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SANDRO PIGNATTI (1930–2025): A VEGETATION SCIENTIST EXTRAORDINAIRE

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Abstract - This very personal assay is celebrating the life of Sandro Pignatti, an extraordinary person and scientist. Sandro has had a major influence on the development of vegetation science – both in its methodical and theoretical aspects, as well as in the field of descriptive vegetation science. In particular, he was instrumental in founding and leadings several international vegetation-scientific initiatives (such as International Association for Vegetation Science, European Vegetation Survey, Eastern Alpine & Dinaric Society for Vegetation Ecology, International Summer School in Vegetation Science). He also contributed to knowledge of syntaxonomy in many countries of the world, including Australia.

Keywords: Australia; International Association for Vegetation Science, Eastern Alpine & Dinaric Society of Vegetation Ecology; Phytosociology; Textbooks; Vegetation science

Introduction

I knew this day would come when we woke up to the dreadful news that Sandro is not with us anymore. Besides, we, the global community of botanists, have lost a great person; this is particularly painful for me, as I have lost a mentor and a friend. Sandro and I shared many values, spanning our love for plants, including a common interest in the taxonomy of *Limonium* (a rather complicated Plumbaginaceae genus) and the complexity of vegetation. In this respect, Sandro was a 'typical' Italian university professor – covering botany in all its latitude. There will be several contributions in this special tribute to Sandro Pignatti's work, looking into the impact of his work in taxonomy and flora-writing (Flora d'Italia in two editions), the iconic European Vegetation Survey (Rodwell, 2026), or the philosophy of science (Guarino, 2026). Here, I focus on Sandro's impact on the theory and methodology of vegetation science and on his contribution to descriptive vegetation science, with syntaxonomy first and foremost.

The Sandro's impact on syntaxonomy

Indeed, besides his very early interest in *Limonium* (e.g., Pignatti S., 1953c) – one of the taxonomically most complicated genera of the Mediterranean taxonomy, the first serious steps in botany were devoted to the description of the vegetation of a place perhaps closest to his heart: the Laguna Veneta, surrounding the place of his birth, Venice. His thesis, defended at the University of Pavia in 1954, became a

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vegetation-ecological classic, shaping the understanding of the coastal vegetation of the Mediterranean. The study has been published in a series of papers – a sort of instalment series of his original thesis (Pignatti S., 1952, 1953a, 1953b; see Fig. 1). It is the source of most of the protologues of his newly described high-ranked syntaxa (Table 1).

Table 1. High-rank syntaxa described by Sandro Pignatti (source: Mucina et al. 2016).

Classes:
Rumici-Astragaletea siculi Pignatti et Nimis in E. Pignatti et al. 1980
Zosteretea Pignatti 1953

Orders:
Magnocaricetalia Pignatti 1953
Nasturtio-Glycerietalia Pignatti 1953
Rumici-Astragaletalia siculi Pignatti et Nimis in E. Pignatti et al. 1980
Thero-Atriplicetalia Pignatti 1953
Therosalicornietalia Pignatti 1952
Vulpietalia Pignatti 1953
Zosteretalia Beguinot ex Pignatti 1953

Alliances
Agropyro-Artemision coerulescentis Pignatti 1953
Alyssion bertolonii E. Pignatti et Pignatti 1977
Centaureion dichroanthae Pignatti 1952
Halo-Artemision Pignatti 1953
Limoniastrion monopetali Pignatti 1952
Pholiuro-Spergularion Pignatti 1952
Psammo-Vulpion Pignatti 1953
Zosterion marinae Br.-Bl. et Tx. ex Pignatti 1953

Sandro's interest in vegetation classification, especially using the Braun-Blanquet approach, was a logical consequence of his stay in Montpellier, where he learned the basics from the legendary Josias Braun-Blanquet. From 1952, when presumably his first paper in the field appeared, until his

