



## Buzz off.....

The Australian frog *Litoria caerulea* secretes its own mosquito repellent. This is the first time frog skin has been found to have anti-insect chemicals among its battery of toxins.

# DISCOVERIES

## PHYSIOLOGY

Why should most primates, such as this chimp, be among the few mammals that can see in full colour?



Anup Shah/naturepl.com

## The bare-faced truth about colour vision

Many mammal species can only see in black and white, but with our 'trichromatic' vision, humans get a more colourful take on the world. But why is it that we – and most other Old World primates – have such an extravagant sensory experience, when other species get by perfectly well with lesser abilities to see colour?

A recent study, led by Mark Changizi at the California Institute of Biology, Pasadena, overturns the previous assumption that trichromatic vision enables an animal to select the freshest fruit and

leaves. Instead, the authors argue, it's got more to do with picking the healthiest mates. Colour vision in humans and many other Old World primates is tuned to detect minute differences in skin colour, which in turn is affected by the blood flow beneath it. Changizi and his colleagues point out that primate species with trichromatic vision – gorillas, chimpanzees and so on – tend not to have much facial hair, especially when compared to species with less sophisticated vision.

Looking at almost 100 primate species, the scientists found that most that have with trichromatic vision also have relatively hairless faces. As well as a role in mate choice, trichromacy could also help in assessing the health of one's offspring. Perhaps it's no coincidence that we talk of being a little 'off-colour'.

Nick Atkinson

## BACKGROUND

» Trichromacy means having three types of 'cone cells' – the cells in the retina that detect incoming light. Each cone type is tuned to a particular frequency of light, which the brain processes to produce full-colour images.  
» While most mammals have

two or three cone cell types, birds have four. This allows them to see the ultraviolet part of the spectrum, and many birds have feathers that reflect ultraviolet light.  
» Most New World monkeys have only two types of cone cell (howler monkeys being a

notable exception).  
» Mantis shrimps have 10 cone cell types – it's hard to imagine how they see the world.  
» Some form of colour blindness affects approximately one in every 25 humans, but no one knows for certain why this rate is so high.

SOURCE: Biology Letters, DOI: 10.1098/rsbl.2006.0440 LINK: www.msnbc.msn.com/id/11644771/

## IN BRIEF

### PITY THE MOSSIE

**Mosquitoes suffer** when infected by malarial parasites. Testing 22 generations of *Anopheles gambiae* mosquitoes, scientists from Keele University found that infected females were smaller, laid fewer eggs and had fewer offspring surviving to adulthood than uninfected females. Sympathy, anyone? (Evolution, vol 59, pp2560-72.) *Adrian Barnett*

### BADGER BREEDING

University of Oxford researchers have produced the strongest evidence yet to suggest that female European badgers can **conceive during pregnancy** – a phenomenon known as 'superfetation'. Alongside embryonic diapause, whereby a fertilised egg suspends development for up to 11 months, this is thought to benefit females when competing for mates (Quarterly Review of Biology, March 2006). *Jack Finn*

### ENGLISH MINK DECLINE

Numbers of **introduced American mink** (below) are declining in England, according to a 25-year national otter survey. Wildlife researchers from the University of Oxford believe that the mink decline is related to an increase in the native otter population (Biological Conservation, in press, online). *Fergal MacErlean*



Silver maple leaf: Martin B Withers/FLPA; Green tree frog: Steven David Miller/naturepl.com

Andy Rouse/NHPA