

Field Notes

A 'Festival' of Gulls along the North Selangor Coast

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Introduction

Gulls are uncommon in Malaysia, with only Brown-headed Gull *Chroicocephalus brunnicephalus* and Black-headed Gull *C. ridibundus* reported regularly. However, following concerted efforts during January and February 2026 we were fortunate in recording five taxa and one hybrid together in the same location. In this note we present images of some of the birds and discuss the identification of the two larger gulls that were present. Identification of the larger ones is challenging, so we go into considerable detail about them. We provide a short summary at the end of the note for those readers less interested in all the detail. We make the case that one of the two large gulls fits all currently accepted criteria for Steppe Gull *Larus (fuscus) barabensis*, so potentially represents a new taxon for Malaysia.

Gulling trips

Previous reports of Brown-headed Gulls along the North Selangor coastline suggested that this area might attract something more interesting, so we agreed to schedule regular checks of the area in 2026 to look for gulls.

At sunrise on 12 January 2026, we set off in a small boat on an exploratory gulling trip. After approximately one hour we reached an area where lots of herons, egrets and terns were attracted to fishing activity. We slowed the boat and spotted one or two Brown-headed Gulls. Suddenly one of our team noticed a large gull standing on a post, and we soon realised there was an even closer one on the water nearby. Before we had a good look at them, they took off and headed to join the flock of Brown-headed Gulls that was building up on the exposed mud.

Due to shallow water we could not get very close to the flock, but both of the large gulls were present. One remained largely hidden behind other birds, but we were able to get unobscured views of the one we had initially seen on the water. As we were on a boat it was not possible to scope the birds so we were not able to see fine feather detail, but from what we could see the bird we had seen most clearly appeared to be a Heuglin's Gull *Larus (fuscus) heuglini*. It was a first cycle bird, largely still in juvenile plumage (i.e. no clear signs of any post-juvenile [preformative] moult).

Over the coming weeks various subsets of the authors visited the area another four times, occasionally joined by one or two other birders. On the second trip (15 January 2026) two large gulls were again present. CG recognised one as being the same Heuglin's from the first trip but this time the second bird gave slightly closer views. These views strongly suggested that it might be a Steppe Gull *Larus (fuscus) barabensis*. He left with images that were tantalising but not quite ideal for resolving its identification. We organised a return trip as soon as possible to try to establish this bird's identity.

The team returned on 17 January 2026 and we were rewarded with a real once-in-a-lifetime experience, at least within the Malaysian context. We were treated to frame-filling views of both large gulls, as well as a lovely close Slender-billed Gull *C. genei* and a hybrid Brown x Black-headed Gull. Brown- and Black-headed were also present, so with a bit of manoeuvring it was possible to see five gull taxa in the same field of view. As we headed back to the harbour that evening, the overwhelming feeling was that we had been treated to a 'festival' of gulls (Plates 1-7).

Two subsequent trips in February (02 and 18 February 2026) were less successful, with no large gulls present and dwindling numbers of Brown- and Black-headed.



Plate 1: Part of the gull flock that welcomed us on 17 January 2026. A first cycle Slender-billed Gull is in the foreground, just left of centre, and stands out clearly from the more robust Brown-headed Gulls. Both large gulls are also here, resulting in a rare Malaysian image that includes four gull taxa.



Plate 2: Adult Brown-headed Gull in non-breeding (basic) plumage. 17 January 2026.



Plate 3: Adult Brown-headed Gull in non-breeding (basic) plumage. 17 January 2026.



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Plate 4: First cycle Black-headed Gull (formative plumage), 25 January 2026.



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Plate 5: First cycle Brown-headed Gull (formative plumage), 25 January 2026.



Plate 6: First cycle Slender-billed Gull (formative plumage), 17 January 2026.



