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Chemical Analysis Results for Mercury and Trace Elements in Vegetation, Water, and Organic-Rich Sediments, South Florida

by

L.P. Gough*, R.K. Kotra, C.W. Holmes, P.H. Briggs, J.G. Crock, D.L. Fey, P.L. Hageman, and A.L. Meier

Open-File Report 96-091

*U.S. Geological Survey, MS 973, Denver Federal Center, Denver, CO 80225

1996

U.S. DEPARTMENT OF THE INTERIOR
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ABSTRACT

Tables of partial results of chemical analysis as well as summaries of notes and field and laboratory methods are presented for the chemistry of vegetation, water, and surficial sediments (<1.0 m) in studies conducted by the USGS Geochemistry of Organic-Rich Sediments Project, 1994 and 1995, south Florida. Studies in March, 1994 were preliminary and had as their objective (1) sample material characterization (sawgrass (*Cladium jamaicensis*), air plants (*Tillandsia* spp.), surface water, and the top 0-5 cm of sediment), (2) field and laboratory methods definition and protocol refinement, and (3) definition of study sites to be intensively examined (through consultation with the land management agencies SFWMD, NPS, and FWS). All analyses for the 1994 studies are complete and are presented. Studies in April, 1995 had as their objective (1) definition of trace metal vertical trends and accumulation rates in sediments at sites suspected of representing biogeochemical gradients, (2) correlation of trace element geochemistry with nutrient geochemistry, and (3) the evaluation of biogeochemical areal trends and cycling processes. Analyses for the 1995 studies are incomplete and only partial results are presented.

PROJECT DESCRIPTION

This study is part of a multi-disciplinary effort by the U.S. Geological Survey (USGS), funded under the Critical Ecosystems Initiative Program, to address the general issue of south Florida wetland ("Everglades") degradation. Work is conducted in close coordination with land management agencies such as the South Florida Water Management District (SFWMD), National Park Service (NPS), and U.S. Fish and Wildlife Service (FWS). Concern for the loss of wetland ecosystem integrity is the result of both the discovery of elevated mercury levels in biota, especially high trophic level fish, alligators, and the endangered Florida panther, and changes in the major floristic composition of the region attributed to variations in nutrient levels in water. Approximately a dozen studies were initiated in fiscal year 1995 following a review of their importance by USGS clients at the local, state, and federal level.

This project seeks to define the sources, distribution, and processes involved in the biogeochemical cycling of trace elements and metals, including mercury, in organic-rich sediments of the Everglades system. The project has three subelements: (1) studies of the distribution of inorganic contaminants (with an attempt to define generalized baseline levels), (2) the historical variation of contaminants in cores, and (3) the relation of contaminant cycling to sediment diagenesis. Results from this project will provide ecosystem managers with information on the distribution, forms, and some of the processes involved in the fate of these elements. An understanding of the relation between diagenesis and the concentration and speciation of elements of environmental significance is essential for water quality planners in developing long-term remediation and management strategies for wetlands of South Florida. For example, such information is critical for making informed decisions regarding the regulation of water levels and in the evaluation of the effectiveness of constructed wetlands for remediation of contaminated waters. The above biogeochemical studies of sediments will provide a historical perspective of ecosystem conditions and variability that will augment the predictive capabilities used by resource managers.

These data, although incomplete and accompanied by minimal interpretation, are presented at this time in order to facilitate their distribution. Users of these data are encouraged to contact the principal author with inquiries concerning their applicability to specific process questions. Interpretative reports of these data by the authors are currently being prepared.

GENERAL REGIONAL INFORMATION

South Florida is an environmentally sensitive region of rapid population and economic growth with multiple, complex, and often competing land-use options (Davis and Odgen, 1994). The sub-tropical Everglades[1] aquatic ecosystem, that include the South Florida Water Conservation Areas (WCA) 1, 2, and 3 as well as Everglades National Park (ENP), depend on surface water "sheet flow" that originates in the Everglades Agricultural Area (EAA) just south of Lake Okeechobee (fig. 1). Of particular concern in the management of this region has been the (1) dramatic decrease in the quantity and quality of surface water that leaves EAA, (2) impact of decreased water quantity on the historically shallow hypo-saline waters of Florida Bay (just off the southern coast), and (3) alteration of the historical surface water hydroperiod (affecting bird breeding success) (Delfino and others, 1993).

South Florida has a sub-tropical climate with a summer wet-season and a winter dry-season. The ambient temperature rarely drops below 0°C (Duever and others, 1994). The Everglades wetland ecosystem is one of the largest fresh water marshes in the world (Douglas, 1947). The ecosystem is dependent on periodic fires, both natural and human caused, for its stability and biodiversity. The dissemination of invasive and unwanted exotic plant species such as *Melaleuca quinquenervia* (cajeput) and *Schinus terebinthifolius* (Brazilian pepper) are of particular concern (Bodle and others, 1994). Occasional major cyclonic storms, such as Hurricane Andrew which tracked east to west across south Florida at latitude 25° 35' N on August 24, 1992, do little actual damage to the interior wetlands but do extensive

[1] Everglades, as used in this report, follows the general definition of Gleason and Stone (1994, p. 151), "the freshwater wetland occupying the contiguous basin aside but mostly south of Lake Okeechobee". We expand this definition to include the areas of sawgrass marsh west of the "Everglades basin" but within Big Cypress National Preserve.

damage to coastal mangrove forests and the interior hardwood "islands" (hammocks).

TRACE ELEMENT INVESTIGATIONS

In addition to total mercury, this study focuses on the biogeochemistry of most all of the environmentally important trace elements. Tables 4-9 list these chemical analysis data for organic-rich sediments, selected plants, and waters during two sampling periods. A brief discussion of the mercury concerns in the Everglades is presented.

In general, mercury in the environment comes from a number of geogenic and anthropogenic sources. In south Florida these include natural mineral and peat deposits (wind deposition and organic material oxidation), atmospheric deposition (fossil fuel-fired electrical generating facilities, garbage incinerators, medical laboratories, paint, pulp and paper production), and agricultural operations (herbicide and pesticide application) (Stober and others, 1995). Very recent studies suggest that mercury deposition in south Florida is generally driven by large-scale regional or hemispheric processes as opposed to local emission/deposition processes (Pollman and others, 1995). These authors also show that deposition is seasonally variable with fluxes 4- to 6-fold higher during April-September (wet season) compared with October-March (dry season). Mason and others (1994) found that deposition on land was the dominant sink for atmospheric mercury and that the atmospheric and ocean surface are in rapid equilibrium; i.e., the evasion of Hg^{o} from oceans is balanced by the total oceanic deposition of Hg(II) from the atmosphere. Rood and others (1995), however, note from the literature that gaseous elemental Hg can have an atmospheric residence time of 0.7 to 2.0 years.

As is characteristic of the biogeochemical cycling of mercury in warm-water wetlands, the Hg(II) form is typically methylated in eutrophic, sulfate-reducing sediments and is bioaccumulated in secondary consumers, particularly fish (Zillioux and others, 1993; Zhang and Planas, 1994). Typically, mercury appears to be associated with the organic fraction of both soils and sediments (suspended and bottom) (Gill and Bruland, 1990). Our studies examine peat cores taken from various ecosystems including mangrove, cypress, and Everglades (sawgrass marsh) wetlands. The data presented in the tables that follow show variability in total mercury and trace element concentrations; this variability appears dependent on both position in the core (time) and ecosystem type. Humic substances in organic sediments can serve as strong reducing and complexing agents and can influence the processes that control mobilization of many toxic metals including mercury.

STUDY METHODS AND PARTIAL RESULTS OF CHEMICAL ANALYSIS

Sample Collection and Preparation

Field work was conducted over two time periods, March, 1994 and April, 1995 (Tables 2 and 3). March was generally selected as the target month because it is the end of the dry period and allows for ready access to sediment sampling sites because of low water levels. Precipitation in 1995, however, was particularly heavy and prolonged and unusually high water levels were encountered prior to the on-set of the wet period. Field work was conducted in April in order to allow the water level to recede. Proper collection permits were obtained from managers of all public lands visited.

Tables 4-10 list the chemical analysis data. Data for March, 1994 is complete and is presented at this time. Most all major and trace element data for plant and sediment samples collected in April, 1995 are incomplete because they are still being compiled.

Vegetation--The vegetation component of the biogeochemical cycling of trace elements is being investigated using sawgrass (*Cladium jamaicensis* Crantz), the dominant species in the Everglades marsh. In addition, bromeliads (*Tillandsia* spp., also known as air plants) were collected when available because of their ability to concentrate airborne metals and therefore act as air quality biomonitors (Benzing, 1990; Benzing and others, 1992).

Sawgrass is a coarse, rhizomatous perennial sedge that can dominate both the wet (inundated for months at a time) and dry (seldom indunated) prairies across the Everglades landscape (McPherson, 1973). This is particularly true east of Big Cypress National Preserve in the Water Conservation Areas and in Everglades National Park. Although locally dominate in marly or rocky areas with shallow sediments, it can be found growing in peaty material that is several meters deep (Duever and others, 1986). Sawgrass leaves and stems were clipped using stainless steel shears at about 10 cm above the high water level. Flowering structures, if present, were removed. Because of the unusually high water levels during our sampling periods, most extraneous debris clinging to the stems was submerged and not part of the sample (in addition, however, samples were washed--see Sample Preparation section). Samples consisted of a composite of four individual plants collected within three meters of the site where core and/or surface sediment material was taken. The material was double sealed in plastic bags and immediately chilled using "wet ice". Chemical analysis data for sawgrass are presented in Tables 4 and 9.

The distribution of bromeliads in south Florida varies from being sparse to locally abundant. Duever and others (1986) note that of the dozen or so species most are either classified as threatened or endangered. In general this is because of the commercial collection pressure that these plants experience, especially in non-protected areas or near roads. Duever and others point out, however, that some (like *T. fasciculata*) are quite common but are nevertheless listed as endangered. Our collections consisted of *T. reticulata*, *T. usneoides* (Spanish moss), and *T. fasciculata*. Bromeliad collection followed the method outlined by Gough and others (1994). Each sample consisted of a composite of three to five small individuals of one species from a single tree (host). Most individuals were collected off of horizontal branches of *Taxodium distichum* (bald cypress) at approximately 1.3-2.0 m above ground and the flowering structure, if present, was removed. The material was double sealed in plastic bags and immediately chilled using "wet ice". Chemical analysis data for bromeliads are presented in Table 4.

Water--Water samples and measured field parameters for water were obtained as follows:

Parameter:	Material collected:	Instrument/ method:	Comments:	Reference:
pH	bulk sample-- on site	Orion pH meter & glass electrode	measured immediately; standardized daily with 4, 7, and 10	none
Electrical conductivity	bulk sample-- on site	Orion conductivity meter & electrode	measured immediately; standardized daily with 1000 μS/cm2	none
Dissolved O2	bulk sample-- *in situ*	CHEMets Kit R-7512 (0 - 12 ppm)	measured immediately	CHEMetrics, Inc., Calverton, VA
Total alkalinity	bulk sample-- on site	CHEMets Kit R-9815 (50 - 500 ppm)	measured immediately	CHEMetrics, Inc., Calverton, VA
Temperature	bulk sample-- *in situ*	mineral spirits thermometer	measured immediately	none
Total trace elements	< 0.45 μm (filtered); acidified (ultra-pure HNO_3)	ICP-AES[1]; ICP-MS[1]	collected in acid-washed poly-ethylene bottles	Arbogast, 1990; Meier and others, 1994; Lichte and others, 1987
Total Hg	bulk sample & <0.45 μm (filtered); acidified/oxi-dized (nitric acid + sodium dichromate)	Cold vapor continuous flow AA[1]	collected in baked glass bottles; chilled	Arbogast, 1990; Kennedy and Crock, 1987

[1] Refer to Table 1.

The chemical analysis of water samples (including pore waters, described below) is presented in Tables 6 and 8.

Organic-rich sediments--The chemical composition of wetland sediment samples is summarized in Tables 5 and 7. Surface sediments at wetland sites sampled in March, 1994 (Table 2) were obtained by scooping the upper 5 cm into polyethylene specimen containers. The surface water was decanted and the containers packed in plastic bags and "wet ice" for transport to the laboratory. Sediment cores were obtained by pushing a piston-sealed, 10.2 cm diameter, acrylic butyrate core liner into the sediments using the method of Orem and Lerch (1996). Usually greater than 60 cm of sediment were collected in the core liner at the sites (Table 3). The cores were maintained in an upright position until they were extruded and sectioned, usually within 8 hours of collection. At sites particularly difficult to core, samples were obtained using a peat auger and the depth of the material was composited over roughly 10-cm intervals. All sediment samples were placed in plastic bags, chilled using "wet ice", and shipped to the laboratory where they were frozen. Subsamples of core material were later sectioned in the laboratory for all the various parameters including the determination of trace elements (Table 1) and ^{210}Pb and ^{137}Cs concentrations (used in calculating the data in Table 10).

A few cores were mechanically compressed in order to extract sediment pore water at defined depths and intervals. Using the method of Orem and Lerch (1996), the water was extracted through 0.45 um filters and collected in polyethylene specimen containers. The samples were chilled in the field using "wet ice" and then frozen within 8 hours of collection.

In the laboratory, sawgrass and bromeliad material was removed from the sample bags, placed in Teflon beakers, submerged and rinsed in deionized water, and drained. This process was repeated at least three times. The bromeliad leaves were removed in order to more effectively rinse the inside, compacted portion. Plant material was then placed in plastic colanders, rinsed briefly with deionized water, and allowed to drip drain. Colanders were then placed directly into ovens and the material was dried for 24 hr. at about 40°C. Samples were then ground in a Wiley mill to pass a 2-mm sieve. Splits of the ground plant material were ashed at 450-500°C over an 18 hr. period and ash yield was determined. Sediment core sections were dried, ground, and ashed in a manner similar to the plant samples (Arbogast, 1990; Balistrieri and others, 1995).

