THE LARGE, WHITE-HEADED GULL COMPLEX provides a tough challenge for evolutionary biologists and birders alike. Most of the confusion occurs in the northern hemisphere, where some 15 species are recognised—although the debate on species limits continues, as does that on how and why they have undergone such a rapid recent speciation.

The Kelp Gull Larus dominicanus is the only member of this complex that breeds in the southern hemisphere. Australia’s Pacific Gull L. pacificus and South America’s Belcher’s and Olrog’s gulls L. belcheri/atlanticus belong to a separate group of gulls that are characterised by having black tail bands in adult plumage. A review of the radiation of the large, white-headed gulls by Dorit Liebers and colleagues (2010, pp. 351–371 in Evolution in Action, edited by M. Glaubrecht, Springer-Verlag, Berlin) showed that the Kelp Gull evolved from a migratory population of Lesser Black-backed Gull L. fuscus that established a breeding population in the southern hemisphere. However, the study didn’t delve into the variation among Kelp Gull populations. Kelp Gulls occur in South America, southern Africa, Madagascar, Australia, New Zealand and most sub-Antarctic islands, as well as locally in the maritime Antarctic.

The southern African population was recognised as a distinct subspecies, L. d. vetula, by Richard Brooke and John Cooper (1979, Durham Museum Novitates 12: 27–37), differing from other populations mainly by retaining a dark eye in adult plumage. Subsequently, a detailed analysis of gull skeletal structure by Philip Chu (1998, Cladistics 14: 1–43) found such marked differences in skull structure that vetula was placed in an entirely different group from dominicanus. This resulted in calls for vetula to be treated as a separate species, variously dubbed the Cape or Khoisan Gull. However, in the absence of genetic evidence, Roberts & took the conservative view to retain vetula as a subspecies of Kelp Gull.

Viviane Stermkopf’s PhD thesis (2011, Ernst-Moritz-Arndt Universität Greifswald) provides the first genetic data on the relationships within Kelp Gull populations, and the results are intriguing. She sequenced three mitochondrial genes from 20 vetula samples collected in Namibia, and compared them with birds from Argentina, Chile, New Zealand, Kerguelen and the Antarctic Peninsula. Unfortunately there was no material from the tiny Madagascar population. Most of the vetula samples grouped together at the base of the Kelp Gull radiation, suggesting that southern Africa may have been the initial site of colonisation from the north.

However, four Namibian birds grouped with the South American samples, suggesting some gene flow back across the South Atlantic. Roberts & assumed that the occasional records of vagrant Kelp Gulls reaching southern Africa were judithae from sub-Antarctic islands in the south-west Indian Ocean, but the genetic results suggest that South American dominicanus are more likely to reach our shores. Indeed, this makes sense in terms of the relative size and mobility of potential source populations. L. d. judithae is a scarcer, resident population (for example, there are fewer than 500 Kelp Gulls at South Africa’s Prince Edward Islands). By comparison, Kelp Gull numbers are increasing along the east coast of South America, and they have recently expanded their range northwards, even reaching North America (where they hybridise with other large gulls). Kelp Gulls, presumably from South America (given the preponderance of vagrants reaching the islands from the west), are regular vagrants to the Tristan archipelago, more than half way from South America to southern Africa. It appears from the small sample of Namibian birds examined that vetula is still sufficiently linked to other Kelp Gull populations to not warrant recognition as a distinct species.

Stermkopf also found that birds from New Zealand (including the Chatham Islands) grouped with birds from the Antarctic Peninsula, which together were paired with birds from Kerguelen. As a result, birds currently lumped together into nominate dominicanus are not each other’s closest relatives. Based on this, Frédéric Juguet and colleagues reassessed morphological variation in the nominate form of Kelp Gull (2012, Zoological Studies 51: 881–892) and proposed that pending further investigation, six subspecies should be recognised: dominicanus from South America, vetula from South Africa, madagascariensis from Madagascar, judithae from the Indian Ocean sub-Antarctic Islands, australis from the Antarctic Peninsula and antipodus from New Zealand and the adjacent sub-Antarctic islands. PETER REYN

THE KELP GULLS FROM SOUTH AMERICA AND THE ANTARCTIC are characterised by having black tail bands in adult plumage. Left: An adult Kelp Gull in New Zealand, formerly considered L. d. dominicanus, but now split as L. d. antipodus. Opposite: An adult southern African Kelp Gull L. d. vetula, showing a heavy bill and dark iris typical of most (but by no means all) adult vetula.

Top: An immature Kelp Gull, photographed at sea on route to Tristan da Cunha from Cape Town, is probably from the South American nominate population.

Above: The Kerguelen endemic L. d. judithae on sub-Antarctic Marion Island, is characterised by having a smaller bill and more extensive white in the outer primary tips than other populations.