Plate 7: Hybrid Gull (left) with Brown-headed Gull (right), both adults in non-breeding (basic) plumage. Compared to the Brown-headed the presumed hybrid Black x Brown-headed is smaller with a somewhat more slender bill. It's eye is not as pale as typical adult Brown-headed, but paler than Black-headed (which in the field appears uniformly dark). It has much more white and much less black in the wingtip than Brown-headed: the white mirrors (white spots) on the outer two primaries (primaries 10 and 9) are larger, and it has a long white tongue on primary 8 (third from outermost feather) extending into the black part of the feather. In Brown-headed the distal part of P8 is normally all black, or only occasionally with a small white mirror. Thus, everything about the bird looks intermediate between Brown-headed and Black-headed Gull. 17 January 2026.

Identification of the two large gulls.

Both large gulls had dark, unpatterned inner primaries and broad tail bands, which helped rule out Mongolian Gull *L. mongolicus* which could potentially occur in Malaysia. It is clear that the Heuglin's Gull was seen on each of the first three trips – detailed inspection of feather detail confirmed this. However, we are less sure about the second bird – the Steppe candidate. Probability suggests that the same two individuals were present each time, but because of poor views on the first trip we are not entirely sure about this. The Steppe candidate was, however, certainly present on both the second and third trips.

Although the records are yet to be assessed, for the sake of clarity in the text which follows we will simply refer to the first bird as the Heuglin's and the second as the Steppe. The two differed in size, structure and moult (Plate 8). The Heuglin's was larger. It had a longer, more evenly tapered bill, a more sloping forehead and flatter crown, and its body was more elongated and slender-looking. The Steppe had a shorter bill with a more marked gonys, a smaller and more evenly rounded head, and a less elongated, more evenly proportioned body. Its eye looked larger on the head than the Heuglin's, which made it look more placid.



Plate 8: Candidate Heuglin's (left) and Steppe (right) Gulls, Selangor, Malaysia, 17 January 2026. Both are first cycle birds, defined on the basis of still having their first generation primaries. However, although they are the same age class their appearance differs markedly. The Steppe appears more grey, as a result of the presence of many new second generation feathers with a different colour tone to the first generation ones they have replaced. Contrast between the first and second generation feathers is most evident by comparing the old, brown, worn tertials with the adjacent inner greater coverts which are new, fresh and have distinctly grey tones. Note also the differences in size and structure of the two birds.

The thing that first drew attention to the second bird as a potential Steppe Gull was the extent of its post-juvenile (preformative) moult. With the exception of one or two new, second generation median coverts, the Heuglin's was in fully juvenile (first basic) plumage (Plate 9). Its plumage overall was therefore rather faded and somewhat worn, as would be expected for feathers that, by mid-January, were around 8 or 9 months old. In contrast, the Steppe Gull (Plate 10) had many second generation feathers, so clearly had undertaken an extensive post-juvenile (preformative) moult. Its mantle and scapulars were all second generation feathers; around 60% of its lesser and median coverts were second generation and it had several new inner greater coverts. Many of its outer greater coverts were missing so, unlike the Heuglin's, it was in active moult.

It is worth commenting on the extent of head and neck streaking on the two birds, as this differs too. As they age, juvenile (first generation) head, neck and body feathers that are initially streaked become worn and faded, so look paler over time. Thus, by mid-January a bird that has not moulted can be expected to look whiter headed and bodied than when it first attained its juvenile feathers 8 or 9 months earlier. However, any new fresh second generation head, neck or body feathers will have some streaking. Thus, a bird that has undertaken a post-juvenile (preformative) moult can look more streaked on the head and neck than a worn, faded one that has not moulted. This explains why the Heuglin's looks rather whiter than the Steppe – as well as moult in the mantle, scapulars and coverts, the Steppe has moulted in new head and body feathers and because they have not yet worn or become faded, the head and neck look streaked.

Together with the structural differences, the different moult pointed strongly to one bird being a Heuglin's and one being a Steppe. We elaborate on this in the following sections.



Plate 9: Heuglin's Gull, North Selangor, Malaysia, 17 January 2026. Note the broad tail band (covering most of the areas of the tail) and dark inner primaries with no complex patterning; there is a slight contrast in tone between the outer and inner webs but there are no pale patches or dark subterminal marks on these feathers. The tail and inner primary features help rule out Mongolian Gull.



