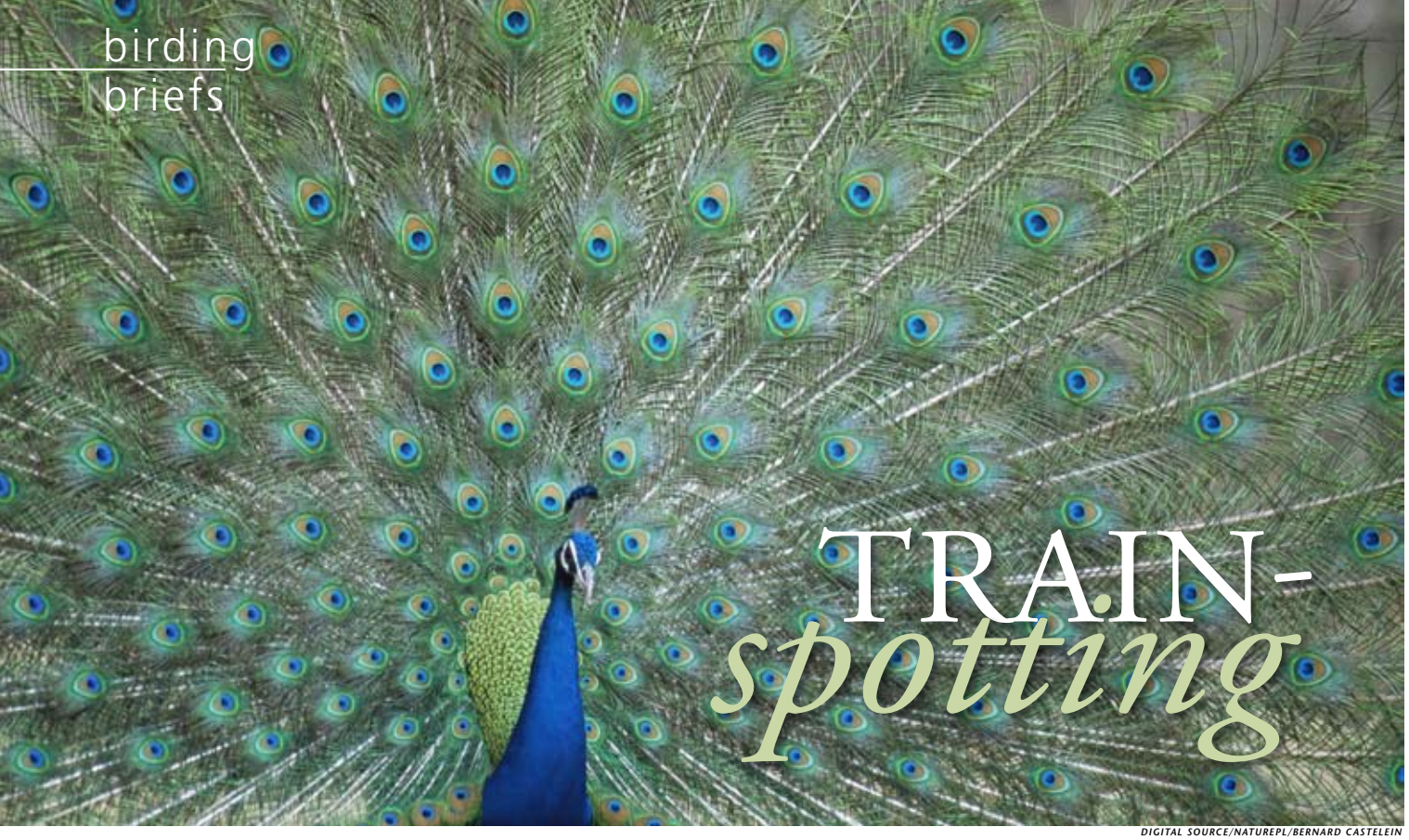

TRAIN-spotting

DIGITAL SOURCE/NATUREPL/BERNARD CASTELEIN

The elaborate tail of the male peacock is so gaudy, colourful and long that it is often used as a prime example of how male birds attract and dazzle females with elaborate plumages.

The process of females choosing males with the largest or most colourful display characters is termed sexual selection and many examples exist: cichlid fish with brilliant fin patterns, shorebirds with bright ruffs, giraffes with long necks, whydahs with long, symmetrical tails, and flowers with colourful and regular patterns. Symmetry is a trait often preferred by females (or pollinators such as bees) because it may be a reliable indicator of the vigour or fitness of the individual displaying it.

The Common Peacock *Pavo cristatus* is considered the prime example because of its extremely elaborate tail, an appendage so long it may actually hinder the bird's movements through the dense Asian jungles where it occurs. Furthermore, the male doesn't merely parade with his tail expanded hoping to impress a female, but actively 'shivers' it 20 or more times as a female approaches, and turns it to catch the light.

However, recent research on a feral peacock population in Japan questioned the use of the tail as a female attractant. Whereas researchers in the UK had found that the number of eye-spots and male mating success, the length of the train and male survival, and the size (weight) of the tail and the number of eggs fertilised by the male were all related, this did not tally with the results of the Japanese researchers.

They discovered instead that tail length and the number of eye-spots were unrelated, and that the degree of symmetry in the tail was not consistently related to the number of eye-spots. They did find that some males achieved most of the matings, but that the males that were more successful in one year did not have more eye-spots on their tails in that year than previously. In other words, eye-spots and mating success were not related. Also, those males lost to predators had longer tails than those surviving and there was no difference in the number of eye-spots. So, overall, few of the results expected under sexual selection were found. Does this mean that peacocks do not have tails to attract females?

In science it is always dangerous to conclude anything universal from a single study, and typically the best way forward is to undertake a simple experiment. This is a powerful way of manipulating just one factor while keeping all others the same to determine its effect on (in this instance) female preference. This was done by Petrie and others in a UK population: they manipulated the number of eye-spots in the tails of peacocks and found, as expected, that females then preferred those males with more eyespots. So why the differences between populations?

Petrie et al. suggest that it is not the number of eye-spots (measured by both Japanese and UK researchers) that is the direct signal used by females. It is, instead, the density of eye-spots (found by an independent French study) that is important, and this may have confused the issue. That is, the Japanese had not taken this factor into account in their study and may have relied on evidence from too few males. Whatever the reasons, peacocks remain with their tails not only to shiver at peahens, but to tease biologists keen on unravelling their function and significance.

ROB SIMMONS □

The eyes have it... A peacock with his train fully expanded.

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