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# Byron Wetlands and Vallances Road Avifauna Survey



## Byron Bird Buddies Report 2015 – 2020

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This report was produced by Jan Olley for Byron Bird Buddies  
and Byron Shire Council 19 March 2021



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**Cover Photography** - Black Swans & Cygnets at Byron Wetlands - Deborah Pearse.



Byron Wetlands Interpretive Centre - A. Jones

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# 1.0 Introduction

Byron Bird Buddies (BBB) has provided Byron Shire Council (BSC) with six monitoring reports annually since 2008 (2008-2009, 2009-10, 2010-11, 2012, 2013 & 2014). As with the objective of the previous reports, the purpose of this study is to build on the results of monitoring of the avifauna populations at the Byron Wetlands (Byron Bay) and Vallances Road (Mullumbimby) water augmentation sites, in order to determine trends in avifauna diversity and populations.

This report differs from the previous reports in that it covers a period of six years of data into one report. During the six year period, 2015-2020, BBB continued to collect data at both Byron Wetlands and Vallances Road. The data collected was a little more random than in previous years, but more surveys were conducted at the Byron Wetlands, and an adequate number of surveys were conducted at Vallances Road providing enough data to assess avifauna species diversity and visitation. It should also be recognised that increasing numbers of birdwatchers are uploading data to eBird and Birddata and some data from these sources is also included. This report provides an analysis of the avifauna observations as well as recommendations that will contribute to future management at both sites. It does not provide an in-depth analysis of the bird population trends.

## 1.1 Background

BBB is a not-for-profit organisation and a locality group of Brunswick Valley Landcare Inc. BBB undertakes community avifauna education, monitoring and conservation activities within Byron Shire and extends the education program into surrounding shires as required. BBB has also produced a number of pamphlets, brochures and signage for distribution throughout the Northern Rivers on Shorebirds, ecology of the three estuaries in the Shire and Birdwatching Guides for four Northern Rivers local government areas; Byron, Ballina, Richmond Valley and Kyogle. BBB has been monitoring bird populations in the Byron Shire since 2004. Examples of the monitoring reports for the Belongil Estuary and other areas are listed on the BBB website at [www.byronbirdbuddies.com.au](http://www.byronbirdbuddies.com.au). Observation results are also distributed to Byron Shire Council Biodiversity Unit, National Parks and Wildlife Service (NPWS) and BirdLife Australia (BLA) in order to assist with the monitoring of Australian bird populations generally. BBB is also involved with the Australia-wide Shorebird 2020 survey, now completed but continuing as the National Shorebird Monitoring Program. Other programs include Key Biodiversity Area (KBA) Surveys in Goonengerry and Mt Jerusalem National Parks, and the National Snipe Surveys. BBB also undertakes surveys on private property within the Shire.

## 1.2 Byron Wetlands

The construction of the West Byron Sewage Treatment Plant (STP) commenced in 2001. The 105 hectare site was typically low lying coastal plain comprising paperbark swamp forests, sedge and fern lands prior to the STP construction. The wetlands now comprise a number of settling ponds, “Cell A” through to “Cell J” with “Cell H” being specifically managed with regard to threatened bird species, migratory waders and regionally significant species. Cells A and B are not monitored. Legislated management requirements were established to ameliorate ecological losses associated with the development of the STP. A variety of water levels, plant diversity and monitoring measures are required to maintain the habitat diversity and provide

a basis for the assessment in addressing any deleterious changes. (i.e West Byron Wetlands “Cell H” Management Plan Feb 2006).

The wetlands, until recently, have been relatively isolated by mainly natural vegetation on four boundaries. In March 2010 the vegetation on the southern boundary was cleared for the development of the West Byron Regional Sports and Cultural Complex with very little natural vegetation buffer zone remaining between the properties. On the NE boundary of the wetlands, Bayshore Village, now known as ‘Habitat’, is a 152 dwellings development. The developer commenced clearing in 2000, and in 2016 construction began and is continuing today. A 20 metre buffer zone with vegetation enhancement has been created between the two properties. A protection measures for frog habitat similar to the goals for the protection of avifauna species was put in place and may prove beneficial to the Wetlands.

As stated in previous reports, avifauna monitoring in the wetlands commenced in 2000 by David Stewart and was maintained up until the end of 2005. Data results from this time are included in an Excel Spread sheet developed by BBB. However, David Stewart’s data between 2003 and the end of 2005, has not been made available for inclusion in this or any of the previous reports. BBB members commenced recording bird data irregularly from the end of 2005, with more regular monitoring commencing in May 2008 and continuing to the present day. The data continues to be provided to BSC in an Excel Spreadsheet attached to this report.



Byron Wetlands - A. Jones

The constructed wetlands provide a variety of water levels and plant diversity for avifauna species. Monitoring measures are required to maintain the habitat diversity and provide a base for assessment in addressing any deleterious changes (West Byron Wetlands “Cell H” Management Plan Feb 2006). In past years, water levels in H Cell have mostly been high due to rainfall and the inability of management to adjust water levels. Only on a few occasions has the Cell provided exposed mudflats suitable as roosting and feeding sites for shorebirds. However, the water levels in Cells D, E, J and I have varied and provided an alternative area of exposed mudflats suitable for roosting and feeding. In spite of this shorebird numbers have been low. Due to the poor condition of the reeds in Cell D, a large section of the Cell was covered in netting in 2012 to protect the area from the Purple Swampheens that feed on the roots and build nests in the reed tops. The reeds recovered, especially in the middle and west section, and the canopy was removed several years ago. However, at the time of this report the reeds growth appears to be deteriorating once more.

This report spans a period of six years (2015 to 2020) and in that time two very dry periods occurred at the Wetlands in 2018 & 2019. Cell H almost dried out on two occasions for a short



period of time. This provided a suitable environment for migratory and resident shorebirds and they occupied the site in increased numbers during that period. **(3.9.3 Shore Avifauna Species)**. During the dry period in early 2019 only a small puddle of water remained and a large number of eels died along with the colonising water lilies. However, the grasses and sedges increased in growth and are continuing to do so. At the time of writing this report (Nov 2020) the water lilies are slowly recovering but the Comb-crested Jacanas have been absent for several months. Also, over the past six years there has been considerable growth of algae and weed, both natural and introduced, covering the surface of the all ponds and drains within the site.

### 1.3 Vallances Road

Byron Shire Council purchased land at Vallances Road in 2006 for the development of the Mullumbimby Sewage Treatment Plant. The 85 hectare site lies adjacent to the Brunswick River opposite the Mullumbimby township. Prior to the land purchase the site was used as a grazing property. Most of the land had been cleared, with some scattered mature trees and small patches of remnant vegetation remaining along the river banks and at the edges of the two billabongs or oxbow lagoons. The small areas of remnant vegetation contained communities of saltmarsh, mangroves, reed beds, paperback swamp forest and camphor laurel forest.

Since the purchase, BSC has extensively re-vegetated the site and removed many of the camphor laurel trees, especially in the riparian zones along the river and the edges of the billabong and saltmarsh. The plantings are now well established and weed management is continuing at the site helping to keep the impact of weeds in the re-vegetated areas to a minimum. Grazing of cattle continued up until mid 2010 and ceased for a couple of years when the grass, which was kept short by the cattle, flourished and in some areas became impossible to penetrate. Cattle grazing recommenced in July 2012 and cattle are now rotated through the paddocks for short periods. When the cattle are present, short grass is a result, but on many occasions during the past six years the grass has been too long to conduct surveys in some paddocks.



Wandering Whistling-Ducks - R. Sergeant

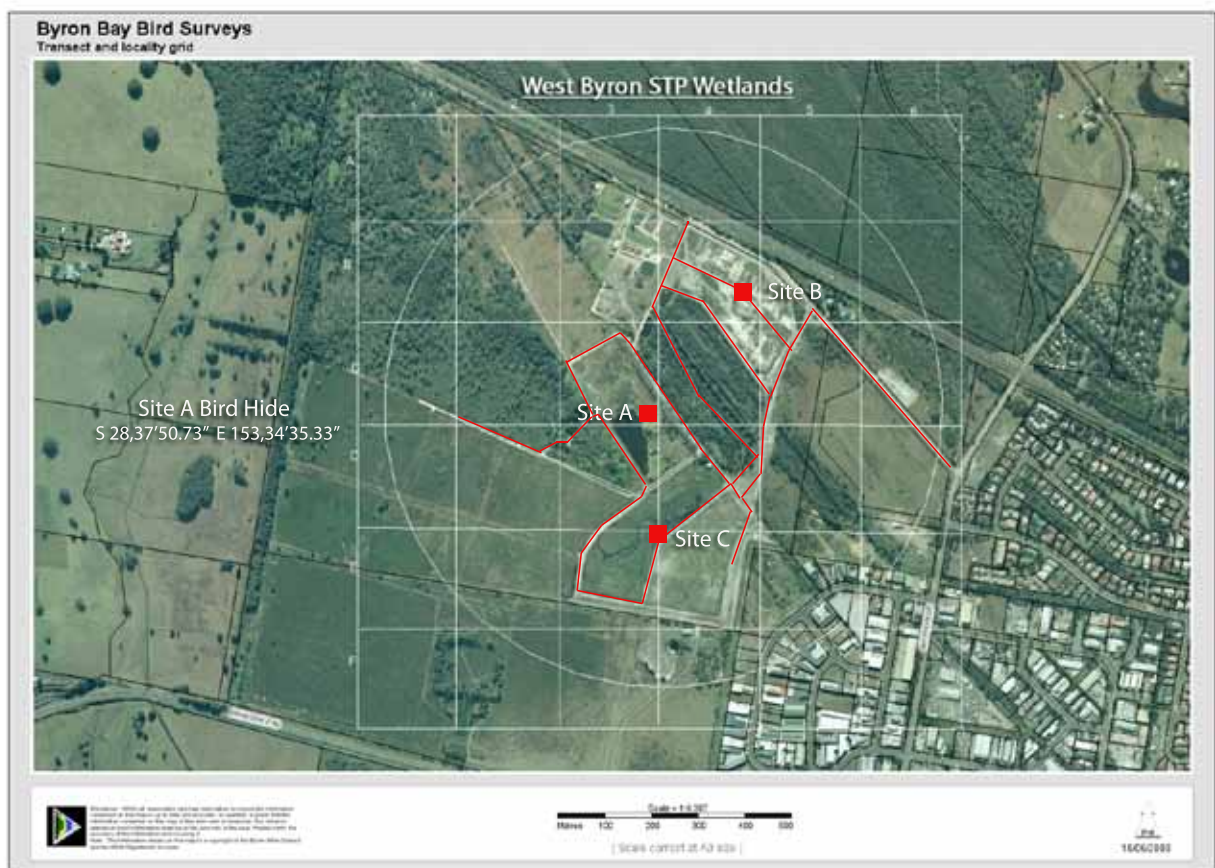


Koala tree planting - Vallances Road - J. Olley

Since the last report in 2014, more paddock camphor laurel trees have been removed and burnt along with some native paddock trees; we believe this to be unfortunate as paddock trees and tree stumps provide habitat for many species, as well as nest sites for birds. Road edges along Vallances Road were planted out in 2015 with koala-suitable trees and, by the end of 2020, these are now well established providing a healthy habitat, in particular for honeyeaters and small insectivores.

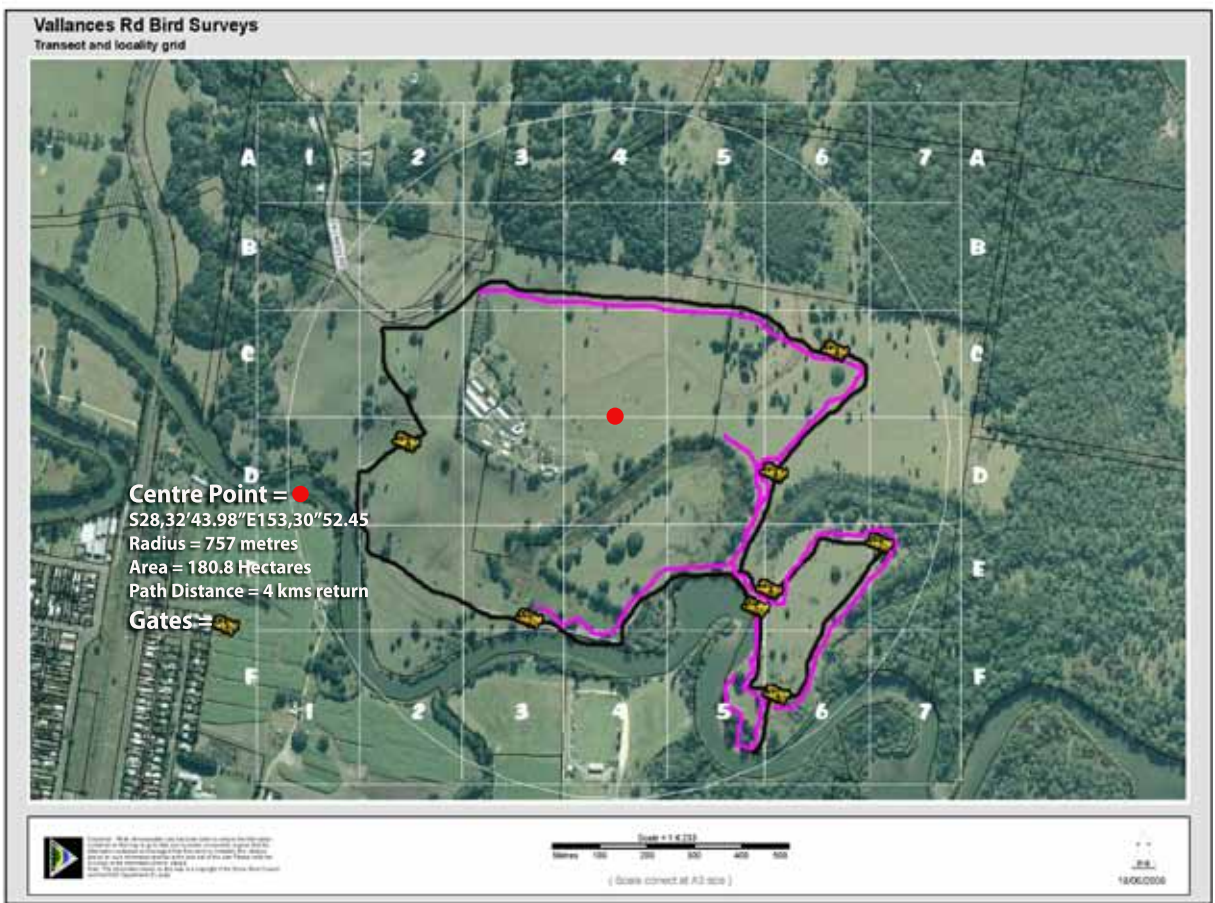
BBB commenced avifauna monitoring in May 2007 and data is recorded in an Excel Spreadsheet and provided to Byron Shire Council. The spreadsheet also includes results of avifauna surveys conducted in 2007 and 2008 by Mark Fitzgerald.

**Figure 1. Byron Wetlands transect and locality grid Map. Source - Byron Shire Council**



Track walked for the four hour surveys identified as red.

**Figure 2. Vallances Road transect and locality grid Map. Source - Byron Shire Council**



Track walked for the four hour surveys identified as pink - Black line indicates an internal road



## 1.4 Objectives

As for the previous reports the objectives continue to be:

- To identify all known bird species utilising the study sites
- To count waterbird and shorebird numbers
- To identify avifauna species in the NSW Threatened Species Conservation Act (1995)
- To identify shorebirds covered by International Agreements, such as the JAMBA, CAMBA and ROKAMBA Agreement with Japan, China and Korea
- To identify breeding activity
- To present data in an Excel Spreadsheet
- Report on trends in observations, diversity and abundance, and possibly suggest reasons for change in numbers and distributions that occur
- Report on anecdotal information about other species
- To provide information that may be of relevance to the management of the sites
- To produce an annual report that summarises the bird activity at both sites.

*Note: BBB has been unable to provide an annual report since 2014 and except for 2019 the surveys have not been conducted systematically as in previous years. We believe the data collected can still inform this report, particularly in regard to species diversity.*

## 2.0 Field Survey Methods

### 2.1 General - Byron Wetlands and Vallances Road 2015-2020

Avifauna monitoring carried out at both sites by BBB conforms to the requirements of BirdLife Australia's Atlas of Australian Birds 'Area Search' which is suitable for wetland sites. The 'Area Search' allows for listing of birds surveyed beyond 500 m but within 5 km of a central point. Records of rare or one-off sightings that have been reported to BBB from other reputable bird observers known to BBB are recorded as an 'Incidental Search'. Using a format that is consistent with the requirements of BirdLife Australia allows for public distribution of critical data.

At the commencement of our commissioning to monitor for avifauna species at both sites, a transected map grid was agreed to by BBB and BSC that crossed through a variety of ecotones and these transects and grids were used to identify and pinpoint the location of a bird when observed. At Vallances Road in 2011, a new road was constructed for access to the newly constructed buildings of the STP and bird species observed along the road have been included since that time.

For this reporting period the 200 m<sup>2</sup> grids are only occasionally used to define a species location. (Refer to **Figures 1 & 2**).

Past reports have established that birds are consistently using the same habitat. The spreadsheet now provides a column with colour coded habitat types for each bird which highlights the habitat that they are consistently observed in during surveys. Another colour coded column highlights the birds' pattern of movement such as whether they are migratory/nomadic or sedentary.

Surveys are conducted during a range of daylight hours commencing from early morning through to early evening and several hours after sunset. All bird species within approximately

1 km radius of site were recorded. This is consistent with the requirements of BirdLife Australia reporting methods which is only reporting birds in a defined area, only recording if identification is certain, and aiming to observe with minimal disturbance. If identification is disputed or uncertain it is noted that confirmation is required.

BBB agreed to conduct a total of at least six by four hour, or longer surveys at each site: three morning surveys and three evening surveys during a twelve month period. Except for 2019 the surveys during this reporting period did not adhere to this timetable but were conducted more randomly, again we believe the data collected can still inform this report, particularly in regard to species diversity.

Birds observed during other surveys, either for Shorebirds 2020 or during public guided walks, are also included. Some data is also collected from observers known to BBB; these are either supplied direct to BBB or collected from online databases, either eBird or Birddata. These are usually considered partial or incidental surveys. Even though they were conducted while traversing the agreed transect they were not necessarily conducted over the length of the agreed survey area. A summary of the annual hours are provided in **Table 1 and Table 2**.

Details of who collected the data, the dates and times as well as all other relevant data on movement, habitat and species is provided in the **Excel Spreadsheets Appendix 8 (Pg. 58) - 1,2,3,4,5**.

The observer also includes behavior such as flight, roosting, feeding and breeding activity, and other anecdotal information is recorded as Notes on the spreadsheet.

This report does not aim to separate four hour surveys from the partial surveys and does not aim to comprehensively analyse the data, especially in relation to population trends. As a monitoring program the data is not collected under strict avifauna research conditions. BBB members have vast knowledge and experience of avifauna but not all are trained in scientific methods.



Australian Pelican & Black-necked Stork - D. Pearse

## 2.2 Call-Playback

BirdLife Australia has reported that frequent use of call-playback at survey sites and at sites where there is high visitation, are disturbing to birds especially if they are breeding. BBB aims to keep call-playback to a minimum. All bird calls are sourced from Michael Morcombe's eGuide to Australian Birds or Pizzey and Knight Birds of Australia eGuide and played through a small speaker. Call-playback is used usually to verify a bird's call and to survey for nocturnal species. During this reporting period call-playback was only used twice (2015 and 2016) to determine if evening or nocturnal birds were on site.

## 2.3 Spotlighting

Spotlighting for this reporting period was not undertaken.

## 2.4 Byron Wetlands - Survey Dates and Times 2015-2020

At Byron Wetlands a total of 91 surveys were conducted between January 15th 2015 and December 29th 2020 with a total of 323.45 hours of survey time; 277.20 daylight hours and 47.15 afternoon/evening hours.

All surveys were conducted utilising the same transect, however only 40 surveys were conducted over the entire transect, therefore the remaining 51 surveys can only be considered partial or incidental surveys. BBB considers that it is important that the observations recorded during these partial surveys are included along with the agreed six annual surveys being undertaken by BBB over the entire site. Avifauna moves in the environment according to conditions and migratory patterns and not all species may be detected on the day of the BBB surveys, so these part surveys add additional knowledge to the records of species utilising the sites. Refer to **Appendix 8 - 1,2,3,4,5**.

A summary of the annual monitoring hours is included in **Table 1**.

