NORTHEAST TRANSPORTATION WORKFORCE CENTER

Environmental Work in the Transportation Sector

CAREER PROFILE

NAME: Pattie Kallfelz-Wertz

TITLE: Field Scientist

DEGREE: Ecology

COMPANY: Vanasse Hangen Brustlin, Inc. (VHB)

VHB is known as an American civil engineering consulting and design firm with offices throughout the country. Founded in 1978, the company primarily focuses on transportation and land development, working on a variety of transportation civil engineering projects in the Northeast and along the East Coast of the United States.

VHB "aspires for a sustainable world in all that (they) do. It is inherent to who (they are) and (their) generational company philosophy—founded on stewardship. "VHB helps their clients take action to improve health and well being, contribute to economic vitality, and promote environmental stewardship.

Source: www.vhb.com/Pages/home.aspx

Q. What is your current role at the organization?

A. I work in the natural sciences group. In Vermont we are very lucky to have a really big environmental group—it is really robust. My particular role is in the ecology group. So, we do wetlands, waters, animals, and plants (invasive, native, or rare species). As an environmental scientist—I'm more of a supervisor, coach, trainer and mentor—at this point in my career. We have a lot of younger staff that are doing the hoofing around out in the field (data collection). I will review their work, get them trained up, and just sort of guide them through process. So, I am less of a swamp rat (an old nickname for ourselves) at this point. Now my current role is teaching others how to do it rather than being a do-er.

Q. How did you get to this point in your career? Any key points along that pathway?

A. I went to Unity College—my degree was in ecology. After I graduated, I moved back home and took a break for about 6 months before I went to work for a small firm in central New York for about five and a half years. That was my first job and I was the swamp rat: I did a LOT of the fieldwork, data entry and recording. Then in 2006 my husband and I moved to Vermont. I took a year off just to get my head on straight. I took some time to organize myself and then started at VHB (then known as Pioneer Environmental Associates, the merger was made public the day I started), which at the time was a very small firm started by one of our current directors. That was in 2007, and I have been here ever since. Pioneer became the environmental side of this office. So when I got hired, I was as a junior staff scientist, and after some staff changes and shuffling, I ended up in the Wetlands department. And I've just been working there since.

The better that you get at certain things, you are sort of offered other opportunities. So you get good and you work your way up and into the office. I started in wetlands and then moved up into invasive species, monitoring and control. Then getting a little more experience I got into rare species surveys and management plans. You just keep growing: and then you are doing more reporting and

coordination, and planning. And as you are moving up and newer people are coming in, you start mentoring and teaching.

My career path was more organic and based on whatever opportunity came up. I never had a very clear set plan. I have been very lucky to be able to move from opportunity to opportunity. It has been nice for me to be able to naturally grow my career in a way that works for me. My career has been a boat in a stream—my career didn't happen to me, sometimes you have to do stuff you don't love but overall I have been able to try new things as they come along and learn from them every step of the way and appreciate those opportunities.

Q. Were there any experiences that helped to best prepare you for the work that you do?

A. I was always an outdoor kid. Growing up in the woods, playing in the mud, and coming of age in the '80s and '90s. This work always felt like what I should do. There was a certain time when I was growing up that people started talking about (what was then called) global warming—plastic and pollutions became really mainstream. That national conversation really affected me and I wanted to be a part of that (a part of making it better). I really liked science and I really thought, "this works for me!" Going into middle and high school I started pursuing more actively and deliberately the sciences, math, and even social studies to a certain extent. Just being hyper-aware of doom and gloom conversation and narrative that we were hearing regarding the health of the planet was a huge motivator. It was a relatively new conversation to the majority of people, and was very important for the first time.

I had really great science teachers in high school. I wasn't discouraged from doing math and science as was the case for many girls at that time. It was a really good mix and never discouraged as, "it's a boy thing, don't do that." And even then in the '90s that was weird. I just happened to be in a little bubble where I was living. Being in that environment where my career plan was encouraged—and understanding how rare this was twenty years ago still boggles my mind. So that was also something that helped me to foster my intent to start and stay on that path. Overall, where I was it was very supportive and in that sense, even now, I am very lucky.

Q. What does a day in the life of your position look like?

A. At this point, most days I check e-mails, check voicemails, making sure nothing is on fire. I check in with the people that I work with—either supervising or mentoring – and make sure that there is nothing they need. I check my work list. I live by post-it notes, outlook invitations, and reminders. I do our written projects and review those. I read other peoples' stuff. It is just a lot of internal coordinating. I go to last second meetings. I answer questions. Also walking people through processes, pulling strings and running around.

Q. What skills have you gained in the work? Are these unique or transferable to other disciplines?

A. I am a lot better of a writer than I used to be. Coordination and outreach is something that I have really grown in because I am naturally very introverted and I had to. If I can't communicate in a way that is meaningful to everyone at the table, then what's the point? Even if you're just e-mailing you've got to know who is going to see it and how they will interpret what you're communicating. It takes a lot of understanding of your work and how other people will perceive it.

