two museum specimens, Austin's notes revealed historical information about birdlife at Bromfield Swamp, Malanda. In this paper we draw on Austin's records and other sources to present new information on the natural and conservation history of Bromfield Swamp in the 20<sup>th</sup> century.

## Methods

The study area on the Atherton Tablelands is centred on the townships of Atherton, Ravenshoe and Malanda, east to Mt Bartle Frere (Fig. 1): Atherton (17°15'S, 145°28'E) is ~46 km south-west of Cairns. Pre-clearing habitat maps and descriptions for Bromfield Swamp (Regional Ecosystems, REs) were downloaded from the Queensland Government (2019) and post-clearing habitats were described by Kershaw (1975).

Bourke kept detailed bird records while in the army (e.g. Bourke 1946) but no original documents could be located for this study; also not located, were Austin's 'field diaries' (referred to in the AFA notes). We developed transcripts for the two sets of draft notes by Austin (hereafter 'AFA notes') of ~7800 and ~6600 words respectively, and compared these with the published texts of Bourke

& Austin (1947a,b). The second draft shows a more advanced stage of writing with fewer revisions and deletions. Details of bird skins were obtained from the Atlas of Living Australia (ALA 2020) and locations of specimens and bird observations (Bourke & Austin 1947a,b; AFA notes) were mapped in QGIS 3.16.6.

AFA Jnr searched wartime family letters for references to Austin's bird records and contacts with other military naturalists (hereafter 'AFA letters'). We obtained details of locations and movements by Austin, Bourke and Barnett from military records held in the National Archive of Australia (NAA) and the Australian War Museum (AWM), and maps held in the National Library of Australia (NLA). We searched archived newspapers (Trove, NLA) and literature for historical items on the natural history of the Atherton Tablelands and on Bromfield Swamp. Vital dates were obtained from Ancestry (2020). Bird records for Bromfield Swamp from 2000–2021 were obtained from eBird (2020) and Birddata (2020); scientific and common names follow BirdLife Australia (2019) at species level, or subspecies level for taxa of particular interest. Quotations are verbatim, except where ellipses indicate omitted text, and square brackets indicate our additions.

## Results

Austin's bird observation and collection sites (including those with Barnett) in the study area are shown in Fig. 1; Bourke's observations in the same area were mostly near Ravenshoe and north of Atherton, with two visits to Lake Eacham.

### *Bromfield Swamp, Malanda vs. Bullock Swamp, Tumoulin*

The only major swamp habitat referred to in Bourke & Austin (1947a) is Bullock Swamp. This spring-fed, significant wetland (Queensland Government 2021; Fig. 1) of ~50 ha is on Diddleluma Creek in the upper Herbert catchment, some 10 km from Bourke's camp near Ravenshoe and 14 km from Austin and Barnett's regiment at Wondecla. It was used for stock watering from about 1911 (Toohey 1991). The paper cites 'Bullock Swamp' for eighteen bird species and 'the swamp', for two. However, Austin's notes do not mention Bullock Swamp. He reports all twenty 'swamp' species – including fourteen only recorded there – as his observations from 'Bromfield Swamp' or

'Bromfield Swamp Malanda' (Table 1; Figs. 1, 2), e.g. Green Pygmy-goose (*Nettapus pulchellus*):

Green Pygmy Goose. Five birds (two pairs and a single bird) were observed on Bullock Swamp on February 27 (Bourke & Austin 1947a, p 97).

The dates of records at "the swamp" correspond with Austin's, but not Bourke's, movements in military archives (AWM 1944a,b,c,d; AWM 1945a,b; NAA 2019a, 2020). The brief visit in December 1944 coincided with major military exercises involving Austin and Barnett's regiment