Sample Analysis

Analytical methods--Table 1 lists the approximate lower determination limits for the concentration of elements in plants, sediments, and water. Subsets of all plant and sediment samples were ashed in Vicor crucibles at 450-500°C over an 18-hour period. One hundred milligrams of the ash were digested with mixed acids. After complete digestion of the ash, 40 major, minor, and trace elements were determined by inductively coupled plasma-atomic emission spectroscopy (ICP-AES) (Lichte and others, 1987; Arbogast, 1990). Total sulfur and mercury were determined directly on a subset of the ground, unashed plant and sediment material by combustion infrared detection and cold vapor atomic absorption (AA), respectively (Jackson and others, 1985; modification of Kennedy and Crock, 1987). Forms of carbon were also determined on the unashed material by combustion infrared detection (total C), coulometric titration (carbonate C), and calculated difference (organic C)(Argobast, 1990). Water samples were analyzed both by ICP-AES (for major elements) and inductively coupled plasma-mass spectrometry (ICP-MS) (for trace elements) (Meier and others, 1994).

Quality control--Each technique section of the USGS/GD analytical laboratories has quality control (QC) methods tailored to the specific analysis (Arbogast, 1990). The QC methods generally require the analysis of appropriate reference materials and duplicate analyses of the submitted samples. As part of the field study QC program, National Institute of Standards and Technology (NIST) standard reference materials (SRM's) were submitted to the laboratories with each suite of plant and sediment samples; analysis of water samples were compared to internal USGS/Water Resources Division (WRD) National Water Quality Laboratory SRM's (see data tables). Samples were submitted in suites of a maximum of 40 samples. In each suite, one SRM was included as a blind addition. All sediment sample suites included NIST SRM 2704, Buffalo River Sediment and all water samples included USGS/WRD-T-81 and/or WRD-T-85. The results of all analyses of these SRM's are summarized in the various tables. Results are compared to SRM certified and/or non-certified concentration values. In addition to the laboratory QA/QC procedures, the field study quality control included submission of procedural blanks for the water samples and periodic splits of sediment and plant samples. All samples, blanks, and splits were analyzed in a randomized sequence relative to their duplicate, their geographic location, and their order of field collection.

The concentrations of elements in the procedural blanks for water samples are generally below detection limits. The laboratory analysis of duplicated splits of sediment and plant samples indicate very good reproducibility (precision). In general, there is also good agreement between our laboratory analysis values and the certified values reported for NIST and WRD SRM's. The NIST SRM's list non-certified values for many elements; these values are not reported in the data tables.

ACKNOWLEDGEMENTS

Assistance in both the planning and field work phases of this project were provide by W.H. Orem, E.C. Spiker, H.E. Lerch, and V.C. Weintraub, all of the USGS. We especially thank Fred Sklar of the South Florida Water Management District for his help in defining information needs and to numerous others at SFWMD and Aaron Higer (USGS) for logistical support. We gratefully acknowledge the time and assistance provided by Buck Thackery and Don Weeks (Big Cypress National Preserve), M.K. Murphy (Fakahatchee Strand State Preserve), and Tom Armentano, Dan Foxen, and Bill Loftus (Everglades National Park).

LITERATURE CITED

Arbogast, B.F., ed., 1990, Quality Assurance manual for the Branch of Geochemistry, U.S. Geol. Survey Open-File Rept., 90-668, 184 p.

Balistrieri, L.S., Gough, L.P., Severson, R.C., Montour, M., Briggs, P.H., Adrian, B., Curry, J., Fey, D., Hageman, P., and Papp, C.S.E., 1995, The effect of acidic, metal-enriched drainage from the Wightman Fork and Alamosa River on the composition of selected wetlands in the San Luis Valley, Colorado: U.S. Geological Survey Open-File Report 95-568, 37 p.

Benzing, D.H., 1990, Vascular Epiphytes: Cambridge, UK, Cambridge University Press, 268 p.

Benzing, D.H., Arditti, J., Nyman, L.P., Temple, P.J., and Bennett, J.P., 1992, Effects of ozone and sulfur dioxide on four epiphytic bromeliads: Environ. and Exper. Botany, v. 32, pp. 25-32.

Bodle, M.J., Ferriter, A.P., and Thayer, D.D., 1994, The biology, distribution, and ecological consequences of *Melaleuca quinquenervia* in the Everglades: in Davis, S.M. and Ogden, J.C. (eds.), Everglades--The Ecosystem and its Restoration: Delray Beach, Florida, St. Lucie Press, pp. 341-355.

Davis, S.M. and Ogden, J.C. (eds.), 1994, Everglades--The Ecosystem and its Restoration: Delray Beach, Florida, St. Lucie Press, 826 p.

Delfino, J.J., Crisman, T.L., Gottgens, J.F., Rood, B.E., and Earle, C.D.A., 1993, Spatial and temporal distribution of mercury in Everglades and Okefenokee wetland sediments: Gainesville, Florida, Dept. of Environ. Engineering Sci., Univ. of Florida, 140 p.

Douglas, M.S., 1947, The Everglades--River of Grass: Miami, Florida, Hurricane House, 406 p.

Duever, M.J., Carlson, J.E., Meeder, J.F., Duever, L.C., Gunderson, L. H., Riopelle, L.A., Alexander, T.R., Myers, R.L., and Spangler, D.P., 1986, The Big Cypress National Preserve: National Audubon Society, Res. Rept. No. 8, New York, 443 p.

Duever, M.J., Meeder J.F., Meeder, L.C., and McCollom, J.M., 1994, The climate of south Florida and its role in shaping the Everglades ecosystem, in Davis, S.M. and Ogden, J.C. (eds.), Everglades--The Ecosystem and its Restoration: Delray Beach, Florida, St. Lucie Press, pp. 225-248.

Gill, G.A. and Bruland, K.W., 1990, Mercury speciation in surface freshwater systems in California and other areas: Environ. Sci. Technol., v. 24, pp. 1392-1400.

Gleason, P.J. and Stone, P., 1994, Age, origin, and landscape evolution of the Everglades peatland: in Davis, S.M. and Ogden, J.C. (eds.), Everglades--The Ecosystem and its Restoration: Delray Beach, Florida, St. Lucie Press, pp. 149-197.

Gough, L.P., Severson, R.C., and Jackson, L.L., 1994, Baseline element concentrations in soils and plants, Bull Island, Cape Romain National Wildlife Refuge, South Carolina, U.S.A.: Water, Air, and Soil Pollution, v. 74, pp. 1-17.

Jackson, L.L., Engleman, E.E., and Peard, J.L., 1985, Determination of total sulfur in lichens and plants by combustion-infrared analysis: Environmental Science & Technology, v. 19, p. 437-441.

Kennedy, K.R. and Crock, J.G., 1987, Determination of mercury in geological materials by continuous-flow, cold-vapor, atomic absorption spectrophotometry: Analytical Letters, v. 20, pp. 899-908.

Lichte, FE., Golightly, D.W., and Lamothe, P.J., 1987, Inductively coupled plasma-atomic emission spectrometry, in Baedecker, P.A., ed., Methods of geochemical analysis: U.S. Geological Survey Bulletin 1770, p. B1-B10.

Mason, R.P., Fitzgerald, W.F., and Morel, F.M.M., 1994, The biogeochemical cycling of elemental mercury--anthropogenic influences: Geochimica et Cosmochimica Acta, v. 58, pp. 3191-3198.

McPherson, B.F., 1973, Vegetation map of southern parts of subareas A and C, Big Cypress Swamp, Florida: USGS Hydrologic Investigations Atlas HA-492 (1 map).

Meier, A., Grimes, D.J., and Ficklin, W.H., 1994, Inductively coupled plasma mass spectrometry--a powerful analytical tool for mineral resource and environmental studies, in Carter, L.M.H., Toth, M.I., and Day, W.C. (eds.), USGS Research on Mineral Resources--1994, Part A--Program and Abstracts: U.S. Geological Survey Circular 1103-A, p. 67-68.

Orem, W.H. and Lerch, H.E., 1996, Discription of geochemical parameters from 1994 and 1995 studies at selected sites in south Florida wetlands: U.S. Geological Survey Open-File Report 96- (in press).

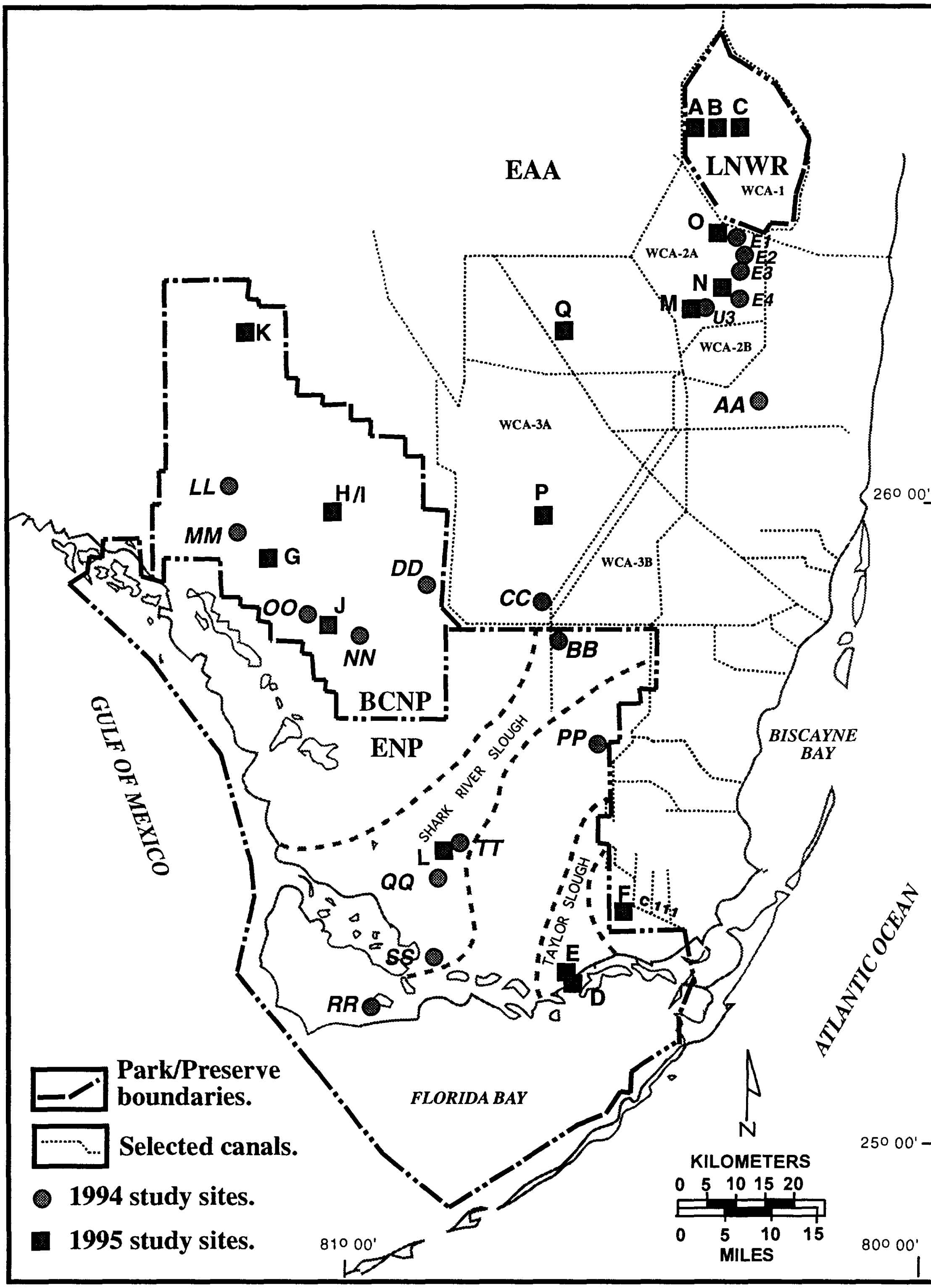
Pollman, C., Gill, G., Landing, W., Guentzel, J., Bare, D., Porcella, D., Zillioux, E., and Atkeson, T., 1995, Overview of the Florida Atmospheric Mercury Study (FAMS): Water, Air, and Soil Pollution, v. 80, pp. 285-290.

Rood, B.E., Gottgens, J.F., Delfino, J.J., Earle, C.D., and Crisman, T.L., 1995, Mercury accumulation trends in Florida Everglades and Savannas Marsh flooded soils: Water, Air and Soil Pollution, v. 80, pp. 981-990.

Stober, Q.J., Jones, R.D., and Scheidt, D.J., 1995, Ultra trace level mercury in the Everglades ecosystem, a multi-media canal pilot study: Water, Air and Soil Pollution, v. 80, pp. 991-1001.

Zhang, L. and Planas, D., 1994, Biotic and abiotic mercury methylation and demethylation in sediments: Bull. Environ. Contam. Toxicol., v. 52, pp. 691-698.

Zillioux, E.J., Porcella, D.B., and Benoit, J.M., 1993, Mercury cycling and effects in freshwater wetland ecosystems: Environ. Toxicology and Chemistry, v. 12, pp. 2245-2264.



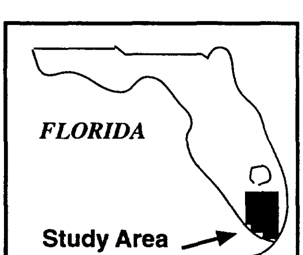


Figure 1. Map of the South Florida study area showing the 1994 and 1995 sampling sites. Sampling site identifiers correspond to the field identifiers listed in the data tables. WCA = Water Conservation Areas; LNWR = Loxahatchee National Wildlife Refuge; ENP = Everglades National Park; BCNP = Big Cypress National Preserve; EAA = Everglades Agricultural Area.

Table 1. Analytical methods and the approximate lower determination limits for the concentration of elements in plants, sediments, and water.

