Threatened bird species in the Hunter Region: 2016 status review

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Eighty-nine species or sub-species which have been recorded within the Hunter Region are classified as threatened under at least one of three relevant conservation classification schemes – the *Threatened Species Conservation Act 1995* of NSW, the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the International Union for Conservation of Nature (IUCN) review. The majority of them are also classified as threatened in the Action Plan for Australia's Birds. The ratings for these 89 threatened species or sub-species under all four conservation classification schemes have been collated and recent local trends have been summarised.

Many threatened species are no longer recorded locally in the numbers that historically were considered typical. For most, the main declines occurred one or more decades ago and their local status has not changed so much in recent times. However, the prospects for nine species have warranted discussion. They are: Gould's Petrel *Pterodroma leucoptera*; Eastern Curlew *Numenius madagascariensis*; Bar-tailed Godwit *Limosa lapponica*; Black-tailed Godwit *Limosa limosa*; Red Knot *Calidris canutus*; Swift Parrot *Lathamus discolor*; Rufous Scrub-bird *Atrichornis rufescens*; Regent Honeyeater *Anthochaera phrygia* and Hooded Robin *Melanodryas cucullata*.

INTRODUCTION

Roderick & Stuart (2010) discussed 74 species and sub-species occurring in the Hunter Region that had been listed as threatened under the *Threatened Species Conservation* (TSC) *Act 1995* of New South Wales. The TSC Act is the primary legislation for the protection of threatened flora and fauna species in NSW. The *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999* is the equivalent threatened species legislation at the Commonwealth level. It is applicable for many Hunter Region species. Another measure of conservation status was developed by the International Union for Conservation of Nature (IUCN 2009). It can be applied at sub-species level as well as species level. Some species and sub-species that occur in the Region have IUCN conservation ratings.

The 2010 list of threatened species (Roderick & Stuart 2010) focussed on TSC Act species, also noting whenever there were any EPBC or IUCN classifications for them. Since 2010, changes have occurred for a variety of reasons:

- some additional Hunter Region species have been listed under the TSC Act and/or the EPBC Act;
- some species, which already were listed, have been reclassified into a different threatened species category; and
- some threatened seabird subspecies have been elevated to full species level.

The nomenclature and taxonomy used in this paper follows BirdLife Australia Working List V2 (BirdLife Australia 2015). There now are 89 Hunter Region species and sub-species listed as threatened under the TSC and/or EPBC Acts, or under an IUCN classification. The prime objectives for this paper were to collate the conservation status for those species and subspecies and, for each, to review what changes may have occurred since the previous paper (Roderick & Stuart 2010). Nine species whose prospects were considered to have deteriorated have been discussed in more detail.

The Action Plan for Australian Birds (APAB) (Garnett *et al.* 2011) also assigned a conservation status to many species and sub-species which occur in the Hunter Region. For local species with TSC, EPBC or IUCN ratings, their APAB classifications are also presented in this paper. A complete set of all the APAB listed species has not been included, for space reasons (and overlap, in many instances).

Threatened Species Classifications

The three classification schemes, TSC, EPBC and IUCN, can broadly be considered to reflect state, national and international perspectives, respectively. All use an escalating set of terms to describe threatened species: Vulnerable (V), Endangered (E), Critically Endangered (CE) or Presumed Extinct (PE). The IUCN also uses Near Threatened (NT) for species they consider are at risk of becoming threatened, and Least Concern (LC) for species not considered threatened. In certain circumstances, these classifications may be applied to a sub-species or to a local population.

The key threats vary across the various bird guilds: waterbirds, migratory shorebirds, beach-nesting birds, rainforest birds, nocturnal birds, woodland birds, birds of prey. Roderick & Stuart (2010) provide a summary of them, and describe the unique threats which are applicable for certain species.

Acronyms/Abbreviations

APAB: Action Plan for Australia's Birds
BLA: BirdLife Australia
CTI: Cabbage Tree Island
CE: Critically Endangered
E: Endangered
EP: Endangered Population
EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999*
HBOC: Hunter Bird Observers Club Inc.
HEZ: Hunter Economic Zone
IBA: Important Bird & Biodiversity Area
IUCN: International Union for Conservation of Nature
LC: Least Concern
NP: National Park
NR: Nature Reserve
NSW: New South Wales
NT: Near Threatened
SP: State Park
TSC Act: *Threatened Species Conservation Act 1995* (NSW)
V: Vulnerable

METHODS

The paper is focussed on capturing changes in status for threatened Hunter Region bird species since 2010 (Roderick & Stuart 2010). The information presented then is not re-presented here, other than *inter alia* when the status changes for some species are discussed.

The geographical extent of the Hunter Region has been defined in each year's Bird Report (Stuart 2011-2016) and in several publications, for example, Newman *et al.* (2010). Also, a Google Earth shapefile for the Region is available at http://www.hboc.org.au/resources/hunter-region/.

A major information source was HBOC data from the Annual Bird Reports for the Hunter Region spanning the years 2010-2015 (Stuart 2011-2016). This information was supplemented by other published articles (as referenced herein), data in the BLA Atlas database (which is made available to HBOC as an annual update) and observations made by either of the two authors during their field work.

Although databases managed by other organisations contain additional records for the Hunter Region, these were not used. Whilst they may have allowed further insights, there were two important difficulties. In some cases, access to the database was not readily available and in other cases the vetting process for records was considered to have been less rigorous than desirable. All HBOC records are subjected to scrutiny by a Records Appraisal Committee, comprising seven experienced local observers, before they are accepted into the Club's database.

DISCUSSION

Hunter Region Threatened Species

The main changes which have occurred since Roderick & Stuart (2010) are summarised in **Table 1**. One species (Hooded Plover *Thinornis cucullatus*) is a very recent addition to the Hunter Region checklist. Twenty other species have been newly listed under the TSC or EPBC Acts, or have had their pre-2010 classifications changed. **Table 1** includes three former sub-species of albatross which are now treated as full species under current BLA taxonomy.

There now are 89 species occurring in the Hunter Region which are classified as threatened under the TSC and/or EPBC Acts, or the IUCN ratings. Also, one species, the Antipodean Albatross *Diomedea antipodensis*, has two threatened sub-species; the nominate Antipodean Albatross *D.a. antipodensis* and Gibson's Albatross *D.a. gibsoni*. **Table 2** summarises TSC, EPBC and IUCN classifications for all the Hunter Region species and sub-species.

In mid-2016, the NSW Scientific Committee made a Preliminary Determination to list the White-bellied Sea-Eagle *Haliaeetus leucogaster* as Vulnerable. As the Committee's decision had not been finalised at the time of writing, comments about this species have not been included.

Table 1. Changes in conservation classification under the EPBC Act and/or TSC Act since 2010.

