BRISBANE SEABIRD STUDY GROUP

Rare Seabird Forms

(Completed forms to be passed on to BQRAC or BARC, where appropriate).

Name: Paul Walbridge
Address:

Ph: (H) (W) E-mail:

Vessel: 78 ft Incat Crowther catamaran, Reef Ranger.
Crew: Thirteen, including seven NP staff, two surveying contractors and three indigenous rangers, plus one passenger.

No. of observers present: 13

Contact(s): (full name). Contact details: (include address, phone no(s). E-mail, etc.).
1). David Stewart
2).
3).
4).
5).

Date of sighting: 26-27/6/2018.

Time & duration of sighting: 2020 hrs on the 26th to 2000 hrs on the 27th June, approx. 24 hrs.

Species name:	**Common:**	**Scientific:**
	Phoenix Petrel	*Pterodroma alba*

No. of birds observed: 1

Location: Raine Island, 11 35.53S/144 02.24E.
Be precise & include GPS readings when possible.

Habitat (indicate in appropriate box).

Bay/Inlet	Headland	River Mouth	Ocean Beach	Shelf Waters	Slope Waters	Open Ocean	Other
							Island

Optical and/or other aids used: Canon 1DX MK II, Canon EOS Macro 100 mm F2.8 IS 'L' lens and Canon Macrolight MR- 14EX.

Prior experience with this species: Nil.

Confidence in sighting? (e.g. 90%, 100% etc.): 100%.

Received: **BQRAC Case No:** **BARC Case No:** **Recommendation:**

(Office Use Only).

FORM B

Weather Conditions: (including wind speed & direction).
Typical of the northern Coral Sea from April to October, winds were SE Trade winds, never less than 20 knots and gusting to 30+ knots at times. Most days had considerable cloud cover with infrequent, short periods of sunshine and broken blue sky. Periodic, short rain squalls, particularly during the afternoon, evening and night. Temperatures ranging from 16°-26° C.

Sea Conditions: (including water temp. °C, when possible).
The vessel was moored in close to the island, within the reef system and basically alee to the SE trade winds, therefore sea conditions not applicable here as observations were made from the moored vessel and on the island.

General Observations: (include behaviour of bird(s), view, distance etc).
Myself and Dr David Stewart were on Raine Island ostensibly to study, capture, band and place Geolocators on Herald Petrels *Pterodroma heraldica*, known to be breeding on the island at this particular time of year, from mid June onward, ending in late Spring when the Green Turtles reappear to breed on the island. We first landed on Raine at around 1430 hrs on Sunday 24th June and after attending the Welcome to Land ceremony by the three indigenous ranger custodians and helping unload various paraphernalia for the upcoming work, myself and Dave Stewart proceeded to the windward side of the island to await the arrival of petrels, with several Herald Petrels photographed. Four days and three evenings were spent by myself on the island, Tuesday, Wednesday, Thursday and Friday and four days and evenings by Dave Stewart, Tuesday through to Friday.

On Tuesday 26th June the day was spent photographing many of the species on the island, many of them breeding and in mid afternoon onward, returning Herald Petrels, the target species of the study. Late in the afternoon, before returning for the evening meal onboard another call was heard from a circling petrel, similar to but discernibly different from Herald Petrel, being slightly more staccato and just a little different in pitch. Although not photographed both of us noticed that the bird appeared almost totally dark on the underwing. That evening was the first one spent ashore to catch Herald Petrels, we had caught and processed two Herald Petrels and Dave Stewart headed into the weedier interior of the island, while I headed along the beach amongst the grass tussocks. At approx. 2020 hrs Dave had already caught one Herald Petrel and I heard a bird calling on the ground in front of me and came across two courting Herald Petrels which I picked up and called over to Dave. As he arrived another bird called almost at our feet, which we duly picked up and we returned to the processing area where we could sit on the chairs between the relative shelter between two rock faces.

With four birds to process we placed two birds each into large holding bags, to await processing. The first three birds pulled out of the bags were Herald Petrels and were duly processed then released. The fourth bird was extracted from the second bag and immediately we both knew we had something different as the bird showed a considerably darker head and upperparts, we were pretty sure we were looking at a potential first Australian record of Phoenix Petrel. We placed the bird back into the bag after fitting a geolocator to its right tarsus but no band and we proceeded to catch and process more Herald Petrels until returning back on board where the Phoenix Petrel spent the next 24 hours in our cabin. The bird was brought out to the recreation area on the morning of the 27th for detailed photographs, confirming our suspicions and placed back into its box. The bird was released safely that evening back into the dense grass tufts on the beach where it quickly found cover and not seen again, while we headed back along the beach to the processing area to catch more Herald Petrels.

