My First Kakenhi Grant

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I obtained my doctorate in science from Kyoto University Graduate School of Science in March 1983, specializing in botany. My area of specialty is plant ecology, a fundamental field of science, and as it is today, the path to becoming an assistant (assistant professor) was a particularly long process, even after obtaining one's doctorate. I had the good fortune to be accepted as a research fellow under the JSPS fellowship program for young Japanese scientists (*Shorei Kenkyuin*) in April 1984, allowing me to continue my research at Kyoto University free from day-to-day financial stress. I was again fortunate to have my application for renewal accepted, which enabled me to continue working as a research fellow from April 1985 onwards. If I recall correctly, research fellows were allocated around 40,000 to 50,000 yen in research expenses per year. That same year, the JSPS fellowship program for young Japanese scientists (*Tokubetsu Kenkyuin*) was established in place of the *Shorei Kenkyuin* system. I was lucky to have my application, which I submitted as a long-shot hope, accepted in October 1985. In other words, I was among the first group of researchers (there were 137 postdoctoral research fellows accepted in the program's first year and 29 of them were in the biological field) ever to be accepted under the *Tokubetsu Kenkyuin* program, which today provides grants to several hundred researchers per year (more than 2,000 if students in doctoral courses are included). Acceptance to the *Tokubetsu Kenkyuin* program not only meant a significant increase in "salary" compared to the *Shorei Kenkyuin* program, but more importantly allowed me to apply for Kakenhi grants. My first-ever Kakenhi application was subsequently approved, granting me a total of approximately one million yen in research expenses. Nowadays, one is able to become a research fellow from the doctoral student stage and, if a doctorate is obtained, for a maximum period of three years. However, at the time of the program's foundation the conditions were a term of two years, and furthermore, the term for the first group of researchers, including myself, was only one and a half years, until March 1987−perhaps due to a delay in establishing the program's budget. After this, I earned a living by working as a part-time instructor at coaching schools, preparatory schools, and universities, while continuing my research as a research trainee (effectively an unpaid researcher) at Kyoto University until I was hired as an assistant in the Department of

Biology at the Tokyo Metropolitan University Faculty of Science in October 1988. Although it took five and a half years after receiving my doctorate to obtain a post as an assistant, in the context of my research career I was extremely fortunate not only to receive a “salary” under the JSPS *Shorei Kenkyuin* and *Tokubetsu Kenkyuin* programs during three of these years, but even more so to be accepted for Kakenhi grants. I cannot express my gratitude for the Kakenhi system enough—without this support, I am not sure whether I would have been able to become a researcher.

At the time, my research focused on conducting cultivation tests, field studies, and developing mathematical models to identify how individual plants compete for the resources necessary for growth and reproduction, such as light, water, and nutrients in the context of the overall development of a plant population. I had engaged in the most basic components of this research during my time as a graduate student, *Shorei Kenkyuin* fellow, and *Tokubetsu Kenkyuin* fellow. My Kakenhi applications continued to be accepted throughout my time as assistant at Tokyo Metropolitan University and assistant professor at the University of Tokyo, allowing me to further advance the aforementioned basic research as well as to study how biodiversity is generated and maintained in natural ecosystems such as forests and grasslands. In addition, serving as principal investigator for a Grant-in-Aid for Co-operative Research (A) project proved a valuable opportunity to learn how joint researchers from a range of universities and research institutes function as an organization to conduct successful research. One particularly precious memory is the study into species biodiversity maintenance mechanisms in the upland meadows of Europe that I conducted with researchers from the Czech Academy of Sciences under a Grant-in-Aid for International Scientific Research. A student studying under one of the joint researchers from the Czech Republic joined my laboratory as a Japanese government–sponsored doctoral student, where he obtained his doctorate before returning to become an associate professor at his home university. This is particularly memorable for me because at the time of writing, he is working in my laboratory as a visiting associate professor. Several other students of researchers I have had the honor of being acquainted with through the International Scientific Research and other Kakenhi programs have also spent periods in my laboratory as postdoctoral researchers, including those from the Czech Republic, Switzerland, and China. Naturally, all of these exchanges took place under the JSPS Postdoctoral Fellowship for Research in Japan program.

Since March 1996 I have worked as a professor at the Hokkaido University Institute of

Low Temperature Science, where I have devoted my studies to surveying and researching the effect of recent climate change on the dynamics of boreal forests and their biodiversity. My main research sites are Russia's Kamchatka Peninsula and the forests of Japan's Hokkaido. Once again Kakenhi support in the Grants-in-Aid for Scientific Research (A) and (B) categories, among others, have been vital in allowing me to advance my research. I have also worked to elucidate the range of mechanisms through which various types of trees growing in frigid climates handle environmental stress, and to evaluate how climate changes of recent years have impacted boreal forests.

Looking back over my career after being asked to contribute this essay, I realized that a large majority of my research, as well as my joint researchers, students, and postdoctorate researchers, has been linked by the common thread of the Kakenhi program. The first step in this was the Grant-in-Aid for Encouragement of Young Scientists, which I received during my time as a *Tokubetsu Kenkyuin* fellow. In this sense, I believe that my career as a researcher would not have been possible without the support of the Kakenhi program. From fiscal 2009 to 2011, I had the honor of serving as senior program officer for the Biological Sciences Group at the JSPS Research Center for Science Systems, where I worked to improve systems such as the Kakenhi and *Tokubetsu Kenkyuin* programs as well as being involved in the application screening process. As a member of the first-ever group of *Tokubetsu Kenkyuin* fellows, this was a truly moving experience. Although I had no way of knowing so at the time of being selected as one of the program's first benefactors, I came to realize that the range of JSPS systems such as the Kakenhi and *Tokubetsu Kenkyuin* programs have been constructed through deep and ongoing discussion and debate, and that improvements are constantly being made. I was therefore truly grateful for the opportunity to make my own humble contribution. In closing, I hope that the Kakenhi program, *Tokubetsu Kenkyuin* program, and the range of other initiatives administered by JSPS will continue to grow and flourish, and that the scope and reach of Japan's scientific capability will continue to broaden.