Species	**Change(s)**
Lesser Sand Plover *Charadrius mongolus*	Newly listed in 2016 as Endangered under the EPBC Act.
Greater Sand Plover *Charadrius leschenaultii*	Newly listed in 2016 as Vulnerable under the EPBC Act.
Hooded Plover *Thinornis cucullatus*	A new addition to the Hunter Region checklist in July 2016.
Australian Painted Snipe *Rostratula australis*	Reclassified in 2013 as Endangered under the EPBC Act.
Eastern Curlew *Numenius madagascariensis*	Newly listed in 2015 as Critically Endangered under the EPBC Act.
Bar-tailed Godwit *Limosa lapponica*	The subspecies *menzbieri* (with no confirmed Hunter Region records) was newly listed as Critically Endangered under the EPBC Act in 2016 and the local subspecies *baueri* as Vulnerable.
Great Knot *Calidris tenuirostris*	Newly listed in 2016 as Critically Endangered under the EPBC Act and reclassified as Endangered on the IUCN Red List.
Red Knot *Calidris canutus*	Newly listed in 2016 as Endangered under the EPBC Act.
Curlew Sandpiper *Calidris ferruginea*	Newly listed in 2011 as Endangered under the TSC Act. Newly listed in 2015 as Critically Endangered under the EPBC Act.
Antipodean Albatross *Diomedea antipodensis*	Upgraded to full species, from formerly a sub-species of Wandering Albatross *D. exulans.* Both the nominate Antipodean Albatross *D.a. antipodensis* and Gibson's Albatross *D.a. gibsoni* are listed as Vulnerable under the EPBC Act. There are no changes to the listing under the TSC Act.
Buller's Albatross *Thalassarche bulleri*	Listed as Vulnerable under the EPBC Act (it is not listed under the TSC Act which is why it was not included into the previous paper (Roderick & Stuart 2010)).
Campbell Albatross *Thallassarche impavida*	Upgraded to full species, from formerly a sub-species of Black-browed Albatross *T. melanophrys*. It has been assumed that there were no changes to the conservation status that had been assigned to it as a sub-species.
Shy Albatross *Thallassarche cauta*	Upgraded to full species, i.e. split from being the nominate sub-species of Shy Albatross *T. cauta* from White-capped Albatross *T.c. steadi*.
White-capped Albatross *Thallassarche steadi*	Upgraded to full species, split from nominate sub-species of Shy Albatross *T. cauta*. The species is not listed as threatened under the EPBC Act as a distinct species, but has been presumed to be included within the former Shy Albatross *T. cauta* under the TSC Act.
Salvin's Albatross *Thallassarche salvini*	Upgraded to full species, from formerly a sub-species of Shy Albatross *Thallassarche cauta*. It has been assumed that there were no changes to the conservation status that had been assigned to it as a sub-species.
Australasian Bittern *Botaurus poiciloptilus*	Newly listed in 2011 as Endangered under the EPBC Act.
Black Falcon *Falco subniger*	Newly listed in 2013 as Vulnerable under the TSC Act.
Swift Parrot *Lathamus discolor*	Reclassified in 2016 as Critically Endangered under the EPBC Act.
Rufous Scrub-bird *Atrichornis rufescens*	Reclassified in 2015 as Endangered under the EPBC Act.
Painted Honeyeater *Grantiella picta*	Newly listed in 2015 as Vulnerable under the EPBC Act.
Regent Honeyeater *Anthochaera phrygia*	Reclassified in 2015 as Critically Endangered under the EPBC Act.
Dusky Woodswallow *Artamus cyanopterus*	Newly listed in 2016 as Vulnerable under the TSC Act.

Table 2. Threatened bird species of the Hunter Region.

Species	Conservation Status				Hunter Region			
	NSW	**EPBC**	**IUCN**	**APAB**	**Regional Status**	**Main Local Threats**	**Trend since 2010**	**Comments**
Emu *Dromaius novaehollandiae*	EP[#]	–	–	–	Uncommon resident.	Predation of chicks.	Low population in W of Region (not included in EP).	The NE population in the Region, which would form part of the EP, is probably extinct (the last confirmed record was in 1935).
Magpie Goose *Anseranas semipalmata*	V	–	LC	–	Resident.	Availability of suitable habitat.	Slightly increasing (now ~120 birds).	The population (which is derived from a re-introduction) remains confined to a few lower Hunter wetlands.
Blue-billed Duck *Oxyura australis*	V	–	NT		Rare visitor.	–	Regular records, although always of only 1-2 birds.	Predominantly a species of the southern Murray-Darling Basin.
Freckled Duck *Stictonetta naevosa*	V	–	LC		Uncommon visitor.	–	Greater numbers have been visiting since 2013 (up to ~150 birds).	Predominantly an inland species: the Hunter Region is a drought refuge.
Cotton Pygmy-goose *Nettapus coromandelianus*	E	–	LC		Accidental.	–	N/A (it is a vagrant).	There have been no records since 2002.
Wompoo Fruit-Dove *Ptilinopus magnificus*	V	–	LC		Resident.	Effects from climate change.	Small regional population; probably stable.	Considered likely to be resident, but there have been no breeding records.
Superb Fruit-Dove *Ptilinopus superbus*	V	–	LC		Accidental.	–	N/A (it is a vagrant).	There have been no confirmed records since 2009.
Rose-crowned Fruit-Dove *Ptilinopus regina*	V	–	LC		Accidental.	Much of the core range lies within areas zoned for conservation.	N/A (essentially a vagrant).	There was a spate of records in 2014 and some in 2015. Largely this reflected observer behaviour (i.e. repetitive visits to a known site where abundant fruit available and birds present).
Brolga *Antigone rubicunda*	V	–	LC	–	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	Birds were recorded near Nabiac in 2014 and Martindale in 2015 (only the second and third confirmed records for the Region).
Bush Stone-Curlew *Burhinus grallarius*	E	–	LC	–	Uncommon resident.	Predation, disturbance near nest sites, habitat modification.	Very small regional population; possibly it is stable.	At least six pairs in the Port Stephens area but with poor breeding success. Few records from elsewhere (and no breeding records outside Port Stephens).
Beach Stone-Curlew *Esacus magnirostris*	CE	–	NT	–	Rare resident.	Stochastic events impacting the very small population.	Increasing (from a very small base).	The Manning Estuary pair is having regular breeding success. A pair has established in Port Stephens and has raised several chicks.
Australian Pied Oystercatcher *Haematopus longirostris*	E	–	LC	–	Resident.	Disturbance along beaches in the breeding season, predation.	The non-breeding population is increasing. The smaller breeding population appears to be stable.	Breeding success continues to be poor. Recruitment to the non-breeding population is assumed to be mainly from outside of the Region.
Sooty Oystercatcher *Haematopus fuliginosus*	V	–	LC	–	Resident.	Disturbance, predation.	The non-breeding population is increasing. The smaller breeding population appears to be stable.	The breeding success rate is unclear as there are relatively few visits to offshore islands. Recruitment to the non-breeding population might be from outside of the Region.

[#]*The North Coast Bioregion (which lies partly within the Hunter Region) forms part of the Endangered Population (EP)*

Table 2. Threatened bird species of the Hunter Region cont.