**Table 1. Byron Wetlands - Surveys and Annual Hours 2015-2020**

Total of Annual Monitoring Hours – Byron Wetlands 2015-2020						
Year	Total Hours	No of Surveys in 12 months	Total Diurnal Hours	Afternoon/evening hours.	Call-play-back	Spotlight
2015	33.35	10	21.55	11.30	Yes x 2	No
2016	47.30	12	32.30	16.00	Yes x 1	No
2017	76.25	18	72.10	4.15	No	No
2018	34.15	12	34.15	0	No	No
2019	77.00	24	61.15	15. 45	No	No
2020	55.15	15	55.15	0	No	No
<b>Totals</b>	<b>323.35</b>	<b>91</b>	<b>277.20</b>	<b>47.15</b>		



Marsh Sandpiper - R. Sergeant



Grey Goshawk - R. Sergeant



Shining Bronze-Cuckoo - R. Sergeant

## 2.5 Vallances Road - Survey Dates and Times 2015-2020

At Vallances Road a total of 33 surveys were conducted between February 18th 2015 and December 28th 2020 with a total of 152.40 hours of survey time; 100.25 daylight hours and 52.15 afternoon/evening hours. All surveys were conducted utilising the same transect, of the 33 surveys, 30 surveys were conducted over the entire site and three are considered partial or incidental surveys. As above, BBB considers that it is important that the observations recorded during these partial surveys are included along with the agreed six annual surveys being undertaken by BBB over the entire site. Avifauna moves in the environment according to conditions and migratory patterns and not all species may be detected on the day of the BBB surveys and therefore these part surveys add additional knowledge to the records of species utilising the sites. Refer to **Appendix 8 - 6 & 7**.

**Table 2. Vallances Road - Summary of Surveys & Annual Hours 2015-2020**

Total of Annual Monitoring Hours – Vallances Road 2015-2020						
Year	Total Hours	No of Surveys in 12 months	Total Diurnal Hours	Afternoon/evening hours.	Call-play-back	Spotlight
2015	32.00	6	15.00	17.00	No	No
2016	30.15	7	17.00	13.15	No	No
2017	24.00	5	15.30	08.30	No	No
2018	10.30	3	10.30	0	No	No
2019	28.15	6	14.45	13.30	No	No
2020	27.35	6	27.35	0	No	No
<b>Totals</b>	<b>152.40</b>	<b>33</b>	<b>100.25</b>	<b>52.15</b>		

## 3.0 Results of Byron Wetlands Surveys

### 3.1 General Observation

As of December 2020, a total of 240 avifauna species have now been recorded at the Byron Wetlands (the total now includes a domestic duck that was observed in 2014 but not recorded in the 2014 report). There is an increase of ten species since the last report ending 7/12/2014. The average annual count for the 12 reporting periods since 2008/2009 is 147.8 species.



Over the 6 years of this report period the lowest recorded annual species number was 133 in 2015 and this was also the lowest annual number recorded since reporting began in 2009. However, it is also the period of the least number of surveys and survey hours in comparison to the other report periods. The highest number of species recorded was 167 in 2019 and this is the highest record since reporting began in 2009 and it is the also the highest period of surveys days and hours in comparison. These points will be discussed further in the report

During the year 2018 and 2019 very little rain had been recorded in all of NSW and all areas were experiencing drought conditions. At the wetlands, at the end of January 2019, H cell was practically dry and only a small pool of water remained on the southern side of the Cell. A large number of eels had died. The other cells remained full and water continued to flow out. H cell was full again on BBB's next visit in March. Again, in September to December, H cell was drying out exposing large areas of moist mud – very suitable for migrating shorebirds as originally planned. For the next three months BBB and others recorded an increase in migratory shorebirds numbers in H cell, but they disappeared over Christmas 2019 when the Cell was once again full of water, although only a small amount of rainfall had been recorded in the area.

**Table 3. Byron Wetlands Summary of Avifauna Species observed annually over 12 years**

Year	No of species	Year	No of species
2020	160	2017	150
2019	167	2016	138
2018	137	2015	133
Average annual No of species for 12 years of surveys =147.8			
2014	150	2011	140
2013	154	2010	153
2012	154	2009	135

### 3.2 New Species

Ten new species were observed for the site from 2015-2020. Since 2017 there has been a notable increase in surveys submitted to the two databases eBird and Birddata. Although these are accepted records, a number of species records were not accepted by BBB as they could not be verified and were considered unlikely to be observed at the site. This is based on the species not having been observed before in coastal areas of the Shire. The records will stay on the databases as being observed at the wetlands. As birds move in the environment, we have accepted a few records based on reputable observers, or BBB having discussed the observation with the observer, or the species is highly likely to have been seen in the habitat. However, a couple of these new species still remain uncertain observations and cannot be verified with photographs. New species are discussed below according to the year observed.

## 2015

- No new species

## 2016

- **Musk Lorikeet** – Five birds were recorded flying over the wetlands by members of BBB/BVBW during a survey 15/5/16. This is a very uncertain record and another sighting is needed to confirm the record for the site. These birds are sporadic visitors in the Northern Rivers/Byron Shire. During May they are more likely to be observed flying over the northern coastal areas of NSW away from the flowering eucalyptus in the southern areas of the North Coast, than any other month. The birds can very easily be mistaken for Scaly-breasted Lorikeets when flying, however their calls are easily identified by skilled observers. We have several records (with pictures) in the north of the Shire in 2018 and there are records on eBird in 2019 and 2020 but no records anywhere on the North Coast in 2016.



White-winged Black Tern - A. Jones



Noisy Pitta - R. Hollands

## 2017

- **White-throated Nightjar** - This is also a very uncertain record and another sighting is needed to confirm the record for the site. A nightjar-like bird was glimpsed flying in the carpark on the evening survey by BBB on 15/1/2017. It was not a focused observation and may even have been an Australian Owlet-nightjar, but based on size it has been recorded as a White-throated Nightjar. It was not calling.

## 2018

- **Forked-tailed Swift** – Two birds were recorded flying with a group of forty Needle-tailed Swifts on a survey by BBB 20/1/18. These swifts are nearly always recorded flying with White-throated Needleetails but not always detected. They are regularly recorded every summer in the region in small numbers. Swifts usually fly high over many habitats, but sometimes fly low particularly to hawk insects over water bodies.

## 2019

- **Noisy Pitta** – Two birds were recorded in the bush at the back of Cell H by Richard Murray on the 17/8/19. Richard is not known to BBB, but the observation was submitted to eBird with pictures of the pair. Richard had spent 9 hours on the site and had recorded 78 species. The Noisy Pitta is an altitudinal migrating species, moving between higher inland areas where they breed in the summer months, to lower coastal littoral or subtropical rainforest areas in the winter. They usually move at night and,

being recorded in August, the pair were highly likely to be on the move back to their breeding grounds. They are often seen at various locations in Byron Shire in the winter months.

**Note** – these birds are allocated to Group 18, Table 4. *Byron Wetlands - Avifauna Abundance by Family Groups – 2015 to 2020*. For the ease of reporting BBB has grouped birds into broad groups, Group 18, which includes Pittas and Treecreepers, are a group that has never been recorded at the wetlands before. By adding this group to the Table, it will bring the total groups to 32

- **Lesser Sand Plover** - this migratory shorebird was recorded and observed by many people in Cell H, on four occasions in December 2019. Refer to **3.9.4 Threatened Species (pg.32)**.
- **Oriental Cuckoo** – a single bird was observed by Dr James Watson in the early morning of 14/12/19. There are very rare reporting rates of this species for the whole of the Northern Rivers and they are difficult to identify. They are mainly seen in northern Australia, and coastal Queensland with the odd vagrant records in the south as far down as Shoalhaven. The birds are winter visitors to Australia and unlike all of our other cuckoos, do not breed here. It is highly likely that small numbers pass through every year. A confirmed sighting with photos was recorded in Alstonville 2/4/18.
- **Common Tern** – Observed by Steve McBride flying high over the site on 16/11/18 – as stated on eBird unusual for this location, but regular at nearby Belongil Creek mouth. The record included photos to differentiate identification from Whiskered Tern.
- **Caspian Tern** – observed flying over on 14/12/19 by Steve McBride – An unusual sighting in Byron Shire, more frequently seen north and south of the Shire.
- **Crimson Rosella** – Three birds were recorded by Carey Lewis in October 2019. This species is rarely recorded in coastal areas of the Shire. A possible vagrant, but a confirmed sighting is needed.



Immature Red-kneed Dotterel - A. Jones



Black Swan - D. Pearse



Wandering Whistling-Ducks - R. Sergeant



Immature or female White-winged Triller- A. Jones

2020

- **White-eared Monarch** – two birds were observed at the back of H Cell on the 2/6/2020 by Annette Stanton. They are considered a vulnerable species in NSW. Refer to under **3.9.4 Discussion Threatened Species (pg.32)**.

### 3.3 Broad Family Groups

A breakdown of avifauna species into broad family groups and a comparison with the total number of species recorded for the site since 2002 is provided in **Tables 4 & 5**. There are 32 groups (some groups are not represented at the wetlands), giving a broad indication of species abundance trends.

Notably, the Shorebird Group 11 has a downward trend since 2008/9. A total of 27 shorebird species have been recorded at the site since 2002 and the lowest number recorded occurred in 2015 & 2016 where only seven species were observed. The highest recorded shorebird species was in 2010 and again in 2019. This report does not aim to do statistical analysis of the trends but trends will be discussed further in **3.5 Patterns of Movement**.



Forest Kingfisher - R. Sergeant

**Note** – Group 18 which includes Pittas and Treecreepers has now been added to Table 8, bringing the total to 32 broad groups. This Group has been absent from previous report periods. Refer to Appendix 1 - Excel Spreadsheet for the bird species allocated to each group.

**Table 4. Byron Wetlands - Avifauna Abundance by Family Groups – 2015 to 2020**

Byron Wetlands 2015 - 2020								
Family Group No	Family	15/01/20 29/12/20	15/01/19 26/12/19	20/01/18 25/11/18	07/01/17 20/12/17	13/01/16 08/11/16	15/01/15 20/09/15	Species for site since 2000
1	Mound-Builders & Quails	1	1	2	2	0	2	4
2	Swans, Geese, Ducks & Grebes	9	11	9	11	7	8	17
3	Pigeons & Doves	9	7	5	9	6	7	12
4	Frogmouths, Nightjars & Swifts	2	2	3	3	2	1	4
6	Frigatebirds & Cormorants	4	5	4	5	5	5	7
7	Hérons, Ibis, Spoonbills & Allies	15	15	12	13	13	13	17
8	Birds of Prey	10	11	10	11	11	11	20
9	Brolgas	1	0	0	0	0	0	1



10	Crakes, Rails & Gallinules	8	8	6	7	7	5	<b>11</b>
11	Shorebirds	8	13	8	9	7	7	<b>27</b>
13	Gulls & Terns	2	6	2	3	1	2	<b>8</b>
14	Cockatoos & Parrots	10	8	7	6	6	6	<b>12</b>
15	Cuckoos	8	9	6	6	6	5	<b>10</b>
16	Owls	0	1	0	0	0	0	<b>3</b>
17	Kingfishers, Rollers & Bee-eaters	6	5	5	6	6	5	<b>6</b>
18	Pittas, Treecreepers	0	1	-	-	-	-	<b>1</b>
20	Fairy-wrens	3	3	3	3	3	3	<b>3</b>
21	Scrubwrens, Allies & Pardalotes	8	8	6	4	7	7	<b>10</b>
22	Honeyeaters	11	12	11	13	12	10	<b>13</b>
23	Quail-thrushes & Allies	1	1	1	1	1	1	<b>1</b>
24	Cuckoo-shrikes & Trillers	5	4	3	4	3	1	<b>5</b>
25	Whistlers & Shrike-thrushes	6	6	6	6	6	5	<b>6</b>
26	Woodswallows	1	1	2	1	1	1	<b>3</b>
27	Magpies & Butcherbirds	5	5	5	5	5	5	<b>5</b>
28	Fantails	3	2	2	3	2	2	<b>3</b>
29	Crows	1	1	1	1	1	1	<b>1</b>
30	Flycatchers & Monarchs	6	4	3	4	3	5	<b>7</b>
31	Robins, Warblers & White-eyes	6	8	6	7	6	6	<b>9</b>
32	Swallows & Martins	3	3	3	3	3	3	<b>3</b>
33	Thrushes, Starlings, Mynas & Flowerpeckers	2	2	2	1	2	2	<b>4</b>
34	Finches, Mannikins & Sparrows	3	3	3	3	3	3	<b>4</b>
35	Pipits, Wagtails & Others	2	1	1	1	1	1	<b>3</b>
	<b>Total Species</b>	<b>160</b>	<b>167</b>	<b>137</b>	<b>150</b>	<b>136</b>	<b>133</b>	<b>240</b>
	<b>Total Family Group = 32</b>							

**Table 5. Byron Wetlands - Avifauna Abundance by Family Groups 2008/9 to 2014.**

Byron Wetlands 2008/9 to 2014								
Family Group	Family	04/01/14 07/12/14	16/01/13 21/12/13	13/01/12 30/12/12	21/08/10 12/01/12	08/08/09 06/07/10	06/07/08 30/06/09	Species for site
1	Mound-Builders & Quails	1	2	1	2	2	2	4
2	Swans, Geese, Ducks & Grebes	13	13	7	10	9	10	17
3	Pigeons & Doves	8	7	6	9	7	6	12
4	Frogmouths, Nightjars & Swifts	2	1	1	2	1	1	2
6	Frigatebirds & Cormorants	5	5	5	5	4	6	7
7	Hérons, Ibis, Spoonbills & Allies	14	14	14	15	14	14	17
8	Birds of Prey	12	10	10	12	12	8	20
9	Brolgas	0	0	0	0	1	0	1
10	Crakes, Rails & Gallinules	6	9	8	9	9	4	11
11	Shorebirds	9	12	10	10	13	8	26
13	Gulls & Terns	2	1	2	3	2	1	5
14	Cockatoos & Parrots	8	8	8	7	6	7	11
15	Cuckoos	5	5	7	6	7	6	9
16	Owls	0	1	0	1	1	0	3

17	Kingfishers, Rollers & Bee-eaters	6	6	6	6	6	5	6
20	Fairy-wrens	3	3	3	3	3	3	3
21	Scrubwrens, Allies & Pardalotes	7	5	4	6	8	7	10
22	Honeyeaters	12	13	11	10	12	12	13
23	Quail-thrushes & Allies	1	1	1	1	1	1	1
24	Cuckoo-shrikes & Trillers	2	2	3	3	4	3	5
25	Whistlers & Shrike-thrushes	6	6	6	6	5	5	6
26	Woodswallows	1	2	1	1	1	1	3
27	Magpies & Butcherbirds	5	5	5	5	5	5	5
28	Fantails	2	2	2	2	2	2	3
29	Crow	1	1	1	1	1	1	1
30	Flycatchers & Monarchs	4	3	3	4	3	3	6
31	Robins, Old World Warblers & White-eyes	6	6	6	6	6	6	9
32	Swallows & Martins	3	3	3	3	3	3	3
33	Thrushes, Starlings, Mynas & Flowerpeckers	2	2	2	2	2	2	4
34	Finches, Mannikins & Sparrows	3	3	3	3	3	3	4
35	Pipits, Wagtails & Others	1	2	1	1	1	0	2
	Absent in 2014 Domestic Duck	1						1
	<b>Total Species</b>	150	153	140	154	154	135	230
	<b>Total Family Group = 31</b>							



Whistling Kite - R. Sergeant



Square-tailed Kite - A. Jones



Brown Goshawk - R. Sergeant

### 3.4 Foraging Habitats

A record of the abundance of species relative to the foraging habitats that a species predominately utilises to feed is provided in **Table 6**.

BBB has identified and divided the wetlands into five broad representative habitat types; forest and trees, freshwater wetlands (including the moist muddy margins), pastures and grassed areas including buildings, reeds and low vegetation, and the air space above the wetlands. It is anticipated that the preferred habitat will not vary and so a preferred habitat column, provided in the **Excel Spreadsheet Appendix 8**, will give a consistency in reporting. Since 2014 the grid reference in the spreadsheet has rarely been used and any noticeable variation in habitat preference will be included in the notes if necessary.

On average annually, 62 species of birds utilise the forest and trees, 38 species are using the water bodies or muddy margins, seventeen species are mostly using reeds and sedges, another seventeen are observed in the airspace and twelve species are using the mowed grassed area.

Again this report does not aim to do statistical analysis of the trends, but the table is showing some annual variation in the habitats being used. The number of species using the forest, trees, grass and sedges is increasing and the number using the water bodies is decreasing. The species utilising the modified areas and the airspace are relatively stable.

It is acknowledged that birds may use different habitats not only to forage, but for shelter, roosting and to nest according to their needs and characteristics. Species have been allocated to a habitat according to which is considered the most dominant food habitat. There are exceptions, for birds that are observed in the airspace (OH) such as raptors, terns and swifts, this may not necessarily be the foraging habitat. Some are feeding on the wing, but some are only looking for food on the wing and will take food from the ground while others may be just passing through, but the air space is predominately where the species is observed. For more detail refer to the Habitat column in the **Excel spreadsheets Appendix 8**.

**Table 6. Byron Wetlands - Avifauna by Habitat Types – 2009/10 to 2020**

Byron Wetlands - Avifauna by Habitat Types – 2009-10 to 2020							
Habitat Type	Forest &/or Trees (2)	Freshwater Wetlands, moist or muddy areas (3)	Pasture or grassed areas / buildings (5)	Reeds & low growth (8)	Air Space (OH)	No Records	Total
Max. for Site	95	66	18	28	33		240
Species 2009-10	56	44	11	13	24	6	154
Species 20010-12	64	41	14	16	19	0	154
Species 2012	55	41	12	11	21	0	140
Species 2013	62	46	11	20	13	0	153
Species 2014	62	39	14	18	17	0	150
Species 2015	56	32	13	16	16	0	133
Species 2016	59	31	13	18	15	0	136
Species 2017	67	37	12	18	16	0	150
Species 2018	58	32	13	18	16	0	137
Species 2019	71	41	14	20	21	0	167
Species 2020	75	34	15	20	16	0	160
<b>Average p.a.</b>	<b>62</b>	<b>38</b>	<b>12</b>	<b>17</b>	<b>17</b>		<b>149</b>

### 3.5 Patterns of Movement

A general categorisation of the species number relative to their movement patterns across the landscape is provided in **Table 7**. This general categorisation is given to avifauna species utilising the Byron Wetlands based on BBB observations and referencing several birding field guidebooks. Further analysis is required to determine the significance of the trends and differences and some species may need re-classifying over time.

Movements of avifauna species in the landscape can be classified as:

**Sedentary** or local or resident; these birds are non-migratory and tend to remain in one area or territory e.g. wrens. These birds are likely to nest in the wetland or close by and may disperse locally in response to food supply or after breeding. It is considered that the species in this group should be relatively stable and observed during most 4 hour surveys.

**Nomadic** species are species that undertake wandering travels of irregular patterns in timing, direction or distance; some examples include some cormorants and egrets, mistletoebird, whistlers, flycatchers and martins. These birds move in response to food, water levels and weather conditions and may be utilising the site for either food supply, as a “stop over” or even to nest and roost. Species in this group will vary according to conditions both within and outside the wetlands.

**Migratory** birds undertake regular seasonal journeys to breed. The migration may either be from within, or external, to Australia; examples are the cuckoos and shorebirds. Species in this group will vary due to both external and internal causes. Internal migration can be either latitudinal, longitudinal or altitudinal and external migration can be either the shorebirds that migrate to Siberia or the Arctic or the cuckoo species that migrate to Indonesia and New Guinea.



Wood Sandpiper - A. Jones



Glossy Ibis - B. McNaughton



Yellow Wagtail - B. McNaughton

**Endemic** species are species that are unique to a place or region and are found naturally nowhere else, such as the Albert’s Lyrebird which is endemic to the sub-tropical rainforest of SE Qld and Northern NSW. There are no endemic species in the wetlands.

**Vagrant** or Accidental are species that stray beyond their usual range or migration. The movement may be from within Australia or external, for example the White-browed Crane, recorded in 2009, move within Australia, and the Yellow Wagtail, last seen in 2008, migrates from Asia. Species in this group will vary greatly and an observation would be considered “lucky”.

**Table 7** divides the annual species visiting the wetlands into one of the five classification patterns. The migratory species group is separated again into internal (moving within Australia) or external migration species (moving outside Australia’s border) and is again divided into either the shorebirds or any other migrating species. The table demonstrates that, on average, the sedentary species is stable with very little annual variance. As expected, there is some variance in nomadic and migratory species. This will be considered further in **3.9 Discussion**. To maintain a consistency in reporting, a dedicated column for movement patterns is provided in the **Excel Spreadsheets Appendix 8**.



