From Arctic tundras to African dunes

Siberian Peregrines in southern Africa

Text by Andrew R. Jenkins and Alan Stephenson
Photographs by Andrew R. Jenkins

Across its almost worldwide distribution, the Peregrine Falcon *Falco peregrinus* varies in appearance and biology to the extent that as many as 19 genetically distinct races are currently recognized. Populations of these subtly different forms are geographically separate, and many are essentially resident within their respective breeding ranges throughout the year.

However, Peregrines living at northern latitudes are forced southward by severe winter conditions on their breeding grounds, and the two northernmost races are highly migratory. Pairs of *F. p. tundrius* and *F. p. calidus* annually vacate their territories on the tundras of arctic North America and Siberia and travel thousands of kilometres south to spend the boreal winter in the tropics.

An adult male calidus *Peregrine feeding on a Rock Pigeon* Columba guinea *on the dunes at Woody Cape in South Africa's Eastern Cape.*

The secrets of Peregrine migration

Extensive ringing programmes, observations of migrating falcons in areas where they are particularly concentrated, and studies using satellite telemetry have unlocked many of the migration secrets of Alaskan and Canadian *tundrius* Peregrines, most of which overwinter in Central and South America. However, the origins, routes and destinations of migratory Peregrines of the Asian Arctic are poorly known. These *calidus* Peregrines are thought to move south into central and southern Asia, the Middle East and Africa. Birds crossing into Africa probably pass through the Red Sea region before fanning out to travel down both coastlines. They are apparently quite numerous on passage along the coasts of Somalia and Kenya, and have been reported using oil rigs off the Angolan coast as hunting and roosting sites. Inland in North and Central Africa, specimens have been collected from Sudan, Cameroon and the Congo.

Visitors to southern Africa

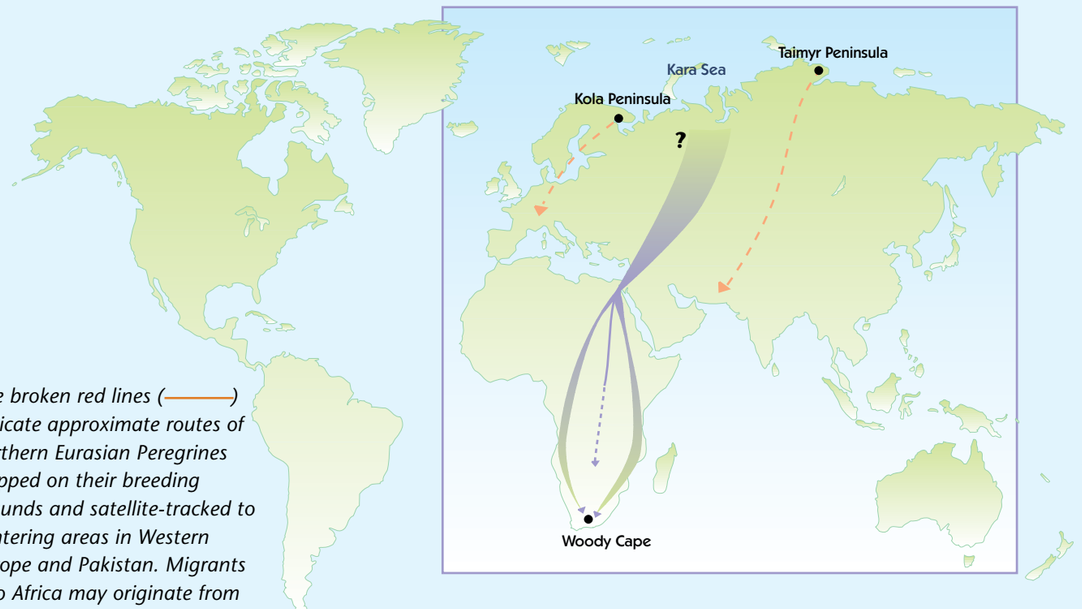
Authentic records of *calidus* or other migrant Peregrines in southern Africa are scarce. Andrew Jenkins (ARJ) searched the literature and canvassed a number of museums and ornithologists in the region and could compile only 18 acceptable *calidus* Peregrine records – five of which were museum specimens.