Species	Conservation Status				Hunter Region			
	NSW	**EPBC**	**IUCN**	**APAB**	**Regional Status**	**Main Local Threats**	**Trend since 2010**	**Comments**
Lesser Sand Plover *Charadrius mongolus*	V	E	LC	E	Uncommon summer migrant.	The main threat lies outside the Region: loss of key staging sites during migration.	Stable (with a very small base).	Reports have been confined to the Hunter Estuary. Small numbers, typically 1-5 birds, have visited each summer (*cf* many hundreds visiting in the 1970s).
Greater Sand Plover *Charadrius leschenaultii*	V	V	LC	V	Accidental summer migrant.	Loss of key staging sites (outside of the Region).	N/A (essentially a vagrant).	The recent records have been of 1-2 birds (briefly) in 2012, 2013 and 2016.
Hooded Plover *Thinornis cucullatus*	CE	V	V	V	Accidental.	Disturbance at breeding sites (outside of the Region)	N/A	The first confirmed record occurred in July 2016, a juvenile bird in the Worimi Conservation Lands along Newcastle Bight.
Australian Painted Snipe *Rostratula australis*	E	E	E	E	Rare summer migrant.	Loss of habitat.	Uncertain, as detection of this cryptic species is haphazard. The decline evident at a national level is probably occurring locally.	Sizable aggregations (4-19 birds) were recorded each year over 2011-14 but there have been no records since January 2014. The incidences of multiple records usually reflect follow-up observer effort after an initial sighting.
Comb-crested Jacana *Irediparra gallinacea*	V	–	LC	–	Uncommon resident.	Loss of habitat (many sites with records are on private property).	Probably stable. Reports are haphazard apart from at one key site, the Cattai Wetlands near Coopernook.	Birds breed at Cattai Wetlands and have been regularly recorded there in recent years. A pair bred at a known breeding site near Mulbring in 2010 but no birds have been reported from there since 2011.
Eastern Curlew *Numenius madagascariensis*	–	CE	E	V	Common summer migrant.	Loss of key staging sites (outside of the Region) and loss of feeding and roosting sites locally.	Numbers in the Hunter Estuary and Port Stephens have been declining since 2014, after having appeared reasonably stable during 2010-13. There has been a small increase in numbers in the Manning Estuary.	Port Stephens and the Hunter Estuary are internationally significant sites. Both have routinely hosted 300+ visiting birds (>1% of total world population) over many decades. The Manning Estuary is of lesser importance, but it is nationally significant. See Discussion for additional comments.
Bar-tailed Godwit *Limosa lapponica baueri*	–	V	–	V	Common summer migrant.	Loss of key staging sites (outside of the Region) and loss of feeding and roosting sites locally.	Numbers in the Hunter Estuary have been declining steadily, and declining also in Port Stephens.	The Hunter Estuary and Port Stephens continue to host 500-800 birds and with many juvenile birds over-wintering. The Manning Estuary also hosts 100-200 birds. However, notable declines are occurring. See Discussion for additional comments.
Black-tailed Godwit *Limosa limosa*	V	–	NT	NT	Summer migrant.	Loss of key staging sites (outside of the Region) and loss of feeding and roosting sites locally.	A year-on-year decline in numbers has been occurring. This is a continuation of a longer term trend. The numbers now are 85-90% lower than in the 1970s.	The Hunter Estuary is now the only site where birds are recorded (it has always been by far the main site). Counts have decreased to 50-60 birds staying over the extended non-breeding season (with some counts during migration passage of ~100 birds).
Great Knot *Calidris tenuirostris*	V	CE	E	V	Uncommon summer migrant.	Loss of key staging sites (outside of the Region) and loss of feeding and roosting sites locally.	Stable (with a very small base).	There have been very few records from outside of the Hunter Estuary. For decades, the numbers visiting have usually been low, apart from occasional exceptions.

Table 2. Threatened bird species of the Hunter Region cont.

Species	Conservation Status				Hunter Region			
	NSW	**EPBC**	**IUCN**	**APAB**	**Regional Status**	**Main Local Threats**	**Trend since 2010**	**Comments**
Red Knot *Calidris canutus*	–	E	NT	V	Summer migrant and bird of passage.	Loss of key staging sites (outside of the Region) and loss of feeding and roosting sites locally.	The numbers visiting the Hunter Estuary have continued to decline.	There have been very few records from outside of the Hunter Estuary. See Discussion for additional comments.
Broad-billed Sandpiper *Calidris falcinellus*	V	–	LC	–	Rare summer migrant.	Loss of key staging sites (outside of the Region).	N/A (essentially a vagrant).	There were several records from the Hunter Estuary over 2012-14, with a peak count of six birds in January 2014 (*cf* many hundreds visiting in the 1970s).
Curlew Sandpiper *Calidris ferruginea*	E	CE	NT	V	Summer migrant.	Loss of key staging sites (outside of the Region) and loss of feeding and roosting sites locally.	Declining. Peak counts now (of ~100 birds) are around 50% of the numbers being recorded in 2010.	There has been a decline of ~95% in numbers visiting the Hunter Estuary each year. However, for 2013-2015 the numbers appear to have stabilised.
Sanderling *Calidris alba*	V	–	LC		Uncommon summer migrant.	Loss of key staging sites (outside of the Region).	Declining. Peak counts of 10-15 birds have been recorded in the Manning Estuary in recent years, *cf* 15-30+ birds during 2000-2010.	Most records are from the Manning Estuary, which was not often visited prior to about 2000. This makes it difficult to be clear about longer term trends. The Hunter Region seems never to have been a stronghold.
Terek Sandpiper *Xenus cinereus*	V	–	LC	–	Uncommon summer migrant.	Loss of key staging sites (outside of the Region).	The numbers visiting the Hunter Estuary have continued to decline. This is a continuation of a longer term trend.	There have been very few records from outside of the Hunter Estuary. The peak counts have now declined to fewer than 15 birds.
Red-backed Button-quail *Turnix maculosus*	V	–	LC	–	Accidental.	Loss of habitat.	N/A (essentially a vagrant).	There have been just two records since 2010 (from Crowdy Bay NP, December 2011 and Tuncurry, February 2014).
Grey Noddy *Procelsterna albivitta*	V	–	LC	–	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been no records since 2002.
White Tern *Gygis alba*	V	–	LC	–	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been only 4 records since 2003 – including of a bird at Wybong (~125km from nearest coastline) in March 2015
Sooty Tern *Onychoprion fuscatus*	V	–	LC	–	Uncommon summer bird of passage.	–	Probably stable. In most years there have been just a handful of records, involving 1-3 birds.	In the wake of Cyclone Oswald (January 2013), many hundreds were recorded off the Region's coastline reflecting a NSW-wide phenomenon.
Little Tern *Sternula albifrons*	E	–	LC	–	Summer migrant.	Disturbance, predation, impacts from climate change (an increased frequency of extreme weather events).	The trend is uncertain but probably declining. Major Manning Estuary breeding colonies have been affected by loss of habitat through storms and siltation. Newly established breeding colonies elsewhere have experienced poor success.	The Manning Point sandspit disappeared in a 2011 storm event, while ongoing siltation at the Old Bar site has had a negative impact. Attempts at new colonies at Fern Bay (Newcastle Bight), Winda Woppa (Port Stephens) and Swansea (Lake Macquarie) have not fledged many chicks. Despite this, overall numbers in the Region continue to be high (500-700 birds).
Red-tailed Tropicbird *Phaethon rubricauda*	V	–	LC	NT	Accidental.	–	N/A (it is a vagrant species).	Recorded in 2011 and 2016.

Table 2. Threatened bird species of the Hunter Region cont.

