**CSIRO Sustainable Ecosystems**

# FRIDAY SEMINAR

**2 June 2006**

## Breaking the evolutionary rules

### Reversed plumage colouration and an unusual mating system in Eclectus parrots


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Brilliant plumage is typical of male birds, reflecting differential selection for male traits when females are the limiting sex. Brighter females are a rare phenomenon and are thought to evolve exclusively in response to sex role reversal. However the striking reversed plumage dichromatism of Eclectus parrots (green males, red and blue females) does not fit this pattern as they are not sex role reversed. We quantified their plumage colours using spectroradiometry and showed that very different selection pressures are acting on males and females. Male plumage reflects a compromise between the conflicting requirements for camouflage from predators while foraging and conspicuousness to conspecifics during display. Females stay at the nest hollow for the whole breeding season and are liberated from the need for camouflage. Their colours are a permanently conspicuous signal of hollow ownership.

Our molecular and behavioural analysis of the Eclectus parrot mating system, using eight years of data from our study population on Cape York Peninsula, revealed an unusual polygynandrous system. High variance in reproductive success caused by this mating system appears to have led to strong sexual selection in both sexes of this species.


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## 3:30 pm

**Venue:**
**Seminar Room**
**Graeme Caughley Building**
**CSIRO Sustainable Ecosystems**
**Gungahlin Homestead**
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