

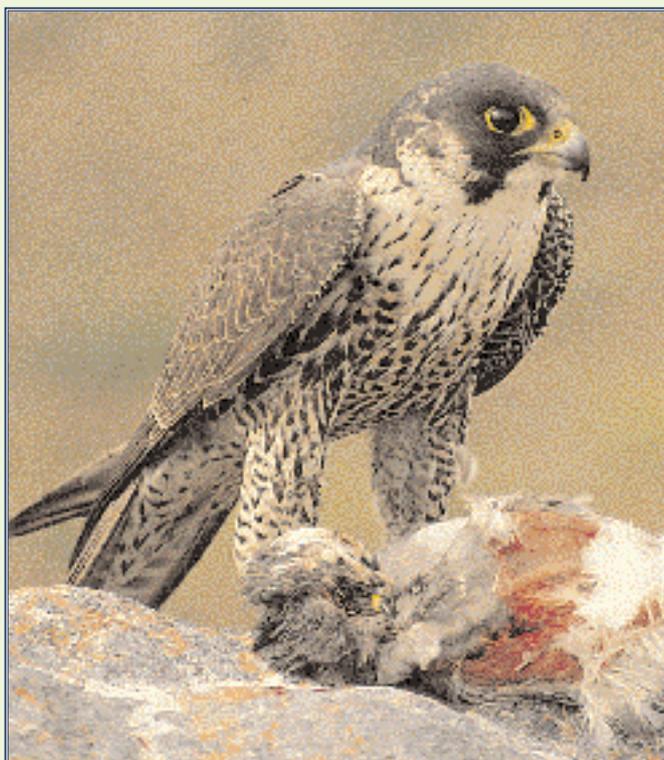
Understanding distribution patterns

Birds worldwide show spectacular variations in their distribution patterns. While it is often relatively easy to determine the limits to species' ranges, this is only one part of the story.

Explanations become much more difficult when trying to establish what factors determine the limits to a species' range or what causes variation in abundance or breeding success within a range. It is this type of information, however, which is crucial in making effective conservation decisions – targeting conservation efforts at the productive portions of a population is more likely to be successful than targeting these efforts at marginal populations (unless, of course, you are fairly certain you know why a particular section of the population is performing poorly, and can rectify the problem).

Over the years, Fitztitute researchers have addressed questions about patterns of distribution, abundance and performance for several species. These include both migratory and resident shorebirds, forest birds, endemic buntings of south Atlantic islands, gamebirds and birds on islands in man-made lakes. Three recent studies have targeted birds of prey – the Rock Kestrel, Pale Chanting Goshawk, and Peregrine and Lanner falcons.

Here, Andrew Jenkins, a doctoral research student at the Fitztitute, summarizes some of his research into distribution patterns of the Peregrine Falcon.



ANDREW JENKINS

*In South Africa, the Peregrine preys on birds weighing between eight and 600 grams, with pigeons and doves being favoured prey. This sub-adult female is feeding on a Feral Pigeon *Columba livia*.*

THE COSTS OF BEING A SPECIALIST?

The Peregrine Falcon *Falco peregrinus* probably has the largest world range of any bird. Despite its cosmopolitan nature, it is a highly specialized predator, uniquely designed for hunting other birds on the wing. From a suitably high perch or soaring position, the Peregrine uses gravity's action on its compact, smoothly contoured body, often combined with rapid, driving strokes of its pointed wings, to achieve speeds surpassing those of any other animal. This allows the hunting falcon to approach prey over long distances and still hold the element of

surprise. The Peregrine's large feet and sturdy bill are vital to secure and rapidly dispatch its prey in mid-air.

Research at the Fitztitute has shown that while Peregrines are found virtually everywhere on Earth, they occur at higher densities in temperate and Arctic areas than in the tropics and also breed most successfully at high latitudes. The rarity and relatively poor breeding performance of Peregrines in the tropics may be a price they pay for being so specialized. We think that the Peregrine's specialized hunting technique may affect its ability to provide enough food for large broods of chicks. The problem of feeding chicks is much less at high latitudes where its prey species have short, synchronized breeding seasons and produce many young.

The breeding of its prey

in the tropics is much less seasonal and broods are relatively small, leaving proportionally fewer 'inexperienced' birds as potential Peregrine food. This forces tropical Peregrines to breed only in those areas where prey are particularly abundant or easy to catch. In South Africa, Peregrines occur at lower densities in the northern tropics than in the temperate south and, in the north, are restricted to exceptionally high-quality nesting habitats which allow them to catch sufficient food for adults to supply their young as well as feed themselves.

In many parts of its tropical and subtropical distribution, the Peregrine is replaced by similar, closely related species which have less specialized diets and foraging methods.

In Africa, the Lanner *Falco biarmicus* is the common large falcon and its range overlaps with that of the Peregrine. The Lanner is much more of a generalist than the Peregrine, in terms of both its use of different habitats and its hunting behaviour. In South Africa, Lanners outnumber Peregrines by 10:1 in most areas.

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IN MEMORIAM

In May of this year, Richard Brooke passed away after a 20-year association with the Fitztitute. The Institute, and African ornithology, will be the poorer for this loss. A tribute to Richard appears on pages 15-16 of this issue.

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