

Q & A

On Tour in the Sahtu

Alasdair Veitch and Dr. Susan Kutz, cofounders of the Sahtu Wildlife Health Project, give more insight into the project with the help of WCVN graduate students Drs. Emily Jenkins and Aleksija Neimanis.

PRE-TOUR DISCUSSION

Q. Why was it so crucial to heighten northerners' awareness of wildlife health?

Kutz: Many northerners are still closely tied to wildlife: caribou, fish and other wildlife are still their primary sources of protein. Therefore, people have a vested interest in knowing that the wildlife are healthy and that the populations are sustainable. Additionally, harvesters are concerned about the diseases that they may get from the animals that they hunt and trap (zoonoses). Those diseases are out there, they've always been out there and they always will be: the more people know about how to recognize and protect themselves from zoonotic diseases, the better.

Veitch: Some wildlife diseases can affect human health, so I knew we needed to communicate more of this information to local people. This really came home when we had a bit of a scare in one of our communities (Tulita) in the late 1990s. Some caribou that had been harvested at Great Bear Lake were sent to that community and others farther south. When someone noticed an abnormal leg joint on one of the butchered caribou, the animal was sent to wildlife officials for further testing. Wildlife officers believed the animal had *brucellosis*, but somehow, word began to spread that the animal was infected with *tuberculosis* — and that caused a bit of a panic in the communities.

In response, a public health nurse and I travelled to Tulita where we discussed the issues surrounding *brucellosis*, caribou and human health at a local meeting. After three hours of discussion, things ended positively: people had a better understanding of the

difference between the two diseases, and they knew what to do with the meat they weren't sure about.

Q. When did the idea of an annual community tour come up?

Veitch: Organizing an annual community tour on the winter roads was something that Richard Popko and I had talked about in the mid-1990s. But it wasn't until Susan and I attended a workshop in October 2002 that the idea for this project really gelled. During the workshop, people kept bringing up the same "themes": ensuring that the land and animals are healthy, educating youth about the role of wildlife health and wildlife health specialists in the North, involving local people in wildlife research, and using traditional knowledge.

Q. Has it been challenging to gather financial and moral support for the tours?

Veitch: Actually, it hasn't been that difficult to garner financial and moral support. From the beginning, we caught the attention and support of people involved in the Northwest Territories Cumulative Impacts Monitoring Program (NWT CIMP) of Indian and Northern Affairs Canada, as well as the Sahtu Renewable Resources Board.

My staff and I have been involved in renewable resource management within the Sahtu region for over a decade, so we are well known by the people who review our project proposals. The track record was there and the idea was good — and it still is. Each year, more organizations and people are joining the project to contribute to the effort.

Q. What does each northern team member contribute to the tours?

Veitch: I co-founded the project with Susan. I write proposals and reports, build support, organize the logistics of the tour, and conduct presentations in the schools. I also give presentations about the project to the Sahtu Renewable Resources Board and to other interested groups. For example, I'll use the project as the focus of my presentation at the Sahtu Teachers' Conference in September 2005. Organizers have asked me to give the conference's keynote address, so I'll take advantage of the audience to set all the teachers and principals up for the January 2006 tour.

Glen Guthrie arranges a lot of the tour schedules – particularly with the schools and principals. As well, he's our most avid photographer and he often shares school presentations with me (our wolf-howling class competitions are now legendary!) Glen also sets up meetings with Renewable Resources Councils, assists with writing proposals and reports, and ensures that news of the tour goes into the Sahtu Renewable Resources Board's quarterly newsletter.

Dr. Brett Elkin helps write and review proposals and reports, gives presentations and simply provides sage advice. That's based on two decades of experience working in small communities across the Northwest Territories and dealing with wildlife and education issues. He's an excellent wildlife veterinarian, an able and adaptable team player, and he's great fun to have along!

Richard Popko, who was involved in the 2003 and 2005 tours, assembles the gear and equipment needed for the trucks and for the labs in the schools. He delivered some of the school presentations, and during the latest tour, he co-led the marten dissections with Aleksija. Richard has lived and worked in Nunavut and Northwest Territories as a wildlife officer and technician for almost 30 years and has a vast treasure chest of stories and experiences.

