David Wake transcript

Jim Patton: My name is Jim Patton. I am an emeritus professor in the Department of Integrative Biology and curator in the Museum of Vertebrate Zoology, and it's my pleasure today to be the interviewer of my close colleague, David B. Wake. We've been colleagues for more than 50 years at both units, the department and the museum. And it's an honor for me to be here for him.

The following video interview is part of the UC Berkeley Emeriti Association's Legacy Project, which preserves the recollections and reflections of Berkeley's emeriti. In conversation with a colleague of their choosing, emeriti are invited to discuss their academic careers, including contributions, accomplishments, and challenges -- especially as they relate to campus history. This recording is intended to provide a personal record of value to the family, friends, and colleagues of emeriti, and to document the history of the Berkeley campus as it pertains to the individuals, departments, school, and college.

Patton: Alright, David, I have a series of topics -- general topics that we can go through and you can decide how much you want to talk about each one. But let's just start maybe by encapsulating your early history -- the areas that you grew up in, your family and how those early experiences might have shaped the profession that you have achieved.

David Wake: Well, I was born and raised in northeastern South Dakota in a small farming community, small town – 326 people – filled with the Norwegian immigrants. All my grandparents were born in Norway. And so I was raised in a kind of an ethnic enclave; there were some Germans around and a few Yankees, but mainly Norwegians. And I spent my first 17 years in that town, went to Pierpont, S. Dak., went to school there, went to high school and finished my last year of high school on the Pacific Coast in Tacoma, Wash., when my parents moved to Tacoma in order that their three children could go to college.

Patton: What university did you attend?

Wake: I attended Pacific Lutheran College in Tacoma, Wash., as did my sibs. It worked. My parents -- we stayed at home. My parents could then afford to have a school, the college. But those years in South Dakota were particularly formative for me. I had – I went to a high school that had nine students in my class. Three of us earned PhDs and became college professors. So it was quite a remarkable town in the sense that education was highly prized and highly emphasized. And when I was about 14, my maternal grandparents came to live with us. My grandfather was a retired Lutheran preacher and an amateur naturalist and an intellectual, and it was a wonderful thing for me. I bonded closely with my grandfather and he became my guide as a budding biologist. He knew the plants. He knew – he had *Gray's Manual of Botany*, and we keyed up plants together. So I early on developed an interest in the natural world.

Patton: So would you say that you started off to become a botanist rather than a vertebrate zoologist?

Wake: I did; I did. Botany was my first love. When I went to college, I declared the major in history because I wanted to be a lawyer, I thought. Because everybody I knew who is successful, I had like five uncles who were lawyers; they were very successful. And I thought, well, that's the way to go. But I had to take a required science course, and so I took general botany and I just fell in love with botany and I knew I was destined to be a

biologist of some sort. So then when I finally took general zoology, I realized that was really even more to my liking than plants. So that's how I happened to fall, sort of by default, into a biological career.

Patton: So you're very well known as an amphibian biologist, one who is probably the world's most authority on salamanders. So how did that start?

Wake: I took a course in entomology and we had to do a lot of collecting for the course. We had to make our own collection and we had to go in the field and the instructor was a brand new professor – he'd just gotten his degree at the University of Southern California. And he knew herpetology and botany and entomology, marine biology. He was real generalist, a real naturalist. And so when we were out, he'd go collecting with us. And when we were collecting beetles, I would stumble onto salamanders and I was charmed by them, and he encouraged me. And even though he was supposed to be making a beetle collection, he would say “Well, these are salamanders.” And he told me about them, identified them. And as I said, I was just charmed by them. So I developed a close association with salamanders that just stuck. When I went to graduate school, I thought I was going to be a mammalogist, actually.

Patton: Yes, I remember that.

Wake: And I started off my first year at the University of Southern California, as a mammalogist, and my putative major professor was actually kind of a lazy man, and he did things that were so strange. Like, for example, the first thing he had me do was feed toluidine blue to a porpoise in marine world of the Pacific and spend all day long to see when it peed. And after spending three days watching porpoise pee, I discovered that they just dribble it out all the time. So it didn't really, you know, didn't take for me. So I quickly turned to herpetology and became a herpetologist and pursued my first love, salamanders, for my PhD.

Patton: So you're -- I know your graduate advisor was Jay Savage at USC. Did you go to him with a love for amphibians and reptiles?