Species	Conservation Status				Hunter Region			
	NSW	EPBC	IUCN	APAB	Regional Status	Main Local Threats	Trend since 2010	Comments
White-bellied Storm-Petrel *Fregetta grallaria*	V	V	LC	V	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been no records since 2010.
Wandering Albatross *Diomedea exulans*	E	E	V	CE	Uncertain	The main threats lie outside the Region.	Probably stable. The frequency of recording has not changed.	Two recent records (in 2011 and 2012) have been of birds banded on the Crozet Islands in the southern Indian Ocean.
Antipodean Albatross *Diomedea antipodensis*	V	V	V	E	Uncommon winter migrant.	The main threats lie outside the Region.	Probably stable. The frequency of recording has not changed.	Includes two sub-species, *D. a. antipodensis and D. a. gibsoni* ("Gibson's Albatross"), which are recognised as separate species under some other taxonomic sources.
Grey-headed Albatross *Thalassarche chrysostoma*	-	E	E	CE	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	Two separate beach-cast birds were found along Newcastle Bight in 2014.
Black-browed Albatross *Thallassarche melanophrys*	V	V	NT	E	Common winter migrant.	The main threats lie outside the Region.	Probably stable. The frequency of recording has not changed.	Most sightings are of "Black-browed type" as it is difficult to separate Campbell and Black-browed Albatross unless close views are obtained.
Campbell Albatross *Thallassarche impavida*	V	V	V	V	Winter migrant.	The main threats lie outside the Region.	Probably stable. The frequency of recording has not changed.	Most sightings are of "Black-browed type" as it is difficult to separate Campbell and Black-browed Albatross unless close views are obtained.
Buller's Albatross *Thalassarche bulleri*	-	V	NT	NT	Uncommon winter migrant.	The main threats lie outside the Region.	Increasing.	Birds have become more regular visitors in winter since 2012.
Shy Albatross *Thallassarche cauta*	V	V	NT	V	Probably an uncommon winter migrant.	The main threats lie outside the Region.	Uncertain.	Separation from White-capped Albatross is difficult; most sightings are recorded as "Shy-type".
White-capped Albatross *Thallassarche steadi*	V	-	NT	V	Probably a common winter migrant.	The main threats lie outside the Region.	Uncertain (probably stable).	Separation from Shy Albatross is difficult; most sightings are recorded as "Shy-type". The TSC Act does not treat this as a distinct species.
Salvin's Albatross *Thallassarche salvini*	V	V	V	V	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	The TSC Act does not treat this as a distinct species. There were some reports from the period 2002-2008. These were not reviewed at the time as it was then being treated as a sub-species of Shy Albatross.
Northern Giant-Petrel *Macronectes halli*	V	V	LC	–	Uncommon winter migrant.	The main threats lie outside the Region.	Probably stable. However, there were no confirmed records in 2014 or 2015.	Giant-Petrels seen from land are hard to identify; they are considered more likely to be this species nowadays.
Southern Giant-Petrel *Macronectes giganteus*	E	E	LC	–	Uncommon winter migrant.	The main threats lie outside the Region.	Possibly declining. There have been relatively few reports since 2010.	No records in 2011 or 2013, 1-2 records per year in other years, which is in line with pre-2010 findings.

Table 2. Threatened bird species of the Hunter Region cont.

Species	Conservation Status				Hunter Region			
	NSW	EPBC	IUCN	APAB	Regional Status	Main Local Threats	Trend since 2010	Comments
Gould's Petrel *Pterodroma leucoptera*	V	E	V	V	Uncommon breeding summer migrant	Stochastic events impacting upon the relatively small breeding population. Prior threats managed.	Breeding range has further expanded. The trend was positive until 2015-16.	Predation rates have increased and the April 2015 storm damage on Cabbage Tree Island opened the breeding area to invasive weeds. See Discussion for additional comments.
Black-winged Petrel *Pterodroma nigripennis*	V	–	LC	–	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been no records since 2007.
Providence Petrel *Pterodroma solandri*	V	–	V	V	Common autumn to spring visitor.	The main threats lie outside the Region.	Uncertain.	The usual peak counts are of 20-30 birds; in 2011-13 almost all counts were of <5 birds but 2014 and 2015 were normal.
Kermadec Petrel *Pterodroma neglecta*	V	V	LC	E	Uncommon summer visitor.	The main threats lie outside the Region.	Probably stable. There have been records of single birds in 2011, 2012, 2014 and 2016.	There also were several pre-2010 records.
Flesh-footed Shearwater *Ardenna carneipes*	V	–	LC	NT	Summer migrant.	The main threats lie outside the Region.	Probably stable locally, although there are threats at the breeding grounds.	Fewer birds were recorded in 2015 but no long-term trend has been noted.
Little Shearwater *Puffinus assimilis*	V	–	LC	V	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been no records since 2007.
Black-necked Stork *Ephippiorhynchus asiaticus*	E	–	NT	–	Rare resident.	Inappropriate hydrological management practices.	Small regional population; probably stable. Breeding range may have expanded.	A pair appears to have bred in the Hunter Valley in 2015-16, for the first time.
Australasian Bittern *Botaurus poiciloptilus*	E	E	E	E	Rare resident.	Inappropriate hydrological management practices, climate change	Possibly declining. Impacted by returning of brackish/ saline waters to some previously occupied sites.	Tomago Wetlands no longer is suitable. Some freshwater habitat loss at Hexham Swamp also.
Black Bittern *Ixobrychus flavicollis*	V	–	LC	–	Rare resident.	Climate change (rising sea levels)	Small regional population; probably stable.	There are only a few records each year for this cryptic species.
Masked Booby *Sula dactylatra*	V	–	LC	NT	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	A bird of the race *fullagari* (which breeds on Lord Howe and Norfolk Islands) was recorded in 2013.
Osprey *Pandion haliaetus*	V	–	LC	–	Resident.	Water quality impacts affecting their feeding habitat.	Possibly increasing.	More than 25 breeding pairs estimated to be in the Region. The Hunter Estuary is the only site with no breeding records.
Square-tailed Kite *Lophoictinia isura*	V	–	LC	–	Uncommon resident.	Some of the local habitat is unprotected.	Small regional population; probably stable.	Most records are from the Maitland/Cessnock and Coopernook/ Harrington areas.
Little Eagle *Hieraaetus morphnoides*	V	–	LC	–	Resident.	Loss and degradation of woodland habitat.	Small regional population; possibly it is stable.	Widespread distribution, but there have been no breeding records since 2001.

Table 2. Threatened bird species of the Hunter Region cont.

Species	Conservation Status				Hunter Region			
	NSW	EPBC	IUCN	APAB	Regional Status	Main Local Threats	Trend since 2010	Comments
Spotted Harrier *Circus assimilis*	V	–	LC	–	Uncommon bird of passage.	Uncertain (not known to breed within the Region).	There has been an increase in the reporting rates and perhaps a range expansion.	Many more records since 2013, including some from NE of the Region and Broughton Island.
Eastern Grass Owl *Tyto longimembris*	V	–	LC	–	Rare resident.	Industrial developments around territories in the Hunter Estuary.	Uncertain.	The frequency of reporting has never been high. There have been no reports of the Crowdy Bay NP population since 2006; there is no reason to suspect it may be under threat although there were major fires in that area in 2014. Occasional reports continue to be received from within the Hunter Estuary.
Greater Sooty Owl *Tyto tenebricosa*	V	–	LC	–	Rare resident.	Much of the core range lies within areas zoned for conservation.	Probably stable.	The frequency of reporting has never been high.
Masked Owl *Tyto novaehollandiae*	V	–	LC	–	Rare resident.	Much of the core range lies within areas zoned for conservation.	Probably stable.	The frequency of reporting has never been high.
Powerful Owl *Ninox strenua*	V	–	LC	–	Resident.	Much of the core range lies within areas zoned for conservation.	Stable, possibly increasing.	Each year there are numerous records, from many different locations (including breeding records).
Barking Owl *Ninox connivens*	V	–	LC	NT	Rare resident.	Much of the core range lies within areas zoned for conservation.	Probably stable.	Core areas such as the Wollemi/Yengo wilderness are visited infrequently. There were regular 2014 and 2015 winter records from Green Point Lake Macquarie, considerably east of the usual range. Occasionally reported from Cessnock woodlands.
Black Falcon *Falco subniger*	V	–	LC	–	Uncommon resident.	Loss and degradation of woodland habitat.	Small regional population; probably it is stable.	Listed under the TSC Act in 2013.
Glossy Black-Cockatoo *Calyptorhynchus lathami*	V	–	LC	NT	Uncommon resident.	Much of the core range lies within areas zoned for conservation.	Probably stable.	There have continued to be frequent records from many parts of the Region, where *Allocasuarina* tree species exist.
Gang-gang Cockatoo *Callocephalon fimbriatum*	V	–	LC	–	Resident.	Most of the core range lies within areas zoned for conservation.	Probably stable.	There have continued to be frequent records from the southern parts of the Region, particularly from around and near to the Watagans.
Swift Parrot *Lathamus discolor*	E	CE	CE	E	Uncommon winter migrant.	Ongoing loss of the preferred habitat on the Hunter Valley floor.	Declining.	The local pressures (loss and threats of loss of habitat) compound the significant issues occurring at a national level. See Discussion for additional comments.
Turquoise Parrot *Neophema pulchella*	V	–	LC	–	Uncommon resident.	Ongoing loss of the preferred habitat on the Hunter Valley floor.	Uncertain. The regional population is small and dispersed, making it difficult to obtain a clear overall picture.	Several records have been received each year since 2010, including of the isolated population in Myall Lakes NP.