He genuinely loves this land, its wildlife, and the people – and it shows. He's known and respected by the elders and local harvesters, and through the tours, the region's students are also getting to know him. His skill as a trapper and hunter, his knowledge of the land and animals, and his joy of life make him a wonderful travelling companion and team member.

Q. What are the logistics involved in organizing the annual community tour?

Veitch: I don't think people who live and work outside the Sahtu could actually conceive of — and make work — a project this logistically complex. It takes a lot of phone calls, visits, preparation of lab dissecting kits, pulling together “hands on” materials, etc. Someone from down south would have to come to the Sahtu at least a month or more in advance to arrange all of the details. Even the process of preparing the trucks — packing the survival equipment, making sure the vehicles are properly maintained, arranging for

gas — is very important, and it's much easier to do when you live and work here.

Q. How connected are young people to traditional ways of life?

Kutz: There's a whole range: some kids have hunted and trapped since a young age and are very in touch with a lot of things. I'll show an abnormality in a caribou, and they know what I'm talking about. Other students haven't been out on the land, and they don't have any exposure to traditional practices.

I think this is a typical reflection of any population of kids, but there has been a change. The number of kids involved in hunting and gathering is certainly decreasing in comparison to 20 or 30 years ago. That's a major concern for the communities' elders, and the number of programs designed to get students out on the land is increasing.

Q. How often do northern students meet or hear about veterinarians?

Kutz: Not very often. A veterinarian comes periodically to Norman Wells, N.W.T., to spay and neuter pets, but students in the other four communities wouldn't have many opportunities to meet a veterinarian. When I asked students, “What is a veterinarian?” during our first tour in 2003, some of them answered that a veterinarian “was somebody who doesn't eat meat.” For many, it's a brand new concept, and most of them probably had a better idea about a wildlife biologist's role in the North.

Q. Has the relationship between the research and northern communities changed?

Kutz: Yes, it has changed quite a bit. Thirty years ago, scientists would go up north, conduct their research and return south with little or no interaction with local people. Today, the communities are calling out for more involvement in northern research projects, and I think scientists are much more aware of the importance of communicating their research to northern residents.

STUDENT PRESENTATIONS

Q. Can you describe the tour's student presentations?

Kutz: We try to have a new theme every year, but we emphasize the same questions from year to year. What is a veterinarian? What is wildlife health? Why do we care about wildlife health? We talk a lot about the effect of diseases on wildlife and about zoonotic diseases.

Last year, Alasdair used caribou to demonstrate the different things that wildlife biologists do and the

different skills they use. For example, he showed how biologists need math skills to determine how many caribou are out there and to tell them about wildlife surveys. I added more information on climate change and its effect on caribou herds and other wildlife. This year, we used a species approach and focused on marten.

The hands-on activities for all ages are very successful. With the younger grades, we bring props like bottles of worms and other parasites, jaw bones (to illustrate the difference between carnivores and herbivores) and pelts of marten and mink.

For the high school students, Emily (Dr. Emily Jenkins) organized an interactive presentation called *CSI: Marten* that really worked well this year. As part of the presentation, all of the students had the chance to dissect a marten — and they really seemed to enjoy it. I think most of these kids rarely get to do a dissection, and if they do, it's on a frog or a fetal pig — not a local species. What made it quite interesting is that some of the student have trapping experience so they could also teach their classmates about what they knew about the marten.

Q. How did you come up with your ideas for the educational presentations?

Jenkins: I knew absolutely nothing about the marten, but luckily, Sue had some materials that I could use as building blocks. Then my real breakthrough came when I realized that this was a lot like the forensic type of investigations that you see on television shows like *CSI* or *Cold Case*: you start with why something died, then go through the case the way a wildlife veterinarian would — taking samples and doing tests.

And that's how we designed the presentations. We started with the animal's history, then went through the whole post-mortem examination and interpreted test results. That process grossed out some of the students, but they also found it interesting. As we went through the whole case, we also tried to build in the basic principles of wildlife diseases and parasites and their effects on the animals. We also touched on how diseases can circulate among humans, domestic animals and wildlife, and how the health of the environment can affect the health of everyone.

WILDLIFE HEALTH MONITOR PROGRAM

Q. Can you tell us more about the Wildlife Health Monitor program's first year?

Kutz: In 2004, we contacted two harvesters in the community of Deline and asked them to become wildlife health monitors. We spent some time in the classroom, then we showed them how to collect specific sets of samples and record data from

harvested caribou. We asked each monitor to submit up to 10 collection packages that include samples of blood, feces, liver, kidney, the lower jaw, and a lower leg bone.

