

Bringing Research to LIFE

Upcoming Events

New Molecular Tools in Insect Phylogenetics: Can Agriculture Benefit?

With Dr. Barb Sharanowski
Department of Entomology

Wednesday, March 16, 2011
at 3:30 p.m.

Carolyn Sifton Lecture Theatre
Room 130, Agriculture Building

For more info contact:

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& Food Sciences
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Bringing Research to LIFE Speaker Series

A Bird's Eye View of Spatial Cognition

with Canada Research Chair
Dr. Debbie Kelly

Wednesday, March 16, 2011
at 7 p.m.

McNally Robinson Booksellers
1120 Grant Avenue

To assist us in planning seating,
RSVP to: (204) 474-9020

For more info: umanitoba.ca/research/brtl.html

Café Scientifique

Use it or Lose it: Mobility in Older Adults

Monday, March 21, 2011
at 7 p.m.

McNally Robinson Booksellers
1120 Grant Avenue

To assist us in planning seating,
RSVP to: (204) 474-9020

For more info: umanitoba.ca/research/cafe_scientifique.html

Who are you calling bird brain?

A phrase once deemed an insult can now be viewed as a form of flattery

BY MELNI GHATTORA

In the midst of a heated argument, you're called a "bird brain." Anger rises from within and rightly so. Your intelligence has been insulted, your level of articulation chalked up to that of a bird. What you may not realize, nor the person lashing out the "insult," is that you have been paid a compliment.

"There is this preconception of the 'bird brain.' Birds are stupid and they don't have high cognitive functions and that's actually completely wrong," says Debbie Kelly, Associate Professor in the Department of Psychology.

According to the researcher, who holds the Canada Research Chair in Comparative Cognition, some bird species engage in quite complex behaviour. "Many scientists are now using birds to understand complex cognitive behaviours; getting the word out to the community that there is value in studying birds is important," says Kelly.

In 2005, an international consortium of neuroscientists met in the United States to discuss and present their findings on the avian brain. "This meeting was important as it allowed researchers to re-name structures of the avian brain using the same terminology that has been used for mammalian neuroanatomy," explains Kelly. "One important result of this consortium was that the scientific director of the National Science Foundation put out a press release saying that studying the avian brain will be important for understanding human cognition and neuroanatomy in the future."

Kelly, who developed a research lab using bird models, primarily studies pigeons and Clark's nutcrackers. The Clark's nutcracker belongs to the Corvidae family which is considered to be a family of birds with a very high level of cognitive ability. Indeed a single nutcracker will make approximately 3,000 food caches in the autumn, and is able to remember the exact location of these food stores for up to six months later — compare this to simply finding your keys in the morning!

According to Kelly, birds are highly visual with a large portion of their brain dedicated to visual perception. "Birds represent a very good model for understanding how humans use visual cues in their environment to guide themselves, to navigate to a grocery store or to get back home, thus complementing and extending current rodent models," she explains.

Kelly and her research team have developed a procedure in order



Photo by Melni Ghattora

Debbie Kelly, Faculty of Arts researcher and Canada Research Chair in Comparative Cognition, uses bird models as part of her research on understanding human cognition and memory loss in aging adults.

to examine and understand spatial cognition in adult birds. "We know what cues they use and we've validated our procedures by comparing our results to those we obtained with humans and we find that humans and adult pigeons use very similar spatial cues," she explains. "Now what we're doing is testing our aged birds on the same tasks, to see whether they use spatial cues in the same way or not and we're using the same tasks in aged humans."

In Manitoba alone, 14 per cent of the population is over 65 years old and that percentage is going to increase. "We see that the quality of life is being reduced for individuals who are getting older and experiencing memory loss. So again, if we can use birds to try and understand what happens when people forget spatial information in their environment or how people can get lost in an environment that was once very familiar to them, we may better help individuals with memory decline."

Kelly explains that researchers

can study age-related memory loss in birds because they know exactly how old the birds are, what experience the bird has had, they know about their environment, about their genes, their nutrition and exercise, and can use them as a model to see what happens when they become geriatric.

"A lot of times, as a researcher who studies birds, I get comments like why are you studying birds, what can they tell us about cognitive degeneration in humans? But they really are a good animal model and in some cases they might provide additional information about cognitive decline that we can't obtain using mammalian models," says Kelly.

Join Dr. Kelly as she discusses her research at an upcoming lecture titled "A Bird's Eye View of Spatial Cognition" on March 16, at 7:00 p.m. at McNally Robinson Booksellers, 1120 Grant Avenue, as part of the *Bringing Research to Life* Speaker Series.