One reason that so few migrants are recorded may be that *calidus* birds are difficult to distinguish in the field from resident African Peregrines *F. p. minor*. Although the two races supposedly represent opposite extremes in the spectrum of Peregrine colour and size variation, casual sightings of Peregrines are often made under difficult circumstances and seldom permit the observer time to study subspecific details. Confusion is exaggerated by considerable variation in plumage and size within each subspecies. Perhaps significantly, seven out of 10 sexed and aged *calidus* records from southern Africa are of adult females – those most obviously different from the region's resident birds.

While problems with identification may reduce the number of migrant Peregrines recorded, data from the Southern African Bird Atlas Project show no increase in the frequency of Peregrine sightings over the summer period when the migrants should be in the region (October to March). Hence the paucity of contemporary records, which exists even in the face of a growing ▷

The Alexandria dunefield is two to three kilometres wide and stretches about 50 kilometres along the coast from just north-east of Port Elizabeth. The dunes reach a height of more than 100 metres in places, and only occasional patches of vegetation break the monotonous expanse of open sand.

Possible migration route of Siberian Peregrines into Africa



The broken red lines (———) indicate approximate routes of northern Eurasian Peregrines trapped on their breeding grounds and satellite-tracked to wintering areas in Western Europe and Pakistan. Migrants into Africa may originate from Western Siberia.

number of expert falcon enthusiasts active on the subcontinent, is probably realistic, and only a relatively small number of migrant Peregrines travel as far as southern Africa each summer.

Falcons of the dunes

In the summer of 1992, Alan Stephenson (AS) had occasion to visit the Woody Cape Nature Reserve which straddles the Alexandria dunefield along the eastern shore of Algoa Bay, in the Eastern Cape. During this visit, he was surprised to see at least two adult Peregrines apparently occupying the long stretch of low, sandy cliffs which line the beach to the north-east of Woody Cape. Subsequent visits revealed that these or similar birds were present in the area throughout that summer. AS noticed that the birds differed from African Peregrines in their appearance and in the way they flew. One bird, which he took to be female, was obviously bigger than Peregrines he had seen before, and both seemed to have very pale undersides. When they flew around the dunes or along the shore they seemed lazy, big-winged and long-tailed, and lacked the urgency and energy of the African Peregrine. When in pursuit of prey however, they took on a different demeanour and showed themselves to be fast, powerful hunters, unmistakably Peregrines. AS recognized that these must be migrant *calidus* birds.

Over the next five years AS made numerous visits to Woody Cape and adjacent areas of the dunefield. The Peregrines were there each summer from about November to March. He saw both adult and juvenile birds, and as many as five or six individuals in the area at a time. The adults seemed to prefer the coastal cliffs, whereas the juveniles usually perched inland on the highest crests of the dunefield. The Peregrines were often in the company of Hobbies *F. subbuteo* which also seemed to use the dunefield as a perching and foraging area and generally outnumbered their larger relatives, with upwards of 10–20 birds present in the vicinity on most visits. The number of birds and their time of arrival on the dunes varied each year, perhaps depending on the weather and foraging conditions the birds experienced on their trip south.

A bird in the hand...

Since first encountering the dunes Peregrines, AS made repeated efforts to trap one of these birds in order to study it in the hand. They were generally skittish and difficult to approach, and they proved to be extremely trap-shy. However, in January 1995 his efforts were rewarded, and he bagged a juvenile male. AS and ARJ got together to measure and photograph the bird, and to take a blood sample with a view to perhaps confirming its identity using DNA analyses.

In appearance, it seemed to fit the profile for a *calidus* Peregrine. The literature suggests that *calidus* is the palest Peregrine subspecies, especially ventrally, with faint markings on the underparts, a relatively incomplete head-cap and thin 'malar stripes' beneath the eyes, leaving the cheeks white. Overall, this bird was much paler than ▷

A juvenile female African Peregrine trapped in the south-western Cape **(above)** *and a juvenile male* **calidus** *trapped at Woody Cape* **(right)**. *Note the thicker malar stripe, more complete, dark 'helmet', and darkly streaked underparts of the African bird. The migrant has a significant amount of white on the head, quite thin malar stripes and pale, faintly streaked underparts.*