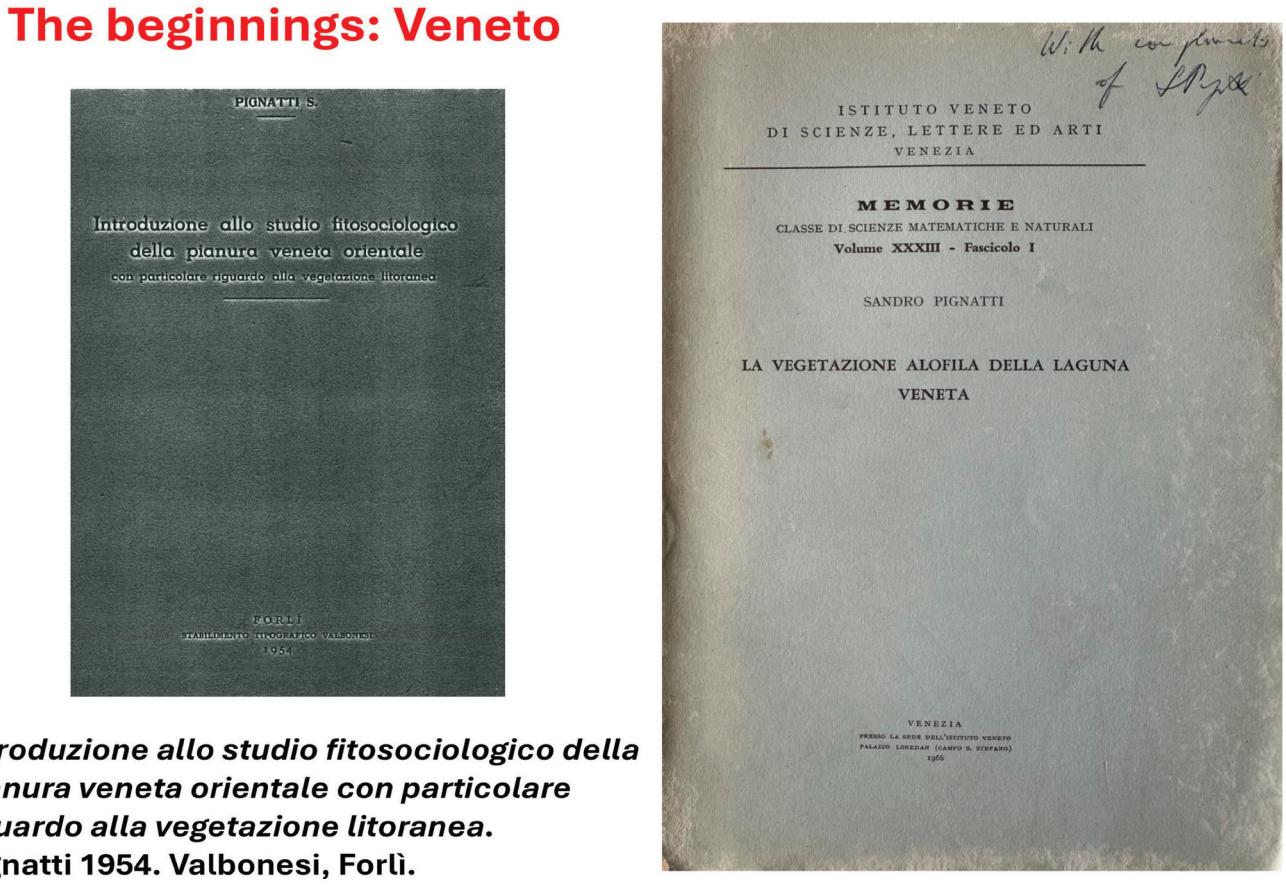


Figure 1. Sandro's publication beginnings.



Figure 2. The book compendia Sandro has (co)-edited.

last days, Sandro described new vegetation types – mainly in tandem with his beloved wife and collaborator, Erika Pignatti (nee Wikus), and with many of his students and colleagues. Most of his work was done in Italy. However, he also contributed to the syntaxonomy of countries such as Albania, Austria, China, Japan, Lebanon, Mexico, Somalia, Spain, Taiwan, Tunisia (see Sandro's bibliography compiled by Ubrizsy Savoia, 2003) and, finally, Australia (see a dedicated section below). Besides those hundreds of botanical papers Sandro authored and co-authored, he edited numerous volumes of compendia (Fig. 2) and a monograph (Fig. 3; Pignatti S., 2005), devoted to aspects of vegetation and urban ecology of Italy (Cignini et al., 1995, Pignatti S., 1988; Ingegnoli & Pignatti S., 1996; Pignatti S. et al., 2015, 2001).
Under Erika's leadership, Sandro co-authored a three-volume monograph on the flora and vegetation of what are perhaps their most favourite places – the Dolomiti (Pignatti E. & Pignatti S., 2014, 2016, 2017) (Fig. 4), making this iconic mountain range one of the botanically best-researched regions of Europe and indeed of the World.
As our knowledge of vegetation complexity grew, he recognised very early in his scientific life the need for standardised catalogues and tools. Surveys of vegetation units have always been a popular synthetic tool of syntaxonomy. In 1990, he issued a call to renew our activities to formulate a European vegetation 'prodromus'. After a few largely failed attempts made by Braun-Blanquet and Tüxen in the past, this call came at the right time: The Iron Curtain was falling, and the cooperation between the East and West intensified. The European Vegetation Survey was born, and the rest, as they say, is history (Rodwell et al., 2002, Mucina et al., 2016, Rodwell, 2026).

