

**Title**

Formation of Placic Horizons in the Bigapple Soil

**TSNo**

s05-hernandez183315-O

**PaperType**

O

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**Keywords**

URBAN SOILS	SOIL CLASSIFICATION
SOIL MORPHOLOGY	SOIL GENESIS

**abstract**

The Bigapple soil series (Mixed, mesic Typic Udipsamments) has formed in recently deposited (&lt; 70 years b.p.) sandy materials dredged from estuaries near New York City. Thirty two Bigapple pedons were evaluated to determine soil properties and occurrence of the weakly-cemented impermeable cemented horizon. The Bigapple soil pH ranges from 4.1 to 6.2 (H2O). The pH of impermeable horizon is 4.8 (H2O). The weighted average in all horizons of Bigapple soil above and below impermeable horizon are 0.51% (n=29) Iron Dithionite Citrate Extraction(FeD), 0.13% (n=22) Iron Oxalate Extraction (FeO) and 0.20% (n=28) Total Carbon (TC). These values are slightly elevated in the impermeable horizon (1.1%FeD, 0.64% FeO and 0.97% TC), suggesting cementation by an equal mixture of poorly and crystalline Fe oxides. The impermeable horizon is pedogenic and meets Soil Taxonomy requirements for a placic horizon.

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