Characterization of Microtopography in the Everglades
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INTRODUCTION
As concerns over how to restore the Everglades intensify, the need to improve capabilities of surface-water flow models becomes increasingly important. One of the physical factors not often considered in surface flow modeling is the microtopography of the wetland surface. Microtopography affects the cross-sectional area of a wetland that is available for surface-water flow. As water levels decline seasonally, the tops of ridges and hummocks become exposed, making flow paths more sinuous, and therefore, increasing the resistance to surface flow. Microtopography also potentially affects the water budget and water quality due to water exchange that occurs between surface water and porewater in sediments.

FIELD METHODS
The type I tool did not penetrate the layer of flocculent organic matter, or “floc,” that typically rests above the peat. This tool estimated the elevation of the top of the floc layer.

The type II tool penetrated the floc and rested on the peat because of its more open footprint. This tool estimated the elevation of the peat surface.

Field measurements of microtopography were made near sites F1 and U3. The measurements were distributed so that variability of the wetland surface could be characterized for both 100-meter and 1-meter spatial scales.

SITE DESCRIPTION
Microtopography data was collected at sites F1 and U3 in Water Conservation Area 2A (WCA-2A), central Everglades.

Site F1 is dominated by cattail vegetation, and site U3 is dominated by sawgrass vegetation.

Surface-water flow direction is generally parallel with the research transect from spillway 510C toward site U3.

MICROTOPOGRAPHIC VARIABILITY AND DISTRIBUTION
The elevation of the peat surface varies 3–4 times more at the 100-meter scale compared with the 1-meter scale.

The inverse distribution function is a plot of the elevation of the peat or floc surface versus the probability of the occurrence when sampling at the 100-meter scale. The x-axis can be interpreted as the fraction of wetland cross-section that has an elevation equal to or less than a given elevation.

CONCLUSION AND FUTURE WORK
The average wetland cross-section available for surface flow at a given surface-water level in the Everglades can be estimated from the microtopographic distribution function.

Ongoing work focuses on using the microtopography data and distributions in a surface-water flow model.

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