

Appendix 1: NSW ORAC Submissions and Decisions associated with four Bulwer's Petrel *Bulweria bulwerii* observations in the Tasman Sea

This appendix documents submissions to and decisions by the NSW Ornithological Records Appraisal Committee (<http://www.nsworac.org/about.html>) about the identity of the Bulwer's Petrels recorded in the Tasman Sea, in or east of NSW in 2020. The committee receives submissions of rare birds and provides informed, discerning and impartial appraisal of these records. Submissions and decision letters are not usually publicly available, however permission from all observers were obtained to publish these documents as an appendix to the manuscript. Some contact details have been removed for privacy reasons.

Submission for Bulwer's Petrel at Cronulla 28 January 2020



NSW Ornithological Records Appraisal Committee

Unusual Record Report Form

This form is intended to aid observers in the preparation of a submission for the sighting of any species on the NSW ORAC Review List for NSW. (It is not a mandatory requirement) Please complete all sections ensuring that you attach all relevant information including copies of your notes, photographs or other supporting material, and forward by email to the Secretary, Roger McGovern at roglou@bigpond.net.au.

Section A: Submitter details	
Your name(s) Joint submissions are fine	Lindsay Smith (LS) Vincent Mourik (VM) Graham Barwell (GB)
Your email, phone and/or address	

Section B: Record details	
Common and scientific names Include subspecies if relevant	Bulwer's Petrel <i>Bulweria bulwerii</i>
Site location (with GPS if possible)	Cronulla RSL Club, Gerrale Street, Cronulla

Date(s) and time(s) of record (First and last date of occurrence if known)	Found on 28 Jan. on the club balcony & taken to vet for examination. Taken into care by WIRES, with two unsuccessful release attempts before being transferred to LS in Wollongong on 2 Feb. for specialist care. Rehabilitated over the following week before being flown to Darwin with LS, where it was released at sea on 14 Feb.
How many individuals were there?	one
What was the distance to the bird(s)?	the bird was in the hand while being cared for ashore
Habitat description	Found on the RSL Club balcony about 150 m from the sea
Sighting conditions (e.g. weather, visibility, light conditions)	Max. wind gust for 28 Jan. at Kurnell weather station was 54 km from the S, with 63 km from the SSW on 27 Jan. and 63 km from the NE on 26 Jan. At Sydney Airport temps ranged from 30° on 28 Jan. to 37.7° on 26 Jan.
How confident are you in the identification (as a %) and why?	100%; having the bird in hand enabled close examination and measurements being taken
Did you find and/or identify the bird initially? Who else recorded the bird and do they agree with the identification?	The bird was found at the RSL club by Zoe Siminis who took it to Summer Hill Vets where it was examined by Dr Lydia Brichta and Dr Sandra Hodgins before being passed on to Daphane Turner of WIRES. It then went to Pauline and James Duncan of WIRES. At this stage it was thought to be a storm petrel. It wasn't until LS saw and measured it that it was identified. VM and GB saw it on 2 Feb. along with Walter Boles, formerly of the Australian Museum. Once the bird was identified on 2 Feb., there was no disagreement over identification.
What experience have you had with this species?	LS and VM had no previous experience with this species; GB had seen birds at sea off NW Western Australia in 2013 and 2015.
Has this species been seen at this location before? When?	The first NSW record was a bird (age undetermined, but with obvious pale ulnar bars) seen c. 28 nm E of Point Danger on 15 Dec. 2019 (ORAC Case #747). A bird was claimed off North Head on 24 Jan. (no further details) with another single bird seen with Wedge-tailed Shearwaters off Mistral Point, Maroubra, on 29 Jan. (ORAC submission, decision pending), the day after the Cronulla bird was found ashore. The Maroubra bird, age undetermined, did not show obviously pale ulnar bars on the wing. Another live bird was taken into care on the mid North Coast during a severe east coast low on 10 Feb. and released at Perpendicular Point, Kattang Nature Reserve, on 11 Feb. Photos of this bird with its wings folded do not show a pale ulnar bar.
Have photographs of the bird or discussion of it occurred on the internet? (Please provide the site)	It was reported with a photo on Birdline NSW # 245419 on 9 Feb. and on the SOSSA Facebook page (https://www.facebook.com/Southern-Oceans-Seabird-Study-Association-Inc-SOSSA-100870222691) on 9 and 20 Feb.

name, a summary, electronic link, etc.)	The latter includes a link to an ABC News story about the bird's release off Darwin on 14 Feb.
Do you permit NSW ORAC to display your images etc. electronically (credited with your name)	yes

You may choose to delete or ignore this page, but please include as much of the requested information in your submission as possible, especially Sections C and E.

Section C: Supporting evidence

Please include evidence that supports the identification, such as photographs, video, call recordings, etc. Digital images can be pasted into this document below, at the end, or provided separately. Digital video and sound recordings can be sent separately to this form. Label photos etc or insert captions to make note of relevant features they show.



Fig. 1 Bulwer's Petrel in hand showing overall size and details of head, eye and bill. Photo by Lindsay Smith.



Fig. 2 Bulwer's Petrel upperwing. Note the almost evenly dark brown feathers all over, including ulnar bar, and lack of obvious moult. Photo by Graham Barwell.



Fig. 3 Bulwer's Petrel upperwing. Note how in this light the ulnar bar is slightly lighter than the darker secondaries. Photo by Graham Barwell



Fig. 4 Bulwer's Petrel underwing. Note the obvious lack of moult. All feathers look fresh. Photo by Lindsay Smith.



Fig. 5 Bulwer's Petrel upperparts, wings and tail. Photo by Graham Barwell.



Fig. 6 Bulwer's Petrel underparts. The bird has been anaesthetised for veterinary examination. Photo by Lindsay Smith.



Fig. 7 Bulwer's Petrel undertail coverts and undertail. Photo by Graham Barwell.



Fig. 8 X-ray of the anaesthetised bird by Dr Mike Cannon provided by Lindsay Smith

Section D: Description of the bird(s)

Please provide a description of the bird(s) including all identification features recorded. Provide all possible details that might corroborate the identification.

Plumage	dark sooty brown all over with the outer secondary coverts (ulnar bar) being slightly paler than the other wing coverts or the darker secondaries. This feature partly depended on the light and was very subtle (compare figs 2 & 3).
Bare parts	bill shiny black, chunky and fairly short, with the upward-facing nostrils extending about ¼ of the bill length (compare fig. 1). Iris was very dark brown. Legs were slightly pinkish black, toes and webs blackish (compare figs 1 & 7).
Moult details	there was no sign of moult with all feathers appearing fresh and new
Structure and 'jizz'	a small, rather delicate bird which could comfortably sit on the palm of one's hand (compare fig. 1). Wings were relatively long and slender with pointed tips. The tail appeared slightly longer than the neck and head, graduating to a rough point when closed, and forming a wedge shape when open (like a Wedge-tailed Shearwater). The bird was measured on 2 Feb.: bill length 20.9 mm; bill base 10 mm; bill minimum 5.5 mm; bill tip-unguis 7 mm; mid toe 28.3 mm; tarsus 27.5 mm; wing (carpal joint to wing tip) 195 mm; tail length 107 mm. Its weight while in care was 90 grams.
Calls	the bird did not call
Behaviours	the bird was fairly docile on 2 Feb., but did wriggle round a lot while being measured. While with LS the bird was eating well on a mix of southern blue fin tuna, wombaroo, insectivore mix and sea water. X-rays by a local vet did not show any indication of bone damage (compare fig. 8). Indeed, during its week in care, it was very active at night, and had a particular musty odour, quite different from most petrels. Zonfrillo (1988: 74) had noted that Bulwer's Petrels released in daylight showed a distinct reluctance to fly, either seeking cover or lying motionless with the head held near the ground. The Cronulla bird was happy to sleep in a box through the day, but, when the time came for release at sea off Darwin in daylight, it flew off strongly.
Age, sex and/or taxonomy	<p>While the bird's sex was not determined, the good condition of the feathers on the body, wings and tail, all belonging to a single plumage generation, suggest that it may be an immature, having fledged in the 2019 northern summer. Adult post-breeding moult is slow, beginning in Oct.-Nov. (Onley & Scofield 2007: 158), so a freshly-plumaged bird in late Jan. is probably unlikely to be an adult. Photos we have seen of the bird which was released at Perpendicular Point on 11 Feb. are of what must be an adult showing a mixture of very worn and fresh plumage.</p> <p>The very subtly coloured ulnar bar accords with the conclusion that the Cronulla bird is an immature. Marchant & Higgins (1990: 554 & plate 41, figs 4-5) note that the ulnar bar is greyish brown when fresh, becoming pale buff when worn. Speaking of Atlantic-breeding birds, Zonfrillo (1988: 73) stated that newly-fledged birds had secondary coverts distinctly edged silvery-grey, forming an obvious wing bar, but Shirihai et al. (2009: 141) observed that many <i>Bulweria</i> can have a reduced pale wing panel, so reduced on some as to appear entirely lacking. We consider that the combination of fresh plumage and an indistinct wing bar which is slightly grey-brown in certain light point to the Cronulla bird being an immature. We note that the observers of the bird seen off Maroubra did not see a pale ulnar bar on that bird. If was indeed much</p>