What makes the program so efficient is that the hunters collect the samples from caribou they harvest for subsistence — either for themselves or for others in their communities.

Both hunters did a fabulous job, and by the end of April 2004, they had handed in all of their samples. From those samples, we can determine the caribou's age and body condition, analyse parasite loads with the collected feces and test for contaminants. We can also do DNA analyses, and we can immediately test the blood samples or archive them for future use. If a disease shows up in caribou in five or 10 years, we hope to use these archived samples to determine if it's an emerging disease or something that was present in the herds before.

Q. How much time does it take for the hunters to collect the samples and data?

Kutz: It probably takes another 15 to 20 minutes for each animal they shoot. It can be inconvenient: if it's -40° C, it can be difficult to collect blood and feces. That's why we've tried to make the sampling kit easy to use and not ask for too much.

In turn, the hunters receive \$100 of gasoline or diesel for every collection package they submit. That might sound like a lot, but it isn't very much when you consider the cost of gas and other living expenses in the North. As well, if we sent a scientist to collect those same samples, the costs would be much, much higher.

Q. What are the other advantages of using local people to collect the samples?

Kutz: One of the big advantages is that we now have a relationship with six active harvesters. From their vantage point, they can tell us about changes in the number of caribou and moose, in their appearance, or in their overall health. They can tell us whether they had to travel farther to find caribou and moose, or if there was any change in the movement of the herds. That link at the local level isn't something that researchers often have on a regular basis.

Another advantage is that if a researcher has a great need for samples of something like caribou hearts for an investigation, we now have harvesters who are trained in sample and data collection, and capable of collecting those samples. It's just a tremendous way to facilitate research and to involve the local people.

On the other side, the wildlife health monitors also act as important links for their communities. A few days after we trained the first two monitors in Deline, one of the monitors shot a caribou and was collecting samples. The other harvesters gathered around him and were curious about what he was doing. The program has piqued the interest of local people, and I think the wildlife health monitors are quite proud of their roles.

Q. What's the value of information collected from the wildlife health monitors?

Veitch: The Wildlife Health Monitor program provides very valuable samples for a relatively low cost, it's efficient, it involves local people in our research and monitoring, and it provides an excellent education role. It's one of those programs that's so simple and so good that you only wonder why you didn't think of it years before!

In combination with our own work, the program provides us with valuable data on so many things that we need to know such as population estimates, recruitment surveys and harvest estimates. For example, knowing about body condition and pregnancy rates of those harvested animals can tell us a lot about the potential for future growth of the herd. A biologist's approach to researching a caribou herd is going to be much different if 40 sets of samples indicate poor body condition, high parasite loads and low pregnancy versus the opposite of each of those parameters.

Fortunately, it appears that our animals are in good condition, have low parasite loads, and have pregnancy rates we expect to see in adult female barren-ground caribou. Samples collected by the wildlife health monitors will become even more valuable over time. As development likely increases, we will continue to monitor and witness the impacts of climate change and so on.

Neimanis: The program is set up as an archival system where a standard set of samples is collected as efficiently as possible. The set is also comprehensive so we can ask any question we can think of about a disease in caribou or moose.

Some samples had been analysed for body condition, disease, and parasite levels in the feces before we went up North, and yes, the samples gave us some good, concrete answers. However, there's also the long-term value of the samples. For example, all of the blood samples will be archived so if a pathogen emerges and scientists are wondering if it's new or has been there all along, they can go back to the archival collection and determine if the disease was evident in the blood samples five or 10 years ago. That's the invaluable part of this project: the ability to go back and look at baseline information about the caribou and moose populations.

Q. What was all involved in evaluating the wildlife monitor health program?

Neimanis: The evaluation had two main parts: the formal, written assessment and a field component up in the North to put the theoretical part into context. I was able to familiarize myself with the project and come up with a list of questions before we travelled to the Sahtu in January. Then, while I was up there, I was able to meet with the wildlife health monitors and be involved in training four new monitors in two other communities.

All of this gave me a good perspective for evaluating the program. If I had only evaluated the program from Saskatoon, I would have missed out on a lot of important points about the logistical challenges of collecting samples in cold weather or understanding the volume of information that monitors can realistically collect in the field.