**Table 7. Byron Wetlands - Avifauna by Movement Patterns  
2009-10 to 2020**

Byron Wetlands - Avifauna by Movement Patterns							
Movement	Sedentary	Nomadic	Vagrant	Migratory			
Max. for Site	81	70	9	80			
2009-10	61	45	2	45			
2010-11	69	40	2	42			
2012	60	35	0	44			
2013	64	41	2	45			
2014	67	39	2	42			
2015	64	34	0	35			
2016	63	35	0	38			
2917	64	41	0	46			
2918	65	31	1	40			
2019	64	42	3	58			
2020	69	42	1	48			
Average pa	65	38	1	43			
Some examples	Wrens Grassbirds Butcherbirds Whipbirds Finchs Thornbills Shrike- thrush some Honeyeaters some Shorebirds	Ducks some Raptors Doves Pigeons some Honeyeaters Waterbirds Parrots Cockatoos some Shorebirds	White-browed Crake Little Curlew Magpie Goose Painted Snipe	Internal		External	
				Max. for site	49	Max. for site	31
				2009-10	32	09-10	15
				2010-11	31	10-11	11
				2012	32	2012	12
				2013	33	2013	12
				2014	32	2014	10
				2015	28	2015	7
				2016	29	2016	9
				2017	35	2017	11
				2018	31	2018	9
				2019	39	2019	19
				2020	38	2020	11
				Average	32		11
				Fantails		Other	
						Shorebird	
						Max	13
						Max	18
				Cuckoos		2009-0	8
						09-10	7
				Whistlers		2010-11	6
						10-11	4
						2012	7
						2012	5
				some Honeyeaters		2013	5
						2013	7
						2014	6
						2014	4
				Raptors		2015	5
						2015	2
				Kingfishers		2016	6
						2016	3
						2017	7
						2017	4
				Fycatchers		2018	6
						2018	3
				Gerygones		2019	12
						2019	7
						2020	8
						2010	3
				aver		6	4
				Swifts, Cuckoos, Drongo, Martins, Terns		Sandpipers, Stints	

The Comb- crested Jacana could be considered endemic to the wetlands in Byron Shire but technically this is not correct



Buff-banded Rail - A. Jones



Great Egret - A. Jones



Little Bittern - R. Buckstein

### 3.6 Call-Playback

Call-playback was used only twice in 2015 and 2016, to detect Grass Owl, Barn Owl, Southern Boobook, and Pale-vented Bush-hen. There was no response from any of these species. Byron Wetlands are a known habitat for the Australasian and Little Bittern, BBB has not continued call-playback for these species. BBB has established that these birds visit the site for short periods only, they are easily disturbed and would probably not breed on site and therefore it was not necessary to continue call-playback to detect a presence. Since 2016 BBB has not used call-playback for any species.

Other people not involved in BBB surveys, may also have used or are using call-playback. As previously reported in 2011, the MP3 technology has vastly improved in recent years allowing any person to utilise amplified bird calls through MP3 players, Smart Phones or Touch Pads. Also, for a very low price, there are two E guides to Australian Birds on the market which contains bird pictures, information and calls combined on the one program and are therefore available to anyone who is interested. BBB's intention is to limit the use of this technology to confirming unidentified calls and on nocturnal surveys, and for a limited number of species only.

### 3.7 Spotlighting

Nocturnal spotlighting has not been used between 2015-2020.

### 3.8 Other Fauna

A number of other fauna species were also observed – however, these are only incidental sightings and no attempt is made to record all sightings of other fauna.

- 1/12/17 & 15/1/20 Swamp wallabies – it is noted that swamp wallaby numbers seem to have declined – only seen occasional during this report period where once seen every visit
- 27/5 & 5/7/15 – Red-bellied Black Snake
- 18/4/17 – Eels, turtle, hares and snakes



## 3.9 Discussion

During the six years for this report, weather patterns throughout Australia have been changing. The year 2019 was particularly dry and hot with many areas of the state experiencing severe bush fire conditions. “The 2019-20 bushfires in New South Wales (NSW) have been unprecedented in their extent and intensity. As of 28 January 2020, the fires in NSW had burnt 5.3 million hectares (6.7% of the State), including 2.7 million hectares in national parks (37% of the State’s national park estate)”. The Northern Rivers area experienced large fires in the Richmond Valley and the nearby Nightcap National Park in 2019. Overall, particularly during 2018 and 2019, the area received less rainfall, and had longer periods of dry weather and rising temperatures, particularly night-time temperatures.

Changing weather patterns, including changes in temperatures, rainfall and wind strength can affect habitats and biodiversity by changing nectar, flower and fruit production, in terms of their timing, quality and quantity which in turn affects the species that rely on these resources. Rainfall changes affect both below ground and above ground water levels. Byron Wetlands, being an artificially constructed wetland with a constant input of water, can become a haven for avifauna species. This may have been the case in 2019 when a record number of avifauna species was recorded.

Despite the conditions, the records for the Byron Wetlands are showing avifauna species are relatively stable for terrestrial birds with the expected variation due to dispersive, nomadic and migratory behavior. However, there has been a slow decline in the number of shorebirds and waterbirds visiting the site since 2000 and this is also demonstrated in this reporting period. Terrestrial, shorebirds, waterbirds and threatened species will be discussed under a separate heading below.

### 3.9.1 Terrestrial Avifauna Species

The results from the surveys in this reporting period show that the terrestrial bird species, considered to be the species that occupy the trees and forested, pastured and grassy, reedy areas and the air space at the site, remain relatively stable with only small variations in species numbers for some family groups. Many of these terrestrial birds have different patterns of movement and this could account for some small variations in species numbers. The birds that are sedentary (there are 80 for the site) are recorded as being very stable, with most species observed on each visit. The small number that are not observed regularly may have been a dispersing species from their usual place of residence, or may still be utilising the site but were not detected, or may not be on site on the day of the survey.

The Cuckoo-shrike and Triller group (Group 24), reported in 2013 as being lower in numbers than previous years, all five species are now being observed each year. The Cuckoo Group (Group 15) – all but the Pheasant Coucal, are migratory species and these are now being recorded in higher number than in previous years. A couple of these species, the Oriental and Pallid, would seem out of their normal habitat; the Oriental prefers a rainforest habitat and the Pallid usually occupies the dry west and may have been pushed towards the coast because of the dry conditions.

From the Birds of Prey group (Group 8), ten to eleven bird species were observed over the wetlands in the last six years from a total of 20 for the site. This group of species can vary for a number of reasons; many are uncommon throughout Australia, some are nomadic and migratory, and a considerable knowledge and skill is required to identify them. The species is



Nankeen Night-Heron - R. Wisemantel



Scarlet Honeyeater - R. Sergeant

often wrongly identified so errors in identification can occur. The most frequently observed species are the Swamp Harrier which may nest in the wetlands. The White-bellied Sea-Eagle and the Whistling Kite, in general, are seen less frequently than in previous years. For example, the Whistling Kite was not recorded at all in 2019 and the Black-shouldered Kite was not recorded in 2017 and 2020.

Unusual visitors to the site include the Rufous Songlark, recorded by several people on two occasions in November 2019 and was last recorded in January 2002. The Eastern Yellow Wagtail was recorded on one occasion in 12/12/2019 and last recorded at the Wetlands in February 2007.

A number of terrestrial birds have been recorded breeding on site if;

- a bird has been seen sitting on nest, or
- an adult has been observed feeding their young, or
- a juvenile species has been observed indicating the species has bred on site.

**These include:**

Eastern Yellow Robin	Large-billed Scrubwren
White-breasted Woodswallow	Australian Brush-turkey
Lewin's Honeyeater	Brown Honeyeater
Double-barred Finch	Pied Currawong
Willy Wagtail	Restless Flycatcher
Little Bronze-Cuckoo	Grey Shrike-thrush
Torresian Crow	Swamp Harrier
Black-faced Cuckoo-shrike	Brown Thornbill
Magpie Lark	White-headed Pigeon
White-throated Gerygone	Rainbow Bee-eater
Shining Bronze-Cuckoo	Tawny Frogmouth

Over the six years some terrestrial species have occurred at the site in higher than usual numbers. BBB's intention is not to analyse the reasons for the high numbers, however, the species are highlighted in **Table 8**.



**Table 8. Byron Wetlands – Terrestrial Species High Numbers 2009-10 to 2020**

Byron Wetlands – Terrestrial Species High Numbers – 2009-10 to 2020			
Species Name	Usual No	Unusual No	Date
White-throated Needletail	30-40	200	31/01/15
White-breasted Woodswallow	4-5	20	31/01/15
Black Kite	0-1	20	27/05/15
Rainbow Bee-eater	0-10	110	05/09/15
Grey Fantail	0-6	34	15/05/16
Australasian Figbird	2-10	54	15/05/16
Scarlet Honeyeater	0-20	32	15/05/16
Brown Honeyeater	3-6	95	15/05/16
Superb Fairy-wren	2-15	45	06/11/19
Welcome Swallow	8-25	170	25/07/16
Fairy Martin	0-30	300	15/08/20
Australian Reed-Warbler	0-3	20	17/09/17

### 3.9.2 Water Avifauna Species

Waterbirds is a loose reference to birds that are generally associated with water; unlike shorebirds there is no scientific classification of water birds as each species have their own scientific classification. For comparisons over the reporting years see **Tables 4 & 5**. As with previous reports, BBB has grouped the waterbirds into six family groups according to the grouping in the **Excel Spreadsheets Appendix 8**.

Population numbers and species diversity for this group has declined. The six groups include;

Group 2 - Swans, Geese, Ducks & Grebes

Group 6 - Frigatebirds & Cormorants

Group 7 - Herons, Ibis, Spoonbills & Allies

Group 8 - Brolga

Group 10 - Crakes, Rails & Gallinule

Group 13 - Gulls & Terns

The fresh water cells provide suitable habitat for these birds and all cells within the wetland are utilised by most groups at some time. Some species use the water body and may either float, e.g. Pacific Black Duck, or dive. e.g. Australasian Grebe and Hardhead, and some only use the moist edges such as the ibis and the terns, which are usually observed taking food from the surface of the water.

Within these six groups of waterbirds, four threatened species; Freckled Duck, Black-necked Stork, Australasian Bittern and the Pale-vented Bush-hen, were recorded over the past six years. This compares with 2010-11 when five threatened species were observed. Refer to **3.9.4 Threatened Species**.

Populations in these groups can vary greatly as many are nomadic or migratory species. Many of these birds leave the coast when the ephemeral lakes in Western NSW fill up from monsoonal and cyclonic rains in Qld. Generally, for the past six years, rainfall patterns have changed and the amount of fall has declined, culminating in drought conditions in most of NSW. Species population variation is shown in **Table 9**.

During any movement of waterbirds, they are likely to make short stops at suitable habitats which could account for the increase in numbers at times. There are 3 main reasons why birds need wetlands: for feeding, breeding and as a place to refuel and rest during migrations. They don't necessarily stay in one wetland area, but will move between them. For example, many waterbirds move regularly to newly flooded habitats to feed and/or breed before that wetland dries out. Semi-permanent, permanent and coastal wetlands, such as the Byron Wetlands, provide refuge for birds when wetlands in other regions are dry for long periods. Byron Wetlands being a permanent body of water, there is an expectation that the site would be a refuge in the dry times. This we assumed occurred at the end of 2019 and beginning of 2020 when record numbers of Eurasian Coot (570) were at the site, while only 2-4 have been recorded since then. At that time Baillon's Crake numbers also increased but not the number of duck species.

Generally, species are not breeding because of the changing weather patterns. When Sydney scientist Richard Kingsford and his team from the University of NSW began their research in the early 1980s they clocked up to a million waterbirds in aerial surveys. "Now it's crashed to less than 100,000", Professor Kingsford said. "The drought has decimated the population of waterbirds across eastern Australia with researchers saying numbers have fallen by as much as 90 percent. We're seeing much bigger [declines] than I would have expected and that's on the back of 70 per cent declines over the 37 years that we've been doing this survey".

A more in-depth analysis is needed to determine why this group of birds have declined at the Byron Wetlands.



Superb Fairy-wren - R. Wisemantel



White-throated Gerygone - D. Pearce



Red-backed Fairy-wren - D. Pearce

**Family Group 2: Swans, Geese, Ducks & Grebes.** An average of 9-10 species from a total of 17 were observed from this group over the six years. Noticeably, the number of Pacific Black Duck in particular declined. Prior to 2013 BBB was recording well over 80 birds each survey, but since 2014 generally only 10-20 birds or less have been observed per survey. Freckled Ducks, a threatened species, were observed on several surveys as were both the Wandering and Plumed-Whistling Ducks. The Wandering Whistling-Duck bred in C Cell in May 2019. The resident pair of swans nest each year with varying degrees of success - a



BBB coordinator Jan Olley & Friends - R. Wisemantel

number of cygnets disappear soon after hatching and so from a hatch of nine eggs, 2-3 may survive. The numbers of the Australian Grebe can also vary from each survey to the next, ranging from 2 birds to 48; a pair were observed nesting in March 2020. The Black Duck also nest at the wetlands.

**Family Group 6: Darter and Cormorants.** All the cormorant species were observed over the six years. In previous years these birds had nests at the back of Cell F, they are now breeding in Cell G, near the Interpretative Centre. In particular, the Little Black and Little Pied Cormorants nested in G cell and appeared to have shared the nests. The nest sites are difficult to observe so the other cormorant species may also have bred in the area.



Black-necked Stork (Sub-adult) - A. Jones

**Family Group 7: Storks, Herons, Ibis, Spoonbills & Allies.** As in previous years, the Cattle Egret and the Australian White Ibis fly into the wetland in large numbers, from surrounding pastures, at sunset, as do the Straw-necked Ibis. All Egret species in this group were present on most surveys. Less common birds observed for this period were the White-necked Heron, Yellow-billed Spoonbill, Nankeen Night- Heron and Little Bittern. Also in this group, the Black-necked Stork and Australasian Bittern will be discussed in **3.9.4. Threatened Species.**

## Table 9 –Water Avifauna Population Range

*\*An irruptive migrant is a species that usually migrates short distances at the most, but occasionally moves far south in very large numbers according to the internet. The reason for these unique migrations is not straightforward, and researchers have found that the causes vary with the species*

Byron Wetlands – 2010-2020											
Name	2020	2019	2018	2017	2016	2015	2014	2013	2012	2010 /11	Comment 2020-2015
Australian Wood Duck	0-2	0-12	0-15	0-4	0-2	0-6	0-2	0-5	0-20	2 -30	Occasionally present -
Freckled Duck	0-2	0-18	0-2	0	0	0	0	0-11	-	-	Generally absent – an irruptive visitor*
Plumed Whistling-Duck	0-2	0-4	0	0-9	0	0	0-9	0-8	0	0	Occasionally present
Wandering Whistling-Duck	0-15	0-16	0	0-2	0	0-1	0-4	0-3	0	0-9	Occasionally present - bred in 2019. In 2020 frequently heard - at dusk – may have roosted on site
Grey Teal	0-10	0-70	2-75	0-70	2-11	2-16	2-110	3-160	0-25	2- 60	Mostly present each survey – bred 2018
Chestnut Teal	0-1	0-1	0	0-15	0-10	0-0	0-1	0-3	0-1	0	Rarely present
Pacific Black Duck	1-77	2-53	4-26	2-50	9-74	20-36	20-140	4-78	2-90	17 – 173	Always present - nest & juveniles -
Hardhead	0-18	0-120	1-97	6-29	0-4	2-31	10-40	12-85	2-77	1- 41	Present all surveys
Australasian Grebe	4-33	7-40	2-49	3-40	6-24	3-29	4-17	8-50	5-34	6 - 15	Always present
Australasian Darter	0-4	0-2	0-3	0-2	0-1	0-2	0-4	1-8	0-2	1- 75	Generally present
Little Pied Cormorant	0-6	0-14	0-2	0-4	0-8	0-6	0-12	0-11	0-6	1-10	Present most visits
Little Black Cormorant	0-13	0-8	0-6	0-8	0-5	0-6	0-30	2-11	0-12	1-60	Mostly present – nests on site
Pied Cormorant	0-1	0-3	0-2	0-1	0-1	0-1	0-3	0-2	0-3	-	Occasionally present
Great Cormorant	0	0-1	0	0-2	0-3	0-2	0-1	0	0	0-1	Generally absent
Pelican	0-3	0-4	0-3	0-3	0-3	0-3	0-10	0-3	0-2	0-3	Occasionally present observed overhead
Black-necked Stork	0-1	0-1	0	0-1	0-2	0-2	0-1	0-1	0-2	0-1	Mostly absent
Little Bittern	0-1	0-1	0	0	0	0	0	0	0-1	0	Rare – summer visitor - is very secretive – hides in the reeds so possibly on site but not observed
White-necked Heron	0	0-3	0-1	0-2	0-1	0-1	0-1	1-8	0-3	0-1	Present during April to December
Eastern Great Egret	0-2	0-5	0-2	0-2	0-1	0-4	0	0-7	0-2	0-2	Mostly present
Intermediate Egret	0-3	0-3	0-3	0-3	0-6	0-3	0-3	0-7	0-2	0-2	Occasionally present
Cattle Egret	0-50	0-60	0-5	0-20	0-600	0-130	0-160	0-280	0-150	1-250	Present most surveys – arrives in large numbers at sunset



White-faced Heron	0-1	0-4	0-2	0-4	1-4	0-4	0-3	2-5	0-6	0-4	Mostly present
Little Egret	0-1	0-8	0-1	0-3	0-2	0-3	0-2	0-1	0-1	0-4	Mostly present
Nankeen Night-Heron	0-2	0-5	0-1	0-2	0	0-1	0-1	0-1	0-3	0-2	Often present – thought to have nested 2012
Australian White Ibis	2-32	2-120	2-50	0-37	1-160	4-145	1-60	3-180	0-60	4-150	Small numbers present most surveys – numbers increase at dusk
Australasian Bittern	0-1	0-1	0	0	0	0	0-1	0	0		Mostly absent – but may be present but not observed
Straw-necked Ibis	0-300	1-500	0-9	0-29	0-120	0-580	0-107	0-450	0-100	0-5	Usually none during the day – arrive at sunset
Royal Spoonbill	0-3	1-10	0-28	0-20	1-9	4-13	2-16	1-8	0-8	0-8	Present most surveys during 2013
Pale-vented Bush-hen	0-2	0	0	0	0	0	0	0	0	0	Rare
Spotless Crake	0	0-4	0-1	0-3	0-1	0-1	0	0-1	0-2	0-1	Occasionally present – but may be all year round but only visible with mud exposed
Australian Spotted Crake	0-2	0-2	0	0	0-1	0	0	0	0	0	Rarely seen
Buff-banded Rail	0-1	0-4	0-2	0-2	0-1	0-1	0-2	0-4	0-4		Occasional observation – secretive bird may be present more frequently
Purple Swampphen	12-125	2-105	5-45	8-55	13-175	7-63	40-125	40-115	30-220	35-86	Numbers fluctuate but always present – some nesting occurs in reeds - nest & juveniles observed
Eurasian Coot	0-350	4-570	1-140	1-180	1-43	2-150	9-128	35-400	18-82	1-163	present in large numbers
Dusky Moorhen	1-23	1-39	2-23	12-75	8-75	7-20	10-40	6-80	25-120	7-235	Numbers fluctuate but always present – assume some nesting occurs in reeds - nest & juveniles observed



Little Pied Cormorant - R. Sergeant

**Family Group 10: Crakes, Rails & Gallinules.** The nomadic Eurasian Coot was present in large numbers in 2019. Overall, the sedentary Purple Swamphen and Dusky Moorhen numbers have reduced over the period of the surveys, but a number are always present. Again, juveniles of the moorhens and swamphens were observed indicating that breeding continues to occur in the wetlands. The nomadic or migratory crakes and rails are more often heard and infrequently seen in the wetland as they reside in the reed-beds and are only noticed if they feed on the edges. There were frequent observations, throughout the six years, of the Baillon's Crake, and several reports of both the Spotless Crake and Spotted Crake. Of the two rail species, the uncommon and threatened Lewin's Rail was heard calling on one occasion and the more commonly observed Buff-banded Rail was recorded on numerous surveys. In 2018 and 19, juvenile Buff-banded Rails were observed, an indication that they are breeding on site.

**Family Group 11: Gulls & Terns.** Silver Gulls are frequently reported flying over the site; they are visiting one of sludge ponds in the Treatment Plant. The Whiskered Tern, a known freshwater tern, is occasionally reported flying over the site, mainly in the spring months. The other mostly marine terns, Common, Caspian, White-winged Black and Crested Terns were recorded on one occasion. They are rare visitors to the site.

### 3.9.3 Shore Avifauna

A total of 14 shorebird species from a total of 27 species were observed during this six year report period at the Byron Wetlands. Eight of the 14 species observed are migratory species, breeding in the Northern hemisphere; the remaining six shorebirds are Australian breeding species.



Latham's Snipe - J. Watson



Pacific Golden Plover - R. Sergeant

Except for the Latham's Snipe, the migratory species are recorded in very small numbers and stay for only the short period when the mudflats are exposed. The Latham's Snipe hides at the edges of freshwater bodies in short tussocky grass and sedges. They arrive at the wetlands in mid-August and most have departed by the end of March; the numbers can vary from 0-20 over the summer months they are here.

Migratory shorebirds are protected under the JAMBA, CAMBA, and ROKAMBA International Agreements for the protection of migratory shorebirds, as well as the Australian EPBC Act, for further information:

<http://www.environment.gov.au/epbc/publications/pubs/migratory-shorebirds.pdf>

Shorebird species have gradually declined at the site since 2001, with many of the species on the Byron Wetland Avifauna List not being recorded since 2002. For the past several years, water-levels in H Cell have generally been too high during the summer months for any prolonged use of the site by migratory shorebirds. In 2019 the water levels in H Cell were low on two occasions; at the end of the 2018-19 summer and the beginning of the 2019 spring and summer months, so this would account for the increase in number of migrating species visiting the site at that time. On both occasions the birds disappeared as soon as the water levels covered the exposed muddy edges.

Of the six resident shorebird species, the Comb-crested Jacana being a vulnerable species will be examined under **3.9.4. Threatened Species**. Of the other five species;

- the Black-fronted Dotterel, Red-kneed Dotterel and Black-winged Stilt, having been known to have bred on site, have all been declining over the past several years,
- the common Masked Lapwing, a shorebird species not dependent on shallow water, is still observed at each visit
- the Pied Oystercatcher was seen flying over the wetlands.

