



## Susumu Okitsu 1954–2016

### Professor Susumu Okitsu, Ph.D.: an outstanding field scientist who brought a comprehensive understanding of vegetation in northeastern Asia

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#### Ишикава Ю. Профессор Сусуму Окицу: выдающийся полевой исследователь, давший миру новое видение растительности северо-восточной Азии

Susumu Okitsu, Ph.D., Professor of Plant Ecology at the Graduate School of Horticulture, Chiba University, passed away on February 26, 2016 from cancer at the age of 61.

Professor Okitsu was born in 1954 in Fukuoka, Japan. He grew up in Tokyo and received his diploma from the Faculty of Agriculture at Hokkaido University in 1978 through a one-year study abroad program in West Germany. While in school, he joined the mountaineering club Hokkaido University Wandervogel Verein (HUWV) and gained a wide range of mountaineering experiences in all seasons. This contributed considerably to his specialization of fieldworks in later years. In 1978, he entered the Graduate School of Environmental Science at Hokkaido University and began studying the dynamic nature of the *Pinus pumila* community and its maintenance mechanism under the supervision of Professor Koji Ito, Ph.D. He energetically conducted fieldworks in the mountain ranges of Hokkaido and Honshu islands in Japan during all seasons including winter. He obtained his doctorate from Hokkaido University in 1984 on completing his dissertation “Dynamic ecology of *Pinus pumila* community of the Taisetsu Mountains, northern Japan with special reference to the establishment of the *Pinus pumila* zone.” Until his dissertation, the *Pinus pumila* community in Japan had been regarded as a part of the alpine zone of Japan, but he demonstrated that the habitat of *Pinus pumila* in Japan was strongly affected by the snowy and windy condition peculiar to the Sea of Japan side of the Japanese archipelago and that the zone should be included in the subalpine zone.

Since 1984, Professor Okitsu had engaged in a research staff of the Faculty of Horticulture, Chiba University. Integrating diverse methods and knowledge of vegetation science, vegetation geography, plant ecology, and physical geography, he began comparative studies on the main forest types of northeastern Asia. He was the first Japanese vegetation scientist who visited the Russian Far East in 1992 after the Soviet Union disintegrated in 1989. Making ample use of both his prominent abilities in fieldwork and the Russian language, he conducted extensive fieldworks in the Sikhote-Alin mountain range in Primorie with members of the Institute of Biology and Soil Science in Vladivostok: Sergey Grishin, Ph.D., Pavel Krestov, Ph.D. and others. Professor Okitsu and his team described the structure of the main forest types of the Sikhote-Alin range, made comparisons between them and those in Japan, and discussed at length the characteristics of vegetation in both areas. For the next ten years, his fieldworks covered the wide range of north-

eastern Asia including Japan, Primorie, Sakhalin, Kuril Islands, Kamchatka, Magadan, and north-eastern China, where he clarified the maintenance mechanism of each forest type and discussed the interrelationships between them. Reviewing these broad research products, he published the monograph book “Ecology of Boreal Vegetation of North-Eastern Eurasia” in 2002 and brought a new, comprehensive understanding of vegetation in these areas. This monograph largely stimulated Japanese field scientists and played the most important role in promoting collaborative studies between Japan and Russia.

The discussion developed in the monograph was, of course, the fruit

of his outstanding efforts in fieldworks, but his remarkable fluency in foreign languages also benefited the research. He read voluminous literatures written in Japanese, English, Russian, Chinese, and German on the vegetation, geography, topography, and climate of northeastern Asia and the surrounding areas. I remember that, in the summer of 1998, Professor Okitsu tried to locate a Manchurian dictionary in Harbin, China, something quite impossible to find in Japan. He was often found reading Korean, which he learned from foreign students, and books on European architectures and arts and/or literary works of the East and West in his leisure during fieldworks in the 1990s. His pursuit of knowledge on these wide areas of culture, in particular foreign languages, seemed to originate from his



Prof. Susumu Okitsu (~2003) Dr. Okitsu in Petropavlovsk-Kamchatskii with great volcanoes in the background. Left to right: Mts. Koryakskii (3 456 m, now active), Avachinskii (2 741 m, active) and Kozelskii (2 190 m, dormant) (photo by P. Krestov)



Summit of Mt. Penkenushi, northern part of Hidaka Mountains, central Hokkaido. Jan., 1985 (photo by Nobuyuki Takahashi, Hokkai Gakuen University)



Namib Desert. Aug., 2005 (photo by Kazuharu Mizuno, Kyoto University)

desire to learn about unknown cultural fields. He seemed to enjoy working both in the real world on the earth and in other cultural worlds.