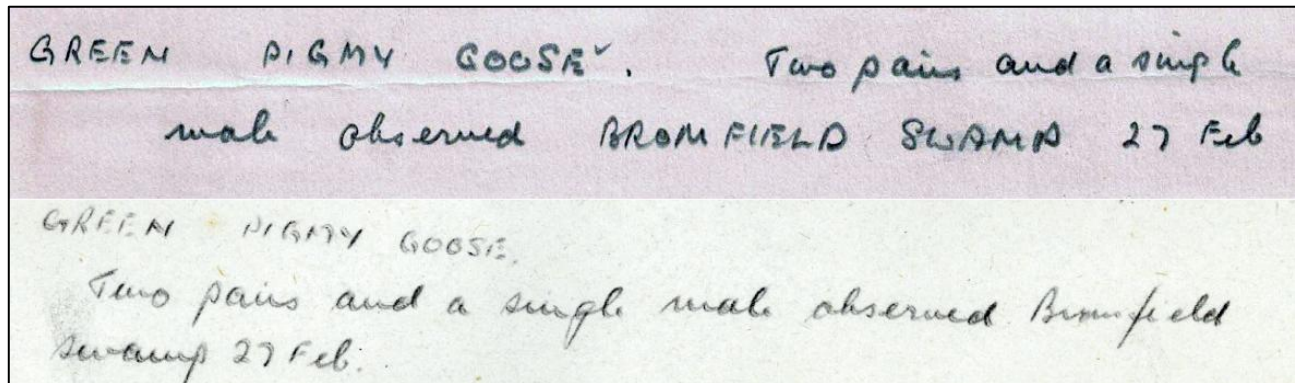
**Table 1. Bird species recorded by A.F. Austin at Bromfield Swamp, Malanda, in three visits 1944–1945.**

Reported as from Bullock Swamp by Bourke & Austin (1947a), unless otherwise shown. \*=only recorded at B— swamp. Bird names are from BirdLife (2019).

Scientific name	Common name
<i>Synoicus chinensis</i>	King Quail*
<i>Dendrocygna</i> sp.	Whistling-Duck sp*
<i>Nettapus pulchellus</i>	Green Pygmy-goose*
<i>Aythya australis</i>	Hardhead* <sup>1</sup>
<i>Anas superciliosa</i>	Pacific Black Duck <sup>1</sup>
<i>Porphyrio porphyrio</i>	Purple Swampphen
<i>Gallinula tenebrosa</i>	Dusky Moorhen*
<i>Fulica atra</i>	Eurasian Coot*
<i>Ixobrychus dubius</i>	Australian Little Bittern*
<i>Ardea alba</i>	Great Egret
<i>Egretta novaehollandiae</i>	White-faced Heron
<i>Egretta garzetta</i>	Little Egret* <sup>2</sup>
<i>Anhinga novaehollandiae</i>	Darter*
<i>Vanellus miles</i>	Masked Lapwing <sup>3</sup>
<i>Irediparra gallinacea</i>	Comb-crested Jacana*
<i>Gallinago hardwickii</i>	Latham's Snipe*
<i>Circus approximans</i>	Swamp Harrier*
<i>Haliastur sphenurus</i>	Whistling Kite*
<i>Cincloramphus timoriensis</i>	Tawny Grassbird*
<i>Poodytes gramineus</i>	Little Grassbird* <sup>4</sup>
<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin
<i>Neochmia temporalis</i>	Red-browed Finch

<sup>1</sup>Duck species present in February–March 1945. <sup>2</sup>In AFA notes but not included in Bourke & Austin (1947a).

<sup>3</sup>Listed by Austin at Bromfield Swamp; only reported from elsewhere in Bourke & Austin (1947a). <sup>4</sup>Heard only.



**Figure 2. Green Pygmy-goose (*Nettapus pulchellus*), from A.F. Austin's draft texts.**

Both are in pencil. In the first draft, names of birds and places are capitalised, following military report practices (e.g. AWM 1945a). In the second (later) draft, places are in cursive script. The final version was in ink (see Discussion).

near Malanda (Exercises 'Festive' and 'Rampant', AWM 1944c): specimens were not taken during this visit to Bromfield as Austin "did not have the rifle" (Bourke & Austin 1947a, p 114). Some birds could not be identified (AFA notes): perhaps observations on this date were made from the roadside (Fig. 3). In February–March 1945, Austin, Barnett and others climbed Mt Bartle Frere: "One expedition with bird study as the object was made to the summit of Mt Bartle Frere taking in Bromfield swamp on the way" (AFA Notes). Despite Austin's emphasis on bird study, this expedition was official: they tested portable wireless equipment to signal from the summit of the mountain, back to base in Wondecla. From the Regiment War Diary, AWM 1945a (original spelling):

Wondecla, 26 Feb: Capt F AUSTIN Lt G DOW and 7 ORs [Other Ranks] m/o [marched out, i.e. left the unit quarters, not necessarily on foot] to climb Mt BARTLESFRERE and Recce Area.