Table 2. Threatened bird species of the Hunter Region cont.

Species	Conservation Status				Hunter Region			
	NSW	**EPBC**	**IUCN**	**APAB**	**Regional Status**	**Main Local Threats**	**Trend since 2010**	**Comments**
Ground Parrot *Pezoporus wallicus*	V	-	LC	-	Probably extinct	The main threats lie outside the Region.	N/A (may be extinct).	There have been no records since 1935. This species was not discussed in Roderick & Stuart (2010), which focussed on modern records.
Little Lorikeet *Glossopsitta pusilla*	V	–	LC		Resident.	Ongoing loss of the preferred habitat on the Hunter Valley floor.	Possibly declining.	There have continued to be many reports each year, often of large feeding flocks; however, the reporting rates for 2013-15 were considerably below the long-term reporting rate.
Rufous Scrub-bird *Atrichornis rufescens*	V	E	E	E	Resident.	Climate change (leading to formation of high altitude "islands")	Stable, possibly declining.	Regular monitoring of a core population in the high altitude Gloucester Tops since 2010 suggests stability. However, there have been no records from lower altitudes where territories were previously known. See Discussion for additional comments.
Brown Treecreeper *Climacteris picumnus*	V	–	LC	NT	Resident.	Habitat loss and habitat fragmentation.	Probably declining. Although still common inland, and with consistent Atlas reporting rates, birds have disappeared from some areas.	One of the most easterly known breeding populations, at HEZ, remains under threat from development.
Painted Honeyeater *Grantiella picta*	V	V	V	V	Uncommon spring/summer visitor.	Loss of habitat. The majority of records are from private property in the Martindale valley.	Uncertain, probably stable. The regional population is small and unpredictable, making it difficult to obtain a clear overall picture.	Anecdotal reports continue to be received regularly, particularly from the Martindale Valley. Reporting Rates from the BirdLife Atlas suggest the population may be stable but there are limited data.
Black-chinned Honeyeater *Melithreptus gularis*	V	–	LC	NT	Uncommon resident.	Ongoing loss of the preferred habitat on the Hunter Valley floor.	Uncertain. The regional population is small and dispersed, making it difficult to obtain a clear overall picture.	Anecdotal reports continue to be received regularly. Reporting Rates from the BirdLife Atlas suggest the population may be stable but there are limited data.
Pied Honeyeater *Certhionyx variegatus*	V	–	LC		Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been no records since 2008.
White-fronted Chat *Epthianura albifrons*	V	–	LC	–	Resident.	Loss of saltmarsh habitat from mangrove incursion and industrial development.	Probably increasing. However, the coastal population appears now to be restricted to the Hunter Estuary (few records for Manning Estuary or Port Stephens, although small numbers are occasionally reported from Newcastle Bight).	Restoration of tidal inundations at Tomago Wetlands and Hexham Swamp has proven very positive. Both sites host sizable populations (of 20-50 birds) and often with breeding records. The Ash Island population appears to have relocated to Hexham Swamp.
Regent Honeyeater *Anthochaera phrygia*	CE	CE	CE	CE	Uncommon bird of passage.	Ongoing loss of the preferred habitat on the Hunter Valley floor.	Declining.	The local pressures (loss and threats of loss of habitat) compound the significant issues occurring at a national level. See Discussion for additional comments.

Table 2. Threatened bird species of the Hunter Region cont.

Species	Conservation Status				Hunter Region			
	NSW	EPBC	IUCN	APAB	Regional Status	Main Local Threats	Trend since 2010	Comments
Speckled Warbler *Chthonicola sagittata*	V	–	LC	–	Resident.	Habitat loss, often from changed land management practices.	Probably stable, from a regional perspective. Birds have disappeared from some areas after land-use changes.	Atlas reporting rates have fluctuated year-on-year but are broadly stable over the long term. Understorey regrowth appears detrimental for this species.
Grey-crowned Babbler *Pomatostomus temporalis*	V	–	LC	–	Resident.	Habitat loss and fragmentation.	Apparently stable. The Atlas reporting rates have fluctuated year-on-year but are broadly stable over the long term.	Small groups continue to be reported frequently from across much of the Hunter Valley. However, some groups may be isolated populations that are in decline.
Varied Sittella *Daphoenositta chrysoptera*	V	–	LC	–	Resident.	Habitat fragmentation, habitat modification.	Declining. The Atlas reporting rates over 2010-2014 lie considerably below their long-term average.	Varied Sittella territories typically are 13-20 ha with a preference for rough-barked trees, hence their susceptibility to habitat fragmentation or modification.
Barred Cuckoo-shrike *Coracina lineata*	V	–	LC	–	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been no records since 2004.
Olive Whistler *Pachycephala olivacea*	V	–	LC	–	Resident.	Climate change (leading to formation of high altitude "islands")	Apparently stable. Much of the core range lies within the Barrington Tops NP.	The Atlas reporting rates have increased since 2010 but this reflects increased survey effort in the Barrington Tops NP.
Dusky Woodswallow *Artamus cyanopterus*	V	–	–	–	Summer migrant	Habitat loss and fragmentation.	Probably stable.	There have continued to be occasional winter records.
White-eared Monarch *Carterornis leucotis*	V	–	LC	–	Accidental.	The main threats lie outside the Region.	N/A (it is a vagrant).	There have been no records since 2008.
Flame Robin *Petroica phoenicea*	V	–	NT	NT	Resident.	Losses of lowland wintering habitat. Much of the core breeding range lies within areas zoned for conservation.	Probably stable.	The increased Atlas reporting rates since 2010 reflects increased survey effort in the Barrington Tops NP.
Scarlet Robin *Petroica boodang*	V	–	LC	–	Resident.	Losses of lowland wintering habitat. Much of the core breeding range lies within areas zoned for conservation.	Probably declining. Since 2010, the long term reporting rate in the Atlas has decreased by 50% (with large year-on-year fluctuations).	There are no known breeding records for the Region. It is unclear to what extent the apparent decline is due to local threats *cf* issues occurring at the breeding areas.
Hooded Robin *Melanodryas cucullata*	V	–	LC	NT	Resident.	Ongoing loss of the preferred habitat on the Hunter Valley floor.	Possibly declining. The Atlas long term reporting rate has remained stable since 2010 but recent anecdotal evidence suggests otherwise.	It had been speculated that the decline which was evident pre-2010 may have been associated with severe droughts in the preceding years. See Discussion for additional comments.
Diamond Firetail *Stagonopleura guttata*	V	–	LC	–	Resident.	Ongoing loss of the preferred habitat on the Hunter Valley floor.	Declining. The Atlas long term reporting rate has steadily decreased since 2010, by ~40% overall.	The sowing of exotic grasses for pasture improvement is an additional negative factor for this species.