Most migratory and resident shorebirds prefer exposed areas with moist substrates, a rich food supply and clear surroundings to view an approaching predator. Overall, throughout the world, shorebird numbers have declined by 73% for both migratory and resident shorebird species (BirdLife Australia). BBB has now assessed that the reduction in numbers for shorebirds at the Byron Wetlands is almost certainly related to water levels in the ponds. When the conditions in the ponds are right and the water-levels are low with exposed mud flats, the birds will arrive, then they disappear once the water- levels increase, covering the exposed areas.

Cell H is identified in the West Byron Sewage Treatment Plant Weed Management Strategy as being managed for shorebirds. BBB understands that an attempt was made in 2011 to create a more suitable shorebird habitat at the west end by flooding the cell to kill the reeds, but water levels have remained too high for shorebirds. BBB is unsure if the water level increase in H Cell in 2019 was a rain event or water was introduced from the STP, but if introduced a more managed approach is needed to consider the conditions of the habitat for shorebirds.

As stated above, populations of the species of both migratory and resident shorebirds that now visit the site can vary greatly, but overall numbers are declining, **Table 10** provides the details of the population range recorded at the wetlands between 2015-2020.

**Table 10 – Shore Avifauna Population Range**

	Movement	2020	2019	2018	2017	2016	2015	
Latham's Snipe	Migratory	0-12	0-20	0-21	0-13	0-9	0-11	Breeds in Japan
Sharp-tailed Sandpiper	Migratory	0-2	0-11	0-4	0-5	0	0	Breeds in Northern Siberia
Comb-crested Jacana	Sedentary	0-18	0-7	0-2	2-8	4-12	0-6	Breeds in Australia/ BW
Black-winged Stilt	Nomadic	0-13	0-25	0-20	0-26	0-6	0-19	Breeds in Australia
Pacific Golden Plover	Migratory	0-3	0-2	0	0-5	0-5	0-1	Breeds in Siberia/Alaska
Black-fronted Dotterel	Sedentary	0-9	0-11	0-12	0-20	1-10	4-13	Breeds in Australia/BW
Red-kneed Dotterel	Nomadic	0-1	0-30	0-4	0-1	0	0-2	Breeds in Australia
Masked Lapwing	Sedentary	0-40	0-19	0-15	1-18	5-47	2-65	Breeds in Australia/BW
Wood Sandpiper	Migratory	0	0-1	0	0	0	0	Breeds in Siberia
Lesser Sand-plover	Migratory	0	0-1	0	0	0	0	Breeds in E Siberia
Australian Pied Oystercatcher	Sedentary	0	0-1	0	0	0	0	Breeds in Australia
Red-necked Stint	Migratory	0	0-6	0	0-1	0	0	Breeds in high Arctic tundra
Marsh Sandpiper	Migratory	0	0-1	0	0	0	0	Breeds in E Europe & E Asia
Common Greenshank	Migratory	0	0	0	0	0-1	0	Breeds in Siberia
<b>Total Species</b>		<b>8</b>	<b>13</b>	<b>7</b>	<b>9</b>	<b>7</b>	<b>7</b>	



Sacred Kingfisher - R. Hollands



Comb-crested Jacana - R. Hollands

### 3.9.4 Threatened Species

Fourteen threatened species were recorded over the past six years, from a total of 24 for the site. Except for the Brolga and Australian Pied Oystercatcher, the fourteen individual species are discussed in **Table 11**. The Brolga and Australian Pied Oystercatcher were both recorded flying over the wetlands and further discussion is not warranted. The table also includes the species not recorded for this period but shows the date of the last observation.



**Table 11 – Discussion Threatened Species**

\* Status – as listed in NSW Biodiversity Conservation Act - Plants and animals are assessed if they are at risk of extinction. If the risk is high they are listed in legislation and conservation actions are developed for their protection.

Threatened Species					
Total for Site = 24 Total for last report 2014 = 8 Total for this report 2015-2020 = 14					
SPECIES	DATE Observed 2015-2020	Last Observed prior to 2015	GRID	*Current Status	COMMENTS 2015-2020
<b>Comb-crested Jacana</b> <i>Irediparra gallinacea</i>	Recorded every year since 2006 & present nearly every survey. Occasionally the species is absent. Unusually in 2020 none were recorded during the winter months June-to October.		Cell D & I	V	Numbers ranged from 0 to 18 per visit with the greatest number recorded 18/11/20. Cell H has predominantly been the cell inhabited. Due to cell H drying out in 2019 all the water lilies died. The species is now seen in both cell D & I, where there are still some water lilies growing and the plants in those ponds seem to be expanding. The only nesting that was observed was in I cell early December 2020. It is possible that they nested unobserved in the previous 4 years. Reported to be seen in nearby farm dams.
<b>Black-necked Stork</b> <i>Ephippiorhynchus asiaticus</i>	Recorded several times each year but absent all 2018.		H Cell	E	Two adult birds were recorded on several occasions during 2015 & 16, a juvenile bird was recorded on Nov 2019, on other occasions it has usually been a lone adult. The birds are not staying on site for very long and are easily disturbed. Visitor numbers have increased particularly since 2017. The movement of this species is nomadic and they disperse after breeding. We anticipate they will continue to visit for short periods.
<b>Freckled Duck</b> <i>Stictonetta naevosa</i>	2 x birds recorded in November 2018 and then on 4 occasions in 2019	24/10/20	H & I cell	V	In 2019, 14-18 birds were recorded in March/ April. Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. Breeds in large temporary swamps created by floods in the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts and is a irruptive visitor to coastal NSW and Victoria during such times.
<b>Australasian Bittern</b> <i>Botaurus poiciloptilus</i>	A single bird was recorded on 4 occasions in 2019 and once in 2020	22/7/2014	D & H cells	E	Australasian Bittern specialise in living in dense beds of reeds and rushes, they are difficult to see as they are particularly well camouflaged. Added to this, when alarmed, they stand still with neck stretched upwards and bill pointing skywards and even sometimes sway in the breeze, in time with the surrounding reeds. This combination makes them blend in remarkably well with the surrounding vegetation. It is hardly surprising that the species is seldom recorded.



<b>Rose-crowned Fruit-Dove</b> <i>Ptilinopus regina</i>	Heard calling in May & June 2017 & again in May 2019	16/1/2013	Heard calling D2	V	Rose-crowned Fruit-Doves are found in tall coastal tropical and sub-tropical forests, they feed on berries swallowing the fruit whole. Particularly like figs and the fruit of other species of rainforest trees, palms and vines. The section of forest at the back of Cell H is a suitable habitat for the species.
<b>Pale-vented Bush-hen</b> <i>Amaurornis moluccana</i>	Heard calling on two surveys in late December 2020	12/1/2012	D4	V	A very secretive bird that inhabits dense vegetation around wetland habitats in northern and northeastern Australia. Rarely seen away from cover. Gives a variety of calls. Probably two birds calling on 1/12/20.
<b>Osprey</b> <i>Pandion halliatus</i>	A single bird sighted 3 times in past six years 14/9/16, 27/8/17, 18/11/20	1/10/14	OH	V	An infrequent visitor to the wetlands. Normally found on the marine coast and sometimes visits terrestrial wetlands. There are nesting pairs at Belongil, Brunswick Heads and Cape Byron. They feed on fish, taking the prey from the water surface with their talons and require nearby perches to sit and feed by tearing the flesh of the prey.
<b>Glossy Black-Cockatoo</b> <i>Calyptrorhynchus lathami</i>	3 birds 6/11/19	25/11/12	A3	V	The species is highly dependent on the seeds of she-oak especially the distribution of Allocasuarina. Requires tree hollows for breeding. May occur on site again but Allocasuarina are very limited to a few species in the NE corner of the Wetlands. Reportedly roosting beyond the N fence and move through the wetlands occasionally.
<b>Little Eagle</b> <i>Hieraaetus morphnoides</i>	Single bird observed May 2016 June 2018	8/06/14	OH	V	Species widespread mainly over woodland and open country, extending into the arid zone. Tends to avoid rainforest and heavy forest. Feeds on small mammals and insects.
<b>Lesser Sand Plover</b> <i>Charadrius mongolus</i>	Single bird - seen on 4 x visits in Dec 2019	24/12/19	C3	V	First record for site, an unusual visitor, seen when Cell H water levels were low Dec 2019. In August to December 2019, due to an extended dry period, H cell was drying out with extensive areas of moist mud flats. Between December 24th and 26th more water was added to the cell, resulting in fewer mudflats and the bird disappeared. It breeds in central and north eastern Asia, migrating to southern Asia and Australia in the summer months. Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats.

<b>White-eared Monarch</b> <i>Carterornis leucotis</i>	2 birds seen 2/6/20	02/06/20	D3	V	First record of this species at the wetlands. Reported by BBB member A Stanton. Birds were observed in forested area SW corner of H cell. Indications are it is an altitudinal migrating species coming to the coast in the winter. Inhabits and breeds in lowland subtropical and littoral rainforest particularly in wetter rainforests. Feeds on insects
<b>Black Bittern</b> <i>Ixobrychus flavicollis</i>	1 bird observed by RBB member 7/6/16	01/06/11		V	This is the third record – bird seen at back of H cell. As other bitterns, it is particularly shy and secretive. Seldom recorded in the open, inhabiting the dense vegetation growing at the margins of various types of wetlands, where it forages at the edge of the water. Relatively little is known about its social and breeding behavior and other aspects of its ecology.
<b>Australian Pied Oystercatcher</b> <i>Haematopus longirostris</i>	26/10/17	Before 2005		E	Gus Daly – flying overhead
<b>Brolga</b> <i>Antigone rubicunda</i>	16/06/2020	7/10/09		V	Carey Lewis – flying over
<b>Threatened Species seen in the wetlands but not in the past six years</b>					
Magpie Goose	-	23/3/11	23/3/11	V	BBB
Bush Stone-curlew	-	Oct-Dec 2009	D3	E	Krippner Family
Greater Sand Plover	-	Nov- 2009		V	Steve McBride
Spotted Harrier	-	8/6/14			TBO - A questionable observation
Square-tailed Kite	-	No date		V	Record attributed to M. Fitzgerald
Little Tern	-	No date		E	Record attributed to J. Willows
Eastern Grass Owl	-	12/2/02		V	David Stewart
Curlew Sandpiper	-	2002		E	David Stewart
Eastern Curlew	-	No date		Cr/E	Record attributed to J. Willows
Australian Painted Snipe	-	12/1/12		V	BBB



Richmond/Brunswick Birdwatchers - ByronWetlands - B. McNaughton

## 4.0 Results of Vallances Road Surveys

### 4.1 General Observations

**Total Species** - As of December 2020, a total of 180 species have been recorded at the Vallances Road site. This is an increase of twenty species since the last report in 2014. The average annual count for the 12 reporting periods since 2008/2009 was 119. Over the 6 years of this report period, the lowest recorded annual species number was 113 in 2018 and this was equal to the number of species recorded in 2013. However, it is also the period of the least number of surveys and survey hours in comparison to the other report periods and no evening surveys were conducted. The highest number of species recorded was 126 in 2016 and there were more surveys conducted but not more hours for that year. The highest count for the site was 129 in 2011, which is interesting, considering there was an increase of twenty species in the past six years.

**Table 12. Vallances Road - Summary of Avifauna Species observed annually over 12 years**

Year	No. of species	Year	No. of species
2020	115	2017	118
2019	119	2016	126
2018	113	2015	123
Average No. of species for 12 years of annual report surveys = 119			
2014	116	2011	129
2013	120	2010	113
2012	119	2009	120

### 4.2 New Species

Twenty new species have been observed for the Vallances Road site since 2014. New species are discussed below according to the year observed. Some of these species were also observed at the Byron Wetlands for the first time and where this occurs they are discussed under **New Species 3.2**

#### 2015 – Five new species

- **Wandering Whistling-Duck** – first recorded 13/6/15 on the banks of the ponds at the bottom of the hill on Vallances Road. The species prefer deep vegetated lagoons and swamps where aquatic plants and insects are plentiful. Commonly found in the north of Australia, but are nomadic relative to rainfall.
- **Common Bronzewing** – two birds were recorded along the river track. BBB considers that this species can be confused with the Bar-shouldered Dove. There was some dispute over the identification of the birds sighted – a confirmation sighting is needed.
- **Fork-tailed Swift** - two birds were seen flying over the area amidst a flock of 160 White-throated Needletails on the 18/2/2015 – see **New Species 3.2**



Rose-crowned Fruit-Dove - A. Jones



Double-barred Finch - R. Hollands

- **Little Bronze-Cuckoo** - observed near the river in Grid F5 on 18/10/15. A migratory species from North Qld. and New Guinea. In NSW from the border to the Clarence River it is considered the southern end of its range. Seen frequently at the Byron Wetlands since 2015 – preferred habitat is subtropical or tropical moist lowland forest. It is the world's smallest cuckoo.
- **Horsefield's Cuckoo** - first recorded 18/10/15 and again in 2016, 17 and 2020. It is widespread and found in all regions of Australia. Inhabits open and dry woodland/forest with a range of understoreys from grasses to shrubs. Parasites the nests of wrens and thornbills.

## 2016 – Three new species

- **Double-barred Finch** - observed once in long grass on 8/6/16 - prefers dry grassy woodlands and scrublands, open forests and farmlands and never found too far from water.
- **Striated Thornbill** - observed on one occasion in June 2016. Inhabits open forests and woodlands, dominated by eucalypts, with a well-developed understorey. Considered a sedentary species and rarely seen along this part of the coast, so may be moving because of dry conditions
- **Eurasian Coot** - one bird seen on 8/6/16. Usually inhabits water bodies in larger numbers. Unusual to see a single bird, large numbers are recorded at the Byron Wetlands.

## 2017 – Three new species

- **Little Friarbird** - two birds observed 7/6/17. A honeyeater, mainly inhabiting open forests and woodlands dominated by eucalypts. Mostly observed on the Byron Coast in small numbers, during the winter months.
- **Pallid Cuckoo** - a single bird was recorded on 8/10/17 - a migratory species throughout Australia. Inhabits most open forests and woodlands, as well as cleared and cultivated open country. Often seen perched in prominent places such as overhead wires or bare branches. Parasites the nests of honeyeaters, woodswallows, whistlers and flycatchers.
- **Little Grassbird** - A single bird was observed once on 7/6/17. Heard more often than seen and is found in swamps and marshes, preferring thick reed beds, and will occur in temporary wetlands after rains.

## 2018 - Two new species

- **Musk Lorikeet** – Three birds were seen in June 2018 – this coincided with Musk Lorikeets being recorded in Ocean Shores in 2018. Discussed under **New Species 3.2**
- **Black Kite** – one bird was recorded overhead on 7/10/18 and again on 12/12/19. These birds are found all over the Australian mainland, but are observed at times, on the coast during drought periods. Inhabits open country and urban areas, especially over rubbish tips. It is also attracted by fire, feeding on the escaping insects, mammals and reptiles.

## 2019 Three new species

- **Greater Sooty Owl** – observed by Dr. James Watson on Vallances Road. Discussed under **4.9.4 Threatened Species**.
- **Australian Spotted Crane** – observed on a survey by Birdlife Australia Northern Rivers on 9/6/19 – no details available. Is a rather secretive bird, inhabiting dense vegetation at the edges of wetlands, though sometimes they come out into the open onto exposed muddy flats. It is a nomadic species and, 2019 being a particularly dry year, it may have been dispersing to find suitable habitats.
- **Glossy Ibis** – observed on an outing by BBB and BLNR on 9/6/19. It is a nomadic species utilising shallow water and mudflats. Found in well-vegetated wetlands, floodplains and mangroves.

## 2020 - Four new species

- **King Quail** – three birds were seen on the grassy flats in Grid 2E by Rodney Falconer 28/12/20. King Quail is found in tropical and temperate scrublands and grasslands, towards coastal areas. They occur in very dense ground vegetation, such as grass, shrubs, ferns, herbs, at damp or swampy sites. Considered an aviary escapee if observed near towns. Generally sedentary staying in the one place all year round.
- **White-eared Monarch** – a single bird was seen on 9/6/20 by Rodney Falconer and then on another two occasions in 2020 in the new plantings along Vallances Road. They are considered a vulnerable species in NSW. Refer to **4.9.4 Threatened Species**.
- **Red Wattlebird** – a single bird was recorded by Rodney Falconer on 9/5/20. These birds are a large honeyeater occurring in forests, woodlands and gardens where it aggressively protects food-bearing plants from other honeyeater species. A nomadic species and seldom seen in the Byron Shire, mostly occurring in the winter months.
- **White-throated Honeyeater** - observed on 23/9/20, feeding young, along Vallances Road. It is endemic to eastern and south-eastern mainland Australia, from northern Queensland to eastern South Australia. Feeds on nectar and insects and their products (e.g. honeydew and lerps), and manna. They tend to forage in the tallest trees, occasionally under bark. It is a migratory species and rarely observed in Byron Shire. Probably attracted to the koala trees planted along the road.



### 4.3 Broad Family Groups

**Tables 4 and 5** provide a breakdown of avifauna species into broad family groups and compares them with the total number of species recorded for the site since 2007, giving a broad indication of species abundance trends.

Notably, the Shorebird Group 11, has a downward trend since 2007. This trend relates to the increase in mangroves in the oxbow and shorebirds are anticipated not to return to the site unless the mangroves are removed and more mudflats are exposed. There is a slight downward trend in the Waterbird Groups 2, 6, 7 & 10 this also related to the takeover by the mangroves in the oxbow and/or the drought conditions. Considering the changing weather patterns and the migratory and nomadic patterns, the bushbirds are stable and increasing in diversity. The plantings that have occurred on site have improved the conditions for terrestrial species to feed and provide greater opportunities for nesting. The increase in the observation of the cuckoo species on site may be an indication of increased nesting activity, providing them more opportunities to parasite other species nests.

**Table 13. Vallances Road - Avifauna Abundance by Family Groups – 2015 to 2020**

Vallances Road 2015 - 2020								
Group Ref No		2020	2019	2018	2017	2016	2015	Max for site since 03/05/07
		9/05/20-28/12/20	26/02/19-12/12/19	15/06/18-12/12/18	26/02/17-08/10/17	24/02/16-8/12/16	18/02/15-30/12/15	
	<b>Family Groups</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
1	Mound Builders & Quails	3	1	2	0	1	1	3
2	Swans, Ducks & Grebes	3	6	5	4	5	4	8
3	Pigeons & Doves	8	10	7	10	10	10	11
4	Frogmouths, Nightjars & Swifts	0	1	0	0	0	2	4
6	Frigatebirds, Gannets & Cormorants	3	4	4	4	4	3	5
7	Herons, Ibis, Spoonbills & Allies	10	10	9	11	11	12	15
8	Birds of Prey	9	9	10	10	11	9	16
10	Crakes & Rails	2	4	2	2	4	3	7
11	Shorebirds	1	2	3	4	4	5	8
14	Cockatoos & Parrots	7	6	7	7	7	8	9
15	Cuckoos	7	5	6	8	6	4	9
16	Owls	0	1	0	2	1	0	4
17	Kingfishers, Rollers & Bee-eaters	6	6	6	5	6	6	7
18	Pittas & Treecreepers	0	0	0	0	0	0	2
19	Bowerbirds	2	0	1	1	1	1	2
20	Fairy-wrens	3	3	3	3	3	3	3
21	Scrubwrens, Allies & Pardalotes	6	7	7	6	8	8	10
22	Honeyeaters	11	10	9	10	8	7	14
23	Quail-thrushes & Allies	1	1	1	1	1	1	1
24	Cuckoo-shrikes & Trillers	3	3	3	3	3	3	3
25	Whistlers, Shrike-thrushes, Figbirds & Orioles	6	6	6	5	6	6	6
26	Woodswallow	1	1	0	0	0	0	2
27	Magpies & Butcherbirds	5	5	5	5	5	5	5

28	Fantails	2	3	3	3	3	2	3
29	Crows	1	1	1	1	1	1	1
30	Flycatchers & Monarchs	5	4	3	4	4	4	6
31	Robins, Old World Warblers & White-eyes	4	5	4	5	6	5	7
32	Swallows & Martins	2	2	2	2	2	1	3
33	Thrushes, Starlings & Mynas, Flowerpeckers	2	2	2	1	2	2	2
34	Finches, Mannikins Sparrows	2	1	1	1	3	2	3
35	Pipits, Wagtails & Others	0	0	1	0	0	0	1
	<b>Total</b>	<b>115</b>	<b>119</b>	<b>113</b>	<b>117</b>	<b>126</b>	<b>122</b>	<b>180</b>
	<b>No of surveys per year</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>6</b>	
<b>Total Family Groups Represented = 31      Average species number p.a. = 119</b>								

**Table 14. Vallances Road - Avifauna Abundance by Family Groups – 2008/9 - 2014**

Vallances Road 2009-2014								
Group Ref No		2014	2013	2012-2013	2010-2011	2009-2010	2008-2009	Maximum for site since 03/05/07
	Family Groups	26/4/14 10/12/14	20/03/13 27/11/13	25/07/12 23/01/13	02/02/11- 28/12/11	24/10/09- 18/7/2010	03/05/08- 27/06/09	
1	Mound Builders & Quails	1	2	0	2	1	2	2
2	Swans, Ducks & Grebes	5	5	5	4	2	2	7
3	Pigeons & Doves	9	9	9	9	10	10	10
4	Frogmouths, Nightjars & Swifts	1	2	2	1	1	2	3
6	Frigatebirds, Gannets & Cormorants	4	4	4	5	4	5	5
7	Hérons, Ibis, Spoonbills & Allies	9	11	12	12	9	11	14
8	Birds of Prey	10	8	11	11	10	9	15
10	Crakes & Rails	3	3	3	4	3	4	5
11	Shorebirds	5	5	6	5	4	3	7
14	Cockatoos & Parrots	8	6	7	7	7	8	8
15	Cuckoos	4	6	5	6	5	4	6
16	Owls	0	1	0	2	3	1	3
17	Kingfishers, Rollers & Bee-eaters	6	6	6	5	5	6	7
18	Pittas & Treecreepers	0	1	0	2	1	0	2
19	Bowerbirds	1	1	0	1	2	1	2
20	Fairy-wrens	3	3	3	3	3	3	3
21	Scrubwren, Allies & Pardalotes	5	8	7	9	5	5	9
22	Honeyeaters	10	8	9	9	9	9	11
23	Quail-thrushes & Allies	1	1	1	1	1	1	1
24	Cuckoo-shrikes & Trillers	3	3	3	3	3	3	3
25	Whistlers, Shrike-thrushes, Figbirds & Orioles	6	6	6	6	5	6	6
26	Woodswallows	0	1	0	1	1	2	2
27	Magpies & Butcherbirds	5	5	5	5	4	5	5

28	Fantails	3	3	3	3	2	2	3
29	Crows	1	1	1	1	1	1	1
30	Flycatchers & Monarchs	3	4	2	5	3	3	5
31	Robins, Old World Warblers & White-eyes	4	3	5	2	4	6	6
32	Swallows & Martins	2	1	1	2	3	2	3
33	Thrushes, Starlings & Mynas, Flowerpeckers	2	2	1	2	1	2	2
34	Finches, Mannikins &, Sparrows	2	1	2	1	1	1	2
35	Pipits, Wagtails & Others	0	0	0	0	0	1	1
	<b>Total</b>	<b>116</b>	<b>120</b>	<b>119</b>	<b>129</b>	<b>113</b>	<b>120</b>	<b>159</b>
2014 – corrected – total shorebirds = 8 not 7								<b>160</b>
	<b>Total Family Groups = 31</b>							



Spectacled Monarch - R. Falconer

## 4.4 Foraging Habitats

For the first six years of reporting (2008-2014), BBB established and recorded the habitat type for each individual species. An avifauna species will utilise a number of different habitats and in order to provide a consistency in reporting, the Excel Spreadsheet now contains a dedicated column to where the species is recorded the majority of the time. Again, and as with Byron Wetlands, this broad break-down does not demonstrate the complexity of habitats used by the birds. At Vallances Road site for example, the ducks forage in the river, freshwater, brackish water and any other body of water in the survey area including drains. Brown Honeyeaters utilise mangroves, existing trees and new plantings. The egrets and herons forage along the river banks and in the brackish water of the oxbow.