Wondecla, 2 Mar: 'C' Squadron conducted a very successful [signalling] exercise from BARTLE FRERE mountain back to Regt... Considering the distance, 24 miles airline, this was no mean feat of operating, especially as the pack set was operating in jungle.

Barnett was one of the 'ORs'. From Austin's letters, the team spent most of 27 February at Bromfield Swamp, which required landowner permission:

Spent a day on a swamp which everybody has been to some pains to point out is 'out of bounds to ALL troops.' There I saw for the first time the Green Pygmy Goose – a beautiful little

fellow also Jacana (we saw them at Sandgate) Tawny Grassbird for the first time in the area.

After spending two nights on Mt Bartle Frere (Scambler & Austin 2021), they returned to Bromfield on 2 March:

Before dark I was able to record a quail new to me – the King Quail (little black fellow) I did not come back to the tent till after dark. Was wet up to my armpits from the swamp...rained all night without a stop but the tent kept most of it from us.

Specimens collected on this expedition are shown in Table 2.

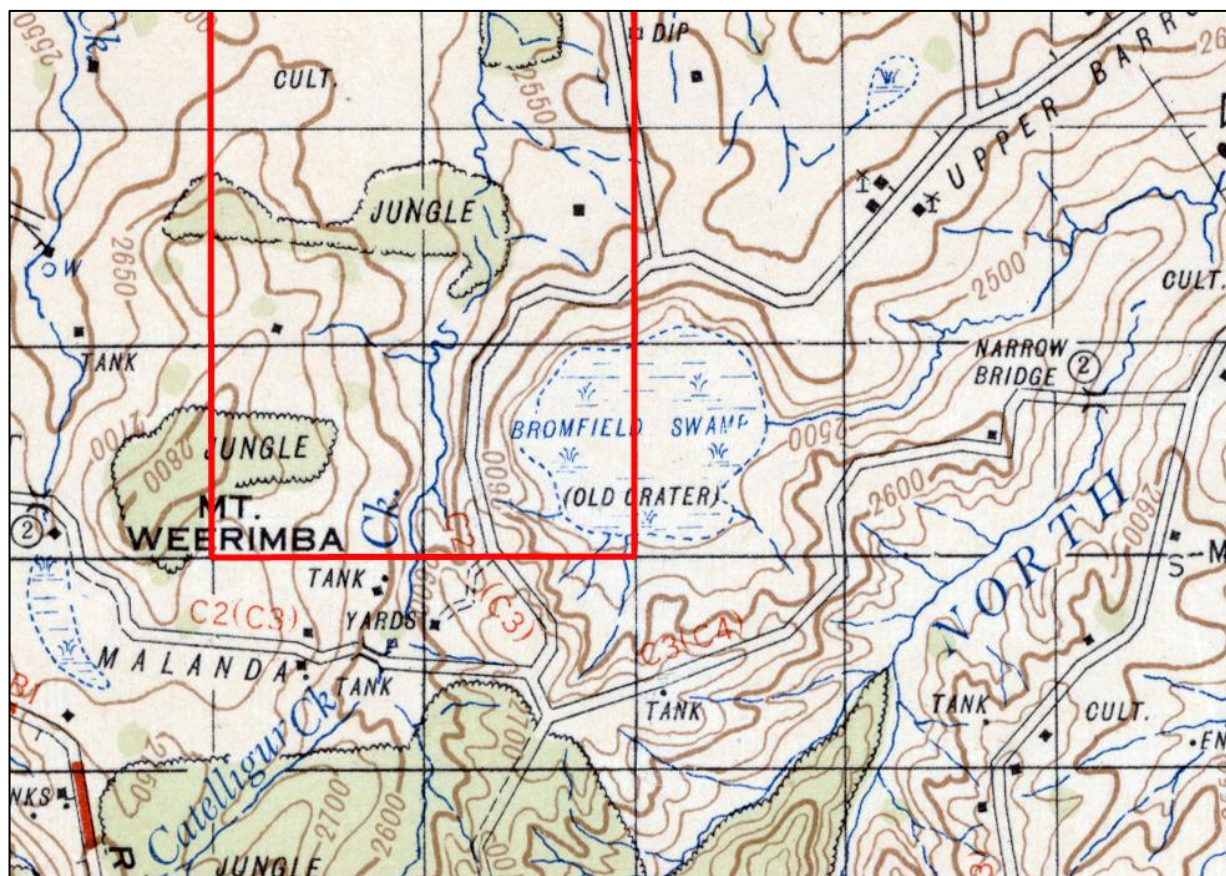
#### *'A wonderful swamp', natural and conservation history*