Description of Bird(s): (be as detailed as possible).
Phoenix Petrel *Pterodroma alba* (Gmelin, 1789)
IUCN RED LIST: Endangered.

The bird was captured, therefore measurements were taken in the hand and the description was based purely on this and not seen in flight. This bird, not being part of the Herald Petrel project could not be banded but a Geolocator, number 552 was fitted to the right tarsus. Blood was also taken from the carpal vein, destination yet to be determined. Measurements were also taken from captured and processed Herald Petrels over two nights Bill measurements were taken with a precision caliper, wing measurements taken with a steel rule with block for carpal joint and weights taken with a precision Pesola 600 gm scale.

Species	Phoenix Petrel n=1	Herald Petrel n=16
Wing	287 mm	281-297 mm
Bill: Depth	12.9 mm	10.5-14.2 mm
Culmen	27.8 mm	23.1- 28.5 mm
Tail	110 mm	not measured
Weight	315 gms	295-370 gms

Description:
The measurements in the above table fall within the range of Phoenix Petrel according to HANZAB tables, with the culmen length and tail length falling within the range for either sex but the wing measurement falling slightly outside the range for a male, so possibly this individual was female.
A medium/large sized gadfly petrel, belonging to the genus Pterodroma. Very similar in structure and size to Herald Petrel but appearing more black and white, the captured bird may, or may not have been observed in flight but it or another possibly was.

Bare parts: Bill, black and fairly thickset, consistent with a medium sized Pterodroma (gadfly) petrel. Legs, pale pink with the feet pink proximally and blackish distally. Eye, dark brown.
Head, rounded and entirely dark sooty brown, including the lores extending into the chin. Throat, white with the darker plumage diffusing slightly lighter brown into the neck and upper breast, then down through the upper flanks and into the upper thighs. The rest of the underparts, pure white including the undertail coverts which were patterned with light grey barring, tail feathers blackish. The underwing was almost entirely dark sooty brown with the primaries dark grey, showing some reflectance and paler bases, the inner forewing from the carpal joint to base, white, with some brownish mottling.
The upperparts were entirely dark sooty brown including the back, upperwing coverts and uppertail coverts. The tail and primaries were blackish. Close inspection of the bird showed there to be little wear and tear in the plumage and no apparent moult in progress.

How was it distinguished from other similar species?:
With several Herald Petrels captured along with this bird, a direct comparison with that species is a logical place to start (see photos in Form C). The bills of both species were typical of a medium sized Pterodroma, blackish and fairly thickset, several samples of Herald Petrel available to just one Phoenix but some slight differences noted. The maxillary unguis of the Phoenix Petrel was slightly more raised from the culmen and shorter while the nasal tubes appeared shorter and more squared off than Herald Petrel. The overall plumage of the Phoenix Petrel is a dark sooty brown compared to the greyer plumage of Herald Petrel. In more detail; head of the Phoenix Petrel, uniform dark sooty brown with equally dark lores, compare to Herald Petrel with greyish head, slightly darker on the crown with very pale whitish lores heavily speckled with grey feathering. Both have a white throat with a darker necklace or breast band which was motley grey in Herald Petrel and of variable width but dark brown in the Phoenix Petrel. Underparts of both species white with some flecking along the flanks, again grey in Herald Petrel and brown in Phoenix Petrel. The undertail coverts in Phoenix Petrel were mainly white with some light greyish-brown barring, in Herald Petrel the undertail coverts were also white but generally much more heavily barred and also streaked grey, which in flight gave the impression of darker undertail coverts. The underwing of Herald Petrel is much like Kermadec Petrel with a whitish wedge on the inner forewing and the white primary flash and crescent in the outer wing, also Herald Petrel has paler reflective secondaries, producing the classic dark blackish wing bar up through the centre of the wing, diagnostic of that species. The underwing of the Phoenix Petrel however was, apart from the white inner wing wedge, much more uniformly blackish with the primaries dark slatey grey with just some reflectance. The upperparts of the Phoenix Petrel was a much more uniformly dark sooty brown compared to the dark slatey grey of Herald Petrel.

