



University of Guelph professor Paul Hebert examines an *Actias luna*, one of the many moths his department has used for DNA bar coding.

GUELPH MERCURY FILE PHOTO

## Move over BlackBerry, it's the BarBerry

Guelph's answer to the BlackBerry is in professor Paul Hebert's hands — or will be, eventually.

Hebert, the chair of the new Biodiversity Institute of Ontario which officially opened last Wednesday at the University of Guelph, is leading a team of 35 scientists who are working with a new technology to almost instantly access biological information on any of the 10 million animal species on Earth. That technology will ultimately be used in a hand-held device that will probably look more like a "Star Trek" tricorder or a grocery store bar code scanner than a BlackBerry. But in terms of impact, this technology could be huge.

Here's why.

Hebert and his team are working on what's become known as bar coding technology, something he was pivotal in developing four years ago, to help identify and label species. It involves analyzing a snippet of an organism's DNA in the lab, and establishing a unique DNA bar code for that species. That code can then be quickly compared electronically to a computerized catalogue of other bar codes. If there's a match, the identity is affirmed, or a relationship can be established with other species.

Now imagine the possibilities. There's that classic scenario described in a University of Guelph student-produced publication called *Focus on DNA Barcoding*, in which a scientist such as Hebert is hiking through a remote area, finds a feather or tuft of hair; scans it with his BarBerry and shouts "Eureka!"

It's a reasonable scenario. Many species have



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yet to be identified. Using conventional methods, such as comparing size, shape and colour, researchers have named 1.2 million species over the past 200 or so years.

But that leaves about eight million species still to go, creating the potential for a lot of "Eureka!" moments, all over the world. It also underlines the need for research to establish the wide-ranging computerized catalogue of life.

But a far more familiar application will likely be at places such as international border crossings. There, inspection officials could use DNA scanners to identify insects or plants that might turn into invasive species.

Or how about being able to scan the likes of problematic pet food to quickly figure out what's in it? Or scanning animal feed to make sure its contents are all federally approved?

Or taking a BarBerry into a farmer's field to scan the soil for its contents, to help with precision

applications of key fertilizer ingredients, or to help identify pests? As Hebert says, farmers live on the land, and the land is ripe with active, living organisms that both help and hinder production.

What an advantage it would be to know exactly what's there, to be able to scan for biological activity.

This will all take time. Hebert estimates the hand-held device is about 10 years from hitting the market. And he says another decade after that will be needed to catalogue all species on Earth.

But what a concept — all species on Earth! Hebert and his team have certainly captured the imagination of the science community, both those who conduct research, and those who support it.

Alan Wildeman, vice-president for research at the University of Guelph, says the technology has the potential to literally change the way the world looks at life on the planet. He likened last Wednesday's opening of the \$4.2-million biodiversity institute to the fabled voyage of the HMS Beagle, which carried Charles Darwin to fame.

And Ken Knox, president of the Ontario Innovation Trust which along with the likes of the Natural Sciences and Engineering Research Council, Genome Canada, Ontario Genomics Institute, Canada Foundation for Innovation and others, has invested millions of public dollars into developing DNA bar coding, was optimistic about taxpayers seeing return on their money.

Indeed, if the BarBerry, or whatever they end up calling it, becomes commonplace, the returns will be significant, in many ways.



BEN GELINAS, GUELPH MERCURY

Lab technician Christy Carr works last week at the U of G's new Biodiversity Institute of Ontario.

• Owen Roberts teaches agricultural communications at the University of Guelph.

## Back on track seems to mean full steam backwards

The previous city council was criticized for undoing what the council before it did. Of course this was largely an exaggeration and, aside from two important matters, any undoing was blown totally out of proportion. Quoted in the Guelph Tribune days after the 2006 election, Karen Farbridge stated: "We are not going to go back and start undoing things." That was encouraging to read, if only for a moment.

In five short months the current council has gone backwards at breakneck speed. City departments were renamed before council approval. Planning is no longer planning, and engineering is no longer engineering. Now, department names appear as creative phrases to baffle the public. The previous council added a separate development application meeting to provide for three regular monthly meetings. The current council reduced regular meetings to two per month, one for development applications and one to look after all other city business. The current council increased the number of standing committees from the two used by the previous council, to five. It seems they need a separate committee to deal with every issue. Committee names are now convoluted and they even renamed one committee a second time, trying to encompass every function of the committee. The previous council changed



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meetings to begin at 6:30 p.m. in an effort to end at a reasonable time. The current council changed this back to 7 p.m. as fast as Ontario law allowed. It may not matter because the vast majority of council all lean the same way so most of the meetings are short and lack meaningful debate. These were minor undoings, undoings nonetheless. Let's go backwards a little more.

The previous council closed the wet plant when it learned the Environment

Ministry had ongoing concerns with odour issues, not because of the roof or funding. The current council directed the plant be reopened and appear to be uninformed of the root cause of the problem. This council should be presented with all the facts including the peer review that was done on air management. Perhaps they'll wait for the courts to decide if facts are important.

The last term of council only approved the first four years of the water supply master plan because council was uncomfortable with the Lake Erie pipeline option. Staff was adamant that the pipeline option remain in the plan to maintain credibility of the provincial environmental assessment process. In a move that appears purely politically motivated, a committee is now recommending council rescind the previous water supply master plan motion and replace it with a motion that technically does nothing different yet sounds good.

After extensive public input, even though opponents didn't like it, the previous council approved a commercial policy to allow adequate shopping opportunities in this city. Guelph currently lacks hundreds of thousands of square feet of commercial shopping space as thousands of residents flee the city to shop in Cambridge and elsewhere. The enabling zoning directed by the previous council has now been shelved without

council debate in a backhanded way to impede implementation.

During Farbridge's first term as mayor, a substantial process of public input began on pesticides and with that information the previous council directed staff to prepare a pesticide by-law. The current council sent it back to staff to draft something very different and council is now poised to approve that after recent committee approval.

During Farbridge's first term as mayor she supported changes to the way department heads were hired so she and one other, like-minded councillor Cathy Downer, would provide the only council input. This method was never used and the previous council returned to the process used to hire directors over the years. These are department heads that deal extensively with council, not guys hired to fill potholes. It makes perfect sense for council to have significant input into hiring for these positions to add accountability. Farbridge's council already changed the process so now she and one councillor have the only council input. A hand-picked senior management team, a council to support her every initiative and her own newly hired marketing spin doctor to make it all sound amazing. How detrimental to the city.

The last great undoing just days ago was that Larry Kotseff is no longer the

city's chief administrator. Hired by the last council after an extensive, expensive and time-consuming search, Kotseff lasted less than five months with the new council. All evidence suggests another undoing. Now we should expect restructuring of city departments.

So what did Farbridge mean by "We are not going to go back and start undoing things?" I don't know. Council's going backwards so fast there's the possibility of undoing some of the things that happened the first time she was mayor. That could be a good thing. During that time she supported the SUBBOR dump lock, filling our landfill with other municipalities' garbage, the Gordon Street construction fiasco and supported the downtown arena debacle that each cost taxpayers millions of dollars. These, along with the moratorium on shopping choice and the poor business climate during this time cost citizens greatly. Farbridge's 2006 election campaign slogan was: "Together, let's put Guelph back on track." I now have a different understanding of that slogan. Back on track means full steam backwards to remove any trace of the previous council. The mayor should have a big red "undo" button on her desk.

• Dan Schnurr is a former city councillor and a member of the Mercury's Community Editorial Board.