Wake: When I applied -- when I applied for graduate school, I applied that to the University of Washington, and Cornell, Kansas, Berkeley, at USC, and I got into all of them. But if I'd gone to Cornell, I would've gone in botany. Washington, I would have done invertebrate embryology. If I'd gone to KU, I thought I'd become a mammalogist, and MVZ too. But at USC, it was herpetologist and Jay Savage and I particularly wanted to work with him. But I tried out mammalogy just to see if it was my first love. It wasn't, unfortunately.

Patton: The world is better off with you as a herpetologist, my friend. Okay, so you finished your degree, your studies at USC. And then what?

Wake: Well, I got married while I was in graduate school to Marvalee Hendricks, who is my wife, to this day. And she was younger than I was. We were both graduate students there and we -- a year into our marriage we had a son, which slightly interrupted her progress towards a degree. But I finished in 1964. There were no jobs advertised in those years; you had to get it by word of mouth. And my major professor – our joint major professor, Jay Savage -- had a Guggenheim Fellowship and was in Costa Rica spending the year, and I had been hired to replace him. So I was actually teaching his courses as an instructor. And so I just blanketed North America with letters of inquiry saying “Do you

have a job?" And I had to type every letter -- one by one by one. We didn't have Xerox machines; we didn't have computers. And so I typed all those letters, and it worked. And I got job offers and interviews and it was amazing. I ended up with like seven job offers. And in the end, I had to decide between jobs.

Patton: In that -- in your explosion of letters across the academic world in the U.S., did you include all of your publications? I mean a standard CV and things like that, or were these letters just

Wake: Well, the ones -- the jobs I really wanted I would -- I had published several papers, and most importantly, I had published my master's thesis and it was a sizable publication in a good journal. And so, you know, I had something to go on. And I had another paper that had just come out, which had the grand title "The Salamanders of South America." And there are hardly any salamanders in South America. But it's a very big place, so that seemed grand. Yes, I did that.

Patton: And you had done fieldwork in South America by then?

Wake: I *had* done fieldwork in South America by then. Yes. So I got these job offers. And finally, I had to -- I was choosing between San Diego State, the Pomona Colleges and the University of Chicago. Some good, good opportunities. But in the end, even though it would have been better for Marvalee, who was still in graduate school, to stay near USC, we decided jointly is better to go for the big time and try Chicago. And so my first job was at the University of Chicago.

Patton: And when did you start there?

Wake: 1964. Without a postdoc; te here were there weren't really very many postdocs in those days, in our field. So, yes. So there I was, starting right off, and they gave me the semester free from teaching, which was amazing. None of the other places would have done that. I was treated wonderfully well at Chicago.

Patton: So you spent five years at Chicago.

Wake: Five years at Chicago.

Patton: And so relate to us how you became a candidate to move to Berkeley.

Wake: Well, Marvalee finished her PhD, and she got a job at the -- what was at first called Chicago [Navy] Pier Campus of the University of Illinois; it was actually located on a pier sticking into Lake Michigan. And then they built the new campus on the Near West Side of Chicago. So she had an office and a lab, in a brand new building there. Was appointed an assistant professor at the University of Illinois. So we both had secure jobs -- or not secure in the sense they weren't tenured yet, but we had jobs. And hers was not really to her liking; she wasn't treated all that well. But I was pretty happy at Chicago.

And then one day I got a phone call, just out of the blue. And the person on the other end said "This is Pearson at Berkeley. How would you like to come out and give us a seminar?" And it's as simple as that. And Paynie Pearson, who is the director of the Museum of Vertebrate Zoology (which I'll call MVZ as we all do) had me come out for a seminar. And I thought that was just a standard seminar. And he met me at the airport. It was in April and it was beautiful weather -- just beautiful out. And he said "I'd like you to

stay at our house, out in Orinda." So that was great. So he took me right from SFO up to this home in Orinda; I stayed there with them. A wonderful family, and they were so nice and gentle and pleasant. And took me in, the next morning, to the campus. We stopped in Tilden Park on the way in, so I could find a salamander. And the first piece of cover I turned over had a *Batrachoseps* under it. So I –

Patton: And that settled it!

Wake: And when we got into campus, just as we were walking into the museum, he said "Oh, incidentally, we do have a job open here, and I'd like you to meet some of my colleagues so that they can get to know you a little bit." And that was the first inkling I had that it was a job interview. I hadn't applied for the job; I hadn't known anything about it. And so I -- and he had me stay for several days; I gave a couple of talks.