Q. How valuable was it to meet face-to-face with the wildlife health monitors?

Neimanis: The wildlife health monitors are wonderful, committed people who are really interested in the whole project and enthusiastic about continuing the work year after year.

I had some great discussions with the monitors who had been trained the year before and that's when we discovered that the monitors had slightly different interpretations of some of the information than we had.

For example: we had asked the monitors to categorize body condition of the animals (i.e. poor, fair, good and very good) they were hunting. To veterinarians, body condition has a very distinct meaning: it means how much fat is on the animal's body. However, one monitor interpreted body condition as to whether the animal was fit for consumption. By talking to them and asking them about how they were interpreting things, it made it clear to us that we needed to explain our definitions. That helped us to ensure that the collected data was consistent and that we were all on the same page.

Another great thing: we were able to share preliminary results from the year before with the monitors. We were able to tell them that the harvested caribou had relatively few parasite loads, were fairly healthy and in good condition. That showed them that we were gaining knowledge from their efforts, and it gave us the chance to give them feedback on their monitoring work.

Q. What were your recommendations for the wildlife health monitor program?

Neimanis: The program is a really efficient, cost-effective way to collect a good, comprehensive sample set from key species of the North. If you're going to try and monitor the disease and health of animals, you really need to have the community on side and involved.

My biggest recommendation was that follow-up interviews should be done with the wildlife health monitors following the hunting season and after all of the collection kits have arrived. The interviews are a good chance to clarify the information on data sheets and to collect some more information from the monitors that they may not have included in the collection packages.

For example, it would be a good time to ask more questions about how far the hunters had to travel to find caribou or moose, about the overall condition of the animals, and about the abundance of adult females. By conducting these post-season interviews with all of

the monitors, you're able to get this additional information that may have fallen through the cracks. It's also a great way to keep the lines of communication open and to let the monitors know they're doing a fantastic job.

As for the monitors, it's evident that they enjoy sharing their knowledge: they see these animals and interact with them much more than any researcher would. They have a deep understanding of the animals, and they can provide scientists with a lot more insight and "background information" about caribou and moose in a conversation versus filling out a data sheet.

FOCUS GROUP INTERVIEWS WITH EXPERIENCED HARVESTERS

Q. How did the focus-group interviews become part of this year's community tours?

Kutz: This is part of a larger project investigating the impact of climate change on disease in northern ungulates. The objective of these information exchanges is to try and understand what experienced harvesters (with 25 years of experience or more) have seen in the past and what they see now.

Through this interview process, we're using their knowledge to try and identify what kinds of health issues affected wildlife in the past. Then, we're using scientific knowledge combined with their local knowledge and experience to understand what is out there now. That gives us a baseline for the past and present: understanding occurrence and distribution of wildlife parasites and diseases. That results in a better understanding of how infectious diseases may be impacted by climate change.

Q. How did the focus-group interviews with harvesters enrich your knowledge? How valuable do you think these talks were for the harvesters?

Veitch: They are a wonderful forum to give elders and ourselves a reason to get together and talk about wildlife. We call it a focus group, but sometimes it's exactly the opposite: the discussions lead off in different directions, and these additional conversations can be very interesting and enlightening. By speaking in their own language and in a comfortable setting, people opened up and gave their opinions and experiences. It was also obvious that they enjoyed hearing and seeing what Susan and the rest of us had to say.

We confirmed that our wildlife are in relatively good shape (health and condition wise), and that has been the case for the last 30 to 40 years. But it's also evident that we need to come back and talk about caribou and moose. People want to and need to know

more about the research that we do. It's a great, two-way flow of information and a good forum for doing it.

I think the talks were very valuable for the harvesters for one simple reason: they told us so. That was evident from just being in the rooms with them.

Kutz: It's fabulous: they're handing over pieces of a huge puzzle. The meetings were initially built on the model of a focus group interview, but these are really information exchanges. I'd ask a question, they would provide the response, then they would ask me a question. I'd ask, "Have you ever seen this?" and they would say yes or no. Then they would ask me, "How does this animal get this? Can we eat it? Do we generally have a problem?" By the end of the meeting, the ambience was very positive. Everyone was generally happy to be there and saw this as a good information exchange.