	<p>reduced or absent and not related to the conditions of the sighting, then that bird could also be an immature.</p> <p>Bulwer's Petrels breed in the northern Pacific (on islands off China, Japan and on the Hawaiian islands) and in the central Pacific (Phoenix Island, Marquesas Islands), as well as on islands in the Atlantic Ocean and Round Island in the Indian Ocean (Onley & Scofield 2007: 157). Atlantic populations range within tropical and subtropical regions of that ocean (Howell & Zufelt 2019: 149), so can probably be discounted as the origin of the Cronulla bird. It is most likely to come from one of the Pacific colonies, with birds from some of these making regular annual movements.</p> <p>Birds breeding in the northern Pacific leave their home waters in September, with some migration into the Indian Ocean (Marchant & Higgins 1990: 556; Howell & Zufelt 2019: 149). At one of the central Pacific breeding localities, Phoenix Island, birds breed year round (Marchant & Higgins 1990: 556), but movements from here and from the Marquesas are unknown. Other than off NW Western Australia, records in Australian waters are sparse, particularly off the E coast. Marchant & Higgins (1990: 556) mention a sighting of a single bird off NE Queensland in November 1985, a pelagic out of Mackay recorded 10-14 birds in December 2006 in the Coral Sea, while a single exhausted bird was found near Toowoomba on 30 Jan. 2013 (<i>Birdline Aust.</i>, #166182, 15 Feb. 2013). Southport pelagic trips have encountered single birds in December 2017 and January 2019, in addition to the first NSW record mentioned above (ORAC Case #747).</p> <p>Until more is known of the species, its movements and their relation to taxonomic status, it is impossible to give a definite origin for the Cronulla bird or comment on its taxonomy. Currently the species is considered monotypic but one recent work has suggested that it likely includes cryptic species, but provided no further details (Howard & Zufelt 2019: 149).</p>
--	---

Section E: Confusion species

Please indicate other species that the bird(s) might be confused with and how they can be eliminated

The Cronulla bird's size, plumage, bill and tail shape, alone or in combination, rule out the following:

- 1) the small size eliminates Trindade, Kermadec, Henderson and dark phase Herald Petrel from the all dark or predominantly all dark petrels with dark bills
- 2) size in combination with all dark plumage and a short, chunky black typical petrel bill rules out Brown Noddy as well as the predominantly dark shearwaters: Sooty, Short-tailed, Flesh-footed, Wedge-tailed, Christmas Island and darker Heinroth's Shearwaters.
- 3) wedge-shaped tail rules out all entirely dark storm petrels, except Least, which is even smaller with a wing 11.8-12.5 cm (Onley & Scofield 2007: 227).

This leaves as remaining possibilities the *Bulweria* and all dark *Pseudobulweria* petrels.

- 1) Mascarene Petrel can be eliminated on size and its square-ended tail shape.

2) Jouanin's Petrel can be ruled out on measurements. Its bill is longer—26.5-30.5 mm (Zonfrillo 1988: 72), 28-31 mm (Menkhorst et al. 2017: 78) and its wing is likewise longer—23.2-24.6 cm (Zonfrillo 1988: 72), 24.5 cm (Onley & Scofield 2007: 158).

3) Fiji Petrel can be ruled out by a combination of measurements, foot colour & weight. Its bill (25-27.4 mm) and wing (20.55-22.55 cm) are longer (Shirihai et al. 2009: 136), while the colour of the inner toe and basal half of the middle toe is blue (Shirihai et al. 2009: 137 & fig. 3). Its weight is heavier at 120-45 gm (Shirihai et al. 2009: 136).

4) An all dark *Pseudobulweria* reported off New Ireland (Flood et al. 2017) may be an undescribed taxon, but very little is known about it, though it does have uniformly dark upperwings. It can't be considered further until it is better known.

Elimination of the above species leaves Bulwer's Petrel as the only remaining possibility.

Section F: References and aids

Did you use books, journal articles or on-line sites or pages to help you prepare this submission? Which ones?

- Flood, Robert L., Angus C. Wilson and Kirk Zufelt (2017). "Observations of Five Little-Known Tubenoses from Melanesia in January 2017." *Bulletin of the British Ornithologists Club*, 137.3: 226-36.
- Howell, Steve N.G., and Kirk Zufelt (2019). *Oceanic Birds of the World: A Photo Guide*. Princeton, NJ: Princeton University Press.
- Marchant, S., and P.J. Higgins, co-ordinators (1990). *Handbook of Australian, New Zealand and Antarctic Birds*. Vol. 1: *Ratites to Ducks*. Melbourne: Oxford University Press.
- Onley, Derek, and Paul Scofield (2007). *Field Guide to the Albatrosses, Petrels and Shearwaters of the World*. London: Christopher Helm.
- Shirihai, Hadoram, Tony Pym, Jörg Kretzschmar, Kolinio Moce, Amania Taukei and Dick Watling (2009). "First Observations of Fiji Petrel *Pseudobulweria macgillivrayi* at Sea: Off Gau Island, Fiji, in May 2009." *Bulletin of the British Ornithologists Club*, 129.3: 129-48.
- Zonfrillo, B. (1988). "Notes and Comments on the Taxonomy of Jouanin's Petrel *Bulweria fallax* and Bulwer's Petrel *Bulweria bulwerii*." *Bulletin of the British Ornithologists Club*, 108.2: 71-75.

Would you like to acknowledge the assistance of others in the identification process or preparation of this submission?

Decision for Bulwer's Petrel at Cronulla 28 January 2020

NSW ORNITHOLOGICAL RECORDS APPRAISAL COMMITTEE

Roger McGovern

1/67 Cremorne Road

Cremorne NSW 2090

Ref: NSWORAC768

Date: 29-10-20

MEMORANDUM TO: Lindsay Smith, Vincent Mourik and Graham Barwell

c.c.

M. Roderick

R. Cooper

A. Morris

A. Palliser

C. Brandis

M. Lord

A. Richardson

NSW ORAC CASE 768– Bulwer's Petrel (*Bulweria bulwerii*)

This remarkable submission involves a Bulwer's Petrel which was discovered alive on the balcony of Cronulla RSL Club on January 28, 2020, was taken into care by Lindsay Smith for two weeks and was then flown to Darwin where it was released at sea on February 14, 2020. The description provided along with the measurements and photographs clearly showed that this was indeed a Bulwer's Petrel and convincingly ruled out the possibility of Jouanin's Petrel or any of the dark storm petrels. It is interesting to note that the bird did not show an obvious pale ulnar/carpal bar, a feature shared by some of the other Bulwer's Petrels reported in NSW during the same period, and the authors suggest that, in this case, it could indicate that the bird was an immature since it was in fresh plumage.

The committee voted unanimously in favour of acceptance and it becomes only the fifth record to be accepted by NSW ORAC, the first being a bird seen 28NM ESE of Point Danger on December 15, 2019 (NSW ORAC Case 747), the second seen 145NM off the coast of NSW on March 8, 2020 (NSW ORAC Case 751), the third was found ashore at Camden Head on February 10, 2020 (NSW ORAC Case 754) and the fourth was seen from Mistral Point, Maroubra on January 29, 2020 (NSW ORAC Case 755).

The committee would like to thank Lindsay, Vincent and Graham for preparing a very thorough submission for this very significant sighting.

ACCEPT

NSW ORAC Secretary

Roger McGovern

Submission for Bulwer's Petrel at Maroubra 29 January 2020

Full Name: Simon B.Z. Gorta	Office Use
---------------------------------------	------------

Address:	Phone No:
-----------------	------------------

Species Name: Bulwer's Petrel	Scientific Name: <i>Bulweria bulwerii</i>
Date(s) and time(s) of observation:	29/01/2020 18:03-18:06/07
How long did you watch the bird(s)?	3-4 minutes
First and last date of occurrence:	29/01/2020
Distance to bird:	~800m

Site Location Mistral Point, Maroubra (-33.941367, 151.265483).

Habitat (describe habitat in which the bird was seen, together with any neighbouring habitats): Coastal waters immediately offshore from Sydney, roughly 800m from shore.
Sighting conditions (weather, visibility, light conditions etc.): Visibility was clear to the horizon and weather was fine. Conditions were overcast (95% cloud cover) but not dark, noting the sighting took place roughly two hours before sunset. Wind was a light, SE/SSE breeze (15-20 km km/k or 8-10 knots at Little Bay weather station) and swell was roughly 1-1.5m with essentially no whitecaps visible. This meant that our observations were not hindered by wind buffeting the scopes, and we had clear, prolonged views of the bird as it rarely disappeared behind swell, and even when it did, it reappeared almost immediately afterwards.
Optical aids used:

Swarovski 80HD angled (20-60x) and straight-through (30x) spotting scopes on tripods.

To your knowledge, is the species seen frequently at this site?

No, this is the first known record for this species from Mistral Point, Maroubra, and one of the first for the state.

Did you use a field guide? (or any other references to help with identification).

Yes, after the fact, but only after an in-depth description had been determined to remove any risk of confirmation bias. Both Menkhorst et al. (2017) and Pizzey (2012) were used.

Were other observers present Do any of the other observers disagree with your identification, if so, who?

Robert Griffin

David Mitford

All observers are in complete agreement over the identity of the bird.

How confident are you of your identification? e.g. 70%, 100%. If not 100%, why not?

100%. We are confident that the bird we observed was a Bulwer's petrel based primarily on: (1) the relative size of the bird to proximal wedge-tailed shearwaters *Ardenna pacifica*; (2) its all dark plumage (see discussion on the lack of a pale ulnar bar below); (3) the long narrow wings held strongly crooked at the carpal joint, (4) the long tapered tail; and (5) the erratic back-and-forth flight style typical of this species. Furthermore, after in-depth research comparing our observation and description with all other possible confusion species, we are certain that the identity of the bird is a poor fit for any likely confusion species, but a good fit for Bulwer's petrel. We also note that our observation was made during an influx of Bulwer's petrels to NSW waters.

Other details: e.g. Do you have historical and or anecdotal information/comments relating to the prior occurrence/status of the species within or near this location?

Bulwer's petrel is a regularly encountered off north-western Australia (see [eBird records](#)) and has also been recorded off north-eastern Australia (Cheshire 1989). Individuals breeding in the Pacific and Indian Oceans likely venture into Australian waters annually. The species has more recently been found to occur further south, off Southport in south-eastern Queensland in 2017 and 2019. This sighting took place during an unprecedented irruption of Bulwer's petrels into NSW. First, a Bulwer's petrel was seen and photographed on a Southport Pelagic ENE of Point Danger on 12/12/2019, just south of the border of NSW and QLD if it were extended east. Michael Ronan's report of a Bulwer's petrel off North Head on 24/01/2020 was followed by a bird which was picked up at Cronulla RSL on 28/01/2020, before entering care and proceeding to be released sometime later off Darwin. On 10/02/2020 during a severe east coast low, a bird was taken into care on the mid-north coast before being released the next day at Perpendicular Point (Kattang Nature Reserve). On 08/03/2020, 145nm east of Port Stephens, Steve Howell observed a Bulwer's petrel. We have also heard rumours of a bird which went into care at Narooma, southern NSW during the east coast low in which the Perpendicular Point bird was seen, but this has not yet been verified. Prior to these records, only two Bulwer's petrels had been verifiably observed off Australia's east coast, both from Southport Pelagics in QLD waters on 17/12/2017 and 12/01/2019.