Archival records relating to Bromfield Swamp (property ownership; declarations of land Portions as a Bird Sanctuary; and bird records from the diaries of J.A.L. Bravery in the 1960s), are shown in Appendix 1. The account by J.R. Chisholm, a visiting pastoralist-journalist (Chisholm 1914), describes the original habitat at Bromfield Swamp before surrounding rainforest was cleared:

At Bromfield's there is a wonderful swamp, of maybe 200 acres, in the scrub. It is evidently a crater, and away back it was a lake, but somehow it broke through the wall. It is not more than a few feet deep, and is covered with weeds, but it is deep in mud. It is practicable, Mr Bromfield tells me, to drain it, and this, at moderate cost, will make it rich pasture land.

Felling of the nearby 'scrub' began before 1911 and it was mostly cleared by the 1920s (Anon





**Figure 3. Bromfield Swamp, Malanda and surrounds, 1943.**

Source: Australian Army (1943a), mapped from aerial photography. For declarations as a Bird Sanctuary, see Appendix 1. The area bounded in red was advertised as a 'Danger Area' for mortar firing practice in 1945 (see text).

**Table 2. Bird skins collected by A.F. Austin and A.M.M. Barnett on Mt Bartle Frere summit and at Bromfield Swamp, February-March 1945.**

Source: ALA (2020). All are held at the Australian Museum; bird names are from BirdLife (2019).

Date	Locality	Collection ID	Scientific name	Common name
28/2/1945	Mt Bartle Frere	O.38635	<i>Zosterops lateralis</i>	Silvereye
2/3/1945	Bromfield Swamp <sup>1</sup>	O.38625	<i>Synoicus chinensis</i>	King Quail
2/3/1945	Bromfield Swamp <sup>1</sup>	O.38628	<i>Cincloramphus timoriensis</i>	Tawny Grassbird

<sup>1</sup>AM register reads 'Bloomfield Swamps, Malanda', see Discussion.

1911; Frawley 1983). Cleared areas (pasture and cultivation) and forest remnants during WW2 are shown in Fig. 3. Before clearing (Queensland Government 2019), this was complex mesophyll vine forest (upland wet zone, RE 7.8.2a) and the swamp comprised ~61 ha of a rare, periodically-flooded sedge ecosystem based on peat (RE 7.3.2), and patches of open water (total ~4 ha) with fringing sedge (RE 7.3.33b, found only in volcanic craters). Over time, clearing and farming in and around the crater created a more complex array of

depths and vegetation types in the swamp (Kershaw 1975).

Austin's comments comparing waterfowl in December 1944 with early 1945 indicate a wetland acting as a late dry season refuge:

The water was black with duck. Time did not permit a detailed observation. No doubt several interesting records were missed. When visited again well into the rainy season only the above species [Pacific Black Duck and Hardhead, see Table 1] were present.