Q. How will the harvesters learn about the results of this study?

Kutz: We'll complete a report for each region (interviews were also conducted in the Gwich'in and Inuvialuit Settlement Regions) that summarizes the questions and harvesters' responses. Each participant will have a chance to approve the summaries, and then the report will be available to other groups. At the end of the project, we will also give recommendations about what might be a concern and what probably isn't a concern with respect to wildlife diseases. Next year, we hope to talk to people in person through local presentations or in conjunction with the Sahtu Renewable Resources Board meetings.

Q. Have other researchers ever interviewed experienced hunters before?

Kutz: Earlier this year, I found out that a group from Trent University had done a similar project in Nunavut with the World Wildlife Fund last year. They conducted similar interviews with individual harvesters, but their focus was primarily on contaminants.

Other than that, nobody has done such an extensive review focusing on wildlife diseases with experienced harvesters. Other researchers have looked at animal availability, weather conditions and handling hides, and they may include a general question asking, "Are the animals healthy?" But unless you follow up with more specific questions, it's difficult to interpret the responses.

During our interviews, I tried to choose diseases with clinical signs that are fairly typical of those conditions to minimize the chances for misinterpretation. For example, we talk about brucellosis, foot rot, lung worm, hoof deformities, jaw deformities, ticks in moose, nose bots and warbles. Ticks are an important topic because they're not usually found in the Northwest Territories so their presence may be a good indicator of climate change.

I also ask the hunters if they have ever shot an animal, then found something wrong with it that made them

believe it was unsafe to eat. They may have seen problems that I haven't mentioned, so that's a chance for them to bring up these observations.

GRADUATE STUDENT INVOLVEMENT

Q. Why was it important to invite graduate students to be part of the tour?

Kutz: When we sat down to write the grant proposal for the project last fall, I suddenly realized, "What if something happened that prevented me from being involved in the tour?" We're maintaining continuity in the North, but what are we doing down south to maintain that continuity? As a result, I thought it was time to get others involved in this fabulous experience and to build on that capacity so it's not as dependent on one or two people.

Q. Tell us about the two graduate students who took part in this year's tour.

Kutz: Dr. Emily Jenkins has been doing her PhD work in the Sahtu, but she hasn't had the chance to spend much time with northerners in their own communities. This was a great opportunity for her to "round out" her northern experience and to get a feel for the issues in the communities.

Emily worked on the education component and developed *CSI Marten* – an interactive presentation for the high school students. It was a super idea and a great way to interest the kids with lots of opportunities for interaction. What made it even better is that after two years of our visits, the students now have some background about disease issues so they could use that knowledge during the presentations.

Dr. Aleksija Neimanis came on the tour as part of her special topics course in her Master's degree program at WCVM. We needed someone to take a step back, evaluate the wildlife health monitoring program and ask some questions. Fortunately, we had the funding to bring Aleksija with us so she could meet and train the wildlife health monitors and evaluate the program at the same time. Aleksija also has her training in veterinary pathology so she co-led all of the dissection labs with Richard Popko.

Q. What did the two graduate students bring to this tour?

Veitch: This year, we had two young, energetic and incredibly talented graduate students here in the dead of winter facing cold and dark that few of the southern, university-based researchers working in the Northwest Territories ever get to see. Many scientists roam north of 60 during the summer when it's warm and with 24 hours of daylight, but very few get to use a roadside outhouse at -45° Celsius or get to discover that their

hotel is closed because the facilities froze up during the previous week! The latter happened to us in Fort Good Hope this year.

Emily and Aleksija travelled on the infamous winter "roads" and experienced the huge distances between small and isolated communities. They had the chance to talk with local harvesters and elders about what's good and what's bad in terms of what's happening on the land and in the communities.

The North and its people are shaped by winter more than any other season, so I think it was an excellent experience for the graduate students to share the joys of travel, work and life during this time.

THE GRADUATE STUDENTS' PERSPECTIVE

Q. Why did you want to participate in the community tours?

Jenkins: I've been a graduate student since 1999 and I've conducted field research on Dall's sheep in the Mackenzie Mountains for several summers. My longest stay was in 2003 when I spent four and a half months in the field. Those were great experiences, but I didn't have many opportunities to meet northern people in their own communities.