Plate 10: Steppe Gull, North Selangor, Malaysia, 17 January 2026. A rather more compact bird than the Heuglin's. Note the numerous missing feathers in the wing – more than half of the greater coverts are missing. This means it is in active moult. Also note the many grey feathers across its mantle, scapulars and forewing – these are second generation feathers moulted in during the post-juvenile (preformative) moult.

Moult of Heuglin's and Steppe Gulls

The Theory

For many years birders visiting the core wintering areas of Steppe and Heuglin's Gulls have noticed that the mixed flocks contain first cycle birds with very different moults – essentially some with little or no post-juvenile (preformative) moult and some with extensive moult. This led to the idea that the different moult types correspond to the two taxa. This idea made sense because Heuglin's and Steppe Gulls breed in different geographic areas (Heuglin's in Arctic Russia, Steppe in Central Asia (Southern Russia and Northern Kazakhstan)), where the climate results in Steppe breeding earlier than Heuglin's. The flow of argument was that earlier breeding Steppe Gulls have young that fledge appreciably earlier than Heuglin's and so by the time juvenile Steppe Gulls reach the wintering areas (around October) their feathers are already several months old and worn. In turn, this leads to the idea that they therefore need to replace these feathers, to cope with the sun's bleaching effects over the coming months. In contrast, Heuglin's don't fledge until a month or two later, so when they arrive on the wintering grounds their feathers do not yet need replacing; they consequently retain their first generation feathers until the moult the following year.

These logical arguments have underpinned identification of first cycle Steppe and Heuglin's Gull for many years. Originally they gained traction on online discussion forums in the early 2000s and, as there was no evidence to the contrary, moult was adopted routinely to identify birds on the wintering grounds (Plates 11 and 12). Today it is invariably used to propose an

identification when an image of a mystery Steppe / Heuglin's is posted online. The use of moult for separating these two gulls has become such standard practice that it has been incorporated into the latest generation of specialist gull identification guides.

The problem is that no one has ever properly assessed how reliable or clear-cut this use of moult might be. The logic is very clear and the rationale for labelling birds with extensive moult as Steppe and little or no moult as Heuglin's appears compelling, but without ringed birds of proven origin it is not possible to be sure this is what they really are. Moreover, while no one doubts that there are some birds with no moult and some with extensive moult, some birds are intermediate. This raises the question of whether there is a clear dividing line or whether there is a continuous spectrum of moult between the extremes. No one has assessed moult systematically on a sample of birds, so to date we have not had an answer to this question.



Plate 11: First cycle Steppe Gulls, United Arab Emirates, 31 December 2018 - 3 January 2019. Birds chosen to illustrate the range of moult of birds in the core wintering area. All four birds illustrated here have many new scapulars and at least some new wing coverts. Note that remaining juvenile (first generation) feathers in the wing coverts and tertials are worn by this date. The lower right bird has replaced almost all juvenile scapulars, coverts and tertials (only a few juvenile outer greater coverts remain).



Plate 12: First cycle Heuglin's Gulls, United Arab Emirates, 31 Dec 2018. Note that almost all feathers are still juvenile (first generation). In general, these birds look more fresh and crisp than the Steppe Gulls, with fringes on the juvenile feathers hardly worn.

Testing the Theory

To help resolve the identification of the two Selangor birds we assessed the moult of gulls from the core wintering grounds using all available images. No judgment was made about which taxon an individual might belong too – instead all birds were simply scored based on moult and then we looked to see whether they grouped into two types that might be consistent with the hypothesis that they represent two distinct 'populations' (i.e. from different breeding grounds and with different breeding timings).