	ICP-AES			ICP-MS
Element	Plant*	Sediment*	Water	Water
Al	0.01%	0.005%	0.1ppm	NA
Ca	0.01%	0.005%	0.1ppm	NA
Fe	0.01%	0.005%	0.05ppm	NA
Mg	0.01%	0.005%	0.01ppm	NA
Na	0.01%	0.005%	1.0ppm	NA
P	0.01%	0.005%	NA	NA
Ti	0.01%	0.005%	1.0ppb	NA
K	0.10%	0.050%	0.02ppm	NA
Ag	4.0ppm	2.0ppm	2.0ppb	0.1ppb
As	20ppm	10ppm	NA	0.5ppb
Au	20ppm	10ppm	NA	0.2ppb
B	NA	NA	50ppb	NA
Ba	2ppm	1ppm	2ppb	0.5ppb
Be	2ppm	1ppm	1ppb	0.2ppb
Bi	20ppm	10ppm	10ppb	0.5ppb
Cd	4ppm	2ppm	1ppb	2ppb
Ce	8ppm	4ppm	NA	0.1ppb
Co	2ppm	1ppm	3ppb	0.1ppb
Cr	2ppm	1ppm	1ppb	0.5ppb
Cu	2ppm	1ppm	10ppb	2.0ppb
Eu	4ppm	2ppm	NA	0.2ppb
Ga	8ppm	4ppm	5ppb	0.1ppb
Ge	NA	NA	NA	0.1ppb

	ICP-AES			ICP-MS
Element	Plant*	Sediment*	Water	Water
Ho	8ppm	4ppm	NA	0.1ppb
La	4ppm	2ppm	NA	0.2ppb
Li	4ppm	2ppm	4.0ppb	4.0ppb
Mn	8ppm	4ppm	1.0ppb	0.5ppb
Mo	4ppm	2ppm	10ppb	0.1ppb
Nb	8ppm	4ppm	NA	0.6ppb
Nd	8ppm	4ppm	NA	0.1ppb
Ni	4ppm	2ppm	5.0ppb	0.5ppb
Pb	8ppm	4ppm	10ppb	2.0ppb
Sc	4ppm	2ppm	NA	0.8ppb
Si	NA	NA	1ppb	NA
Sn	20ppm	10ppm	6.0ppb	0.3ppb
Sr	4ppm	2ppm	0.5ppb	1.0ppb
Ta	80ppm	40ppm	NA	0.1ppb
Th	8ppm	4ppm	NA	0.5ppb
U	200ppm	100ppm	NA	0.1ppb
V	4ppm	2ppm	6.0ppb	0.5ppb
W	NA	NA	NA	0.1ppb
Y	4ppm	2ppm	NA	0.1ppb
Yb	2ppm	1ppm	NA	0.1ppb
Zn	4ppm	2ppm	3.0ppb	4.0ppb
Zr	NA	NA	1.0ppb	0.2ppb

	Cold Vapor AA		
Element	Plant**	Sediment**	Water
Hg	20ppb	10ppb	0.1ppb

	Other Methods		
Element	Plant**	Sediment**	Water
C total	NA	0.01%	NA
C crbnt	NA	0.01%	NA
S total	0.05%	0.05%	NA

* concentrations are on an ash weight basis; ** concentrations are on a dry weight basis

NA = not applicable (either not determined or data obtained was not used in this study)

% = percent; ppb = parts per billion (μg/L or μg/kg); ppm = parts per million (mg/L or μg/g)

Table 2. Description and general notes on March 1994 study sites, south Florida.

Fig. 1 ID	Field ID	Latitude	Longitude	General notes/comments	Vegetation type	Samples collected	General surface water characteristics: pH	Elec. cond. µS/cm	Total alkal. mg/L	Water depth cm	Temp. deg. C
AA	940301-AA	26.4386	80.2406	Lox Rd. near canal; abundant air plants on Ficus	Disturbed right-of-way	AP	ND	ND	ND	ND	ND
BB	940301-BB	25.7525	80.7628	0.2 mi. S on Shark Valley loop road; ENP	Sawgrass marsh	SG;SW;SE	8.02	624	130	12	25.1
CC	940303-CC	25.7678	80.6731	Off canal road 400m N of public boat launch; WCA-3B	Sawgrass marsh	SG;SE;SE	7.75	910	200	60	22.7
DD	940305-DD	25.8686	80.9136	N side of Jet Port Rd.; 2 mi. E of E-bend; BCNP	Sawgrass/cypress mix	SG;SW;AP;SE	7.86	308	140	10	18.8
LL	940303-LL	25.0767	81.2647	W side of N end of Canal Road; BCNP	Cypress strand	SG;SW;AP;SE	7.72	411	200	20	21.2
MM	940308-MM	25.9411	81.2622	3.7 mi. S. of Wagon Wheel Rd. on Canal Rd.; BCNP	Sawgrass/cypress mix	SG;SW;AP;SE	8.34	313	150	10	23.4
NN	940305-NN	25.3050	80.5736	Loop Rd. ca. 2 mi. W of Pinecrest; BCNP	Cypress strand	SG;SW;AP;SE	8.17	378	150	5	28.4
OO	940305-OO	25.7928	81.1008	Loop Rd. ca. 0.1 mi. N of bend; BCNP	Cypress strand	SG;SW;AP;SE	7.79	517	275	5	24.2
PP	940306-PP	25.6139	80.5828	S side of Grossman Hammock; ENP	Sawgrass marsh	SG;SW;SE	6.94	539	200	30	20.5
QQ	940308-QQ	25.3853	80.8075	W side Flamingo Hwy. 3.8 mi. S of Pa-hay-okee;ENP	Sawgrass marsh	SG;SE;SE	7.49	624	200	<5	27.1
RR	940308-RR	25.1368	80.9482	W of Flamingo Campground loop rd.; ENP	Coastal prairie	AP	ND	ND	ND	ND	ND
SS	940308-SS	25.2250	80.8075	E side Flamingo Hwy. 1.2 mi. N West Lake; ENP	Sawgrass marsh	SG;SW;SE	7.81	3070	130	5	28.0
TT	940303-TT	25.4328	80.7742	200 m NW of Pa-hay-okee turnoff; ENP	Sawgrass/cypress mix	SG;SW;AP;SE	7.94	540	200	30	27.1

Fig. 1 ID refers to site identifiers used in the key for Figure 1 (see text).
ENP = Everglades National Park; BCNP = Big Cypress National Preserve; WCA-3B = Water Conservation Area 3B.
ND = not determined--usually means that approparíate surface water was unavailable for sampling.
SG = sawgrass (Cladium jamaciensis); SW = surface water; AP = air plant (see data tables); SE = surface sediment.

Table 3. Description and general notes on April 1995 sampling sites involving trace element studies, south Florida.

Fig. 1 ID	Field ID	Latitude	Longitude	General notes/comments	Vegetation type	Samples collected	General surface water characteristics: pH	Elec. cond. µS/cm	Total alkal. mg/L	Diss. O2 mg/L	Depth, cm	Temp. deg. C	Core description	Core, cm
B	42095-C1	26 28.842	80 25.809	Near EPA E-Map Site 5; Spiker & Gerould	Sawgrass/Typha marsh	SG; C	ND	ND	ND	ND	ND	ND	Geochem. core	61
A	42195-C1	26 28.782	80 26.565	Near EPA E-Map Site 1; w-side of LNWR	Typha/Pistia marsh	SG; SW; C	6.96	330	75	4.5	30	28.0	Geochem. core	84
A	42195-C4	26 28.782	80 26.565	Near EPA E-Map Site 1; w-side of LNWR	Typha/Pistia marsh	SG; SW; C	ND	602	175	<1	60	28.0	Geochem. core	90
C	42195-C2	26 28.873	80 24.931	Near EPA E-Map Site 7; w-side of LNWR	Sawgrass marsh	SG; SW; C	ND	208	<50	5.0	30	31.0	Geochem. core	95
B	42195-C3	26 28.842	80 25.809	Near EPA E-Map Site 5; w-side of LNWR	Sawgrass marsh	SG; SW; C	ND	ND	ND	ND	20	28.0	(see 950420-C1)	
D	42395-C1	25 11.7730	80 38.2160	Taylor R.; Willard Site 1; ENP	Red mangrove swamp	SW; PW; C	7.37	26100	150	3.0	10	29.0	Geochem. core	75
E	42395-C2	25 12.3810	80 38.6770	Taylor R.; Willard Site 2.; ENP	Red mangrove swamp	SW; PW	7.71	25700	145	4.5	15	30.0	Hg pore water core	90.5
F	42395-C111	25 19.1170	80 31.5170	N/S bend in C111 Canal; ENP; coll. by Holmes	Sawgrass marsh	SG; SW; PW; C	7.00	702	250	1.5	<5	ND	Geochem. core	57
G	42595-BC1	25 52.0645	81 09.0235	Kirby Storter Park off Hwy. 41; BCNP	Mature cypress strand	SG; SW; C	7.48	450	225	7.0	<5	30.0	Geochem. core	54
M	42595-C1	26 17.2500	80 24.6800	SFWMD Site U3/collected by Orem	Sawgrass marsh	C	7.67*	ND	5.1**	12.1***	ND	ND	Geochem. core	87
N	42595-C2	26 19.0000	80 23.1200	SFWMD Site F4/collected by Orem	Sawgrass marsh w/Typha	C	7.30*	ND	ND	2.7***	ND	ND	Geochem. core	68
H	42695-BC1	25 57.1024	80 55.5004	Mile 19 off 11-Mile Rd.; BCNP	Sawgrass marsh	SG; SW; C	ND	ND	ND	ND	ND	ND	Geochem. core	35
I	42695-BC2	25 57.1014	80 55.5002	Mile 19 off 11-Mile Rd.; BCNP	Sawgrass marsh	SG; SW; C	6.51	754	350	1.5	<5	28.0	Geochem. core	62
J	42695-BC3	25 46.7690	81 05.4330	Loop Rd. 1 mi. from W-side bend, BCNP	Mature cypress strand	SG; SW; C	7.65	412	175	4.0	5	29.0	Geochem. core	46
O	42695-C1	26 26.5800	80 22.2300	SFWMD Site F1/collected by Orem	Sawgrass marsh	C	ND	ND	ND	ND	ND	ND	Geochem. core	76
K	42795-BC1	26 13.0922	81 15.5964	Bear Island loop road; E side; BCNP	Small cypress strand	SG; SW; C	7.19	494	220	4.0	15	29.0	Geochem. core	89
P	42795-AAS	–	–	SFWMD Site 15/coll. by Orem	Sawgrass marsh	C	7.30*	ND	3.4**	7.0***	ND	ND	Geochem. core	90
Q	42795-AAN	–	–	SFWMD Site 3/coll. by Orem	Sawgrass marsh	C	7.30*	ND	6.0**	11.5***	ND	ND	Geochem. core	42
L	42895-LR1	25 25.9587	80 46.4486	Pa-hay-okee lookout; ENP	Sawgrass marsh	SG; SW; C	7.48	612	125	5.5	30	29.0	Geochem. core	62

Fig. 1 ID refers to site identifiers used in the key for Figure 1 (see text).
LNWR = Loxahatchee National Wildlife Refuge; ENP = Everglades National Park;
BCNP = Big Cypress National Preserve.
SG = sawgrass (Cladium jamaciensis); SW = surface water; C = core; PW = pore water.
ND = not determined.
Depth, cm = depth of surface water at site.
*, **, *** from Orem and Lerch (1996); * = standard units, ** = titration alkalinity meq/L, *** = % saturation.

Table 4. Elemental composition of plant materials sampled during March, 1994.

					Percent, dry weight		Percent, ash weight							
Field ID	Latitude	Longitude	County	Plant species	Ash	Total S	Al	Ca	Fe	K	Mg	Na	Total P	Ti
BRAA1	26.4386	80.2406	Dade	Tillandsia reticulata, air plant	6.0	0.13	0.79	20.0	0.96	6.5	6.1	11.0	0.83	0.05
BRAA2	25.4386	80.2406	Dade	Psilotum nudum, primative air plant	5.3	0.23	0.11	9.2	0.09	22.0	3.0	12.0	3.10	< 0.01
BRAA3	26.4386	80.2406	Dade	Tillandsia usneoides, air plant	6.3	0.19	0.59	21.0	1.00	10.0	5.1	9.1	0.64	0.04
BRDD1	25.8686	80.9136	Collier	Tillandsia usneoides, air plant	4.1	0.13	0.66	20.0	1.40	8.6	5.4	10.0	0.54	0.04
BRDD2	25.8686	80.5449	Collier	Tillandsia reticulata, air plant	3.4	0.06	0.38	21.0	0.57	11.0	4.2	9.7	0.48	0.03
BRDD3	25.8686	80.9136	Collier	Tillandsia faciculata, air plant	1.6	0.05	0.19	17.0	0.68	10.0	4.0	14.0	1.20	0.02
BRLL1	25.0767	81.2647	Collier	Tillandsia reticulata, air plant	4.0	0.07	0.30	27.0	0.50	7.9	4.2	6.3	0.59	0.02
BRMM1	25.9411	81.2622	Collier	Tillandsia reticulata, air plant	3.2	< 0.05	0.30	26.0	0.38	8.5	3.4	7.5	0.81	0.02
BRNN1	25.3050	80.5736	Collier	Tillandsia reticulata, air plant	3.0	0.05	0.43	23.0	0.52	11.0	3.6	9.0	0.45	0.03
BROO1	25.7928	81.1008	Collier	Tillandsia reticulata, air plant	3.6	< 0.05	0.14	24.0	0.33	16.0	2.9	5.6	0.69	0.01
BRRR1	25.1369	80.9481	Monroe	Tillandsia usneoides, air plant	4.5	0.09	0.39	9.8	3.60	12.0	7.2	14.0	0.74	0.03
BRTT1	25.4328	80.7742	Dade	Tillandsia reticulata, air plant	2.9	0.08	0.39	13.0	0.81	6.6	5.0	18.0	1.30	0.03
BRTT2	25.4328	80.7742	Dade	Tillandsia usneoides, air plant	5.9	0.14	0.43	16.0	2.00	5.6	4.6	15.0	1.40	0.03
CLBB1	25.7525	80.7628	Dade	Cladium jamaciensis, sawgrass	2.8	0.12	0.04	8.9	0.23	19.0	1.9	8.0	0.86	< 0.01
CLCC1	25.7678	80.2406	Dade	Cladium jamaciensis, sawgrass	3.3	0.12	0.04	5.3	0.26	25.0	1.4	5.4	1.00	< 0.01
CLDD1	25.8686	80.9136	Collier	Cladium jamaciensis, sawgrass	3.5	0.11	0.02	14.0	0.10	21.0	2.0	7.5	1.20	< 0.01
CLLL1	25.0767	81.2647	Collier	Cladium jamaciensis, sawgrass	3.2	0.12	< 0.01	8.1	0.08	22.0	2.3	8.6	1.80	< 0.01
CLLL1 Dup	25.0767	81.2647	Collier	Cladium jamaciensis, sawgrass	3.0	0.09	0.01	8.2	0.07	23.0	2.5	7.0	1.70	< 0.01
CLMM1	25.9411	81.2622	Collier	Cladium jamaciensis, sawgrass	2.7	0.10	0.05	9.5	0.11	25.0	2.6	6.6	1.40	< 0.01
CLNN1	25.3050	80.5736	Collier	Cladium jamaciensis, sawgrass	4.2	0.11	0.03	10.0	0.08	12.0	2.0	3.6	0.80	< 0.01
CLOO1	25.7928	81.1008	Collier	Cladium jamaciensis, sawgrass	3.5	0.12	0.01	9.9	0.08	26.0	1.1	1.2	1.20	< 0.01
CLPP1	25.6139	80.5828	Broward	Cladium jamaciensis, sawgrass	3.2	0.10	0.03	9.6	0.12	21.0	1.5	7.2	1.00	< 0.01
CLQQ1	25.3853	80.8075	Dade	Cladium jamaciensis, sawgrass	3.3	0.13	0.02	11.0	0.08	23.0	1.8	3.5	1.30	< 0.01
CLSS1	25.2250	80.8075	Dade	Cladium jamaciensis, sawgrass	3.3	0.33	0.02	5.7	0.07	22.0	2.2	11.0	0.83	< 0.01
CLTT1	25.4328	80.7742	Dade	Cladium jamaciensis, sawgrass	4.0	0.12	< 0.01	10.0	0.06	25.0	1.2	1.5	1.10	< 0.01
SRM 2704 determined values		-	-		94	0.40	6.5	3.0	4.4	2.1	1.3	0.7	0.10	0.34
SRM 2704 certified values		-	-		-	-	6.11	2.60	4.11	2.00	1.20	0.547	0.0998	0.457
					-	-	±0.16	±0.03	±0.10	±0.04	±0.04	±0.014	±0.0028	±0.018

Table 4 (continued).

