'LXUQDO VDS ÀRZ PHDVXUHPHQWV DQG FOLPDWLF UHVSRQVHV land

Judith Lize Arnolds
South African National Biodiversity Institute, South Africa

The ecological distribution of vegetation types are regulated by climatic conditions and precipitation is one of the most signi cant components driving the occurrence and diversity of species. Long-term monitoring and understanding plant responses to rapid changing environmental conditions are crucial for exploring community dynamics and evaluating the exposure of species to changes in the climate. In an attempt to assess the resilience of the Mediterranean woody shrub, Protea repens, to drought and temperature, the result of changes in temperature and moisture regime on the photosynthetic capacity and transpiration dynamics (hydraulic response), by monitoring chlorophyll uorescence and diurnal monthly sap ow rates, non-destructively of plants in situ over a climate gradient at di erent times of the year at Jonaskop, Western Cape. Temperature vapor pressure, RH and soil moisture were monitored concomitantly. Changes in stem sap ow rates were measured at hourly intervals with relative rate sap ow sensors interfaced with loggers installed on the same terminal branches of Protea repens at each site along the climate gradient. e sensors were mounted on woody stems ranging from 1-5 mm in diameter. A portable modulated uorimeter calculated the e ective quantum yields of PSII (F/Fm´) in 30 minute dark-adapted leaves of Protea repens L. displayed signi cantly negative correlations between their total daily amplitudes in sap ow and station maximum daily temperature both in winter, spring, summer and autumn. e leaves of Protea repens L. displayed signi cantly negative correlations between their total daily amplitudes in sap ow and photosynthetic e ective quantum yield (F/Fm´) at the 5 stations along the gradient during the months of October and November.

Biography

-XGLWK /L]H $UQROGV KROGV DQ 06F GHJUHH LQ (QYLURQPHQWDO 6FLHQFH IURP WKH 1RUWK :HVW 8QLY DW WKH 6RXWK $IULFDQ 1DWLRQDO %LRGLYHUVLW\ ,QVWLWXWH LQ &DSH 7RZQ 6RXWK $IULFD DQG LV L

- $UQROGV#VDQEL RUJ

Notes: