Biology of Ultramaﬁc Rocks and Soils:  
Research Goals for the Future

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Introduction

At this, the 6th International Conference on Serpentine Ecology, it seems timely to review briefly the present status of the field and to project the needs for future research. Although a great deal of serpentine research was done prior to 1960, as summarized by Krause (1958) and discussed briefly by Brooks (1987), much of our progress in learning how serpentine geology affects plant and animal life occurred in the mid- to late 20th century. In that era, it was the landmark studies of several scientists worldwide that initiated a meteoric increase in published serpentine research. Key players in setting the stage for this burgeoning output included pioneers in Europe (e.g., John Proctor, Stan Woodell, Ornella Vergnano, and Olof Rune), North America (e.g., Herbert Mason, Robert Whittaker, Hans Jenny, Richard Walker, and Arthur Kruckeberg); and elsewhere (e.g., Robert Brooks, Alan Baker, Roger Reeves, and Tanguy Jaffré). All made notable contributions to understanding the “serpentine syndrome.”

Despite the flourishing of serpentine studies in recent years, there is much “unfinished business.” After all, an axiom of science is that there is an unending quest for answers. In the many subdisciplines of geology and the soil and plant sciences, serpentine areas still hold mysteries—unsolved questions and challenges for the future. We now examine some of them, organized by the five major topic areas covered by the conference (Geology and Soils, Biota, Ecology and Evolution, Physiology and Genetics, and Applied Ecology), and point out how some of the contributions at the conference, and some that are included in this Proceedings Special Issue, address them.

Geology and Soils

Biologists loosely use the term “serpentine” to describe rocks that are referred to by geologists as “ultramaﬁcs.” Interpretation of ultramaﬁc geology underwent major changes in the late 20th century. Before the plate tectonics revolution, ultramaﬁcs were baffling and often controversial lithological