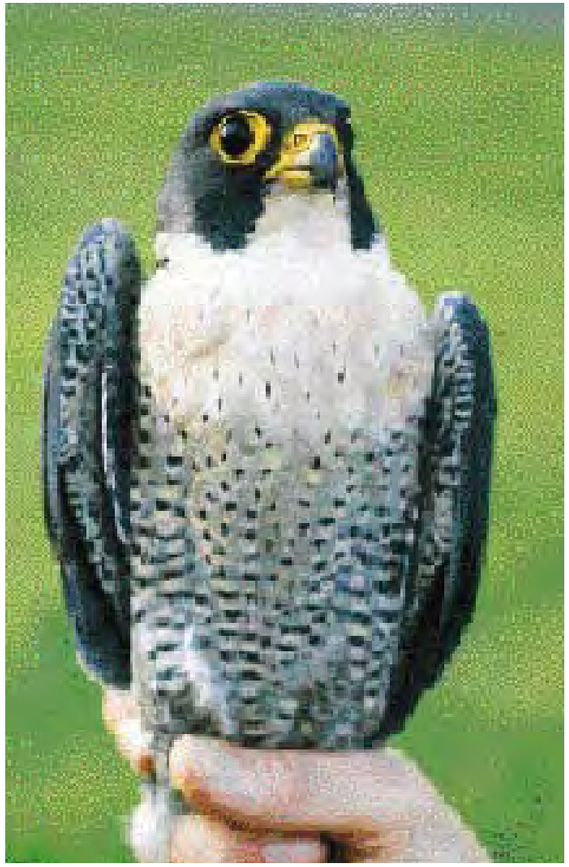
305–330 millimetres), and longer than that of *minor* (average 284 millimetres, range 275–300 millimetres), and its tail was more than two centimetres longer than that of a typical African Peregrine. With a wing area about 20 per cent larger than that of a typical *minor*, its wing loading (body mass to wing area ratio) was about 15 per cent lighter. The relatively long wings and light body of the migrant probably facilitate long-distance flying and reduce energy expenditure during migration.

In the 1996/97 season, there were at least three birds in the Woody Cape area, including an adult male which AS trapped in January 1997. Again we convened to record the bird's vital statistics, photograph it and take some blood before ringing and releasing it. At 580 grams this was another fairly small individual, with a wing length of 300 milli- metres and a slightly heavier wing loading than t h e juvenile bird. It featured a striking contrast between dark slate dorsal plumage and white, lightly barred underparts. The malar stripe was quite broad but the cheeks were white.

While these trapped birds were larger than African Peregrine males, the size discrepancy was much less ▷ than we had expected and both were well within the size range of *minor* females. Russian ornithologists have suggested that male *calidus* Peregrines migrate further than females, and are more likely to venture south into Africa. If this is the case, and most of the southern African visitors are males, our observations suggest that size may not be a good criterion for separating migrant from resident birds. Apart from 'jizz' differences which are probably only apparent to an experienced observer, we found that the best distinguishing feature in the field is probably the whiteness of the entire ventral surface on *calidus* birds, compared with the white 'bib' and darker belly presented by *minor*. Greyer upperparts and narrower malar stripes may not be strictly diagnostic of *calidus*.

typical juvenile African Peregrine. Its chest and belly were off-white with light streaking, its back chocolate-brown with the dorsal feathers broadly edged in buff. The malar stripe was quite thin and the cheeks were pale, but the most telling feature was the amount of white on its head, which extended from a broad, pale noseband to conspicuous white eyestripes and large, white patches on the nape.

Siberian Peregrines are also thought to be one of the largest forms of the species – appreciably larger than African birds. The bird AS had trapped was not particularly large. It weighed 570 grams and was only slightly heavier than most South African *minor* males (which average about 530 grams, and range from 500–610 grams) and was rather light for a *calidus* male which reportedly average more than 700 grams and range from 678–740 grams). However, its wing-length measurement (310 millimetres) was about right for *calidus* (average 314 millimetres, range



An adult male African Peregrine **(above)** *trapped on the Cape Peninsula, and an adult male Siberian Peregrine* **(right)** *trapped at the Alexandria dunefield. The African bird is typical of the subspecies, and features a coloured 'wash' with dense spotting and barring on the lower chest and belly and a pale 'bib', broad malar stripes and a full, black head-cap. The* **calidus** *bird has a slightly narrower malar stripe and is conspicuously whiter and more lightly marked below.*

Destinations

The literature suggests that Siberian Peregrines leave their breeding areas at the end of the northern summer in synchrony with the migration of their main prey species, mostly waterbirds, and that they follow these birds to their wintering areas and continue to prey on them there. Hence, falcons visiting southern Africa might be expected to frequent coastal estuaries where migrant shorebirds congregate. Wader biologists report that the frequency of Peregrine strikes at major southern African estuaries is relatively low, but this may simply reflect the small number of migrant falcons which make it this far south.

