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Obituary: Stepan G. Shiyatov 1933–2021

It is with great sadness that we bid farewell to Prof. Dr. Stepan G. Shiyatov who passed away on October 23, 2021, in Yekaterinburg, Russia. Not only have we lost an outstanding and visionary scientist in Professor Shiyatov, but also an inspiring personality, a far-sighted bridge-builder between communities, institutions and disciplines, and a highly valued friend.

Stepan G. Shiyatov was born on December 24, 1933, in Vladimirovka, a typical Russian village embedded in the beautiful but wild and harsh landscape of the Southern Ural Mountains. As a teenager in those difficult postwar years, he went fishing and hunting in the taiga to support his family, which provided a great source of inspiration for the curious and young naturalist.

It was therefore fitting that at the age of 18, S.G. Shiyatov enrolled at the Faculty of Forestry at the Ural Forestry Engineering Institute, Sverdlovsk (now Yekaterinburg). During his studies he became active in research activities under the supervision of Prof. Pavel L. Gorchakovsky. He participated in several expeditions in harsh and remote areas of the Ural Mountains. It was during this time that he became increasingly fascinated by vegetation dynamics in both the upper and northern tree line ecotones.

After his graduation and following two years of work as a technician in the forest industry, S.G. Shiyatov rejoined Professor Gorchakovsky in 1959, where he started his postgraduate research on tree line dynamics at the Institute of Biology of the Ural Branch of the USSR Academy of Sciences. He was a visionary when he decided to embrace dendrochronology, a discipline that was only little known in the USSR at that time. In 1964, he successfully habilitated with his thesis on “The dynamics of the upper boundary of the forests on the eastern slope of the Polar Urals (Sob river basin)".

Following his passion for research, S.G. Shiyatov joined the Laboratory of Plant Ecology and Geobotany of the Institute of Biology, Ural Branch of the USSR Academy of Sciences (now known as the Institute of Plant and Animal Ecology) in 1962, where he further pursued his tree-ring research in the Urals and the West Siberian forest-tundra ecotone. In 1981, he defended his doctoral thesis on the "Climate-induced changes in forest vegetation at the upper and polar limits”. In 1985, he became head of the Laboratory of Forestry and Dendrochronology and from 1988 to 2009 he directed the well-known Laboratory of Dendrochronology.

After the fall of the iron curtain came the hardest years for science in Russia in the 1990 s when they experienced a strong brain drain throughout the country. S.G. Shiyatov audaciously counteracted the scientific exodus by strengthening international cooperation with leading institutions around the world, and by creating new jobs for junior researchers in his laboratory. His openness, far-sightedness and scientific authenticity ultimately formed the basis for his exemplary leadership and lasting scientific success as a forest ecologist and dendrochronologist of international stature. Although S.G. Shiyatov stepped down from his positions as director and leader of the tree-ring laboratory in 2009, he continued to guide the research agenda and to support the education of students and young scientists.

Among the many scientific merits of Professor Shiyatov, we highlight his pioneering role in paleo dendroclimatology and forest monitoring. He initiated several iconic millennium-long tree-ring chronologies for Siberia. In the 1960 s, S.G. Shiyatov built the first Russian 1000-year-long tree-ring chronology from the high mountains of the Polar Urals. In addition, he established a 1300-year-long chronology from living and dead juniper shrubs, and more than 800-year-long chronologies from archaeological wood. In 1964 he initiated the unique eight-millennia-long chronology from subfossil wood from the Yamal Peninsula, which he pursued until his retirement. Spanning 8768 years, it is now the longest chronology for the entire circumpolar region and forms the precious basis for millennial long climate reconstructions.

In addition, his pioneering work on the vegetation dynamics of tree line ecotones was certainly another visionary element of Prof. Shiyatov’s research. Thanks to his foresight in installing and maintaining gradients of long-term monitoring plots in narrowly accessible terrain already decades ago, we observe some of the strongest evidence worldwide of the impact of climate change in mountain areas and of northern latitudes. These gradients served as research platforms for many national and international collaborative projects on vegetation dynamics, biogeochemical cycling and biodiversity across disciplines such as forest ecology, dendrochronology, botany, soil sciences, and remote sensing. In this respect, his large and unique collection of repeated photographs documenting decades of significant changes in vegetation patterns in tree line ecotones is particularly remarkable.

Stepan G. Shiyatov was an enthusiastic and visionary researcher, a dedicated teacher, an excellent field ecologist, who like no others could observe, document, and understand the biophysical processes of mountains and polar regions. It has been a privilege to know and work with this inspiring and humorous person and we will all keep him in our hearts (Figs. 1 and 2).

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Fig. 1. Prof. Dr. Stepan G. Shiyatov (Photo taken in 2006 by Rashid Hantemirov).

Fig. 2. Stepan G. Shiyatov explaining Climate Change impacts on ecosystem dynamics of the Polar Urals to Swiss Television. (Supported by Pavel Moiseev holding the microphone, Photo taken in 2004 by Andreas Rigling).

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