Q. What do you enjoy most about your job?

A. I work with a really good group of people and with low turnover rate. It is so great to see people learn and come up, and do really well—that is what I find really rewarding. I still enjoy the field work, and I've been lucky to see some amazingly beautiful, unique places all over the northeast. Seeing something you've worked on for so long, from "soup to nuts" get finished (constructed) is also rewarding. You may not love every part of every project you work on, however, you love or at least appreciate the big result at the end in this kind of work. Even when it was not the most exciting project, you get to see how that project made something better or safer, or was constructed in a way that

protects natural resources in addition to meeting a project objective. Also, when I do get to go out in the field, I see some amazing things. I have thousands of photos of beautiful places, of plants, of wildlife—just being able to get paid to go out and see these places is pretty amazing.

Q. What are some of the challenges you have faced in the work? How did you overcome them?

A. Everything is a challenge: time, set deadlines, working with different people who have varying degrees of interpersonal skills. People are always the challenge. Also, working in every kind of weather and during every month of the year. I've been out when it is 100 degrees and I have been out when it is below 0 degrees. It is physically challenging when you do field work.

I have a job because the person who hired me needs me to talk with the agency that is regulating their project. Being the intermediary and working to build and maintain relationships between the parties that I am working with—threading that needle can be challenging. I've said that people are not my thing, and being in a very contentious meeting with a client and a regulator, it's my role to keep calm and make sure that it is a productive meeting. Being able to do that regularly with different groups always at the table is challenging—especially when who is at the table is always changing. Kind of dealing with the things that I don't have control over and working hard to make sure that every encounter works to get the job done.

Q. What are some of your own personal characteristics and values that make you a good fit for this type of work?

A. One of the characteristics that has helped me progress in this field is a strong work ethic—not doing the bare minimum just to get it done. It's got to be done right—and knowing what you need to do and having the intellectual curiosity to hunt down and find those answers—whatever and wherever they may be. Just having that characteristic has helped me. It doesn't have to be innate but more like knowing that attention to detail is so key and realizing that and being willing to learn how to work on that skill, that more than anything is a challenging aspect of training people.

Being observant—I'm a field scientist. Just general curiosity and caring about the work that you're doing is key. If you don't care, then you are may struggle to succeed in this work. Wanting to do the best job in general, and knowing what it takes can be learned. But wanting to look or knowing how to look is key—understanding attention to detail and caring a little bit about the planet. If you only care to impress a teacher/ supervisor, and not about what you working to protect, then you may be in the wrong field; you're probably not looking at the biggest picture. Even if you don't enjoy a class, task, or person you have to work with, you have to be willing to do the best job and do what it takes to get a job done correctly. You have to do your due diligence and the right job, and be willing to care to do your best job. The more you know, the better you can do your job.

Q. What is something that you want people to know about the work that you do?

A. Keep an open mind. You can't always find a job that meets your passion and interest right away. It is a lot of legwork. You may be surprised at what you find in terms of the ability to do what you really want to do. Be your own best advocate, do your research, talk yourself up (promote yourself), apply for the jobs that you do not think that you are qualified for yet—you may be surprised at what you are capable of, and that's how you grow. For example, who would think that a transportation firm has such a robust environmental practice? But I still get to do all of this cool stuff, work with awesome people, and get paid too. Shake it up, keep an open mind, and do some research so that you know what is out there for you.

Overview of Position as it Relates to Transportation

Impacts to fish, wildlife, plants, and rare species are regulated at the state level through the state's Fish and Wildlife Department. This also occurs at the federal level through the United States Fish and Wildlife Service and other federal agencies. These regulations in particular apply to the public and private transportation sectors due to the effects and impacts that transportation-related activities have on fish, wildlife and plant species. A few examples of activities that cause impact are road construction, tree clearing, and other impacts to wetlands, plant and animal habits.

State policies promote the accommodation of wildlife and aquatic organisms along transportation systems and minimize wildlife vehicle collisions. At the state and federal levels, policies work to help implement measures to minimize impacts to fish and wildlife such as: facilitating wildlife movement across highways, GIS modeling to protect wildlife movement, and improved planning and coordination.

Source: vtrans.vermont.gov/environmental-manual/permitting/fish-and-wildlife

Fish, Wildlife, & Rare Species

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—Patti Kallfelz-Wertz

Field Scientists

Field scientists observe and collect data and information on subject (fish, wildlife, plants, invasive and rate species) in their natural environment. The information gained through this process is applies with applications regarding: wildlife conservation, farming, and/or medicine.

Field scientists must travel to various locations to take proper samples and record data—which will later be cataloged and analyzed.

