In Memoriam Pedro Montserrat Recoder
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Jesús Izco¹ & Luis Villar²

At the age of 98, Pedro Montserrat was the doyen of Spain terrestrial botanists and ecologists. A long life devoted to study, which continued until almost the very last moment. A wide range of research activities into many different areas distinguished his career. Graduated in Natural Science from the University of Barcelona (1945), he obtained his doctorate under the direction of Taurino Mariano Losa España, professor at the Faculty of Pharmacy in that same university, with a thesis entitled Flora de la Cordillera Litoral catalana (Madrid, 1950). During this stage of his scientific education, thanks to a scholarship from the Higher Council of Scientific Research (In Spanish, Consejo Superior de Investigaciones Científicas, CSIC), he worked at the Institute of Applied Biology (CSIC-University of Barcelona) and the Botanical Institute of Barcelona (Barcelona City Council-CSIC). After his early studies into the flora of the Pyrenean-Cantabrian range with T. M. Losa, in 1953 he joined the Institute of Applied Biology as the section head in Palynology and Aerobiology, and –by then a scientific associate at the CSIC—, extended his studies on palynology in Cambridge, and on taxonomy at Kew Gardens (United Kingdom). On his return he was appointed section head for Pasture and Forestry Cultivation, where his activities focused on Pasture Ecology and Agrobiocsystems. In 1961, he moved to the Institute of Soil Science and Plant Biology —today the Environmental Sciences Centre at the CSIC— in Madrid, where he worked on the study of Spanish semiarid pastures. Once again in Jaca, he contributed to creating and developing the Pyrenean Centre of Experimental Biology at the CSIC —today the Pyrenean Ecology Institute— first as vice chairman (1963-1979), and then as research professor (1971-1985), until his retirement.

Pedro Montserrat represented an admirable synthesis between the botanist with a passionate interest in flora, its distribution and its taxonomic ordination, while at the same time being open to areas that were innovative half a century ago, such as palynology, bioclimatology, ecology, geobotany—including syntaxonomy, due to his admiration for J. Braun-Blanquet and O. de Bolòs—, endemicity pastures, pastoralism, extensive livestock farming, processes related to land use (ecological agriculture, cultural landscapes) and nature conservation. Another achievement

¹ Department of Botany, University of Santiago de Compostela. Email: jesus.izco@usc.es
² Instituto Pirenaico de Ecología, IPE-CSIC. Jaca (Huesca). Email: lvillar@ipe.csic.es

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particularly worth noting is his contribution, starting in the 1970s, to the vegetation mapping of the Ebro basin, mid Aragon, the Aragonese Pyrenees, and to forestry maps. In this same chorological area, he was also involved in compiling the floristic maps in the ORCA Atlas (Catalonia, Valencia, Baleares) and the *Atlas Florae Europeae*.

His herbarising activity is unequalled in Spanish botany. His early collections became the germ of the BCF Herbarium at the Faculty of Pharmacy in Barcelona, founded in 1943; and later, his Pyrenean collections served as the basis for the JACA Herbarium in 1969, with over 300,000 specimen vouchers, a large part of which are from Montserrat’s own collections (see http://floragon.ipe.csic.es/inf_origen.php). To this must be added his role in founding and developing other herbaria such as the VIT at the Museum of Natural Sciences in Vitoria (Álava). He made over 100 taxonomic proposals, including the species *Allium palentinum*, *Lathyrus vivantii*, *Minuartia valentina*, *Reseda vivantii*, *Rosa jacetana* and *Veronica mampodrensis*. His experience as a floristic expert and taxonomist led to his promotion of the *Flora iberica* project, sponsored by the CSIC, in which he was involved as an author and co-author of the generic syntheses of *Anemone*, *Cistus*, *Coriaria*, *Endressia*, *Guillonea*, *Laserpitium*, *Minuartia*, *Petrocoptis*, *Rhodalsine*, *Rosa*, *Thalictrum* and *Viola*, and as the editor of volumes I (1986), II (1990), III (1993) and IV (1993).

Above all we should highlight Pedro Montserrat’s activity in the study of pastures as complex systems of plants and animals, under specific environmental conditions and with a dynamic approach to material and energy flows. All this can be encapsulated in the aforementioned concept of *agrobiocsystem* developed in 1961, and the subsequent concept of *agroecosystem*. This ecological-anthropological approach led to his support for the conservation of species, spaces and landscapes. He took part, for example, in the earliest works on the endangered flora of Spain, and participated in drafting the Red Book of Spanish Flora. The conception of agroecosystems itself paved the way to their conservation, a notion that is reiterated throughout all his publications on pastures and pastoralism.