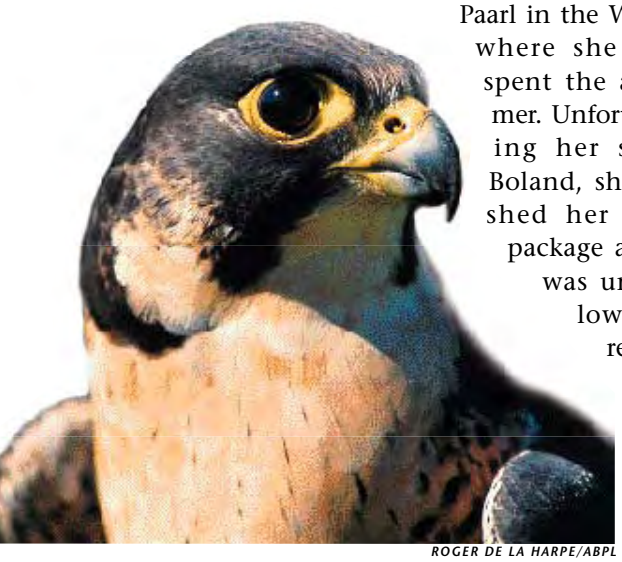
It is difficult to account for the attraction which the Alexandria dunefield apparently holds for *calidus* Peregrines. The area features a unique habitat, with large expanses of open sand offering little cover for prey. Perhaps the dunes constitute a particularly favourable hunting area for the migrant falcons, where they are unlikely to encounter territorial residents? Also, Woody Cape is conveniently situated for falcons to hunt pigeons moving over the sea between the mainland and Bird Island, and migrant passerines and waders travelling along the coast and crossing Algoa Bay. ▷

Above *The Siberian Peregrine* **(left)** *shows a noticeably whiter, less heavily marked belly and underwing than the African Peregrine* **(right)**.

Origins

Recent efforts to investigate the migration routes of Eurasian Peregrines have shed some light on the possible origins of visitors to southern Africa. Four birds were fitted with satellite transmitters in 1994 at their breeding grounds on the Kola Peninsula in north-western Russia by an American biologist, Charles Henny, and his team. All four birds overwintered in western Europe. Further east along the Arctic Circle, a female from the Taimyr Peninsula was tracked to her wintering grounds in Pakistan by workers from the Falcon Facility of the National Avian Research Center, Abu Dhabi (interestingly, a male trapped in this area weighed 625 grams, a figure which compares favourably with the weights we recorded in South Africa).

This rather limited evidence could suggest that falcons moving down into Africa originate from somewhere between Kola and Taimyr, in the region of the Kara Sea. In November 1996, Dr Bernd Meyburg of the World Working Group on Birds of Prey & Owls (WWGBP) informed us of a female *calidus* Peregrine which had been trapped and satellite-tagged on southward migration through Saudi Arabia. She was tracked on passage down to a point just north of Paarl in the Western Cape, where she apparently spent the austral summer. Unfortunately, during her stay in the Boland, she apparently shed her transmitter package and Meyburg was unable to follow her on her return journey and establish the whereabouts of her home. This summer, the WWGBP tracked two more females tagged in Saudi Arabia, but these birds migrated only as far as East Africa.



ROGER DE LA HARPE/ABPL

Left ***The African Peregrine***

Conservation implications

Little is known of the conservation status of Siberian Peregrines. While populations in some areas are probably substantial, there is evidence that their reproductive performance may be impaired by organochlorine contamination, which caused Peregrine populations in the United States and Europe to crash in the 1960s and '70s. These chemicals are used in pest control, but have been outlawed in most First World countries because of their persistent toxic effects on the environment. They are still used in less-developed countries, including some African states, and it is conceivable that *calidus* Peregrines accumulate these poisons on migration.

We hope to fit satellite transmitters to Peregrines visiting the Alexandria dunefield in future summers in order to establish the path they follow on their return journey, and on their entire migration route in subsequent years. If we can track sufficient individuals from this popular southern destination, we may be able to determine where they might be exposed to pesticides and other dangers on their annual pilgrimage from Arctic tundras to African dunes. □

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