And at the end of the time he said, "Well, we had a faculty meeting this noon; we're going to offer you the job." That came as a complete shock to me. So I went back to Chicago and talked to Marvalee about it. And after a few days, Pearson called me and said he'd like to officially offer me the job as assistant professor and assistant curator of herpetology at the museum. And he asked me about it. Marvalee and I had talked about this, and we felt, well, we already had some investment in Chicago. I had five years towards tenure or would have -- this was a year before, four years at that time. And so I said how much I appreciate it, how much I'd love to be at Berkeley; it was a wonderful place for me. But I have a family to consider and I thought that I'd better stay at Chicago. I thanked them very much for it. And about two weeks later he called back and he said "We've met and discussed this and talked to the dean and we've decided that we'll offer you a tenured position, this associate professor." And that made all the difference, and I said "Of course, I'll accept."

And so I had this wonderful -- this wonderful period of exhilaration, because I was just beginning to think about tenure. And here it had happened without any effort on my part, and I couldn't believe it. So in short, that settled it. There was nothing for Marvalee at that point. And she said, "I'm willing to take my chances. I think I have enough confidence, enough self-confidence. And I'll be able to work out something when we got out there."

And as it turned out, by the time that we were searching for houses in Berkeley, the next year (it was a full year, because I said I couldn't come for a year, I had too many commitments with students and things like that) Berkeley offered her a teaching position. It wasn't an assistant professorship, but it became one within a few years. 1969, that's when we came to Berkeley, in the fall of 1969.

Patton: So Oliver Pearson was the director of the museum until –

Wake: Oliver Pearson, known to everybody as Paynie, was the director of the Museum of Vertebrate Zoology at that time. And he let it be known that he was not going to be a long-term director; he made that clear to us all. There were at that time five curators, including Pearson. And then, much more rapidly than any of us realized, he resigned as its director. That's just in my second year at Berkeley. And so there -- and we immediately wondered what was going to happen with the directorship. The dean called me in and said "We'd like you to be the director."

And so that came as a great shock to me. I was an associate professor at that point, so I had tenure, but I had not yet become a full professor. But the museum was filled with

young people: Jim Patton had arrived; Jim was there six months before I got there. So Jim was there. Bill Lidicker, Ned Johnson -- both young and early in their careers. And then we had some senior people: Bob Stebbins, Starker, Leopold, Frank Pitelka. So there were both junior and senior people around. And I obviously thought that some of those senior people would have been selected. But for various reasons, each of them was not considered to be the director. And I understand, in retrospect now, why that was the case. Well, I became the director at that point and remained the director for a shocking 26 years.

Patton: That's unusual in the university's administrative hierarchy, isn't it? Aren't directors of –

Wake: Yes.

Patton: …units like the museum appointed for a five-year term or something like that?

Wake: Right. It's usually a five-year term or even less. I think chairs are three years, and directors are five, is normal. And for one reason or another, there always seemed to be some reason for me to continue, and so I was asked again and again to continue. And then that at some point it became clear that the museum had to marshal all its strength to maintain its position during the reorganization that took place in the -- starting around 1980. So by that time, I had been director for eight years. And then from that point on, it was a time of critical reorganization and reassessment of the whole biology program at Berkeley, and I became deeply immersed in that.

Patton: But -- I want to talk about your role in biology reorganization in a second. But just to follow up on the directorship issue, what Pearson -- the interval of time he was director for, what, four or five..?

Wake: I think for five years.

Patton: Four or five years, something like that? So he -- his role was to make a transition for the museum.

Wake: Right, right.

Patton: And so that's why, you know, he targeted you, in part, to bring in. But you had a vision for the museum that you conceptualized early on and followed. And so can you talk about that at all?

Wake: Yes. The Museum of Vertebrate Zoology is an unusual place. Because at that point, Pearson was only the third director. It had been founded in 1908 by -- Joseph Grinnell was the founding director. And Joseph Grinnell was handpicked by Annie Alexander, who is a renowned patroness of the sciences at Berkeley. And she found and selected Joseph Grinnell, who was then at the Throop Institute, which is the precursor of Caltech, and brought him to the president of the university and said "If you hire Joseph Grinnell, I will establish a museum of vertebrate zoology and we'll do this and this and I will pay the expenses on this basis into the future." And so she laid it out very clearly; it's all laid out in documents that are far too detailed to go into here.