Sandro's contribution to ecological theory

Sandro's interest in vegetation classification was not limited to the field of finding and describing new syntaxonomic units. He has been interested in the theoretical and methodological aspects of syntaxonomy, as evidenced by a series of important papers and notes summarised in Table 2. His interest in the theoretical aspects of our *sciencia amabilis* has made an important contribution, especially by redefining current views of what phytosociology is striving for and how it can connect with other related theoretical and applied sciences addressing environmental issues, such as ecology, landscape ecology, and nature conservation.
Sandro Pignatti was the leading personality in publishing two important textbooks in the same year (Fig. 5) – one on vegetation ecology (Pignatti, 1994b) and the other on landscape ecology (Pignatti, 1994a). He also served as an important contributor to the *Ecologia generale* (Bullini et al., 1998).
Undoubtedly, one of the greatest contributions to the methodology of vegetation classification and, indeed, to the theory of vegetation science is Sandro's role as a source of ideas and a mediator in the application of numerical (or

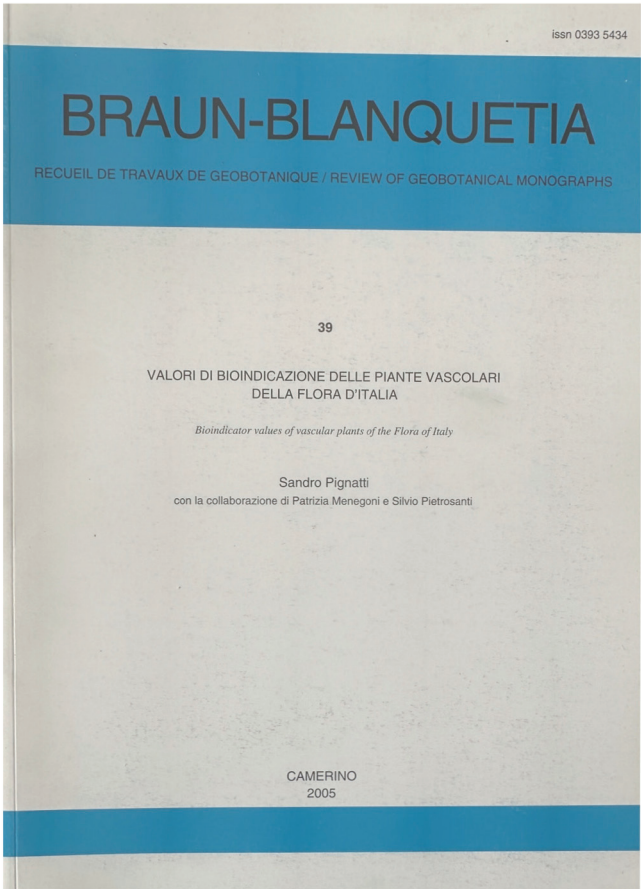


Figure 3. The influential Sandro's account of the indicator flora of Italy.

