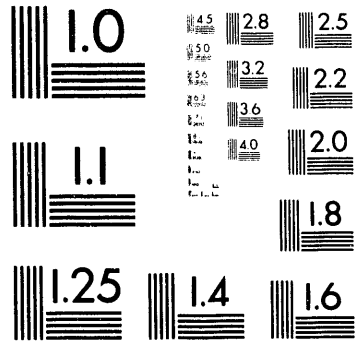
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An Investigation of the Impact of Inorganic Air Pollutants on Soils in Saguaro National Monument, Tucson, Arizona

Ernest S. Gladney
Roger W. Ferenbaugh
Kenneth W. Stolte*
Daniel M. Duriscoe**

*USDA Forest Service.
**USDI National Park Service.

Los Alamos
NATIONAL LABORATORY
Los Alamos, New Mexico 87545

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AN INVESTIGATION OF THE IMPACT OF INORGANIC AIR POLLUTANTS ON SOILS IN SAGUARO NATIONAL MONUMENT, TUCSON, ARIZONA

by

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ABSTRACT

Environmental data related to the evaluation of inorganic air pollution input to the Saguaro National Monument ecosystem were collected over four years. The data specific to soils are presented in this document. The enrichment factor approach is employed to provide a framework for simplified interpretation of this large collection of data.

INTRODUCTION

Under the Clean Air Act, Federal Land Managers, including the National Park Service (NPS), have direct responsibility for managing certain designated federal lands to actively protect their "air quality related values" [Section 165(d)(2)]. The NPS Air Quality Division is concerned about the potential impact of trace element emissions from various sources on resources of national parks and monuments throughout the Southwest.

Saguaro National Monument (SAGU) was created by Executive Proclamation in 1933, in response to concerns for preservation of stands of saguaro cacti in the vicinity of Tucson, Arizona. Nearly 45 years passed before settlement of boundary disputes and acquisition of land resulted in the establishment of the final boundaries shown in Fig. 1 (1). In the meantime, in the early 1940s, observations were made that older saguaro cacti in the Monument were dying and, furthermore, that reestablishment of saguaro seedlings was not occurring.

After the original observation in 1940 that saguaro cacti were dying, the so-called "saguaro decline" was initially attributed to bacterial infection. During the winter of 1941-1942, large numbers of presumably diseased cacti were removed and buried in an effort to stop the spread of the alleged infection (1). Subsequently, references to saguaro decline dating as far back as 1896 were discovered, and the prevailing viewpoint of the condition changed to regard it as a naturally-occurring cyclical fluctuation resulting from general overmaturity of the saguaro population.

With this change in viewpoint, the concern with respect to the declining saguaro population broadened to include failure of seedling reestablishment as well as death of older individuals. Various factors investigated as potential influences on seedling reestablishment included cattle grazing (1), nutritional deficiencies, and changes in other edaphic factors (2).

Although some effects on saguaro populations and seedling reestablishment could be linked to climatic conditions and cattle grazing, no satisfactory overall explanation of the continuing saguaro decline has been forthcoming. Studies of saguaro populations in other locations indicate that some populations are flourishing (3), reinforcing the conclusion that the decline of the population at SAGU is somewhat of a local phenomenon. This continuing decline is, however, real, and it is documented in a series of photographs taken from the same vantage point in 1935, 1965, and 1985. The extreme thinning of the cactus forest is obvious and dramatic.

More recently, air pollution has become suspect as a potential causal factor in the continuing saguaro decline. Air pollution sources in the form of copper smelters throughout southern Arizona date back to the late 19th century. Although emissions from copper smelters have fluctuated with economic conditions, the Tucson metropolitan area represents a continuously-growing source of urban air pollution. The combined emissions from these sources include particulate matter containing metals and other inorganic compounds, sulfur dioxide, and a variety of organic compounds. Aircraft application of agricultural chemicals in the vicinity of Tucson represents another airborne source of potentially toxic organic compounds.

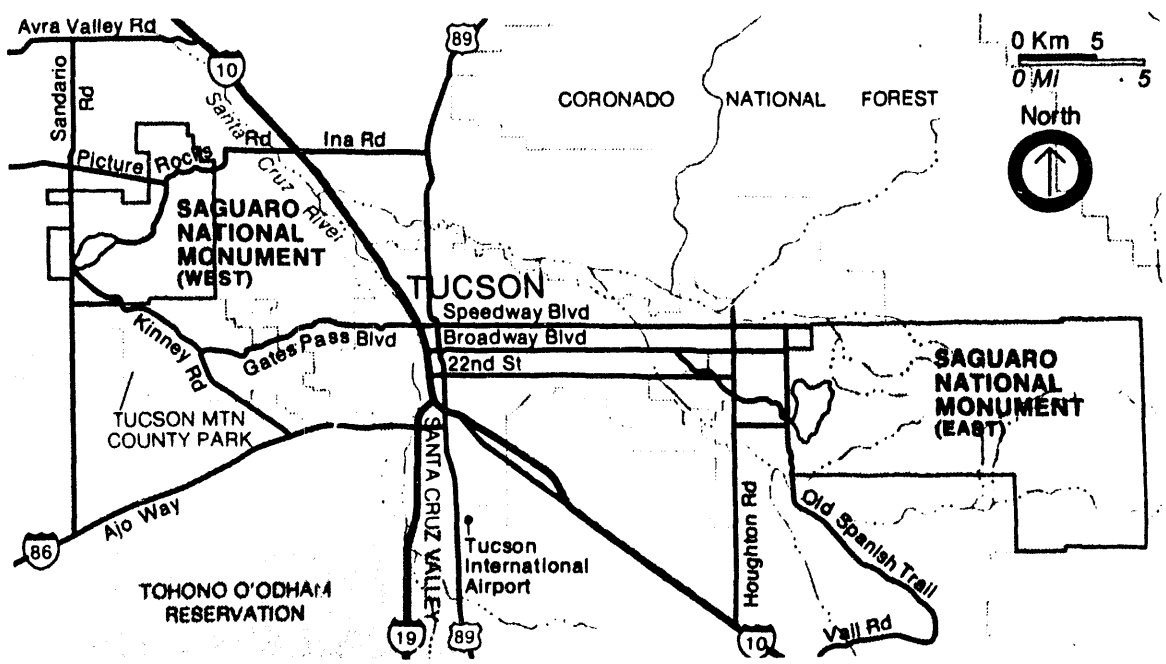

Figure 1. Saguaro National Monument, Arizona.

Another change in the biological resource of the Monument has been recently documented. Graybill and Rose (4), at the Laboratory of Tree Ring Research at the University of Arizona, have observed extreme growth declines in number of individuals in the Ponderosa and White Pine populations above 6500 feet elevation in the Rincon Mountain District while conducting a long-range study of growth trends in pines, in Arizona. Air pollution is suspected as possibly playing a major role. Stolte (5) established a number of control plots in the same areas to monitor ozone injury to vegetation.

In 1987, a preliminary survey of soils and selected vegetation was undertaken at SAGU under the auspices of an Interagency Agreement between the NPS and the Los Alamos National Laboratory (LANL). The purpose of this survey was an attempt to identify chemical profiles that might indicate air pollution impact upon the Monument. These efforts were expanded in subsequent years, with the last sampling taking place in early 1990. An overview of sampling site locations is shown in Fig. 2 and the detailed locations are given in Appendix A. Samples of soil were collected inside and outside the Monument (including soil at several distances from a nearby smelter), from within the drip line at the base of four species of trees in the Catalina and Rincon Mountains along the northern and eastern boundaries of the Rincon Mountain District (RMD) of

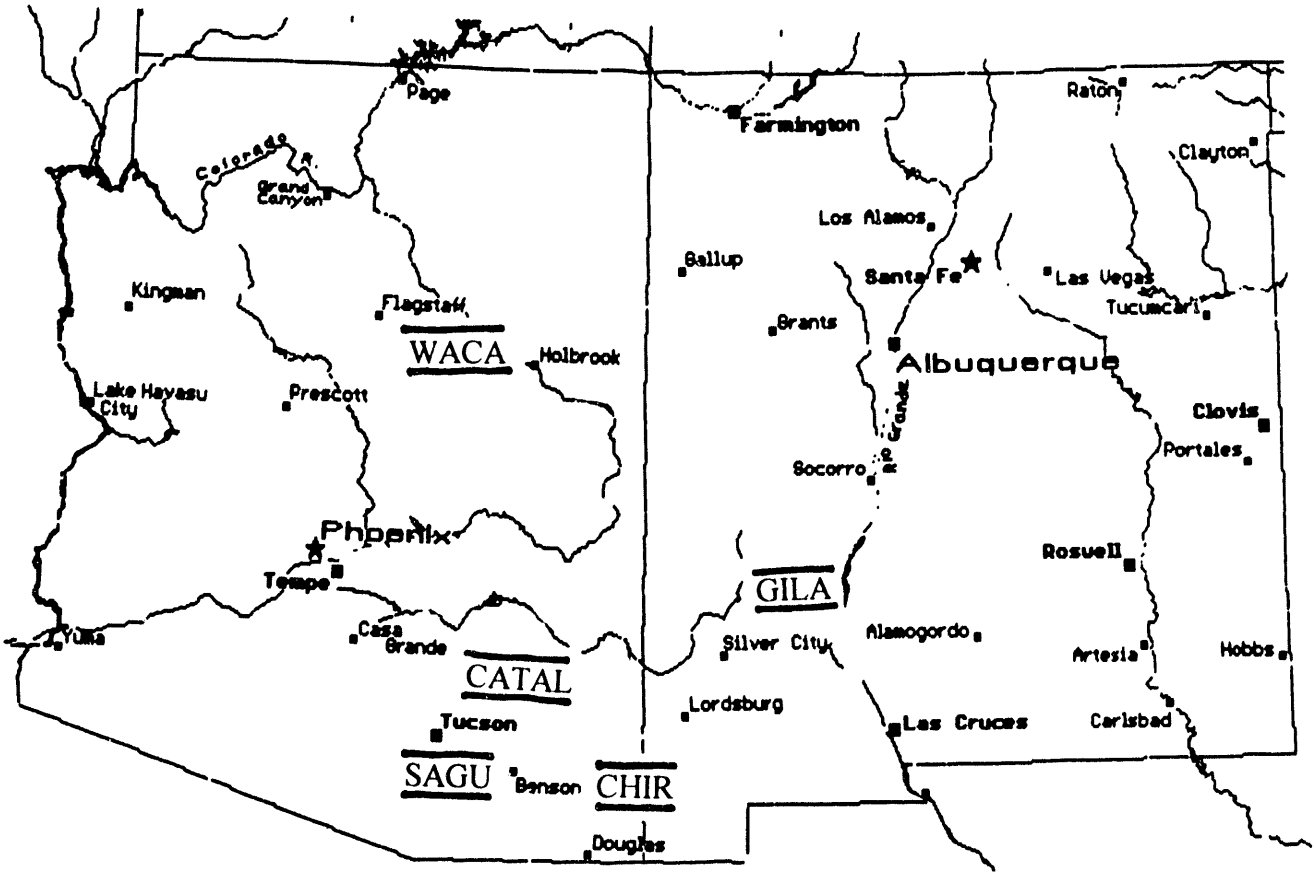

Figure 2. Overview of regional sampling sites.

SAGU, where tree growth decline is being observed, and from near the bases of numbers of both healthy and browned saguaro cacti. Only trees that had been cored as part of the Graybill and Rose study (4) were selected for soil sampling at their bases. Regional control samples of soils were collected from Walnut Canyon and Chiricahua National Monuments in Arizona, and Gila Cliffs National Monument in New Mexico from within the drip line at the base of Ponderosa pines included in the Graybill and Rose study (4). This report presents the chemical composition data that have been collected on these soils.