We used images primarily from CGs own collection, taken on four different trips to UAE in the period of late December to early January (in various years between 2009 and 2019). These were supplemented by images available on eBird and iNaturalist. The eBird and iNaturalist images included birds from UAE, Jordan, Iran, India, Israel, Bahrain, Oman, Kazakhstan, Bangladesh, and Saudia Arabia, all locations within the accepted winter range. To improve sample size, online images taken between mid-December and mid-January were used. Only images good enough to allow feathers to be counted were included. Other similar large gulls present in these areas (e.g. Caspian Gull *Larus cachinnans*, Baltic Gull *L. fuscus fuscus*) were discounted on the basis of accepted structural and plumage difference from the two target taxa (Gibbins 2004; Gibbins et al. 2010; Gibbins et al. 2011). The two Selangor birds were not included in the sample.

On each bird, the number of new feathers visible in each of four feather tracts was counted: (i) mantle and scapulars, (ii) lesser and median coverts, (iii) greater coverts, and (iv) tertials. For each bird, the number of new feathers in each tract was expressed as a percentage of the total number of feathers in that tract. Tertials are normally not visible on flying birds so only standing birds were used for this tract. Some flying birds were used for assessment of moult in the other tracts.

Frequency plots were produced for each feather tract to show general patterns. Principal Components Analysis (PCA) was used to integrate across all tracts simultaneously. This analysis allows visualisation of the similarity of individual birds based not on each tract separately but all tracts together. On a PCA plot, birds positioned close together are very similar (i.e. in this case, they have similar moult), while those far apart are very different (have different moult). A clustering technique (Hierarchical Clustering on Principal Components, HCPC) was also applied to the moult data to establish whether there were distinct, statistically supported groups of birds and, if so, how many groups there were. These groups were then overlain on the PCA to help visualise patterns of similarity in moult among the sample birds.

The simple goal of the analysis was to understand whether a random selection of first cycle gulls from mixed flocks on the wintering grounds clustered into distinct types based on differences in moult. Results are shown in Figures 1 and 2. Samples size (number of birds, n) are shown for each feather tract; all sample sizes are > 100 birds.

What the Data Tell Us

The most obvious point is that none of the tracts show a normal (bell-shaped) curve (Figure 1). Such curves are frequent (hence 'normal') in ecological data sets and indicate that average values occur most frequently, with values further and further either side of the average occurring with lower and lower frequencies. In the case of gull moult, a normal curve would indicate that most birds have a moderate level of moult, with birds with either very little or lots of moult much less frequent. Clearly the data do not show this, with birds at either end of the distribution frequent for almost all the feather tracts.

The lesser and median coverts show a rather flat distribution, but with the two extremes of moult being most frequent. The majority of birds (63%) already had a full set of new scapulars (i.e. 100% new), with just a small percentage of birds having less than 80% new feathers. Nevertheless, some birds had no or very few (<10%) new scapulars. Most birds had few new greater coverts or tertials, but some had replaced all feathers in these tracts (15% of birds had replaced all of their tertials, while 11% had replaced all visible greater coverts).

These patterns are interesting and suggest that there is something more complex than a single predominant moult type, but from the frequency plots alone it is difficult to see whether there might be distinct groups of birds. The PCA, however, provides a very clear picture (Figure 2). The clustering technique separated birds into three groups, based on the extent of moult in all four feather tracts. The groups represent two extreme sets of birds [one group with very extensive moult (light green) and another with very little or no moult (orange)] and a third group that is essentially made of up birds that have rather intermediate moult (blue).