The overall plumage pattern is quite similar to another species found in the region but not seen on this particular trip, although both the authors eminently familiar with, that being the Tahiti Petrel *Pseudobulweria rostrata*, with the closest breeding colonies in New Caledonia to the SE and commonly sighted in the Coral Sea. In colouration the Tahiti Petrel is similar to Phoenix Petrel but closer to dark chocolate brown as opposed to sooty brown. The breast band on Tahiti Petrel is similar but Tahiti Petrel lacks the variable white throat of Phoenix Petrel. The undertail coverts are generally a much cleaner white and on the underwing although some Tahiti Petrels can show entirely dark feathering, with age and wear a whitish bar appears through the central wing coverts, not seen in Phoenix Petrel. Also on the underwing Tahiti Petrel lacks the white wedge on the inner forewing, the bill of Tahiti Petrel is massive and of a different shape to any pterodroma. Regarding the overall jizz of both species, Phoenix Petrel is typical of a medium to large Pterodroma Petrel, whereas Tahiti Petrel, being of the genus Pseudobulweria, appears smaller headed, longer, straighter winged, with a much more leisurely flight style.

Another gadfly petrel, reasonably common in the Coral Sea at various times of the year and breeding right across the Pacific Ocean, with the closest breeding ground on Ball's Pyramid at Lord Howe Island, is the Kermadec Petrel *Pterodroma neglecta*, another species both authors are highly familiar with. Unlike Herald Petrel which physically is very similar to Phoenix Petrel, Kermadec Petrel is more heavily built, with a more robust bill and appearing front heavy in the body with a shorter, more squared off tail. The wings of the Kermadec Petrel are also broader and in its characteristic piratical mode, the flight is more jaeger like than pterodroma. Kermadec Petrel is the most polymorphic of all seabirds, with a staggering range of plumages, ranging from birds with all pale head and underparts and brownish upperparts through to almost totally dark brown birds. The underwing of Kermadec Petrel is mainly dark with a variable whitish wedge on the inner forewing but there is a white flash in the base of the primaries similar to Herald Petrel, more often than not with a white crescent in the adjacent coverts. One plumage variation of Kermadec Petrel approaches very closely to Phoenix Petrel and several images have been taken over the years by PW an example of which can be viewed in Form C of this submission. However, Kermadec Petrel possesses a diagnostic feature, that is a pale whitish webbing in the outer primaries on the upperwing, which can vary in scale of intensity but is always there.

Yet another species very similar in plumage to Phoenix Petrel in the western Pacific region, has also on one occasion been electronically tracked to the mid eastern seaboard of Australia, namely the Magenta Petrel *Pterodroma magentae.* This species breeds on the Chatham Islands and is critically endangered, with a total population down to at most 100-150 individuals, although possibly on the increase. Superficially Magenta Petrel is like Phoenix Petrel but is overall larger with a wing measurement closer to Tahiti Petrel and weighing on average 50% heavier than Phoenix Petrel. The head is darker than the body plumage but often with some whitish scaling in the face and lacking the white throat of Phoenix Petrel. The underwing is almost totally dark but the primaries are paler, more reflective than in Phoenix Petrel and Magenta Petrel lacks the white area in the inner forewing. The bill is more robust with a different tube structure. Also, on Magenta Petrel the undertail coverts lack any of the barring of Phoenix Petrel with darker feathering confined to the edges of the outer tail coverts.

Other Comments:
The weight for Phoenix Petrel popularly used in literature of 269 g is based on presumably from ten examples weighed at Christmas Island, the captured bird from Raine appears to be somewhat heavier but 46 gms is negligible and is backed up by the weights of the captured Herald Petrels, which also from the above table exceed most in literature. Both PW and DS discussed this and from handling the birds of both species and from the photographs taken it was concluded that prior to breeding the birds were fully fed up and

conditioned and probably at the upper end of their respective weight scales. It must be pointed out here that the Phoenix Petrel was captured on the ground, calling and either it or another was observed in the air prior to its capture leading to the belief of both observers that the species may be attempting to breed on Raine Island. The possibility of this species breeding at this time of year on Raine Island is backed up by Jon Norling's observations in early July 2013, where he observed birds breeding at this species' largest breeding population on Kiritimati Island. [1]

Raine Island is part of a group of islands and cays, just outside the Great Barrier Reef to the east of the northern end of Cape York, the others being Moulter Cay, eleven nautical miles north of Raine and very similar in structure and vegetation and MacLennan Cay further to the west, this being in the northern Coral Sea, in the western Pacific Ocean. Raine Island and possibly Moulter Cay are a known breeding ground for Herald Petrel with an apparent increasing breeding population. According to the latest data from Birdlife International, Phoenix Petrel currently breeds in the Line and Phoenix Islands (Kiribati), Marquesas and Pitcairn group, all in the eastern Pacific with Phoenix being the closest to Australia. Previously it bred on Tonga but now presumed extinct and known from Samoa, the Cook Islands and Tuvalu. It is a vagrant to Fiji and the Kermadec Islands, which are still a long way east of Australia and Raine Island.

Like many other Pterodromas in the worlds oceans, especially in the Pacific, both Herald Petrel and Phoenix Petrel are under threat from many pests, namely feral cat *Felis catus*, Black Rat *Rattus rattus* and Polynesian Rat *Rattus elegans.* The main breeding population for Phoenix Petrel is on Christmas Island (Kiribati) where the biggest threat is from feral cats. Although a lot of work is being done by various groups to rid the island groups of these pests, the feral cat is at the moment problematic on Kiribati away from human habitation. Raine Island and Moulter Cay are at present exotic pest free and with the current work ethic provided this should remain so. There is currently an ongoing project between the Queensland National Parks led by Dr. David Stewart on Raine Island and the British Natural History Society? on Round Island off Mauritius in the Indian Ocean, with the interaction of Herald Petrel, between the two islands.

Dr Stewart was last present on Raine Island in 2016 where he caught and banded Herald Petrels and then became involved with the British group working on Round Island, who are working on a sympatric Herald, Trindade and Kermadec Petrel breeding population. Only one pair of the Herald Petrels, located and photographed on Raine Island on the current study possessed bands from 2016 and they were the first two birds banded on that trip. With the discovery now of a potential new breeding species to this island group, further studies should prove increasingly crucial.

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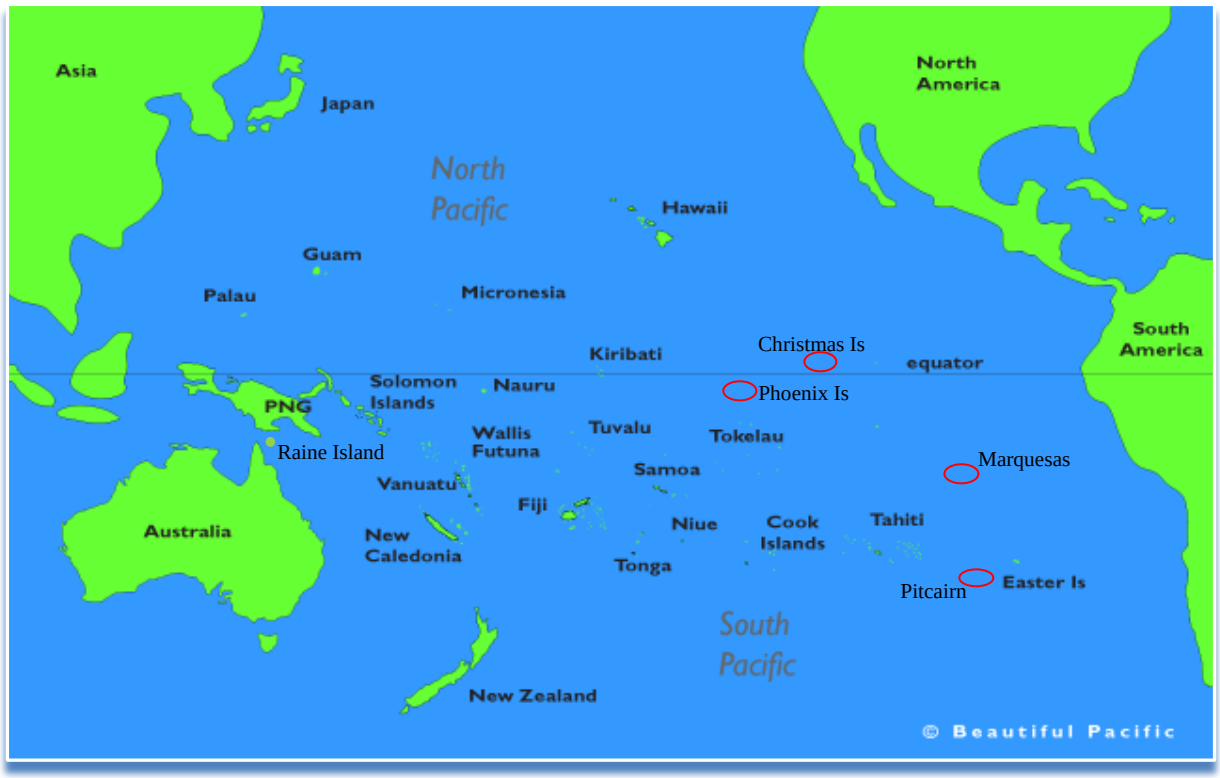
Form C

Raine Island from the windward side, vessel leaving the anchorage.

Raine Island from the anchorage, the windward side starts from the right hand of the image.

The habitat above the low cliff comprised of low scrubby plants and grasses, Herald Petrels were found resting and nesting here.