Birds were recorded in eight main habitat types as well as the air space over the site. The abundance of species recorded relative to the habitat type is provided in **Table 13**.

The habitats within the Vallances survey area have changed dramatically since 2008 – the oxbow changed from being a freshwater body to a tidal marine habitat. The water of the western oxbow remained brackish for a few years which attracted a number of shorebirds, but in the past six years the whole of the oxbow has been overtaken by a thick growth of mangroves and very little of the open muddy flats remain. This excludes any suitable habitat for shorebirds and is demonstrated by the reduced number of shorebirds found at the site. The invasive camphor laurel is progressively being removed from the paddocks and along

the oxbow. This also changes the habitat for bird species, the paddocks are bare of protective habitat and areas of clumped trees are not being established to replace the camphor laurel. Previously, camphor laurels were removed by poisoning and the dead tree trunks and branches remained in situ, providing a habitat for perching avifauna species. A large number of Camphors were removed from the edge of the eastern oxbow in 2018 and, unfortunately, all of the tree trunks and branches were also removed and left as a pile in the paddock. The new plantings within the site which are protected by fencing from grazing cattle are now well established, as is the koala corridor plantings along Vallances Road. In the reporting period prior to 2015, the old growth trees seemed to support the greatest number of species. Now, the more recently planted trees, being well established, are producing blossoms, fruit and seed so the nectivore and insectivore species are widely dispersed throughout the site. BBB no longer differentiates the habitats between the older and more recently established habitats and, in the **Excel Spreadsheets Appendix 8 - 6 & 7**, we allocate the species generally to forest or trees (Group 2). This group of avifauna species is increasing in species diversity.

In the planted areas where the canopy growth is thick, the undergrowth has been shaded out and the smaller birds that rely on a level of understorey protection are no longer found in these areas. Some of the thickets in the cleared areas and where the cattle graze, have also been 'cleared' so, in general, the level of protection once provided for the smaller species is reducing.

In the areas where cattle grazing continues, the habitat changes according to the grazing regime; some paddocks contain short grass while other paddocks contain long grass. Different levels of grass suit different species of birds. Dense tall, very green grass is suitable for quail, less dense and less vertical is suitable for the Golden-headed Cisticola, and cleared grassy areas are preferred by the Pipits, Songlarks and Lapwings. For a full record of the bird's habitat, family group and the grid where the bird was observed. Refer to the **Excel Spreadsheets Appendix 8 - 6 & 7**.

**Table 15: Vallances Road Habitat Types**

Vallances Road 2015-2020											
Habitat Type	No record	Aquatic (river) (1)	Forest &/or Trees (2)& (6)	Fresh- water Wetland (3)	Tidal (salt Marsh) (3A)	Man- grove -(4)	Pasture or grassed areas (5)	Reeds (8)	New Plantings (6)	OH	Total
Max. for Site since 2015		8	89	14	9	3	13	18	-	26	180
2008-09	-	-	-	-	-	-	-	-	-	-	120
2009-10	3	9	54	2	2	1	11	1	4	26	113
10-11	0	16	44	4	14	0	11	2	22	16	129
2012	0	6	38	0	24	2	6	6	24	13	119
2013	0	6	40	2	14	3	11	7	21	16	120
2014	-	6	61	3	10	1	11	8	(see 2)	16	116
2015	-	4	64	2	12	2	12	11	-	15	122
2016		6	63	6	9	2	11	13	-	16	126
2017		6	63	4	8	2	10	9	-	15	117
2018		4	58	6	7	1	12	9	-	16	114
2019		5	65	5	8	1	11	9		15	119
2020		3	65	5	5	1	10	11		15	115

## 4.5 Patterns of Movement

As discussed above in, **3.5 Patterns of Movement**, many of the birds have different patterns of movement (Sedentary, Nomadic, Migratory, Endemic or Vagrant) and this will account for small variations in species abundance and diversity. It is also possible the species continue to inhabit the site but they may not be detected or they are not present on site on the day of the survey. Since the 2009-10 reporting period the Excel Spreadsheet has a column dedicated to movement patterns, and although some birds can be sedentary, nomadic and migratory, these classifications will be maintained to provide a consistency in reporting.

**Table 16: Vallances Road Avifauna Abundance by Movement Patterns.**

Vallances Road							
Movements	Sedentary	Nomadic	Vagrant	Migratory		Endemic	Total
Maximum for site	80	44	0	56		0	180
2009-10	59	18	0	36		0	113
2010-11	70	21	0	38		0	129
2012	61	26	0	32		0	119
2013	61	22	0	37		0	120
2014	61	21	0	34		0	116
2015	60	24	-	38		-	122
2016	63	24	-	39		-	126
2017	61	21	-	34		-	117
2018	63	17	-	34		-	114
2019	60	23	-	36		-	119
2020	63	17	-	35		-	115
Some examples	wrens, grassbirds, butcherbirds, whipbirds, finches, thornbills, scrub-wrens, shrike- thrush, some honeyeaters, raptors	ducks, some raptors, doves, pigeons, some honeyeaters, waterbirds, parrots, cockatoos, some shorebirds		Internal		External	
				Max.	47	Max.	9
				09-10	31	09-10	5
				10-11	32	10-11	6
				2012	25	2012	7
				2013	30	2013	7
				2014	29	2014	5
				2015	30	2015	8
				2016	34	2016	5
				2017	28	2017	6
				2018	29	2018	5
				2019	30	2019	6
				2020	30	2020	5
				fantails, cuckoos, whistlers, some honeyeaters, raptors, kingfishers, flycatchers, gerygones		Other	
						Max.	7
						09-10	3
						10-11	5
						2012	6
						2013	6
						2014	5
						2015	7
						2016	4
						2017	5
						2018	5
						2019	6
						2020	5
						Shorebird	
						Max.	2
						09-10	2
						10-11	1
						2012	1
						2013	1
						2014	0
						2015	1
						2016	1
						2017	1
						2018	0
						2019	0
						2020	0
				swifts, cuckoos		sandpipers & snipe	



## 4.6 Call-Playback

In 2015 call-playback was attempted for the Barn Owl and Owlet Nightjar, and in 2016 for the Noisy Pitta, Southern Boobook, Barn Owl and Owlet Nightjar without response. Also in 2016, a dead White-throated Nightjar was found along Vallances Road, call-playback was played for this species and a bird did fly off but we were unable to determine its identification.

Previous surveys have detected the presence of the Pale-vented Bush-hen, Owlet Nightjar and Australasian Bittern

## 4.7 Spotlighting – was not attempted.

## 4.8 Other Fauna Species

18/2/15 & 9/10/16 – Koala

7/6/17 – Eclectus Parrot – assumed to be a caged escapee



Sooty Owl - J. Watson



Little Bronze-Cuckoo - J. Watson

## 4.9 Discussion

### 4.9.1 Terrestrial Avifauna Species

The results from the surveys in this reporting period show that the terrestrial bird species visiting the site are increasing. The species that are sedentary and would be expected to be observed on site each visit remains relatively stable. There is a small but acceptable decrease in the Birds of Prey and the Doves and Pigeon Group. There is an increase in the Quail, Cuckoo, Honeyeater and Grassbird Groups.

Many of these terrestrial birds have different patterns of movement and this could account for decrease and increase in species numbers, especially during the dry periods of 2018 and 2019.

Some comments;

- There were three new species of cuckoos, all three migrate within Australia, they are parasitic and they may or may not revisit the site.
- There was a questionable observation of a Common Bronze-wing Pigeon, and this species needs confirming with another sighting.

- There was an observation of a Sooty Owl, and in the past there have been observations of a Barn Owl and Eastern Masked Owl at Vallances Road. The three owls belong to the Tyto group of Owls which have disc-shaped faces and can easily be mistaken. All three have been recorded in coastal areas in similar habitat but the Sooty Owl prefers steep and heavily vegetated gullies. BBB believes it is unlikely all three would be recorded on this site, so a more definitive observation is required.
- The other species; Forked-tailed Swift, Little Friarbird and Musk Lorikeet are migratory species, the Double-barred Finch is nomadic and the Striated Thornbill and Little Grass-bird are sedentary; all these species are likely to be observed again at Vallances Road.
- A number of birds were recorded nesting on site especially in 2020 – post-drought.

**These include:**

- 9/05/20 – Osprey – carrying nesting material
- 23/09/20 – Brown Thornbill feeding a young Shining Bronze-cuckoo
- 23/09/20 - White-throated Honeyeater on nest – this species is rarely recorded in Byron Shire and was nesting in the plantings along Vallances Road.
- 28/07/20 – Pied Currawong building nest
- 28/12/20 – King Quail with fledglings – highly likely to have nested on site
- 28/12/20 – Golden-headed Cisticola – carrying nesting material
- 29/10/19 - Both Rainbow Lorikeet and Willy Wagtail on nests.

Threatened species, shorebirds and water bird species will be discussed under a separate heading below **Table 18: Vallances Road – Threatened Species**

## 4.9.2 Water Avifauna Species

There are four family groups of water avifauna species identified utilising Vallances Road habitat and, as above, waterbirds refer to avifauna species that are generally associated with water and are included in the following Groups from **Table 9**

- Group 2 - Swan, Geese, Duck & Grebes – Total for site = 8
- Group 6 - Frigatebirds & Cormorants – Total for site = 5
- Group 7 - Heron, Ibis, Spoonbills & Allies – Total for site = 15
- Group 10 - Crakes, Rails, Gallinule – Total for site = 7

Vallances Road aquatic habits are very different from Byron Wetlands which utilises settling ponds to treat contaminated water. At Vallances Road there are no settling ponds; all water from the STP plant is treated to the highest standard and then discharged into the brackish water at the north-east end of the oxbow. The water then flows through a stand of melaleucas and mangroves for a short distance before entering the tidal water of the Brunswick River. There are mangrove wetlands and salt marshes adjacent to the river as well as freshwater bodies and wetlands. All water avifauna species are likely to utilise all these areas at some stage, although the crakes and rails are less likely to stray from areas that are not protected by reeds and grasses.

Within these groups of waterbirds one threatened species was recorded. See **4.9.4**

### **Threatened Species Pg.48**

The deeper, freshwater pond along Vallances Road accounts for a number of waterbirds over this period (Grid C3) **Figure 2**. As noted above the western oxbow now receives salt water and as a result has altered the habitat for freshwater birds.

**Table 17** below provides comment for all of the waterbird species recorded on site since 2009/10 when reporting commenced. The variation in numbers and period of occupation would be considered normal for this group of waterbirds

**Table 17: Vallances Road Water Avifauna Population Species and Range**

Vallances Road – 2010-2020											
Name	2020	2019	2018	2017	2016	2015	2014	2013	2012	2010/11	Comment 2020-2015
Australian Wood Duck	0-2	0-3	0-9	0-5	0-8	0-4	2-7	4-6	0-18	0-80	Generally present
Plumed Whistling-Duck	0	0	0-4	0	0	0	2-7	0-11	0-200	0	Generally absent
Grey Teal	0	0-14	0	0-5	0-5	0-10	0	1	0-20	0	Generally absent
Chestnut Teal	0	0	0	0	0	0	0	0	12	0	Absent
Pacific Black Duck	3-8	3-40	5-7	2-50	4-59	6-22	4-16	0-10	6-23	2-25	Mostly present
Hardhead	0	0-1	0-1	0	0-1	0-2	0-2	0-8	0	0-6	Mostly absent
Australasian Grebe	0	0-1	0	0	0	0	0-1	0	0	0-1	Always present – uses freshwater ponds
Australasian Darter	0-1	0-1	0-2	0	0	0-2	0-2	1-8	0-2	1- 75 OH	Observed all visits
Little Pied Cormorant	0-2	0-1	0-2	0-2	0-1	0-2	0-6	0-11	0-6	1-10	Usually, numbers vary between 1-5 when present possibly nesting in west corner of F cell
Little Black Cormorant	0-1	0-2	0-2	0-11	0-6	0-18	0-8	2-11	0-12	1- 60	Observed most visits mainly on river
Pied Cormorant	0	0	0-1	0-19	0-4	0	0-1	0-1	0	0-1	Mostly absent - on river
Great Cormorant	0	0-1	0	0-1	0-2	0	0	0	0	0-1	Generally absent
Pelican	0	0	0	0-1	0-4	0-3	0-2	0	0	0	Absent last recorded 5th May 2010
Black-necked Stork	0	0	0	0	0	1	0	0-2	?	0	Mostly absent
White-necked Heron	0-1	02	0-1	0-2	0-5	0-1	1-2	0-6	0-1	0-1	Mostly absent
Eastern Great Egret	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-2	0-2	0-1	Single bird most surveys oxbow
Intermediate Egret	0	0-3	0-2	0	0	0-1	0	0-2	0-4	0-1	Occasionally present – in oxbow
Cattle Egret	0-37	0-54	3-30	5-55	20-60	0-36	10-25	0-150	4-80	Not counted	Present most surveys - with cattle
Striated Heron	0	0-1	0	0-2	0-1	0	0-1	0	0-1	0-1	Uncommon
White-faced Heron	1-2	1-6	0-4	0-1	0-1	2-6	0	0-2	2-4	2-4	Mostly present but absent for two surveys during 2013
Little Egret	0-1	0-1	0	0-1	0-1	0-2	0	0-1	0-1	0-1	Mostly absent

Nankeen Night-Heron	0-1	0	0	0-1	0	0-1	0	0-1	0-3	0-2	Often present – thought to have nested 2012
Australian White Ibis	0-6	2-10	6-15	2-9	3-100	4-20	6-20	3-180	0-40	0-12	Always present
Australasian Bittern	0	0	0	0	0	0	0	0	0	Heard x 1	Mostly absent
Straw-necked Ibis	0	0-8	0-6	0-6	0-120	0-3	0-3	0-57	0-20	0-2	Generally present – none in 2020
Royal Spoonbill	1-2	0-3	2-8	2-15	0-11	0-8	1-6	1-8	0-8	0-8	Present most surveys during 2013
Pale-vented Bush-hen	0	0	0	0	0	0	0	0	0	0	Absent
Spotless Crake	0	0	0	0	0	0	0	0	0	1	Absent last heard 2/2/2011
Buff-banded Rail	0	0-1	0	0	0-1	0-1	0-1	0-1	0-3	0-1	Occasional observation – secretive bird maybe present more frequently then observed
Purple Swamphen	0-4	3-10	0-5	2-15	2-25	2-5	6-8	4-12	0-12	0-9	Present all surveys during
Eurasian Coot	0	0	0-1	0	0	0	0	0	0	0	Rare – 1 sighting only in 10yrs
Dusky Moorhen	1-2	0-5	0-2	2-15	2-8	2-6	0-10	6-12	0-12	0-6	Present for most surveys absent since July 2013

#### 4.9.3 Shore Avifauna - both Migrating and Resident

A total of eight shorebirds have been detected on site and for this six year period six shorebirds were recorded. The resident shorebirds, Red-kneed Dotterel, Black-fronted Dotterel, Black-winged Stilt and the Masked Lapwing were all recorded during 2015 in the western oxbow – from this time, and in association with the takeover of the site by mangroves, there was a gradual decline until 2018, when no further recording of shorebirds were made except for the Masked Lapwing, which will also use the mowed grass areas. The Latham's Snipe, a migrating species breeding in Japan, and the Comb-crested Jacana were recorded in the deeper freshwater pond along Vallances Road. These two species were not recorded in 2020 and may not be recorded at the site again. In 2020 the Masked Lapwing was the only shorebird recorded.



Morning Birdwatchers Vallances Road - R. Falconer

## 4.9.4 Threatened Species

Eight threatened species were observed, from a total of twelve for the site, over the past six years.

**Table 18** provides discussion for each species and includes a list of threatened species observed since 2006, but not recorded between 2015-2020.

**Table 18: Vallances Road – Threatened Avifauna Species**

CS = NSW Conservation Status

Threatened Species - Vallances Road					<b>Total of Threatened Species for site =12</b> <b>Total for last report 2014 = 2</b> <b>Total for this report period = 8</b>
SPECIES	DATE observed this report	Last Previous record	GRID No	CS	COMMENTS
<b>Black-necked Stork</b> <i>Ephippiorhynchus asiaticus</i>	13/6/15	20/3/2013	E3	E	Observed perched on the top of a pine tree in Grid D5. The species is nomadic and will disperse after the breeding season but is unlikely visit again due to the mangroves overtaking the oxbow. A nesting site has never been recorded in Byron Shire.
<b>Osprey</b> <i>Pandion halliatus</i>	2015,16,17,18,19 & 2020	10/12/14	F6	V	A regular visitor - observed on several surveys flying overhead along the river each year. They nest along the river – but the current nest site is unknown. Expected to be observed each year.
<b>Rose-crowned Fruit-Dove</b> <i>Ptilinopus regina</i>	12/12/19	14/7/13	F5	V	Recorded most years – seems to arrive in February/ April but in 20019 was observed throughout the year. No records in 2020. Reduction in numbers coincides with the removal of the Camphor Laurels. Being a migratory species is likely to be observed again.
<b>White-eared Monarch</b> <i>Monarcha leucotis</i>	May, July 2020 & 24/11/20	24/11/20	E4	V	First record of this species at Vallances Road. Reported by BBB member Rodney Falconer. Birds were feeding in plantings along the river. Indications are it is an altitudinal migrating species coming to the coast in the winter. Inhabits and breeds in lowland subtropical and littoral rainforest particularly in wetter rainforests. Feeds on insects.
<b>Comb-crested Jacana</b> <i>Irediparra gallinacea</i>	June 2018 & 23/5/19	26/4/14	C3	V	One bird was observed in the pond, walking on waterlilies along Vallances Road on two occasions. The species is sedentary but young will disperse following the breeding season. Likely to be seen again while the water-lilies are present.
<b>Little Eagle</b> <i>Hieraaetus morphnoides</i>	Single bird 23/9/20	13/7/11	OH	V	Species widespread mainly over woodland and open country, extending into the arid zone, tends to avoid rainforest and heavy forest. Considered sedentary but young will disperse to other areas. Feeds on small mammals and Insects. Possible that it will be observed again.
<b>Sooty Owl</b> <i>Tyto tenebricosa</i>	Single bird 18/8/19	18/8/19		V	Single bird flushed along Vallances by Dr. James Watson. Uncommon occurring in mid Qld. - S Victoria. Forms lif-long pairs with a range of 400 to 1000 hectares. Preys mainly on arbororeal mammals and nests in old tree hollows in moist gullies 10-50 m off the ground.
Threatened species observed since 2006 but not observed in this report period – 2005-2020.					
<b>Collared Kingfisher</b>	-	29/6/11	?	V	Mark Fitzgerald - Observation of the species needs to be confirmed
<b>Australian Painted Snipe</b>	-	12/12/12	E3	E	BBB – due to change in habitat unlikely to recur
<b>Australasian Bittern</b>	-	2/2/11	C2	V	BBB
<b>Pale-vented Bush-hen</b>	-	23/12/2008	E7	V	Mark Fitzgerald
<b>Eastern Masked Owl</b>		28/12/11	C2	V	BBB – another sighting of this species is needed



## 5. Conclusion

As with previous reports, the results continue to reveal a dynamic ecosystem at both sites.