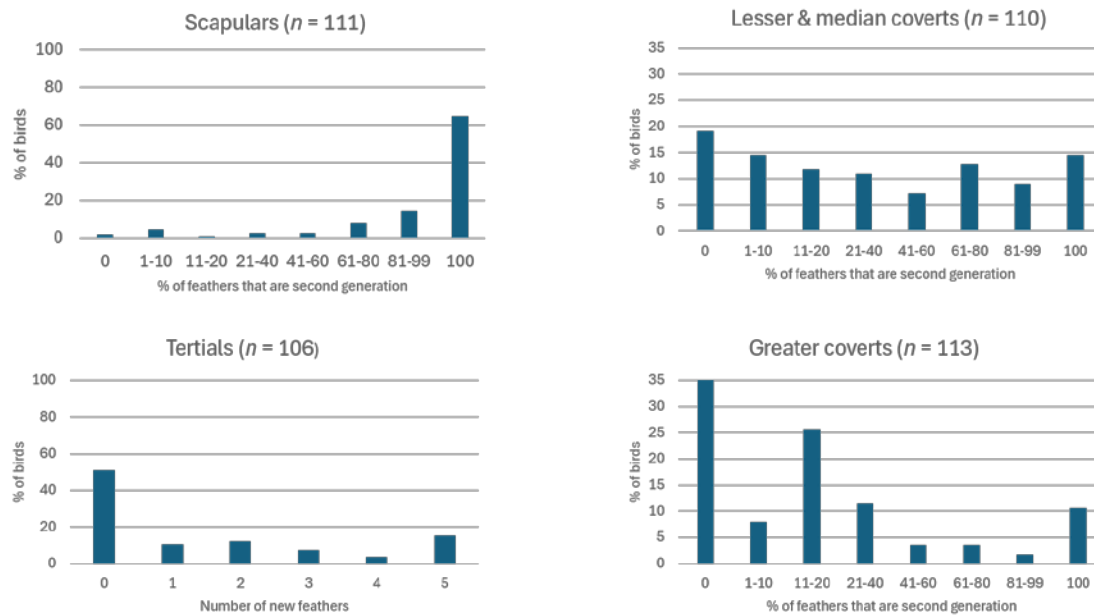


Figure 1: Frequencies of new feathers in different tracts of Heuglin's and Steppe Gulls in mid-winter. Samples sizes (n) are given