And so Joseph Grinnell had this vision, which was – which Annie Alexander liked. And here and he carried on until his death in 1939 -- from 1908 to 1939. And he was succeeded by his graduate student, Alden Miller, who'd gotten a PhD here in about' 34, I

think, something like that, and was an ornithologist and a renowned biologist in his own -- very distinguished man of considerable accomplishment. And he stayed on this director until *his* death, early death, and that was about 25 years later. And then he was succeeded by Pearson. So they've had this history of people.

But frankly the museum had become a little bit stodgy. They're set in their ways; they were still living in the Grinnell period, the ideas of 1908. Grinnell's ideas were very forward looking, actually. I don't mean that they were bad in any way, or that they even became outmoded. I've often liked to think about the Museum of Vertebrate Zoology and its program, and even my own program, as kind of like an onion. You keep accreting layers on the outside, you keep adding things and adding things and adding things; you never give up what you started with. And I saw as my role taking this really well established, well organized, well operational -- an operational system -- and further developing it.

Paynie Pearson had started this by developing methods that hadn't been used previously. For example, he – cytology, comparative cytology, had become very big in biology, in evolutionary biology, at that point. And he reached out and got Jim Patton, who was a pioneer in vertebrate cytology, as an assistant professor and assistant curator at the museum, just before I came. And then we had a postdoc, George Gorman, who was another – who was an active participant in publishing lots of papers. Jim and George were very active in their respective fields. George was a herpetologist and a postdoc. So that was already started. And the idea that we could somehow develop further.

The 1960s were a period of enormous change in evolutionary biology, with the development of new methods, new techniques. We were particularly interested in developing an allozyme capability. And Paynie was all in favor of doing that. That was something that I really wanted to see us do -- to see us work together to form common labs, labs in which we could work together, bring in postdocs, graduate students and modernize the whole operation, while not giving up what we'd done before. So my vision for the museum was to see it become a destination for young evolutionary biologists in many fields. And I'm happy to say that really has come to be the case and it did develop into that.

Patton: But beyond the destination for young evolutionary biologists, I think that, to my mind, a part of your vision was to place the museum as kind of the exemplar for other institutions, both in this country and abroad, to follow.

Wake: Yes.

Patton: That the museum is more than just the sum of its parts. It's an organization that should have a -- play, a larger role in the community of vertebrate systematic biology.

Wake: That is absolutely, definitely part of my vision and part of the, I think, the *shared* vision that we had, that the faculty and the museum had for the institution. We saw it as an institution that could become a role model for others. And we tried to develop methods and even new collections. So, for example, we developed the frozen-tissue collection. I was really surprised to hear, just two weeks ago, to get some facts and figures and to discover that our amphibian collection has the largest frozen-tissue collection of any collection in the world, for amphibians. And I know that we stand very high in birds and mammals as well, and reptiles. So that's worked. It has really become a role model and many other institutions have followed our lead in that respect.

Patton: But also the way the information is contained in the specimens and in the

Wake: Yes, we've tried to -- we've tried to get as much information about every specimen as we possibly could.

Patton: But to make that publicly available.

Wake: And that's -- that's another thing that we did. We became -- that was an early goal was to make all of our information publicly available. So that MVZ became the first museum to become fully digitized. And in fact our mammal collection was the first digitized collection, I think, that was, that went online. That was about 1980.

Patton: You had mentioned earlier your involvement in the reorganization of the biological sciences on campus. I know you played a seminal role in that. Can you explain to us what that role was in and what became of the reorganization, why it was instituted and so forth?

Wake: We could talk a long time ago about the reorganization, because it was really important for the Berkeley campus and for the biological sciences at the Berkeley campus. Basically in the late 1970s, there was a lot of concern that Berkeley was falling behind in some major areas. Not so much an evolutionary biology; we were doing pretty well. The zoology and botany departments were ranked number one in the country still. But molecular biologists were feeling that they didn't have a central role to play on campus, that we were captured by the old kind of biology. That was their feeling. And so they were agitating to reorganize. So I became part of what became known as the infamous Gang of Four, and that was four faculty members representing four different areas of biology. And I was to represent, basically, organismal, evolutionary biology, and ecology. I thought I had an enormous area to cover. The other organismal biologist was, of all things, Dan Koshland, because he worked on bacteria. But Dan Koshland was a chemist in my eyes. Not a biochemist, a chemist; his PhD was in chemistry. But there were people -- and then Alex Glaser, a molecular biologist, and Milt Shroth, a plant pathologist. All of them worked on prokaryotes. So I was -- I had all of the eukaryotes to me.