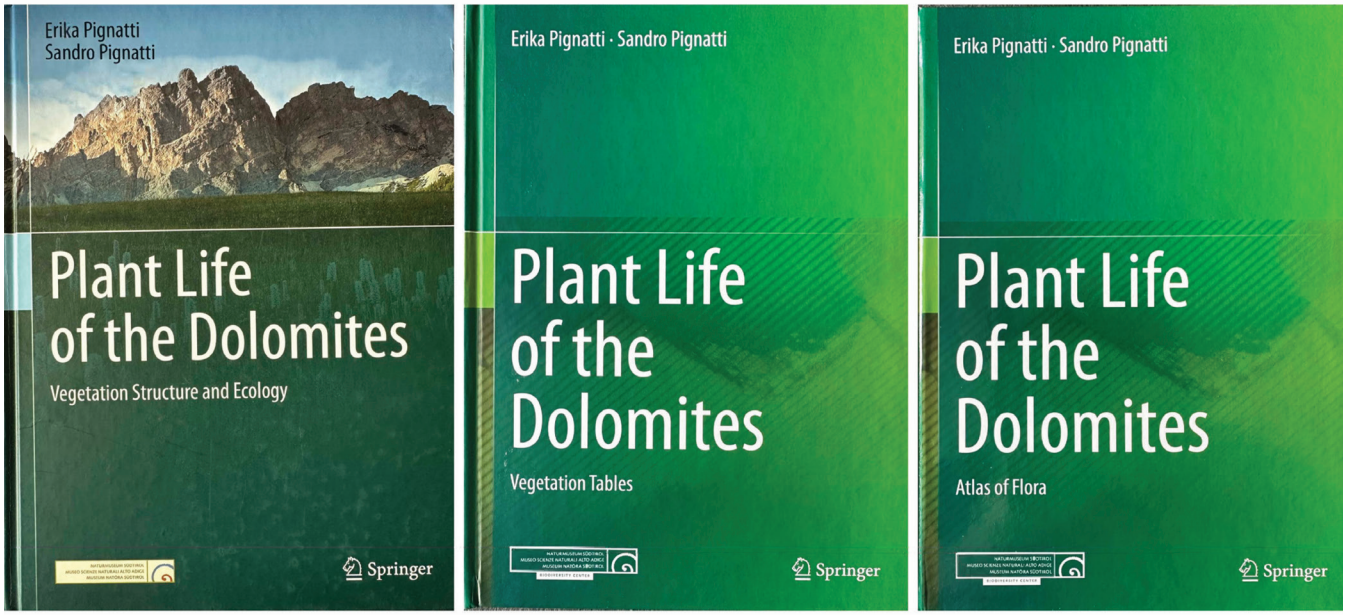


Figure 4. The Dolomite trilogy – Erika's and Sandro's homage to their favourite mountain range.

Table 2. A synopsis of works of Sandro Pignatti devoted to theoretical aspects of vegetation science, phytosociology, and syntaxonomy.

Core topic	Reference	Year
Syntaxonomy	Mengarda, F. & Pignatti, S. (1962). Un nuovo procedimento per l'elaborazione delle tabelle fitosociologiche. *Rendiconti Lincei. Scienze Fisiche e Naturali, 32*(2), 215–222.	1962
Syntaxonomy	Pignatti, S. (1968). Die Inflation der höheren pflanzensoziologischen Einheiten. In: Tüxen, R. (ed) *Pflanzensoziologische Systematik*. pp. 85–97. Dr W. Junk Publishers, Den Haag.	1968a
Vegetation Analysis	Pignatti, S. (1968). Su alcuni parametri per la misura delle variazioni di vegetazione. *Giornale Botanico Italiano, 102*(6), 579.	1968b
Syntaxonomy	Pignatti, S. (1969). Die Bedeutung der Familien für die Bearbeitung pflanzensoziologischer Tabellen. *Vegetatio, 17*, 1–6.	1969
Phytosociology	Pignatti, S. (1975). Pflanzensoziologie am Scheideweg. *Vegetatio, 30*(3), 149–152.	1975
Vegetation Analysis	Pignatti, S. (1978). Zur Methodik der Aufnahme von Vegetationskomplexen. In: Tüxen, R. (ed) *Assoziationskomplexen (Sigmeten)*. pp. 77–82. J. Cramer, Vaduz.	1978
Phytosociology	Pignatti, S. (1980). Reflections on the phytosociological approach and the epistemological basis of vegetation science. *Vegetatio, 42,* 181–185.	1980b
	Pignatti, S. (1980). Epharmonische Beziehungen zwischen struktureller und funktioneller Ordnung in der Vegetation. In: Tüxen, R. (ed) *Epharmonie*. pp. 385–398. J. Cramer, Vaduz.	1980a
Phytosociology	Pignatti, E. & Pignatti, S. (1981). Braun-Blanquet. Die Lehre Braun-Blanquets Gestern und Heute und ihre Bedeutung für die Zukunft. *Phytocoenologia, 9,* 417–442.	1981
Phytosociology	Pignatti, S. (1987). La vitalità dell' insegnamento di Braun-Blanquet nella problematica struttura/funzione delle comunità vegetali. *Informatore Botanico Italiano, 19,* 155–165.	1987
Syntaxonomy	Pignatti, S. (1990). Towards a prodrome of plant communities. *Journal of Vegetation Science, 1*(3), 425–426	1990
Phytosociology	Pignatti, S. (1995). A complex approach in phytosociology. *Annali di Botanica (Roma), 52,* 65–80.	1995