When Dr. Kutz expanded the project to include the graduate student component, I thought it was a great chance to give something back to the North. We were on a tight schedule, but people brought us into their home, fed us huge dinners and sent us on our way. The northern hospitality was wonderful.

I had never been up North during the winter, so it was a real experience to see the darkness and the incredible hostility of the environment! I thought it would be cold and dark, but I was surprised to experience about four hours of sunlight each day with sunrise at noon and sunset at 4:30 p.m. I'm also an avid cross-country skier and skiing on the frozen Mackenzie River was a real highlight.

Neimanis: I'm at WCVM because I'm working on a Master's degree in anatomic pathology, but I have a special focus in wildlife health. In addition to pathology training, I've been involved with a variety of wildlife projects through the College and through the Canadian Cooperative Wildlife Health Centre (CCWHC). As part of my program, I take courses in applied wildlife veterinary medicine. This year, Dr. Kutz was looking for someone to come up North, evaluate the wildlife health monitoring program and help implement it in additional communities.

I had never visited the North before. One of the reasons why this program appealed to me was because the CCWHC covers Western Canada and the North. I was hoping that I would get lucky enough to work with some of the wildlife issues in northern Canada.

Q. How did your veterinary background help you during the community tours?

Jenkins: Being a veterinarian gives you a broader perspective and a little bit more experience in dealing with the public from all backgrounds — that's a strength of veterinary medicine. However, I sure could have used more background about what kind of activities are appropriate for different age groups!

What helped was Sue's advice before we started. She told us that we're not up there to make sure that the students come away knowing x, y and z. It's more important that they go away learning something and getting enthused about science. If I didn't get through all of my slides or the kids were distracted, it wasn't the end of the world.

Q. What did you learn from being involved in the community tours?

Jenkins: It was phenomenal: I went up there thinking that I was going to transmit all of this knowledge, and I came away with so much more knowledge than I began with.

Besides participating in the school presentations, I sat in on two of the training sessions for the wildlife health monitors and I had the chance to be part of the meetings with the elders which was incredible. I'm usually a talkative person, but when I was with the elders, I was overwhelmed with respect. I felt like a little kid: I couldn't believe I was there, listening to these experienced hunters talk.

The interviews with the elders gave me insight into the value of listening to elders and to community members — the kind of information that isn't obtainable through regular "scientific methods" but can be learned from a conversation over coffee and doughnuts.

At the same time, these interviews also gave me a perspective on the limitations of traditional and local knowledge because it relies on the human memory — and sometimes that can be fallible. It gave me an idea of the strengths and limitations of a traditional, knowledge-based study. They're incredibly valuable and need to be done, but they should be interpreted with those limitations in mind.

Neimanis: The whole experience was incredible. Richard Popko and I led the marten dissections, and for me, working with the kids was one of the most enjoyable parts of the whole tour. They were all so interested and enthusiastic, especially since they were dealing with a species that they would often see in the North. At one high school, the students tried so hard to show disinterest, but by the end of the presentation, they were all in there — up to their elbows in blood — saying how cool it was to do the dissections! It was just great to watch the change in attitude as the afternoon progressed.

I was also involved in conducting the focus-group interviews with the experienced harvesters. I had never participated in a traditional knowledge interview,

so it was a great experience to see how the process worked. It was such a warm and friendly atmosphere — it's humbling to be in the presence of these people. They have so much knowledge and experience, and it was a real privilege to sit with them. It was also wonderful to see how much respect they had for Susan. That describes the essence of this project — it's about a mutual exchange of information that benefits everyone.

Q. How do you think this experience will affect your future in research?

Jenkins: I think teaching as well as interacting with community members on the subject of wildlife health will be important no matter where I work. The interaction with people in the community is so important for researchers.

For example, we had opportunities during the tours to talk to elders and harvesters and ask about their concerns and about what diseases matter to them. It's all well and good for a researcher to say "This disease interests me." But if it's not of concern to the actual members of the community, it's pretty hard to convince anyone that your research should receive funding.

I think more and more researchers are coming out of "the ivory tower" and realizing that their work needs to be relevant to the people. This kind of program — where you get instant feedback — is phenomenally useful for setting mandates particularly with territorial and federal governments.

