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On the Cover: While spatially radiating and diverging across eco-geographical niches, plant lineages have evolved mechanisms to cope with different environments. These adaptive mechanisms may include changes in biochemical or developmental pathways following environmental gradients, e.g. changes in the timing of flowering to allow optimal seed setting outside local cold or dry seasons. The image shows wild barley *Hordeum vulgare* sps. *spontaneum* (in front) growing in the Kidron wadi near the Dead Sea. Twenty accessions of wild barley were collected from this harsh growth niche and from another 50 diverse sites around Israel to create the Barley1K (B1K) collection of wild barley. Together the B1K accessions represent many of the widely differing adaptive niches of the modern barley ancestor (Hubner et al. 2009). In this issue, Dakhiya et al. (pp. 1724–1734) have used a non-invasive, high-throughput technique, based on prompt chlorophyll fluorescence (F), for measuring circadian rhythms in B1K populations. This analysis shows that there is variability for circadian traits in the wild barley lines. Furthermore, they observed that circadian period lengths were correlated with temperature and aspect at the sites of origin of the plants, and that the amplitudes of the rhythms were correlated with soil composition. Design and photograph by Sariel Hubner and Eyal Fridman.

ON THE INSIDE

LETTER TO THE EDITOR

UPDATE

BREAKTHROUGH TECHNOLOGIES

Continued on next page

Continued from preceding page

RESEARCH REPORTS

RESEARCH ARTICLES

BIOCHEMISTRY AND METABOLISM

Continued on next page

Continued from preceding page

CELL BIOLOGY

Continued on next page

Continued from preceding page

ECOPHYSIOLOGY AND SUSTAINABILITY

GENES, DEVELOPMENT, AND EVOLUTION

MEMBRANES, TRANSPORT, AND BIOENERGETICS

SIGNALING AND RESPONSE

Continued on next page

Continued from preceding page

CORRECTIONS