Core topic	Reference	Year
Syntaxonomy	Pignatti, S., Oberdorfer, E., Schaminée, J.H.J., Westhoff, V. (1995). On the concept of vegetation class in phytosociology. *Journal of Vegetation Science, 6,* 143–152.	1995
Phytosociology	Pignatti, S. (1996). A new spirit in phytosociology. *Annali di Botanica (Roma) 53*, 9–21.	1996
Vegetation Science	Pignatti, S. (1996). Some notes on complexity in vegetation. *Journal of Vegetation Science, 7,* 7–12.	1996
Phytosociology	Pignatti, S. (2000, dated 1997). La phytosociologie braun-blanquetiste et ses perspectives. *Colloques phytosociologiques, 27,* 1–15.	2000
Vegetation Analysis	Mucina, L., Schaminée, J.H.J. & Rodwell, J.S. (2000). Common data standards for recording relevés in field survey for vegetation classification. *Journal of Vegetation Science, 11,* 769–772.	2000
Vegetation Science	Ingegnoli, V. & Pignatti, S. (2007). The impact of the widened Landscape Ecology on Vegetation Science: towards the new paradigm. *Rendiconti Lincei, Scienze Fisiche e Naturali, 18*(2), 89–122.	2007
Phytosociology	Guarino, R., Willner, W., Pignatti, S., Attorre, F. & Loidi, J. (2018). Spatio-temporal variations in the application of the Braun-Blanquet approach in Europe. *Phytocoenologia, 48*(2), 239–250.	2018
Vegetation Science	Attorre, F., Pignatti, S., Spada, F., Casella, L. & Agrillo, E. (2018). Introduction: Vegetation science and the habitats directive: approaches and methodologies of a never-ending story. *Rendiconti Lincei, Scienze Fisiche e Naturali, 29*(2), 233–235.	2018

computer-assisted) tools to vegetation classification. This achievement deserves a special focus as it is summarised in the next section of my homage.

Sandro as a bridge builder in vegetation ecology

Doing science is both a very private and a very public field of activity. Many of us love to sit in our deep holes or on the top of ivory towers, surrounded by books, reprints, and unfinished manuscripts. It used to be a pencil or a pen in the past as our beloved tool of fight in pushing the borders of our science further and further; today it is the computer keyboard, which helps us to capture the fleeting moments of genius (and maybe of some foolish ideas too) on paper, or rather in electrons. We, scientists, love our privacy, but even more so, we love to meet, exchange ideas, and practice the art of a 'symposium' – indeed, 'drinking together' as the literal translation of the term would suggest. For meetings in Italy, it was always more about eating together; good Italian wine was always at hand! Sandro, with the help of his beloved wife Erika and many collaborators in both Trieste and Rome, was a virtuoso at organising scientific meetings, many of which were memorable enough to enter the history books of vegetation science.

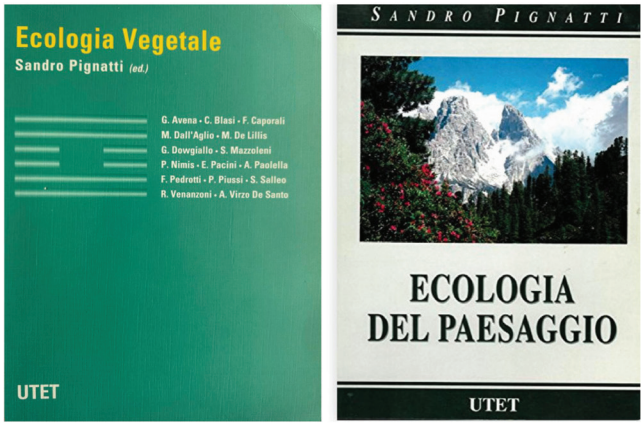


Figure 5. The textbooks edited by Sandro Pignatti.