Since 2000, his research interests shifted to various aspects of ecology of the vegetation of broad territories of extreme regions such as the Arctic, the Antarctic, and the Namib Desert. Furthermore, he recently began a new research project focused on bringing a new understanding of the vegetation history of northeastern Asia after the last glacial age and the causal factors of the present vegetation.

Professor Okitsu made significant contributions to academic societies, including the Japanese Ecological Society, the Society of Vegetation Science, the Japanese Association of Historical Botany, the Botanical Society of Japan, the Association of Japanese Geographers, the Japanese Forest Society, the Japanese Society of Forest Environment, the Society of Environmental Science Japan, the Japan Association for Quaternary Research, the Society for the Study of Phytogeography and Taxonomy, and the International Association for Vegetation Science. In particular, his contribution to the Society of Vegetation Science was prominent enough for members to consider him as future chairman. He also put his efforts into the education of students and continued to inspire them by sharing his rich experiences and knowledge of various aspects of field sciences. Many of his students became researchers, teachers, governmental officers, and engineers for environmental consulting companies.

Every researcher has his individual style of conducting scientific research. Since detailed measurements of environmental factors and/or numerical analyses have been predominant in vegetation sciences in recent years, many researchers tend to adopt advanced technologies and/or the newest equipment. However, Professor Okitsu avoided such tendencies. Furthermore, his research style was unique, a style that may appear simple to some. For example, in conducting research, he had attached the greatest importance to the description of species and communities, and only a limited number of environmental factors were considered in his research results. On his website, he described his research style as an “accomplishment of low technology field work” (<http://www.h.chiba-u.jp/prof/graduate/ryokuchi/okitsu.html>). However, his choice of research sites has always been appropriate to grasp target environmental gradients, and he measured only indispensable parameters of communities at all times. These precise judgements are derived from his outstanding insight into natural phenomena. By adding a broad range of vegetation comparisons, Professor Okitsu further developed the descriptive methodology of the Tatewaki school, which was founded by professor Misao Tatewaki, Ph.D., a plant geographer at Hokkaido University and Koji Ito’s teacher, and thus, he is worthy of the successor of the school.

Although Japanese vegetation scientists, including me, expected that Professor Okitsu would publish the next monograph book on polar vegetation research that he be-



Sikhote-Alin Mountains. Aug. 12, 2011 (photo by Ken Sato, Hokkai Gakuen University)



Prof. Okitsu with his students at Mt. Iizuna, Nagano. Sept. 12, 2014 (photo by Arata Momohara, Chiba University)



On the way from alpine tundra study site on Avachinskii volcano, at elevation ~ 2000 m, with Russian colleagues Valentina Verkholan (Botanical Garden-Institute FEB RAS) and Sergei Grishin (Institute of Biology & Soil Science FEB RAS) (photo by P. Krestov)



After return from the field trip in Magadan Region. Central square of Magadan city. With Drs. Yoshinori Minami, Sergei Grishin, Prof. Hiromitsu Kanno, Prof. Oka (1999) (photo by P. Krestov)

gan in 2000, tongue and throat cancer prevented him from completing it. Even during his one-year struggle with cancer, however, he tried to complete four manuscripts, one (sent to me for peer review) containing clear logic and the potential to stimulate discussion, and delivered several lectures for students in his laboratory and for staff at Chiba University Hospital. He was, indeed, an outstanding vegetation scientist and a true fieldworker who did not stop working until just before his death.

## Dr. Okitsu

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### Крестов П.В., Гришин С.Ю. Доктор Окицу

Day 27 of February 2016 started with sad news from Japan: Prof. Dr. Susumu Okitsu from Chiba University passed away after fight with cancer. My immediate shock has further increased with understanding how huge is a lost it is for the Asian vegetation science. He worked in many continents, including Antarctic, always focusing on the last blank spaces on the Earth. He brought to international audience very new information on unknown vegetation of different corners of the world, and, first of all, of North-east Asia.