The area on the dunes above the high tide and seaward of the low cliffs consisted of fairly dense low grasses, Herald Petrels were found resting and nesting here along with the Phoenix Petrel. The edge of the reef can be seen beyond the lagoon. This was the windward side of the island, during the prevailing SE trade winds of the Winter months.



Red circled Island groups listed by Birdlife International as currently still having breeding populations, note the distance away from Raine Island.

National Parks vessel MV Reef Ranger – 24 metre Incat Crowther Catamaran Patrol Vessel.

Phoenix Petrel *Pterodroma alba* onboard Reef Ranger 27/6/2018.

Phoenix Petrel *Pterodroma alba* onboard Reef Ranger 27/6/2018.


a


b

Herald Petrel (b) differs from Phoenix Petrel (a) by having a grey head with pale lores. Some all dark Kermadec Petrels (c) have dark lores like Phoenix Petrel but lack the pale throat and white underparts, most other Kermadec Petrel morphs have pale lores like Herald Petrel but not all. Kermadec Petrel generally has a steeper, more robust forehead than either Phoenix or Herald Petrel Tahiti Petrel (d) has a much more robust bill than any Pterodroma.

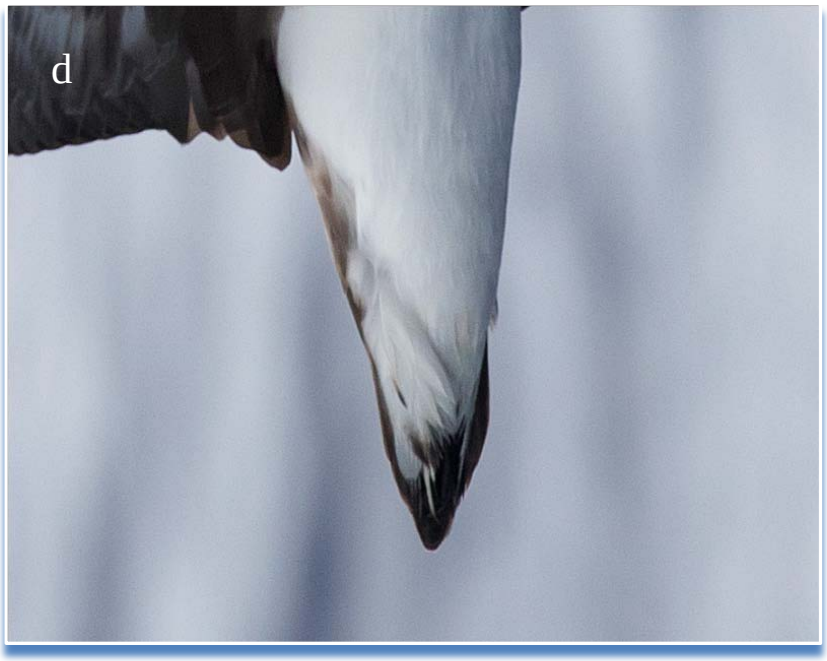

a


b

Phoenix Petrel (a) has a mainly all dark underwing apart from white innerwing, base to carpal area, which is shared with Herald Petrel (b) and Kermadec Petrel (c) but Herald Petrel has white primary flash and paler secondaries, creating a blackish bar through the central covert area. Kermadec Petrel (c) is highly polymorphic with variable underwing patterns with this dark intermediate example showing the white flash at the base of the primaries, similar to Herald Petrel. Tahiti Petrel (d) has a mainly all dark underwing, although will show an increasing white area through the central coverts with age and wear but never has the white area in the inner wing or pale primary flash.


a


b



Phoenix Petrel (a) has mainly white undertail coverts with some intermittent light barring, whereas Herald Petrel (b) has more heavy barring and some streaking, giving the appearance of darker undertail coverts. Kermadec Petrel (c) even in the palest of individuals have uniformly darker undertail coverts. Tahiti Petrel (d) has more uniform white undertail coverts generally but can show heavier darker streaking around the edges. Kermadec Petrel differs from the other three in having a shorter, more squared off tail.

Kermadec Petrel *Pterodroma neglecta*, Southport, 18/4/2015. P. Walbridge. A few birds similar to this one have been sighted off Southport over the years. Superficially similar to Phoenix Petrel but heavier billed, more front heavy and thickset, with shorter, more squared off tail. It has similar all dark head (including lores) but also has uniform dark throat and neck, underparts not as clean white as Phoenix Petrel, with dark undertail coverts and the underwing showing white primary flash (albeit more restricted than normal). Same with the upperwing, characteristic white flash at the base of the primaries, again more restricted than normal. A trap for the unwary.