	µg/g dry weight	µg/g, ash weight														
Field ID	Hg	Ba	Ce	Co	Cr	Cu	La	Li	Mn	Mo	Ni	Pb	Sn	Sr	V	Zn
BRAA1	0.10	150	10	10	46	430	6	10	560	4	38	73	<10	1600	43	910
BRAA2	0.03	32	< 8	2	6	150	< 4	< 4	470	10	< 4	8	<10	900	5	500
BRAA3	0.06	140	< 8	8	43	330	5	8	590	< 4	29	42	11	1800	21	690
BRDD1	0.08	140	9	10	33	420	6	5	980	5	51	98	<10	850	39	530
BRDD2	0.02	100	< 8	5	25	140	< 4	< 4	630	4	28	30	<10	640	18	440
BRDD3	< 0.02	130	< 8	6	28	160	< 4	< 4	750	4	35	16	<10	660	11	560
BRLL1	< 0.02	110	< 8	5	13	110	< 4	< 4	770	4	15	17	<10	690	12	180
BRMM1	< 0.02	110	< 8	4	21	91	< 4	< 4	350	5	44	20	<10	540	11	220
BRNN1	< 0.02	120	< 8	5	26	150	4	< 4	480	6	28	42	<10	840	23	390
BROO1	< 0.02	93	< 8	3	14	89	< 4	< 4	420	5	28	11	<10	590	7	290
BRRR1	0.07	85	< 8	6	63	290	< 4	< 4	520	7	39	18	<10	810	16	160
BRTT1	0.02	89	< 8	6	31	140	< 4	4	430	5	30	21	<10	940	19	320
BRTT2	0.05	110	< 8	8	44	220	4	4	560	6	53	37	16	1200	28	260
CLBB1	< 0.02	27	< 8	< 2	< 2	22	< 4	< 4	1400	39	6	8	<10	430	8	130
CLCC1	< 0.02	28	< 8	< 2	4	29	< 4	< 4	450	17	4	8	<10	360	6	110
CLDD1	< 0.02	28	< 8	3	< 2	55	< 4	< 4	2700	22	6	< 8	<10	230	< 4	180
CLLL1	< 0.02	15	< 8	3	2	34	< 4	< 4	2900	54	7	< 8	<10	110	< 4	130
CLLL1 Dup	< 0.02	30	< 8	3	< 2	36	< 4	< 4	2100	52	4	< 8	<10	110	< 4	150
CLMM1	< 0.02	30	< 8	2	3	27	< 4	< 4	1100	25	7	< 8	<10	520	< 4	160
CLNN1	< 0.02	40	< 8	3	5	26	< 4	< 4	1800	9	< 4	< 8	<10	350	< 4	170
CLOO1	< 0.02	29	< 8	3	< 2	35	< 4	< 4	2200	18	< 4	< 8	<10	150	< 4	200
CLPP1	< 0.02	23	< 8	< 2	3	37	< 4	< 4	1600	34	5	< 8	<10	440	< 4	140
CLQQ1	< 0.02	30	< 8	< 2	< 2	46	< 4	< 4	2500	12	5	< 8	<10	710	< 4	110
CLSS1	< 0.02	18	< 8	< 2	< 2	25	< 4	< 4	3600	< 4	< 4	< 8	<10	500	< 4	79
CLTT1	< 0.02	40	< 8	3	< 2	13	< 4	< 4	700	21	< 4	< 8	<10	120	< 4	140
SRM 2704 (det.)	1.40	440	50	17	160	110	29	49	600	<4	46	150	<10	150	99	470
SRM 2704 (cert.)	1.44	414 -		14.0	135	98.6	-	-	555	-	44.1	161	-	-	95	438
	±0.07	±12		±0.6	±5	±5.0			±19		±3.0	±17			±4	±12

BR = bromeliad (air plant); CL = Cladium (sawgrass); AA, BB, etc. = site ID; 1, 2, or 3 = different species collected at each site.
Dup = duplicate sample of the same species.
SRM 2704 = NIST Standard Reference Material "Buffalo River Sediment".
All samples were below the analytical detection limits for the following elements:

Ag, <4 µg/g	Nd, <8 µg/g
As, <20 µg/g	Nd, <8 µg/g
Be, <2 µg/g/	Sc, <4 µg/g
Bi, <20 µg/g	U, <200 µg/g
Cd, <4 µg/g	Y, <4 µg/g
Ga, <8 µg/g	Yb, <2 µg/g

Table 5. Elemental composition of sediment materials sampled during March, 1994.

						Percent, dry weight			Percent, ash weight								µg/g dry weight
Field ID	Latitude	Longitude	County	Depth, cm	Site/sample description	Ash	Total C	Total S	Al	Ca	Fe	K	Mg	Na	Total P	Ti	Hg
294-RK01	26.6550	80.6282	Broward	0-5	Belle Glade cane field	14.5	43.6	0.45	2.6	30	8.0	0.43	1.5	0.08	0.60	0.11	0.10
294-RK02	26.6550	80.6282	Broward	5-10	(core material)	15.1	44.7	0.44	2.4	30	7.6	0.25	1.5	0.07	0.52	0.10	0.09
294-RK03	26.6550	80.6282	Broward	10-15		14.8	44.5	0.44	2.7	29	8.5	0.24	1.6	0.09	0.60	0.11	0.11
294-RK04	26.6550	80.6282	Broward	15-20		14.9	43.4	0.49	2.6	29	8.5	0.21	1.9	0.10	0.55	0.11	0.11
294-RK05	26.6550	80.6282	Broward	20-25		15.5	40.8	0.55	2.5	29	7.3	0.19	2.4	0.11	0.46	0.11	0.10
294-RK06	26.6550	80.6282	Broward	25-30		22.6	40.0	0.56	5.4	17	4.1	0.54	3.0	0.23	0.21	0.28	0.05
294-RK07	26.6550	80.6282	Broward	30-35		39.3	28.5	0.44	6.8	7.2	2.8	0.63	2.8	0.27	0.11	0.41	0.03
294-RK08	26.6550	80.6282	Broward	35-40		55.4	21.1	0.30	7.3	4.6	3.0	0.69	2.8	0.27	0.07	0.44	0.02
294-RK24	26.6550	80.6282	Broward	0-5	Belle Glade non-agri. field	11.6	45.0	0.53	3.8	26	12	0.43	1.5	0.08	0.77	0.17	0.15
294-RK25	26.6550	80.6282	Broward	5-10	(core material)	12.3	45.4	0.47	3.4	28	11	0.35	1.3	0.07	0.65	0.15	0.14
294-RK26	26.6550	80.6282	Broward	10-15		13.6	44.4	0.44	2.6	31	8.1	0.24	1.2	0.06	0.49	0.11	0.10
294-RK27	26.6550	80.6282	Broward	15-20		14.8	44.0	0.42	2.1	32	6.1	0.17	1.1	0.11	0.37	0.09	0.08
294-RK28	26.6550	80.6282	Broward	20-25		15.1	45.4	0.44	2.2	33	6.0	0.18	1.3	0.07	0.35	0.10	0.07
294-RK29	26.6550	80.6282	Broward	25-30		15.8	42.9	0.46	2.2	31	5.2	0.19	1.4	0.08	0.32	0.10	0.05
294-RK30	26.6550	80.6282	Broward	30-35		17.6	42.5	0.49	3.7	27	4.2	0.33	1.8	0.14	0.24	0.19	0.05
294-RK31	26.6550	80.6282	Broward	35-40		23.7	39.1	0.44	4.8	19	3.2	0.45	2.1	0.18	0.17	0.26	0.05
294-RK32	26.6550	80.6282	Broward	40-45		26.3	37.3	0.51	5.6	16	3.2	0.54	2.6	0.20	0.15	0.30	0.04
294-RK33	26.6550	80.6282	Broward	45-50		57.1	20.3	0.25	6.9	4.7	2.6	0.67	2.7	0.28	0.11	0.42	0.03
294-RK104	26.6550	80.6282	Broward	>50		96.8	12.0	< 0.05	0.84	36	0.50	0.12	0.95	0.08	0.01	0.04	-
294-RK86	26.8682	80.6252	Dade	0-30	Canal Point cane field	80.8	10.4	0.12	4.5	6.5	5.1	0.46	4.8	0.20	0.11	0.20	0.1
294-RK87	26.8682	80.6252	Dade	30-61	(auger material)	41.3	32	0.72	4.9	7.2	5.3	0.53	4.4	0.34	0.12	0.20	0.07
294-RK88	26.8682	80.6252	Dade	61-91		52.4	30.3	0.93	3.9	6.1	4.3	0.39	3.7	0.28	0.10	0.17	0.08
294-RK89	26.8682	80.6252	Dade	91-122		46.9	31.7	1.27	3.9	6.7	4.2	0.40	4.4	0.42	0.10	0.16	0.06
294-RK90	26.8682	80.6252	Dade	122-152		38.8	34.7	1.51	4.1	8.5	5.1	0.42	4.5	0.57	0.11	0.16	-
294-RK91	26.8682	80.6252	Dade	152-183		26.9	42.6	1.88	2.2	11	3.5	0.24	3.8	0.96	0.08	0.09	0.05
294-RK92	26.8682	80.6252	Dade	183-213		17.2	43.7	1.83	2.1	15	4.7	0.28	5.2	1.8	0.11	0.08	0.04
294-RK09	25.4328	80.7742	Dade	0-10	Pa-Hay-Okee, ENP	12.8	44.7	0.85	3.6	27	3.4	0.28	0.78	0.36	0.50	0.17	0.21
294-RK10	25.4328	80.7742	Dade	10-20	(core material)	14.4	44.3	0.79	7.9	22	3.6	0.33	0.82	0.27	0.45	0.39	0.14
294-RK11	25.4328	80.7742	Dade	20-30		16.4	44.1	0.63	8.6	20	6.0	0.31	0.76	0.24	0.30	0.44	0.15
294-RK12	25.4328	80.7742	Dade	30-40		15.4	46.1	0.73	8.6	22	4.0	0.27	0.79	0.23	0.22	0.42	0.17
294-RK13	25.4328	80.7742	Dade	40-50		19.9	42.5	0.62	11	17	4.4	0.32	0.81	0.17	0.15	0.53	0.22
294-RK14	25.4328	80.7742	Dade	50-60		25.0	41.3	0.49	11	14	3.5	0.32	0.80	0.13	0.13	0.57	0.22
294-RK15	25.4328	80.7742	Dade	60-70		19.9	44.3	0.56	11	16	3.5	0.31	0.81	0.15	0.12	0.51	0.17
294-RK16	25.4328	80.7742	Dade	70-79		26.4	40.1	0.72	12	12	3.6	0.34	0.82	0.14	0.12	0.60	0.17
294-RK17	25.7620	80.5077	Dade	0-5	Tamiami Trail, Hwy. 41	31.0	38.3	0.62	2.9	28	2.8	0.33	0.79	0.29	0.17	0.14	-
294-RK18	25.7620	80.5077	Dade	5-15	(core material)	88.8	17.3	0.11	0.14	40	0.36	0.02	0.52	0.06	0.01	< 0.01	0.02
294-RK19	25.7620	80.5077	Dade	15-25		88.2	17.6	< 0.05	0.10	40	0.36	< 0.02	0.67	0.06	< 0.01	< 0.01	0.02
294-RK20	25.7620	80.5077	Dade	25-30		24.0	45.5	0.66	1.2	33	4.1	0.15	0.80	0.18	0.05	0.05	0.06
294-RK21	25.7620	80.5077	Dade	30-40		13.1	49.3	0.65	2.2	29	5.5	0.26	1.0	0.31	0.08	0.11	0.05
294-RK22	25.7620	80.5077	Dade	40-50		17.1	46.8	0.34	1.9	31	5.7	0.11	0.85	0.24	0.09	0.10	0.06
294-RK23	25.7620	80.5077	Dade	50-58		29.7	39.3	0.30	4.4	13	2.5	0.22	0.53	0.14	0.05	0.24	0.07

Table 5 (continued).