Neimanis: Unfortunately, I won't be returning to the North in the near future, but I've certainly met people and made some contacts that will be very helpful. I certainly hope to get back up there. The experience will also be helpful as I work with wildlife pathology at WCVI. We often get samples from northern hunters, and I now have a better understanding of where those samples came from and how important our answers are to northern residents.

Q. How will this experience change your approach to designing research studies?

Jenkins: Hopefully, I'll be able to take my mandate from the "hot topic" diseases that are relevant to communities. If I'm not actively working with traditional knowledge, I certainly would build in two-way communication as well as community reporting because it's the people on the ground who are ideally situated for wildlife surveillance.

Whatever I'm working on, I'll have some kind of verbal or written report in lay person language available to communities. With today's technology, there can be web sites where community members can learn more about research projects in their regions.

You can get caught up in your lab work and your papers, and forget about the big picture. You have to keep that perspective: what's important to wildlife and what's important to people. We all need a reminder about that once in a while.

Neimanis: It really hit home how important wildlife species are to the communities. Anytime you're studying wildlife issues and health management, there are other factors to consider in addition to the science. It really helps to have an understanding of the social, cultural, political and economical issues that also go into the whole pool.

The trip also demonstrated the importance of community-based monitoring programs. By interacting with all of the community members and seeing how positive they were about this program, it made me realize that when you're managing or monitoring resources and changing environments, you have to have the local communities involved if you're going to be successful.

Q. Would you recommend this experience to other graduate students?

Jenkins: I would strongly recommend it to any graduate student, particularly someone who is interested in wildlife and working in the North. It's important to understand the challenges behind the task of collecting samples or making observations in the northern environment. It's good for everyone, but it's especially good for graduate students because we're at a formative stage in our careers. Anything that gives us a broader perspective on the significance of our work, and the importance of wildlife health — I'm all for it.

Neimanis: If you're going to work with northern species, you really have to get up to see what it's all about. There are so many things that you can hear about or read about, but the significance doesn't really hit you until you're up there. For example, I had read about oil and gas development in that region, but it's another thing to be driving down a winter road and come upon an oil rig camp right there — out of the blue. That's when you realize how real this is for that community.

The experience also gives you a much better understanding of the logistical challenges. If I had put together a sampling kit without knowing the conditions up there, I would have probably asked the monitors for too many samples or for too much information. Then I might be disappointed that I wasn't getting the results that I wanted and become frustrated by the whole process. By going up there, I learned about the limitations, but I also saw the possibilities of what can be accomplished.

POST-TOUR REVIEW

Q. Why do you think the overall project has been so successful?

Veitch: Because we have a good group of people doing the tour who put a lot of effort into the preparations. They make the presentations and dissection sessions in the schools as interesting and

informative as they can possibly be. Susan and Aleksija also spent countless hours preparing materials and sample kits for the wildlife health monitors, then spent a great deal of time meeting with the monitors face-to-face. This year's tours also included the elders' focus groups, so we were literally talking with — and learning from — people who were between the ages of five and 90 years old. The people in the communities really appreciate that. They also appreciate the fact that we're doing this in the middle of winter!

Kutz: Without a doubt, it's the dedication of the team's key players that makes this project work. We're all determined to make this work, and to make that happen, we've all learned to be flexible and to adapt to new plans at the last minute. Sure, it would be much easier to just collect the samples and return south, but the benefits of working with people in the community, the positive reception, and the interest of the students makes all of the work worthwhile.

Q. What would make the tours better?

Veitch: A fully-equipped, four-wheel drive, eight-passenger bus so we could bring along all the people who now want to come on tour with us! It would also make it better if we could spend three full days in each community.

Kutz: Long-term funding. We've actually been very fortunate in attracting funding for the community tours, but it's always one year at a time. It would be really nice to know that the funding is in place from year to year so we could say, "We'll be back next year, and this is what we will look like."

Q. Why do you think it's crucial that the community tours continue?

Veitch: Capacity-building and monitoring projects almost invariably should not be one- or two-year projects. If you're going to do it, then do it well and do it for the long term, which I always define as at least 10 years. I'd like to think that some of our long-term monitoring programs — such as the Wildlife Health Monitor program — will be still going long after we have left the region.

These programs have been set up to have an indefinite lifespan, and I hope that 50 years from now, this work will still be ongoing because these long-term data sets are rare — but invaluable. We often say that some of what we're collecting now might not have a huge impact on current management practices, but 50 years from now, some biologist or researcher will be so very grateful that we did this work and set up these monitoring programs.

