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The University of Winnipeg
RESEARCH



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Interview with Adriana Suarez - MSc Bioscience, Technology and Public Policy Student

What degree are you working on and when do you expect to be finished?

I'm enrolled in the Master of Science in Bioscience, Technology and Public Policy. I think I will be finished by May, 2011. I need to submit my thesis in April, get the feedback from my committee, and then set up the thesis defense.

What is your research area and who is your supervisor?

I work in population genetics of plants for conservation purposes. Basically we explore the genetic characteristics of populations to be able to compare them and study changes through time. We can explore the impact on plant population of events that happened long ago (for example, geographical isolation during glaciations) or recently (such as forest fragmentation due to human disturbance).

Under the supervision of Dr. Sara Good (who has been a huge support), I am working on a project to assess the consequences of forest fragmentation on the reproductive biology and genetic diversity of Chokecherry

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Message from the Vice-President, Research and International - Neil Besner

As we contemplate the dynamic funding environment for research in Canadian universities, we are often prone at UW to considering the challenges of working in a relatively small university with few graduate programs. Of course our own environment is changing as well; one significant recent development is that we now have four autonomous graduate programs, and therefore more graduate students working with us in various capacities.

This welcome enhancement to our research profile, however, should not obscure an overarching truth about graduate and undergraduate students at UW: it has long been the case that our students at all levels have enjoyed the opportunity to work with faculty in virtually every department and program on research activities to which students would not have such ready access at larger institutions. At UW, students are regularly invited, or hired, or engaged, as a vital part of their academic activity, to partici-

pate in research work: in libraries or laboratories, archives or arenas, practica or pedagogical experiments in the classroom or the community.

This is not mere window dressing, or add-on activity conceived of as a frill. This is vital work in the engine rooms of the university. Students' contributions to research at UW cross every disciplinary boundary, and they are real; that's one of the reasons that our undergraduates have told us for years that when they do go to graduate school, here or elsewhere, they consistently find themselves to be among the best prepared people in the seminar or the laboratory. The interviews in this issue of our research bulletin provide eloquent testimony, in students' own voices, of the diversity of research activity they engage in at UW.



Dr. Neil Besner, Vice-President, Research and International (photo courtesy of the University of Winnipeg website)

Long may this rich tradition of engagement endure.

Neil Besner, PhD
Vice-President,
Research and International

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Interview with Adriana Suarez - MSc Bioscience, Technology and Public Policy Student - continued

(*Prunus virginiana, L.*), a widely distributed species from temperate regions, by comparing plants from 2 fragments of forest (disturbed sites) with those from a continuous forest remnant (undisturbed) in Southern Manitoba. I am combining field studies with marker-gene analyses to test three main predictions: (i) reduction of reproductive success (production of fruits per flowers) in fragmented compared to continuous forest; (ii) greater reduction in genetic diversity with fragmentation; and (iii) reduction of pollen flow distances in fragmented forest.

Studying broadly distributed species within fragmented landscapes implementing integrative approaches will provide a better understanding of how these processes influence the persistence of natural populations.

Where is your field work taking place?

To compare the effects of fragmentation, I worked in two fragments of forest and a continuous population. The fragments, patches of forest surrounded by intensively used agricultural landscape, were located in Beaudry Park in the eastern portion of Winnipeg and Bird's Hill provincial park, in the northern part of Winnipeg. The continuous population (an almost undisturbed site) was located further north and included several provincial parks and forests including Grand Beach Provincial Park and Belair Provincial Forest. I visited the sites during two summers and worked with flowers and fruits on site. I performed pollination experiments and fed the mosquitoes as much as I could. I also collected leaves for my genetic work.

For my experiments in ecology, I tagged 20 trees per population and worked with them during both seasons. For my genetic data, I worked with more trees, and the sample size was different per population; I collected samples from 25, 37 and 47



Adriana Suarez, MSc Bioscience, Technology and Public Policy,
(Photo courtesy of Adriana Suarez)

trees from Beaudry, Bird's Hill, and Grand Beach respectively. I also collected all the fruits from my pollination experiments and additional fruits for genetic analyses of progeny. I had plenty of samples so as not to get bored during the winter.

How do you go about getting the DNA?

I needed DNA, not only from the trees, but also from some fruits, and the collection process is quite different. To extract DNA from the trees, I collected leaves and kept them in a cooler until I got to the lab. In the lab I ground them with liquid nitrogen and extracted the DNA using a detergent-like buffer and different solutions to separate the DNA from the rest of the cellular materials. Getting the DNA from the fruits is even more fun because I get to play with the seed a bit more. First I clean the fleshy part of the fruit (that you could use to make yummy jam) and then crack the outside shell of the seed. Then I clean all the tissue from the

mom than surrounds the embryo which takes quite a while since the seed is so small and delicate. Finally I have the embryo ready to use the buffers and solutions to isolate the DNA. It took me a while to standardize these protocols, but after a lot of patience and perseverance, I got it.

What do you see yourself doing once you are done your degree?