	μg/g, ash weight																								
Field ID	Ag	As	Ba	Be	Cd	Ce	Co	Cr	Cu	Ga	La	Li	Mn	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th	V	Y	Yb	Zn
294-RK01	< 4	50	800	< 2	< 4	22	20	40	160	< 8	18	8	590	11	< 8	< 8	27	66	5	4000	8	51	8	< 2	140
294-RK02	< 4	45	900	< 2	< 4	25	20	37	120	< 8	16	8	290	10	< 8	8	25	53	5	4300	< 8	49	7	< 2	88
294-RK03	< 4	45	680	< 2	< 4	25	22	41	140	< 8	18	9	230	14	< 8	9	28	170	5	4100	< 8	56	8	< 2	110
294-RK04	< 4	39	750	< 2	< 4	25	21	40	140	< 8	17	9	260	15	< 8	8	27	82	5	4000	11	55	8	< 2	100
294-RK05	< 4	45	780	< 2	< 4	25	19	38	120	< 8	16	9	200	13	< 8	< 8	26	67	5	4700	< 8	49	8	< 2	93
294-RK06	< 4	40	490	< 2	< 4	69	9	78	37	12	42	35	120	< 4	< 8	31	30	14	10	3100	12	63	23	2	16
294-RK07	< 4	< 20	430	< 2	< 4	66	7	80	27	16	38	60	120	< 4	10	31	24	18	12	1400	17	47	22	2	9
294-RK08	< 4	< 20	390	< 2	< 4	63	6	81	17	16	36	60	150	< 4	12	32	18	19	12	850	16	44	21	2	8
294-RK24	< 4	52	440	< 2	< 4	37	30	60	67	< 8	24	12	240	24	< 8	16	41	59	8	3600	10	71	12	< 2	53
294-RK25	< 4	53	730	< 2	< 4	31	26	52	53	< 8	21	10	150	21	< 8	10	38	44	7	3800	10	70	10	< 2	30
294-RK26	< 4	53	770	< 2	< 4	26	20	39	42	< 8	16	8	100	13	< 8	10	29	24	5	4000	10	56	7	< 2	18
294-RK27	< 4	42	800	< 2	< 4	21	15	30	28	< 8	14	6	70	9	< 8	< 8	24	12	< 4	4000	< 8	43	6	< 2	10
294-RK28	< 4	45	790	< 2	< 4	18	15	31	29	< 8	16	7	73	8	< 8	< 8	23	12	4	4000	< 8	43	6	< 2	12
294-RK29	< 4	42	700	< 2	< 4	24	13	32	28	< 8	17	10	97	7	< 8	8	23	13	4	3800	< 8	41	7	< 2	17
294-RK30	< 4	31	580	< 2	< 4	42	10	51	29	< 8	28	22	110	< 4	< 8	14	26	12	7	3200	9	47	14	< 2	11
294-RK31	< 4	23	480	< 2	< 4	60	7	64	27	11	35	33	120	< 4	< 8	26	26	14	9	2300	12	49	19	< 2	10
294-RK32	< 4	< 20	470	2	< 4	69	7	74	26	11	41	39	140	< 4	8	36	26	10	10	2000	13	50	22	2	11
294-RK33	< 4	< 20	400	< 2	< 4	66	5	80	22	16	38	66	160	< 4	10	32	18	22	11	700	15	43	21	< 2	9
294-RK104	< 4	< 20	160	< 2	< 4	13	3	10	4	< 8	10	7	220	< 4	< 8	< 8	< 4	< 8	< 4	3300	< 8	7	< 4	< 2	< 4
294-RK86	< 4	< 20	230	< 2	< 4	48	14	71	26	10	27	31	360	< 4	13	22	25	13	9	470	12	71	20	< 2	33
294-RK87	< 4	32	350	2	< 4	51	17	80	33	10	28	33	200	13	14	22	43	17	10	900	10	84	21	< 2	42
294-RK88	< 4	22	220	< 2	< 4	40	15	64	28	< 8	23	24	210	9	12	18	35	12	8	720	8	69	17	< 2	27
294-RK89	< 4	< 20	230	< 2	< 4	34	15	59	22	< 8	20	27	200	4	13	16	28	10	8	890	10	65	14	< 2	18
294-RK90	< 4	< 20	280	< 2	< 4	39	15	65	30	< 8	23	26	260	7	13	16	34	11	8	1200	10	73	17	2	25
294-RK91	< 4	26	270	< 2	< 4	22	12	35	30	< 8	14	13	150	16	8	< 8	23	< 8	4	1600	< 8	49	10	< 2	15
294-RK92	< 4	37	290	< 2	< 4	27	11	35	21	< 8	14	14	190	30	< 8	9	23	< 8	4	2500	< 8	50	10	< 2	14
294-RK09	< 4	< 20	210	< 2	< 4	32	11	97	76	12	22	23	390	7	< 8	< 8	41	110	7	2000	< 8	180	17	< 2	98
294-RK10	< 4	< 20	190	3	< 4	72	9	200	260	20	44	71	250	< 4	13	28	62	27	14	1500	12	160	35	3	31
294-RK11	< 4	21	190	3	< 4	73	8	210	49	24	46	80	190	< 4	16	33	64	24	15	1300	14	240	36	4	25
294-RK12	< 4	25	190	3	< 4	84	7	230	61	26	52	81	230	< 4	16	36	74	24	17	1400	15	230	47	4	23
294-RK13	< 4	< 20	190	4	< 4	110	7	300	62	30	66	120	200	< 4	21	50	73	30	22	1200	18	290	62	5	24
294-RK14	< 4	20	200	4	< 4	110	6	320	67	30	68	150	190	< 4	24	53	72	27	23	970	17	240	65	5	26
294-RK15	< 4	28	200	4	< 4	110	8	310	94	34	72	130	180	< 4	21	57	77	31	23	1000	19	310	73	6	25
294-RK16	< 4	31	200	3	< 4	110	8	330	72	29	73	160	150	< 4	25	58	78	31	24	810	19	230	73	6	30
294-RK17	< 4	< 20	190	< 2	< 4	24	7	41	21	< 8	16	18	160	< 4	< 8	< 8	20	120	5	1300	< 8	52	7	< 2	120
294-RK18	< 4	< 20	85	< 2	< 4	< 8	3	< 2	5	< 8	< 4	< 4	160	< 4	< 8	< 8	< 4	< 8	< 4	1300	< 8	< 4	< 4	< 2	5
294-RK19	< 4	< 20	110	< 2	< 4	< 8	3	< 2	4	< 8	< 4	< 4	160	< 4	< 8	< 8	< 4	< 8	< 4	1800	< 8	< 4	< 4	< 2	< 4
294-RK20	< 4	51	180	< 2	< 4	9	8	19	9	< 8	7	7	270	< 4	< 8	< 8	27	9	< 4	1500	< 8	20	< 4	< 2	12
294-RK21	< 4	89	240	< 2	< 4	17	11	40	70	< 8	12	15	270	4	< 8	< 8	52	11	4	1400	< 8	33	6	< 2	15
294-RK22	< 4	63	240	< 2	< 4	20	6	52	20	< 8	12	17	260	5	< 8	< 8	47	11	4	1400	< 8	46	8	< 2	11
294-RK23	< 4	28	130	< 2	< 4	37	3	110	23	< 8	20	66	160	< 4	11	14	37	12	8	650	< 8	71	18	< 2	11

Table 5 (continued).

						Percent, dry weight			Percent, ash weight								µg/g dry weight
Field ID	Latitude	Longitude	County	Depth, cm	Site/sample description	Ash	Total C	Total S	Al	Ca	Fe	K	Mg	Na	Total P	Ti	Hg
294-RK93	25.6139	80.5828	Dade	0-7	Grossman Hammock, ENP	80.0	17.3	0.06	2.8	29	1.2	0.06	0.33	0.06	0.03	0.13	0.06
294-RK94	25.6139	80.5828	Dade	7-12	(core material)	63.6	18.4	0.33	7.6	6.7	2.9	0.17	0.47	0.08	0.06	0.36	0.11
294-RK95	25.6139	80.5828	Dade	12-17		64.4	16.8	0.24	8.5	2.5	2.8	0.16	0.47	0.07	0.06	0.45	0.24
294-RK96	25.6139	80.5828	Dade	17-22		67.1	15.9	0.19	8.4	2.3	2.7	0.14	0.45	0.07	0.06	0.45	0.15
294-RK97	25.6139	80.5828	Dade	22-27		73.1	13.7	0.16	8.3	1.9	2.7	0.13	0.43	0.06	0.04	0.41	0.11
294-RK98	25.6139	80.5828	Dade	27-32		77.8	10.2	0.11	8.6	1.6	2.6	0.13	0.44	0.06	0.03	0.47	0.09
294-RK81	25.0767	81.2647	Dade	0-30	Big Cypress Loop Road	93.6	9.72	< 0.05	1.2	25	0.63	0.06	0.17	0.03	0.03	0.07	-
294-RK82	25.0767	81.2647	Dade	30-61	(auger material)	97.4	6.95	< 0.05	1.2	20	0.61	0.07	0.17	0.03	0.01	0.08	-
294-RK83	25.0767	81.2647	Dade	61-91		96.3	7.95	< 0.05	1.1	23	0.62	0.07	0.17	0.02	0.01	0.07	-
294-RK84	25.0767	81.2647	Dade	91-122		98.2	4.02	< 0.05	2.0	12	0.79	0.11	0.21	0.03	0.01	0.13	-
294-RK85	25.0767	81.2647	Dade	122-152		96.7	5.84	< 0.05	1.9	18	0.74	0.12	0.27	0.04	0.01	0.11	-
294-RK49	26.3522	80.3542	Broward	5-10	WCA-2A, Site E1	12.0	43.1	1.21	0.94	31	1.7	0.24	3.0	1.3	1.1	0.05	-
294-RK50	26.3522	80.3542	Broward	10-15	(core material)	13.2	44.0	1.30	0.99	31	2.0	0.17	2.7	1.1	0.69	0.05	0.13
294-RK51	26.3522	80.3542	Broward	15-20		11.6	44.6	1.07	1.2	31	2.2	0.16	2.9	1.1	0.40	0.06	0.18
294-RK52	26.3522	80.3542	Broward	20-25		11.4	46.0	0.96	1.1	32	2.0	0.16	3.1	1.1	0.30	0.05	0.12
294-RK53	26.3522	80.3542	Broward	25-30		11.9	45.8	0.83	1.1	33	1.8	0.11	3.1	1.1	0.26	0.05	0.14
294-RK54	26.3522	80.3542	Broward	30-35		11.4	47.2	0.79	1.2	33	1.8	0.11	3.2	1.3	0.20	0.05	0.1
294-RK55	26.3522	80.3542	Broward	35-40		11.8	46.5	0.69	1.6	33	1.6	0.11	3.2	1.3	0.15	0.07	0.14
294-RK56	26.3522	80.3542	Broward	40-45		11.0	46.9	0.65	2.0	32	1.9	0.15	3.1	1.5	0.15	0.09	0.08
294-RK57	26.3522	80.3542	Broward	45-50		9.6	47.6	0.65	1.6	33	2.2	0.14	3.2	1.7	0.15	0.08	0.1
294-RK58	26.3522	80.3542	Broward	50-55		9.7	48.0	0.67	1.6	32	2.4	0.12	3.1	1.8	0.15	0.07	0.06
294-RK59	26.3522	80.3542	Broward	55-60		8.7	49.2	0.77	1.5	31	2.9	0.15	3.1	2.2	0.16	0.07	0.06
294-RK60	26.3522	80.3542	Broward	60-65		9.3	48.4	0.88	2.5	28	3.1	0.24	2.7	2.0	0.12	0.13	0.07
294-RK61	26.3522	80.3542	Broward	65-70		10.7	48.0	0.87	3.4	26	3.1	0.31	2.4	1.6	0.10	0.19	0.12
294-RK62	26.3522	80.3542	Broward	70-76		10.9	49.1	0.79	2.9	30	4.0	0.24	2.4	1.7	0.13	0.16	0.08
294-RK63	26.3522	80.3542	Broward	76-80		12.0	48.0	0.62	1.6	30	3.5	0.13	2.5	1.7	0.10	0.08	0.07
294-RK38	26.3425	80.3514	Broward	0-30	WCA-2A, Site E2	12.0	43.5	1.17	1.4	20	1.3	0.23	2.7	2.4	0.35	0.07	-
294-RK39	26.3425	80.3514	Broward	30-61	(auger material)	18.8	43.7	0.91	0.85	10	0.94	0.13	1.5	1.6	0.09	0.05	-
294-RK40	26.3425	80.3514	Broward	61-91		34.8	35.5	0.78	0.42	4.4	0.55	0.06	0.60	0.62	0.05	0.04	-
294-RK41	26.3425	80.3514	Broward	91-122		86.3	7.14	0.17	0.38	0.55	0.20	0.04	0.10	0.06	<0.01	0.06	-
294-RK34	26.3303	80.3550	Broward	0-30	WCA-2A, Site E3	13.1	45.5	1.06	2.3	20	1.5	0.30	2.6	1.7	0.28	0.12	-
294-RK35	26.3303	80.3550	Broward	30-61	(auger material)	10.0	47.6	0.82	1.6	24	1.6	0.20	3.2	3.0	0.21	0.08	-
294-RK36	26.3303	80.3550	Broward	61-91		15.3	45.9	0.89	1.4	15	1.3	0.18	1.7	1.8	0.28	0.09	-
294-RK37	26.3303	80.3550	Broward	91-122		42.9	30.5	0.56	0.41	3.5	0.39	0.05	0.35	0.40	0.03	0.03	-
294-RK42	26.3075	80.3561	Broward	0-30	WCA-2A, Site E4	10.2	46.3	1.16	2.8	20	4.1	0.51	2.5	2.3	0.28	0.15	-
294-RK43	26.3075	80.3561	Broward	30-61	(auger material)	16.1	45.9	0.80	1.9	17	2.8	0.24	1.8	1.5	0.09	0.09	-
294-RK44	26.3075	80.3561	Broward	61-91		17.2	44.7	0.83	1.7	14	2.2	0.23	1.5	1.4	0.10	0.09	-
294-RK45	26.3075	80.3561	Broward	91-122		64.8	19.1	0.39	0.19	1.4	0.29	0.03	0.15	0.16	0.01	0.02	-
294-RK103	26.3075	80.3561	Broward	122-152		98.0	0.10	<0.05	3.1	0.44	1.1	0.19	0.25	0.04	<0.01	0.16	-

Table 5 (continued).