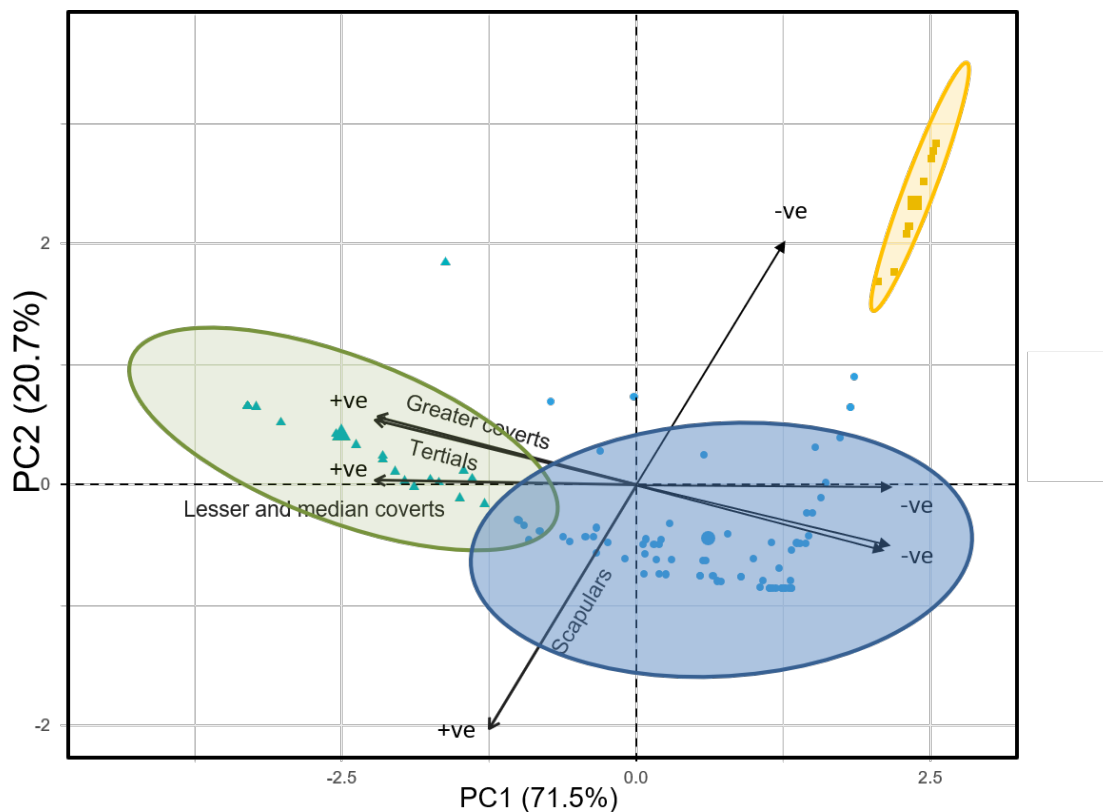


Figure 2: Principal Components Analysis of a sample of Heuglin's and Steppe Gulls from their wintering grounds in mid-winter. Each sample bird is a dot, colour coded according to the group it is classified as being part of (based on Hierarchical Clustering on Principal Components). Ellipses show the 95% confidence intervals for each group, with birds outside of these ellipses considered outliers. The arrows show the direction of change for each feather tract; a positive sign ('+ve') means that as you move across the plot in this direction, birds have more new feathers for this tract, while a negative sign ('-ve') means that birds have fewer new feathers.

The PCA and cluster analysis support the theory that there are indeed distinct 'populations' of large gulls that, in January on their wintering grounds, can be grouped according to differences in moult. However, it shows that the most meaningful way to treat the patterns of moult is to recognise three groups rather than two. In fact, the majority of birds (at least in this sample) fit into an intermediate moult group. Birds in the intermediate group typically have renewed all or most of their scapulars but have lower than average numbers or no new coverts and tertials

Birds in the limited moult group have zero or very few new feathers in any tract, while those in the extensive moult group have all new scapulars, and at least some new tertials and coverts; the most extreme birds in this group have replaced all visible scapulars, wing coverts and tertials. On its own, having all new scapulars is not enough for a bird to fit into the extensive moult group – some new coverts are needed too.

How can we interpret these results overall and what do they tell us about the two Selangor birds? The most obvious interpretation is that differences are not clear cut, with continuous variation in the extent of moult between the two extremes. Nevertheless, birds at or close to the extreme endpoints are very different – there is a group of birds with all visible feathers in their scapulars, coverts and tertials already replaced by mid-December, and a group of birds with no feather replacement whatsoever or just one or two new feathers. The two end-groups correspond with expectations based on differences in breeding location and timing so, in turn, match Heuglin's and Steppe. However, there are many birds with intermediate moult that are hard to assign to either taxon.

The two Selangor birds are superimposed onto Figure 3 based on their moult values for each feather tract. One bird clearly fits neatly into one end-group and the other into the opposite end-group. They do not quite sit quite at the extreme ends of respective groups. This is because even the Heuglin's has two new wing coverts, and the Steppe, while having all new scapulars and many new coverts, still has its first generation tertials and a few first generation coverts remaining. The two birds are therefore not extreme endpoints but rather typical examples of each of the two end-groups.

Large gull taxonomy and occurrence in Malaysia

Any large gull in Malaysia is a rare sight, so we were extremely fortunate to see two birds together. We cannot say for certain that one is a Heuglin's and the other is a Steppe, but we can say that they represent very typical examples of two, non-overlapping end-groups that have been defined based on moult; such differences in moult align with a more northerly, late-breeding population and a more southerly, earlier-breeding one. Differences in the extent of their post-juvenile (preformative) moult are complemented by the structural differences highlighted earlier. In our opinion, if these birds were seen within their normal wintering range, they would be identified routinely as a Heuglin's Gull and a Steppe Gull.