METHODS

Surface soil samples (0-2 cm depth) were collected using sampling tools made of either polyethylene or Teflon. Deeper samples were taken using standard U.S. Forest Service soil coring tools made of stainless steel. The soil samples were collected in polyethylene bags and returned to Los Alamos for chemical analysis. Samples were air-dried for several days and then sieved through a standard 20-mesh brass screen to remove organic debris and larger rock fragments. The soils from the Tucson Mountain District (TMD) were further separated into four size fractions (20, 60, 100, and < 100 mesh) using stacked standard brass screens. The sieved samples were stored in polyethylene bottles prior to analysis.

To date, most elemental analysis has been conducted via instrumental neutron activation analysis at the LANL Omega West Reactor by the authors and the staff of the reactor facility. These methods are described in detail in References 6 and 7. Up to 45 elements have been quantitatively determined. A small set of these samples has been analyzed for fluorine using ion selective electrode techniques. Carbonate carbon has been measured in some of the soils via acid-evolution gravimetry, and both bound and unbound water have been determined by coulometry in the same subset of soils. These methods are described in detail in Gautier and Gladney (8). All chemical analyses have been quality assured by concurrent analysis of National Institute of Standards and Technology (formerly National Bureau of Standards), U. S. Geological Survey, and Canadian Geological Survey reference materials according to our established policies (9). All quality control/quality assurance data are presented in Appendix B.

Two approaches have proven especially valuable in attempting to study the impact of atmospheric particulates on various air sheds: 1) source characterization of emissions focusing on the elemental composition as a function of particle size; and 2) the determination of enrichment factors (EF) of trace elements in particulates, vegetation, and soils to suggest elements which may show impact from atmospheric input. In general, one can divide atmospheric particulate sources into two categories: natural background and anthropogenic. Natural sources of particulates include continental weathering products (soils, rocks), marine aerosols, volcanic materials injected during eruptions, and meteoritic debris ablated during atmospheric entry (10-12). Anthropogenic sources may be large "point-sources" such as smelters, specialized industries (microelectronics), energy conversion facilities (electric generation, coal gasification, etc.), and waste incineration (13-15). They may also be widespread, diffuse sources such as internal combustion engines, agricultural operations, or aircraft (16).

Dilution of soil samples with varying amounts of organic matter may give the appearance of wide differences in elemental concentration. Similarly, changes in total atmospheric particulate loading can mask potential source patterns. These variations can be eliminated by dividing the absolute concentrations of elements of interest by that of a reference element that is abundant in the atmospheric aerosol, or common in the soils, or easily measured by the analytical method of choice with a high degree of precision and accuracy.

One can obtain even more useful information by performing a second normalization to the elemental abundance pattern that has been established for individual sources of airborne materials. Enrichment factors can be calculated using the following equation:

$$EF = \frac{[X]a/[R]a}{[X]c/[R]c}$$

where [X]a = concentration of element X in atmospheric aerosol or soil
[R]a = concentration of reference element R in atmospheric aerosol or soil
[X]c = concentration of element X in average crustal material, and
[R]c = concentration of reference element R in average crustal material.

The reference element for this calculation must be chosen with some care. It is important that the one chosen have only one source in the atmosphere or soil, be fairly abundant, and/or easily measured with high precision and accuracy. The usual reference elements are Si, Al, and Sc for the soils component; Na and Cl for the marine component; and Pb and Br for the automotive component. If neutron activation analysis is used as the analytical methodology, Si is eliminated since it is difficult to detect using this technique. More detailed discussion of the enrichment factor concept can be found in References 17-19.

Much suspended particulate matter is soil and rock dust injected by wind erosion. Relative concentrations of elements borne by such dust are probably the same as those of the major element used in the double normalization. Also, relative concentrations of many elements in several source materials are similar to those of crustal material. For example, the alumino-silicate portion of coal (ash) has a concentration pattern much like that of average crustal material. Thus, when an element has a large EF after the double normalization, one must look to special sources to find explanations for its anomalous concentration.

If the airborne or soil materials are primarily from the source from which the reference element is selected, the EF values should be close to unity. For elements that display EF values strongly in excess of 1, the implication is that there are one or more additional sources that contribute significantly to the concentration of those elements. We have chosen the EF range of 0.5 - 2.5 to

represent the "no impact" level. Since natural variability in soils can be quite high, one must be careful not to over interpret EF data near 1.0, but rather look for large deviations, preferably an order of magnitude or more.

RESULTS AND DISCUSSION

Over 825 soil samples from the various sites have been analyzed for up to 48 constituents. All individual concentration data are presented in Appendix C. The EF approach, detailed in Ref. 19, has been used in an attempt to summarize this mass of data for more incisive interpretation and eventual resource management use. All EFs were computed relative to Wedepohl's average elemental abundance in the earth's crust (20). Overall means and standard deviations of these EFs are presented in Table I as a function of sampling site and depth. While all elements were measured at all sites, certain constituents were consistently below our limits of detection and could not be used to calculate EFs. This is shown as "---" if all samples were below detection limits, and as a mean without a standard deviation where only one or two samples yielded EFs.

Several elements (Ag, As, Br, Ga, In, Pb, Sb, Se, V, and Zn) have become established as indicators of various types of sources for regional inorganic air pollution (19). Silver and Ga are often associated with waste incineration; As, Sb, Se, and V with electric power production; In with metal smelter emissions; and Br, Pb, and Zn with transportation. This list is worth keeping in mind during the following discussion on interpretation of the data gathered at SAGU.

Our soil data in Table I can be broken down into roughly four groups for the purposes of this presentation: 1) elements which are so often at or below our limits of detection that no valid conclusions may be drawn; 2) elements which show depletions relative to Wedepohl's crustal abundances, with EFs consistently below 0.5; 3) those which exhibit EFs near 1.0 (0.5 - 2.5); and 4) constituents which have EFs greater than 2.5 for a significant number of sites. This last group should be examined for evidence of anthropogenic air pollution input to the SAGU ecosystem. The reason we have chosen the EF range of 0.5 - 2.5 to represent "no impact" for this approach is that natural variability in soils can be quite high. One must be careful not to over interpret EF data near 1.0, but instead be looking for large deviations, preferably an order of magnitude or more. Even elevated levels in soils may not be biologically available, and plants growing in these soils need to be analyzed in addition to the soils to provide complete pathway analysis.

The data in Table I indicate that Ag, I, In, and Se are candidates for the first group; i.e. uninterpretable because of limited data. There are some data for In and Se with above detection limit concentrations, and these will be discussed along with the other indicator elements, although any conclusions for these two elements have high levels of uncertainty. Several elements which fall into the second category (depleted) seldom exhibit this behavior elsewhere, in our experience. Calcium, Cl, Co, Mg, and sometimes Na and Sc show depletions over large areas of SAGU and in many of the background sites as well. Although this has no air pollution implication, it seems to represent an unanticipated regional characteristic of southwestern soils. This also provides a counter argument to the hypothesis that the saguaro cacti are suffering from elevated levels of

Table I. Summary of Enrichment Factors for Soils Collected at Saguaro National Monument, Catalina Mountains, Chiricahua National Monument, Walnut Canyon National Monument, and Gila Cliffs National Monument, 1987 - 1990

San Manuel Smelter

Site	Depth (in)	# Samples	Ag	As	Ba	Br	Ca	Ce	Cl
~ 0.5 Km	0	4	---	---	1.2 ± 0.2	---	1.1 ± 0.7	2.2 ± 0.4	0.2
	15	4	---	---	1.4 ± 0.3	---	0.6 ± 0.1	2.2 ± 0.2	0.2
~ 1 Km	0	2	---	---	1.4	---	1.5	1.4	0.4
	6	2	---	---	1.2	---	2.6	1.4	0.4
~ 2 Km	0	3	---	---	1.2 ± 0.1	---	0.5 ± 0.1	2.0 ± 0.1	0.4
	15	3	---	---	1.2 ± 0.1	---	0.5 ± 0.1	2.3 ± 0.6	0.4
~ 5 Km	0	3	---	---	1.1 ± 0.1	---	0.4 ± 0.1	1.3 ± 0.3	0.1
	15	3	---	---	1.2 ± 0.2	---	0.4 ± 0.1	2.0 ± 0.5	0.2

Saguaro National Monument

Site	Depth (in)	# Samples	Ag	As	Ba	Br	Ca	Ce	Cl
MPA-1	0	3	---	---	1.3 ± 0.1	---	0.3 ± 0.1	2.1 ± 0.1	---
	15	3	---	---	1.3 ± 0.1	---	0.2	2.0 ± 0.2	---
MPA-2	0	3	---	---	1.1 ± 0.2	---	0.3 ± 0.1	2.4 ± 0.8	---
	15	3	---	---	1.2 ± 0.1	---	0.4 ± 0.1	1.7 ± 0.2	0.1
MPA-3	0	3	---	---	1.2 ± 0.2	---	0.4 ± 0.2	2.0 ± 0.2	0.2
	15	3	---	---	1.1 ± 0.2	---	0.3 ± 0.2	1.8 ± 0.4	0.2
Exclosure	0	11	---	---	1.0 ± 0.1	---	0.2 ± 0.1	1.4 ± 0.2	0.5 ± 0.3
	6	8	---	---	0.8 ± 0.1	---	0.2 ± 0.1	1.4 ± 0.2	0.3 ± 0.1
	12	8	---	---	0.8 ± 0.1	---	0.2 ± 0.1	1.4 ± 0.2	0.3 ± 0.1
Kiln Trail	0	19	---	---	1.2 ± 0.2	---	0.4 ± 0.2	2.0 ± 0.5	0.2 ± 0.1
KT 1-3	6	16	---	---	1.0 ± 0.2	---	0.4 ± 0.3	1.7 ± 0.3	0.3 ± 0.2
	12	4	---	---	1.1 ± 0.1	---	0.9 ± 0.4	2.0 ± 0.3	0.1
CP-5	0	14	105	2.2 ± 0.3	1.2 ± 0.1	1.0 ± 0.6	0.4 ± 0.2	1.9 ± 0.3	---
	6	14	---	2.5 ± 0.4	1.0 ± 0.1	2.2 ± 0.7	0.3 ± 0.1	1.6 ± 0.1	---
CP-9	0	18	---	1.6 ± 0.3	1.2 ± 0.1	0.9 ± 0.5	0.4 ± 0.1	2.5 ± 0.6	---
	6	18	---	2.0 ± 0.5	1.0 ± 0.1	2.6 ± 1.1	0.6 ± 0.5	1.8 ± 0.2	---
CP-10	0	18	---	2.5 ± 0.4	1.2 ± 0.4	1.0 ± 0.6	0.5 ± 0.3	1.8 ± 0.2	---
	6	18	---	3.5 ± 0.4	0.8 ± 0.1	5.6 ± 3.0	0.9 ± 0.8	1.3 ± 0.3	---
CP-15	0	18	---	2.7 ± 0.3	1.2 ± 0.2	1.5 ± 0.9	1.2 ± 1.3	1.6 ± 0.2	---
	6	19	23	3.4 ± 0.5	1.0 ± 0.2	4.8 ± 1.6	1.1 ± 1.0	1.3 ± 0.2	---
CP-17	0	18	---	2.7 ± 0.3	1.0 ± 0.2	0.8 ± 0.5	0.3 ± 0.1	1.7 ± 0.5	---
	6	18	---	3.0 ± 0.6	0.7 ± 0.2	3.1 ± 1.2	0.3 ± 0.2	1.2 ± 0.3	---
Limestone KT-1		4	---	---	1.7 ± 0.8	---	340 ± 130	1.9 ± 1.3	0.9
Slag KT-1		3	---	---	1.1 ± 0.1	---	0.9 ± 0.1	1.2 ± 0.1	0.1
TMD 1-5	0	7	---	2.3 ± 0.8	1.0 ± 0.2	---	0.3 ± 0.1	1.5 ± 0.1	0.3 ± 0.1
	6	7	---	2.0	0.9 ± 0.2	1.3	0.3 ± 0.1	1.4	0.3 ± 0.1
TMD 6-7	0	4	---	2.6 ± 0.8	1.2 ± 0.2	0.5	0.3 ± 0.1	1.5 ± 0.3	0.4
	6	2	---	3.2 ± 0.8	1.0 ± 0.1	0.8 ± 0.2	0.3 ± 0.1	1.6 ± 0.3	0.4
ISP	0	10	---	---	0.8 ± 0.2	---	0.4 ± 0.1	0.8 ± 0.2	0.4 ± 0.2
	6	10	---	---	0.8 ± 0.4	---	0.4 ± 0.1	0.8 ± 0.4	0.4 ± 0.5
NSP	0	18	---	---	1.0 ± 0.5	---	0.6 ± 0.5	0.8 ± 0.2	3 ± 3
	6	18	---	---	0.6 ± 0.1	---	0.3 ± 0.1	0.9 ± 0.2	0.4 ± 0.2
	12	5	---	---	0.4 ± 0.1	---	0.3 ± 0.1	0.8 ± 0.1	0.4