Physical Description of Bird

Number of individuals present: 1

Age/Sex: Not able to be determined.

Size and Shape: The bird was notably smaller than a wedge-tailed shearwater, appearing 50-60% of the size (Fig. 1). Superficially, the bird was built like a wedge-tailed shearwater, but daintier. It had long, slender, tapered, and pointed wings held crooked at the carpal, and a long, tapered tail (Fig. 1). At no point were the wings observed to be obviously rounded at the tip, nor were they held straight (always bent strongly at the carpal joint) (Fig. 1). This combination of features gave it a “wingy” and small-headed jizz, and the overall impression of a very small, dainty wedge-tailed shearwater (Fig. 1).

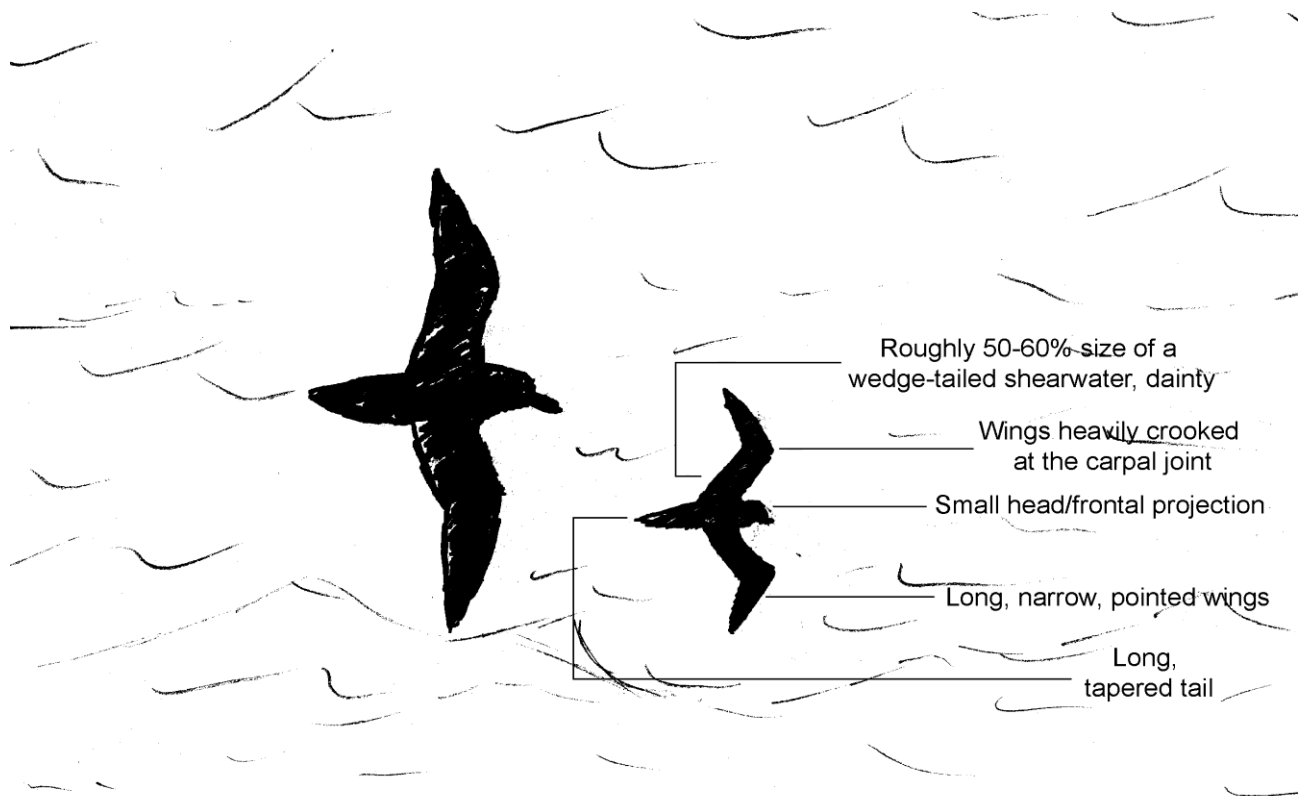


Figure 1: Annotated scan of illustration made on the day of the observation showing the comparative structure and size of the bird we observed (right) to a wedge-tailed shearwater (left).

Plumage colour and pattern: The bird was all dark, a similar colour to the surrounding wedge-tailed shearwaters, and no differentiation in colouring (e.g. reflective feathering or patterns) were observed. This was also the case for the surrounding wedge-tailed shearwaters at the time of observation and was probably caused by the overcast conditions. The extensive pale ulnar bars on the upper wing, which are diagnostic of this species, were not seen by any of the three observers. We believe this was due to the

overcast conditions, distance of the observation and potentially also the result of the bird's plumage state (see the Jouanin's petrel *Bulweria fallax* section for more detail). Moreover, wedge-tailed shearwaters earlier in the day at the same distance had shown pale coverts on their upperwings in direct sunlight, but this was not apparent in any of the shearwaters during the time the petrel was observed in overcast conditions. These pale coverts are less obvious than in Bulwer's petrel, but we feel the lack of visibility of this upperwing colouration on this species supports our case that lighting played a part. This feature (or lack thereof) was noted at the time and compared to the shearwaters at the time of the observation. Observations of this feature on Bulwer's petrel, particularly in evening light, are quite variable (R. Morris pers. comm.), which may owe to lighting conditions, but also wear or moult.

Colour of bill, eyes, legs/feet: At 800m in overcast conditions this was not able to be discerned beyond appearing dark.

Calls: Nil.

Behaviour: The bird was observed flying north to south in a stream of wedge-tailed shearwaters. The flight style consisted of quick, irregular wing beats at irregular intervals (though it would glide for ~3-5 seconds between quick wing beats) as it moved left and right in a more rapid and shorter periods than the wedge-tailed shearwaters around it (Fig. 2a). Generally, its movements were erratic, not arcing as high as the wedge-tailed shearwaters (Fig. 2b,c), and giving a general impression that it was struggling in comparison to the shearwaters which flew gracefully past it, added to by the fact it was moving notably slower than these birds, despite its more active flight behaviour. Descriptions of Bulwer's petrel in flight match our description, as the species typically keeps low, meandering erratically and buoyantly back and forth on glides interspersed with quick, shallow wingbeats, often on heavily crooked wings (Marchant and Higgins 1990, Howell 2012, 2019, Flood and Fisher 2013). Footage of this species' traveling flight in similar conditions also matches this description our observations ([Hindess 2010](#), [Tanoi 2018](#), [Wild Bird Japan 2018](#)).

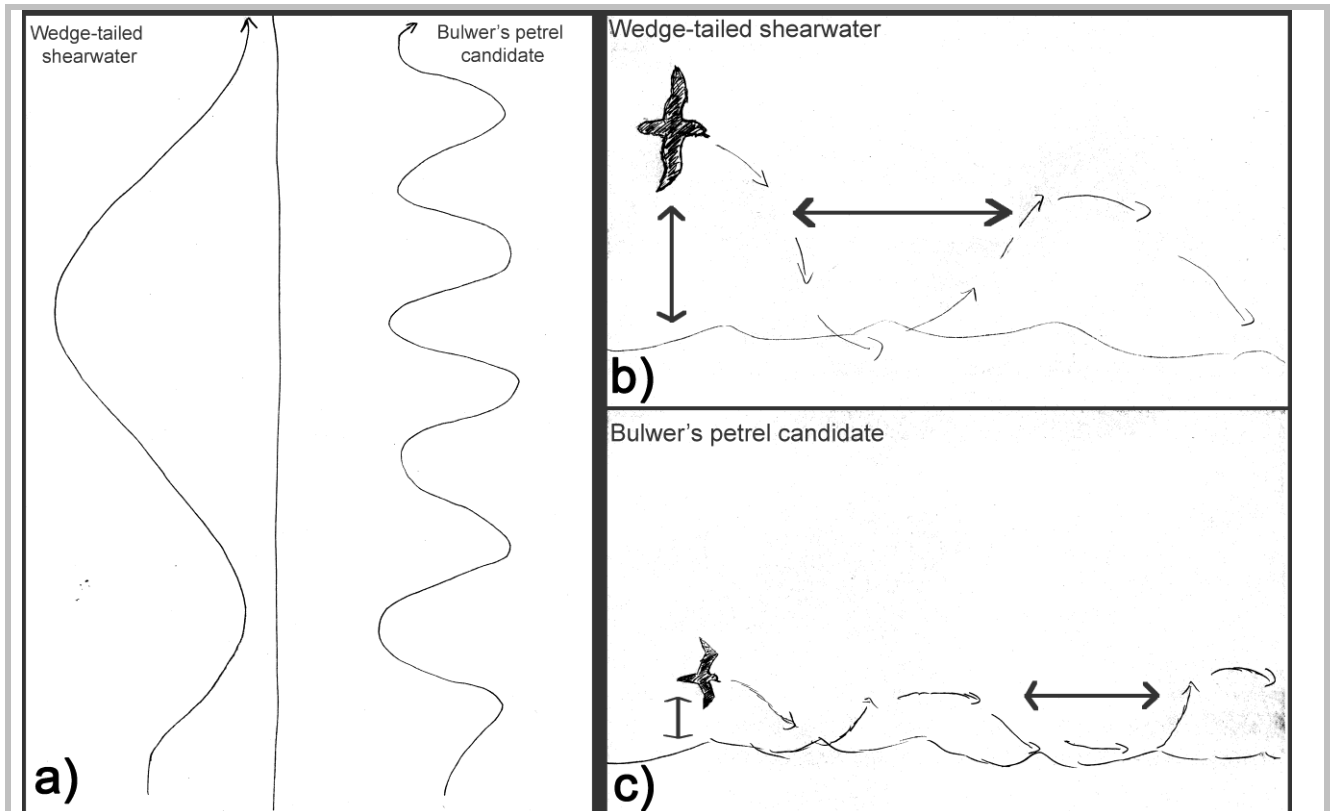


Figure 2: Illustrations of flight patterns of wedge-tailed shearwaters and the Bulwer's petrel candidate. An interpretation of flight from above (a) showing that over the same distance, the Bulwer's petrel candidate moved erratically left and right, covering less distance left and right than the wedge-tailed shearwaters which flew in large, sweeping movements with far less switching back and forth. An interpretation of flight from side-on of both wedge-tailed shearwaters (b) and the Bulwer's petrel candidate (c) showing the Bulwer's petrel candidate stayed much lower to the water, not arcing as high as the wedge-tailed shearwaters, but arcing up and down more often than the wedge-tailed shearwaters.