However, the data indicates that there has been a decline in the number of shore and water avifauna species visiting both sites, but the reasons for the decline are different. Water levels in the various ponds at the Byron Wetlands are usually kept too full for shorebirds but the decline in the waterbirds at the site cannot be explained by this alone. The filling of the western oxbow by mangroves at Vallances Road has resulted in the decline of both water and shore avifauna at that site. The largest freshwater pond on the right-hand side of Vallances Road has provided an alternative habitat for freshwater species.

In the wider landscape, there are reported declines in waterbird numbers throughout Australia due to drought conditions over the past 4-5 years. For shorebirds, the decline is reported as being due to habitat loss within Australia and along the East Asian-Australasian Flyway routes. The wetland sites at Byron Wetlands will be increasingly important for shorebirds but only if they are managed appropriately. To date, this is not well supported by the evidence. At Vallances Road, the habitat could also be managed to suit shorebird populations.

For the terrestrial avifauna, the outcomes from these surveys demonstrate that both sites continue to support a significant abundance of terrestrial species with numbers increasing at both sites over the past six years, even though the habitats are somewhat different. The data also demonstrate that nomadic and migratory species will use both sites either as a short stop-over or as an end-stop on their migration.



White-necked Heron - R. Falconer



Yellow-tailed Black-Cockatoo - R. Falconer

With a combined total of fifteen threatened species from a total of twenty seven for both the sites, Byron Wetlands and Vallances Road, this demonstrates that they are particularly important sites for biodiversity within the Shire. Byron Wetlands forms part of the Belongil Estuary system and BBB has records of an additional nine threatened avifauna species at the mouth of the Belongil Estuary. Combined, these three sites are significantly important and should be managed to protect and enhance the biodiversity values of the Shire.

In this respect, it is important to continue to manage the Byron Wetland site for waterbirds and shorebirds with careful attention to water levels, especially with Cell H being the Cell where specific conditions apply under the development application.

The Byron Wetlands are also an important human community amenity providing a “quiet place” and an opportunity for birdwatching and education for both the local population and tourism. It is uncertain if the current level of visitation is impacting the bird population. There has been a considerable increase in reporting of species on eBird and Birddata since 2017. BSC states that there were over 800 visits to the site during 2019. BSC introduced a new key-access system in 2020 with an ability to control unnecessary visitations, if required, into the future.



White-eared Monarch - R. Hollands



Golden Whistler - R. Hollands



White-throated Honeyeater - R. Sergeant

## Potential Impacts, Threats and Opportunities

A list of potential impacts and / or threats contributing significantly to the decline of the habitat and some species at the Byron Wetlands and Vallances Road is provided below. Since monitoring these sites, BBB speculates that these issues may very well influence the choices avifauna make and /or place pressure on the habitat and therefore should be included in future management considerations.

**5.01** The effects of the development of the Ewingsdale Sportsfield and Bayshore Village (Habitat) on the wetlands are currently unexplored particularly in regard to light and noise pollution.

**5.02** Predation on the avifauna at the wetlands by both natural and introduced species, including unrestrained pets, is likely to increase with urban expansion.

**5.03** Unauthorised entry from the unfenced area in the south-east of the Byron Wetlands should be addressed.

**5.04** The recent improvement of wetlands to the south around Ballina, such as Teven Swamp and Emigrant Creek, and on private land within Byron Shire, such as Sea Peace, could also influence shore and water avifauna species numbers at the Byron Wetlands. The conditions at these alternate sites may prove more attractive to avifauna, therefore reducing the species visiting the Byron Wetlands. Greater numbers of shore and water avifauna species have been recorded at these sites since the improvements.

**5.05** Inappropriate management of water levels of the settling ponds, particularly Cell H have been observed. This has coincided with a reduced visitation frequency and possible decline in habitat quality for some uncommon species such as crakes, rails and shorebirds including species currently protected under RAMSAR and other international treaties and agreements.

**5.06** Weed spraying, especially during the breeding season should be eliminated. Spraying edge vegetation removes habitat for smaller species.

**5.07** Removal of significant habitat structural features including islands of aquatic grasses and graminoids have already been associated with an observed decline in some species, such as tawny grassbirds and golden-headed cisticolas.

**5.08** Mowing too close to pond edges and removing the lower tree limbs to aid mowing also removes small bird protection.

**5.09** Increasing visitor numbers to the wetlands may be impacting species and should be the subject of further investigation.

**5.10** Loss of large standing branching dead trees in Cell I were, until recently, avidly sought for perches by aquatic birds, particularly cormorants, and by raptors.

**5.11** Careful consideration should be given before removal of paddock trees at Vallances Road.

**5.12** Grass heights – changes habitat ecology (Vallances Road)

### **More General Considerations**

**5.13** Simplification and structural diminution of the asset. The philosophical adage that “Tidiness is the refuge of the sterile mind” becomes an ecological truism in places such as these wetlands, in which uniformity of water levels and tidying up the landscape through mowing and the removal of branches, thickets and other environmental furniture, removes and effectively sterilises habitat opportunities for wildlife, leading to gross and significant impoverishment of the site in terms of both biodiversity and overall potential faunal biomass.

**5.14** Increasing urban and suburban development decreases top order predators (raptors, owls and monitor lizards) and replaces them with unchecked numbers of secondary predatory avifaunal species - including Torresian Crows, Common Mynas, currawongs and butcherbirds - while also increasing populations of competitive and aggressive “out of balance” species, such as Spotted Doves and Noisy Miners. Direct parallels can be made with the relative abundance of native fauna north of the dingo fence (a top order predator) compared with the high extinction rate of native species south of the fence (caused primarily by unchecked numbers of foxes, rabbits and cats).

**5.15** Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates. Byron Wetlands and Vallances Road provide an important part of the corridor connecting the moist coastal habitats to the western ranges. The potential impact of climate change is difficult to assess, but managing the habitat to reduce pressures of climate change should always be considered in management.

**5.16** Wise management of these wetland areas, including controlled, informed and managed visitation by birdwatchers, could increase Byron’s range of visitor and economic opportunities without negative environmental impacts. The longer visitors remain in an area the more they are likely to contribute to the local economy. Already a major rising segment of the tourism industry, birdwatching and twitching have risen dramatically due to COVID-19. With carefully considered and diverse sites with adequate facilities and protection for habitat and avifauna, these sites could make lasting contributions to Byron’s economy, reputation and diversity of experiences on offer - though only if monitored and managed to attain sustainable and non-destructive levels.



Osprey - R. Falconer



Chestnut-breasted Mannikin - R. Falconer

## 6. Recommendations

**6.01** Providing habitats that support avifauna population adds to biodiversity benefits and values for the shire through the provision of ecosystem services, such as seed dispersal, pollination, insect and rodent control, and scavenging and nutrient deposit. Avifauna are sensitive indicators of change in the environment and can provide early warnings of environmental problems. They also provide an economic service through nature-based tourism and add to cultural heritage through art and stories.

**6.02** Continued monitoring of avifauna species is recommended on a regular basis to detect changes and to provide feedback to improve and modulate future management of both sites. This is an action should be implemented under AIM 4 as identified in the recent Byron Shire Council Biodiversity Conservation Strategy 2020-2030.

**6.03** We recommend the production of another report in 2 years time. This is the 7th report BBB has provided on avifauna species. At both sites we consider that the majority of bird species have been identified. Allowing for migration and nomadic behaviors the populations would appear to be stable except for the shore and water avifauna, hence the need for additional biennial reports.

**6.04** BBB members can continue to monitor the site and maintain Excel Spreadsheet records, however BSC may want to consider an independent report from this data.

**6.05** Given the site's national importance (in terms of number of threatened species found), BBB recommends an 'Advisory Body' or 'Friends of the Wetlands' or some such group be established to oversee the management of both sites. Such a committee should have a representative from stakeholders active at both sites to disseminate information so all may be informed of the management issues where relevant. It is likely Byron Wetlands could meet a RAMSAR status if a nomination were to be placed.

**6.06** We recommend that the impacts and threats stated above be incorporated in ongoing published management protocols and be distributed widely to Council employees.

**6.07** Further, Council should provide adequate resources to ensure that responsible and informed oversight management of the wetlands is sustained into the future as an integral part of Council's ongoing Delivery Programs and Operational Plans reflected in Annual Reports.

### Byron Wetlands

**6.08** Re-vegetate, with appropriate species, along the common boundary fence between the Wetlands and Ewingsdale sports complex with trees and understorey species for the control of light and noise pollution.

**6.09** BBB has recommended in previous reports that the use of herbicide spraying and mowing of low vegetation at the edge of cells be reduced as far as practicable. A number of avifauna species utilise the edge vegetation for protection, especially the shy rails and crakes and also the migrating Latham's Snipe. Edge vegetation is also an important foraging habitat for scrub-wrens and fairy-wrens. Recent large-scale operations of this sort necessitates the reiteration of this recommendation and we urge Council to alter and moderate this behavior, which has resulted in wide-scale habitat removal and poisoning in contravention of our past recommendations and agreements.

**6.10** Suitable habitat for migrating shorebirds is not being maintained adequately between September and April in Cell H. However, suitable muddy areas in other cells have been available for shorebirds. BBB recommends that alternative cells continue to be managed to supply an appropriate habitat for shorebirds if this cannot be provided in Cell H.

**6.11** Council should maintain and develop a diverse range of natural habitat opportunities with a view to increasing the area of protected habitat as urban development expands and impacts the environment. As recommended in our 2010/11 report, maintaining appropriate habitats will be increasingly important as human populations and their associated activities from the new West Byron Urban Release area, the Bayshore Village development and North Beach development and possibly the new sports field, come online. These developments will almost certainly destroy the amenity for shorebirds at the mouth of the Belongil Estuary. Our monitoring has shown that shorebirds will come if the habitat is right. Unfortunately, the opposite is also true.

**6.12** In considering expansion of the wetlands, wherever possible within the operational plan requirements, we recommend further shorebird areas be created.

**6.13** In our 2010-11 report, BBB recommended a review of documents associated with the management of the Byron Wetlands. There are at least five documents that BBB is aware of: West Byron "Cell H" Management Plan 2006, West Byron Sewage Treatment Plant Weed Management Strategy 2005, Operational Environment Management Plan, West Byron Visitor Education and Impact Plan and West Byron Monitoring and Impact Verification Plan which contain much replication and similar material. Even though we believe a review was being considered, we are not aware that this has taken place as of this date. BBB suggests for future management and simplification, these plans should be condensed into one strategic plan with the back-ground material separated into a self-contained document. In so doing, this new plan could be less complicated, more relevant to the community, and more effective in meeting some of the objectives stated in the five documents. A review of the results of monitoring over the past 12 years is needed to drive the new actions for the future management of the area and also take into consideration knowledge associated with the effects of climate change and future impacts from population growth.

**6.14** BBB is aware of and supports the on-going fox control measures being conducted at Byron Wetlands but effective fox control also needs to be implemented at Vallances Road.

**6.15** There continues to be the potential for improved visitor experience, particularly education, at the Wetlands. Sadly, a number of actions in the West Byron Visitor Education and Impact Plan have yet to be implemented. BBB members are committed to monitoring, providing education and conducting one open day per year at the wetlands. However, BBB will have limited capacity to continue the open day for the public in the future. The Interpretive Centre at the Byron wetlands is a useful resource. However, due to its size numbers should be limited to 30 people. We recommend using the Cavanbah Centre if a larger space is required for community events or groups.

**6.16** As part of a biodiversity program, a part-time education coordinator should be funded and tasked with specific educational opportunities.

**6.17** Over the years, many trees have been brought down by strong winds at the Byron Wetlands and replacement planting is recommended. Where possible, and if funding is adequate, the dead trees in Cell I should be replaced. At least 3 such trees should be provided.

## **Vallances Road**

**6.18** In the long term, an opportunity exists at Vallances Road for public visitation similar to the arrangements at West Byron and we suggest that this be studied and implemented where minimal disturbance to the birds can be achieved.

**6.19** We suggest rethinking the agisting of cattle on the property at Vallances Road. Are the rotation programs really beneficial or are they detrimental to the biodiversity values? For example, recent rains brought about dense stands of grass and with them large numbers of



quail, including uncommon species. Within a week or two cattle were brought in and the structural integrity of the grassland was instantly destroyed. As a result, nearly all the quail vanished from the area. Vallances Road can provide outstanding and uncommon habitat for a wide range of grassland dependent birds, including quail, cisticolas, grassbirds, mannikins and finches if its management is right.

**6.20** We recommend that more paddock trees be planted. These trees can be situated in small groves as well as individual large specimens at distances of no less than 50 metres from one another. Appropriate and varied local native species should be chosen to maximise habitat potential and structural diversity.

**6.21** Limited and carefully overseen fire management of a small number of discreet grassland patches should be used experimentally with a view to determining impacts on natural biodiversity and resultant habitat change over time.

## **Climate Change**

**6.22** Climate change has been listed as a key threatening process under the Biodiversity Conservation Act. Projections of future changes in climate for New South Wales include higher temperatures, increasing sea levels and water temperatures, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporation. These changes are likely to lead to greater intensity and frequency of fires, more severe droughts and increased regional flooding. As a direct result we recommend research and the management of these areas to incorporate a diversity of habitat opportunities as well as floral diversity, with an eye to promoting an area more flexible and able to handle extreme changes of climate over time.

**6.23** Byron Wetlands and Vallances Road, besides being water augmentation facilities, are highly significant biodiversity properties. They routinely provide among the greatest numbers of bird species observed within a given time period in relation to the great range of areas BBB and other birding groups have studied in the Northern Rivers. In short, these two areas cannot be underestimated in terms of their value to avifauna both at local and statewide levels. They are also important linkage corridors for native species occupying and travelling between moist coastal habitats to the western escarpments and beyond. In addition, the generally favorable and abundantly resourced nature of these areas, notwithstanding their limited size, provides highly significant refugia for many out-of-area species magnifying their importance well beyond state and national significance.



Rainbow Bee-eater - B. McNaughton

## 7. References:

The Slater Field Guide to Australian Birds  
The Graham Pizzey & Frank Knight Field Guide to the Birds of Australia  
Shorebirds of Australia – Andrew Geering, Lindsay Agnew & Sandra Harding  
Birds Australia Bittern Fact Sheets and newsletters  
Simpson and Day Field Guide to Birds of Australia  
Michael Morcombe Field Guide to Australian Birds  
Birdlife Australia – Bird in backyards website  
A Field Guide to Australian Birdsong CD (BOAC)  
Michael Morcombe eGuide guide to Australian Birds  
West Byron “Cell H” Management Plan 2006  
West Byron Sewage Treatment Plant Weed Management Strategy 2005  
Operational Environment Management Plan  
West Byron Visitor Education and Impact Plan  
West Byron Monitoring and Impact Verification Plan  
Byron Shire Council Biodiversity Conservation Strategy 2020-2030.  
BWL-BirdLife\_Australia\_Working\_List\_v2.1.xlsx  
Systematics and Taxonomy of Australian Birds - Les Christidis & Walter E. Boles, 2008

## 8. Appendix:

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# Spreadsheet Byron Wetlands 2015 pt 1

[illegible]

**Spreadsheet Byron Wetlands 2015 pt 2**

[illegible]

### Spreadsheet Byron Wetlands 2015 pt 3

	Total no of waterbird				151	197	2	962	331	0	145	1012	111	96	78	
<b>Survey Conditions</b>					2											
Wind Direction					N			NW			SSW	S			SE	
Wind Speed					0-5			0-5			0-5	5-10			10-15 KM	
General Weather								approaching storm			FINE WARM	warm, sunny & some cloud				
<b>Comments on Cell Conditions</b>																
Cell D								Mostly Dry & grass								
Cell E								Full								
Cells F & G								60% full								
Cell H								some exposed								
Cell I								60% full								
Cell J								full								
<b>Notes</b>																
<p>Data : all observers are acknowledge (if names are available) in the column above the data</p> <p>Bird observations between 2000 and 2002 were obtained from observations supplied to BSC by David Stewart but no details of dates or observers were made available</p> <p>Names of other observers included in David Stewart's list are include in column BE</p> <p>BBB commenced observations in 2006 with intensive monitoring commencing 2008.</p> <p>Some surveys by BBB were conducted in association with members of Brunswick Valley Bird Observers</p>																
<p>15/3/15 - DRINKS &amp; Nibbles evening</p> <p>21/03/2015 - survey interrupted by storm</p> <p>21/3/15- back of J cell not observed</p> <p>Playback - No Response Southern Boobook, Pale-vented Bush-hen, Barn Owl</p> <p>21/3/15 - swans - 2 adults and two cygnets</p> <p>21/3/15 - NOTE LARGE NO OF BIRDS FLYING IN FROM SURROUNDING COUNTRYSIDE at sunset. Roosting in melaleucis in E &amp; G</p> <p>27/05/2015 - red-bellied black snake</p> <p>27/05/2015 - red-bellied black snake</p> <p>5/7/15 - 3 JUVENILE SWANS</p> <p>5/7/15 - LARGE RED-BELLIED BLACK SNAKE -E3</p> <p>25/7/15- gate opened on a Saturday afternoon</p> <p>25/7/15 - very little blossom - account for lack of honeyeaters</p> <p>25/7/15 - note this cause of die-back in melaleucis</p> <p>25/7/15 - note - purple swamphen 2-3 birds in each cell - but generally reduced number of birds</p> <p>25/7 - cell c, PBD on nest and 2 BW stills</p> <p>25/7 - no result from playback of GrassOwl, S boobook, Barn owl</p> <p>NOTE - NO SURVEY CONDUCTED after the 29/9/15 - due to closure of the wetlands to mid December</p>																



**Spreadsheet Byron Wetlands 2016 & 2017 pt 1**

[illegible]

Spreadsheet Byron Wetlands 2016 & 2017 pt 2

[illegible]

Spreadsheet Byron Wetlands 2016 & 2017 pt 3

[illegible]

**Spreadsheet Byron Wetlands 2018 pt 1**

[illegible]