Regional Background

Site	Depth (in)	# Samples	Ag	As	Ba	Br	Ca	Ce	Cl
CATAL	0	3	---	---	1.0 ± 0.6	---	0.6 ± 0.6	0.5 ± 0.3	2.0
	6	3	---	---	0.5 ± 0.2	---	0.3 ± 0.1	0.3 ± 0.1	0.3
	12	3	---	---	0.5 ± 0.2	---	0.2 ± 0.1	0.3 ± 0.1	0.2 ± 0.2
CHIR	0	15	---	---	0.8 ± 0.4	---	0.4 ± 0.3	1.4 ± 0.3	0.4 ± 0.2
	6	15	---	---	0.6 ± 0.2	---	0.2 ± 0.1	1.7 ± 0.4	0.4 ± 0.2
WACA	0	6	---	---	1.3 ± 0.2	---	0.8 ± 0.1	1.2 ± 0.1	0.4 ± 0.2
	6	6	---	---	1.0 ± 0.1	---	0.4 ± 0.1	1.1 ± 0.1	0.2 ± 0.1
GILA	0	6	---	---	1.0 ± 0.2	---	0.4 ± 0.2	1.4 ± 0.2	0.6 ± 0.2
	6	6	---	---	1.2 ± 0.2	---	0.4 ± 0.2	1.5 ± 0.3	0.2 ± 0.1

Table I. Summary of Enrichment Factors for Soils Collected at Saguaro National Monument, Catalina Mountains, Chiricahua National Monument, Walnut Canyon National Monument, and Gila Cliffs National Monument, 1987 - 1990 (cont.)

San Manuel Smelter

Site	Depth (in)	# Samples	Co	Cr	Cs	Dy	Eu	Fe	F
~ 0.5 Km	0	4	2.0 ± 0.2	1.5 ± 0.2	4.2 ± 0.3	2.6 ± 0.4	1.8 ± 0.1	5.3 ± 0.8	---
	15	4	2.2 ± 0.6	1.6 ± 0.2	4.9 ± 0.2	3.0 ± 0.4	1.9 ± 0.4	6.7 ± 1.6	---
~ 1 Km	0	2	1.7	1.0	3.6	1.6	1.4	2.6	---
	6	2	1.8	1.0	3.7	2.2	1.5	2.5	---
~ 2 Km	0	3	1.7 ± 0.2	1.1 ± 0.1	4.3 ± 0.1	2.0	1.7 ± 0.1	3.8 ± 0.2	---
	15	3	1.6 ± 0.2	0.9 ± 0.1	4.5 ± 0.3	2.5 ± 0.6	1.7 ± 0.1	3.5 ± 0.4	---
~ 5 Km	0	3	1.1 ± 0.2	0.9 ± 0.4	3.6 ± 0.4	1.3 ± 0.4	1.5 ± 0.3	2.3 ± 1.0	---
	15	3	1.7 ± 0.1	1.2 ± 0.1	4.3 ± 0.2	1.9 ± 0.4	1.6 ± 0.1	3.2 ± 0.4	---

Saguaro National Monument

Site	Depth (in)	# Samples	Co	Cr	Cs	Dy	Eu	Fe	F
MPA-1	0	3	0.6 ± 0.1	0.7 ± 0.2	2.7 ± 0.1	3.4 ± 0.6	1.6 ± 0.1	1.3 ± 0.3	---
	15	3	0.7 ± 0.1	0.7 ± 0.1	3.3 ± 0.2	2.7 ± 0.2	1.3 ± 0.1	1.2 ± 0.1	---
MPA-2	0	3	0.6 ± 0.1	0.6 ± 0.2	2.4 ± 0.2	2.7 ± 1.3	1.7 ± 0.5	1.2 ± 0.8	---
	15	3	0.5 ± 0.1	0.5 ± 0.1	3.1 ± 0.2	2.0 ± 0.7	1.3 ± 0.1	0.9 ± 0.1	---
MPA-3	0	3	0.6 ± 0.1	0.5 ± 0.1	2.8 ± 0.3	2.0	1.6 ± 0.2	1.0 ± 0.1	---
	15	3	0.6 ± 0.1	0.5 ± 0.1	3.4 ± 0.7	1.7 ± 0.4	1.4 ± 0.4	0.9 ± 0.1	---
Exclosure	0	11	1.0 ± 0.2	0.8 ± 0.1	8.3 ± 1.3	1.2 ± 0.1	1.0 ± 0.1	1.0 ± 0.2	0.6
	6	8	1.2 ± 0.1	0.7 ± 0.1	9.6 ± 0.9	1.2 ± 0.2	1.1 ± 0.1	1.0 ± 0.1	0.9
	12	8	1.2 ± 0.2	0.7 ± 0.1	9.3 ± 1.4	1.2 ± 0.3	1.0 ± 0.1	1.0 ± 0.1	0.4
Kiln Trail	0	19	0.6 ± 0.2	0.6 ± 0.1	5 ± 5	2.1 ± 0.6	1.4 ± 0.3	0.8 ± 0.2	0.5 ± 0.2
KT 1-3	6	16	0.7 ± 0.1	0.6 ± 0.1	8 ± 9	1.7 ± 0.4	1.3 ± 0.2	0.8 ± 0.1	0.6 ± 0.1
	12	4	0.7 ± 0.1	0.6 ± 0.1	7 ± 3	1.8 ± 0.1	1.4 ± 0.1	0.8 ± 0.1	0.6
CP-5	0	14	0.5 ± 0.1	0.5 ± 0.1	2.4 ± 0.3	2.8 ± 0.4	1.3 ± 0.2	1.0 ± 0.2	---
	6	14	0.7 ± 0.1	0.7 ± 0.1	2.9 ± 0.4	2.1 ± 0.2	1.2 ± 0.1	0.9 ± 0.1	---
CP-9	0	18	0.5 ± 0.1	0.4 ± 0.1	1.9 ± 1.0	3.0 ± 0.8	1.7 ± 0.3	0.9 ± 0.2	---
	6	18	0.6 ± 0.1	0.6 ± 0.1	2.4 ± 1.2	2.1 ± 0.3	1.4 ± 0.2	0.9 ± 0.1	---
CP-10	0	18	0.6 ± 0.1	0.6 ± 0.1	2.5 ± 0.3	2.6 ± 0.5	1.3 ± 0.2	1.1 ± 0.2	---
	6	18	0.7 ± 0.1	0.6 ± 0.1	2.9 ± 0.3	1.6 ± 0.4	1.1 ± 0.2	0.9 ± 0.1	---
CP-15	0	18	0.6 ± 0.1	0.6 ± 0.1	3.2 ± 0.6	1.9 ± 0.4	1.2 ± 0.2	1.1 ± 0.2	---
	6	19	0.8 ± 0.1	0.6 ± 0.1	3.5 ± 0.8	1.5 ± 0.2	1.1 ± 0.1	1.0 ± 0.1	---
CP-17	0	18	0.6 ± 0.1	0.5 ± 0.1	6.8 ± 4.9	2.0 ± 0.6	1.3 ± 0.3	1.0 ± 0.2	---
	6	18	0.6 ± 0.1	0.6 ± 0.2	7.1 ± 5.6	1.5 ± 0.4	1.0 ± 0.2	0.8 ± 0.2	---
Limestone KT-1		4	0.7 ± 0.3	5 ± 3	1.4 ± 0.9	---	1.7 ± 1.1	1.1 ± 0.9	3.0
Slag KT-1		3	0.7 ± 0.1	0.6 ± 0.1	4.6 ± 0.3	1.2	1.1 ± 0.1	0.8 ± 0.1	0.1
TMD 1-5	0	7	0.4 ± 0.2	0.3 ± 0.2	2.3 ± 0.3	0.7 ± 0.3	0.7 ± 0.2	0.6 ± 0.2	---
	6	7	0.4	0.3	2.3	0.9 ± 0.3	0.8 ± 0.2	0.6	---
TMD 6-7	0	4	0.5 ± 0.1	0.4 ± 0.2	2.0 ± 0.2	0.8 ± 0.3	0.8 ± 0.1	1.1 ± 0.4	---
	6	4	0.6 ± 0.2	0.5 ± 0.2	2.3 ± 0.2	0.9 ± 0.3	0.8 ± 0.2	1.3 ± 0.6	---
TSP	0	10	0.4 ± 0.2	2.3 ± 2.0	1.9 ± 0.6	1.0 ± 0.4	0.6 ± 0.1	0.5 ± 0.2	0.5
	6	10	0.4 ± 0.2	0.4 ± 0.2	1.8 ± 0.6	1.9 ± 0.8	0.6 ± 0.2	0.5 ± 0.2	0.4
NSP	0	18	---	2.9 ± 1.7	2.4 ± 1.0	1.2 ± 0.2	0.6 ± 0.2	0.6 ± 0.2	0.8
	6	18	0.3 ± 0.1	0.3 ± 0.1	1.5 ± 0.4	1.5 ± 0.5	0.6 ± 0.1	0.4 ± 0.1	0.8 ± 0.6
	12	5	0.2 ± 0.1	0.2 ± 0.1	1.0 ± 0.1	1.0 ± 0.3	0.5 ± 0.1	0.4 ± 0.1	---

Regional Background

Site	Depth (in)	# Samples	Co	Cr	Cs	Dy	Eu	Fe	F
CATAL	0	3	1.3	2.2 ± 1.9	1.6 ± 0.8	0.4	0.3 ± 0.1	0.5 ± 0.2	0.7
	6	3	0.2 ± 0.1	0.2 ± 0.1	0.8 ± 0.2	0.4 ± 0.2	0.2 ± 0.1	0.3 ± 0.1	0.7
	12	3	0.2	0.2 ± 0.1	0.8 ± 0.2	0.7	0.2 ± 0.1	0.3 ± 0.1	0.9
CHIR	0	15	0.3 ± 0.2	0.7 ± 0.6	3.0 ± 0.6	1.2 ± 0.4	0.5 ± 0.2	0.6 ± 0.1	0.3
	6	15	0.3 ± 0.1	0.3 ± 0.1	3.1 ± 0.4	1.5 ± 0.5	0.4 ± 0.1	0.6 ± 0.1	0.6
WACA	0	6	2.3 ± 0.4	2.1 ± 0.3	2.7 ± 0.2	0.9 ± 0.2	1.3 ± 0.2	1.5 ± 0.1	0.6
	6	6	2.0 ± 0.2	1.7 ± 0.3	3.1 ± 0.3	0.8 ± 0.1	1.2 ± 0.1	1.4 ± 0.1	0.6
GILA	0	6	0.7 ± 0.1	0.7 ± 0.2	1.6 ± 0.3	1.9 ± 0.4	0.8 ± 0.1	0.8 ± 0.1	0.4
	6	6	0.6 ± 0.1	0.7 ± 0.1	1.7 ± 0.1	2.3 ± 0.9	0.8 ± 0.1	0.8 ± 0.1	0.6

Table 1. Summary of Enrichment Factors for Soils Collected at Saguaro National Monument, Catalina Mountains, Chiricahua National Monument, Walnut Canyon National Monument, and Gila Cliffs National Monument, 1987 - 1990 (cont.)

