# Resolution of Respect

## Jack Major

## 1917–2001

*And on his grave some kindly person wrote,*
*Never did he jump on a band-wagon ...*
*He preferred to walk.*

*Epitaph*—Paul Castelfranco (1991)

Jack Major, Professor Emeritus of Plant Ecology at the University of California, Davis (UCD), died 13 February 2001 in Davis at the age of 83. Professor Major had a profound impact on the direction of plant ecology in the United States during the second half of the 20th century. Besides his immediate family—brother Ted, wife Mary, and sons Paul, John, and James—he left behind many students and colleagues who fondly remember his great academic gifts to them, and who join the family in their grief at his loss.

Jack's academic home for most of his career was the UCD Botany Department, where he taught from 1955 until retirement in 1981. His spiritual home, however, was in mountains: the Uinta Mountains of Utah, the Sierra Nevada of California, the Grand Tetons of Wyoming, the Brooks Range and the Juneau ice fields of Alaska, and the Himalayas of Nepal. This was the environment that he most often shared with graduate students and those undergraduates fortunate enough to take his plant ecology classes.

He truly was the ideal scientist described by Poincare (1958): someone who ". . . does not study Nature because it is useful to do so. He studies it because he takes pleasure in it . . . [and] because it is beautiful."

Jack was born 15 March 1917 in Salt Lake City, Utah, and completed high school there in 1935. He went on to Utah State Agricultural College (now Utah State University), and received a B.S. in Range Management in 1942. For the next several years, he served in the Army's 10th Mountain Division, the justifiably famous unit of 1000 skiers and alpinists who trained hard in the mountain West before participating in the Italian campaign of World War II. After the war, a number of men from that Division went on to become conservationists, ecologists, and leaders in the promotion of recreational skiing. Between 1946 and 1953, Jack attended graduate school at the University of California, Berkeley, obtaining a Ph.D in Soil Science under the direction of Professor Hans Jenny. During this time, he also met and married Mary Cecil, thanks to an introduction from his brother Ted, who had met Mary by chance on a rock-climbing expedition in the Grand Tetons. She, too, had a love for the mountains.

Jack was hired as a member of a young weed science group in the Botany Department at UCD. His strong interest in the ecology of undisturbed mountain vegetation, however, was in conflict with the weed group's focus on plants in agronomic, low-elevation settings. This habitat bias gradually distanced him from weed science, and a 1964 Fulbright Fellowship to Innsbruck, Austria, was to cement a lifetime's focus on vegetation science.

He had a driving curiosity that made him an extensive reader of, and correspondent with, scientists who specialized in a wide range of topics, including those who wrote in other languages. As a result, he was far ahead of his time. For example, we have correspondence in 1948 between Jack and Sewal Wright, a major contributor to the synthesis of Darwinism and Mendelism. Wright responded to Major's query, how to determine the relative importance of multiple interacting factors that explain a plant community's distribution limits, by describing his own original statistical method, path analysis. Path analysis has only been used regularly in the ecological literature for the past dozen years, but it was part of Jack's education 40 years earlier. In another example (inspired by his major professor's book, *The Factors of Soil Formation* [Jenny 1941]), he wrote a paper that proposed using differential equations to describe vegetation–environment relationships for any given plant community (Major 1951). Not for another quarter century, however, did any ecologist actually begin to *use* differential equations in the study of terrestrial plant communities.

**Fig. 1.** Professor Major and his wife, Mary, photographed on the UCD campus in 1981 on the occasion of his retirement.

One measure of Professor Major's vision and impact is the fact that several of his earliest papers are still cited today, in some cases more often now than originally. According to the ISI Web of Science, *A functional, factorial approach to plant ecology* (Major 1951) has been cited 91 times in the past 25 years. His superb synthesis of California's flora, geology, and ecology (*Endemism and speciation in the California flora* [Stebbins and Major 1963]) has been cited 102 times in the same period, and a third paper, *Buried viable seeds in California bunchgrass sites*

*and their bearing on the definition of flora*, (Major and Pyott 1956) has been cited 138 times—at the rate of seven times per year for the most recent 5 years. His work on primary succession following glacial retreat (Crocker and Major 1955) is a classic, cited nearly 300 times in the last 25 years, and still described in many textbooks nearly a half-century later (e.g., Begon et al. 1996, Barbour et al. 1999, Krebs 2001).

Jack was one of very few Americans to practice the phytosociological protocols widely used in Europe (and throughout the non-English-speaking world) for sampling and classifying vegetation. Consequently, releve-style sampling and syntaxonomy were employed by most of his students in their theses and dissertations (e.g., Neilson 1961, Pemble 1970, Taylor 1976, Burke 1979, Benedict 1981). Jack's gentle leadership in pulling reluctant American ecologists across the then-narrow bridge of communication into the rest of the world was, without doubt, of seminal help later to Robert Whittaker in the 1970s, when his travels and publications widened that bridge. Only now, 20–30 years after Jack's students have finished their graduate degrees, are phytosociological papers becoming accepted and publishable in the United States. A retrospective appreciation of the value of his work, (and that of his students) to conservation and park management was written by David Parsons on the occasion of Jack's retirement (Anonymous 1982, Parsons 1982).

Throughout his career, Dr. Major was as well known for his reviews of ecological books written in other languages as for his own research. *Ecology* alone published 158 of his book reviews, most of them of works written in French, German, and Russian. These detailed reviews brought foreign news and ideas to the attention of otherwise ethnocentric and linguistically challenged American ecologists. In 1975, the Ecological Society of America gave him the first Distinguished Service Citation, specifically for his prodigious reviewing activity, judged to be an outstanding service to Society members. According to then-President Richard Miller (1975), "Major's reviews have consistently pointed out gaps in our own knowledge of American ecosystems and have indicated directions for fruitful new research. . . . [We] would be immeasurably poorer without his dedicated efforts."

He was a gentleman scholar: learned but soft-spoken and modest to the point of self-effacement. If presented, in conversation, with an opinion contrary to his own, he was sincerely quizzical and would quite innocently ask why one thought that way, rather than offering a defensive or challenging counter-statement. In this manner, Jack made those around him feel equally learned. Even when he disagreed with them, his own contrary opinions were delivered so delicately and nonconfrontationally (usually ending with his traditional phrase, "Is this alright?") that the recipients might not realize that their logic had been shredded until reflecting on it some days later.

His forte in teaching was with small groups, because his low-key manner was not well suited to large lecture sections or busloads of field trip students. On hikes in the field, a student had to be self-motivated enough to keep up and crowd close around him while he pointed out species and talked of their indicator value. Those who hung back missed a great education. His method of teaching was Socratic, inviting questions and asking questions back, usually including his stock phrase, "Is this alright?" because he didn't want to lose anyone. His classes and his research interests were reflected in theses, dissertations, and publications on: alpine plant communities (Major and Taylor 1977, 1988), biogeography (Taylor 1977), California vegetation (Barbour and Major 1977, 1988), gradient analysis (Waring and Major 1964), plant ecophysiology (Barry 1968, Macdonald 1981), plant–soil relations (Myatt 1968), systematics (e.g., Gankin 1957), and vegetation change (Vankat 1970). He was mentor to more than 20 graduate students of his own and to many more via correspondence, or when he served on their thesis/dissertation committees.

We miss you, Jack—but fortunately your perspectives, publications, and our personal memories of you remain with us. We give special thanks to Robert Burgess for his assistance in preparing this testimonial and his 1996 publication. To use your own phrase, Jack, "Is this alright?" We hope it is.

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