	µg/g, ash weight																							
Field ID	Ag	As	Ba	Be	Cd	Ce	Co	Cr	Cu	Ga	La	Li	Mn	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th	V	Y	Yb	Zn
294-RK93	< 4	< 20	73	< 2	< 4	25	5	64	7	< 8	15	53	230	< 4	< 8	< 8	14	16	5	520	< 8	30	10	< 2	17
294-RK94	< 4	< 20	120	2	< 4	67	7	180	11	12	40	140	130	< 4	19	28	36	36	12	250	13	86	30	< 2	23
294-RK95	< 4	< 20	120	3	< 4	77	7	200	9	14	46	160	96	< 4	21	36	41	29	14	190	14	85	36	3	17
294-RK96	< 4	< 20	120	3	< 4	83	6	200	9	16	47	160	80	< 4	23	36	43	26	14	180	16	83	39	3	15
294-RK97	< 4	< 20	130	3	< 4	76	6	210	8	14	44	160	78	< 4	21	33	39	25	14	160	14	77	36	3	13
294-RK98	< 4	< 20	130	3	< 4	77	7	210	7	15	45	170	78	< 4	23	36	41	27	14	150	17	73	35	3	12
294-RK81	< 4	< 20	47	< 2	< 4	18	4	31	< 2	< 8	11	14	150	< 4	< 8	< 8	< 4	< 8	< 4	170	< 8	23	7	< 2	< 4
294-RK82	< 4	< 20	44	< 2	< 4	20	2	32	3	< 8	12	14	99	< 4	< 8	< 8	< 4	< 8	< 4	140	< 8	18	6	< 2	< 4
294-RK83	< 4	< 20	44	< 2	< 4	17	3	31	2	< 8	11	14	130	< 4	< 8	< 8	4	< 8	< 4	150	< 8	22	6	< 2	< 4
294-RK84	< 4	< 20	53	< 2	< 4	28	4	50	2	< 8	17	24	71	< 4	< 8	< 8	5	< 8	4	120	< 8	25	9	< 2	4
294-RK85	< 4	< 20	57	< 2	< 4	24	3	49	4	< 8	15	24	95	< 4	< 8	< 8	8	< 8	< 4	160	< 8	36	9	< 2	5
294-RK49	< 4	40	350	< 2	< 4	12	10	23	81	< 8	9	18	300	29	< 8	< 8	33	130	< 4	5900	< 8	120	4	< 2	120
294-RK50	< 4	50	310	< 2	5	11	10	20	62	< 8	9	12	250	28	< 8	< 8	27	130	< 4	5700	< 8	110	4	< 2	68
294-RK51	< 4	44	400	< 2	< 4	10	8	15	33	< 8	9	25	170	19	< 8	< 8	13	47	< 4	5800	< 8	50	< 4	< 2	49
294-RK52	< 4	37	500	< 2	< 4	9	7	12	26	< 8	9	13	140	16	< 8	< 8	9	25	< 4	6100	< 8	32	< 4	< 2	31
294-RK53	< 4	35	500	< 2	< 4	14	6	12	22	< 8	8	9	140	13	< 8	< 8	9	23	< 4	6000	< 8	28	< 4	< 2	27
294-RK54	< 4	23	470	< 2	< 4	9	6	13	29	< 8	9	19	160	10	< 8	< 8	9	14	< 4	5800	< 8	24	< 4	< 2	20
294-RK55	< 4	< 20	460	< 2	< 4	15	5	19	21	< 8	10	15	130	6	< 8	< 8	8	< 8	< 4	5600	< 8	21	4	< 2	11
294-RK56	< 4	< 20	440	< 2	< 4	19	6	20	25	< 8	13	32	150	7	< 8	< 8	10	< 8	< 4	5300	< 8	23	5	< 2	10
294-RK57	< 4	< 20	400	< 2	< 4	16	8	19	20	< 8	12	19	200	8	< 8	< 8	11	< 8	< 4	5000	< 8	23	< 5	< 2	12
294-RK58	46	< 20	390	< 2	< 4	16	8	18	18	< 8	12	9	140	6	< 8	< 8	9	< 8	< 4	4600	< 8	23	< 5	< 2	13
294-RK59	< 4	< 30	350	< 3	< 4	18	10	20	21	< 8	11	17	220	11	< 8	< 8	11	< 8	< 4	4200	< 8	23	< 6	< 3	13
294-RK60	< 4	36	340	< 2	< 4	23	10	31	20	< 8	17	23	200	12	< 8	< 8	12	< 8	< 4	3500	< 8	31	7	< 2	12
294-RK61	< 4	34	340	< 2	< 4	38	6	42	22	< 8	23	28	250	6	< 8	10	18	< 8	6	3200	< 8	38	10	< 2	13
294-RK62	13	24	370	< 2	< 4	32	7	36	15	< 8	19	20	200	< 4	< 8	< 8	17	14	6	3400	< 8	35	8	< 2	14
294-RK63	< 4	33	370	< 2	< 4	14	6	19	13	< 8	12	13	190	5	< 8	< 8	7	8	< 4	3600	< 8	27	4	< 2	14
294-RK38	13	33	310	< 2	< 4	16	15	20	20	< 8	9	21	130	13	< 8	< 8	13	39	< 4	3900	< 8	33	< 4	< 2	31
294-RK39	< 4	< 20	200	< 2	5	8	5	12	11	< 8	5	12	87	5	< 8	< 8	6	< 8	< 4	1700	< 8	13	< 4	< 2	8
294-RK40	< 4	< 20	92	< 2	< 4	< 8	3	7	6	< 8	< 4	7	110	< 4	< 8	< 8	< 4	< 8	< 4	700	< 8	9	< 4	< 2	6
294-RK41	< 4	< 20	29	< 2	< 4	< 8	< 2	7	4	< 8	< 4	5	9	< 4	< 8	< 8	< 4	< 8	< 4	85	< 8	4	< 4	< 2	< 4
294-RK34	18	41	360	< 2	< 4	19	6	32	19	< 8	13	19	170	8	< 8	< 8	15	37	4	4000	< 8	39	6	< 2	23
294-RK35	4	23	370	< 2	12	15	7	26	19	< 8	10	15	290	7	< 8	< 8	15	18	< 4	4200	< 8	25	4	< 2	13
294-RK36	< 4	25	220	< 2	9	13	5	21	16	< 8	9	16	170	4	< 8	< 8	11	12	< 4	2000	< 8	24	4	< 2	11
294-RK37	< 4	< 20	63	< 2	< 4	8	< 2	7	5	< 8	< 4	9	23	< 4	< 8	< 8	< 4	< 8	< 4	360	< 8	12	< 4	< 2	5
294-RK42	4	30	400	< 2	6	25	16	35	24	< 8	16	32	400	7	8	< 8	17	57	5	3900	< 8	37	7	< 2	42
294-RK43	< 4	< 20	370	< 2	41	19	7	23	12	< 8	11	14	270	< 4	< 8	< 8	12	17	< 4	2500	< 8	25	5	< 2	13
294-RK44	< 4	26	290	< 2	22	15	6	23	14	< 8	10	15	260	< 4	< 8	< 8	11	38	< 4	2000	< 8	25	5	< 2	18
294-RK45	< 4	< 20	42	< 2	< 4	< 8	< 2	3	4	< 8	< 4	15	28	< 4	< 8	< 8	< 4	< 8	< 4	210	< 8	< 4	< 4	< 2	< 4
294-RK103	< 4	< 20	71	< 2	< 4	17	< 2	44	2	< 8	8	40	30	< 4	< 8	< 8	9	< 8	5	67	8	31	5	< 2	9

Table 5 (continued).

						Percent, dry weight			Percent, ash weight								µg/g dry weight
Field ID	Latitude	Longitude	County	Depth, cm	Site/sample description	Ash	Total C	Total S	Al	Ca	Fe	K	Mg	Na	Total P	Ti	Hg
294-RK64	26.2867	80.4111	Broward	0-5	WCA-2A, Site U3	18.0	39.8	1.38	1.1	24	1.8	0.32	2.5	1.0	0.38	0.07	-
294-RK65	26.2867	80.4111	Broward	5-10	(core material)	14.0	42.0	1.46	1.8	16	2.1	0.37	2.4	1.2	0.33	0.09	0.33
294-RK66	26.2867	80.4111	Broward	10-15		9.3	45.7	1.26	2.1	24	3.2	0.41	3.6	2.1	0.28	0.10	0.15
294-RK67	26.2867	80.4111	Broward	15-20		8.7	47.1	1.24	2.1	26	4.2	0.43	3.7	2.5	0.24	0.10	0.1
294-RK68	26.2867	80.4111	Broward	20-25		11.4	45.9	1.15	3.2	23	4.2	0.50	2.9	1.7	0.15	0.17	0.11
294-RK69	26.2867	80.4111	Broward	25-30		11.8	48.7	1.07	2.6	27	4.2	0.35	3.2	1.7	0.11	0.13	0.1
294-RK70	26.2867	80.4111	Broward	30-35		12.1	49.3	0.84	2.4	28	3.8	0.30	3.1	1.7	0.10	0.11	0.11
294-RK71	26.2867	80.4111	Broward	35-40		15.0	46.4	0.76	3.0	21	2.8	0.40	2.3	1.3	0.07	0.17	0.11
294-RK72	26.2867	80.4111	Broward	40-45		12.0	47.4	0.64	2.7	28	4.0	0.35	3.0	1.9	0.07	0.14	0.12
294-RK73	26.2867	80.4111	Broward	45-50		12.5	47.8	0.63	2.5	26	4.0	0.33	2.8	1.9	0.07	0.14	0.12
294-RK74	26.2867	80.4111	Broward	50-55		29.7	38.0	0.47	1.6	8.5	1.7	0.23	0.98	0.64	0.02	0.11	0.07
294-RK75	26.2867	80.4111	Broward	55-63		14.1	48.5	0.65	2.1	17	2.9	0.27	1.9	1.7	0.05	0.11	0.06
294-RK76	26.2867	80.4111	Broward	63-73		9.1	48.4	0.68	2.5	24	3.8	0.41	2.8	3.3	0.10	0.12	0.08
294-RK77	26.3167	80.3867	Dade	0-15	WCA-2A, Site F3	18.4	42.8	1.09	0.58	19	0.42	0.25	2.1	1.2	0.53	0.04	-
294-RK78	26.3167	80.3867	Dade	15-30	(auger material)	15.4	-	1.28	1.1	16	1.1	0.33	1.9	1.9	0.46	0.06	-
294-RK79	26.3167	80.3867	Dade	30-61		26.5	38.4	0.88	0.86	8.6	0.82	0.16	1.0	1.2	0.06	0.06	0.08
294-RK80	26.3167	80.3867	Dade	61-91		70.7	17.9	0.29	0.76	1.4	0.41	0.11	0.21	0.17	0.01	0.08	0.05
294-RK46			Broward	0-30	WCA-2A, Site F4	12.3	43.6	1.32	1.4	18	1.3	0.40	2.3	2.3	0.39	0.07	-
294-RK47			Broward	30-61	(auger material)	17.6	45.7	0.99	1.3	15	1.3	0.25	1.8	2.2	0.09	0.08	-
294-RK48			Broward	61-91		56.9	24.6	0.44	0.94	2.6	0.56	0.14	0.33	0.31	0.02	0.09	-
294-RK99			Dade	0-30	Loop Road, Site A3 (auger material)	90.9	11.9	0.05	2.2	26	0.75	0.03	0.26	0.03	0.02	0.11	-
294-RK100			Dade	0-30	Loop Road, Site A4	84.9	6.87	0.09	1.9	0.98	0.64	0.05	0.10	0.02	0.03	0.10	-
294-RK101			Dade	30-61	(auger material)	93.7	2.52	< 0.05	2.8	0.89	0.80	0.07	0.13	0.02	0.02	0.15	-
294-RK102			Dade	61-91		94.5	2.07	< 0.05	2.8	0.57	0.78	0.07	0.14	0.02	0.02	0.15	-
SRM 2704 (det.)	-	-	-	-	-	-	-	-	6.0	2.70	4.00	1.90	1.20	0.61	0.10	0.30	1.40
SRM 2704 (det.)	-	-	-	-	-	-	-	-	6.1	2.80	4.10	1.90	1.20	0.59	0.10	0.29	1.40
SRM 2704 (det.)	-	-	-	-	-	-	-	-	6.1	2.80	4.10	2.00	1.20	0.61	0.10	0.35	-
SRM 2704 (det.)	-	-	-	-	-	-	-	-	6.1	2.70	4.10	1.90	1.20	0.61	0.11	0.29	1.50
SRM 2704 (cert.)	-	-	-	-	-	-	-	-	6.11 ±0.16	2.60 ±0.03	4.11 ±0.10	2.00 ±0.04	1.20 ±0.02	0.547 ±0.014	0.0998 ±0.0028	0.457 ±0.018	1.44 ±0.07

Table 5 (continued).