San Manuel Smelter

Site	Depth (in)	# Samples	Ga	Hf	I	In	K	La	Lu
- 0.5 Km	0	4	---	9.8 ± 0.8	---	13 ± 8	1.3 ± 0.2	---	---
	15	4	---	12 ± 3	---	---	1.2 ± 0.2	---	---
- 1 Km	0	2	---	7.6	---	9.3	1.2	---	---
	6	2	4.5	7.8	---	---	1.1	---	---
- 2 Km	0	3	---	13 ± 1	---	6.0	1.3 ± 0.1	---	---
	15	3	---	11 ± 3	---	---	1.1 ± 0.1	---	---
- 5 Km	0	3	---	6 ± 2	---	6.2	1.3 ± 0.1	---	---
	15	3	---	8.5 ± 0.3	---	---	1.2 ± 0.1	---	---

Saguaro National Monument

Site	Depth (in)	# Samples	Ga	Hf	I	In	K	La	Lu
MPA-1	0	3	---	8.3 ± 1.5	---	---	1.3 ± 0.1	---	---
	15	3	---	6.3 ± 0.2	---	---	1.1 ± 0.1	---	---
MPA-2	0	3	---	3.6	---	---	1.2 ± 0.2	---	---
	15	3	---	3.7 ± 0.6	---	---	1.0 ± 0.1	---	---
MPA-3	0	3	---	5.2 ± 1.1	---	---	1.2 ± 0.1	---	---
	15	3	---	3.9 ± 0.5	---	---	0.9 ± 0.1	---	---
Exclosure	0	11	---	2.9 ± 0.5	---	---	1.1 ± 0.1	---	---
	6	8	---	2.2 ± 0.4	---	1.9	0.9 ± 0.1	---	---
	12	8	---	2.0 ± 0.3	---	---	0.9 ± 0.1	---	---
Kiln Trail	0	19	---	5.2 ± 1.6	---	---	1.1 ± 0.1	---	---
KT 1-3	6	16	---	3.4 ± 0.8	---	1.6	1.0 ± 0.1	---	---
	12	4	---	3.5 ± 0.3	---	---	1.1 ± 0.1	---	---
CP-5	0	14	1.0	6.4 ± 1.4	---	---	1.3 ± 0.1	1.6 ± 0.2	3.5 ± 0.7
	6	14	1.0 ± 0.2	4.4 ± 0.6	---	1.1	1.1 ± 0.1	1.3 ± 0.1	2.6 ± 0.3
CP-9	0	18	1.1 ± 0.1	6.3 ± 1.8	---	---	1.2 ± 0.1	2.1 ± 0.4	3.1 ± 0.8
	6	18	1.1 ± 0.3	3.7 ± 0.6	36	---	1.0 ± 0.1	1.5 ± 0.2	2.0 ± 0.4
CP-10	0	18	1.1 ± 0.2	5.9 ± 1.2	---	1.7	1.2 ± 0.1	1.5 ± 0.2	3.2 ± 0.8
	6	18	1.0 ± 0.2	3.3 ± 1.0	25 ± 14	1.6	0.9 ± 0.1	1.2 ± 0.2	1.8 ± 0.5
CP-15	0	18	1.0 ± 0.2	5.0 ± 1.0	---	---	1.1 ± 0.1	1.3 ± 0.2	2.1 ± 0.6
	6	19	1.0 ± 0.3	3.4 ± 0.9	23 ± 9	1.6	1.0 ± 0.1	1.1 ± 0.1	1.6 ± 0.3
CP-17	0	18	1.0 ± 0.2	5.5 ± 2.0	---	---	1.2 ± 0.1	1.4 ± 0.5	2.3 ± 0.6
	6	18	1.1 ± 0.2	2.6 ± 0.7	26 ± 12	1.4	1.0 ± 0.2	1.0 ± 0.3	1.7 ± 0.6
Limestone KT-1		4	---	4.1 ± 1.3	---	---	---	---	---
Slag KT-1		3	---	2.6 ± 0.2	---	---	1.2 ± 0.2	---	---
TMD 1-5	0	7	1.1	3.4 ± 2.0	---	---	1.0 ± 0.1	1.4 ± 0.1	0.8 ± 0.3
	6	7	1.2	3.7	---	---	1.0 ± 0.1	1.3	0.8
TMD 6-7	0	4	1.2 ± 0.5	3.5 ± 1.5	---	---	1.2 ± 0.1	1.5 ± 0.2	0.9 ± 0.2
	6	4	1.0 ± 0.2	3.8 ± 2.1	---	---	1.1 ± 0.1	1.6 ± 0.3	1.0 ± 0.3
TSP	0	10	---	1.8 ± 0.6	---	---	1.0 ± 0.3	---	---
	6	10	---	2.0 ± 0.8	---	---	0.8 ± 0.2	---	---
NSP	0	18	---	3.6 ± 2.3	---	5.7	1.2 ± 0.2	---	---
	6	18	---	1.9 ± 0.5	---	---	0.9 ± 0.1	---	---
	12	5	---	1.5 ± 0.3	---	---	0.9 ± 0.1	---	---

Regional Background

Site	Depth (in)	# Samples	Ga	Hf	I	In	K	La	Lu
CATAL	0	3	---	1.3 ± 0.7	---	---	0.9 ± 0.2	---	---
	6	3	---	0.8 ± 0.1	---	---	0.8 ± 0.1	---	---
	12	3	---	0.7 ± 0.1	---	---	0.8 ± 0.1	---	---
CHIR	0	15	---	4.6 ± 1.1	---	---	1.4 ± 0.2	---	---
	6	15	6.6	4.7 ± 0.6	---	3.2	1.4 ± 0.2	---	---
WACA	0	6	---	4.4 ± 0.6	---	---	0.8 ± 0.1	---	---
	6	6	4.1	3.5 ± 0.8	---	---	0.6 ± 0.1	---	---
GILA	0	6	---	4.0 ± 0.5	---	---	1.3 ± 0.1	---	---
	6	6	3.6	4.2 ± 0.4	---	---	1.4 ± 0.1	---	---

Table I. Summary of Enrichment Factors for Soils Collected at Saguaro National Monument, Catalina Mountains, Chiricahua National Monument, Walnut Canyon National Monument, and Gila Cliffs National Monument, 1987 - 1990 (cont.)

San Manuel Smelter

Site	Depth (in)	# Samples	Mg	Mn	Na	Nd	Rb	Sb	Sc
~ 0.5 Km	0	4	0.7	4.6 ± 1.4	0.7 ± 0.2	---	2.2 ± 0.3	34 ± 14	1.8 ± 0.2
	15	4	0.7	5.6 ± 1.1	0.7 ± 0.1	---	1.9 ± 0.1	14 ± 4	2.3 ± 0.5
~ 1 Km	0	2	0.8	2.2	0.6	---	1.4	36	1.2
	6	2	0.9	2.0	0.5	---	1.2	13	1.0
~ 2 Km	0	3	0.6	3.3 ± 0.4	0.8 ± 0.1	---	2.1 ± 0.2	22 ± 4	1.6 ± 0.1
	15	3	0.4	3.7 ± 0.4	0.7 ± 0.1	---	1.7 ± 0.2	10.5 ± 0.3	1.6 ± 0.2
~ 5 Km	0	3	0.4	2.4	0.7 ± 0.1	---	2.0 ± 0.3	20 ± 7	1.1 ± 0.3
	15	3	0.5	2.5 ± 0.4	0.6 ± 0.1	---	1.6 ± 0.1	13.9 ± 1.3	1.4 ± 0.1

