

Reading in is the new going out



Subscribe



## Secret sleep of birds revealed in brain scans

02 July 2008

Magazine issue 2663. [Subscribe](#) and get 4 free issues.

BIRDS may not be "bird-brained" after all. Zebra finches' brain activity while sleeping looks just like that of a slumbering mammal.

Philip Low at the Salk Institute in La Jolla, California, and his colleagues monitored five zebra finches during the night, tracking eye and body movements, and brain activity. They found that the birds displayed all of the characteristics of mammalian sleep: slow wave, intermediate and REM sleep, and landmarks in brain electrical activity called spindles and K-complexes (*Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.0703452105).

Since K-complexes had only ever been observed in mammals, neuroscientists assumed that a neocortex was a necessary prerequisite. This area of the brain is involved in higher functions such as conscious thought and language, and is conspicuously absent in birds.

Birds may have a cortex-like structure but it looks different to the mammalian one. "Perhaps they are able to perform the same computations that we can, but the structure is [different]," says Low.

Observations of crow and scrub-jay behaviour support this idea, with previous studies suggesting that these birds possess "theory of mind", or the ability to estimate what another individual might be thinking or how they will respond to a given situation.

The finding also raises questions about the function of bird sleep, says Low, because these patterns are associated with learning and memory in mammals.



From issue 2663 of New Scientist magazine, page 17. [Subscribe](#) and get 4 free issues.

[Browse past issues](#) of New Scientist magazine

If you would like to **reuse any content** from New Scientist, either in print or online, please [contact the syndication](#) department first for permission. New Scientist does not own rights to photos, but there are a [variety of licensing options](#) available for use of articles and graphics we own the copyright to.

### Have your say

Comment title

Your name

Email

Comment

PRINT SEND SHARE

ADVERTISEMENT

Ads by naturalpath media

#### More Latest news

##### › Competition drives evolution of 'super sperm'

22:00 19 January 2009

When females shop around, sperm evolve to be faster and fitter in just about every way, a study in fish reveals

##### › Appetite for frogs' legs harming wild populations

18:07 19 January 2009

Gastronomic demand may be depleting regional populations of many frogs to the point of no return

##### › Inherited traits may explain differences in 'identical' twins

15:43 19 January 2009

Chemical adornments to DNA letters might play a substantial role in shaping individual differences between people

##### › Invention: Safer fly trap scent

12:12 19 January 2009

A new blend of organic compounds that smells like yummy rotting flesh to houseflies, but is inoffensive to the human nose, would avoid the use of toxic organic solvents, a patent application says

[› see all related stories](#)

#### Most read Most commented

- › Our world may be a giant hologram
- › Did dark energy give us our cosmos?
- › Eyes reveal health secrets of the brain
- › Balloon power isn't just a load of hot air
- › Explaining the curse of work

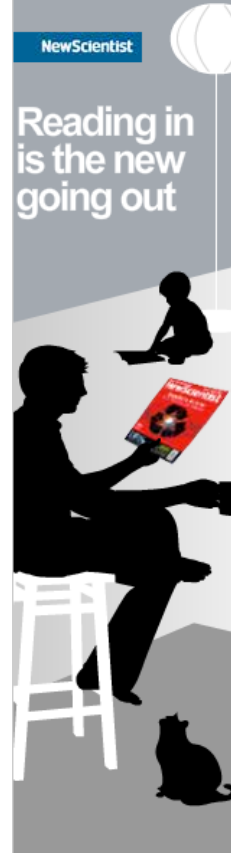
### This week's issue

Subscribe



17 January 2009

ADVERTISEMENT



[cancel](#)[submit](#)

### Bird Brain Evolution

Thu Jul 17 18:42:14 BST 2008 by **Tim Trout**

I have recently read quite a bit about bird brains being very similar, in many ways, to that of mammals. Which is the reason for my rhetorical question. Do you think that the way mammals evolved after the extinction of the dinosaurs could be similar to what could happen if say a disease wiped out humans? Would then the birds develop societies like ours, or rebuild what was left over by humans? Becoming the predominant species of course. I mean we know that predominant species can die off by looking at the fall of the dinosaur. Who knows we may extinct ourselves with a nuclear holocaust and the cockroach could become the dominant species and evolve into an intelligent life form. I think we should terra form Mars and then put the Bottle nose dolphin and African grey parrots on the planet and watch and study how they evolve over thousands of years.

[> reply](#) [> report this comment](#)

### Bird Language And Memory

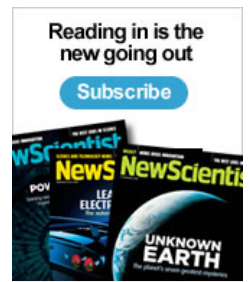
Sun Dec 07 22:05:14 GMT 2008 by **Mary Thorman**

I am an amateur bird watcher and breeder. I've noticed that social birds tend to gather together every evening to tell about their day's experiences. They seem capable of both "verbalizing" and listening to and comprehending the stories of all the others in the group at the same time. Since I raised budgerigars, I noticed that each one would recount important events of the day with imitations of sounds, speech patterns of humans and other birds and that incidents with more emotional content were repeated several times before the bird went on to the rest of the day's events. I scolded one budgie during the day for something with , "bad girl!" in an angry voice. That evening she went through the daily noises (telephone, doorbell, other birds outside, etc.) but when she came to "bad girl!" she repeated it five times with great emphasis such as head bobbing and feathers on the forehead coming forward. She was apparently angry about the rebuke. And that is only one example.

[> reply](#) [> report this comment](#)

All comments should respect the [New Scientist House Rules](#). If you think a particular comment breaks these rules then please use the "Report" link in that comment to report it to us.

If you are having a technical problem posting a comment, please [contact technical support](#).



## NewScientist RELATED ADVERTISERS

Stay a step ahead  
with the most relevant  
offerings from  
New Scientist's  
Related Advertisers

[CLICK HERE](#)

### Partners

We are partnered with Approved Index. Visit the site to get free quotes from [website designers](#) and a range of web, IT and marketing services in the UK.

[Back to top](#) ▲

[Go »](#)

[Login for full access](#)

[Login](#)

#### About us

[New Scientist](#)  
[Advertise](#)  
[Syndication](#)  
[Who's who](#)  
[RBI Jobs](#)

#### User Help

[Contact Us](#)  
[FAQ / Help](#)  
[Disclaimer](#)  
[Ts & Cs](#)  
[Cookies](#)  
[Privacy Policy](#)

#### Subscriptions

[Subscribe](#)  
[Renew](#)  
[Gift subscription](#)  
[My account](#)  
[Back issues](#)  
[Customer Service](#)

#### Links

[Site Map](#)  
[Browse all articles](#)  
[Magazine archive](#)  
[NewScientistJobs](#)  
[The LastWord](#)  
[E-Newsletter](#)  
[RSS Feeds](#)

© Copyright Reed Business Information Ltd.