The list of his published works is very extensive, and his output remained consistent even after his 90th birthday. Moreover, if we also consider his articles on popular science in Aragonese newspapers and his contributions to conference proceedings, the number extends to at least 400 titles. The full list can be consulted at https://pedromontserrat.wordpress.com/. After his first contributions in the mid-1940s in *Collectanea Botanica* (Barcelona) and in the publications of the *Instituto de Bología Aplicada*, he also wrote regularly for the journal *Pastos* and other Spanish journals: *Anales del Instituto Botánico Antonio José Cavanilles* (now the *Anales del Jardín Botánico de Madrid*), *Lazaroa*, *Montes*, *Quarderns d’Ecologia Aplicada*, and others. He also published his scientific output in European and American journals such as *Vegetatio* (now *Journal of Vegetation Science*), *Kew Bulletin*, *Nature*, *Bulletin de la Société Botanique*, *Boletín de la Sociedad Broteriana*, *Documents Phytosociologiques*, *Webbia*, *Candollea* and *Bulletin de la Société pour l’Échange des plantes Vasculaires de l’Europe*. His books include: *Los pastizales aragoneses* (1946), *La Jacetania y su vida vegetal* (1971), *Rosas de Aragón y tierras vecinas*, this one in collaboration with D. Gómez, J.V. Fernández and M. Bernal (2015).

Although totally dedicated to research, his unflagging energy enabled him simultaneously to involve himself in university teaching. During the 1970s and 80s he taught classes in geobotany and ecology at the University of Navarre. His interest in sharing this knowledge are translated in advising 11 doctoral theses and 3 dissertations during such period, introducing students in the scientific world but inculcating in them the importance of engaging with society. There is no doubt that Pedro Montserrat was a vocational teacher, and in this, he set a new standard. His works frequently reveal his dedication to teaching and his interest in conveying his knowledge; he not only imparted this information but also sought to analyse it and interpret its causes. His work provides an insight into his thinking, his worldview, and the principles that underpinned his attitudes. These qualities are testament to his genuine commitment to teaching, and explain much of his human and professional reputation.

These qualities for teaching and research, coupled with his tenacity and generosity, earned him the admiration of many colleagues, who named new plants in his honour. A long list of eponyms (species, subspecies, varieties and hybrids) bear the name of Pedro Montserrat Recoder, with epithets such as *montserratii, petri-montserratii* and *recoderi*, proposed by Spanish or foreign botanists. He was also the recipient of a long list of awards, homages and accolades. His colleagues
in the Pyrenees dedicated the volume of their first congress (1986) to him on the occasion of his retirement, the Pyrenean Ecology Institute paid tribute to him in 1988 with a book-homage; the botanical seminars entitled *Conexïement i conservació de la flora a la Mediterrània occidental* (Mahón, Minorca, 2006) were held in his honour; and there were also tributes from French and Spanish botanists at the 8th International Conference on Pyrenean-Cantabrian Botany (2007), and from Spanish ethnobotanists (Albacete, 2010). Notable among his awards and distinctions are the *Cajal Prize*, granted by the third National Allergy Congress (Las Palmas, 1953); *bronze medal* from the *Fédération Française de l’Économie Montagnarde* (Ministère de l’Agriculture, France, 1957); *gold medal* from the Navarre Regional Government (1965); *silver medal* from the *Estação de Melhoramento de Plantas* (Elvas, Portugal, 1967); *Prix de Coincy* from the *Société Botanique de France* (1981); *Environment Prize*, from the Aragón Government (1999); *medal* from the *Fundación Interuniversitaria González Bernáldez* (Alcalá de Henares, 2008).

He was a member of numerous scientific organizations, and was distinguished as an Honorary Member of the Spanish Society of Terrestrial Ecology (1993), Honorary President of the Association of Iberian-Macaronesian Herbaria (1996), Honorary Member of the Spanish Royal Natural History Society (Madrid, 2004), Honorary Member of the Professional College of Biologists of Aragon (2007), Honorary Member of the Spanish Pasture Study Society (2009), and Honorary Member of the *Institució Catalana de Història Natural* (2012). He was also corresponding Academician of the Royal Academy of Science of Zaragoza (2003), and of the Academy of Science and Arts in Barcelona (2005).