# Spreadsheet Byron Wetlands 2018 pt 2

45	8	Australian Hobby	<i>Falco longipennis</i>	Birds of Prey	N	OH	16	20	25	5	20	20	30	45* fled	1				
46	10	Purple Swanphen	<i>Porphyrio porphyrio</i>	Crakes, Rails, Gallinule	S	3													
47	10	Buff-banded Rail	<i>Gallinula philippensis</i>	Crakes, Rails, Gallinule	N	8							1	2					
48	10	Baillon's Crane	<i>Porzana pusilla</i>	Crakes, Rails, Gallinule	MW	8									5				
49	10	Spotless Crane	<i>Porzana tabuensis</i>	Crakes, Rails, Gallinule	MW	8					1				1				
50	10	Dusky Moorhen	<i>Gallinula tenebrosa</i>	Crakes, Rails, Gallinule	S	3	3	6	10	7	23	20	10	11					
51	10	Eurasian Coot	<i>Fulica atra</i>	Crakes, Rails, Gallinule	N	3	140	50	70	1	73	30	30	72					
52	11	Black-winged Stilt	<i>Himantopus himantopus</i>	Shorebirds	N	3	5		4		11	4	15	20					
53	11	Pacific Golden Plover	<i>Pluvialis fulva</i>	Shorebirds	MSE	3													
54	11	Black-fronted Dotterel	<i>Elseyornis melanops</i>	Shorebirds	S	3	3		6	5	12	1	4	6*fle					
55	11	Red-kneed Dotterel	<i>Erythronyx cinctus</i>	Shorebirds	N	3	4			1	2		4	3					
56	11	Masked Lapwing	<i>Vanellus miles</i>	Shorebirds	S	5	3	5	10	2	3	6	8-juv	12*fle					
57	11	Comb-crested Jacana	<i>Irediparra gallinacea</i>	Shorebirds	S	3			2	2	2	1	2	1					
58	11	Latham's Snipe	<i>Gallinago hardwickii</i>	Shorebirds	MSE	8	21								2				
59	11	Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	Shorebirds	MSE	3							1						
60	13	Whiskered Tern	<i>Chlidonias hybridus</i>	Gulls and Terns	MWE	OH									14				
61	13	Silver Gull	<i>Chroicocephalus novaehollandiae</i>	Gulls and Terns	S	3	32		50	30	35	25	x	48					
62	14	Yellow-tailed Black-Cockatoo	<i>Calyptorhynchus funereus</i>	Cockatoos and Parrots	S	2								1					
63	14	Galah	<i>Eolophus roseicapillus</i>	Cockatoos and Parrots	S	5													
64	14	Little Corella	<i>Cacatua sanguinea</i>	Cockatoos and Parrots	S	2							2	9	z				
65	14	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	Cockatoos and Parrots	S	5								1					
66	14	Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	Cockatoos and Parrots	S	2	5		2										
67	14	Scaly-breasted Lorikeet	<i>Trichoglossus chlorolepidotus</i>	Cockatoos and Parrots	S	2			2					2					
68	14	Eastern Rosella	<i>Platycercus eximius</i>	Cockatoos and Parrots	S	2	2												
69	15	Pheasant Coucal	<i>Centropus phasianinus</i>	Cuckoos	S	8								1					
70	15	Horsfield's Bronze-Cuckoo	<i>Chrysococcyx basalis</i>	Cuckoos	MB	2			1					1					
71	15	Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>	Cuckoos	MB	2		1	1+h	2	1		1	2					
72	15	Little Bronze-Cuckoo	<i>Chalcites minutillus</i>	Cuckoos	MB	2								2					
73	15	Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	Cuckoos	MB	2			2		1	1							
74	15	Brush Cuckoo	<i>Cacomantis variolosus</i>	Cuckoos	MB	2													
75	17	Azure Kingfisher	<i>Ceyx azureus</i>	Kingfishers, Roller & Bee-eater	S	2			2		2	1	x	1					
76	17	Laughing Kookaburra	<i>Dacelo novaeguineae</i>	Kingfishers, Roller & Bee-eater	S	2			1				2	3					
77	17	Forest Kingfisher	<i>Todiramphus macleayii</i>	Kingfishers, Roller & Bee-eater	MB	2	1		2			2							
78	17	Sacred Kingfisher	<i>Todiramphus sanctus</i>	Kingfishers, Roller & Bee-eater	MB	2					1			1					
79	17	Rainbow Bee-eater	<i>Merops ornatus</i>	Kingfishers, Roller & Bee-eater	MBE	2	2	5	12	2	x	4	8	19					
80	20	Variegated Fairy-wren	<i>Malurus lamberti</i>	Fairy-wrens	S	8								5					
81	20	Superb Fairy-wren	<i>Malurus cyaneus</i>	Fairy-wrens	S	8	x	5	12	6	lots	12	10	40					
82	20	Red-backed Fairy-wren	<i>Malurus melanoccephalus</i>	Fairy-wrens	S	8			6					5					
83	21	White-browed Scrubwren	<i>Sericornis frontalis</i>	Scrubwrens, Allies & Pardalote	S	8	x		5	1	x	2	3	6					
84	21	Large-billed Scrubwren	<i>Sericornis magnirostris</i>	Scrubwrens, Allies & Pardalote	S	2								1					
85	21	Mangrove Gerygone	<i>Gerygone levigaster</i>	Scrubwrens, Allies & Pardalote	S	2						2?							
86	21	White-throated Gerygone	<i>Gerygone olivacea</i>	Scrubwrens, Allies & Pardalote	MB	2	x	1	4	2	x	2	x	3					
87	21	Yellow Thornbill	<i>Acanthiza nana</i>	Scrubwrens, Allies & Pardalote	N	2			2				1	1					
88	21	Brown Thornbill	<i>Acanthiza pusilla</i>	Scrubwrens, Allies & Pardalote	N	2			5	x	xbr	2	2	14					
89	22	Striped Honeyeater	<i>Plectorhyncha lanceolata</i>	Scrubwrens, Allies & Pardalote	S	2	x		2	x	x		2	1					
90	22	Noisy Friarbird	<i>Philemon corniculatus</i>	Honeyeaters	S	2			5	x			1	5					
91	22	Little Friarbird	<i>Philemon citreogularis</i>	Honeyeaters	N	2			2	x									
92	22	Brown Honeyeater	<i>Lichenmera indistincta</i>	Honeyeaters	S	2	x	1	25	x	x	30	x	19					
93	22	White-cheeked Honeyeater	<i>Phylidonyris niger</i>	Honeyeaters	MB	2	x	1	10	x	x	5	2	4					
94	22	Blue-faced Honeyeater	<i>Entomozon cyanotis</i>	Honeyeaters	S	2	x	6	1			1	1	7					
95	22	Lewin's Honeyeater	<i>Meliphaga lewinii</i>	Honeyeaters	S	2	x	3	6	x	x	15	x	11					
96	22	Little Wattlebird	<i>Anthochaera chrysoptera</i>	Honeyeaters	MB	2	x		2	x	x	1	x	1					
97	22	Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>	Honeyeaters	MB	2			4	x	x			1					
98	22	Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	Honeyeaters	MB	2			1	x	x								
99	22	Scarlet Honeyeater	<i>Myzomela sanguinolenta</i>	Honeyeaters	MB	2			27	x			x						
100	23	Eastern Whipbird	<i>Psophodes olivaceus</i>	Quail-thrush & Allies	S	2			4	x	x	6	3	6					
101	24	Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	Cuckoo-shrikes & Trillers	N	2		2	2		x		2	2					
102	24	Cicadabird	<i>Coracina tenuirostris</i>	Cuckoo-shrikes & Trillers	MB	2	x												
103	24	Varied Triller	<i>Lalage leucomela</i>	Cuckoo-shrikes & Trillers	N	2			1		x	1		1					
104	25	Rufous Whistler	<i>Pachycephala rufiventris</i>	Whistlers, S-thrush, Figbird & Orioles	MB	2	x-f		2	x	x	1	x	8					
105	25	Golden Whistler	<i>Pachycephala pectoralis</i>	Whistlers, S-thrush, Figbird & Orioles	MB	2			2				x	1					
106	25	Little Shrike-thrush	<i>Colluricincla megarrhyncha</i>	Whistlers, S-thrush, Figbird & Orioles	S	2							x	1					
107	25	Grey Shrike-thrush	<i>Colluricincla harmonica</i>	Whistlers, S-thrush, Figbird & Orioles	S	2		1	1	x	x	1	x	3					
108	25	Australasian Figbird	<i>Sphecotheres vielloti</i>	Whistlers, S-thrush, Figbird & Orioles	N	2	x		25	x			x	17					



# Spreadsheet Byron Wetlands 2018 pt 3

[illegible]

# Spreadsheet Byron Wetlands 2019 pt 1

[illegible]

## Spreadsheet Byron Wetlands 2019 pt 2

[illegible]

## Spreadsheet Byron Wetlands 2019 pt 3

Date	Time	Observer	Species	Count	Sex	Age	Notes	2019																								
								1	2	3	4	5	6	7	8	9	10	11	12													
143	26	Willie Wagtail	Faintail	5	S			3			10	2	12	16	2	11	2	6	2	2-jw	7	2	15	4	2	11	x	6	6	5	1	
144	28	Grey Fantail	Faintail	MB				6		7	7	1	31	37	1	16	6	10	x	x	2	2	1	1	2	2	x	x	2	2	1	
145	29	Torrenson Crow	Ravens & Mud-nesters	S	2			6		7	3	7	16	3	6	5	1	3	x	1-jw	3	6	5	1	3	5	x	7	6	4	2	
146	30	Leadon Flycatcher	Flycatcher & Monarchs	MB	2						2					2						2	2	3	1	x	1	1	1	1	1	
147	30	Restless Flycatcher	Flycatcher & Monarchs	MB	2			1	4	2	2	1	2	2	1	2	2	2			2	1	1	1	1	2	x	1	4	1	1	
148	30	Spotted Monarch	Flycatcher & Monarchs	MB	2																											
149	30	Mugpie-lark	Flycatcher & Monarchs	S	5			7		3	9	2	2	2	4	7	3	3	x	2-jw	4	3	6			5	x	2	3	5	1	
150	31	Rose Robin	Robin, Old World Warblers, White-eyes	MB	2								1																			
151	31	Eastern Yellow Robin	Robin, Old World Warblers, White-eyes	S	5			1		1	4		1			1						1	1	1			x					
152	31	Golden-headed Cisticola	Robin, Old World Warblers, White-eyes	S	8			15		2	1	2	1	1	2	1	2	1	x	3-jw	2			1		4	x	5	5	3	2	2
153	31	Australian Reed-Warbler	Robin, Old World Warblers, White-eyes	S	8			2		5	2	2	3	1	4-jw	3	5	6	3	4	x	1	6	3	4	x	1	6	6	6	2	4
154	31	Fairy Grassbird	Robin, Old World Warblers, White-eyes	S	8			1		8	3	6	4	4	7				x				10			5	x	3	1	6	2	2
155	31	Little Grassbird	Robin, Old World Warblers, White-eyes	S	8								1			2	5			4-jw						1	x	1				2
156	31	Rufous Songlark	Robin, Old World Warblers, White-eyes	MB	5																					1						
157	31	Silvereye	Robin, Old World Warblers, White-eyes	MB	2			3		11	2	7	21	2	14	3			x			7	5	12		7	x	5	5	1	10	10
158	32	Welcome Swallow	Swallows & Martins	MB	OH			12	33	5	26	80	2	30	2	6	5	1-jw	5		18	8	25	9	7	50	x	5	5	x	x	x
159	32	Fairy Martin	Swallows & Martins	MB	OH									4							6	3	3	30	x	30	x	x	10	x	x	x
160	32	Tree Martin	Swallows & Martins	MB	OH			22			2	1				3	12	2		3			4					x	2	x	x	x
161	33	Common Myna	Thrush, Starling, Myna, Flowerpecker	S	5								1		5					3												
162	33	Mistlebird	Thrush, Starling, Myna, Flowerpecker	MB	2			2		1	2	2								2	4	9	1	1	4	x	2	1	1	2	2	2
163	34	Red-browed Finch	Finch, Mannikin & Sparrow	S	8			8		2	10	5	2					7		1-jw			3	5	x	3	1					

<p>Data: all observers are acknowledged (if names are available) in the column above the data.</p> <p>Bird observations between 2000 and 2002 were obtained from observations supplied to BSC by David Stewart</p> <p>David Stewart's list included some birds being observed but no details of dates or observers were made available</p> <p>Names of other observers included in David Stewart's list are included in column BE</p> <p>BBB commenced other valuations in 2006 with intensive monitoring commencing 2008.</p> <p>Some surveys by BBB were conducted in association with members of Brunswick Valley Bird Observers &amp; Birdlife Northern Rivers</p>	<p>BBB commenced other valuations in 2006 with intensive monitoring commencing 2008.</p> <p>Some surveys by BBB were conducted in association with members of Brunswick Valley Bird Observers</p>
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22/11/19 - We did a survey at the wetlands today... 80 species ... and had fun a hot windy day ... however we were very concerned about H cell ... there were at least 20 dead eels on the southern edge ... the line extends into both Cells - goodness knows what fishing line is doing in the wetlands

26/12/19 - Cell H - increased water levels despite little rain - BSC - filled?

26/12/19 - Welcome Swallow - immature

23/05/2019 - Rose-crowned Fruit-Dove - Gus Daly - rarely obs - accepted

24/12/19 - Lewin's Rail - Gus Daly - possible

26/10/2019 - Aus Pied Oystercatcher - Gus Daly - 2 OH - accepted

15/12/19 - Caspian Tern - Steve McBride - OH

16/11/19 Common Tern - Steve McBride

2 x 17/8/19 Noisy Pita - Richard Murray - photo

15/10/19 - Yellow-rumped Thornbill Cary Lewis - possible

Spreadsheet Byron Wetlands 2020 pt 1

West Byron Wetlands 2020			Latitude S28° 37.51			Longitude E153°34.36			File 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Key			x=observed; h=heard; ff=flying over; n=nesting; br=breeding; e=chicks; jv=juvenile; n= not recorded, p=site only partially observed, all=more then two areas or generally dispersed																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Habitat			1 = aquatic, 2 = forest/trees, 3 = freshwater/wetlands, 4 = mangroves, 5 = pasture/grassland area/buildings, 8 = reeds & low growth																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Movemet (M - Column F)			S = Sedentary, N=Nomadic, V=vagrant, M=Migrant Raptor, MR=Migrant Waterbird, MB=Migrant Bushbird, MS=Migrant Shorebird (E after letters external migrant or I migrates within Australia)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Headings			No = species number, tax = no of family group, X = observed or counted, H = habitat, G = map grid reference, DS = Dave Stewarts Obs#, BYBW=Brunswick Valley Bird Watchers, Twiced/BLNR = Twiced Bird Observers																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Key to Species and names arranged in order according to Christidis & Boles 2008 – supplied by Birds Australia			Observer			H			M			a			b			c			d			e			f			g			h			i			j			k			l			m			n			o			p			q			r			s			t			u			v			w			x			y			z			aa			ab			ac			ad			ae			af			ag			ah			ai			aj			ak			al			am			an			ao			ap			aq			ar			as			at			au			av			aw			ax			ay			az			ba			bb			bc			bd			be			bf			bg			bh			bi			bj			bk			bl			bm			bn			bo			bp			bq			br			bs			bt			bu			bv			bw			bx			by			bz			ca			cb			cc			cd			ce			cf			cg			ch			ci			cj			ck			cl			cm			cn			co			cp			cq			cr			cs			ct			cu			cv			cw			cx			cy			cz			da			db			dc			dd			de			df			dg			dh			di			dj			dk			dl			dm			dn			do			dp			dq			dr			ds			dt			du			dv			dw			dx			dy			dz			ea			eb			ec			ed			ee			ef			eg			eh			ei			ej			ek			el			em			en			eo			ep			eq			er			es			et			eu			ev			ew			ex			ey			ez			fa			fb			fc			fd			fe			ff			fg			fh			fi			fj			fk			fl			fm			fn			fo			fp			fq			fr			fs			ft			fu			fv			fw			fx			fy			fz			ga			gb			gc			gd			ge			gf			gg			gh			gi			gj			gk			gl			gm			gn			go			gp			gq			gr			gs			gt			gu			gv			gw			gx			gy			gz			ha			hb			hc			hd			he			hf			hg			hh			hi			hj			hk			hl			hm			hn			ho			hp			hq			hr			hs			ht			hu			hv			hw			hx			hy			hz			ia			ib			ic			id			ie			if			ig			ih			ii			ij			ik			il			im			in			io			ip			iq			ir			is			it			iu			iv			iw			ix			iy			iz			ja			jb			jc			jd			je			jf			jg			jh			ji			jj			jk			jl			jm			jn			jo			jp			jq			jr			js			jt			ju			jv			jw			jx			jy			jz			ka			kb			kc			kd			ke			kf			kg			kh			ki			kj			kk			kl			km			kn			ko			kp			kq			kr			ks			kt			ku			kv			kw			kx			ky			kz			la			lb			lc			ld			le			lf			lg			lh			li			lj			lk			ll			lm			ln			lo			lp			lq			lr			ls			lt			lu			lv			lw			lx			ly			lz			ma			mb			mc			md			me			mf			mg			mh			mi			mj			mk			ml			mm			mn			mo			mp			mq			mr			ms			mt			mu			mv			mw			mx			my			mz			na			nb			nc			nd			ne			nf			ng														
			Scientific Name			Family			Movement			H			M			a			b			c			d			e			f			g			h			i			j			k			l			m			n			o			p			q			r			s			t			u			v			w			x			y			z			aa			ab			ac			ad			ae			af			ag			ah			ai			aj			ak			al			am			an			ao			ap			aq			ar			as			at			au			av			aw			ax			ay			az			ba			bb			bc			bd			be			bf			bg			bh			bi			bj			bk			bl			bm			bn			bo			bp			bq			br			bs			bt			bu			bv			bw			bx			by			bz			ca			cb			cc			cd			ce			cf			cg			ch			ci			cj			ck			cl			cm			cn			co			cp			cq			cr			cs			ct			cu			cv			cw			cx			cy			cz			da			db			dc			dd			de			df			dg			dh			di			dj			dk			dl			dm			dn			do			dp			dq			dr			ds			dt			du			dv			dw			dx			dy			dz			ea			eb			ec			ed			ee			ef			eg			eh			ei			ej			ek			el			em			en			eo			ep			eq			er			es			et			eu			ev			ew			ex			ey			ez			fa			fb			fc			fd			fe			ff			fg			fh			fi			fj			fk			fl			fm			fn			fo			fp			fq			fr			fs			ft			fu			fv			fw			fx			fy			fz			ga			gb			gc			gd			ge			gf			gg			gh			gi			gj			gk			gl			gm			gn			go			gp			gq			gr			gs			gt			gu			gv			gw			gx			gy			gz			ha			hb			hc			hd			he			hf			hg			hh			hi			hj			hk			hl			hm			hn			ho			hp			hq			hr			hs			ht			hu			hv			hw			hx			hy			hz			ia			ib			ic			id			ie			if			ig			ih			ii			ij			ik			il			im			in			io			ip			iq			ir			is			it			iu			iv			iw			ix			iy			iz			ja			jb			jc			jd			je			jf			jg			jh			ji			jj			jk			jl			jm			jn			jo			jp			jq			jr			js			jt			ju			jv			jw			jx			jy			jz			ka			kb			kc			kd			ke			kf			kg			kh			ki			kj			kk			kl			km			kn			ko			kp			kq			kr			ks			kt			ku			kv			kw			kx			ky			kz			la			lb			lc			ld			le			lf			lg			lh			li			lj			lk			ll			lm			ln			lo			lp			lq			lr			ls			lt			lu			lv			lw			lx			ly			lz			ma			mb			mc			md			me			mf			mg			mh			mi			mj			mk			ml			mm			mn			mo			mp			mq			mr			ms			mt			mu			mv			mw			mx			my			mz			na			nb			nc			nd			ne			nf			ng								
			No	Tax	Species	Scientific Name			Family			Movement			H			M			a			b			c			d			e			f			g			h			i			j			k			l			m			n			o			p			q			r			s			t			u			v			w			x			y			z			aa			ab			ac			ad			ae			af			ag			ah			ai			aj			ak			al			am			an			ao			ap			aq			ar			as			at			au			av			aw			ax			ay			az			ba			bb			bc			bd			be			bf			bg			bh			bi			bj			bk			bl			bm			bn			bo			bp			bq			br			bs			bt			bu			bv			bw			bx			by			bz			ca			cb			cc			cd			ce			cf			cg			ch			ci			cj			ck			cl			cm			cn			co			cp			cq			cr			cs			ct			cu			cv			cw			cx			cy			cz			da			db			dc			dd			de			df			dg			dh			di			dj			dk			dl			dm			dn			do			dp			dq			dr			ds			dt			du			dv			dw			dx			dy			dz			ea			eb			ec			ed			ee			ef			eg			eh			ei			ej			ek			el			em			en			eo			ep			eq			er			es			et			eu			ev			ew			ex			ey			ez			fa			fb			fc			fd			fe			ff			fg			fh			fi			fj			fk			fl			fm			fn			fo			fp			fq			fr			fs			ft			fu			fv			fw			fx			fy			fz			ga			gb			gc			gd			ge			gf			gg			gh			gi			gj			gk			gl			gm			gn			go			gp			gq			gr			gs			gt			gu			gv			gw			gx			gy			gz			ha			hb			hc			hd			he			hf			hg			hh			hi			hj			hk			hl			hm			hn			ho			hp			hq			hr			hs			ht			hu			hv			hw			hx			hy			hz			ia			ib			ic			id			ie			if			ig			ih			ii			ij			ik			il			im			in			io			ip			iq			ir			is			it			iu			iv			iw			ix			iy			iz			ja			jb			jc			jd			je			jf			jg			jh			ji			jj			jk			jl			jm			jn			jo			jp			jq			jr			js			jt			ju			jv			jw			jx			jy			jz			ka			kb			kc			kd			ke			kf			kg			kh			ki			kj			kk			kl			km			kn			ko			kp			kq			kr			ks			kt			ku			kv			kw			kx			ky			kz			la			lb			lc			ld			le			lf			lg			lh			li			lj			lk			ll			lm			ln			lo			lp			lq			lr			ls			lt			lu			lv			lw			lx			ly			lz			ma			mb			mc			md			me			mf			mg			mh			mi			mj			mk			ml			mm			mn			mo			mp			mq			mr			ms			mt			mu			mv			mw			mx			my			mz			na			nb			nc			nd			ne			nf			ng					
			1	Australian	Brush-turkey	<i>Alectura lathami</i>			Mound- Builders & Quail			S			2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	</																																																																																																																																																																																																																																																																																																																																																																																																																																																																																



## Spreadsheet Byron Wetlands 2020 pt 2

[illegible]

# Spreadsheet Byron Wetlands 2020 pt 3

[illegible]

Data : all observers are acknowledge (if names are available) in the column above the data

2/1/20 - Collared Sparrowhawk - J Watson  
2/1/20 - Eastern Yellow Wagtail - Bruce McNaughton

2/1/20 - Collared Sparrowhawk - I Watson

2/1/20 - Eastern Yellow Warbler - Bruce McNaughton

2/1/20 - Eastern Yellow Wagtail - Bruce McVaugh  
3/01/20 - Black-necked Stork 3/1 & 6/6 (Pearce) 7/41 (civis) 18/11 (DeLaney)

9/01/20 - Little Bittern 9/1 & 12/9 (C Lewis)

## Spreadsheet Byron Wetlands 2020 pt 4

BBB commenced observations in 2006 with intensive monitoring commencing 2008.