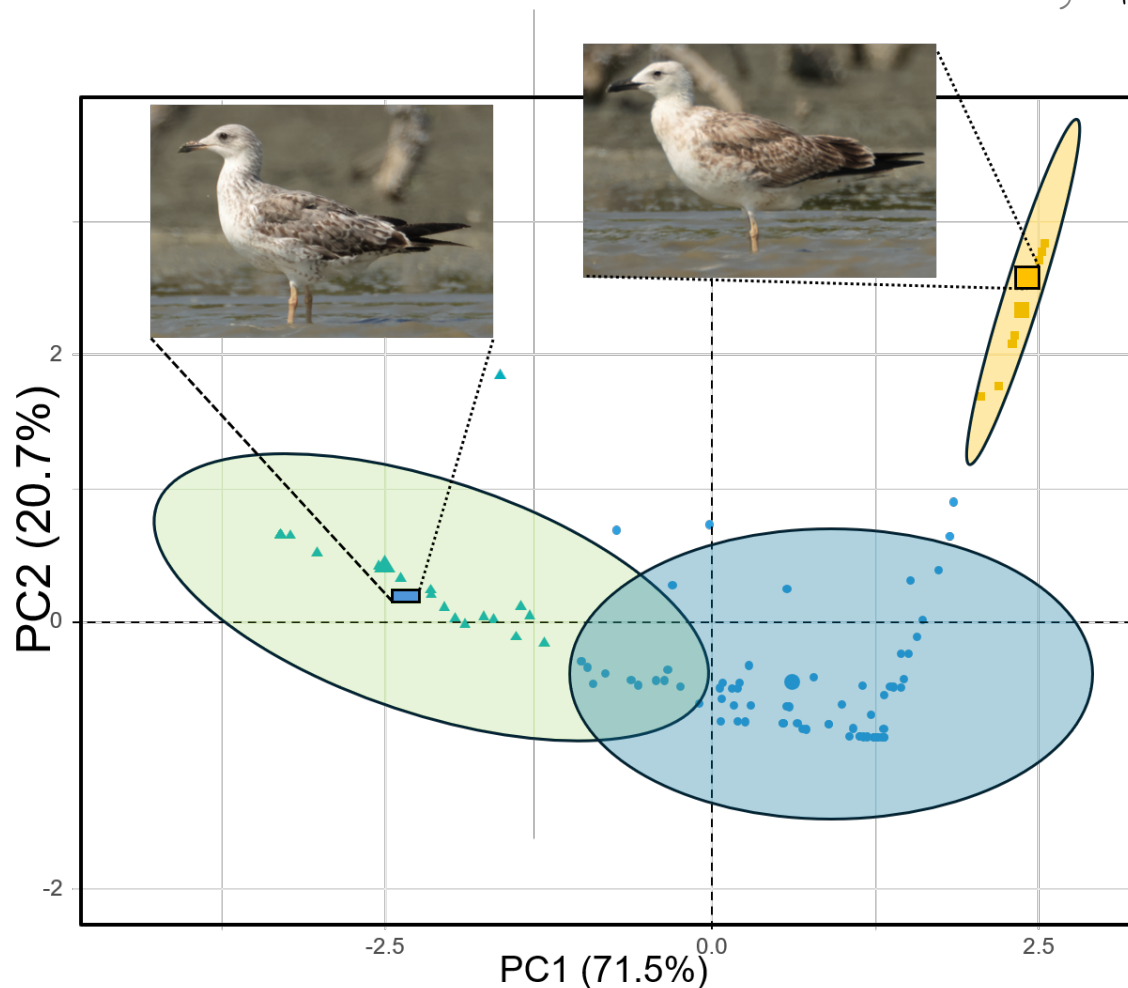


Figure 3: Schematic showing how the two Selangor birds sit within objectively defined groups of gulls. The positions of the two birds are based on their moult % values for each feather tract. To avoid clutter, the arrows for each tract have been removed. The diagram shows that the two birds are typical examples (close to the centre) of the two most different groups ('endgroups').

Heuglin's and Steppe are part of a Northern Hemisphere group of gulls whose evolution and taxonomy have been debated for many years (Crochet et al. 2002; Liebers & Helbig 2002; Liebers et al. 2001 & 2004). The underlying reason for ongoing uncertainty is that, in evolutionary terms, these gulls are 'young' and have not diverged to the extent that genetic differences between them are clear; they are very much borderline, in terms of the genetic thresholds normally used to draw species boundaries. Notably, deKniff et al. (2001) found that 76-80% of the genetic variance observed across the Eurasian large gull taxa was due to differences within the populations studied (i.e. among individuals of the same taxon), with only the remaining 20-24% attributable to differences between taxa. Therefore, while divergence in displays, behaviour and breeding biology have created near-complete reproductive isolation between some of the taxa, lineages have not been separated for sufficiently long for nuclear-DNA sequences to have diverged clearly.