Comparisons: The bird only flew with wedge-tailed shearwaters during the observation and was picked up as distinctly smaller and slower moving than this species. Structurally it was not dissimilar to the shearwaters, but daintier, with a proportionately smaller anterior, and narrower wings and tail. The wings were crooked at the carpal joint more often and to a greater degree than the wedge-tailed shearwaters around it. Further, the flight style of the bird was far more erratic, with less gliding, shorter period movements back and forth, and sticking lower to the water than the shearwaters. Further comparison can be found in the *All-dark Ardenna and Puffinus sp. shearwaters* section.

Other species with which you think it might be confused and how these were eliminated?

Dark terns and noddies

Noddies *Anous spp.* could be considered a confusion species, however the shape and structure of the bird (like a dainty wedge-tailed shearwater), and erratic, back-and-forth flight, with short glides interspersed with quick wingbeats, does not match any noddy species (Brown *Anous stolidus* and Black *Anous minutus* particularly, which the observers are all very familiar with), which are distinctly shaped and fly directly, with steady, regular wingbeats when travelling and limited, if any, gliding. The pale cap on these species was not observed, though this can be subtle and hard to distinguish at a distance, as well as with age (e.g. juvenile Brown noddies can show no pale cap). Juvenile sooty terns *Onychoprion fuscatus*, which can appear all dark at a distance, were also ruled out based on their looser, typically "tern-like" flight style. This involves unhurried but relatively purposeful and regular wingbeats, intermittently interrupted by gliding, and few (if

any) erratic changes in direction (again the observers are familiar with this species and it was quickly ruled out in the field).

Similar-sized but black-and-white Procellariiformes

Based on the all-dark colouration of the observed bird, all similar-sized (i.e. notably smaller than a wedge-tailed shearwater) species with obvious white features on their underwings/undersides or extensive pale facial markings were eliminated. This includes black-and-white *Puffinus* shearwaters, which also have a distinctly different, direct, and often fluttering flight style.

All-dark *Ardenna* and *Puffinus* sp. shearwaters:

There are five all-dark shearwaters we considered during our observation of the Bulwer's petrel candidate. These were: wedge-tailed shearwater, flesh-footed shearwater *Ardenna carneipes*, sooty shearwater *Ardenna grisea*, short-tailed shearwater *Ardenna tenuirostris* and (although highly unlikely by distribution) Christmas shearwater *Puffinus nativitatis*. All of these were ruled out by size, flight style, and behaviour.

Wedge-tailed shearwater *Ardenna pacifica*

The Bulwer's petrel candidate flew among a stream of wedge-tailed shearwaters. As mentioned above, the bird appeared roughly 50% smaller than the proximal wedge-tailed shearwaters, and flew in an erratic, back and forth manner. The bird was flapping and gliding on heavily crooked wings at the carpal, and moving southwards slower than the surrounding shearwaters, giving it a long-winged, long-tailed, and small-headed jizz. It was clearly distinguished from the larger wedge-tailed shearwaters surrounding it by both size and flight style, as the much larger wedge-tailed shearwaters were gliding and sweeping in wider curves back and forth, moving faster than our bird and flying far less erratically.

Flesh-footed shearwater *Ardenna carneipes*

We can also confidently rule out flesh-footed shearwater, which is larger and bulkier than wedge-tailed shearwaters. These shearwaters glide on comparatively straight wings, much like a *Procellaria* sp. petrel, and were observed flapping less than wedge-tailed shearwaters on the day (as is generally typical of this species), though none were observed with the Bulwer's petrel candidate.

Sooty shearwater *Ardenna grisea*

Sooty shearwaters were not observed on the day, but were observed the day before in similar, calm conditions. Far larger than the bird we observed, this species was noted to arc and glide, flapping intermittently but far less regularly, with a distinctive sweeping flight. This species typically glides on straight, to slightly bent wings, unlike the Bulwer's petrel candidate which, when gliding, flew on heavily bent wings, crooked at the carpal joint.

Short-tailed shearwater *Ardenna tenuirostris*

Short-tailed shearwaters (again substantially larger than the Bulwer's petrel candidate) were observed on the day flying flat and directly, low to the water, faster than the wedge-tailed shearwaters moving north-south,

with regular series of quick flaps every 2-5 seconds. This species is bulkier, and proportionately shorter-winged and straighter winged than the bird we observed which flew on long, heavily bent wings.

Christmas shearwater *Puffinus nativitatus*

Finally, Christmas shearwater, while smaller than the other shearwaters being discussed, is a chunky bird, built like a smaller short-tailed shearwater. This species has a large head, broad, rounded wings, and a moderate length, rounded tail. None of these features are consistent with the long, tapered tail, crooked, slender wings, and small-headed appearance of the bird we observed. The described flight style of Christmas shearwater is of buoyant flight low to the water with fast, stiff-winged flapping (Marchant and Higgins 1990). This does not fit well with our observations of erratic back and forth flight; both flapping and gliding on heavily crooked wings. We also note that known distribution of the Christmas shearwater is in the central and western Pacific, and it has never been recorded in Australian waters.

We are confident that this combination of observed flight behaviour, shape, and size of the bird rules out these shearwaters as possible contenders for our bird.

All-dark *Pseudobulweria* petrels:

There are two very rare species that may, superficially, look like our bird. Both have never previously been recorded in Australia. They species are virtually identical, except for size (Mascarene is distinctly larger at 36cm body length versus Fiji at 29cm). Both are described as cigar-shaped, with a distinctive long neck due to the wings projecting further back along the body (Attie et al. 1997, Shirihai et al. 2009). Head is squarish and tail elongated (Attie et al. 1997, Shirihai et al. 2009). The bird we observed was distinctly long tailed, but notably did not show the distinctive long neck of these petrels and instead showed a small head and neck throughout the observation.

Mascarene petrel *Pseudobulweria aterrima*

The Mascarene petrel breeds on Reunion Island, and is Critically Endangered with an estimated decreasing population of only 100-200 individuals (Birdlife International 2020a). Mascarene petrel measures 36cm in body length. In flight in light winds (as on the day our bird was observed), the Mascarene petrel flies low over the water in an unhurried, regular zig-zag movement, overall moving in a straight line, arcing and banking into the breeze with bursts of deep, slow flapping (Attie et al. 1997). This species also flies on distinctively stiff and straight wings (Shirihai et al. 2014, [Flood 2018](#)). Based on flight descriptions, footage and structure, as well as the extreme rarity of this species even within its known range, we are confident that the bird we observed was not a Mascarene petrel.

Fiji petrel *Pseudobulweria macgillivrayi*

Fiji petrel *Pseudobulweria macgillivrayi* breeds in Fiji on Gau Island and is also Critically Endangered, with an estimated decreasing population of 1-49 individuals (Birdlife International 2020b). In flight, the Fiji Petrel is described to fly effortlessly on long, narrow pointed wings, held stiffly and straight (Shirihai et al. 2009). Their wingbeats are described as relaxed and supple, sometimes loose and languid, with only a few shallow flaps even against ten-knot winds (Shirihai et al. 2009). Based on flight descriptions and structure, as well as the extreme rarity of this species even within its known range, we are confident that the bird we observed was not a Fiji petrel.

Jouanin's Petrel *Bulweria fallax*:

Jouanin's petrel is a medium-sized, all dark petrel, and the only other extant species in the genus *Bulweria* (but see Shirihai and Bretagnolle 2015 for notes on a potential new taxon from the western Indian Ocean). This species occupies a large range in the northern Indian Ocean, but is known only to breed on Socotra, Yemen (Taleb 2002), and potentially Oman (Gallagher 1985, Carboneras et al. 2017, Flood and Pop 2018). In Australia, this bird has exclusively been recorded off the north-west coast in the far-eastern Indian Ocean, and appears to be a regular visitor to this region in low numbers (Ryan et al. 2013). The population stands at roughly 1500 – 7000 mature individuals (Birdlife International 2020c). While, based on range and prior records, Bulwer's petrel is the more likely of the two *Bulweria* species to occur in eastern Australia, Jouanin's petrel is known as a vagrant as far east as Hawaii (Howell and Zufelt 2019). Jouanin's petrel has also been observed to occur more exclusively in warmer waters than Bulwer's petrel (Shirihai and Bretagnolle 2015). Jouanin's petrel is also less likely to occur off Sydney than Bulwer's petrel which has been recorded off eastern Australia previously (though not as far south until this event) and has a population estimated in the range of 500,000 – 1,000,000 individuals (over 330x more than Jouanin's using conservative estimates, Birdlife International 2020d). However, we still feel this is a confusion species to worth consideration.

Jouanin's and Bulwer's petrel are morphologically similar, showing a long caudal projection, long, slender wings, and dark plumage (Flood and Pop 2018). They are, however, separable by aspects of plumage, size, structure, and flight behaviour (Flood and Pop 2018).