In 1935, several landowners combined to declare most of the swamp a Bird Sanctuary under the Queensland *Animals and Birds Act 1921–1924* (Williams Estate & Smith 1935; Queensland Government 1921–1924): details are in Appendix 1. Even in a sanctuary not all birds were protected at all times of year, and museums could still collect (Pollard 1930), but during WW2 military authorities stressed that shooting was prohibited in sanctuaries as part of Routine Orders (e.g. AWM 1944a). They also protected Bromfield Swamp specifically by ruling it out of bounds for exercises ‘Festive’ and ‘Rampant’ near Malanda in December 1944, involving over a thousand troops with multiple tanks and support vehicles (AWM 1944c,e; AFA letters). However in January 1945 an area of 24 km<sup>2</sup> centred on Bromfield Swamp was declared a ‘Danger Area’ for mortar firing practice (Anon 1945a), and three later practice sessions (Anon 1945b,c,d) included part of the swamp in the ‘Danger Area’ (Fig. 3). Troops took some species for food, but Bourke and Austin believed there was an overall respite for birds from hunting on the Tablelands during WW2, due to restricted availability of firearms and ammunition (Bourke & Austin 1947a; AFA notes; Bradley 1995).

We were unable to find bird records from Bromfield Swamp before Austin’s. The next known records were by farmer-ornithologist J.A.L. Bravery in 1962 (Appendix 1), and in 1964 he guided members of the Bird Observers Club who listed 48 species at the swamp over several visits (Wheeler 1967). Bravery and the Bird Observers heard and saw Little Grassbird at Bromfield, confirming Bourke and Austin’s tentative record based on calls heard by Austin. Twenty of the 22 species he reported in 1944–1945 were recorded there between 2000 and 2021, the exceptions being King Quail and Little Grassbird which are uncommon in the study area (Birddata 2020; eBird 2020).

## Discussion

The relevance of the Bourke & Austin (1947a) bird records to Bromfield Swamp has been obscured by Bourke’s unexplained substitution of ‘Bullock’ in lieu of ‘Bromfield’: this confusion again underlines Bourke’s difficulties when writing without his co-author after the war (*cf.* Scambler *et al.* 2021). Bourke may have visited Bullock Swamp, which adjoined the railway used for troop transport to bases near Ravenshoe (Australian Army 1943b;

Toohy 1991), but his notebooks are missing and all the available evidence shows that the ‘swamp’ records reported in Bourke & Austin (1947a) were from Bromfield Swamp. Austin’s notes are consistent, and clear even in the cursive script of his later draft; moreover the final (lost) version sent to Bourke was in ink (AFA letters). As well, based on location, Bullock Swamp would hardly be “taken in on the way” to Mt Bartle Frere from Wondecla. Both swamps were clearly marked by name in WW2 military maps (Australian Army 1943a,b), but Bourke was presumably unfamiliar with sites near Malanda because his duties were concentrated elsewhere. Staff at the Australian Museum in 1944–1945 were also unfamiliar with the name ‘Bromfield’ and transcribed it as ‘Bloomfield Swamps’. As a result of this finding there are no known bird records from Bullock Swamp before it was partially impounded in the 1960s (W. Sinapius personal communication).

The declaration of Bromfield Swamp as a Bird Sanctuary in 1935 does not seem to have been associated with particular bird species or numbers. Successive owners in the Williams family were concerned with conservation (K. Waddell personal communication) and their purpose in 1935 was probably to exclude hunters attracted by “water black with duck”: the site would have become more accessible after surrounding rainforest was cleared, and shooting parties were common on swamps around Malanda in the open season (Anon 1924). They also wished to prevent injuries to stock (e.g. later, Anon 1951). The whole Shire of Eacham was made a sanctuary in 1936 (Anon 1936), but administration was by voluntary rangers and wildlife would have had stronger protection under a notice by the landowners. The potential for damage at Bromfield from mortar firing practice in 1945 is unclear: the authorities probably avoided sanctuaries if possible (P. O’Callaghan personal communication). The first session (over a wide area, 24 km<sup>2</sup>: Anon 1945a) may have used Bromfield as a landmark rather than a base, and the smaller area affected by subsequent sessions (Fig. 3) could have included a buffer zone, with the core firing range outside the swamp.

Austin’s notes show that he consulted with local landowners and workers about birds, which evidently included permission from the owners to visit Bromfield Swamp, particularly for the major trip in February–March 1945. This was in the wet

season when Brolgas would not normally be present (Marchant & Higgins 1993), so their absence from his records does not necessarily imply that Brolgas were yet to colonise the site in 1944–1945. Also, the records may not be complete: Austin did not produce a bird list for Bromfield Swamp as such, rather, his notes are presented as species' accounts (as in the published paper) and may not represent all the birds he saw there. Nevertheless we consider that seeking primary sources to revisit 'classic' papers is a fruitful avenue towards insights into natural and conservation history in far north Queensland.