Species of Current Main Concern

Many threatened species are no longer recorded locally in the numbers that have historically been considered typical. For most, the main declines have occurred one or more decades ago and the local status has not changed greatly in recent times. The summaries for them in the previous review of Hunter Region threatened species remain broadly applicable, as do the threats they are experiencing (see Roderick & Stuart 2010 for details). However, nine species have been singled out below for a detailed discussion, for reasons which will become apparent.

Gould's Petrel *Pterodroma leucoptera*

The Gould's Petrel was reclassified from Endangered to Vulnerable under the TSC Act in 2009 following a highly successful recovery program. Apart from Cabbage Tree Island (CTI; the predominant breeding island) and other islands off Port Stephens where the species is now known to breed, Gould's Petrels have also been found breeding on Montague Island, on the NSW Far South Coast, where up to 5 pairs have been recorded in burrows (N. Carlile pers. comm.). Notwith-standing, it occurs in very low numbers on all but CTI and remains vulnerable to stochastic events there.

Such an event took place in April 2015, when an intense low pressure system along the east coast of NSW unleashed gale-force winds and torrential rain, resulting in damage to and loss of thousands of trees in parts of the Hunter Region. Extensive damage was noted on CTI, in particular the southernmost of the two rainforest gullies where Gould's Petrel burrows exist (T. Clarke pers. comm.). This has resulted in the opening of the rainforest canopy, thus benefitting 'light-seeking' invasive weeds such as Morning Glory *Ipomoea carnea* (which has been known to inhibit access for birds to their burrows). It is also likely that the more exposed nature of the gully would also benefit avian predators, such as corvids and Pied Currawongs *Strepera graculina*.

During routine nest-site surveys undertaken on CTI in November 2015, many carcasses of adult Gould's Petrels were found on and near the ground in the western gully. It is not unusual to find small numbers of carcasses, but the number found during this survey was significantly higher than had previously been recorded (T. Clarke pers. comm.). It is not clear why this occurred, though the loss of trees/cover may be a factor.

It is also possible that at-sea threats are having an impact on foraging adults; a possibility supported by seabird researchers (D. Portelli pers. comm.). The at-sea distribution of Gould's Petrels is becoming better known, following the use of satellite tracking devices, and has been found to be more extensive than first thought (e.g. see Priddel *et al.* 2014). It is possible that birds are foraging over a wider area now, in search of food/prey items.

The long-term outlook for Gould's Petrel in the Hunter Region is difficult to assess, but it is clear that ongoing management of recovery actions previously undertaken at nesting areas, in particular on CTI, needs to take place. However, the expansion of the species' breeding range is a positive development.

Eastern Curlew *Numenius madagascariensis*

The Eastern Curlew was added to the EPBC Act's list of threatened species in 2015. It was immediately listed as Critically Endangered, reflecting the drastic population decline which has occurred in recent years. In the Hunter Region, two sites have long been considered to be internationally significant for Eastern Curlew – the Hunter Estuary and Port Stephens. Both sites have regularly hosted more than 1% of the total world population of ~30,000 individuals (Bamford *et al.* 2008). Declines are occurring at both locations, but in particular the Hunter Estuary based on monthly counts (Stuart *et al.* 2013). **Figure 1** shows the annual peak and mean summer counts for the estuary. The mean summer counts for any given year are the average of the January-March and September-December counts for that year. The trends are also summarised in **Table 3**.

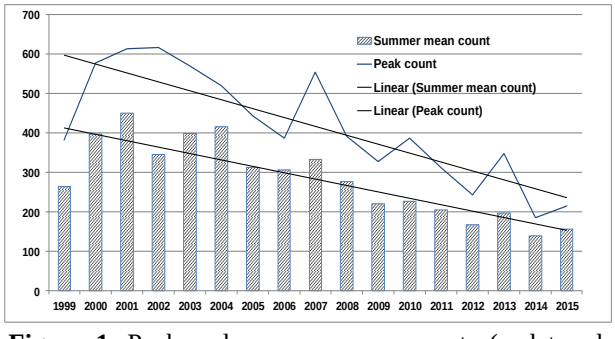

Figure 1. Peak and mean summer counts (and trend lines) for Eastern Curlew in the Hunter Estuary 1999-2015

Eastern Curlew counts in the estuary have declined by 6.2% year-on-year based on peak counts (or by 4.5% based on mean summer counts). Clemens *et*

Table 3. Average annual declines for selected shorebirds

	Eastern Curlew	Bar-tailed Godwit	Black-tailed Godwit	Red Knot
Hunter Estuary peak counts 1999-2015	6.2%	15.7%	4.5%	6.0%
Hunter Estuary mean summer counts 1999-2015	4.5%	9.6%	1.9%	N/A
Port Stephens summer counts 2004-2015	2.9%	4.0%	N/A	N/A
Gir-um-bit NP peak counts 2000-2015	2.1%	0.7%	N/A	N/A
Gir-um-bit NP mean summer counts 2000-2015	3.1%	0%	N/A	N/A
Manning Estuary peak counts 2008-2015	0%	3.2%	N/A	N/A
Manning Estuary mean summer counts 2008-2015	-0.3%	1.8%	N/A	N/A

al. found that the southern population of Eastern Curlew (birds occurring south of 27.8^{0}S) was decreasing at an average of 6.95% per annum (Clemens *et al.* 2016). The Hunter Estuary rates of decline appear to be in line with the changes happening across southern Australia. Since 2012, the Hunter Estuary no longer has hosted an internationally significant population of Eastern Curlew.

In Port Stephens (**Figure 2**, also **Table 3**), the situation is similar to the Hunter Estuary although the year-on-year declines are smaller. **Figure 2** is based on counts at the main roost site (Gir-um-bit NP), which have been done monthly since 2000. Also included in **Table 3** are the trends from one-off summer surveys (since 2004) for all of Port Stephens. Based on peak counts, Port Stephens continues to be internationally significant for Eastern Curlew, although perhaps for not much longer if the trends continue.

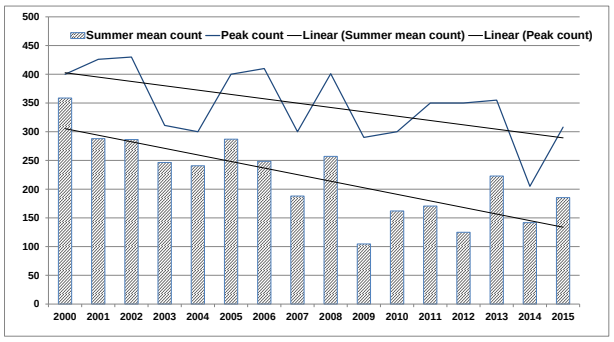

Figure 2. Peak and mean summer counts (and trend lines) for Eastern Curlew at Gir-um-bit NP 2000-2015

It is interesting that in the Manning Estuary, which hosts a smaller population (highest recent count has been 49 birds), the counts are stable (**Table 3**). A very small population (usually <5 birds) is also regularly recorded in the Swansea/Lake Macquarie area.

Bar-tailed Godwit *Limosa lapponica*

In 2015, the subspecies of Bar-tailed Godwit regularly occurring in the Hunter Region (*L. l. baueri*) was listed as Vulnerable under the EPBC Act. The Hunter Estuary and Port Stephens have always hosted large numbers in the austral summer (also many over-wintering juvenile birds). Smaller populations are also present each year in the Manning Estuary and Swansea/Lake Macquarie.

The situation in the Hunter Estuary is not encouraging. Although 600-700 birds continue to visit each year, this represents a substantial decline from previous years (**Figure 3**, **Table 3**). The year-on-year decreases since 1999 have been of the order of 10-15%, for the mean summer and peak counts respectively. These changes are notably worse than for southern Australia more generally, where the population was found to be decreasing at only 1.33% per annum (Clemens *et al.* 2016).

