

## **Transcript – Native Waters on Arid Lands Podcast**

*Episode 10: Educational opportunities in science with Steven Chischilly and Virgil Dupuis*

<http://nativewaters-aridlands.com/2018/02/chischilly-dupuis/>

### **Abbreviations:**

Kelsey Fitzgerald (KF)

Virgil Dupuis (VD)

Steven Chischilly (SC)

KF: Welcome back to the Native Waters on Arid Lands podcast, where we're talking with different members of our project team about their work. This is Kelsey Fitzgerald, and today we're going to hear from two of our team members – Virgil Dupuis and Steven Chischilly -- who work in the sector of education.

Virgil is the Extension Director at Salish Kootenai College in Montana, and Steven is an Associate Professor of Environmental Science at Navajo Technical University in New Mexico, and they're both working in different ways to connect Native American Students with educational opportunities and hopefully career opportunities in science and agriculture. Hi guys, thanks for joining us.

### **KF: Could you begin just by telling us a little bit about yourselves?**

SC: Sure, my name is Steven Chischilly, I've been teaching at Navajo Technical University for 21 years now. I started there within a 1-year certificate program, and now it's a 4-year degree in Bachelor of Science and Environmental Science and Natural Resources. Born and raised on the Navajo nation. We have the reservation broken up into different regions, so I was born and raised in western agency in a small community called Shonto. I went to Mondevella(?) high school, then off I went to college and I never really came home until after I finished up graduate school and I started working.

### **KF: Virgil, how about you?**

VD: Virgil Dupuis, I've been at Salish Kootenay College for right at 20 years now as extension director. Before that, I spent about 15 years with the confederated Salish and Kootenay Tribes, managing their land programs, which included agriculture, real estate, minerals, noxious weeds, about everything land related.

At the college, our extension program went through a lot of different variations. We started out with a native plant horticulture emphasis, and we conducted landscape scale restoration projects, planting native plants that we had grown. We matured out of that a little bit, the

Salish Kootenay tribes implemented their own native plant growing facilities so we started moving a little bit more into community gardening. And also I've done a fair amount of water resource work related to undergraduate research opportunities, undergraduate education.

**KF: So you have both spent more than 20 years working at Tribal Colleges and Universities -- in your experience, what are some of the challenges that Native American students face when they're pursuing higher education?**

SC: I think maybe the primary one is the scholarships and the finances to pay for tuition and all of the things they need to pay for. And also being ready for college, in terms of most Universities and Colleges do have entrance requirements, and those requirements they need to meet to get into schools. I think those are probably the primary ones – being ready and having the finances to fund their education. But, I see that once they get in, a lot of them or most of them really do well. They excel in their studies.

VD: I think students I see vary tremendously in their high school preparation and their ability to do college level work when they first come in. They're generally weaker in math skills, and their English communication skills need to be improved as well to function at the college level. So, we should be designing our programs with that in mind. I think a lot of them need to be really mentored the first year they're there, so they understand what study skills are, that they're expected to read the material before they come to class, and that they'll be tested on things that maybe the instructor didn't say, like the readings. They're going to have to assume that responsibility upon themselves. And once they get through the first year or two, they will do well. At a tribal college, we're not there to flush people out with challenging classes. We're there to help them get through them.

**KF: Steven, can you tell us about some of the educational opportunities that are available for Native American Students in the program that you work with at Navajo Tech?**

SC: Sure. The students that I work with are mostly Navajo, but we also have students there at Navajo Technical University from other areas of the Southwest, other tribes. The opportunities there -- I really try to encourage my students to get involved in research experiences for undergraduates.

The federal agencies offer some really nice summer internships. They do pay a stipend and they provide lodging and housing, and some of them are pretty rigorous. The one I was on this past summer, I was at the Army Research Laboratory in Maryland with three students. We looked at how to transform army weather data, raw data, using software called Python, and convert it into GIS software. It pushed our limits, but I think we did a good job and the army was pleased with our work. The students presented at the pentagon, it was a culmination of the summer.

**KF: Virgil, can you tell us about some of the opportunities at Salish Kootenay College?**

VD: Salish Kootenay offers Bachelor programs in forestry, fire ecology, hydrology, and fish and wildlife. We also offer baccalaureates in the life sciences – microbiology and cell genetics and things like that.

Primarily I do a combination of invasive species research. I have several research projects right now dealing with annual grasses that are invading our rangelands, and some aquatic invaders. I also do a community gardening project that we have four community gardens out on the res. We help about 15 families every year with getting their gardening projects going.

Just recently, there's been a lot of interest in food sovereignty. A lot of folks are doing a lot of talking about a large tribal farm to supply vegetables and things like that. We're going to undertake an effort to conduct a feasibility study, doing a fitting if you will on what makes sense for the tribes to invest in if they want to go down this track of developing tribal capacity to grow vegetables.

I am working with another group out of Montana State University. This is a biomedical group, who just recently added food sovereignty and indigenous research methodology into the scope of what they're interested in. They see the like between health and diet, and in well-being. So we're very fortunate to have that kind of a view coming from the Universities. And they're very interested in funding this kind of an effort.

**KF: Now, as far as your work with the Native Waters project, I understand that you both have some interesting research projects in the works. Could you tell us a little bit about those?**

VD: I got involved with this project 3 years ago. It's been very interesting working with the top quality scientists we have here from NV, UT, AZ. I've been involved with Maureen on a new application we made in June related to working with our forestry program. We're working on dendrochronology and putting the paleoclimate picture together. It dovetails in very nicely with some of the forestry related work that our fire ecologists are involved with, they've been collecting tree ring borings, they have about 7 or 8,000 of these that they are going to catalog. They're also doing sediment borings in high mountain lakes to try to put the climate picture back together. A lot of this will be used to make future management decisions on how the tribes are going to be managing their forest resources over the next foreseeable future.

**KF: Great, Steve, how about you, what are you working on with the Native Waters project?**

SC: I just recently started with the working group. I do have a grant that has been funded with Northern Arizona University as a partner. We're looking at climate change, and looking at an endemic tree species, the pinyon pine. We're looking at epigenetics, and also the effects of climate change on the species throughout its range. I would like to work with the working group and seeing how this may fit and dovetail into the scope of this project.

I'm also working on another project right now where we're looking at tribal farming on the Navajo Nation and indigenous foods and getting youth involved in planting their own foods and learning how to prepare the foods. There's a lot of cultural knowledge that can be gleaned from this. I believe it skipped whole generation, and a lot of the younger people now are really seemingly very interested in learning a lot of these things. We're doing that this coming spring semester, 2018.

**KF: Steven, what do you like best about what you do?**

SC: Well, I've been doing this for 21 years now, and I think, making an impact on my tribe's not only workforce but the educational legacy for the students that are there. I like to think I'm making a difference in terms of helping them obtain an education on the reservation that they're wanting, through the implementation of a curriculum that addresses tribal needs.

**KF: How about you, Virgil? What do you like best about your work?**

VD: I enjoy the freedom I have working at the college. I work on projects that are highly interesting. They are relevant – they make a big difference in what we're looking at and what we're doing. I like to see students do well. Our native students do have problems with completing education. They've had problems with getting done, moving on, moving into careers. So I really like seeing them do that. It's pretty exciting that way.

**KF: Thanks for talking with us.**

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