And we started meeting in serious in 1980, and we broke protocol and we went over to University Hall, which was then the office of the president. We met with the vice president, and made the campus furious when they found out about it. But Dan Koshland, who was the chair of the committee, did not stand on protocol. And we urged the campus -- the university -- to go for a major rebuild of biology at Berkeley. And that would be new buildings, lots of new buildings, and accompanied by a general reorganization.

Suffice it to say that this was just the start of what ended up being about a 20-year odyssey. It was about 1994 that we finally moved into the renovated Valley Life Sciences Building. So it took -- and I was deeply involved in that for about 14 years -- 4, 15 years. Then *you* got involved, very much, in the final stages of planning of the building and getting us moved into the building. And I don't think we'd have ever gotten reestablished in the building without you.

Patton: You're kind, sir.

Wake: And the museum has wonderful space in the building. And the museum prospered in the -- in what happened. And I was glad to have been able to play a role, because I think it did benefit the campus as a whole. I think the campus is stronger in biology than we would have been had we just plugged along the way we were going. We did need a

new boost. We got the new boost and it's paid off. I think Berkeley is extremely strong in biology, in general, right now, across -- across the whole discipline. And the department -- we're associated with Integrative Biology, has added 14 new faculty members in the last three years. And it's now just a powerhouse of the department. I'm so proud of the department; it's a strong department. The Museum of Vertebrates Zoology is back to its peak strength of six curators. We haven't had six curators since, well, since ….

Patton: Peter Ames in the 1960s.

Wake: Yeah, since the late 1960s. So I think we're in a very good position for the future now. Well, the university is facing a very stringent fiscal situation right now, and it's a tragedy that they are, because California is never going to be in better shape than it this right now. And it's just, to my eyes, it's a shame that we don't have better leadership in the political scene. They're not giving us the recognition and the resources that they should.

Patton: Talk about what *you* have done on this campus relative to your research and your teaching and the kind of general development of the academic atmosphere in the department or the museum.

Wake: Well, I'm an evolutionary biologist and I'm very interested in biodiversity sciences, as it's usually called nowadays. That is, fields related to whole organismal biology and the diversity of life on the planet. And I have, in my own work, I chose early on to become a taxon specialist. And instead of working with model organisms, I chose to work with what I considered to be a model taxon. And I think there are a lot of advantages in doing that. You can see taxon approaches in other disciplines -- like, for example, *Drosophila* biology, *Drosophila*. You don't criticize people for spending their lives working on *Drosophila*. Or on some other groups of organisms that --like mice, for example, where the house mouse is just the pivotal organism through which – on which you based a lot of studies.

So with salamanders, I'd picked a group that had about as many species as they were in my home town, people in my hometown. And I thought, well, I knew all the people in my home town, so I could keep all those salamanders in my mind at one time and I could know everything about all of them. And that way I'd get a good understanding of how a taxon is evolving as a whole taxon -- as a whole lineage. And that has given me direction and motivated my research throughout time.

To me, by being a taxon specialist, it imposes a discipline on one's work. For example, if I were strictly problem oriented, then I would look for the best organism to study this, and the best organism to study this, and the best organism to study this. But that would be kind of disorganized in my mind. I wouldn't have to deal with what I have. I could ignore what I didn't want to study. Here, studying a model organism model taxon, I have to study all aspects of the organism and go into many different details. And that's what I've enjoyed. I've enjoyed the challenge and it has provided a constant source of inspiration for my research and for my teaching as well.

Patton: So, you -- so let's just digress a bit, because you taught. Your primary course was a course in evolution.

Wake: Yes.

Patton: Upper division -- undergraduate and a graduate level course, that you taught virtually every year that you were in residence.

Wake: Yes, I did; I taught that for over 30 years – an evolution course that was -- it was enrolled, at first, by about 10 percent graduate students. And toward the end it was about 50 percent graduate students. And it became a requirement for a first-year graduate students in our department. I wasn't too happy about that because I wanted that to be ab elective for everybody. Just have the students who wanted to be there. But it worked out all right. I thoroughly enjoyed the course on it. It gave me a great deal of pleasure and stimulation to teach the course. And I kept it fresh every year; I used a new reader, newly organized every year, changed that every single time I taught the course.

Patton: This course was famous for challenging students. Can you -- well, what was your philosophy in designing the course, relative to what you wanted the students to attain?