Saguaro National Monument

Site	Depth (in)	# Samples	Mg	Mn	Na	Nd	Rb	Sb	Sc
MPA-1	0	3	---	1.6 ± 0.2	0.7 ± 0.1	---	1.7 ± 0.1	9.5 ± 0.4	0.7 ± 0.1
	15	3	0.4	1.7 ± 0.2	0.5 ± 0.1	---	1.3 ± 0.1	8.0 ± 1.7	0.8 ± 0.1
MPA-2	0	3	0.4	1.3 ± 0.6	0.8 ± 0.1	---	1.5 ± 0.2	6.3 ± 1.1	0.8 ± 0.1
	15	3	0.4	1.0 ± 0.2	0.7 ± 0.2	---	1.1 ± 0.1	7.4 ± 1.9	0.7 ± 0.1
MPA-3	0	3	0.4	1.2 ± 0.2	0.7 ± 0.1	---	1.4 ± 0.1	4.9 ± 1.7	0.7 ± 0.1
	15	3	0.4 ± 0.1	1.1 ± 0.3	0.5 ± 0.2	---	1.1 ± 0.1	4.3 ± 1.3	0.7 ± 0.1
Exclosure	0	11	0.4 ± 0.1	0.9 ± 0.1	0.4 ± 0.1	---	1.6 ± 0.2	8.0 ± 1.1	0.8 ± 0.1
	6	8	0.5 ± 0.1	0.9 ± 0.1	0.3 ± 0.1	---	1.4 ± 0.2	6.3 ± 1.2	0.8 ± 0.1
	12	9	0.5 ± 0.1	0.9 ± 0.1	0.3 ± 0.1	---	1.4 ± 0.2	5.8 ± 1.2	0.8 ± 0.1
Kiln Trail	0	19	0.4 ± 0.1	1.1 ± 0.2	0.8 ± 0.2	---	1.2 ± 0.2	7.7 ± 2.9	0.7 ± 0.1
KT 1-3	6	16	0.5 ± 0.1	0.9 ± 0.2	0.5 ± 0.2	---	1.2 ± 0.1	6.7 ± 1.8	0.8 ± 0.1
	12	4	0.6 ± 0.1	1.0 ± 0.1	0.6 ± 0.1	---	1.2 ± 0.2	7.0 ± 1.8	0.8 ± 0.1
CP-5	0	14	0.3 ± 0.1	1.5 ± 0.2	0.7 ± 0.1	2.6 ± 0.6	1.3 ± 0.1	7.5 ± 0.7	0.6 ± 0.1
	6	14	0.3 ± 0.1	1.1 ± 0.1	0.6 ± 0.1	2.2 ± 0.2	1.3 ± 0.1	6.0 ± 0.7	0.7 ± 0.1
CP-9	0	18	0.3 ± 0.1	1.2 ± 0.2	0.8 ± 0.1	3.1 ± 0.9	1.2 ± 0.1	4.1 ± 2.0	0.7 ± 0.1
	6	18	0.3 ± 0.1	1.0 ± 0.1	0.6 ± 0.1	2.2 ± 0.6	1.1 ± 0.1	4.3 ± 2.1	0.7 ± 0.1
CP-10	0	18	0.4 ± 0.1	1.4 ± 0.2	0.6 ± 0.1	2.2 ± 0.5	1.3 ± 0.1	6.9 ± 0.7	0.7 ± 0.1
	6	18	0.4 ± 0.1	0.8 ± 0.2	0.4 ± 0.1	1.6 ± 0.4	1.1 ± 0.1	5.9 ± 1.0	0.7 ± 0.1
CP-15	0	18	0.5 ± 0.2	1.2 ± 0.2	0.6 ± 0.1	2.0 ± 0.5	1.3 ± 0.1	7.8 ± 1.0	0.7 ± 0.1
	6	19	0.4 ± 0.1	0.9 ± 0.1	0.5 ± 0.1	1.8 ± 0.5	1.2 ± 0.2	6.8 ± 1.2	0.7 ± 0.1
CP-17	0	18	0.3 ± 0.1	1.6 ± 0.3	0.8 ± 0.1	2.2 ± 0.7	1.9 ± 0.6	5.8 ± 0.9	0.7 ± 0.1
	6	18	0.3 ± 0.1	1.3 ± 0.5	0.6 ± 0.1	1.5 ± 0.6	1.7 ± 0.7	4.7 ± 1.6	0.7 ± 0.1
Limestone KT-1		4	0.6	1.9 ± 0.3	0.9 ± 0.2	---	1.5 ± 0.3	5.4 ± 2.2	4.8 ± 0.1
Slag K1-1		3	0.8 ± 0.1	1.0 ± 0.1	0.6 ± 0.1	---	1.2 ± 0.1	7.5 ± 0.9	0.7 ± 0.1
TMD 1-5	0	7	0.3 ± 0.1	0.5 ± 0.1	1.1 ± 0.4	1.4 ± 0.2	1.4 ± 0.1	5.8 ± 2.4	0.4 ± 0.2
	6	7	0.3 ± 0.1	0.6 ± 0.2	1.1 ± 0.2	1.6	1.3	5.6	0.4
TMD 6-7	0	4	0.3	0.6 ± 0.2	1.1 ± 0.2	1.7 ± 0.5	1.3 ± 0.2	6.6 ± 2.5	0.4 ± 0.2
	6	4	0.3 ± 0.1	0.7 ± 0.2	0.9 ± 0.2	1.9 ± 0.6	1.3 ± 0.1	6.7 ± 1.9	0.4 ± 0.2
TSP	0	10	0.6	1.9 ± 0.3	0.9 ± 0.2	---	1.5 ± 0.3	6.8 ± 2.7	0.6 ± 0.2
	6	10	0.6	2.4 ± 1.1	0.9 ± 0.3	---	1.2 ± 0.3	2.4 ± 0.7	0.6 ± 0.2
NSP	0	18	0.4	2.1 ± 1.1	0.7 ± 0.2	---	1.7 ± 0.2	12 ± 10	0.6 ± 0.1
	6	18	0.2 ± 0.1	1.2 ± 0.3	0.9 ± 0.1	---	1.4 ± 0.2	2.6 ± 0.9	0.7 ± 0.1
	12	5	---	1.0 ± 0.4	0.9 ± 0.1	---	1.3 ± 0.2	2.4 ± 1.0	0.7 ± 0.1

Regional Background

Site	Depth (in)	# Samples	Mg	Mn	Na	Nd	Rb	Sb	Sc
CATAL	0	3	---	3.0	1.0 ± 0.2	---	1.7 ± 0.4	9 ± 5	0.4 ± 0.2
	6	3	---	1.6 ± 0.8	1.2 ± 0.1	---	1.4 ± 0.1	2.5 ± 0.4	0.3 ± 0.1
	12	3	---	2.0 ± 0.2	1.2 ± 0.1	---	1.4 ± 0.1	1.8 ± 0.6	0.3 ± 0.1
CHIR	0	15	---	3.3 ± 2.1	0.9 ± 0.2	---	2.8 ± 0.6	8 ± 4	0.4 ± 0.1
	6	15	0.4 ± 0.1	1.1 ± 0.3	0.9 ± 0.2	---	3.4 ± 0.5	4.7 ± 1.8	0.3 ± 0.1
WACA	0	6	1.1 ± 0.2	1.4 ± 0.1	0.3 ± 0.1	---	1.0 ± 0.1	9 ± 3	1.2 ± 0.1
	6	6	0.9 ± 0.2	1.0 ± 0.1	0.2 ± 0.1	---	0.8 ± 0.2	5.5 ± 1.3	1.2 ± 0.1
GILA	0	6	0.6 ± 0.1	1.4 ± 0.2	0.8 ± 0.1	---	1.6 ± 0.3	5.0 ± 1.3	0.4 ± 0.1
	6	6	0.6 ± 0.1	1.3 ± 0.2	0.8 ± 0.1	---	1.5 ± 0.2	4.2 ± 1.1	0.5 ± 0.1

Table I. Summary of Enrichment Factors for Soils Collected at Saguaro National Monument, Catalina Mountains, Chiricahua National Monument, Walnut Canyon National Monument, and Gila Cliffs National Monument, 1987 - 1990 (cont.)

San Manuel Smelter

Site	Depth (in)	# Samples	Se	Si	Sm	Sr	Ta	Tb	Th
~ 0.5 Km	0	4	---	1.2 ± 0.1	2.4 ± 0.1	---	1.8 ± 0.4	---	3.2 ± 0.6
	15	4	---	1.2 ± 0.2	3.0 ± 0.7	---	2.8 ± 0.9	---	4.4 ± 2.2
~ 1 Km	0	2	---	1.2	1.3	---	0.9	1.0	2.2
	6	2	---	1.1	2.2	---	1.0	1.6	1.8
~ 2 Km	0	3	---	1.2 ± 0.1	2.1 ± 0.1	---	1.7 ± 0.2	---	3.7 ± 1.6
	15	3	---	1.2 ± 0.1	2.4 ± 0.3	---	1.7 ± 0.2	---	3.0 ± 0.1
~ 5 Km	0	3	---	1.3 ± 0.1	1.6 ± 0.4	---	1.1 ± 0.3	---	2.2 ± 1.5
	15	3	---	1.2 ± 0.1	2.0 ± 0.2	---	1.3 ± 0.4	---	2.1 ± 0.5

Saguaro National Monument

Site	Depth (in)	# Samples	Se	Si	Sm	Sr	Ta	Tb	Th
MPA-1	0	3	---	1.4 ± 0.1	2.4 ± 0.4	---	0.5 ± 0.2	---	2.9 ± 0.2
	15	3	---	1.1 ± 0.1	1.9 ± 0.3	---	1.3 ± 1.3	---	2.4 ± 0.3
MPA-2	0	3	---	1.2 ± 0.1	2.0 ± 0.7	1.0	0.4 ± 0.1	---	2.8 ± 1.0
	15	3	---	1.1 ± 0.1	1.8 ± 0.3	---	0.4	---	2.0 ± 0.3
MPA-3	0	3	---	1.2 ± 0.1	2.3 ± 0.2	---	0.4 ± 0.1	---	2.4 ± 0.4
	15	3	---	0.9 ± 0.1	2.1 ± 0.3	---	0.4 ± 0.1	---	2.0 ± 0.3
Exclosure	0	11	---	0.9 ± 0.1	1.2 ± 0.2	---	0.4 ± 0.1	0.7 ± 0.1	1.6 ± 0.2
	6	8	---	0.8 ± 0.1	1.3 ± 0.2	---	0.4 ± 0.1	0.7 ± 0.1	1.5 ± 0.2
	12	8	---	0.7 ± 0.1	1.2 ± 0.2	---	0.3 ± 0.1	0.7 ± 0.2	1.4 ± 0.2
Kiln Trail	0	19	---	1.1 ± 0.1	1.9 ± 0.5	2.1	0.4 ± 0.1	1.4 ± 0.5	2.3 ± 0.7
KT 1-3	6	16	---	0.9 ± 0.2	1.6 ± 0.2	---	0.3 ± 0.1	1.2 ± 0.2	1.9 ± 0.2
	12	4	---	1.0 ± 0.1	1.8 ± 0.3	---	0.3 ± 0.1	1.2 ± 0.1	1.9 ± 0.1
CP-5	0	[illegible]	9.8	---	2.1 ± 0.3	---	0.4 ± 0.1	1.6 ± 0.2	2.4 ± 0.4
	6	[illegible]	7.7	---	1.6 ± 0.1	---	0.4 ± 0.1	1.4 ± 0.1	2.0 ± 0.2
CP-9	0	18	---	---	2.7 ± 0.6	0.9	0.4 ± 0.1	2.0 ± 0.5	3.0 ± 0.8
	6	18	---	---	1.9 ± 0.3	1.0	0.3 ± 0.1	1.4 ± 0.2	2.1 ± 0.3
CP-10	0	18	---	---	1.9 ± 0.2	1.4	0.5 ± 0.1	1.6 ± 0.3	2.3 ± 0.3
	6	18	---	---	1.4 ± 0.3	---	0.3 ± 0.1	1.1 ± 0.2	1.7 ± 0.3
CP-15	0	18	---	---	1.6 ± 0.2	1.8 ± 1.0	0.5 ± 0.1	1.2 ± 0.3	1.9 ± 0.3
	6	19	---	---	1.4 ± 0.2	1.0 ± 0.3	0.4 ± 0.1	1.0 ± 0.2	1.7 ± 0.2
CP-17	0	18	8.8	---	1.8 ± 0.6	---	0.8 ± 0.3	1.3 ± 0.4	2.1 ± 0.7
	6	18	---	---	1.4 ± 0.4	---	0.6 ± 0.3	0.9 ± 0.2	1.5 ± 0.4
Limestone KT-1		4	0.1	---	1.1 ± 0.5	40 ± 40	0.6 ± 0.2	1.7 ± 0.7	0.8 ± 0.2
Slag KT-1		3	---	1.0 ± 0.1	1.2 ± 0.1	---	0.3 ± 0.1	0.9 ± 0.2	1.4 ± 0.1
TMD 1-5	0	7	7.3	---	1.0 ± 0.2	1.3 ± 0.3	0.6 ± 0.1	0.5 ± 0.2	2.9 ± 1.4
	6	7	---	---	0.9	1.1 ± 0.2	0.6	0.4	3.0
TMD 6-7	0	4	200	---	1.1 ± 0.3	0.7	0.6 ± 0.1	0.6 ± 0.2	3.4 ± 2.3
	6	4	280	---	1.1 ± 0.4	---	0.6 ± 0.2	0.6 ± 0.2	3.6 ± 1.8
TSP	0	10	---	1.0 ± 0.1	1.2 _ 0.5	---	1.0 ± 0.7	1.1 ± 0.5	1.1 ± 0.4
	6	10	---	0.9 ± 0.2	1.1 ± 0.5	---	0.5 ± 0.1	1.1 ± 0.4	1.0 ± 0.5
NSP	0	18	---	1.1 ± 0.3	0.8 ± 0.2	---	1.3 ± 0.8	---	1.1 ± 0.3
	6	18	---	0.8 ± 0.1	0.8 ± 0.2	---	0.4 ± 0.2	---	1.3 ± 0.3
	12	5	---	0.7 ± 0.1	0.8 ± 0.2	---	0.5 ± 0.2	---	1.2 ± 0.2

