



## December | Peter Constabel, Biologist

### What do you do?

I'm a plant physiologist and molecular biologist - I study plants and how they work at the molecular level. My specialty is plant and tree defenses against herbivores and pests.

### Why is it important?

Plants can do incredible things, including synthesizing the huge array of chemical substances that we use, from wood, and fibers such as cotton, to pigments, flavors, and drugs. As humans, we are totally dependent on plants for our survival, and often forget that plants make these chemicals for their own purposes, such as defending themselves. We need to learn more about such chemicals if we want to know how plants function in nature. Also, by understanding how plants defend themselves against pests, we can learn to protect agricultural plants with fewer harmful pesticides.

### How do you do your research?

We do most of our research in the greenhouse and lab. We identify, isolate, and study the genes that enable the plant to synthesize the proteins and chemicals that protect it from pests or

other stresses. By figuring out what these genes do, we are learning how plants adapt to their environments. My favorite experiment to date was to let caterpillars feed on a small tree, and then see how it responds by determining what genes it turns on and what chemicals it synthesizes.

### What got you into forest biology?

I was always interested in plants and their ecology, perhaps because I have always loved camping and doing things outdoors. Trees are fascinating because they get to be so old, and are the ultimate survivors. They are stuck where they grow, and if conditions turn bad, they can't run away. But they are very good at dealing with adverse conditions, often by adapting biochemically.

### Did you ever want to be something else?

I did want to be a geologist at first, and also a plant ecologist. But I got hooked on the precision of doing biological experiments in the laboratory, which allows you to address scientific questions directly. Modern plant biology is very dynamic and constantly changing, so it's exciting to be a scientist in such a fast-moving field.

## What do you like most about your work?

The thrill of discovery in science is hard to beat. There have been a few times over the years when I have been fortunate to discover something new, such as a connection between seemingly unrelated observations. Making even a small scientific discovery is a lot like scoring the winning goal. Just like in sports, however, it takes a lot of persistence and hard work to get there. I love coming up with new ideas for experiments, often based on something I've read. It is very satisfying to see the results of such an idea come together, sometimes years later, and get published. Much of my work involves working on scientific reports, grants, or publications, so it's a good thing I like writing and editing. Good communication is one of the most important aspects of science. I also really like the international dimension of science; as part of my work, I am constantly in touch with colleagues and friends all over the world.

## What are three achievements in your life that you are proudest of?

The goal I set for myself when I started my own lab was to take poplar as a model tree and really dissect its defense systems. It's very satisfying to look back and see how much we have learned from our experiments since then. I guess I've become an 'expert' in tree defense, and it's nice when other scientists now ask me to write review articles or book chapters in my specialty. I'm proud that I can do this and still stay in good enough shape to run a half-marathon in a decent time. And of course I'm proud of my kids - I learn all sorts of things from them and their questions.

## What was your first summer job?

My first real summer job was as a geologists assistant in field camps in northern Saskatchewan. It was my dream job - live in fly-in camps in the north, and get paid to hike around the forest with a compass and backpack.

## What 5 favorite artists/groups/pieces of music do you listen to on your ipod?

I think I have a pretty eclectic musical taste, so it really depends what I am doing. If I have the time to just listen to music (doesn't happen too often), I listen to choral music and opera. My favorite ones are the classic Italian operas by Verdi and Rossini. I usually listen to music while running, and my current favorite running tunes are by the Rolling Stones. I also really like Blues, and anything by Greg Brown, which I listen to if I'm up late working, or driving.

## What's your favorite colour?

Red.

## What are your favorite things to do when you aren't working?

Playing sports and music with my kids. Right now it's soccer and street-hockey with my son. I run and swim to stay in shape, and also sing in the UVic Chorus. I think it's important to use the right side of the brain once in a while. In the summer, I love to be outdoors hiking, camping, or paddling, and in the winter, skiing.

## If you could meet one famous person for coffee who would it be?

If this includes someone from a previous era it would have to be Leonardo da Vinci - it would be amazing to talk to someone who was considered a genius in both art and science. A famous person alive today who I would like to meet is Barack Obama - he has to be one of the most interesting people in public life today.

## Why are you here at UVic?

I came here to work within the Centre for Forest Biology, which is a lot of fun. BC is a good place to be for anyone interested in trees of course. It's great being near the ocean - some day I will start a project on defense in kelp forests.



To learn more about Peter Constabel's research click here:  
[web.uvic.ca/~cpc](http://web.uvic.ca/~cpc)