Wake: My goal was not to teach them facts. I said “the facts are in the books. You're surrounded. You've got an excellent textbook. And we've got journals that are filled with facts. My goal is to help you work through the facts. To think.” And I tried to teach them how to think about evolution, how to assemble resources, how to use the resources, how to organize questions, how to organize -- how to generate hypotheses. I really wanted them to think and I said “I'd be really happy if none of you took notes in my course. If you just listened, listen to the discussions, listened to the debates and learn from the debates because they're ongoing. And there is nothing about learning all the details of these right now because it's -- it's a changing scene; it's an ongoing scene. You have to get in it and swim. And that's the only way you're going to make it.” And that’s what I wanted them to do.

Patton: We may come back to it to more of your teaching in a moment. But just to -- since we digressed, to follow up on your research question, your research outlook and this taxon orientation.
I mean, so your program was really that onion that had all these layers.

Wake: That’s right.

Patton: You had to -- you had to, so some of that, you know, training of different layers that came in your graduate program. But the rest of it came during your profession here -- both at Chicago and then here. So how did you attain that kind of wherewithal, in both your vision and your technology, to achieve the sum total of those layers?

Wake: First, resources are necessary. And we had to develop in the museum, the necessary -- general laboratories that we could share. So we were space limited, so that was a big deal. And this is where I benefited enormously from your presence, because the two of us were the two youngsters in the museum at that time. And we were also the ones that were interested in developing new methods and techniques, and the others came in on it, too. But it was really our initiative to get these new methods and approaches going. I arrived -- I already had NSF grants when I arrived. I had my first NSF grant, I got the first time I applied for it right after I became an assistant professor at Chicago in 1965. And I've been fortunate in having NSF support continuously since 1965. My current grant expires in 2020. So that's a long run, and it's important to have had that kind of underpinning. And I was able to stimulate my colleagues in the museum to get support too. And they -- you had a very well-supported program; Ned had a well-supported program. And we were able to do to get support of that sort.

And then we built on our ability to have postdocs. And I think the Miller postdoctoral program at Berkeley was extremely important, because we had a run of postdocs that were the best in the world, and have proven themselves in so many ways. They've just gone on to fame in their whole careers. And we put it all together with a strong set of graduate students, excellent postdocs (thanks to the Miller postdoctoral program), good support through the National Science Foundation, both with individual research grants and grants for the museum. And good questions, questions that stimulated us, and high productivity. We always were very productive research -- writing lots of papers, attending scientific meetings, giving papers. This all, I think, was part of the success of the program.

Patton: So one of the things -- I hadn't thought about this before, except right now -- one of the things that you basically instituted. I mean, it was a program that existed before, but you really made it a primary program of the museum, was the Wednesday noon lunch evolutionary-biology seminar series.

Wake: And that still goes on today. We started that – it was already started when I came here. I think Paynie Pearson was the first person to really start that. But we -- we formalized it and began having top-line speakers. And it's become a destination for evolutionary biology on campus. We pack about 80 people every Wednesday for that seminar, even today. So what could be just a local seminar has become really a campus resource. And I think that's really a critical part of the program that does bring us all together and shows us what we're about.

Patton: And we ask our graduate students as well to routinely give seminars and that series, as well as outside speakers.

Wake: We do. And then we have groups like Herp Group, which Marvalee and I organized Herp Group when we first came here, as a leading seminar program weekly for a long time. We just celebrated our 50th anniversary a month ago. It's been running programs every other week, every semester. So it's been a very successful program. We had a wonderful speaker last night, a young woman who's working on the highest elevation frogs in the world -- a graduate student here where some frogs occur at 5,400 meters, which is really high.

Patton: So I know that that you've taken every opportunity for your sabbatical leaves to go to other places and expand your both your research and your intellectual horizons more generally. Can you speak to that?

Wake: Yes, Marvalee and I plan our -- always planned our sabbaticals together. We tried to get in sync and we did do that pretty well. But most of our sabbaticals were half-year sabbaticals and we would go away; a few of them were a full year. The first one we took was to London, and the purpose of that was to learn electromyography, which we both used subsequently and in a variety of papers. The second one was Germany in the Brain Research Institute, and there we spent a full year and developed a very productive collaboration with Gerhard Roth, a professor at the University of Bremen, who had come here as a graduate student, actually, and we'd established working relationships. And there Marvalee I did work in comparative neuroanatomy and comparative neurobiology in general. Then we also took sabbatical leaves at the University of Colorado, at Harvard University, at the STRI (Smithsonian Tropical Research Institute at the University of Costa Rica). And they were all very successful in my eyes. And it was during those periods that Marvalee and I would do collaborative research. We haven't published all that many papers together. But what we did do collaboratively came out of those sabbatical periods.