Jouanin's is known for showing a less prominent "ulnar bar" than Bulwer's petrel in the field, and this feature initially had us concerned as we had presumed it to be diagnostic between the two species. We did not observe a pale ulnar bar on the bird we saw, but believe this was due to the distance of the observation, the overcast light and potentially the condition of the bird. This feature is known to be variably observed, sometimes being completely absent (Shirihai et al. 2009). Our bird was observed at a distance of around 800 m. Beyond 250 m, the ulnar bar can appear all dark (Marchant and Higgins 1990). The sighting occurred in a period of 95% cloud cover and overcast light which may reduce the contrast of the ulnar bar (we note the wedge-tailed shearwaters also did not show pale coverts on the upperwing during this time but did in better light). However, the opposite may be true in that the reduced reflectivity in overcast light may emphasise the difference in covert feathering colouration, but given the comparisons between light conditions in Fig. 3, we do not believe this to be the case. The lack of a visible ulnar bar may also have been a result of the bird being a duller-plumaged individual. While this pale group of coverts are probably always present on Bulwer's petrels, wear and moult may affect this. A juvenile Bulwer's petrel found in Sydney on 28th Jan 2020 (while found the day before our observation we only became aware well after the fact) that went into care and was later released off Darwin, showed very limited pale markings on the upperwing, and this varied dramatically with light (Fig. 3). See also this individual photographed in Hawaii ([VanderWerf 2011](#)). Finally, R. Morris who has experience with this species recalled, "seeing a lot of Bulwer's in the evenings from ferries in the Canary Islands in 1990 and their carpal bars rarely being visible in evening light. Their presence is quite variable." While the experience of others (see Dr Robert Flood's comment below) does not necessarily match with R. Morris', we believe there is enough room for variation in this species for the pale carpal/ulnar bar to have been present, but not observable during our observation. While we do not discount the presence of a pale ulnar bar on our bird, we believe it is very possible not to have observed it.



Figure 3: Bulwer's petrel taken into care at Cronulla RSL Club on 28/01/2020. Note how the extensiveness of the pale ulnar bar on the same individual varies with light, being barely noticeable under shaded conditions (a), and present, but not too obvious, in well-lit conditions (b). Photographs used with the permission of the photographer: Graham Barwell.

The Bulwer's petrel candidate roughly resembled the structure of the wedge-tailed shearwaters it flew with, but appeared around half the size of these birds. "Jouanin's petrel would look quite a bit smaller than a wedge-tailed shearwater, but not as small as half the size" (R. Flood pers. comm.). However, size is challenging to estimate, so we further rely on the structural and behavioural aspects of this observation to rule out Jouanin's petrel.

Being bulkier, with longer and broader wings, the travelling flight style of Jouanin's petrel is distinctive from Bulwer's petrel (Shirihai and Bretagnolle 2015, Flood and Pop 2018). Jouanin's petrel generally shows a powerful, steady flight (Howell 2012), with long glides and a few slow, floppy wingbeats (Shirihai and Bretagnolle 2015, Flood and Pop 2018). Specifically in light winds, flight is "unhurried, with easy, slightly

springy wingbeats... and buoyant sailing glides (Howell and Zufelt 2019). Footage of travelling Jouanin's petrels in light to medium winds supports this, particularly the floppy wingbeats, extensive gliding, and steady, unhurried and less erratic flight ([Karuthedathu 2012](#), [Flood 2015](#)). The footage also shows Jouanin's petrel only irregularly projects its wings forward, crooked back at the carpal joint ([Karuthedathu 2012](#), [Flood 2015](#)). The bird we observed flew erratically, not steadily, with quick wing beats interspersed with short glides as it moved back and forth. This is unlike the descriptions and footage of Jouanin's petrel. Our bird also showed heavily crooked wings, with the carpal joints pushed forwards and outer wing pulled back throughout most of the 3-4 minute observation. Flight action is documented to be very important in separating these two species (Shirihai and Bretagnolle 2015, Flood and Pop 2018), therefore we are confident that the bird we saw, did not match the flight descriptions and footage of Jouanin's petrel, but was a good match for that of Bulwer's petrel.

As none of the observers have experience with Bulwer's petrel or Jouanin's petrel in the field, we passed our comments on to Dr Robert Flood, a renowned seabirder and ornithologist. We have summarised his comments below.

“Jouanin's would look quite a bit smaller than Wedgie, but not as small as half the size... I would call Bulwer's dainty, but not Jouanin's. I've seen very many Bulwer's Petrels over the years and must say that it is not often that the upperwing ulnar bar is not apparent, but I note your observations on the Wedgie that day, though the ulnar bar on Wedgie is nowhere near as apparent as a typical Bulwer's. Flight action is very important [for separating these species]. Note that the Jouanin's is a slower and heavier version of Bulwer's - a Bulwer's on steroids. Wing beats are floppier. Jouanin's is not erratic as you describe, but Bulwer's is. Flight action and size are the most convincing part of the description. It sounds good for Bulwer's.”

We are confident the bird we observed was not a Jouanin's petrel. This is based largely on the flight style and size of the bird we observed, as well as its the daintier structure, which does not match descriptions, illustrations, and footage of Jouanin's petrel we have available to review. Comment from an expert observer highly experienced with both species supports our conclusion.

All-dark *Oceanodroma* storm-petrels:

This group of storm-petrels includes Swinhoe's storm-petrel *Oceanodroma monorhis*, Matsudaira's storm-petrel *Oceanodroma matsudairae* and Tristram's storm-petrel *Oceanodroma tristrami*, all of which have occurred in Australian waters. Markham's storm-petrel *Oceanodroma markhami* has never been recorded in Australian waters and is restricted to the eastern Pacific. Swinhoe's storm-petrel has never been recorded off eastern Australia, being found only off the north-western region of the continent. Only Tristram's has been recorded in NSW, a well-documented and photographed bird off Sydney on 09/10/2000 which represents the only record of this species for Australia (Palliser 2002, see also: <https://ebird.org/checklist/S20714722>). A likely Matsudaira's storm-petrel was observed 60km ENE of Southport, Queensland on 19/10/2019, representing the first observation of this species off eastern Australia, which is currently under review by the Birdlife Australia Rarities Committee (<http://birdlife.org.au/documents/barc/SUB1092.pdf>). This species, like Swinhoe's storm-petrel, is regularly present off the north-west of the continent. All these species are extremely rare in the region the Bulwer's petrel candidate was observed. However, the same can be said for Bulwer's petrel, hence their exclusion as potential contenders is important.

All *Oceanodroma* storm-petrels have forked tails, which were not observed in the Bulwer's petrel candidate. If present, the forked tail could have been missed if the fork was folded closed during the entirety of the observation. *Oceanodroma* storm-petrels are known to hold their forked tails closed, and moult, at least in Matsudaira's storm-petrel, can remove the presence of the fork entirely (Flood and Fisher 2013). Closed tails in all three *Oceanodroma* storm-petrels are frequently observed, particularly in moderate to strong winds (Howell 2012, Flood and Fisher 2013), however the conditions of our observations were calm with light

winds, so it is unlikely that over the 3-4 minutes of observation, the bird did not show its forked tail if it were present. The distance of our observation probably also would have made this feature difficult to observe, although we believe that a banking bird at 800m with an open forked tail would have been noted, either by observation of the fork itself, or the broader tail shape it would create. This does not match our consistent observations of a long, tapered tail throughout our observations which is not a good fit for *Oceanodroma* species.

We provide descriptions of the key features that exclude the four *Oceanodroma* storm-petrels as candidates for the bird we observed. Note size is only used for Swinhoe's storm-petrel, which we are sure from measurements is too small for the bird we observed. This does not mean the others were not also too small, but we have allowed room for error as size was estimated, rather than measured, for the Bulwer's petrel candidate. All *Oceanodroma* storm-petrel species show fairly consistent, well described travelling flight styles in light winds (note flight when feeding can change dramatically, but as our bird was not feeding, this is not compared). Each of these species can be ruled out on their structure and flight behaviour.

Swinhoe's storm-petrel *Oceanodroma monorhis*

Swinhoe's storm-petrel is a small bird, only 1-2cm longer than a Wilson's storm-petrel from bill to tail tip, and we are confident the bird we saw was distinctly larger than this (all observers have plenty of experience with Wilson's storm-petrel, including observations of them with wedge-tailed shearwaters). We do not use this argument for the other larger *Oceanodroma* storm-petrels, noting it is challenging to judge size in the field. In flight in light winds, Swinhoe's storm-petrels tend to hold their wings straightened, rather than holding their carpal joint projected well forwards with their outer-wing pulled backwards, as was observed across the entire observation of the Bulwer's petrel candidate (Flood and Fisher 2013). Swinhoe's storm-petrel has quite broad wings relative to its body (particularly the outerwing), a feature not consistent with the long, narrow, pointed wings observed on the Bulwer's petrel candidate. In other words, Swinhoe's storm-petrel has a medium wing loading (moderate wing area compared to body weight) (Howell 2012) as opposed to very high wing loading as observed in the Bulwer's petrel candidate.

The flight of Swinhoe's storm-petrel is "unhurried, fairly direct to slightly weaving... wingbeats loping but not especially deep, interspersed with sailing glides on slightly bowed wings" (Howell 2012). Footage of travelling flight by this species in relatively light winds (note the lack of chop on the waves) supports this description ([Karuthedathu 2014, 2015](#)). This is inconsistent with the heavily crooked wings and erratic, back-and-forth flight we observed in our bird.

Matsudaira's storm-petrel *Oceanodroma monorhis*

In flight in light winds Matsudaira's storm-petrels also tend to hold their wings relatively straight, only slightly crooked, rather than holding their carpal joint projected well forwards with their outer-wing pulled strongly backwards as was seen across the entire observation of the Bulwer's petrel candidate (Flood and Fisher 2013). This species also has broad wings relative to its body (particularly the outerwing), a feature not consistent with the long, narrow, pointed wings observed on the Bulwer's petrel candidate. Matsudaira's storm-petrels have low wing loading (large wing area compared to body weight), which does not conform to our observation of long, narrow wings, which represents very high wing loading (Howell 2012).