Patti is a Staff Scientist in VHB's South Burlington, Vermont, office. She performs wetland/ waters delineations, impact assessments, wetland permit applications (Federal and State), wetland mitigation planning and design, data analysis, mapping, and reporting; permit compliance monitoring (during construction and post-construction); non-native and invasive species monitoring and management planning; as well as rare botanical species, habitat, and natural community surveys. Patti works on a wide variety of project types for both the public and private sectors, for a variety of markets including transportation, energy, commercial, and residential. Additionally, she trains, supervises/ mentors, and conducts technical reviews of various work products of VHB's technical staff in all aspects of the ecology/natural science group's work, both field work (e.g., wetland/ waters delineations, rare plant surveys, non-native and invasive species plant surveys) and office-centered work (e.g., data entry, mapping, memos, reports, permit applications, etc.).

About VHB, Inc.

VHB is an environmental consulting firm focused on making a positive impact on its surrounding communities, making the most out of opportunities to grow personally and professionally, while building a network of lifelong colleagues. VHB is known for collaborating across disciplines to develop and implement effective strategies, problem-solving techniques and solutions through, "a combination of technical and personal skills to help build a successful consulting team."

Source: www.vhb.com/Pages/Trends/Students-and-New-College-Grads.aspx

Overview of General Skills and Requirements

Field scientists are required to have skills regarding communication, critical-thinking, emotional stamina and stability, interpersonal skills, observation skills, outdoor skills, and problem-solving skills. These skills are important for many reasons. The first would be for disseminating knowledge to the public, academics, and policymakers. Scientists also need reasoning and judgment to draw conclusions from their own experimental results and observations. It is also important for biologists to have the ability to work, problem-solve and communicate on teams that often operate in the outdoors.

Field Scientists require certain credentials. For the field, an entry-level position requires a bachelor's degree. For higher-level investigative or scientific work, a Master's degree is needed. Additionally, to lead independent research or to occupy a university research position, a Ph.D. is necessary.

Looking to the future, employment of field scientists is expected to grow 8 percent from 2016 to 2026—this is average for the majority of occupations. Scientists will be needed to study human wildlife interactions as the human population continues to grow. Human development and growth will impact wildlife and their natural habitats. It is predicted that because most funding for this work comes from government agencies, demand for biologists will be limited by budget—although this is the expectation for most occupations funded by the government.

Source: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Zoologists and Wildlife Biologists, and Field Scientists, www.bls.gov/ooh/life-physical-and-social-science/zoologists-and-wildlife-biologists.htm

GLOSSARY

- **GIS** – geographic information system, software designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data.
- **Impact Assessment** – formal, evidence-based prodcedures that assess the economic, social, and environmental effects of a project or public policy.
- **Invasive Species** – a species that is not native to a specific location, and that has a tendency to spread to a degree that may cause damage to the environment, the human economy, or human health.

Type of Projects Carried out by VHB

LAMOILLE VALLEY RAIL TRAIL

For this project VHB is completing natural resources assessments, regulatory agency coordination, and permitting. The trail will contribute to the region's growing recreational economy.

I-89 EXIT 16

This project involves natural resources assessments, reporting, permitting and permitting assistance. The project will rebuild exit 16 of Interstate 89 so it uses a diverging diamond design.

BURLINGTON GREENWAY/BIKE PATH

This project involves natural resources assessments, regulatory agency coordination, and permitting. The project consists of renovations to more than eight miles of bike path in Burlington, which rerouted the bike path at the Lake Champlain waterfront and added fitness stations along the path.

SOUTH BURLINGTON CITY CENTER

During this project VHB assisted with the state and federal environmental permitting process. The $21.8 million City Center project will include a new library, senior and recreation center, and city hall.

Key Skills

- **Reading Comprehension** – Reading work-related information.
- **Complex Problem Solving** – Noticing a problem and figuring out the best way to solve it.
- **Critical Thinking** – Thinking about the pros and cons of different ways to solve a problem.
- **Active Listening** – Listening to others, not interrupting, and asking good questions.
- **Judgment and Decision Making** – Thinking about the pros and cons of different options and picking the best one.
- **Coordination** – Changing what is done based on other people's actions.
- **Active Learning** – Figuring out how to use new ideas or things.
- **Systems Evaluation** – Measuring how well a system is working and how to improve it.
- **Systems Analysis** – Figuring out how a system should work and how changes in the future will affect it.
- **Time Management** – Managing your time and the time of other people.
- **Monitoring** – Keeping track of how well people and/or groups are doing in order to make improvements.

Abilities Needed for Success

- **Written Comprehension** – Reading and understanding what is written.
- **Oral Expression** – Effective spoken communication.
- **Written Expression** – Effective communication in written form.
- **Deductive Reasoning** – Using rules to solve problems.
- **Inductive Reasoning**– Making general rules or coming up with answers from lots of detailed information.
- **Oral Comprehension** – Listening and understanding what people say.
- **Problem Sensitivity** – Noticing when problems happen.
- **Fluency of Ideas** – Coming up with lots of ideas.
- **Near Vision** – Seeing details up close.
- **Originality** – Creating new and original ideas.
- **Information Ordering** – Ordering or arranging things.
- **Visualization** – Imagining how something will look after it is moved around or changed.

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