Patton: Don't leave the viewers thinking that you're a laboratory biologist. You are an inveterate field biologist who knows those organisms and in some of the most remote corners of the globe. Can you speak at all to some of the experiences that you've had?

Wake: Well, my research has centered mainly in tropical America. That is, I've certainly worked a lot in California and the Pacific Coast; it's been, I guess, my major field area. But I've worked a lot in Mexico, Guatemala, some in Honduras, a lot in Costa Rica, some in Panama. And they're not that remote relative to a lot of places, but we got into the last remote parts of those countries. Down in Panama-Costa Rica border, for example, you still get into some pretty roadless tracks. And I was working on tropical salamanders. And the tropical salamanders are really unusual. There is only one major clave? of tropical salamanders, and yet it accounts for more than 40 percent of all the living species. So it's undergone a great adaptive radiation. And I'm probably best known for my work on those tropical salamanders -- published most of my papers on them.

Patton: How many new taxa have you described? All the description from those?

Wake: Well, my species descriptions, I've always felt this -- they are there on the side. I never got my research support for them. They were always something I did as a side project, that I thought was something I was doing for the world. I've described somewhere over a hundred new species of salamanders, probably about a 110 now – I haven't counted lately.

Patton: So your hometown has grown considerably in its population.

Wake: It has! It's hard to -- there are now over 7 — they've gone from 300 species of salamanders to about 700 since I started doing my work. So, yeah, it's been a growth industry. It's ironic that the number of species has been increasing at the very time that amphibians have been declining around the world. And I've been -- another area of my research has been in conservation biology, where I've been working on the declines of amphibians around the world and causes for those declines and documentation. And as always I was interested in communicating with the public on this, so I established a website in the year 2000 called Amphibia Web. And it's become a very popular Web site and we still are maintaining it. We have an Amphibia Web team, an international team of top-flight amphibian biologists working on Amphibia Web. We meet weekly and we keep it fresh and updated constantly and their focus is "why are amphibians declining?" And we know that the answer is -- there are lots of reasons, among them are climate change and new invasive pathogens and invasive species in general. In addition to land conversion and pollution and all of the normal subjects of disgust.

Patton: So we touched briefly on your teaching this course in evolution that is a foundational course for the department. But you, as museum curator, only had a half-time teaching appointment basically, right?

Wake: That's right. I was paid half-time through the museum and half-time through the department.

Patton: And also as the director of the museum you got teaching relief.

Wake: I -- in theory I got teaching relief.

Patton: In theory.

Wake: That's right.

Patton: But in fact you taught as much as a regular faculty member at least used to, because you gave the evolution course every year; you gave a graduate seminar basically every year.

Wake: Yeah, I gave --

Patton: -- basically every year. And then you had your lab group that met --

Wake: And Herpetology.

Patton: And -- Oh, that's right; you taught in a herpetology course.

Wake: I taught herpetology by myself for a couple of times only. I taught it with Bob Stebbins and I thought it with Harry Greene. And then when Harry really took over the course, I stopped teaching herpetology and taught these seminars.

Patton: Yeah. So what do you think the role of seminars in graduate instruction in the department and in biology in general is and should be?

Wake: I thought the seminar approach is a very good one, because it allows you to go into specialized topics and in greater detail than you would ordinarily. And it encourages students to think on their own and to make presentations in class and that sort of thing. So I like graduate seminars. They've kind of fallen out of favor. I'm not quite sure why, but I don't see similarly anymore. Maybe the literature is just too big.

Patton: So I'd like to, you know, maybe change direction a bit and talk about, you know, your role, the role that you have played in the development of your science across the globe. So you've been very active in professional societies -- president of several. And you've played very active roles in organizational units like boards of directors of various institutions. Can you talk about that at all?

Wake: Yeah, there's a lot to cover in this area. But I *have* been very -- early in my career as very active in the Society for the Study of Evolution and the American Society of Naturalists. And I became president of both of those societies. And then the American Society of Zoologists was a group I've spent a lot of time -- so it morphed into the Society for – SICD, Integrative and Comparative Biology. And I still attend their meetings every January. I became president of the American Society of Zoologists, too. And then I've been active in the herpetological societies. Herpetologists are still fragmented. We have three major herpetological societies. I've been active in all of those, but I always thought they should get together, but they haven't. And it looks like they're beginning to merge right now.