Some surveys by BBB were conducted in association with members of Brunswick Valley Bird Observers & Birdlife Northern

15/01/2020 - Weed removal in progress & surveyors working

16/01/20 - Pale-headed Rosella - recorded on E bird by Hall considered mis-identified

20/01/20 - Australasian Bittern (Pearce)

18/02/20 - after dry period - local rain 500mls at least - all ponds full - H cell over-flowing

19/05/20 Topknot Pigeons (Kippner) possible

2/6 Black Kite (Lewis) - Pic

3/9/20 Little Pied Cormorant Nesting

13/10/20 - Lewin's Rail - Lewis

07/10/20 - Aust Grebe - breeding

07/10/20 - Dusky Moorhen on nest

07/10/20 - Purple Swamp Hen on nest

03/11/20 - Helicopter flying low overhead, birds very disturbed

03/11/20 - Immature Black Duck - suggesting nest on site

03/11/20 - young Aust. Grebe - suggesting nest on site

03/11/20 - Dusky Moorhen - suggesting nest on site

05/11/20 - Dollarbird(Chisholm)

18/11/20 - Yellow-faced Honeyeater(Delaney) possible accept

19/11/20 - Black cygnets (Pearce)

21/11/20 - Double barred Finch - nesting material

21/11/20 - Black Swan cygnets

01/12/20 - swamp Wallby

01/12/20 - dead water rat - cause unknown

1/12/20 - 2 x water dragon

[illegible][illegible]

**Spreadsheet Vallances Road 2015, 2016, 2017 pt 2**

[illegible]



[illegible]

Spreadsheet Vallances Road 2018, 2019, 2020 pt 1

Valances Road - Survey Sheet - 2018-2019-2020										Latitude 52°32.43.98 Longitude E153°30.52.45										
Key (O) = observed; H= heard; ff=flapping feeding; oh=offling over n=nesting; br=breeding; c=chicks; ju=juvenile; n= not noted; p=site only partially observed; All= three areas or more																				
x= aquatic, 2 = forest or isolated trees, 3 = freshwater wetlands, 3A = tidal wetlands, 4 = mangroves, 5 = pasture, 6 = plantings, 7= estuarine, 8= reeds/long grasses																				
S = Sedenative, N=Nomadic, V=vagrant, E=Endemic, M=Migrant, MR=Migrant Bush bird, MS=Migrant Shorebird [E after letters external migrant or l migrates within Australia																				
O= observation # , BVBW =Brunswick Valley Bird Watchers, RBB - Richmond/Brunswick Birdwatchers (name change 2018)Tweed/BLNR = Tweed Bird Observers																				
Headings																				
Non species number, tax= no of family group, Y= observed or counted, O= observation H=habitat, G=map grid reference, MF= Mark Fitzgerald's Obs for BSC, DC= David Charley																				
Observer																				
Time																				
Type of Survey																				
Hours																				
No of Surveyors																				
Date																				
Year																				
No	Tax	Species	Scientific Name	Family	BBB+ BVBW	NR	Wilson	BBE	BLNR	BBB	BBB+ BLNR	BBE	BLNR	BBB	RBB	RBB	BBB	Rodney	BBB	Rodney
1	1	Australian Brush-turkey	<i>Alectura lathami</i>	Mound-Builders & Quail	13.00-13.00	08.00-13.00	12.07-12.30	11.00-12.30	17.00-17.00	13.30-13.30	20.00-20.00	18.30-18.30	13.30-13.30	20.00-20.00	08.00-13.00	08.00-13.00	13.00-13.00	08.00-13.00	13.00-13.00	08.00-13.00
2	1	Brown Quail	<i>Coturnix coturnix</i>	Mound-Builders & Quail	2	2														
3	1	King Quail	<i>Synalcus kinneari</i>	Mound-Builders & Quail	2	2														
4	2	Plumed Whistling Duck	<i>Dendrocygna eyroni</i>	Swans, Geese, Ducks & Grebes	3	3														
5	2	Wandering Whistling-Duck	<i>Dendrocygna arcuata</i>	Swans, Geese, Ducks & Grebes	3	3														
6	2	Australian Wood Duck	<i>Chenonetta jubata</i>	Swans, Geese, Ducks & Grebes	3	3														
7	2	Grey Teal	<i>Anas gracilis</i>	Swans, Geese, Ducks & Grebes	3	3														
8	2	Pacific Black Duck	<i>Anas superciliosa</i>	Swans, Geese, Ducks & Grebes	3	3														
9	2	Hardhead	<i>Arthya australis</i>	Swans, Geese, Ducks & Grebes	3	3														
10	2	Australasian Grebe	<i>Tachyaptus novaehollandiae</i>	Swans, Geese, Ducks & Grebes	3	3														
11	3	White-headed Pigeon	<i>Columba leucophaea</i>	Pigeons & Doves	2	2														
12	3	Spotted Dove	<i>Streptopelia chinensis</i>	Pigeons & Doves	2	2														
13	3	Brown Cuckoo-Dove	<i>Macropygia amabilis</i>	Pigeons & Doves	2	2														
14	3	Emerald Dove	<i>Chalcophaps indica</i>	Pigeons & Doves	2	2														
15	3	Peaceful Dove	<i>Geopelia striata</i>	Pigeons & Doves	2	2														
16	3	Crested Pigeon	<i>Ocyphaps lophotes</i>	Pigeons & Doves	2	2														
17	3	Bar-shouldered Dove	<i>Geopelia humeralis</i>	Pigeons & Doves	2	2														
18	3	Wonga Pigeon	<i>Leucosarcia picta</i>	Pigeons & Doves	2	2														
19	3	Rose-crowned Fruit-Dove	<i>Ptilinopus regina</i>	Pigeons & Doves	2	2														
20	3	Topknot Pigeon	<i>Lopholaimus antarcticus</i>	Pigeons & Doves	2	2														
21	3	White-throated Needletail	<i>Hydrochelidon macrotars</i>	Frigatebirds & Cormorants	2	2														
22	4	White-throated Needletail	<i>Hydrochelidon macrotars</i>	Frigatebirds & Cormorants	2	2														
23	6	Australasian Darter	<i>Anhinga novaehollandiae</i>	Frigatebirds & Cormorants	2	2														
24	6	Little Pied Cormorant	<i>Microcarbo melanoleucos</i>	Frigatebirds & Cormorants	2	2														
25	6	Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	Frigatebirds & Cormorants	2	2														
26	6	Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	Frigatebirds &																

Spreadsheet Vallances Road 2018, 2019, 2020 pt 2

[illegible]

Spreadsheet Vallances Road 2018, 2019, 2020 pt 3

[illegible]

# Activities and Education at the Byron Wetlands and Vallances Road

BBB utilises the funds received from BSC through monitoring of the two sites and in creating this report to further conservation and education for avifauna within Byron and surrounding Shires.

Conservation - by working with a range of agencies and organisations, BBB works to achieve a broad and consistent range of conservation outcomes for shorebirds, waterbirds and bush birds across the north coast. These agencies and organisations include:

by working with a range of agencies and organisations, BBB works to achieve a broad and consistent range of conservation outcomes for shorebirds, waterbirds and bush birds across the north coast. These agencies and organisations include:

- National Parks and Wildlife Service, Byron Council, Marine Parks Authority: on the protection and monitoring of shorebird breeding areas at the Belongil estuary.
- National Parks and Wildlife Service, Byron Council: on the management of dogs in shorebird breeding areas within national parks, especially at Marshalls Creek/North Wall of Brunswick River.
- National Parks and Wildlife Service on the temporary protection of the breeding area for the Beach Stone-curlew:
- Birdlife Shorebirds 2020 projects co-ordinates shorebird monitoring at four sites in Byron Shire; Belongil Estuary, both south and north areas of the Brunswick River to just north of the bridge and Byron Wetlands. Results are up-loaded to the Birdlife Australia shorebird site and shorebird results for Vallances Road are also uploaded. This program has now ended but will continue as BirdLife National Shorebird Program.
- BirdLife Key Biodiversity Area (KBA) Monitoring – coordinates the monitoring for Nightcap Area KBA which includes Nightcap, Goonengerry and Mt Jerusalem NP, Whian Whian SCA and Rocky Creek Dam.
- National Latham's Snipe Monitoring Program. – Involved in monitoring 3 sites in Byron Shire, Byron Wetlands, Seapeace and the Belongil Ponds.

**Community Education** - BBB is committed to an on-going community education program which seeks to educate the wider community on the beautiful birds which inhabit the northern rivers region as well as engaging people in conservation activities, either in their own backyards or beyond. BBB provides and continues to;

- conduct a number of guided walks and PowerPoint presentations at the Byron Wetlands as well as presentations at a number of public venues within the Shire.
- produce a number of brochures including; Birds of the Byron Shire, Ballina, Richmond Valley and Kyogle Shire, and brochures about the Ecology of Belongil, Tallow Creek and Brunswick River Estuaries.
- promote a range of environmental events and talks on our website, Twitter and Facebook pages [www.byronbirdbuddies.com.au](http://www.byronbirdbuddies.com.au)
- provide a schools education program: BBB has developed a bird education and sustainability program called "Wild About Birds" which aims to teach students of the far North Coast primary schools, skills which help them to identify and monitor the birds in their schoolyards and along the beaches and wetlands in our area.



# Birds of the Byron Wetlands

## *A Birdwatchers guide to the Wetlands*

*Prepared by members of Byron Bird Buddies*



### Welcome to the Byron Wetlands

The Byron Wetlands is within the traditional country of the Bundjalung (Arakwal) people of Byron Bay.

Wetlands are natural or constructed areas of land where water covers the soil for all or part of the year. The Byron Wetlands are constructed wetlands and form part of the 100 ha Byron Integrated Management Reserve – an award-winning example of how good resource management in action can minimise the impact of the sewage treatment plant on the surrounding ecosystems and, in addition, create a wonderful natural habitat for the support of local flora and fauna diversity.

With a list of over 227 species already sighted, the wetlands have gained a reputation as a great place to birdwatch when visiting Byron. Habitats and seasons will define where you are likely to see the birds; a variety of water levels provide for different types of waterbirds and shorebirds. You may see an Arctic-breeding migratory wader feeding along the pond edges, a Comb-crested Jacana walking on the lily-pads or an Australian Grebe diving for its food. The reeds and heath provide shelter for ground and lower storey birds such as wrens, the melaleucas and banksias provide nectar for honeyeaters, thornbills feed on insects in the wattles, the top storey is preferred by the Striated Pardalote and don't forget to check the skies for raptors and martins.

Remember, dress appropriately and always protect yourself against sunburn. A pair of binocular and a good field guide of Australian birds will no doubt enhance your visit.

**Access** – residents and visitors need to complete an application form which can be found on Byron Shires Council's website: [www.byron.nsw.gov.au](http://www.byron.nsw.gov.au)



Special thanks go to photographers: Debra Pearse, Ross Hollands & Larry Larstead

To contact Byron Bird Buddies, report a new bird sighting or return the tick list with details regarding date, time & cell where birds were sighted email: [byronbirdbuddy@gmail.com](mailto:byronbirdbuddy@gmail.com) or mail to BBB, PO Box 6, Brunswick Heads, NSW 2483. Download a PDF of the brochure: [www.byronbirdbuddies.com.au](http://www.byronbirdbuddies.com.au)



[www.byronbirdbuddies.com.au](http://www.byronbirdbuddies.com.au)



[www.birdlife.org.au](http://www.birdlife.org.au)



[www.byron.nsw.gov.au](http://www.byron.nsw.gov.au)

### Birds you may see at the Byron Wetlands

Approximately 227 bird species have been recorded at the Byron Wetlands. Many of the birds are nomadic or migratory; they may be at the wetlands for only short periods.

**Key Relative to the Byron Wetlands;** threatened species are highlighted & birds are listed by habitat eg waterbirds to bushbirds.

**C** = Common at the wetlands  
**U** = Uncommon at the wetlands  
**R** = Rare at the wetlands  
**I** = Introduced species

#### Frigatebirds, Terns & Gulls

- Lesser Frigatebird **R**
- Great Frigatebird **R**
- Little Tern **R**
- Gull-billed Tern **R**

- Whiskered Tern **U**
- White-winged Black Tern **R**
- Crested Tern **U**
- Silver Gull **U**
- Cormorants, Pelicans & Darters**
- Australasian Darter **C**
- Little Pied Cormorant **C**
- Great Cormorant **C**
- Little Black Cormorant **C**
- Pied Cormorant **C**
- Australian Pelican **C**
- Shorebirds**
- Bush Stone-curlew **R**
- Australian Pied Oystercatcher **R**
- Black-winged Stilt **C**
- Pacific Golden Plover **U**
- American Golden Plover **R**
- Red-capped Plover **U**
- Double-banded Plover **R**
- Greater Sand Plover **R**
- Black-fronted Dotterel **C**
- Red-kneed Dotterel **C**
- Masked Lapwing **C**

- Comb-crested Jacana **C**
- Latham's Snipe **C**
- Australian Painted Snipe **R**
- Bar-tailed Godwit **R**
- Little Curlew **R**
- Whimbrel **R**
- Eastern Curlew **R**
- Common Greenshank **R**
- Marsh Sandpiper **U**
- Wood Sandpiper **U**
- Red-necked Stint **U**
- Pectoral Sandpiper **U**
- Sharp-tailed Sandpiper **C**
- Curlew Sandpiper **U**
- Western Sandpiper **R**
- Ducks, Swans, Geese & Grebes**
- Magpie Goose **U**
- Plumed Whistling-Duck **U**
- Wandering Whistling-Duck **U**
- Musk Duck **R**
- Freckled Duck **U**
- Black Swan **C**
- Australian Wood Duck **U**

- Pink-eared Duck **R**
- Australasian Shoveler **U**
- Grey Teal **C**
- Chestnut Teal **U**
- Northern Mallard **R**
- Pacific Black Duck **C**
- Pacific Black Duck - Hybrid **R**
- Hardhead **C**
- Australasian Grebe **C**
- Hoary-headed Grebe **R**
- Hérons, Egrets & Bitterns**
- Australasian Bittern **U**
- Australian Little Bittern **R**
- Black Bittern **R**
- White-necked Heron **C**
- Eastern Great Egret **C**
- Intermediate Egret **C**
- Cattle Egret **C**
- White-faced Heron **C**
- Little Egret **C**
- Nankeen Night-Heron **U**
- Ibises & Spoonbills**
- Glossy Ibis **C**

# Byron Bay Integrated Water Management Reserve

S° 28,37.51 E° 153,34.36

- Pedestrian Walking Tracks
- Access Roads

N  
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S



Bird Hide

Byron Sewage Treatment Plant

Main Gate

Parking area

Interpretive Centre

- Australian White Ibis **C**
- Straw-necked Ibis **C**
- Royal Spoonbill **C**
- Yellow-billed Spoonbill **U**
- Storks & Brolgas**
- Black-necked Stork **C**
- Brolga **R**
- Crakes, Rails & Waterhens**
- Purple Swamphen **C**
- Lewin's Rail **U**
- Buff-banded Rail **C**
- Baillon's Crake **U**
- Australian Spotted Crake **U**
- Spotless Crake **U**
- White-browed Crake **R**
- Pale-vented Bush-hen **R**
- Black-tailed Native-hen **U**
- Dusky Moorhen **C**
- Eurasian Coot **C**
- Mound Builders & Quails**
- Australian Brush-turkey **U**
- Stubble Quail **R**
- Brown Quail **U**
- King Quail **R**
- Kites, Hawks, Eagles & Falcons**
- Eastern Osprey **C**
- Black-shouldered Kite **C**
- Square-tailed Kite **R**
- Pacific Baza **U**
- White-bellied Sea Eagle **C**
- Whistling Kite **C**
- Brahminy Kite **C**
- Black Kite **R**
- Brown Goshawk **U**
- Collared Sparrowhawk **U**
- Grey Goshawk **U**
- Spotted Harrier **R**
- Swamp Harrier **C**
- Wedge-tailed Eagle **U**
- Little Eagle **U**
- Nankeen Kestrel **R**
- Brown Falcon **U**
- Australian Hobby **U**
- Black Falcon **R**
- Peregrine Falcon **U**
- Owls & Frogmouths**
- Tawny Frogmouth **U**
- Southern Boobook **U**
- Eastern Barn Owl **U**
- Eastern Grass Owl **R**
- Pigeons & Doves**
- Rock Dove **R**
- White-headed Pigeon **C**
- Spotted Dove **I, C**
- Brown Cuckoo-Dove **C**
- Emerald Dove **U**
- Common Bronzewing **R**
- Crested Pigeon **C**
- Peaceful Dove **U**
- Bar-shouldered Dove **C**
- Wonga Pigeon **U**
- Rose-crowned Fruit-dove **U**
- Topknot Pigeon **U**
- Cockatoos, Parrots & Lorikeets**
- Glossy Black Cockatoo **R**
- Yellow-tailed Black Cockatoo **U**
- Galah **C**
- Little Corella **C**
- Long-billed Corella **U**
- Sulphur-crested Cockatoo **C**
- Cockatiel **R**
- Rainbow Lorikeet **C**
- Scaly-breasted Lorikeet **C**
- Crimson Rosella **R**
- Eastern Rosella **C**
- Cuckoos**
- Pheasant Coucal **C**
- Common Koel **C**
- Channel-billed Cuckoo **C**
- Horsfield's Bronze-Cuckoo **U**
- Shining Bronze-Cuckoo **C**
- Little Bronze-Cuckoo **U**
- Pallid Cuckoo **R**
- Fan-tailed Cuckoo **C**
- Brush Cuckoo **C**
- Kingfishers & Allies**
- Azure Kingfisher **C**
- Laughing Kookaburra **C**
- Forest Kingfisher **C**
- Sacred Kingfisher **C**
- Rainbow Bee-eater **C**
- Dollarbird **C**
- Swifts & Woodswallows**
- White-throated Needletail **C**
- White-breasted Woodswallow **C**
- Masked Woodswallow **R**
- White-browed Woodswallow **R**
- Swallows & Martins**
- Welcome Swallow **C**
- Fairy Martin **C**
- Tree Martin **C**
- Fairy-wrens**
- Superb Fairy-wren **C**
- Red-backed Fairy-wren **C**
- Variegated Fairy-wren **C**
- Scrubwrens, Thornbills & Pardalotes**
- White-browed Scrubwren **C**
- Large-billed Scrubwren **U**
- Brown Gerygone **R**
- Mangrove Gerygone **U**
- White-throated Gerygone **C**
- Striated Thornbill **R**
- Yellow-rumped Thornbill **R**
- Yellow Thornbill **U**
- Brown Thornbill **C**
- Striated Pardalote **C**
- Honeyeaters**
- Eastern Spinebill **C**
- Lewin's Honeyeater **C**
- Yellow-faced Honeyeater **C**
- Noisy Miner **C**
- Little Wattlebird **C**
- Red Wattlebird **R**
- Scarlet Honeyeater **C**
- Brown Honeyeater **C**
- White-cheeked Honeyeater **C**
- Blue-faced Honeyeater **U**
- Noisy Friarbird **C**
- Little Friarbird **U**
- Striped Honeyeater **C**
- Whipbirds, Cuckoo-shrikes & Trillers**
- Eastern Whipbird **C**
- Black-faced Cuckoo-shrike **C**
- White-bellied Cuckoo-shrike **U**
- Cicadabird **U**
- White-winged Triller **U**
- Varied Triller **U**
- Whistlers & Shrike-thrushes**
- Golden Whistler **C**
- Rufous Whistler **U**
- Little Shrike-thrush **U**
- Grey Shrike-thrush **C**
- Figbirds & Orioles**
- Australian Figbird **C**
- Olive-backed Oriole **C**
- Crows, Butcherbirds & Allies**
- Torresian Crow **C**
- Grey Butcherbird **C**
- Pied Butcherbird **C**
- Australian Magpie **C**
- Pied Currawong **C**
- Spangled Drongo **C**
- Fantails, Monarchs & Flycatchers**
- Willy Wagtail **C**
- Rufous Fantail **R**
- Grey Fantail **C**
- Black-faced Monarch **U**
- Spectacled Monarch **U**
- Leaden Flycatcher **C**
- Satin Flycatcher **R**
- Restless Flycatcher **C**
- Magpie-lark **C**
- Robins**
- Red-capped Robin **R**
- Rose Robin **R**
- Eastern Yellow Robin **C**
- Reed-warblers & Grassbirds**
- Golden-headed Cisticola **C**
- Australian Reed-Warbler **C**
- Little Grassbird **C**
- Tawny Grassbird **C**
- Rufous Songlark **R**
- White-eyes & Flowerpeckers**
- Silvereye **C**
- Mistletoebird **C**
- Sparrows, Starlings & Mynas**
- House Sparrow **I, R**
- Common Starling **I, R**
- Common Myna **I, U**
- Finches & Mannikins**
- Double-barred Finch **C**
- Red-browed Finch **C**
- Chestnut-breasted Mannikin **C**
- Thrushes, Pipits & Wagtails**
- Russet-tailed Thrush **R**
- Australian Pipit **U**
- Eastern Yellow Wagtail **R**
- New Species**
- 
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