Field ID	Ag	As	Ba	Be	Cd	Ce	Co	Cr	Cu	Ga	La	Li	Mn	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th	V	Y	Yb	Zn
	µg/g, ash weight																								
294-RK64	< 4	49	340	< 2	3	13	18	28	80	< 8	9	55	1500	24	< 8	< 8	35	400	< 4	4800	< 8	71	3	< 2	200
294-RK65	< 4	47	350	< 2	5	16	18	29	65	< 8	12	16	690	25	< 8	< 8	29	300	< 4	4000	< 8	91	5	< 2	240
294-RK66	< 4	33	440	< 2	< 4	24	23	24	25	< 8	15	26	740	15	< 8	< 8	17	60	< 4	5700	< 8	35	6	< 2	52
294-RK67	< 4	33	560	< 3	< 4	24	25	28	37	< 8	15	23	950	12	< 8	< 8	20	29	< 4	5600	< 8	30	< 6	< 3	38
294-RK68	< 4	< 20	310	< 2	< 4	31	18	37	20	< 8	20	27	840	4	< 8	10	17	21	5	4700	< 8	34	8	< 2	28
294-RK69	< 4	21	400	< 2	< 4	30	10	29	20	< 8	17	39	950	< 4	< 8	< 8	16	11	4	5400	< 8	31	7	< 2	13
294-RK70	< 4	< 20	370	< 2	< 4	23	8	29	17	< 8	15	25	1000	< 4	< 8	< 8	14	10	< 4	5400	< 8	31	7	< 2	10
294-RK71	< 4	< 20	500	< 2	< 4	34	6	35	13	6	20	21	650	< 3	< 8	10	13	7	5	3900	< 8	33	9	< 2	9
294-RK72	< 4	27	490	< 2	< 4	28	6	34	21	< 8	18	27	850	< 4	< 8	8	16	< 8	5	5300	< 8	36	8	< 2	6
294-RK73	< 4	29	500	< 2	< 4	24	6	32	120	< 8	16	21	820	4	< 8	< 8	15	< 8	4	4700	< 8	33	7	< 2	5
294-RK74	< 4	< 20	220	< 2	< 4	13	4	23	8	< 8	9	16	280	< 4	< 8	< 8	6	< 8	< 4	1400	< 8	16	4	< 2	5
294-RK75	< 4	33	380	< 2	< 4	26	7	27	12	< 8	16	14	570	4	< 8	< 8	11	8	< 4	2900	< 8	24	8	< 2	6
294-RK76	< 4	66	460	< 2	< 4	32	14	39	22	< 8	20	19	840	9	< 8	< 8	19	19	< 4	3900	< 8	31	9	< 2	22
294-RK77	< 4	39	320	< 2	< 4	< 8	7	16	28	< 8	6	5	390	21	< 8	< 8	19	96	< 4	3900	< 8	42	< 4	< 2	67
294-RK78	< 4	52	290	< 2	4	13	11	29	26	< 8	7	8	420	18	< 8	< 8	17	95	< 4	3100	< 8	50	< 4	< 2	96
294-RK79	< 4	< 20	180	< 2	7	13	4	13	5	< 8	6	8	190	< 4	< 8	< 8	7	10	< 4	1300	< 8	14	< 4	< 2	10
294-RK80	< 4	< 20	56	< 2	< 4	12	< 2	11	3	< 8	7	6	46	< 4	< 8	< 8	< 4	< 8	< 4	210	< 8	6	< 4	< 2	4
294-RK46	< 4	60	320	< 2	5	11	13	27	57	< 8	9	14	510	25	< 8	< 8	22	110	< 4	3800	< 8	68	< 4	< 2	110
294-RK47	< 4	23	300	< 2	16	12	5	20	12	< 8	9	14	300	4	< 8	< 8	12	14	< 4	2400	< 8	22	< 4	< 2	17
294-RK48	< 4	< 20	80	< 2	< 4	13	< 2	15	5	< 8	8	9	69	< 4	< 8	< 8	4	< 8	< 4	390	< 8	10	< 4	< 2	6
294-RK99	< 4	< 20	53	< 2	< 4	22	5	44	3	< 8	14	32	180	< 4	< 8	< 8	9	< 8	4	410	< 8	22	8	< 2	8
294-RK100	< 4	< 20	49	< 2	< 4	21	2	47	4	< 8	12	29	19	< 4	< 8	11	9	< 8	< 4	57	< 8	29	8	< 2	4
294-RK101	< 4	< 20	50	< 2	< 4	27	< 2	66	< 2	< 8	15	42	21	< 4	< 8	13	12	8	5	61	8	34	11	< 2	7
294-RK102	< 4	< 20	50	< 2	< 4	28	< 2	69	< 2	< 8	15	47	20	< 4	< 8	11	12	< 8	5	44	< 8	36	12	< 2	5
SRM 2704 (det.)	<4	20	400	<2	<4	61	15	140	100	15	35	47	560	<4	11	32	53	150	12	140	10	94	21	2	430
SRM 2704 (det.)	<4	22	410	<2	<4	57	15	150	97	14	31	48	580	<4	11	25	44	150	12	140	<8	96	21	2	410
SRM 2704 (det.)	<4	28	400	<2	<4	53	17	150	96	15	29	47	600	<4	13	26	45	150	12	140	8	96	20	<2	440
SRM 2704 (det.)	<4	22	420	<2	<4	56	17	150	98	15	30	48	590	<4	14	24	50	160	12	140	10	95	20	3	430
SRM 2704 (cert.)	-	23.4	414	-	3.45	-	14.0	135	98.6	-	-	-	555	-	-	-	44.1	161	-	-	-	95	-	-	438
		±0.8	±12		±0.22		±0.6	±5	±5				±19				±3.0	±17				±4			±12

"-" = not determined usually because of insufficient sample material.
Field ID: 294 = March, 1994 collection; RK01 - RK104 = sample sequence ID.
ENP = Everglades National Park.
SRM 2704 = NIST Standard Reference Material "Buffalo River Sediment" analyzed four different times;
(det.) = laboratory analysis values; (cert.) = certified values ± 95% confidence interval.
All samples were below the analytical detection limits for the following elements:

Au, <20 µg/g	Sn, <10 µg/g
Bi, <20 µg/g	Ta, <80 µg/g
Eu, <4 µg/g	U, <200 µg/g

Table 6. Elemental composition of surface water sampled during March, 1994.

							mg/L							
Field ID	Latitude	Longitude	County	Sample description; water depth	pH	Cond. uS/cm	Total Akal.	Filt. Al	Filt. Ca	Filt. Fe	Filt. K	Filt. Mg	Filt. Na	Filt. Si
WABB1	25.7525	80.7628	Dade	Filtered, acidified; 12 cm	8.02	624	130	< 0.1	53	0.20	4	11	55	3.8
WACC1	25.7678	80.6731	Dade	Filtered, acidified; 50 cm	7.75	910	200	< 0.1	83	0.10	6	19	67	5.2
WADD1	25.8686	80.9136	Collier	Filtered, acidified; 10 cm	7.86	308	140	< 0.1	55	< 0.05	0.7	2	12	< 1
WALL1	25.0767	81.2647	Collier	Filtered, acidified; 20 cm	7.72	411	200	< 0.1	76	< 0.05	1	5	11	2.3
WAMM1	25.9411	81.2622	Collier	Filtered, acidified; 10 cm	8.34	313	150	< 0.1	82	0.05	0.4	5	28	1.5
WANN1	25.3050	80.5736	Collier	Filtered, acidified; 5 cm	8.17	378	150	< 0.1	65	0.10	0.6	3	15	< 1
WAOO1	25.7928	81.1008	Collier	Filtered, acidified; 5 cm	7.79	517	275	< 0.1	100	< 0.05	1	4	14	1.8
WAPP1	25.6139	80.5828	Broward	Filtered, acidified; 30 cm	6.94	539	200	< 0.1	90	0.06	0.2	4	23	2.8
WAQQ1	25.3853	80.8075	Dade	Filtered, acidified; 4 cm	7.49	624	200	< 0.1	94	< 0.05	0.9	6	32	1.7
WASS1	25.2250	80.8075	Dade	Filtered, acidified; 5 cm	7.81	3070	130	0.2	58	0.06	18	43	120	< 1
WATT1	25.4328	80.7742	Dade	Filtered, acidified; 30 cm	7.94	540	200	< 0.1	51	< 0.05	2	3	13	1.6
BRNN1	25.305	80.5736	Collier	Filtered, acidified; air plant	6.65	-	<25	0.2	20	0.10	0.5	2	7	< 1
BLANK	-	-	-	-	-	-	-	< 0.1	0.05	< 0.05	< 0.02	< 0.01	0.04	< 1
SRM T-85 (det.)	-	-	-	-	-	-	-	< 1	160	< 1	14	61	160	9.8
SRM T-85 (cert.)	-	-	-	-	-	-	-	0.035	-	0.188	-	-	-	-

Table 6 (continued).

	μg/L																					
Field ID	Filt. Hg	Unfilt. Hg	Filt. Ag	Filt. B	Filt. Ba	Filt. Be	Filt. Bi	Filt. Cd	Filt. Co	Filt. Cr	Filt. Cu	Filt. Ga	Filt. Li	Filt. Mn	Filt. Mo	Filt. Ni	Filt. Pb	Filt. Sn	Filt. Sr	Filt. Ti	Filt. V	Filt. Zn	Filt. Zr
WABB1	<0.10	0.11	< 2	< 50	21	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	6	< 10	< 5	< 10	< 6	510	< 1	< 6	< 3	< 1
WACC1	0.11	< 0.10	< 2	52	67	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	1	< 10	< 5	< 10	< 6	1400	< 1	< 6	< 3	< 1
WADD1	0.14	0.16	< 2	< 50	9	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	1	< 10	< 5	< 10	< 6	180	< 1	< 6	< 3	< 1
WALL1	0.11	< 0.10	< 2	< 50	12	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	4	< 10	< 5	< 10	< 6	140	< 1	< 6	< 3	< 1
WAMM1	<0.10	< 0.10	< 2	< 50	14	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	2	< 10	< 5	< 10	< 6	740	< 1	< 6	< 3	< 1
WANN1	<0.10	< 0.10	< 2	< 50	8	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	< 1	< 10	< 5	< 10	< 6	330	< 1	< 6	< 3	< 1
WAOO1	<0.10	< 0.10	< 2	< 50	14	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	< 1	< 10	< 5	< 10	< 6	240	< 1	< 6	< 3	< 1
WAPP1	0.11	< 0.10	< 2	< 50	18	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	5	< 10	< 5	< 10	< 6	620	< 1	< 6	< 3	< 1
WAQQ1	0.16	< 0.10	< 2	< 50	9	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	5	< 10	< 5	< 10	< 6	900	< 1	< 6	< 3	< 1
WASS1	<0.10	0.11	< 2	150	63	< 1	< 10	< 1	< 3	< 1	< 10	< 5	5	11	< 10	< 5	< 10	< 6	890	< 1	< 6	< 3	< 1
WATT1	0.20	< 0.10	< 2	< 50	9	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	< 1	< 10	< 5	< 10	< 6	130	< 1	< 6	3	< 1
BRNN1	-	-	< 2	61	7	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	20	< 10	< 5	< 10	< 6	62	< 1	< 6	42	< 1
BLANK	<0.10	-	< 2	< 50	< 2	< 1	< 10	< 1	< 3	< 1	< 10	< 5	< 4	< 1	< 10	< 5	< 10	< 6	< 0.5	< 1	< 6	< 3	< 1
SRM T-85 (det.)	-	-	< 40	290	59	< 20	< 200	< 20	< 60	< 20	< 200	< 100	< 80	< 20	< 200	< 100	< 200	< 120	1600	< 20	< 120	< 60	< 20
SRM T-85 (cert.)	-	-	- -		36	11.8	-	2.63	2.3	3.9	54.1	-	29.2	96.7	5.13	10.5	4.4	-	1196	545	-	103	-

All element analyses (except Hg) by ICP-AES (see methods section).
WA = water; BR = bromeliad (air plant), water extracted from reservoir base of Tillandsia utriculata.
BLANK = field blank.
SRM T-85 = WRD laboratory standard reference material. High detection limits for the SRM reflect a pre-concentration of 1:20;
(det.) = laboratory analysis values; (cert.) = certified values.
Filt. = filtered through a 0.45 μm filter; unfilt. = not filtered.
Cond. = electrical conductivity.

Table 7. Elemental composition of top 5 cm of sediment material sampled during March, 1994.

					Percent, dry weight					Percent, ash weight								μg/g dry weight
Field ID	Latitude	Longitude	County	Sample/site description	Ash	Total C	Organ. C	Carb. C	Total S	Al	Ca	Fe	K	Mg	Na	Total P	Ti	Hg
SEBB1	25.7525	80.7628	Dade	Top 0-5 cm; below periphyton	76.3	12.5	9.06	3.44	0.18	5.5	17.0	4.30	0.10	0.49	0.06	0.05	0.29	0.12
SECC1	25.7678	80.6731	Dade	Top 0-5 cm; no periphyton	68.0	18.3	14.30	4.02	0.37	8.1	27.0	1.50	0.27	0.49	0.15	0.05	0.20	0.05
SEDD1	25.8686	80.9136	Collier	Top 0-5 cm; below periphyton	91.0	6.1	4.13	1.92	0.06	1.2	6.3	0.58	0.04	0.08	0.02	0.02	0.06	0.03
SELL1	25.0767	81.2647	Collier	Top 0-5 cm; no periphyton	81.3	10.5	8.26	2.24	0.12	1.9	11.0	0.84	0.12	0.15	0.03	0.07	0.13	0.06
SELL2 Dup	25.0767	81.2647	Collier	Top 0-5 cm; no periphyton	82.0	11.2	9.02	2.18	0.12	1.6	10.0	0.74	0.11	0.13	0.03	0.06	0.11	0.07
SEMM1	25.9411	81.2622	Collier	Top 0-5 cm; below periphyton	89.7	5.3	5.25	0.01	0.09	1.0	.6	1.30	0.05	0.05	0.01	0.03	0.07	0.04
SENN1	25.3050	80.5736	Collier	Top 0-5 cm; below periphyton	71.7	12.2	12.20	0.01	0.19	4.6	1.6	3.00	0.10	0.21	0.04	0.05	0.29	0.10
SEOO1	25.7928	81.1008	Collier	Top 0-5 cm; no periphyton	71.7	14.4	14.40	0.02	0.22	2.4	2.0	1.10	0.08	0.12	0.03	0.07	0.15	0.12
SEPP1	25.6139	80.5828	Broward	Top 0-5 cm; below periphyton	79.7	9.1	8.33	0.77	0.14	6.9	4.5	2.20	0.11	0.37	0.05	0.03	0.39	0.08
SEQQ1	25.3853	80.8075	Dade	Top 0-5 cm; below periphyton	32.3	29.3	29.20	0.10	0.60	17.0	12.0	4.40	0.35	1.00	0.22	0.30	0.91	0.15
SESS1	25.2250	80.8075	Dade	Top 0-5 cm; below periphyton	14.0	40.9	40.90	0.01	3.04	2.5	16.0	1.30	0.59	7.00	8.60	0.28	0.12	0.13
SETT1	25.4328	80.7742	Dade	Top 0-5 cm; below periphyton	26.6	33.3	33.30	0.03	0.72	14.0	11.0	3.90	0.36	0.96	0.21	0.31	0.77	0.20
SRM 2704 (det.)	-	-	-	-	95.0	3.3	2.47	0.78	0.40	6.8	3.0	4.70	2.10	1.40	0.67	0.12	0.31	1.30
SRM 2704 (cert.)	-	-	-	-	95.0	3.3	2.47	0.78	0.40	6.11	2.60	4.11	2.00	1.20	0.547	0.0998	0.457	1.44
					-	-	-	-	-	±0.16	±0.03	±0.10	±0.04	±0.04	±0.014	±0.0028	±0.018	±0.07

Table 7 (continued).