So I also -- I conceived the World Congress for Herpetology and recruited the first secretary general of that. It was a late -- it was one of the last groups to have its first world congress; we didn't have the first world congress until 1989. And it turned to be a momentous congress, because that was where the awareness of the decline of amphibians around the world first came to the fore. So that was a really critical stage.

More recently, I've been involved in a variety of groups, some of them learned societies. I was honored to be elected to the American Philosophical Society, and then the American Academy of Arts and Sciences and the National Academy of Sciences. But of those it's the American Philosophical Society that's my favorite. I still play a very active role in it; I try to go to all of their meetings. And I -- in my mind that's the highest honor I've received, election to that society. It's the smallest of the learned societies in America and it's the oldest -- founded by Benjamin Franklin in 1743. They just celebrated their 275th anniversary.

Patton: David, one of the things that we haven't talked about so far: you've mentored an enormous number of students. I don't know how -- what the count is -- but can you just relate anything at all about your students as individuals, your students that -- your mentoring philosophy, what your goals were and in training graduate students?

Wake: Well, I have been blessed with wonderful graduate students from my earliest days in Chicago. And I've had about 40 -- over 40 doctoral students. And it's been a joy. It's really given me the greatest pleasure in my professional career to work with these many talented young people. My goal was to make them into thinking citizens of whatever country. I wanted them to be happy. I wanted them to be productive in their own way. And I didn't have -- I didn't have *my* goals for them. I want to try to see them develop as individuals. Well, a number of them have become professors -- even quite distinguished professors at major universities like at Harvard and Cornell and Wash U and University of Washington. The successes are out there and in terms of standard academic achievement.

But I'm also very proud of my students who've gone into agencies or who've become successful parents or who've become teachers in small colleges. One of my most successful students became the executive vice president of Johnson & Johnson Corporation. She started off as an environmental consultant and became amazingly successful. So success comes in many ways. And the top way is for them to be happy and to have felt that they've had a productive life. And I'd like to think that the educational -- the educational foundation that they had was important in that area.

Postdocs are a different kind of challenge. When you have postdocs like Millers, they are brought in with expectations of greatness. They're expected to go on and become great scientists. And I've had – I don't know, I can't even, I have never really counted how many there are. I've had over 40 postdocs. But I think I've had maybe 10 Miller fellows who've worked with me, and they've all become amazingly successful. Right now, we're trying to hire one of them back into the department. So I've had productive, collaborative interactions with many of them extending over decades, with my graduate students, too. I think of Jim Hankin, who got his degree with me in 1980 – he got his PhD in 1980. We still have an active research collaboration going on to its 40th year. And it's been very productive so that the students have given me a great deal of pleasure and I hope they've gained from the interactions that they've had in Berkeley. Most of the students have a very warm feeling about Berkeley. They feel that they've done well here and they have a warm feeling about the Museum of Vertebrate Zoology, which is small enough so that we have a really familial sense of belonging to a place. And students have -- they carry that sense of belonging with them for many years, that they *never* let us forget that they are still part of us and we love it.

Patton: So, David, I think that we can end now. But I want to just ask you one final thing. I mean, you've been retired for some time, as I have. We both come into the museum and

we're both on campus virtually every day. Your life certainly has not changed any, except that you're no longer teaching. What is it about academicians that remain active?

Wade: I know. Isn't it wonderful that the people who are involved in the intellectual life can keep going just as long as they want? I mean, we can just -- there's just no end to the interest for us. I look forward every week to going to the seminars. I just can't quit; I don't want to quit. When I retired it was about 2004, I think. And I'd had some health problems, and I thought that I wasn't -- maybe I wasn't quite as sharp and up to things as I should be. So I thought it would be better to make way. But then I retired and I got the biggest grant I've ever had. And then at one time I had four postdocs all at the same time -- a couple of them shared with Marvalee. And so 2005 was my most productive year ever. I published more papers in 2005 than any other year. And I think right after retiring, I just threw myself into research with abandon and thoroughly enjoyed it. And we both publish papers regularly. I mean, I publish probably five, six papers a year. And I've got -- right now I'm describing like ten more species of salamanders. And so you can just keep going. There's no -- you don't do quite the same kind of research that you used to do. You can't do this -- the level of sophistication that you would like to do, but you have to do the mop-up work that people are leaving behind. You have to mop up the messes that people have left and you have to go out and get that done. So I enjoy doing that.

Patton: David it's been a supreme pleasure for me to chat with you this afternoon.

Wake: Well, Jim, it's always a pleasure to talk with you and I – I cherish our long friendship.

Patton: Absolutely.