

## 2011 Alexander von Humboldt Medal J. Philip Grime

By Jason Fridley  
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It is fitting that the inaugural Alexander von Humboldt Medal, presented to honor scientists who have contributed greatly to the intellectual development and advancement of vegetation science,

goes to Phil Grime, a man renowned for forging his own path through the tangled bank of conceptual plant ecology, paving a trail that vegetation scientists have followed for many decades. It is my pleasure to speak briefly on the background and academic achievements of this iconic scientist.

Phil has been associated in one form or another with the University of Sheffield for over 50 years, first as a botany undergraduate, then as a PhD student of Donald Pigott, beginning what would become his life's work of understanding the flora of the Sheffield region. After a brief stint at the Connecticut Agricultural Station in the U.S., he returned to Sheffield to join the Unit of Comparative Plant Ecology, a NERC-funded research center affiliated with (what is now) the Department of Animal & Plant Sciences, initially as deputy director and then director (in 1989) until his (for lack of a better word) 'retirement' in 2004. With Phil at its helm, the UCPE made the Sheffield flora a renowned 'test-bed' for the development of plant strategy theory, which was built on Phil's trademark *comparative* approach to vegetation, distilling what was (I think is fair to say) a discipline dominated by a taxonomic focus to one based on the classification of plant behaviors with reference to key traits, an approach now familiarly known as plant *functional* ecology. This comparative work reached its peak during the Integrated Screening Programme (ISP; 1985-1997), which uncovered the functional profiles of 43 common British plant species and led to the publication of a most remarkable book, *Comparative Plant Ecology* (1988, with John Hodgson and Rod Hunt; for those of you who know this book well, I think you will agree this is only book of its kind ever published, now in its 2<sup>nd</sup> Ed). Phil is presently in charge of the Buxton Climate Change Impacts Laboratory, a lab he helped establish nearly two decades ago and that has now become one of the longest running climate manipulations of terrestrial vegetation in the world. For his research achievements, Phil has received several awards of distinction, including the Marsh Award for Ecology and Honorary Membership from the British Ecological Society, Elected Honorary Member of the Ecological Society of America,

Doctor of Science at the University of Nijmegen, and in 1998 was elected Fellow of the Royal Society. Phil has of course also trained scores of students that have gone on to influential careers around the world.

Phil sets a very high standard for the Humboldt award, being one of the most well cited researchers in vegetation ecology for many decades. Two of his most notable achievements emerged in the early 1970s, with the publication of two *Nature* papers (Competitive exclusion in herbaceous vegetation, 1973; Vegetation classification by reference to strategies, 1974), whereby Phil introduced the now ubiquitous concepts of the hump-backed model (linking local production and species richness) and CSR theory, recognizing environmental stress and disturbance agents as providing the principal constraints on plant evolution and community structure. Both theories were highlighted in Phil's book, *Plant Strategies and Vegetation Processes*, first published in 1979 (with over 5000 current citations; note Darwin's *Origin* is listed at around 8000 citations, and Darwin has a 120-yr head start) and now in its second edition one of the most popular ecological texts. I think it's fair to say that CSR theory has transformed the practice of vegetation science, specifically with emphasis on a core set of species 'traits' that has become something of a cottage industry in our discipline (witness the emergence of the 'leaf economics spectrum', the growth of trait databases across many floras, and the infusion of global change models with plant trait data).

CSR theory and the hump-backed model are but two of a long list of Phil's research achievements, of which I mention only a select few. Phil discovered an ecological role for genome size related to growth phenology; he has greatly refined the mechanisms by which plants compete for resources and identified novel mechanisms of niche differentiation, such as the scale vs. precision tradeoff in resource foraging; he has helped to show the significance of top-down controls on species richness across resource gradients; he has been among the first to demonstrate connections of local intraspecific diversity to community-level processes; he was an early advocate of global change research in vegetation; and his more recent development of a 'twin-filter' model of plant community organization may prove to be yet another of his lasting contributions to vegetation science.

Finally, I want to mention that, although Phil has built a reputation as one of the most skilled experimentalists in the history of vegetation science, he has always regarded the initial vegetation surveys of the Sheffield region (begun in the 1960s) as the 'crown jewels' of the UCPE research program, becoming the bedrock on which plant strategy theory was built, and serving as a constant reference for his many years of microcosm-based experimentation. Indeed Phil often speaks of the necessity of a 'rich mixture' of careful observation, development of theory that requires what Robert MacArthur referred to as 'blurred vision', and—critically—subsequent testing via experiment. This is an important message for those young vegetation scientists with Humboldt award

ambitions: theory and experimentation are best built on top of sound natural history and a passion for observing plants in their natural environment, an approach Phil has epitomized his entire career.

Please join me, on behalf of the IAVS Award Committee, in recognizing Phil Grime as the first recipient of the IAVS Alexander von Humboldt Medal.