## Acknowledgements

We thank Kate Waddell (née Williams) for advice about Williams' family properties and Margaret Muoio (née Bravery) for permission to use unpublished records by J.A.L. (Jim) Bravery. Leah Tsang advised on specimen collections at the Australian Museum and Ian J. Mason provided helpful information on WW2 collectors and relevant documents. Petrina O'Callaghan, Eacham Historical Society, supplied details of the ownership history at Bromfield Swamp, and we thank Bill Sinapius and Ceinwen Edwards for historical advice on Bullock Swamp. Terry Edmondson and John Hardy of Tolga gave helpful information on civilian and military issues on the Tablelands during WW2. An anonymous reviewer gave helpful comments on an earlier version of the manuscript.

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## Unpublished sources

- Letters A.F. Austin to H.M. Austin, 1943-1945
- Letter P.A. Bourke to H.M. Austin, 25 July 1945
- Bird notes 1944-1945, A.F. Austin
- Bird diaries and notebooks to 1975, J.A.L. Bravery



## Appendix 1. Archive records relating to Bromfield Swamp, Malanda

*Ownership records (courtesy P. Callaghan, Eacham Historical Society)*

Portion 177: selected 1907 by Albert Williams, freehold 1920

Portion 178: selected 1907 by Edward S Williams, freehold 1920

Portion 179: selected 1907 by Pivonsingh; sold to C. Bromfield 1909; sold to R. Emerson 1919; sold to W. Irvine 1919; sold to J. Smith 1925, freehold 1938

Portion 180: selected 1910 by Bromfield; sold to Edward S Williams 1919, freehold 1921

Portion 181: selected by Mr Hill; sold to Hughes & Kilpatrick 1920; sold to Frederick Williams (no date recorded), freehold 1933

*Declaration as a Bird Sanctuary under Queensland legislation (Queensland Government 1921–1924)*

1935: (Williams Estate Pty Ltd & Smith: 1935)

NOTICE. Any person or persons shooting on Portions\* 179, 180 and 181, known as BROMFIELD'S SWAMP, will be prosecuted without respect to persons. For the information of all concerned this Swamp has been proclaimed a BIRD SANCTUARY. ESTATE H.S. WILLIAMS PTY LTD. JACK SMITH.

\*Covering some 60% of the crater including 78% of the swamp habitat, excluding Portions 177 and 178 (the south-east corner)

1954: (Williams FC, Estate: 1954)

NOTICE. BIRD SANCTUARY. Shooting on land commonly known as Bromfield Swamp (Parish East Barron Portions 180, 181, Parish Malanda Portions 177\*, 178\*, 179) is strictly prohibited. Offenders will be prosecuted without respect of persons. By Order. EST. F.C. WILLIAMS (Butcheries).

\*The south-eastern Portions not included in the Declaration of 1935. These may have been declared before 1954, but documents were not found in searches.

*Bird observations 1962–1967 (J.A.L. Bravery, unpublished records: spelling and round brackets as in the original)*

1962: Sunday (2 Dec) to Bromfields Swamp 26 m[iles] from Atherton from Longlands Gap approach but only 17 from Malanda approach (Merragallan road) Jim [his son, J.L. Bravery] showing this swamp to me first time also. Rather a remarkable area appears to be a crater filled partially by time. Extensive area of 200 ac approx. with extensive rushes and reedbeds and open patches of water well out from shore line. Interesting species seen were Pied Goose (14) Jacana (8). Black ducks Grey Teal Whiskered Tern Pied Stilt and 3 waders well out from shoreline could be Marsh or Wood Sandpipers.

1967: Little Grass bird...heard by Bourke & Austin near Ravenshoe [now shown to be at Bromfield Swamp: this paper]...Observed at Pavey Swamp 1964, Fosters 1971, 1967 Bromfield, Home property 1971 [for a map showing these sites, see Scambler (2020), p 13]

18 June 1967: (approx) Mrs Cassels [North Queensland Naturalists' Club] reported seeing the Little Grassbird at Bromfields Swamp.