The travelling flight of Matsudaira's storm petrels in light winds is relatively poorly described. Howell (2012) briefly describes "an easy, measured flight with fairly shallow wingbeats and prolonged glides," as well as, "more buoyant [than Tristram's storm-petrel] with prolonged glides on slightly arched wings in light to moderate winds." Flight is also described as "languid and buoyant, sailing easily on broad, slightly cupped wings... wingbeats typically measured and supple" (Howell and Zufelt 2019). We could not find any footage of this species which was not associated with feeding, however the first 10 seconds of one video ([Tanoi 2018](#)) (note after this period the bird appears to divert towards other feeding birds, dipping low over the water

where birds have alighted, so we suspect this has changed from travelling to feeding flight behaviour) appear to show flight that matches the descriptions (Howell 2012, 2019). Our bird did not fly in a measured way, erratically moving back-and-forth, gliding with quick flaps on heavily crooked wings.

Tristram's storm-petrel *Oceanodroma tristrami*

Tristram's storm-petrel holds its wings crooked at the carpal joint (Howell 2012) and has a narrower wing structure than either Matsudaira's or Swinhoe's storm-petrels. It is also a heavier-set storm-petrel than Matsudaira's but with narrower wings (Howell 2012). As with Matsudaira's and Swinhoe's storm-petrels, the wings of Tristram's storm-petrel are still shorter and broader relative to the body (based off photographs and descriptions in Howell 2012, Menkhorst et al. 2017, and Flood and Fisher 2013) than we observed (our observations were of a bird with similar proportions to a wedge-tailed shearwater). Tristram's storm-petrels have low wing loading (large wing area compared to body weight), which does not conform to our observation of long, narrow wings which represents very high wing loading (Howell 2012).

The travelling flight of Tristram's storm-petrel across light to moderate winds (the Bulwer's petrel candidate was flying south into light SE winds) is "fairly direct and usually low, with fairly quick but measured stiff wingbeats and short glides." Footage of travelling flight of this species in moderate winds (note the limited chop in the waves) supports this description (Nagai 2016). Again, the erratic flight behaviour observed from our bird does not match this description or footage, nor does the extremely slight build of Tristram's storm-petrel. While our bird was a little like a dainty wedge-tailed shearwater, it was not as slight as Tristram's storm-petrel, something particularly evident from the flight footage.

Markham's storm-petrel *Oceanodroma markhami*

Although not recorded in Australian waters, and known only from the eastern Pacific, Markham's storm-petrel *Oceanodroma markhami* has also been considered. Smaller and lighter than Tristram's storm-petrel, this species also shows a forked tail (which can be held closed), and broad, bluntly pointed wings held slightly crooked at the wrist (Howell 2012). In flight in calm conditions it keeps "fairly low and buoyant, with supple, fairly shallow wingbeats and easy glides on slightly arched wings" (Howell and Zufelt 2019). Footage of Markham's travelling shows a fairly direct flight with long, easy glides punctuated by shallow but deliberate flapping (Flood 2020). This is inconsistent with the bird we observed which showed a long, tapered tail, long narrow pointed wings heavily crooked at the wrist, and flew erratically back and forth.

In summary, we are confident the bird we observed was not an all-dark *Oceanodroma* storm-petrel. While size can be important in distinguishing these species, we have not relied on this exclusively to rule out any species, relying rather on the objective features of structure and flight style. We have ruled these species out based on: (1) the long, tapering tail at no point observed to fork; (2) the long, narrow wings heavily bent at the carpals do not match the broader, largely straighter wings of these storm-petrels; and (3) the erratic, back-and-forth flight style does not match first-hand descriptions or footage of these storm-petrels in flight in conditions which roughly match those of our observation.

Was the description written from memory, notes and/or sketches made in the field or after consulting field guides or other references?

The description of the bird was the result of a discussion immediately post-observation. We deliberately did not consult a field guide, footage, or other literature until a description was written to avoid the risk of confirmation bias. Pen and paper were not handy for a field sketch, however on arriving home (roughly two hours after the observation), before consulting footage and having only seen illustrations in Pizzey and

Knight 2012 (noting these illustrations, while informative, do not show details present in photographs/Menkhorst et al. 2017), S. Gorta created some quick sketches to illustrate best what we observed.

Were photographs taken? Please include where possible.

Regrettably not, the bird was at a distance photographs probably would not have been useful, so we opted instead to observe the bird and comment on it as we watched it, to ensure we were confident of the bird's identification.

What experience have you had with the species in question? (Did you know it was a rare bird when you first saw it?)

None of the observers have prior experience with this species. All observers were well aware of the implications of claiming such a rare species for the region, and have not made this call lightly. While we were present at the site knowing this species had been claimed a little further north only a week before, we did not consider the species one we would likely observe, and during our observation of the bird discussed the features as we saw them, ruling out other likely, and less likely, alternatives including larger, dark storm-petrels and Jouanin's petrel.

References

- Attié, C., Stahl, J.C. and Bretagnolle, V. 1997. New data on the endangered Mascarene Petrel *Pseudobulweria aterrima*: a third twentieth century specimen and distribution. *Colonial Waterbirds* **20**: 406-412.
- Birdlife International. 2020a. Mascarene Petrel *Pseudobulweria aterrima*. URL: <http://datazone.birdlife.org/species/factsheet/mascarene-petrel-pseudobulweria-aterrima>. Accessed 09/03/2020.
- Birdlife International. 2020b. Fiji Petrel *Pseudobulweria macgillivrayi*. URL: <http://datazone.birdlife.org/species/factsheet/fiji-petrel-pseudobulweria-macgillivrayi>. Accessed 09/03/2020.
- Birdlife International. 2020c. Jouanin's Petrel *Bulweria fallax*. URL: <http://datazone.birdlife.org/species/factsheet/jouanins-petrel-bulweria-fallax>. Accessed 09/04/2020.
- Birdlife International. 2020d. Bulwer's Petrel *Bulweria bulwerii*. URL: <http://datazone.birdlife.org/species/factsheet/bulwers-petrel-bulweria-bulwerii>
- Carboneras, C., Jutglar, F., de Juana, E. and Kirwan, G.M. 2017. Jouanin's Petrel (*Bulweria fallax*). In: del Hoyo, J., A. Elliott, J. Sargatal, D.A. Christie & E. de Juana (eds). *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. [Retrieved from www.hbw.com/node/52558 06/04/2020].
- Cheshire, N.G. 1989. A Bulwer's petrel *Bulweria bulwerii* off north-eastern Australia. *Australian Field Ornithology* **13**: 61-62.
- Flood, R.L. 2015. Jouanin's Petrel, Muscat to Djibouti, 30 March to 4 April 2015. [Online video]. URL: <https://youtu.be/Qlczmpc4Y2s>
- Flood, R.L. 2018. Mascarene Petrel off Reunion Island, December 2018. [Online video]. URL: <https://youtu.be/grptNK-7Km8>.

- Flood, R.L. 2020. Markham's Storm-petrel, south of Arica, Chile, 14th February 2020. [Online video]. URL: <https://youtu.be/7GSOG1OUaLg>.
- Flood, R.L. and Fisher, A. 2013. Multimedia identification guide to North Atlantic seabirds: storm-petrels and Bulwer's petrel. *Revised edition*. Pelagic Birds & Birding Multimedia Guides.
- Flood, R.L. and Pop, R. 2018. Jouanin's Petrel *Bulweria fallax*. *Sandgrouse* **40**: 86-89.
- Gallagher, M. 1985. Seabirds of the Kuria Muria Islands, Arabian Sea. *Sea Swallow* **34**: 5-18.
- Hindess, P. 2010. Bulwer's Petrel. [Online video]. URL: <https://youtu.be/tz8LyVMNzr4>.
- Howell, S.N.G. 2012. Petrels, albatrosses and storm-petrels of North America: a photographic guide. Princeton University Press, New Jersey.
- Howell, S.N.G. and Zufelt, K. 2019. Oceanic birds of the world: a photo guide. Princeton University Press, New Jersey.
- Karuthedathu, D. 2012. Jouanin's Petrels – *Bulweria fallax*. [Online video] URL: <https://youtu.be/aczpUIVckyw>.
- Karuthedathu, D. 2014. Swinhoe's Storm-petrel – *Oceanodroma monorhis*. [Online video] URL: <https://youtu.be/zhAhBu4pIdg>.
- Karuthedathu, D. 2014. Swinhoe's Storm-petrel – *Oceanodroma monorhis*, Goa, 2015. [Online video] URL: <https://youtu.be/hphMyjCkHcc>.
- Nagai, M. 2016. ♪鳥くん野鳥動画（小笠原航路）オーストンウミツバメ Tristram's Storm petrel. [Online video]. URL: <https://youtu.be/JGD7rkARxKA>.
- Palliser, T., 2016. Tristram's storm-petrel *Oceanodroma tristrami* off Sydney, New South Wales: a new bird for Australia. *Australian Field Ornithology* **19**: 215-218.
- Pizzey, G. 2012. The field guide to the birds of Australia. Harper Collins Publishers, Sydney South, NSW.
- Marchant, S. and Higgins, P.J. (eds.) 1990. *Handbook of Australian, New Zealand and Antarctic birds. Vol. 1: Ratites to ducks*. Oxford University Press, Melbourne.
- Menkhorst, P., Rogers, D., Clarke, R., Davies, J., Marsack, P. and Franklin, K. 2017. *The Australian Bird Guide*. CSIRO Publishing, Clayton South VIC.
- Ryan, P.G., Rose, B., Carter, M. and Clarke, R.H. 2013. A review of Jouanin's Petrel records in the eastern Indian Ocean. *Ostrich* **84**: 161-164.
- Shirihai, H. and Bretagnolle, V. 2015. *Bulweria* petrels off the Comoros, south-west Indian Ocean. *Bulletin of the British Ornithologists' Club* **135**: 348-351.
- Shirihai, H., Pym, T., Kretzschmar, J., Moce, K., Taukei, A. and Watling, D. 2009. First observations of Fiji Petrel *Pseudobulweria macgillivrayi* at sea: off Gau Island, Fiji, in May 2009. *Bulletin of the British Ornithologists' Club* **129**: 129-148.
- Shirihai, H., Pym, T., San Román, M. & Bretagnolle, V. 2014. The critically endangered Mascarene Petrel *Pseudobulweria aterrima*: identification and behaviour at sea, historical discovery of breeding sites, and breeding ecology on Réunion, Indian Ocean. *Bulletin of the British Ornithologists Club* **134**: 194-222.