Eastern Alpine and Dinaric Society for Vegetation Ecology

At the regional level, Erika's and Sandro's initiative in bringing together vegetation and flora researchers from northern Italy, the Eastern Alps, and the northern regions of the former Yugoslavia (Slovenia and Croatia today) had a significant impact on regional collaboration in botany. They co-founded in 1960 (together with Erwin Aichinger of Klagenfurt, Austria and Maks Wraber, Ljubljana, today Slovenia) the so-called 'Ostalpin-Dinarische Pflanzensoziologische Arbeitsgemeinschaft' (Eastern Alpine and Dinaric Society for Vegetation Ecology: https://www.eadsve.org/about/) – a learned society which has organised 40 meetings so far, despite all political challenges this region has gone through over the past few decades. The founding and

leading role of Erika and Sandro in this society was a logical outcome of their very personal relationship to the region – Erika was born in Osttirol/East Tyrol (Austria) and Sandro in Venezia (northern Italy). Many of those meetings resulted in volumes of proceedings (see Zobodat – Literatur Serien https://www.zobodat.at/publikation_series.php?id=20814), contributing to the treasure of knowledge of the flora and vegetation of this complex and fascinating European region.

IVV Working Group 'Data-Processing in Phytosociology'

The seventieth of the last century has witnessed the arrival of computing power to solve problems of vegetation complexity, especially in vegetation classification, which has seen an increase in vegetation samples (phytosociologists prefer the term 'relevé', influenced by the Braun-Blanquet School). Vegetation scientists rediscovered the power of resemblance in classification and the power of some multivariate standard techniques, which entered the World of vegetation ecology under the concept of 'ordination'. In 1968, at one of the memorable Rinteln symposia of IVV, organised by Reinhold Tüxen, the idea of a Working Group on Data Processing was born (van der Maarel, 1971). Interestingly, this indeed happened in the backyard of somebody (R. Tüxen) who was not very supportive of using numerical techniques in vegetation classification. The often-cited Tüxen's (actually Theodor Fontane's, 1819 – 1898) 'Wer rechnet, ist immer in Gefahr, sich zu verrechnen', became legendary. After Rinteln, meetings in Trieste in 1969, Todemann in 1970, the Netherlands in 1971, Prague in 1973 and Montpellier in 1975, followed, bringing light to progress in descriptive vegetation science. Later, the WG Data_Processing (in phytosociology) was transformed

Table 3. A system of the Western Australian vegetation classes as coined by Erika and Sandro Pignatti in context of analogous European classes and the Western Australian biomes, following Macintyre & Mucina (2022; Table S2), Mucina (2023), and Mucina & Wasserman (2026). The names of the European classes follow (Mucina et al., 2016). Legend for the WA Biomes: AZ: azonal; ZE: zonoecotone; Peino: peinobiome; Halo: halobiome; Thallas: thallasobiome; Amphi: amphibiome; Litho: lithobiome; S1: Mediterranean Zonobiome; S2: Hot Arid Zonobiome; ZE S1-T3: zonoecotone involving Mediterranean and Oceanic Temperate zones; ZE S2-E2: zonobiome, involving Hot Arid and Tropical Seasonal zones.

Western Australia Classes	**European Class Quasi-Analogons**	**WA Biomes**
Posidonietea australis E. Pignatti & S. Pignatti 1998 ined.	*Zosteretea; Halodulo-Thalassietea*	AZ-Thallas
Sarcocornietea (quinqueflorae) Bridgewater 1982	*Thero-Salicornietea*	AZ-Halo
Halosarcietea Bridgewater 1982	*Salicornietea fruticosae*	AZ-Halo
Samolo-Suaedetea Bridgewater 1982	*Juncetea maritimi*	AZ-Halo
Centrolepidi-Hydrocotyletea Pignatti E. & Pignatti S. 1994	*Littorelletea uniflorae*	AZ-Amphi
Spinifici-Scavoletea crassifoliae Pignatti & Pignatti 1996	*Ammophiletea*	AZ-Amphi
Asplenio-Cheilanthetea Pignatti & Pignatti 1996	*Polypodietea*	AZ-Litho
Adianthetea [Br.-Bl. et al. 1952]	*Adianthetea*	AZ-Litho
Spiridio-Melaleucetea acerosae Pignatti & Pignatti 1996	*Ononido-Rosmarinetea*	AZ-Peino
Banksia-Dryandretea niveae Pignatti & Pignatti 1996	*Quercetea ilicis; Cisto-Lavanduletea stoechadis*	AZ-Peino
Acacietea acuminatae E. Pignatti & S. Pignatti 1998 ined.		S1
Eucalyptetea diversicoloris Pignatti & Pignatti 1996		ZE S1-T4
Acacietea aneurae Pignatti & Pignatti 1996		S2
Triodietea E. Pignatti & S. Pignatti 1998 ined.		ZE S2-E2
Eragrostidi-Dicrastyletea E. Pignatti & S. Pignatti 1998 ined.		AZ-Litho