Time is going really fast and I have to submit my thesis very soon, but I have also been thinking about my future. I have learned a lot here and that has helped me to understand a bit more about the field and current concerns. I want to start a PhD to work with a prominent species from Colombia (my home country), and maybe do some breeding work applying everything

that I've learned. It is necessary to study these species not only to help farmers but also to maintain Colombia's biodiversity (we harbor 10 to 100 times more plants than other parts of the world).

Do you have any funny stories from the field or the lab?

There was one that my boyfriend Felixito will always remember. We had to go to the field to get the fruits, and out there, the mosquitoes get really insane. We stopped at our place before we left, and he asked me to get his fleece so he could cover his arms, but I forgot it. He was only wearing his t-shirt and when we were in the middle of the trail, he was like a cartoon....his arms and everything were covered with mosquitoes. He was running like crazy and I guess saying nice things to the mosquitoes. Later he was covered in bites but, happily, was not that angry. Hopefully he will forgive me for that one day!

Interview with Bobbie MacDonald - 3rd Year, International Development Studies

What is your degree and your expected graduation date?

I'm a 3rd year International Development Studies Major. I'm doing an IDS BA Honours degree. I'll be graduating June, 2012.

Can you tell me why you were in Kenya and who you were working with?

I was in Kenya for my IDS practicum. I was an intern for the Foundation for Sustainable Development (FSD) which is a non-governmental organization based in San Francisco. FSD sends interns all over the world through their intern abroad program. I was working with a local organization called the Likoni Community Development Programme. I worked with them on a full-time basis and reported back to FSD regularly.

What kind of work were you doing while you were there?

I was working in their Peace and Security for Development Program on a specific project called the Neighborhood Watch Project. The basic goal of the project is to help the community build their own committees to address issues and prescribe solutions for their own problems. We were working with everyone in the community, but our main focus was on the village elders and representatives.

Were you traveling around the country at all?

Not for this project, as it was all in one area. I think there were 100,000 people in the Likoni area. It's a big area with a bunch of villages. There were about 40 to 45 villages that were closely packed together. You can drive around it in about an hour or so.

How many interns were working with you? Where were the other interns from?



*Bobbie MacDonald, 3rd Year, International Development Studies, Likoni, Kenya.
(Photo courtesy of Bobbie MacDonald)*

There were 8 of us in total and we were all living with different local families in the Mombasa municipal area. FSD is an American organization, so most of the interns are from the States (5). There were two interns from Canada and one from the UK.

What is it about this area of work that attracts you?

I wish I could say I had an epiphany, but I think it was just a slow process of realization as I looked at one level of problems then another...going from an interest in helping people in Winnipeg, to working to eliminate poverty in Canada and all over the world.

Is there anything that you would like to mention?

The AUCC Sustainable Development Fund grant I received was really crucial to allowing me to undertake this internship. The \$6,500 from the AUCC fund went a long way in helping me fulfill this internship.

On the way here, I was thinking: I went to Kenya with a number of

goals in mind in three different categories. The categories were: to learn, to see, and to do. I wanted to learn how people sustain themselves on a daily basis. I wanted to learn what you need to take into account to plan a sustainable project. With the second category (to see), I went to see lions and everything that comes along with them, and that was excellent. But I also wanted to see the different factors that inhibit people from improving their lives. I wanted to see how people interacted with local government structures and how they are either a good thing or a bad thing for people. And whether they can be improved, and how they differ from our structures here. And I wanted to see how the international community was involved in Likoni and in Kenya. The third category was to "do," which is what many people would go abroad for. I wanted to try to implement, plan, and evaluate a project that was culturally sustainable and managerially sustainable so the people could continue the project afterwards.

Important Announcements, Events, and Deadlines

January

4 - MITACS - Graduate Student Training Events; Networking Proposals

10 - NSERC Idea to Innovation (I2I) Application

10 - Manitoba Health Research Council Information Session on Operating Grants, Establishment Grants and Manitoba Research Chairs - 12:30-1:20 at 3M64

15 - UWinnipeg Research Travel Grant

31 - SSHRC Partnership Grant LOI

31 - Manitoba Heritage Grants Program

February

1 - SSHRC Insight Development Grant

1 - CIHR Operating Grant LOI

1 - MHRC - Postdoctoral Research Fellowship; Graduate Studentships

9 - VP, Research and International Inaugural Lecture Series 12:30 - 1:20 at 3D01

15 - Manitoba Fisheries Enhancement Fund

28 - Manitoba Rural Adaptation Council - Canadian Agricultural Adaptation Program (CAAP)

March

1 - MHRC - Operating Grant; Establishment Grant; Manitoba Research Chair Application

1 - CIHR Operating Grant Application

1 - Wabash Center Research Grants

15 - Banting Research Foundation Grant

15 - UWinnipeg Research Travel Grant / Distinguished Faculty Travel Award Application

15 - UWinnipeg Research Undergraduate Student Research Award in the Human Science

18 - MHRC Bridge Funding



Research Office Information

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We are located at 4CM02 and 1GM05. Our office hours are from 8:30 a.m. – 4:30 p.m.