SAFARI 2000 Leaf Measurements of Dominant Trees, Kalahari Sites, Wet Season 2000

Abstract

Data presented in this data set were collected during an intensive field campaign in Botswana between February 28 and March 18, 2000 along the Kalahari Transect as part of the SAFARI 2000 wet season field campaign. The sites visited were Pandamatenga, Maun, Okwa River Crossing, and Tshane (north to south). Individual leaf blade measurements were made on replicate samples from selected dominant and subdominant tree species using an optical lens and graticule. Leaves used in the study had recently-matured new growth, and were fully exposed to the sun for a significant part of the day. The data set is comprised of individual leaf blade dimensions along the length and width of each leaf by tree species as well as the mean of the replicate leaf length and width samples.

Background Information

Investigators:
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Project: SAFARI 2000

Data Set Title: SAFARI 2000 Leaf Measurements of Dominant Trees, Kalahari Sites, Wet Season 2000

Site: Kalahari Transect, Southern Africa
Westernmost Longitude: 21.713 E
Easternmost Longitude: 25.50 E
Northernmost Latitude: -18.657 S
Southernmost Latitude: -24.164 S

Data Set Citation:

Midgley, G. F. 2004. SAFARI 2000 Leaf Measurements of Dominant Trees,

Kalahari Sites, Wet Season 2000. Data set. Available on-line [http://daac.ornl.gov/] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A.

Data File Information

The comma-delimited ASCII data file (**kt_leaf_dimensions.csv**) includes individual leaf blade areas of selected dominant and subdominant tree species at four sites along the Kalahari Transect.

Column	Description	Units/Format
Site	Site name where leaf was collected	Text
Genus_Species	Scientific name of tree	Text
L1 - L10	Length of leaves, replicate samples 1-10 (6-10 at Maun only)	centimeters
Mean_Length	Mean of the 5 (10) leaf length samples	centimeters
W1-W10	Width of leaves, replicate samples 1-10 (6-10 at Maun only)	centimeters
Mean_Width	Mean of the 5 (10) leaf width samples	centimeters

Study Sites

There exists a large gradient in both the mean and variation of the annual rainfall along the Kalahari region studied that results dramatic changes in vegetation structure along the transect. Vegetation type ranges from partially closed woodlands in the north to open shrublands in the south. The campaign began in northern Botswana and terminated in the south of the country. In order of visitation, sites were Pandamatenga, Maun, Okwa River Crossing, and Tshane. Mean annual rainfall at these sites was interpolated to be 585, 463, 370, and 299 mm, respectively.

Site Name	Latitude (degrees)	Longitude (degrees)	Mean Annual Precipitation (mm)
Pandamatenga (Kasane)	-18.657 S	25.50 E	585
Maun	-19.923 S	23.594 E	463
Okwa River Crossing (Ghanzi)	-22.409 S	21.713 E	370
Tshane	-24.164 S	21.89 E	299

Data Collection and Measurement

Measurements were made and leaf material sampled during March 2000, after a sequence of significant and unusually large rainfall events. The measurements were made during daylight hours, over the course of three to four days per site. Sub-sampled replicate leaves from two individual trees of each species were selected (except at Pandamatenga, the first site visited, where only one individual from each species was sampled). Five replicate leaf samples were measured for each species and site. Leaves used in the study had recently-matured new growth, and were fully exposed to the sun for a significant part of the day. Shoot samples were extracted in the field, at least one branch from at least three average-sized mature individual trees, from which subsamples of unshaded leaves were selected for measurement. Leaf measurements were made using an optical lens and graticule.

Confidence Level or Accuracy Judgment: Intermediate, due to small sample size.

Measurement Error for Parameters: < 5%

Known Problems with the Data: Small sample sizes.

Additional Sources of Information

Additional related data sets collected during the Kalahari Transect Wet Season Field Campaign are archived by ORNL DAAC. A list of these data sets is available at: http://www.daac.ornl.gov/S2K/safari.html.

References:

Midgley, G. F., J. N. Aranibar, K. B. Mantlana, and S. Macko. 2004. Photosynthetic and gas exchange characteristics of dominant woody plants on a moisture gradient in an African savanna. Global Change Biol., 10(3): 309-317.

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Revision Date: Tuesday, November 30, 2004