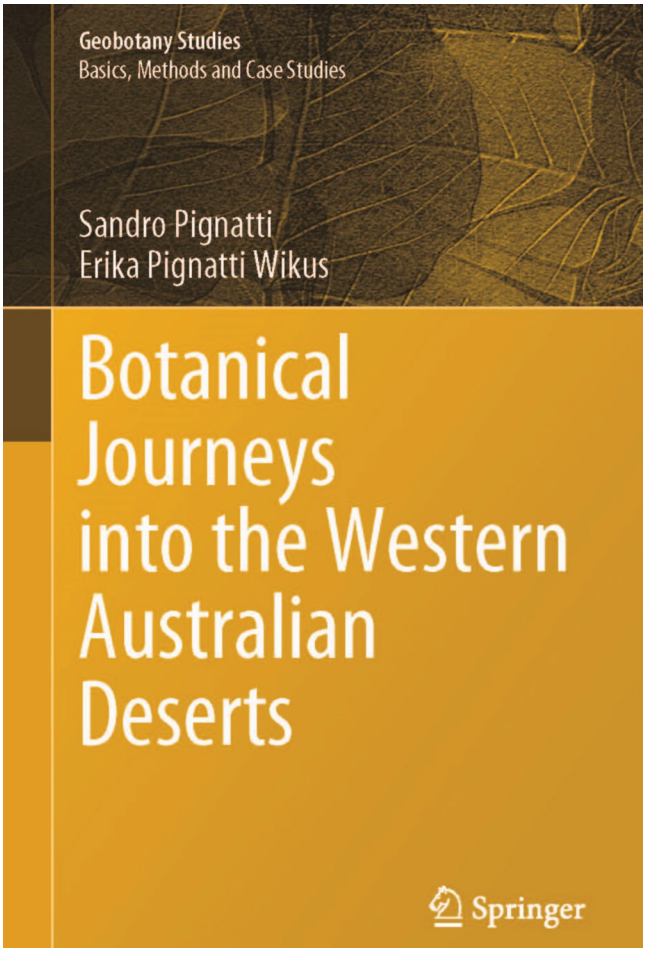


Figure 6. Erika and Sandro's farewell to the Western Australian vegetation.

into WF Theoretical Vegetation Ecology (van der Maarel 1989). Back then, either the founding fathers of the Working Groups (including Sandro, Duilio Lausi, Enrico Feoli, Eddy van der Maarel, Laci Orlóci, Jarda Moravec, Wim Beeftink, François Romane and a few others) or the entire vegetation-ecological public, for that matter, could hardly envisage the huge impact their activities would have one day on bringing vegetation ecology into the modern World of sciences using formalised and well-defined tools, fuelled by international cooperation. Sandro was one of those who conceived the idea!

International Summer School in Vegetation Science

One of the lesser-known (and perhaps also publicised) scientific-social activities initiated by Sandro Pignatti is the so-called International Summer School in Vegetation Science. This is one of the spinoffs of the WG Data-Processing in Phytosociology – a place where new data analysis techniques were given a practical platform. I was lucky enough to participate in one of those 'summer schools' (in 1985). In fact, it was my first encounter with Sandra and Rome! There were at least 4 summer school meetings: two in Rome, one in Budapest, and, finally, the last one in Galanta (Slovakia) in 1987, which I had the honour to organise. The summer school held in Galanta was particularly memorable, at least for me, since it was a well-guarded secret farewell to my home country – Czechoslovakia – before I defected in August 1987 to the West. There were lectures, usually presented by some prominent colleagues working in the field of numerical data analysis and computer use in phytosociology (David Goodall, Enrico Feoli, Laci Orlóci, Norm Kenkel, Pali Juhász-Nagy, János Podani), of course. There were also some memorable one-day trips, either to see vegetation or to have a swim on the beach (like we did in Sabaudia, where I got badly sunburned too…), or to have a great meal in the evening, drowned in lots of wine. However, the practical sessions in which software was tested on the first desktop computers and local mainframes were the major highlight of such a summer training. For many of us, it was the fatal encounter with our great helper (and master the same way) – the computer!

Erika's and Sandro's Western Australian love affair

There is more that Erika, Sandro, and I have in common beyond our shared love for vegetation science, botany, and bringing people together. It is our shared love for Western Australia – a place of fascinating flora and vegetation that has ever lured

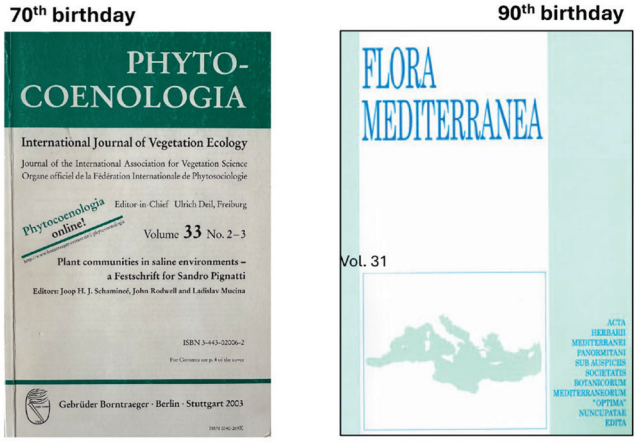


Figure 7. The festschrifts dedicated to Sandro's 70th and 90th birthdays.

inquisitive plant lovers and a place I have been calling home for the past 17 years. When Erika, Sandro and the legendary Western Australian botanist John S. Beard organised an IPE Excursion in Western Australia in 1990, there was no sign that I would ever be able to visit that fascinating part of the World. By then, I was a fresh political refugee in Austria, working in Georg Grabherr's research team at the University of Vienna. Erika and Sandro have visited Western Australia many times, fascinated by the kwongan and desert, in particular. Erika even wrote a book (Wikus, 2003), a very personal travel account about their journeys. When you are active in phytosociology, you usually make many relevés. It is the best way for a vegetation scientist to get intimate with vegetation. Erika and Sandro made close to 1200 of those, and I had the privilege of scanning them all, saving them for posterity since only a small fraction has been published so far (e.g., Pignatti & Pignatti 1994, 1997, 2005). Most importantly, however, Erika and Sandro attempted to coin the very first system of vegetation classes for Western Australia (Pignatti E. & Pignatti S., 1994b, 1997), which I have summarised (and superimposed against the European classes system and my biome system in Table 3. After it had become almost prohibitive to travel by air for both, they said goodbye to the Western Australian flora by publishing a book on their beloved dry Outback (Pignatti S. & E. Pignatti Wikus, 2021) (Fig. 6).

And then finally, they also left a mark on the Western Australian taxonomy, because one of the species – a member of an Australian endemic family, Dasypogonaceae, has been described after them by their friend Kingsley Dixon and Russell Barrett (Barrett & Dixon, 2001). The plant, in honour of Sandro and Erika, is called *Calectasia pignattiana*, and its presence in wet kwongan pockets of the Wheatbelt will forever remind us of Sandro and Erika's love for Australia and its magnificent nature.

A postscriptum

Sandro was honoured by us, his pupils, colleagues and friends in two festschrifts (Fig. 7) celebrating his 70th (Schaminée et al., 2003: Phytocoenologia, Vol. 33) and 90th (Flora Mediterranea, Vol. 31) birthdays. May this memorial volume be a celebration of his whole life – a great Thankyou! to a friend and mentor extraordinaire!

Acknowledgements

There are no words to thank Sandro for his wisdom, kindness, leadership, and friendship. He is one in a million – somebody who shaped the lives of many, including myself. Andraž Čarni kindly checked and corrected my account of the Ostalpin-Dinarische Gesellschaft – an organisation he has been associated with for the past 25 years.

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