Studying the adaptive process in the wild: purple coneflower and partridgepea.

Charles Darwin's  most renowned conceptual breakthrough, adaptation by natural selection, is eloquently and cogently supported in his *Origin of Species* and documented in legions of examples since. The basic principle is well understood, but much remains to be learned from direct study of the ongoing process of genetic adaptation in nature. I will present recent work on populations of two plant species native to Minnesota. These studies apply theory that R. A. Fisher presented in 1930, but that has not previously been implemented empirically. Our findings indicate substantial capacity for ongoing adaptation but leave questions about whether rates of adaptation will maintain populations as environment changes rapidly. These questions are a continuing focus of our work.