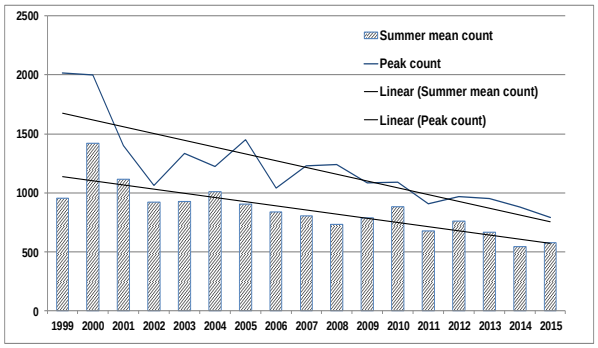

Figure 3. Peak and mean summer counts (and trend lines) for Bar-tailed Godwit in the Hunter Estuary 1999-2015

Declines are also occurring in Port Stephens, although not as markedly. Gir-um-bit NP is an intermittent roost site for Bar-tailed Godwits and the counts there fluctuate accordingly with no obvious trend (**Table 3**). However, the summer counts for all of Port Stephens (for 2004-2016, after the surveys began) indicate a 4% year-on-year decline in numbers (**Figure 4**, **Table 3**). However, a limitation for making any firm conclusions is that the data set for all of Port Stephens contains only 13 summer records, and potentially is affected by variables such as weather conditions on the survey date.

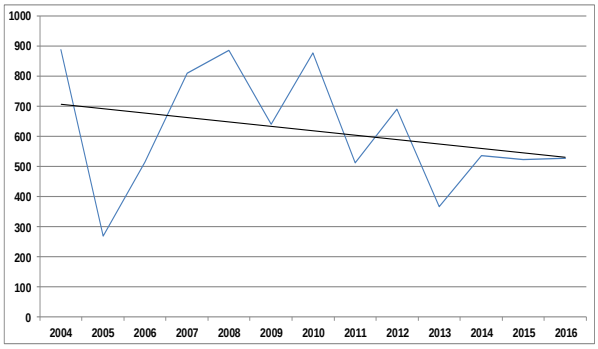

Figure 4. Summer counts (and trend line) for Bar-tailed Godwit in Port Stephens 2004-2016

Counts in the Manning Estuary have also been decreasing, by some 2-3% per year on average (**Table 3**). Therefore, the decline in Bar-tailed Godwit numbers in the Hunter Estuary is substantially greater than the declines being seen elsewhere in the region and in southern Australia more generally.

Black-tailed Godwit *Limosa limosa*

Black-tailed Godwits are rarely recorded away from the Hunter Estuary. The population visiting each year has been decreasing for several decades (Roderick & Stuart 2010). This trend has been continuing (**Figure 5**, **Table 3**) and the average decline of 4.5% per annum since 1999 exceeds the 3.22% rate of decline found for southern Australia as a whole (Clemens *et al.* 2016). The situation possibly has stabilised in very recent years. However, the visiting population is now only 100 or so birds and therefore is very susceptible to stochastic events. An ongoing monitoring program will be essential for providing fresh insights into the regional outlook for this species.

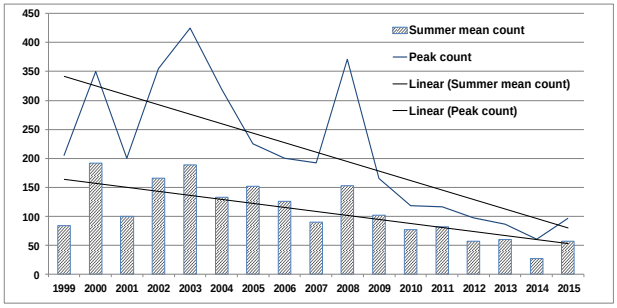

Figure 5. Peak and mean summer counts (and trend lines) for Black-tailed Godwit in the Hunter Estuary 1999-2015

Red Knot *Calidris canutus*

The Red Knot was newly listed as Endangered in 2016 under the EPBC Act. It is difficult to be certain what is happening locally. The Hunter Estuary is the only important location for Red Knot in the Hunter Region. Birds are rarely recorded anywhere else, and only ever in low numbers. In the Hunter Estuary, most records have been for birds on migration passage in spring and early summer. Outside of the period September to November, only a few tens of Red Knot usually are present and no obvious trend can be discerned. During the migration period, large numbers pass through the estuary, mainly staying for only a relatively short time (L. Crawford & C. Herbert pers. comm.). This constant flux of migrating birds has made it difficult to assess the population dynamics. Based on peak counts (**Table 3**) there has been a 6% year-on-year decline since 1999; however, this interpretation may be being distorted by apparently abnormally high peak counts of 1,472 birds in 2006 and 1,100 birds in 2001. In most years, the peak potentially has been missed, as it would have required daily monitoring at all potential sites. The overall Hunter Estuary is only surveyed monthly, although Stockton Sandspit (an important Red Knot site) is visited somewhat more frequently.

Most probably, the numbers of Red Knot on passage through the Hunter Estuary are decreasing in line with the national trend, which is an annual decline of 5.64% in southern Australia (Clemens *et al.* 2016) but this is difficult to prove.

Swift Parrot *Lathamus discolor*

The Swift Parrot was reclassified from Endangered to Critically Endangered under the EPBC Act in May 2016. This was due predominantly to the emergence of severe threats from an introduced predator (Sugar Glider *Petaurus breviceps*) on the breeding grounds in Tasmania (Stojanovic *et al.* 2014). Population declines of 79-95% over three generations have been predicted (Heinsohn *et al.* 2015). Therefore, the predominant short-term threats to the species lie external to the Region.

Garnett *et al.* (2011) estimated the total Swift Parrot population at around 2,000 mature individuals and declining. Frequently, 100 or more birds visit the Region in winter, representing ~5% or more of the total estimated population (e.g. Stuart 2011-2016). In 2016 over 200 birds have been accounted for in the Region (BirdLife Australia unpublished data), further highlighting the importance of the Region for this species. It is difficult to quantify how the availability of habitat locally for winter-foraging is likely to affect the status of the species overall. However, there is evidence for site fidelity, with frequent records from the same few locations, and this might

increase the vulnerability of Swift Parrots to stochastic local events.

Records continue to be reasonably widespread. Surveys at the Singleton Training Area (Australian Department of Defence lands) are consolidating that area, which is under no apparent threat of loss or change, as one of the most important sites in the Hunter Valley for Swift Parrots, with 5 years of consecutive usage and recent records of >130 birds (HBOC unpublished data). However, some of the other most important recognised sites where the highest levels of site fidelity have been shown (e.g. HEZ) continue to be under threat.

It seems reasonable to conclude that any threats to habitat shown to be important for a critically endangered species should be considered significant. Whilst the impacts of predators and habitat loss on the breeding grounds is of utmost immediate concern, any continuing loss or fragmentation of winter foraging habitat should also be viewed as further compromising the viability of the species. As such, the long-term outlook for Swift Parrots in the Hunter Region cannot be considered secure. The threats locally have not diminished at all since the 2010 review (Roderick & Stuart 2010).

Rufous Scrub-bird *Atrichornis rufescens*

The Rufous Scrub-bird was reclassified from Vulnerable to Endangered under the EPBC Act in 2015. This was because of increasing evidence of susceptibility to climate change. Systematic surveys in the Gloucester Tops over 2010-2015 failed to find any previously known nor any new scrub-bird territories below 1,100m (Newman *et al.* 2014, Stuart & Newman unpublished). Retreat to higher altitudes as a result of climate change was predicted (Garnett *et al.* 2011) and has also been found to be occurring with other scrub-bird populations (Andren 2016). There is also evidence of increased clustering of territories in the Gloucester Tops with implications that the suitability of the habitat is changing (Newman *et al.* 2014).