Regional Background

Site	Depth (in)	# Samples	Se	Si	Sm	Sr	Ta	Tb	Th
CATAL	0	3	---	1.0 ± 0.1	0.7 ± 0.4	---	0.9 ± 0.5	---	0.6 ± 0.3
	6	3	---	0.9 ± 0.1	0.4 ± 0.1	---	0.5 ± 0.1	---	0.4 ± 0.1
	12	3	---	0.9 ± 0.1	0.4 ± 0.1	---	0.5 ± 0.1	---	0.5 ± 0.1
CHIR	0	15	---	1.2 ± 0.2	1.5 ± 0.4	---	1.0 ± 0.2	---	2.4 ± 0.6
	6	15	---	1.3 ± 0.2	1.5 ± 0.4	---	1.1 ± 0.2	---	3.0 ± 0.4
WACA	0	6	---	1.3 ± 0.2	1.2 ± 0.1	1.8	0.5 ± 0.1	---	1.1 ± 0.1
	6	6	---	1.0 ± 0.1	1.2 ± 0.1	---	0.5 ± 0.1	---	1.0 ± 0.1
GILA	0	6	---	1.0 ± 0.1	1.9 ± 0.2	---	0.5 ± 0.1	---	1.6 ± 0.2
	6	6	---	1.1 ± 0.1	1.7 ± 0.2	1.7	0.5 ± 0.1	---	1.8 ± 0.1

Table I. Summary of Enrichment Factors for Soils Collected at Saguaro National Monument, Catalina Mountains, Chiricahua National Monument, Walnut Canyon National Monument, and Gila Cliffs National Monument, 1987 - 1990 (cont.)

San Manuel Smelter

Site	Depth (in)	# Samples	Ti	U	V	W	Yb	Zn	Zr
~ 0.5 Km	0	4	5.2 ± 1.6	1.7 ± 0.1	4.6 ± 1.1	---	3.2 ± 0.6	6.3 ± 2.7	---
	15	4	6.1 ± 1.6	2.5 ± 0.4	5.8 ± 1.4	---	4.0 ± 0.8	4.1 ± 1.1	---
~ 1 Km	0	2	2.8	1.3	2.0	---	2.0	5.2	---
	6	2	2.8	1.4	2.2	---	1.8	2.6	---
~ 2 Km	0	3	3.7 ± 0.6	1.7 ± 0.1	3.3 ± 0.2	---	3.0 ± 0.2	4.1 ± 0.3	---
	15	3	3.7 ± 0.3	1.5 ± 0.2	2.8 ± 0.2	---	2.9 ± 0.6	2.4 ± 0.2	---
~ 5 Km	0	3	3.4 ± 1.0	1.3 ± 0.3	2.2 ± 1.0	---	1.8 ± 0.6	2.2 ± 0.6	---
	15	3	4.0 ± 0.5	1.3 ± 0.2	2.7 ± 0.3	---	2.0 ± 0.1	2.4 ± 0.4	---

Saguaro National Monument

Site	Depth (in)	# Samples	Ti	U	V	W	Yb	Zn	Zr
MPA-1	0	3	1.2 ± 0.2	1.6 ± 0.2	0.9 ± 0.1	---	4.8 ± 1.0	1.4 ± 0.1	---
	15	3	1.1 ± 0.1	1.2 ± 0.2	0.7 ± 0.1	---	3.4 ± 0.2	1.4 ± 0.1	---
MPA-2	0	3	1.0 ± 0.5	1.2 ± 0.3	0.7 ± 0.3	---	2.0	1.3 ± 0.2	---
	15	3	0.8 ± 0.1	0.9 ± 0.1	0.6 ± 0.1	---	2.0 ± 0.7	1.3 ± 0.1	---
MPA-3	0	3	0.9 ± 0.1	1.3 ± 0.2	0.7 ± 0.1	---	2.5 ± 0.1	1.3 ± 0.1	---
	15	3	0.8 ± 0.2	0.9 ± 0.1	0.7 ± 0.1	---	1.9 ± 0.4	1.5 ± 0.1	---
Exclosure	0	11	0.8 ± 0.1	1.2 ± 0.1	0.7 ± 0.1	---	1.3 ± 0.2	1.6 ± 0.5	---
	6	8	0.7 ± 0.1	1.1 ± 0.2	0.7 ± 0.1	---	1.2 ± 0.2	1.4 ± 0.1	---
	12	8	0.6 ± 0.1	1.0 ± 0.1	0.6 ± 0.1	---	1.2 ± 0.2	1.4 ± 0.2	---
Kiln Trail	0	19	0.8 ± 0.2	1.4 ± 0.3	0.6 ± 0.1	---	2.2 ± 0.7	1.4 ± 0.2	---
KT 1-3	6	16	0.7 ± 0.1	1.1 ± 0.2	0.6 ± 0.1	---	1.8 ± 0.4	1.3 ± 0.2	---
	12	4	0.8 ± 0.1	1.2 ± 0.2	0.6 ± 0.1	---	1.6 ± 0.1	1.2 ± 0.1	---
CP-5	0	14	1.0 ± 0.1	1.4 ± 0.2	0.7 ± 0.1	2.4 ± 0.7	4.6 ± 0.7	1.0 ± 0.2	3.8 ± 0.8
	6	14	0.8 ± 0.1	1.0 ± 0.1	0.6 ± 0.1	2.1 ± 0.3	3.2 ± 0.4	1.1 ± 0.1	4.9 ± 0.9
CP-9	0	18	0.9 ± 0.2	1.4 ± 0.4	0.6 ± 0.1	2.1 ± 0.9	4.0 ± 1.1	1.0 ± 0.1	4.5 ± 1.4
	6	18	0.7 ± 0.1	1.0 ± 0.1	0.6 ± 0.1	2.0 ± 0.5	2.7 ± 0.6	1.1 ± 0.1	3.0 ± 0.8
CP-10	0	18	1.0 ± 0.1	1.3 ± 0.2	0.7 ± 0.1	2.2 ± 0.2	4.1 ± 1.0	1.2 ± 0.2	4.1 ± 1.0
	6	18	0.7 ± 0.1	0.9 ± 0.2	0.7 ± 0.1	2.1 ± 0.4	2.4 ± 0.7	1.1 ± 0.1	2.6 ± 1.1
CP-15	0	18	1.0 ± 0.1	1.2 ± 0.1	0.7 ± 0.1	2.4 ± 0.4	2.8 ± 0.7	1.2 ± 0.2	3.6 ± 0.9
	6	19	0.8 ± 0.1	1.0 ± 0.1	0.7 ± 0.1	2.3 ± 0.4	2.1 ± 0.3	1.1 ± 0.1	3.1 ± 1.2
CP-17	0	18	0.9 ± 0.2	1.4 ± 0.2	0.6 ± 0.2	2.8 ± 1.1	2.9 ± 0.8	1.1 ± 0.1	5.2 ± 2.0
	6	18	0.6 ± 0.1	1.0 ± 0.3	0.6 ± 0.1	2.8 ± 1.3	2.2 ± 0.8	1.0 ± 0.2	1.7 ± 0.6
TMD 1-5	0	7	0.6 ± 0.3	1.9 ± 0.8	0.5 ± 0.2	3.0 ± 0.8	---	0.8 ± 0.4	3.3 ± 0.4
	6	7	0.6 ± 0.2	2.7 ± 0.4	0.7 ± 0.4	3.2	---	0.8	3.8
TMD 6-7	0	4	0.6 ± 0.2	2.7 ± 0.6	0.7 ± 0.3	3.0 ± 0.5	---	0.8 ± 0.2	3.1 ± 2.2
	6	4	0.7 ± 0.2	2.8 ± 0.7	0.8 ± 0.4	3.0 ± 0.8	---	0.8 ± 0.2	2.9 ± 1.4
TSP	0	10	0.5 ± 0.2	1.2 ± 0.4	0.4 ± 0.2	---	2.2 ± 0.6	1.6 ± 0.5	---
	6	10	0.4 ± 0.2	1.2 ± 0.7	0.4 ± 0.2	---	2.9 ± 1.2	0.8 ± 0.2	---
NSP	0	18	0.6 ± 0.2	1.0 ± 0.2	0.4 ± 0.2	---	1.7 ± 0.5	3.1 ± 0.4	---
	6	18	0.4 ± 0.1	1.2 ± 0.4	0.3 ± 0.1	---	2.3 ± 0.4	1.2 ± 0.3	---
	12	5	0.3 ± 0.1	0.9 ± 0.1	0.2 ± 0.1	---	2.6 ± 0.9	1.7 ± 0.2	---

Regional Background

Site	Depth (in)	# Samples	Ti	U	V	W	Yb	Zn	Zr
CATAL	0	3	0.4 ± 0.2	0.7 ± 0.2	0.3 ± 0.2	---	0.8 ± 0.2	2.8 ± 2.1	---
	6	3	0.4	0.6 ± 0.1	0.1 ± 0.1	---	0.6 ± 0.2	0.8 ± 0.1	---
	12	3	0.2	0.6 ± 0.1	0.1	---	0.9 ± 0.2	0.8 ± 0.2	---
CHIR	0	15	0.7 ± 0.2	2.0 ± 0.4	0.4 ± 0.1	---	1.5 ± 0.3	2.2 ± 0.8	---
	6	15	0.6 ± 0.2	2.3 ± 0.3	0.3 ± 0.1	---	1.7 ± 0.3	1.6 ± 0.2	---
WACA	0	6	1.5 ± 0.2	0.9 ± 0.1	1.3 ± 0.1	---	1.1 ± 0.2	2.6 ± 1.0	---
	6	6	1.2 ± 0.1	0.8 ± 0.1	1.3 ± 0.1	---	0.9 ± 0.1	1.6 ± 0.2	---
GILA	0	6	0.9 ± 0.2	1.1 ± 0.2	0.6 ± 0.1	---	1.8 ± 0.3	1.8 ± 0.2	---
	6	6	1.0 ± 0.1	1.2 ± 0.1	0.7 ± 0.1	---	1.8 ± 0.4	1.5 ± 0.2	---

"salt" exposure, because these readily mobile elements seem to have been effectively leached from the soils studied. The third group (within normal natural ranges) has the largest membership: Ba, Br, Ce, Cr, Dy, Eu, Fe, F, Ga, K, La, Lu, Mn, Na, Nd, Rb, Sc, Si, Sm, Sr, Ta, Tb, Ti, U, V, Yb, and Zn. We have discovered little, if any, evidence that their concentrations in SAGU soils are being affected by any anthropogenic source.

The fourth group, those with EFs consistently in excess of 2.5, contain some unusual members. We place As, Cs, Hf, In, Sb, Se, Th, W, and Zr in this group; they require further scrutiny concerning possible non-natural sources for their elevated levels (relative to Wedepohl's crustal average) observed in many or most samples taken during this study. Concentrations of these elements (except Cs, In, and Se) on the Tucson Mountain District samples that were separated into four particle-size groups also exhibited marked preference for the smallest size fraction of soil particles. This latter phenomenon suggests that the enrichment of six of these elements may be related, although Hf, Th, W, and Zr are rarely found in excess concentrations in air-borne emissions (except for some municipal incinerator air particulates in the Eastern US, Ref. 21). These four elements are associated and enriched in naturally-occurring zircons and zeolites. These minerals are highly resistant to chemical weathering and may be ground to fine particles that are retained for extended time periods in this ecosystem. This is in concert with their system-wide higher EFs. We have no explanation for the unusually high EFs observed for Cs in the San Manuel Canyon and SAGU Cactus Forest. Ordinarily, this element has no air pollution input or implications.