Heuglin's Gull (sometimes called 'Siberian Gull') is most commonly placed within the Lesser Black-backed Gull (*L. fuscus*) complex that includes nominate *fuscus* as well as *graellsii* and *intermedius*. While Adriaens et al. (2022) adopt this treatment, they emphasise that *heuglini*



differs structurally from other members of the complex, being more elegant, with a smaller head, a more slender bill and longer legs. Malling Olsen (2018) treats *heuglini* as a full species: Heuglin's Gull *L. heuglini*, with two subspecies – *heuglini* from NW Russia and *taimyrensis* from Russia's Taimyr Peninsular. Importantly, tracking studies have shown that these two have different main wintering areas – *heuglini* flies south to winter around East Africa, the Middle-east and across to India (Panagoda et al. 2025), while *taimyrensis* flies south-eastward to winter in East Asia, mainly around Japan and Korea (van Dijk et al 2011).

Steppe Gull has been considered both a subspecies of Caspian Gull and a southern member of the Lesser Black backed Gull complex (see Malling Olsen 2018). Its old treatment as a subspecies of Caspian is nowadays largely discounted, as the two differ in many ways and are unlikely to be confused. Its mtDNA is very similar to Heuglin's Gull (Collinson et al. 2008), but most adults can be told apart based on details of their wingtip pattern, upperpart grey tones and moult; their long calls differ too (Adriaens et al. 2022).

Previous records of large gulls in Malaysia, all immature birds, appear to belong to the Lesser Black-backed complex, and have been assumed to be *heuglini/taimyrensis*. While these two are not known to be separable in immature plumages, 'Lesser Black-backed Gulls' seen for example in Thailand are assumed to be *taimyrensis* due to this taxon's more easterly wintering grounds.

To our knowledge Steppe Gull has not really been considered as a possibility here in Malaysia due to its more westerly breeding and wintering ranges. However, Steppe Gulls occur commonly in Bangladesh along with Heuglin's (e.g. many images on eBird, and personal observations by CG in Feb 2025). The recent observation of a ringed Little Tern *Sterna albifrons* (white leg flag, code 7MK) in South Selangor from a breeding colony in Northern India (Pranay Khadanga *pers. comm.*) proves that birds do move eastwards around the Bay of Bengal and down through the Andaman Sea to reach Malaysia. There is no reason to think a young Steppe Gull cannot do the same. Whatever the taxonomic rank of Steppe and Heuglin's Gull, it is interesting to us that both may occur in Malaysia. We encourage birders to take images and detailed notes of any large gulls seen in Malaysia, so that we may be able to go beyond simply labelling them all as 'Lesser Black-backed Gulls'.

An interesting discussion point is whether the two Selangor birds came from different places and 'found' each other in Malaysia, or whether they came together from the same place. We can only speculate on this, but if they came together then the Heuglin's may be a (nominate) *heuglini* rather than a *taimyrensis*.

Summary

Two first cycle large gulls were seen together on several dates in North Selangor in January 2026, in a gull flock that included Black-headed, Brown-headed and Slender-billed Gulls. The marked difference in the extent of moult of the two large gulls, together with size and structural differences, point strongly to one being a Heuglin's Gull and the other being a Steppe Gull. The Steppe was smaller, more compact and had undergone an extensive post-juvenile (performative) moult. This moult places it firmly among birds routinely labelled as Steppe Gull when seen in the normal wintering areas. Steppe Gull would be new to Malaysia.

The two birds were clearly associating with each other, and it is interesting to speculate whether they travelled together to Malaysia or came from different places and happened to converge on the same small area on the North Selangor coast.

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