- Taleb, N.M.A. 2002. The discovery of a breeding colony of Jouanin's Petrel *Bulweria fallax* on Socotra, Yemen. *Sandgrouse* **24**: 105-108.
- Tanoi, S. 2018. Bulwer's Petrel *Bulweria bulwerii*, Off Muko-jima Japan, July 27 2018. [Online video]. URL: https://youtu.be/H_zNiBmGCSw.
- Tanoi, S. 2018. Matsudaira's Storm-Petrel *Oceanodroma matsudairae*, June 23 2018, off Chiba Japan. [Online video]. URL: https://youtu.be/lyvzGa_6Tag.
- VanderWerf, E. 2011. HRBP 6224. Hawaiian Biological Survey. URL: <http://hbs.bishopmuseum.org/birds/rlp-monograph/images/HRBPs/HRBP%206224%20Bulwer%27s%20Petrel.jpg>
- Wild Bird Japan. 2018. アナドリ (2) 飛翔 (小笠原航路と硫黄島) - Bulwer's Petrel - Wild Bird - 野鳥 動画図鑑. [Online video]. URL: <https://youtu.be/LteeAuTWk4E>.

Name: Simon Gorta

Date: 10/04/2020

Roger McGovern

Secretary NSW ORAC

Email: roglou@bigpond.net.au

Decision for Bulwer's Petrel at Maroubra 29 January 2020

NSW ORNITHOLOGICAL RECORDS APPRAISAL COMMITTEE

Roger McGovern

1/67 Cremorne Road

Cremorne NSW 2090

Ref: NSWORAC755

Date: 26-10-20

MEMORANDUM TO: Simon Gorta

c.c.	M. Roderick	R. Cooper
	A. Morris	A. Palliser
	C. Brandis	M. Lord
	A. Richardson	

NSW ORAC CASE 755– Bulwer's Petrel (*Bulweria bulwerii*)

This submission details the sighting of a Bulwer's Petrel on a shore-based seawatch at Mistral Point, Maroubra by Simon Gorta, Robert Griffin and David Mitford on January 29, 2020. Unlike the other Bulwer's Petrels reports in NSW during this period, this sighting did not include any photographs and that fact, together with the sighting distance of about 800 metres, made this more difficult for the committee to assess. However, the extremely thorough analysis of structure, size and flight pattern convinced all but one of the committee that the bird was indeed a Bulwer's Petrel. The dissenting member expressed some doubt about size comparison with Jouanin's Petrel at that range, the fact that no pale carpal bar could be seen and questioned whether the flight pattern of Bulwer's and Jouanin's Petrels are as easily separated as claimed by the observer at that distance.

The remainder of the committee were convinced that all confusion species had satisfactorily been eliminated and voted by majority to accept the record. It is worth noting that both the Camden Head and Cronulla RSL Bulwer's Petrels had indistinct carpal bars even though the latter bird was in fresh plumage with no moult. This becomes the fourth record of Bulwer's Petrel to be accepted by NSW ORAC with all records occurring between December 2019 and March 2020. Previous confirmed records were NSW ORAC Case 747 on December 15, 2019, NSW ORAC Case 751 on March 8, 2020 and NSW ORAC Case 754 on February 10-11, 2020.

The committee would like to thank Simon for taking the time to prepare one of the most thorough submissions to have come before NSW ORAC and the attention to detail was instrumental in ensuring that the committee was able to vote for acceptance.

ACCEPT

NSW ORAC Secretary

Roger McGovern

Submission for Bulwer's Petrel at Camden Head 10 February 2020

NSW Ornithological Records Appraisal Committee

Unusual Record Report Form

This form is intended to aid observers in the preparation of a submission for the sighting of any species on the NSW ORAC Review List for NSW. (It is not a mandatory requirement) Please complete all sections ensuring that you attach all relevant information including copies of your notes, photographs or other supportive material, and forward by email to the Secretary at roglou@bigpond.net.au . Submissions to NSW ORAC should be sent electronically wherever possible.

Section A: Submitter details	
Your name(s) Joint submissions are fine	Peter West
Your email, phone and/or address	

Section B: Record details	
Common and scientific names Include subspecies if relevant	Bulwer's Petrel <i>Bulweria bulwerii</i>
Site location (with GPS if possible)	Taken into care at Camden Head NSW -31.64290 / 152.83510 Released at Perpendicular Point - 31.64120 / 152.84931
Date(s) and time(s) of record (First and last date of occurrence if known)	10.2.2020 @ 21.00 bird put into my care 11.2.2020 @ 10.22 released at Perpendicular Point
How many individuals were there?	1
What was the distance to the bird(s)?	In the hand
Habitat description	Na
Sighting conditions (e.g. weather, visibility, light conditions)	I spent a couple of hours with the bird and had an opportunity to take several photos and measure the body length.

<p>How confident are you in the identification (as a %) and why?</p>	<p>100% confident. While I had assumed this was one of the dark shearwaters when it was first given to me, as soon as I uncovered the bird I realised that it was very small and my original ID was wrong. My first reaction with this bird was to confirm that it wasn't injured and if not release it ASAP. I spoke with Fawna and their suggestion was that an early release was a good idea. Consequently I did not ID the bird before releasing it (If I'd know what it was at that time I would probably have done things differently). However it was obvious the bird was small so I measured it and took a photo with a ruler and then made sure that I got photos of the general plumage, bill structure, tail etc. Armed with the measurement and the dark plumage I decided that it wasn't a Storm Petrel, wrong tail shape and it wasn't a Jouanin's Petrel, too small and all other species were ruled out based on size and or plumage. I did seek confirmation from Mick Roderick as to my ID.</p>
<p>Did you find and/or identify the bird initially? Who else recorded the bird and do they agree with the identification?</p>	<p>The bird was found by my neighbour Robyn Breheny, who also lives on Camden Head. I identified the bird initially before seeking confirmation from Mick Roderick, see my e-mail correspondence with Rod.</p>
<p>What experience have you had with this species?</p>	<p>It was new to me</p>
<p>Has this species been seen at this location before? When?</p>	<p>No, though I gather a further four birds were recorded along the NSW coast during the period 1.12.2019 through to the end of February 2020. I wasn't aware of this at the time</p>
<p>Have photographs of the bird or discussion of it occurred on the internet? (Please provide the site name, a summary, electronic link, etc.)</p>	<p>I took several photos of the bird and sent these with my notes by email to Mick Roderick later on the 11th February. See attached</p>
<p>Do you permit NSW ORAC to display your images etc. electronically (credited with your name)</p>	<p>Yes that would be fine</p>

You may choose to delete or ignore this page, but please include as much of the requested information in your submission as possible, especially Sections C and E.

Section C: Supporting evidence

Please include evidence that supports the identification, such as photographs, video, call recordings, etc. Digital images can be pasted into this document below, at the end, or provided separately. Digital video and sound recordings can be sent separately to this form. Label photos etc or insert captions to make note of relevant features they show.

I am sending photos under separate cover. I will have to send the video on a memory stick I had the following correspondence with Mick Roderick

From: Peter West
Sent: Tuesday, 11 February 2020 9:43 PM
To: Mick Roderick
Cc: 'Clive Meadows'; 'Alan Morris'
Subject: Mystery Bird

Hi Mick, I am looking for help with a bird ID. I'm hoping I'm not putting you out. I've written up what I did and my impressions of the bird below. Sorry it's quite long and as much as I can remember but I wanted to get this stuff down. I have included Clive and Alan on the copy list and will also send the photos to them. I took a video of the bird in the period up to it flying away, not the best I'm afraid but is interesting. Clive, Alan, if you wouldn't mind, please keep this to yourselves within the club at the moment until I have some idea of what it was

Late last night a friend arrived on our doorstep with what she thought was an injured bird. She had it wrapped and in a box and due to the late hour Sue and I had a quick look to make sure it was as comfortable as possible. It was obviously a dark seabird and my first thought was Wedge-tailed Shearwater. We went to bed.

This morning I had a closer look at the bird. I was still thinking Shearwater, however it was very small. It was also still alive though rather lethargic. It already had water but I tried mashed anchovy but it wasn't interested. The bird was still wrapped but became quite active when I uncovered it. A phone call to Fauna and I set off for Perpendicular Point to release the bird as we agreed. Sorry but at this time I wasn't thinking this was anything special so I didn't invite any of you to join me

By now I had decided this was not a shearwater. It was all dark brown on both dorsal and ventral sides but was only about 22cm long. The Bill and legs were all dark, though I see from one of the photos that the legs were pinkish. The bird was getting quite restive so I decided not to explore things further but to check the bird out before I released it at the headland.

At the headland I was joined by a non-birding friend Steve, and while I held the bird he took many pictures of the birds prior to release. I made a point of checking the bill and tail / wing tips. The plumage was pretty beaten about and worn, so while it was clearly a brown bird whether there were variations and pattern on the bird it was hard to tell. It appeared eager to get on its way so having taken photos I showed it the sea and placed it on some greenery on the top of the cliff.

Nothing happened at the beginning, I guess it was getting itself back together. Then it started to preen, seemed to collect some insects from within the greenery. Then it stood, did more preening. Next were several wing stretches and after them more preening. It tried a few flaps and lifted off slightly. Finally it turned towards the cliff and waddled closer. I was videoing all this on my phone. After a little and perhaps some more stretching it just lifted off and was away and it flew strongly out to sea, initially 50m or so above the sea. Wonderful, we were very happy

So back to the bird and what it was. I had by now decided it wasn't a shearwater for sure, too small and the bill was too short and broad and altogether the wrong outline. However I have no experience with small all dark petrels / storm petrels, especially ones that are thousands of kilometres out of range. I have considered the size and colour of the bird. I didn't weigh it but have since weighed an orange at 200gms and the bird weighed less

than this. Also the tail and the fact it was not forked, plus the length of this relative to the wing tips. The legs seemed long to me but then I'm not experienced in petrel legs and field guides are of little use.