We met first in 1992, when he came to recently open for foreigners city of Vladivostok for his first field trip to Russia. After that, 15 years, almost every year we had brilliant and unforgettable time in Sikhote-Alin, Kamchatka, Kurils, Magadan, Sakhalin, Khabarovsk, flying by helicopters, floating by ships, riding off-road trucks, climbing volcanoes, making hundreds kilometers by feet hundreds kilometers away from people.

In 1992, I, still very young researcher in working group of Dr. Grishin in the Institute of Biology and Soil Science, was involved in organization of field trip in Sikhote-Alin mountains. The plan was to reach Mt. Vysokaya by helicopter with one stop on the way for making intermediate camp with food and rafts, work on the top of the mountain 2 weeks, then go down by feet to the intermediate camp about 30 km, and then raft down the river of Armu about 200 km down to the first roads, where we could be picked up by our field truck. Such expedition was unaffordable for Russian scientists in that time, and Dr. Okitsu provided research funds.



Paramushir Isl., short stop in Shelekhovo village on the way to Chikurachki volcano (2000) (photo by P. Krestov)

of Mt. Vysokaya (Grishin et al. 1999). More over, broad interests of Dr. Okitsu, and materials he accumulated during this trip allowed him to publish several important comparisons of forest types, bioclimatic equivalents of Sikhote-Alin and Hokkaido (Okitsu 1993).

This first contact with Dr. Okitsu became very instructive for me and since then I accept his style of field studies that can be formulated in several principles: 1) focus on whole nature, not just on subject of study; 2) be prepared to work in very harsh weather condition, good weather could not come during the fieldwork at all; 3) always make notes in the field book; 4) measure everything, you can; 5) be physically very well prepared to mountain climbing, long trip by feet heavily loaded. Besides all of this, Dr. Okitsu had very special style of being in field: only white shirts, only very strong, heavy-duty and long-living equipment, would it be rucksack, compass, rain coat, knife or lens.

Since that first expedition Dr. Okitsu became one of us in all research trips within the Russian Far East. We shared field life highlights and difficulties in different corners of the Russian Far East: in Kamchatka, Magadan region, Sakhalin Island, Sumshu, Paramushir and Atlasov Islands of Kuril chain, Sikhote-Alin Mountains. Dr. Okitsu published the notes of these field trips nearly immediately after they were recorded. And that was another research attitude of Dr. Okitsu. His trips to Sakhalin resulted in obtaining the rich comparative data on regeneration and establishment of *Picea jezoensis*–*Abies sachalinensis* forests (Okitsu 1995) and on detail characteristics of northern Sakhalin forests composed of *Picea jezoensis* and *Larix cajanderi* (Okitsu 1999). Studies in Kamchatka brought new information on *Larix cajanderi* forests in volcanic areas (Okitsu 1997, 1998).

I believe his first love in vegetation science was *Pinus pumila*, and Dr. Okitsu's study of this species became not only pioneering in many aspects (Okitsu & Ito 1984, 1989), but also the needle of *Pinus pumila* became a needle stitching the phytogeographically different regions of northeast Asia in same fabric, where many enigmas of vegetation structure in time and space were gracefully explained. Among great accomplishments Dr. Okitsu made for this region are his book in Japanese "Ecology of Boreal Vegetation of North-Eastern Eurasia" (Okitsu 2002) and a chapter of book "Forest Vegetation of Northeast Asia" (Srutek et al. 2003) regarded to forest vegetation of Japan (Okitsu 2003).

Dr. Okitsu opened for me the Japanese tradition in vegetation ecology. During our field works he told a lot of stories about his Professor Koji Ito and the scientific network of vegetation ecologists created around Professor Misao Tatewaki in northern Japan, who made probably greatest

contribution in our current knowledge in vegetation and flora of northeast Asia and especially the island arcs of northern Pacific.

After hard rainy working days somewhere in Paramushir Island, being completely wet and frozen, in white shirt and his 10 years old blue coat, he loved to stand beside the camp fire with a mug of very hot and strong black tea with a smell of smoke (which is quite different from what can be recognized as tea in Japan), looking at horizon strictly outlined by Chikurachki volcano, dwarf alder thickets cut by the patches of snow. That world was his first love.

He devoted all his life to vegetation science. He was great man and great scientist.

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Climbing Chikurachiki volcano, Paramushir Island, northern Kurils (2000) (photo by S. Grishin)