Indium, Sb, and Zn are significantly enriched in the smelter canyon, in the SAGU soils from the RMD unit, and in many of the regional "background" sites. These elements are more strongly enriched in the surface soils of the smelter canyon, and are commonly associated with the roasting process for sulfide ore oxidation and metal recovery. There is evidence for regional impact for these elements, probably from the metal smelting industry in southern Arizona. Throughout the regional samples we examined, these elements are significantly more enriched in the surface soils relative to the subsurface soils, implying that air pollutant deposition can be a major source. Arsenic, another element commonly associated with copper ore reduction, does not yield such a clear-cut interpretation. The problem is largely due to arsenic concentrations being near our detection limits, thereby reducing our ability to make a meaningful regional assessment of its distribution. Arsenic is a well-known air pollutant arising from the metal smelting industry, and we suspect that it would show a similar distribution to Sb, were our analytical method more sensitive for this important element. Furthermore, before the widespread use of neutron activation analysis, Sb was often measured with relatively poor precision and accuracy in geological materials. The crustal abundance of this element merits recalculation.

SUMMARY AND MANAGEMENT IMPLICATIONS

Previous application of the EF approach to the air particulate data taken on the dichotomous sampler at the SAGU air monitoring station clearly indicates that certain elements (Mg, Na, Ca, Zn, Br, Pb, S, and Cu) are currently enriched on the fine fraction of air particulates coming into

the Monument (19). Similarly, several trace elements in the soil samples taken as part of this study also indicate anthropogenic impact, probably from dry deposition of air pollutants. The present soil data do not reflect the apparent enrichment of Mg, Na, Ca, and Br observed on the fine particle fraction. Zinc was shown to be enriched in some of our SAGU soil samples, while the other enriched elements from the air particulate study were not determined in our samples.

Clearly, the saguaro cactus resource (and perhaps other cactus species) are undergoing a continuing decline within the SAGU ecosystem. While our data do not implicate anthropogenic air pollution impact for inorganic elements, atmospheric emissions related to the Tucson metropolitan area cannot yet be disregarded as a potential cause for the decline. The complex nature of anthropogenic modification of the organic compound burden of atmospheric aerosols is just beginning to be understood. Direct impact from the leeward drift of agricultural chemicals (herbicides and pesticides) from air-borne spraying operations or other organic chemical enrichment from diffuse urban sources should be considered a high priority for future investigation as a possible mechanism to explain the observed decline in the cactus populations. Unfortunately, organic chemical analyses in natural materials are far more difficult and expensive to conduct than inorganic determinations, and the spectrum of compounds runs into the millions. There has also been some preliminary evidence from unpublished work conducted by colleagues at LANL that short-chained organic acids readily penetrate the waxy cuticles of cacti, perhaps having a here-to-fore unanticipated "acid-rain" effect on desert ecosystems (22). Evans (23) has also speculated on the permeability of waxy cuticles by polar vs. non-polar compounds.

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REFERENCES

(1) A. B. Clemensen, "Cattle, Copper, and Cactus: The History of Saguaro National Monument," National Park Service Report, U. S. Government Printing Office, Denver, 271 pp. (1987).

(2) R. M. Turner, S. M. Alcorn, G. Olin, and J. A. Booth, "The Influence of Shade, Soil, and Water on Saguaro Seedling Reestablishment," Botanical Gazette, **127,** 95-102 (1966).

(3) R. M. Turner, "Long-term Vegetation Change at a Fully Protected Sonoran Desert Site," Ecology, **71**, 464-477 (1990).

(4) D. A. Graybill and M. R. Rose, "Analysis of Growth Trends and Variation in Conifers from Central Arizona: I. Network Chronology Development and Analysis," Laboratory of Tree Ring Research, final report, University of Arizona, Tucson, Arizona (1989).

(5) K. W. Stolte, "Air Pollution Threats to Biological Resources in Saguaro National Monument," in *Proceedings of the Symposium on Research in Saguaro National Monument*, C. Stone and E. Bellantoni, Editors, (Southwest Parks and Monuments Association,Tucson, Arizona, 1992).

(6) E. S. Gladney, D. B. Curtis, D. R. Perrin, J. W. Owens, and W. E. Goode, "Nuclear Techniques for the Chemical Analysis of Environmental Materials," Los Alamos Scientific Laboratory report LA-8192-MS (1980).

(7) S. R. Garcia, W. K. Hensley, M. M. Minor, M. M. Denton, and M. A. Fuka, "An Automated Multidetector System for Instrumental Neutron Activation Analysis of Geological and Environmental Materials," in *Atomic and Nuclear Methods in Fossil Energy Research*, R. H. Filby, B. S. Carpenter, and R. C. Ragaini, Editors, pp. 133-140 (1982).

(8) M. A. Gautier and E. S. Gladney (editors), "Health and Environmental Chemistry: Analytical Techniques, Data Management, and Quality Assurance," Los Alamos National Laboratory report LA-10300-M, Vols. I and II (1986).

(9) M. A. Gautier, E. S. Gladney, M. B. Phillps, and B. T. O'Malley, "Quality Assurance for Health and Environmental Chemistry: 1988," Los Alamos National Laboratory report LA-11637-MS, 479 pp. (1989).

(10) A. Stern, *Air Pollution* (Academic Press, New York, 1968).

(11) G. Hidy, *Aerosols: An Industrial and Environmental Science* (Academic Press, NY, 1984).

(12) J. Seinfeld, *Atmospheric Chemistry and Physics of Air Pollution* (Wiley, New York, 1987).

(13) E. S. Gladney, "Trace Element Emissions from a Coal-fired Power Plant: A Study of the Chalk Point Electric Generating Station," Ph.D. thesis, Dept. of Chemistry, University of Maryland, 350 pp. (1974).

(14) G. E. Gordon, W. H. Zoller, E. S. Gladney, and R. R. Greenberg, "The Use of Instrumental Nuclear Activation Methods in the Study of Particulates from Major Air Pollution Sources," in *Proceedings of the Second International Conference on Nuclear Methods in Environmental Research*, J. R. Vogt and W. Meyer, Editors (University of Missouri, Columbia, Missouri, 1974) pp. 344-353.

(15) M. Gallorini, E. Orvini, A. Rolla, and M. Burdisso, "Destructive Neutron Activation Analysis of Toxic Elements in Suspended Materials Released from Refuse Incinerators," Analyst, **106**, 328-334 (1981).

(16) J. M. Ondov, W. H. Zoller, and G. E. Gordon, "Trace Element Emissions on Aerosols from Motor Vehicles," Environmental Science and Technology, **16**, 318-328 (1982).

(17) G. E. Gordon, W. H. Zoller, E. S. Gladney, and A. G. Jones, "Trace Elements in the Urban Atmosphere," in *Proceedings of the American Nuclear Society Topical Meeting on Nuclear Methods in Environmental Research*, J. Vogt, Editor (University of Missouri, Columbia, Missouri, 1971), pp. 30-37.

(18) G. E. Gordon, W. H. Zoller, and E. S. Gladney, "Abnormally Enriched Trace Elements in the Atmosphere," in *Trace Substances in Environmental Health, VII*, D. D. Hemphill, Editor (University of Missouri, Columbia, Missouri, 1973), pp. 167-174.

(19) E. S. Gladney, "Origins and Effects of Dry-deposited Minerals in Desert Ecosystems: Some Atmospheric Chemistry Considerations," in *Acid Rain and Air Pollution in Desert Park Areas: Proceedings of a Workshop, 16-18 May 1988, and Management Recommendations*, Tucson, Arizona, Technical Report NPS/NRAQD/NPTR-91/02, pp. 52-67 (1991).

(20) K. H. Wedepohl, *Origin and Distribution of the Elements*, L. H. Ahrens, Editor (Pergamon Press, London, 1968), pp. 999 - 1016.

(21) R. R. Greenberg, "Trace Element Emissions from Municipal Incinerators," Ph.D. thesis, Dept. of Chemistry, University of Maryland (1976).

(22) E. Gaffney, Private Communication, Los Alamos National Laboratory (1988).

(23) L. S. Evans, "Acidic Precipitation Effects on Terrestrial Vegetation," Ann. Rev. Phytopathol., **22**, 397-420 (1984).

(24) E. S. Gladney, B. T. O'Malley, I. Roelandts, and T. E. Gills, "Compilation of Elemental Concentration Data for NBS Clinical, Biological, Geological and Environmental Standard Reference Materials," NBS Special Publication 260-111 (1987).

(25) E. S. Gladney and I. Roelandts, "1988 Compilation of Elemental Concentration Data for CCRMP Soils SO-1 to SO-4," Geostandards Newsletter, **13**, 217-268 (1989).

(26) E. S. Gladney and I. Roelandts, "1988 Compilation of Elemental Concentration Data for CCRMP Reference Rock Samples SY-2, SY-3, and MRG-1," Geostandards Newsletter, **14**, 373-458 (1990).

Appendix A: Sampling Site Locations

Sampling Site Locations

Sites selected for this study included three regional background sites, one local background site, seven sites in the western portion of the Monument (Tucson Mountain District), four areas associated with the Tree Ring Lab's growth suppression study, five cactus diversity monitoring plots, a variety of sites within the Cactus Forest section of the eastern portion of the Monument (Rincon Mountain District), and the San Manuel Smelter Canyon northeast of the Catalina Mountains.

Acronym	Name	Figures
CHIR	Rhyolite Canyon, Chiricahua National Monument, Arizona	2, A-1, A-2
GILA	Gila Cliffs National Monument, New Mexico	2, A-3, A-4
WACA	Walnut Canyon National Monument, Arizona	2, A-5
CATA	Catalina Mountains, Arizona	2
SMELTER	San Manuel Smelter Canyon	A-6
RMD	Rincon Mountain District, Saguaro National Monument (East)	1, A-7
CSP	Cowhead Saddle, Tanque Verde Ridge, RMD	A-7
CP-5	RMD Cactus Plot # 5 (1989-1990)	A-8
CP-9	RMD Cactus Plot # 9 (1989-1990)	A-8
CP-10	RMD Cactus Plot # 10 (1989-1990)	A-8
CP-15	RMD Cactus Plot # 15(1989-1990)	A-8
CP-17	RMD Cactus Plot # 17 (1989-1990)	A-8
EXCL	Exclosure Site, RMD	A-8
KT	Kiln Train, Cactus Forest, RMD	A-8
HDP	Helen's Dome, Ponderosa and White Pine, RMD	A-7, A-9 A-10
NSP	North Slope, Ponderosa Pine, White Pine, and Douglas Fir, RMD	A-7, A-11 A-12
MPA	Mica Picnic Area, RMD	A-8
HVP	Happy Valley Saddle, RMD	A-7
RPP	Rincon Peak, RMD	A-7
TSP	Tucson Side, Ponderosa and White Pine, RMD	A-7, A-13
TMD	Tucson Mountain District, Saguaro National Monument (West)	1, A-14

Figure A-1 Details of sampling sites in Rhyolite Canyon, Chiricahua National Monument, AZ