Based on this I have concluded what I think the birds identity is

- It's not a shearwater too small, wrong shaped bill
- It could possibly be a dark storm-petrel but I don't think so because it doesn't have a forked tail and bill shape is all wrong
- All the same it could be the dark morph of the White-bellied Storm-Petrel. I don't think it is as this is supposed to be sooty black rather than dark brown. Also the bill seems all wrong and the tail while not forked is squarish and this is not what I observed on our bird. Finally the legs do not protrude beyond the tail.
- It could be a Bulwer's or a Jouanin's Petrel. Of these I am inclined towards Bulwer's based on size and bill shape. It was all dark brown with a short broad black bill. The tail was long and pointed and the legs were pinkish with blackish feet
- Of course it could be something that isn't in any of my field guides, I see Fiji / McGilvray's Petrel is a possible
- And finally of course I could be completely mad and it's something common and obvious.

So I think this is a Bulwer's Petrel. Can you have a look and see what you think. I'm happy for you to forward this on to anyone you think can help if you think that is worthwhile.

I'll send some photos in a few minutes from my phone as I am having problems downloading photos from my phone to the computer. I won't send them all and I won't delete any. I could send the video of the release but it will be a big file as it's over 2 minutes, let me know if you are happy with this. Now I'll see how good I am with bird ID.

Peter

© Section D: Description of the bird(s)	
Please provide a description of the bird(s) including all identification features recorded. Provide all possible details that might corroborate the identification.	
Plumage	The bird was rather bedraggled and plumage perhaps rather worn. However it was generally dark brown overall, whether there were lighter or darker markings I could not determine some parts of the plumage, tail and wings were paler, perhaps rather worn. I did not check the wings while in the hand though in the video they are quite long and again worn looking.
Bare parts	The bill was black with a very hooked bill and prominent nostrils. The eye was dark. The feet were greyish and the legs while grey had a pinkish tinge
Moult details	I don't have knowledge of this
Structure and 'jizz'	This was a small bird and I measured it as being perhaps 24cm long. I note in my notes to Mick I said 22cm but on reviewing the picture I think this was an underestimation. Also I'm no expert in bird structure and whether I measured it correctly or not I cannot say. The tail was long and pointed and extended a little beyond the wing tips. I did not check the wings as I wasn't confident enough to be

	this invasive. As for jizz, that was hard to estimate as when it flew, it flew strongly and directly away from the cliff top out to sea however the wings were long and pointed.
Calls	It did not call
Behaviours	The bird was very subdued when I initially uncovered it after a night in a box. It perked up after a little and became quite feisty. As a result of this after discussion with Fawna it was decided that it would be right to release the bird. At the release site the bird was quite active. I placed it onto an area of short turf and it spent a little time to get it's self together. It then stood and then started preening, did some stretching of its wings and then flew away strongly. Some of this final activity was captured on video which I will attach.
Age, sex and/or taxonomy	Not known

Section E: Confusion species

Please indicate other species that the bird(s) might be confused with and how they can be eliminated

Considering the size of the bird and the overall dark plumage it had to be either one of the large / dark storm-petrels or either Bulwer's or Jouanin's Petrels. I eliminated the storm-petrels in Australian waters as all the dark species, Matsudaira's, Swinhoe's and Trisram's have forked tails. I eliminated Jouanin's Petrel because the bird was just 22cm long with the Jouanin's being around 30% larger than this. This I determined from my Australian field guides and HANZAB. I then consulted Seabirds by Harrison and discounted Mascarene and Fiji Petrels as well as Least Storm- petrel. I couldn't find any other species that it could have been.

Section F: References and aids

Did you use books, journal articles or on-line sites or pages to help you prepare this submission? Which ones?	Yes, I used the following books The Australian Bird Guide / Birds of Australia – Pizzey / HANZAB / Seabirds - Harrison
Would you like to acknowledge the assistance of others in the identification process or preparation of this submission?	I would like to thank Mick Roderick for giving me the confidence to believe I had really seen and held this bird.

Photographs associated with this submission are pasted below, all taken by P. West, and the footage of the release can be found in Appendix 2.

Gorta: Bulwer's Petrel influx in Tasman Sea





Gorta: Bulwer's Petrel influx in Tasman Sea



Gorta: Bulwer's Petrel influx in Tasman Sea





Gorta: Bulwer's Petrel influx in Tasman Sea



Decision for Bulwer's Petrel at Camden Head 10 February 2020

NSW ORNITHOLOGICAL RECORDS APPRAISAL COMMITTEE

Roger McGovern

1/67 Cremorne Road

Cremorne NSW 2090

Ref: NSWORAC754

Date: 26-10-20

MEMORANDUM TO: Peter West

c.c.

M. Roderick

R. Cooper

A. Morris

A. Palliser

C. Brandis

M. Lord

A. Richardson

NSW ORAC CASE 754– Bulwer's Petrel (*Bulweria bulwerii*)

This remarkable submission involves a Bulwer's Petrel which came ashore at Camden Head on February 10, 2020, was taken into care overnight by Peter West and was then released at Perpendicular Point the following morning. A video was taken at the time of release showing the bird flying off strongly out to sea. The description provided together with measurements, photographs and video provided convincing evidence that this was indeed a Bulwer's Petrel and convincingly ruled out the possibility of Jouanin's Petrel or any of the dark storm petrels. It is interesting to note that the bird appeared to have worn plumage and did not show an obvious pale ulnar/carpal bar as it flew away on release, a feature that is shared by some of the other Bulwer's Petrels reported off NSW during the same period.

The committee voted unanimously in favour of acceptance and it becomes only the third record for the species in NSW, the first being a bird seen 28NM ESE of Point Danger on December 15, 2019 (NSW ORAC Case 747) and the second seen 145NM off the coast of NSW on March 8, 2020 (NSW ORAC Case 751). There have been two other reports of Bulwer's Petrel in NSW waters in the December 2019 to March 2020 period and these are currently under review by NSW ORAC. The committee would like to thank Peter for providing the report, photographs and video of this very significant sighting.

ACCEPT

NSW ORAC Secretary

Roger McGovern

Submission for Bulwer's Petrel at 300 km east of Sydney 8 March 2020

This submission was made via email to Jeff Davies with attached photographs:

Hi Jeff

Below details for BARC on the Bulwer's Petrel in the Tasman Sea.

Bulwer's Petrel *Bulweria bulwerii*.

Date: 8 March 2020. Observer: Steve N. G. Howell. Conditions: 25+ knots S wind, heaving seas, partly cloudy, sunny; SST midday 26oC.

I spotted the bird on the water about 500m away with a small group of Grey-faced Petrels and didn't know what it was, other than something different = all-dark, ³long and low² on the water, and obviously much smaller than the Pterodroma. The ship was heading straight for the group so I watched it through my camera and as we approached wondered about a large storm-petrel; then it raised its wings and fluttered briefly and I had an inkling of what it was = no white rump, hmm... It quickly took off and flew across to the other side of the ship but I snapped a few shots between swells as it passed out of sight across the bow. Record shots taken with a Canon 7D-II and 100-400 zoom (at 400mm), the bird at maybe 100m when I shot it. Position was 34o03'S 154o40'E, which I estimated to be roughly 300km off Sydney.

Description: *Small dark petrel, much smaller than Grey-faced Petrels, but larger than storm-petrels. Long narrow wings crooked, long tail graduated, and flight buoyant and erratic. Photos show a relatively long bill, too slender for Jouanin's Petrel, which would have appeared appreciably larger, and also the pale upperwing band. The bird shows primary molt completing, with p10 growing, at least on the left wing.*

I have experience with various populations of Bulwer's Petrel, which realistically comprises multiple cryptic species (cf. Howell & Zufelt 2019, Oceanic Birds of the World), and the ID was straightforward as Bulwer's. Photos show a relatively long bill and overall structure that may best fit the Japanese population, also most likely on geographic grounds.

Attached photos show with Grey-faced (Bulwer's hard to spot in first shot = far right on the water), plus cropped images to show the bird better.

Best regards

Steve

Photographs from by S.N.G. Howell are pasted below.







Gorta: Bulwer's Petrel influx in Tasman Sea



Gorta: Bulwer's Petrel influx in Tasman Sea



Gorta: Bulwer's Petrel influx in Tasman Sea







Decision for Bulwer's Petrel at 300 km east of Sydney 8 March 2020

NSW ORNITHOLOGICAL RECORDS APPRAISAL COMMITTEE

Roger McGovern

1/67 Cremorne Road

Cremorne NSW 2090

Ref: NSWORAC751

Date: 28-05-20

MEMORANDUM TO: Steve Howell

c.c.

M. Roderick

R. Cooper

A. Morris

A. Palliser

C. Brandis

M. Lord

A. Richardson

NSW ORAC CASE 751– Bulwer's Petrel (*Bulweria bulwerii*)

This submission details the sighting of a Bulwer's Petrel by Steve Howell on a pelagic voyage in the Tasman Sea on March 8, 2020. The bird was sighted together with a group of Grey-faced Petrels at 34 03S/154 40E, a position which is due east of Cronulla in Sydney's southern suburbs. The nearest point of the NSW coastline to this location is at the entrance to Port Stephens some 145NM distance placing the sighting well within NSW waters. The description provided by e-mail, clearly describes the key characteristics of Bulwer's Petrel and convincingly rules out the possibility of Jouanin's Petrel or any of the dark storm petrels. Although the photographs that were obtained are not of the highest definition, they do clearly show this bird to be a Bulwer's Petrel based on size, long narrow crooked wings, long graduated tail, slender bill and the pale upperwing band.

The committee voted unanimously in favour of acceptance and it becomes only the second record for the species in NSW, the first being a bird seen 28NM ESE of Point Danger on December 15, 2019 (NSW ORAC Case 747). There have been three other reports of Bulwer's Petrel in NSW waters in the December 2019 to March 2020 period with two of these currently under review by NSW ORAC. Unfortunately, the onset of the COVID-19 pandemic in early March 2020 has resulted in the cancellation of all pelagic trips out of NSW ports and it would have been interesting to know whether this unprecedented influx of Bulwer's Petrel continued after observations ceased. The committee would like to thank Steve for providing the report and photographs of this very significant sighting.

ACCEPT

NSW ORAC Secretary

Roger McGovern