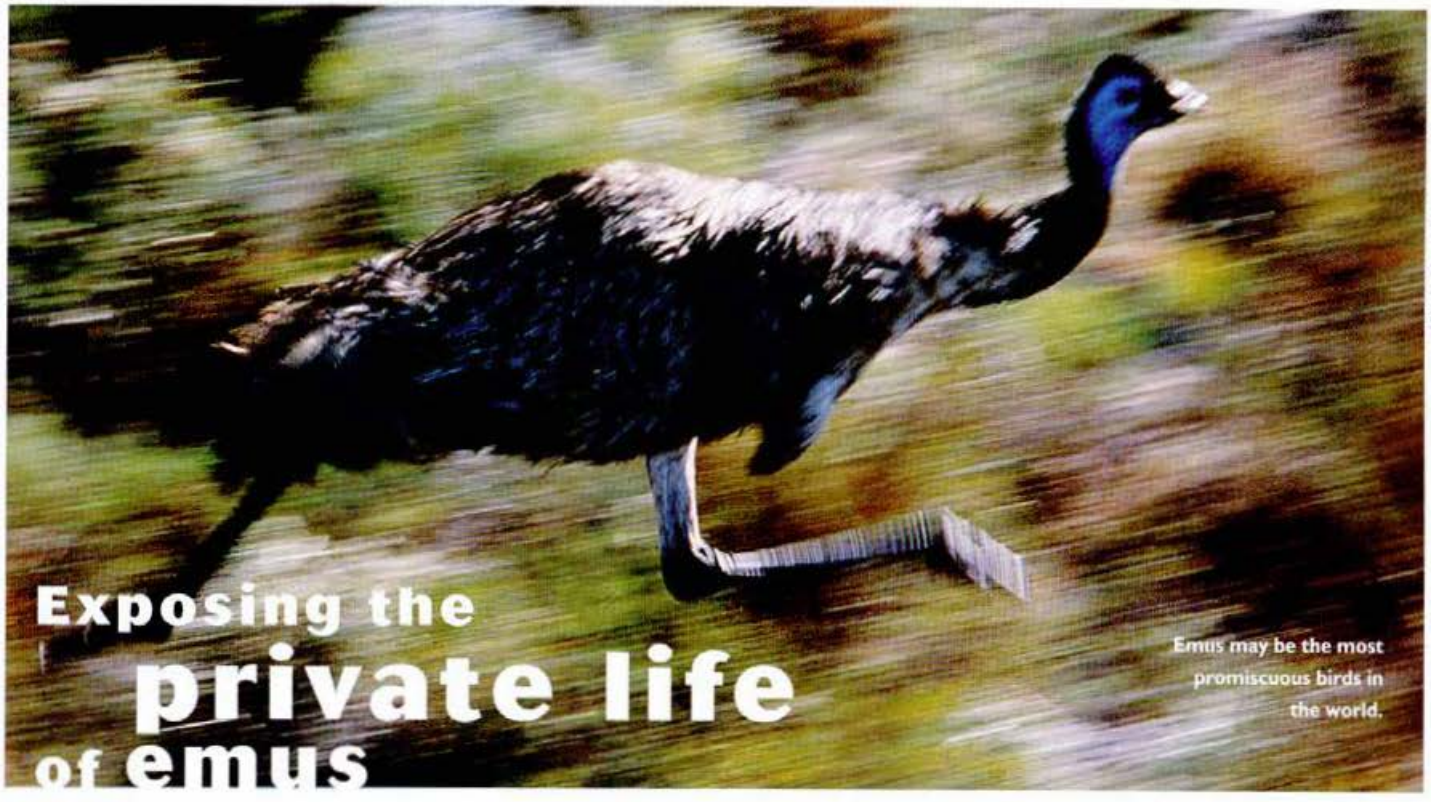

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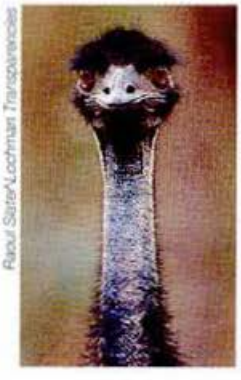
Exposing the private life of emus

Emus may be the most promiscuous birds in the world.

A STUDY of emu behaviour at Tidbinbilla Nature Reserve in the ACT has turned up a few surprises about the mating habits of Australia's best-known flightless bird.

The study is outlined in an *Australian Journal of Zoology* paper titled 'The mating system of free living emus' by Cate Coddington and Professor Andrew Cockburn of the Division of Botany and Zoology, Australian National University.

It reveals that emus (*Dromaius novaehollandiae*) combine monogamy, polyandry and promiscuity in their efforts to enhance reproductive success. In fact, the relative frequency of extra-pair matings for emus (73%) found in this study is the highest rate recorded for any species of bird.



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Before the 1992 study, information about the mating system of free-living emus was scarce, largely because most research had focused on arid habitats where following emus is difficult. In the absence of evidence to the contrary, it was generally suspected that monogamy prevailed.

At Tidbinbilla, the behaviour of 16 adult females (hens) and 25 adult males was observed. The birds were generally seen in highly stable male/female pairs and these relationships usually led to the hens laying their first clutch of eggs for the season. From this point on, however, things became more complicated. The hens whose 'primary' partners were preoccupied with incubating the pair's eggs sought the attention of 'secondary' males to father a second clutch of eggs in the breeding season.

In many cases, securing access to a secondary male involved vigorous competition. The females performed conspicuous mate-acquisition displays which often drew an attack from the target male's pair. Two females would also compete for unpaired males for up to three hours, trading sexual displays, and chasing and kicking.

Why do the females invest so much energy in pursuit of another mate? Coddington and Cockburn suggest that mating with a second male potentially doubles the female output as it enables her to lay two clutches of eggs. Thus it is an strategy for enhancing reproductive success.

What complicates the issue is that 'extra-marital' activity is not confined to the hens. Males apparently increase their reproductive output by seeking extra-pair copulations as well. This causes a direct conflict of interest between primary males and their females.

From the female point of view, it is best for the male to commence incubation early in the breeding season. She would then be free to compete for further mates. The earlier her own male starts to incubate, the greater her choice of secondary partner.

From the male viewpoint, however, the longer he defers incubation, the greater his chance of mating with another female. One male at Tidbinbilla was observed to mate with three females in one season. After each mating, he walked back to his primary partner.

In the end, the females at Tidbinbilla were rewarded for their pluck and persistence (and for laying those enormous eggs!). All initially unpaired males paired with and incubated a clutch for females whose primary mates were preoccupied with incubation.

An unresolved question is whether females lay in more than one nest. Emus lay near the incubating male who then gathers the eggs for incubation. They have been known to sit on 17 paddy melons (*Citrullus lanatus*) that are approximately the same size as an emu egg and, when unripe, about the same dark green colour. The paddy melons had been plucked from a vine that was about one to two metres from the nest. It appears that sometimes the females may have the last laugh.

Contact: Andrew Cockburn, Division of Botany and Zoology, ANU, (06) 249 2866, fax (06) 249 5573. 'The mating system of free-living emus' is in volume 43 of the Australian Journal of Zoology. *The journal is one of 13 published by CSIRO Information Services. For information about the journals contact Tracey Lockwood (03) 9418 7265, fax (03) 9419 0459.*