And if some of those future researchers are people who were inspired to get into science because of anything that we've done in the schools — that would be a real bonus. If we're serious about getting kids interested in wildlife science, veterinary medicine, wildlife health, we have to keep going to the schools on an annual basis and keep talking with them. We have to

keep showing them how science is used in decision-making at the local level, and how they too can have careers like the ones we're fortunate enough to have.

I really don't see any problem or challenge in continuing this project. It has now gained so much momentum that it's bigger than any one of us. It should be able to run indefinitely: we have the funding partners, and with each passing year, it should become more "routine" — if visiting remote Arctic communities in the dark of January at -40° C could ever be defined as routine!

Q. Any plans for future tours?

Kutz: We brought two veterinary graduate students this year, but we may try to recruit education graduate students to come in future years so we could draw on their expertise for developing the school presentations. Next year, we've also been invited to come out on the land with the students and local elders.

Q. Will this program lead to more northern students developing science careers?

Kutz: I recently listened to a talk given by a representative of the Arctic Council. In his presentation, he said more than half of the population in the northern territories is under the age of 15, so education and awareness programs must target that younger age group. Kids need to know what their options are in the world. Northern students have access to satellite television and Internet, but it's still not the same as meeting different people in different careers.

I'm noticing some positive changes. For example, every time I visit the communities, two of the students tell me that they would like to be veterinarians. Another student was thinking about opening an animal shelter in his community. Students are also asking us more questions about vaccinations. The kids take that information home to their parents, and that basically creates more awareness in the communities.

Q. How can research scientists help to increase awareness of wildlife health and public health issues? Why is it important for people to know more?

Veitch: I work with a variety of southern-based research scientists as well as colleagues from other regions in the Northwest Territories and from federal agencies and co-management boards. The research scientists who have veterinary backgrounds are certainly well aware of the importance of wildlife health from a public health perspective in the communities. Diseases such as rabies, brucellosis, distemper and scabies have all been in our communities in recent years.

In fact, we had a red fox and two dogs test positive for rabies in Colville Lake this spring. People *have* to be more aware about what diseases occur in wildlife, how

to protect themselves, what to do when they see it around the community or out on the land, and so on. This interaction with our team gives them that.

Q. How have the community tours helped to meet that objective?

Veitch: It's proven to be a fruitful area of information sharing. I think the students in our schools, the members of Renewable Resource Councils, the elders, and especially the wildlife health monitors are all much more aware of what to look for and what to do than they were before we began this project.

Last year, one of the wildlife health monitors told me that he was showing other caribou hunters what to look for in terms of cysts and abnormalities on lungs, in livers, etc. These were signs of disease that he hadn't been aware of until he and Susan had gone over a harvested caribou in great detail. This is quite an advance!

At the same time, Susan and I were aware that local people — some of whom have hunted moose and caribou for 30 to 40 years — are a wealth of information that we need to include in our knowledge base. Have people seen changes? What abnormalities have they seen? What is their opinion on the current state of the health of our major subsistence species?

Q. When did you know that this year's tour was going to be a success?

Veitch: That moment came very early in the tour this year, after the Colville Lake elders' focus group and the school visit. Colville Lake was the first community we visited this year, and up to that point, we had what you could call a "rocky" lead up to the tour this year with some last-minute mayhem. We weren't sure about even basic things like accommodations and so on. The weather forecast was also calling for frigid temperatures where daytime "highs" were in the -40° C range and night-time lows near -50° C.

Despite all of these problems, we travelled to Colville Lake, and during the elders' focus group, one of the elders said to Susan, "You must be a very good hunter — you know so much about the animals." Given who was in that room — and their combined experience on the land — this was as high a compliment as I've ever heard in the Sahtu.

Then we had two absolutely wonderful days with the kids in the school: they were just a hoot and they showed their appreciation with drawings and dream-catchers that they had made for us. I know I'll cherish those items as much as anything I've ever received in my professional career.

As we were leaving Colville Lake, we stopped near the edge of the community to take some pictures of woodsmoke curling out of chimneys in the soft blue frozen light. At that moment, I knew — I think we all did — that this was going to be a fantastic tour. And it was. Our spirits were soaring — they never came down, and they still haven't. **A**