Susceptibility to drought has also been noted. In two breeding seasons which had abnormally low rainfall (spring of 2012 and 2013), many male scrub-birds ceased to advertise their territories and possibly therefore did not breed (Newman *et al.* 2014).

All of the Rufous Scrub-bird range in the Gloucester Tops lies within reserves, with well-protected habitat. However, if the effects from climate change continue to manifest as predicted, the amount of suitable habitat will shrink further – and it seems unlikely that essentially flightless scrub-birds would be able to re-locate to elsewhere (without human intervention). However, there is a record of an immature Rufous Scrub-bird from a lowland site a considerable distance from any known population (Boles & Tynan 1994).

Regent Honeyeater *Anthochaera phrygia*

The Regent Honeyeater was reclassified from Endangered to Critically Endangered under the EPBC Act in June 2015. This was because the species was recognised as having undergone an 80 percent population decline in three generation lengths (approximately the past 24 years) and that the threats most likely to have caused these declines continue to occur (Department of Environment 2015).

Although habitat loss and fragmentation are almost certainly the key drivers for the imperilled status of the Regent Honeyeater, contemporary threats, in particular from aggressive native bird species, continue to drive the rapid declines. In 2015, low nesting success rates were recorded in the Capertee Valley, the only region where nesting was recorded that year. This was due to several factors, but predominantly due to disturbances/predation at nest sites from species such as Noisy Friarbirds *Philemon corniculatus*, Noisy Miners *Manorina melanocephala* and Pied Currawongs *Strepera graculina* (R. Crates pers. comm.).

In the Region, very few Regent Honeyeaters have been recorded since the last major blossom event of Spotted Gum *Corymbia maculata* in 2012. In autumn/winter 2016, Spotted Gums again flowered but the 2016 event was not comparable with 2012 (M. Roderick pers. obs.; S. Roderick pers. obs.). At least 100 birds were present in the forests of the lower Hunter in 2012 (Roderick & Ingwersen 2012). At that time, this was thought to be conservatively at least 10% of the then-estimated total population, with current estimates putting the population at between 350 and 400 adult birds (Garnett *et al*. 2011; Regent Honeyeater Recovery Team, unpublished data).

The long-term outlook for Regent Honeyeaters in the Hunter Region is similar to that of the species as a whole: of utmost concern. Within the Region, the key actions that will likely benefit the conservation of this species include protection of

key areas of habitat (such as within HEZ), control of invasive native species that are known to have deleterious effects (e.g. Noisy Miners) and continued monitoring. BirdLife Australia is currently working with government agencies, landholders and other stakeholders in achieving the above in the Lower Hunter Valley IBA.

Hooded Robin *Melanodryas cucullata*

The Hooded Robin has continued to decline in the Hunter Region, evidenced by analysis of BirdLife Australia Atlas data (see **Figure 6**), as well as anecdotally by a failure to record the species at numerous sites where it once occurred (authors' pers. obs.; various communications with other observers). Very few Hooded Robins are reported to HBOC nowadays and often the sites where they are reported from are 'known' sites where individuals or family groups are persisting. It is notable that there have been only two confirmed breeding records since 2003 (Stuart 2004-2016).

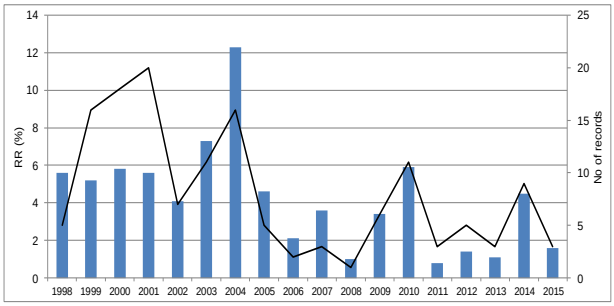

Figure 6. Hooded Robin annual Reporting Rates and number of records

The annual Reporting Rates for Hooded Robin from the Atlas, and the number of records per year, are shown in **Figure 6**. There is clear evidence of decline, although this is masked by two abnormal years, 2010 and 2014. In both years, an uncommon species was reported from nearby to a Hooded Robin territory. This resulted in an increased frequency of visits by observers and a corresponding increase in the number of Hooded Robin records, as **Figure 6** shows. In contrast, 2004 appears to have been a genuinely good year (interestingly, there was a strong La Niña event during 2001-2003).

The RRs for the periods 1998-2005 and 2006-2015 are shown in **Table 4**. For the reasons discussed earlier, data from 2010 and 2014 have been excluded from the latter period. The decline in the past ten years has been very dramatic. The distribution range also appears to have contracted. Birds were recorded in 21 10-minute cell blocks over 1998-2005, compared with only 14 cells more recently (**Table 4**).

Table 4. Hooded Robin Atlas data

Period	RR for period	No. of cells
1998-2005	6.9%	21
2006-2015 (not 2010, 2014)	1.8%	14

It is very difficult to determine what is driving these declines, but other species with similar habits (e.g. Red-capped Robin *Petroica goodenovii*) may also be affected by the same factors. Ground-foraging woodland birds are thought to be amongst the most threatened guild of woodland birds, with the Hooded Robin having been described as a "standout" declining species (Reid 1999). Factors cited were the loss and fragmentation of habitat, weed infestation, loss of native seed-producing grasses and structural changes. These threats are doubtless occurring in the Hunter Region and whilst they are likely to place several other species at risk of further declines, the Hooded Robin appears to be declining more rapidly than others.

Very little suitable habitat for Hooded Robins exists in conservation reserves in the Region, with the vast majority lying on private properties; much of that is threatened with degradation or destruction (e.g. on coal mine leases). Although private land conservation initiatives have been undertaken in the Region (e.g. by BirdLife Australia), the long-term outlook for Hooded Robins in the Region continues to be of great concern. It is facing local extinction if the rates of decline continue unabated.

CONCLUSIONS

The Hunter Region hosts 89 species or sub-species listed as threatened under the TSC and/or EPBC Acts, or under an IUCN classification. This includes 38 breeding resident species and a further 13 migratory species which occur in the region every year (and in some cases, are known to breed locally e.g. Gould's Petrel *Pterodroma leucoptera*, Little Tern *Sternula albifrons* and Regent Honeyeater *Anthochaera phrygia*). For these 51 species, the Hunter Region provides important habitat on an ongoing basis. The Region is also a drought-refuge for several threatened species e.g. Blue-billed Duck *Oxyura australis* and Freckled Duck *Stictonetta naevosa*, and at least eight pelagic seabird species are regularly recorded offshore.

The prospects for many of the threatened species do not seem encouraging. Nine species appear to have poor prospects unless current trends can be

reversed. Very few species appear to have had their prospects improved since the previous review of threatened species in 2010. The threats discussed in the 2010 review largely remain unabated. Until actions are taken to more adequately prevent the loss and fragmentation of habitats for threatened species and to conserve areas where such species are known to be present, it is very likely that the majority of the threatened species populations of the Hunter Region will continue to decline.

Future Updates

How threatened and near-threatened species respond to threats is dynamic. Hence, conservation classifications can be expected to be in almost continuous flux. Updates produced every few years in articles such as this quickly become dated. Therefore, a searchable electronic version of **Table 2** will be made available on HBOC's website (at www.hboc.org.au/conservation/). In future, the on-line version should be considered the source of current information about the conservation status of Hunter Region species.

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