Field ID	μg/g, ash weight																						
	As	Ba	Be	Ce	Co	Cr	Cu	Ga	La	Li	Mn	Mo	Nb	Nd	Ni	Pb	Sc	Sr	Th	V	Y	Yb	Zn
SEBB1	32	110	1	48	8	100	1	11	25	110	230	< 4	8	14	24	28	7	360	6	68	16	2	55
SECC1	69	110	2	32	7	120	6	19	17	140	84	< 4	< 8	< 8	43	30	6	950	7	120	12	1	52
SEDD1	12	29	< 1	15	< 1	22	1	< 5	9	20	55	< 4	< 8	< 8	5	< 5	< 3	70	< 8	19	5	< 1	39
SELL1	22	54	< 1	29	3	48	3	< 5	16	21	99	< 4	< 8	8	6	7	3	94	5	28	12	< 1	48
SELL2 Dup	11	48	< 1	32	2	42	2	< 5	18	18	89	< 4	< 8	11	6	7	< 3	85	5	25	10	< 1	45
SEMM1	< 10	24	< 1	13	1	40	1	< 5	8	22	29	< 4	< 8	6	5	9	2	15	< 8	41	7	< 1	9
SENN1	11	68	1	53	6	120	3	10	29	83	90	< 4	9	23	24	36	8	89	8	76	22	2	32
SEOO1	10	46	< 1	26	3	70	3	< 5	15	49	43	< 4	< 8	11	13	13	4	51	< 8	39	12	1	26
SEPP1	< 10	100	1	60	7	160	5	11	32	130	91	< 4	12	25	35	21	11	230	9	56	28	2	38
SEQQ1	50	130	4	170	15	390	19	33	89	200	230	5	30	70	94	87	28	1000	23	170	82	6	66
SESS1	41	96	< 1	36	4	79	18	10	20	55	180	12	< 8	14	21	30	5	2200	8	64	26	< 1	83
SETT1	29	150	2	120	15	300	30	24	63	170	170	< 4	24	47	81	75	20	840	17	140	47	4	85
SRM 2704 (det.)	21	460	2	60	19	190	120	16	29	53	660	<4	8	24	54	170	12	150	8	100	21	2	490
SRM 2704 (cert.)	21	414	-	-	14.0	135	98.6	-	-	-	555	-	44.1	-	44.1	161	-	-	-	95	21	2	438
		±12			±0.6	±5	±5.0				±19		±3.0		±3.0	±17				±4	-	-	±12

SE = sediment; BB, CC, etc. = site ID.
Dup = duplicate sample of the same material. Collection locations separated by a few meters.
SRM 2704 = NIST Standard Reference Material "Buffalo River Sediment"; (det.) laboratory analysis values; (cert.) certified values.
All samples were below the analytical detection limits for the following elements:

Ag, <4 μg/g	Eu, <4 μg/g
Au, <20 μg/g	Sn, <10 μg/g
Bi, <20 μg/g	Ta, <80 μg/g
Cd, <4 μg/g	U, <200 μg/g

Table 8. Elemental composition of surface water sampled during April, 1995.

							mg/L	µg/L				
Field ID	Latitude	Longitude	County	Sample description; water depth	pH	Cond. µS/cm	Total Akal.	Filt. Hg	Unfilt. Hg	Filt. Li	Filt. Be	Filt. Sc
42795-BC1	26 13.0922	81 15.5964	Collier	Filtered, acidified; 15 cm	7.19	494	220	<0.05	0.05	< 4	< 0.2	2.55
42395-C1	25 11.7730	80 38.2160	Dade	Filtered, acidified; 10 cm	7.37	26100	150	0.18	0.12	64	0.7	< 0.8
42195-C1	26 28.7820	80 26.5650	Palm Beach	Filtered, acidified; 30 cm	6.96	330	75	0.05	0.1	6	< 0.2	6.2
42395-C2	25 12.3810	80 38.6770	Dade	Filtered, acidified; 15 cm	7.71	25700	145	0.13	0.12	52	< 0.2	< 0.8
42695-BC2	25 57.1014	80 55.5002	Collier	Filtered, acidified; <5 cm	6.51	754	350	<0.05	<0.05	< 4	< 0.2	2
42195-C2	26 28.8730	80 24.9310	Palm Beach	Filtered, acidified; 30 cm	-	208	<50	0.1	0.08	6	< 0.2	1
42805-LR1	25 25.9587	80 46.4486	Dade	Filtered, acidified; 30 cm	7.48	612	125	<0.05	<0.05	< 4	< 0.2	1
42195-C3	26 28.8420	80 25.8090	Palm Beach	Filtered, acidified; 20 cm	-	-	-	0.08	0.14	< 4	< 0.2	2
42595-BC1	25 52.0645	81 09.0235	Collier	Filtered, acidified; <5 cm	7.48	450	225	0.09	0.09	< 4	< 0.2	1
42095-C1	26 28.8420	80 25.8090	Palm Beach	Filtered, acidified; -	-	-	-	0.1	0.09	< 4	< 0.2	1
42695-BC3	25 46.7690	81 05.4330	Monroe	Filtered, acidified; 5 cm	7.65	412	175	0.08	0.1	< 4	< 0.2	2
42395-C111	25 19.1170	80 31.5170	Dade	Filtered, acidified; <5 cm	7.00	702	250	0.05	0.13	< 4	< 0.2	6.2
SRM/WRD-T-81 (det.)	-	-	-	-	-	-	-	0.94	-	410	49	2
SRM/WRD-T-81 (cert.)								2.66	-	514	44	-
SRM/WRD-T-85 (det.)	-	-	-	-	-	-	-	-	-	20.0	11.0	3.0
SRM/WRD-T-85 (cert.)					-	-	-	-	-	96.7	11.8	-

Table 8 (continued).

	µg/L																								
Field ID	Filt. Tl	Filt. V	Filt. Cr	Filt. Mn	Filt. Fe	Filt. Co	Filt. Ni	Filt. Cu	Filt. Zn	Filt. As	Filt. Rb	Filt. Sr	Filt. Y	Filt. Zr	Filt. Nb	Filt. Mo	Filt. Cd	Filt. Ba	Filt. La	Filt. Ce	Filt. Nd	Filt. Yb	Filt. Pb	Filt. Th	Filt. U
42795-BC1	< 4	0.2	0.5	9.66	70	0.3	4.4	< 2	< 4	2.3	3.1	220	< 0.1	0.3	< 0.6	0.26	< 2	22	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	<0.1
42395-C1	28	24	< 0.5	3	< 40	1	13	6	< 4	48	69	> 2000	0.1	< 0.2	< 0.6	4.8	< 2	18	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	2.6
42195-C1	< 4	0.6	0.6	8.1	< 40	0.4	4.2	< 2	< 4	2.7	2.4	1400	< 0.1	< 0.2	< 0.6	< 0.1	< 2	42	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	< 0.1
42395-C2	28	26	< 0.5	2	< 40	1.3	11	6.3	6	62	65	> 2000	< 0.1	< 0.2	< 0.6	4.3	< 2	18	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	2.3
42695-BC2	< 4	0.6	0.8	55	950	1.2	13	< 2	11	2.9	0.5	750	0.1	< 0.2	< 0.6	< 0.1	< 2	25	< 0.2	0.1	< 0.1	< 0.1	< 2	< 0.5	0.8
42195-C2	< 4	0.3	< 0.5	13	50	< 0.1	1.2	< 2	< 4	0.9	1.1	370	< 0.1	< 0.2	0.8	< 0.1	< 2	12	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	< 0.1
42805-LR1	< 4	0.6	0.8	5.7	490	0.3	3.7	< 2	< 4	2	2.7	700	< 0.1	< 0.2	< 0.6	< 0.1	< 2	11	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	<0.1
42195-C3	< 4	0.4	0.8	120	40	0.2	2	2	4	2.6	1.8	690	< 0.1	< 0.2	< 0.6	0.2	< 2	23	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	< 0.1
42595-BC1	< 4	0.7	< 0.5	4	100	0.4	6.4	< 2	< 4	0.9	0.8	170	< 0.1	< 0.2	< 0.6	0.1	< 2	9	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	<0.1
42095-C1	< 4	0.3	0.6	5.6	< 40	0.1	1.7	< 2	4	1.5	1.55	650	< 0.1	< 0.2	< 0.6	< 0.1	< 2	16.5	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	< 0.1
42695-BC3	< 4	0.4	< 0.5	2	< 40	0.3	5.6	< 2	< 4	1	2	270	< 0.1	< 0.2	< 0.6	< 0.1	< 2	22	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	<0.1
42395-C111	< 4	0.3	< 0.5	500	210	0.8	6.8	< 2	< 4	3.2	2.4	1000	< 0.1	< 0.2	< 0.6	0.34	< 2	30	< 0.2	< 0.1	< 0.1	< 0.1	< 2	< 0.5	1.9
SRM/WRD-T-81 (det.)	< 4	1.0	20.0	460	1200	14	6.2	24	120	22	1.3	480	< 0.1	< 0.2	< 0.6	28	10.0	220	< 0.2	< 0.1	< 0.1	< 0.1	5.0	0.7	7
SRM/WRD-T-81 (cert.)	-	-	28.0	546	704	11	9.3	29	102	18	-	439	-	-	-	40	8.6	239	-	-	-	-	3.5	-	-
SRM/WRD-T-85 (det.)	8	0.7	2.0	78	220	2.5	7.1	42	78	7.1	2.0	1400	< 0.1	< 0.2	0.7	2.3	3.0	37	< 0.2	< 0.1	< 0.1	< 0.1	6.0	0.8	19
SRM/WRD-T-85 (cert.)	-	-	3.9	97	188	2.3	10.5	54	103	6.2	-	1196	-	-	-	5.1	2.6	36	-	-	-	-	4.4	-	-

All trace element analyses (except Hg) by ICP-MS (see methods section).
SRM/WRD = USGS Water Resources Division laboratory standard reference materials; (det.) laboratory analysis values; (cert.) certified values.
Filt. = filtered through a 0.45 um filter; unfilt. = not filtered.
Cond. = electrical conductivity.
"-" = Not determined.
"<" = less than; ">" = greater than.

Table 9. Elemental composition of plant materials sampled during April, 1995.
(most data are pending--laboratory analyses are in progress)

Field ID	Latitude	Longitude	County	Plant species	Percent, dry weight	
					Ash	Total S
42095-S-C1	26 28.8420	80 25.8090	Palm Beach	Cladium jamaciensis, sawgrass	(pending)	
42195-T-C1-1	26 28.7820	80 26.5650	Palm Beach	Typha latifolia, cattail	"	0.25
42195-T-C1-2	26 28.7820	80 26.5650	Palm Beach	Typha latifolia, cattail	"	0.32
42195-S-C2-1	26 28.8730	80 24.9310	Palm Beach	Cladium jamaciensis, sawgrass	"	0.11
42195-S-C2-2	26 28.8730	80 24.9310	Palm Beach	Cladium jamaciensis, sawgrass	"	0.12
42195-S-C3	26 28.8420	80 25.8090	Palm Beach	Cladium jamaciensis, sawgrass	"	0.25
42395-S-C111-1	25 19.1170	80 31.5170	Dade	Cladium jamaciensis, sawgrass	"	0.11
42395-S-C111-2	25 19.1170	80 31.5170	Dade	Cladium jamaciensis, sawgrass	"	0.13
42395-S-C111-2X	25 19.1170	80 31.5170	Dade	Cladium jamaciensis, sawgrass	"	0.12
42595-S-BC1	25 52.0645	81 09.0235	Collier	Cladium jamaciensis, sawgrass	"	0.13
42695-S-BC1	25 57.1024	80 55.5004	Collier	Cladium jamaciensis, sawgrass	"	0.11
42695-S-BC2	25 57.1014	80 55.5002	Collier	Cladium jamaciensis, sawgrass	"	0.12
42695-B-BC3	25 46.7690	81 05.4330	Monroe	Tillandsia reticulata, air plant	"	0.06
42695-B-BC3X	25 46.7690	81 05.4330	Monroe	Tillandsia reticulata, air plant	"	0.06
42695-S-BC3	25 46.7690	81 05.4330	Monroe	Cladium jamaciensis, sawgrass	"	0.12
42795-S-BC1	26 13.0922	81 15.5964	Collier	Cladium jamaciensis, sawgrass	"	0.10
42895-S-LR1	25 25.9587	80 46.4486	Dade	Cladium jamaciensis, sawgrass	"	0.09
SRM 2704	-	-	-	-	-	-

S = Cladium (sawgrass); T = Typha (cattail); B = Tillandsia (air plant).
C1, BC1, LR1, etc. = site identifiers; 1,2, or 3 = replicate samples of the same species collected.
X = duplicate analysis of the same sample.
SRM 2704 = NIST Standard Reference Material "Buffalo River Sediment"

Table 10. 210Pb and 137Cs data used in the calculation of mass accumulation rates in selected peat cores collected in April, 1995 (see Fig. 1).

1995 core ID (Fig. 1)	Secondary ID	Depth, cm	Deposition rate (210Pb) cm/yr	Mass accum. rate g/cm2/yr	Deposition rate (137Cs) cm/yr	Mass accum. rate gm/cm2/yr
E1	E1	0 - 8	3.20	0.190	0.20	0.012
		8 - 20	0.13	0.008	1.42	0.102
O	F1	0 - 8	0.40	0.031	0.23	0.015
		0 - 30	0.40	0.210	na	na
N	F4	0 - 30	0.27	0.012	na	na
M		0 - 30	0.09	0.004	0.11	0.008
F	C111	0 - 12	0.17	0.018	0.35	0.035
		12 - 24	0.17	0.015	1.71	0.131
E	-	0 - 9	0.19	0.020	na	na
		9 - 12	0.03	0.004	na	na