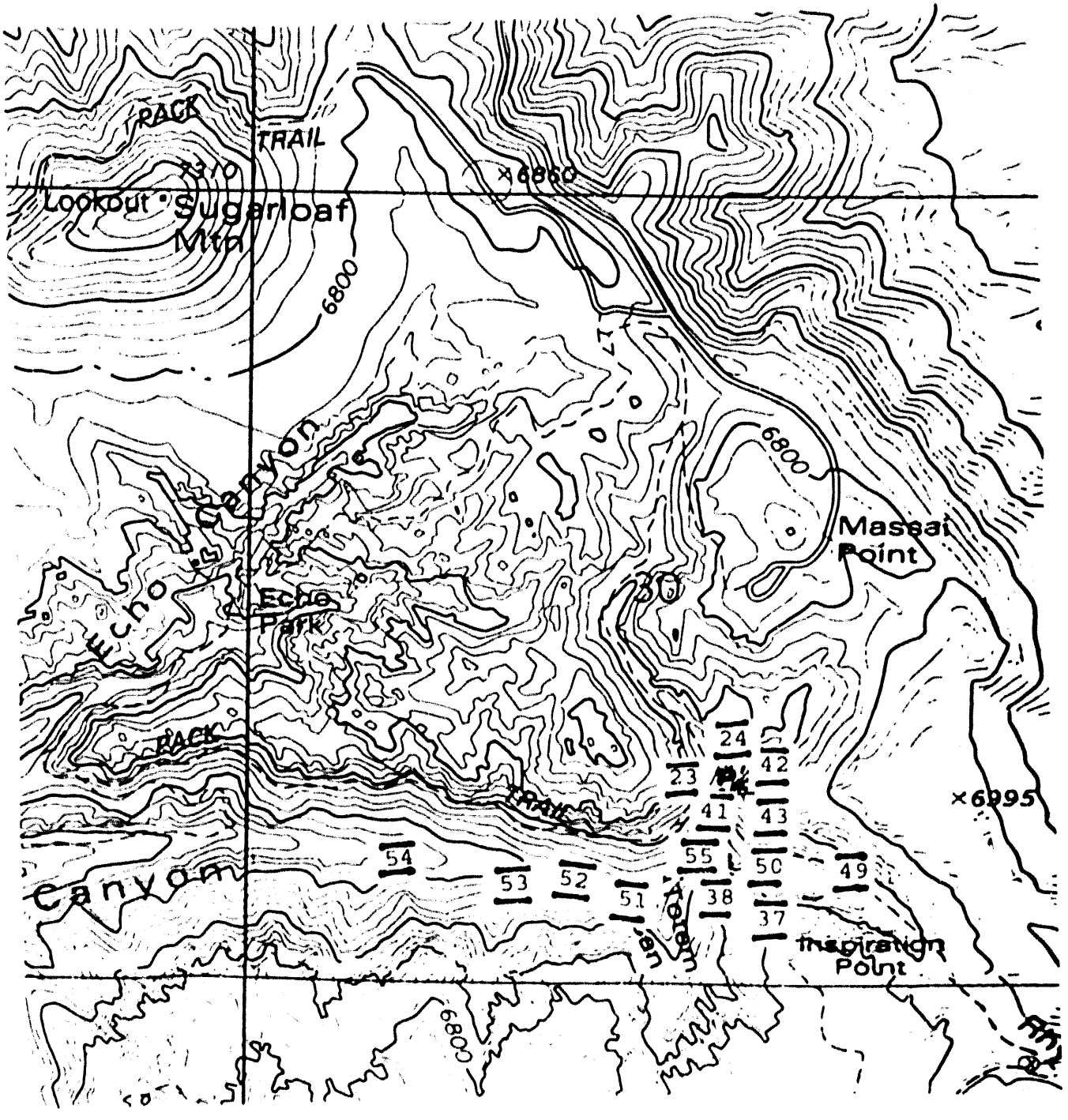


Figure A-2 Details of sampling sites in Rhyolite Canyon, Chiricahua National Monument, AZ.

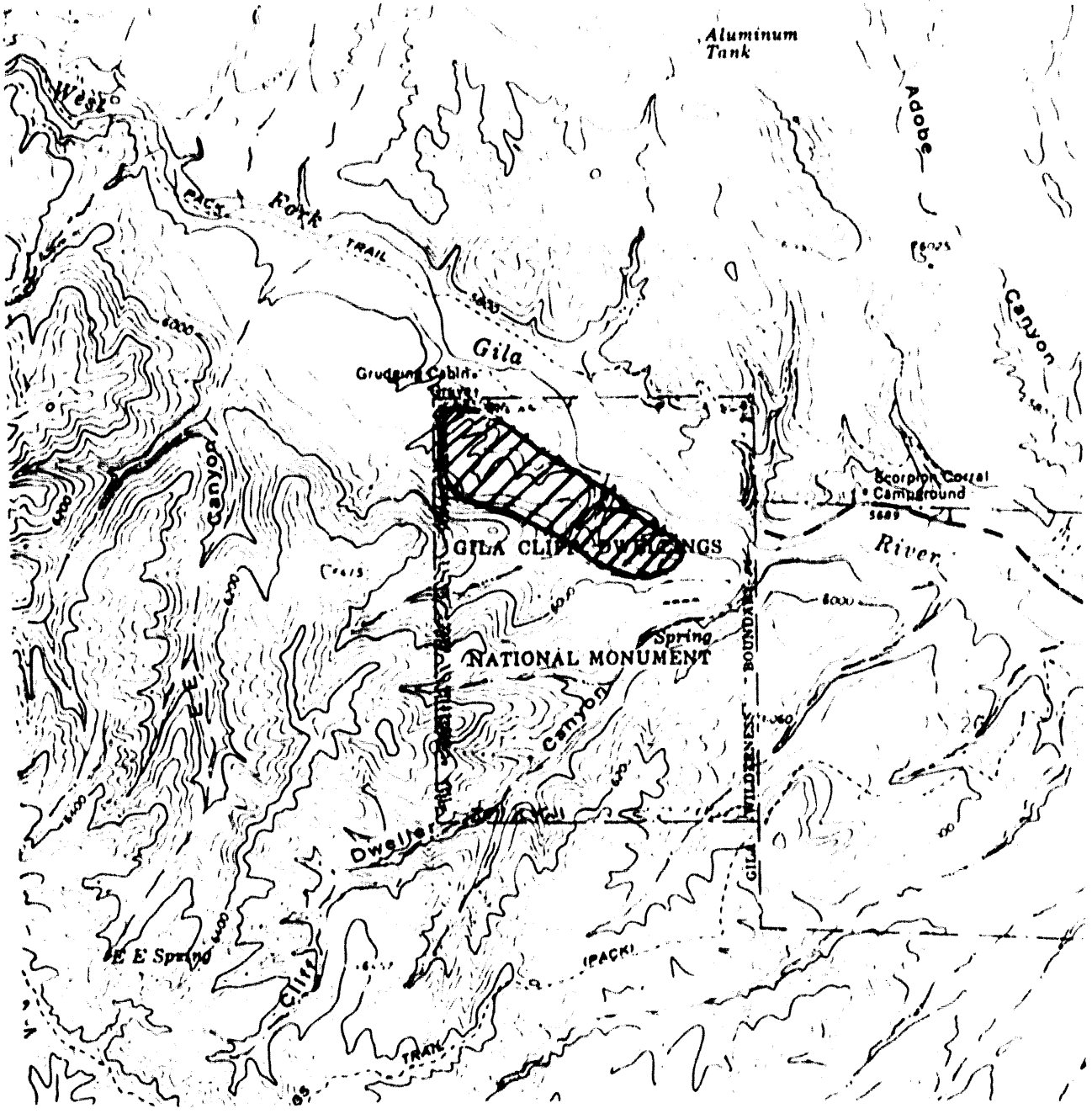


Figure A-3 Details of sampling sites in Gila Cliffs National Monument, New Mexico

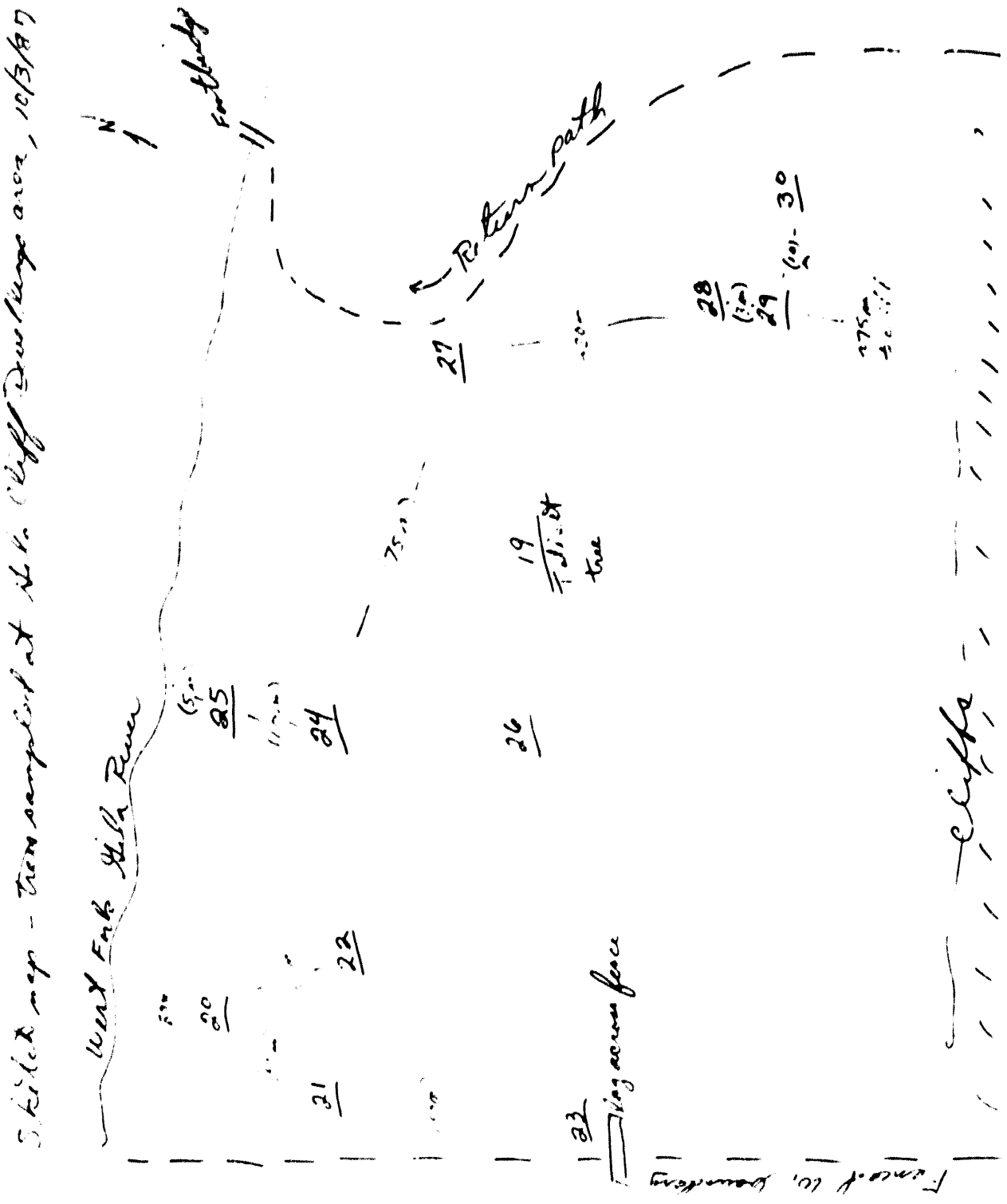


Figure A-4. Details of sampling sites in Gila Cliffs National Monument, New Mexico.

Figure A-5 Details of sampling sites in Walnut Canyon National Monument, Arizona

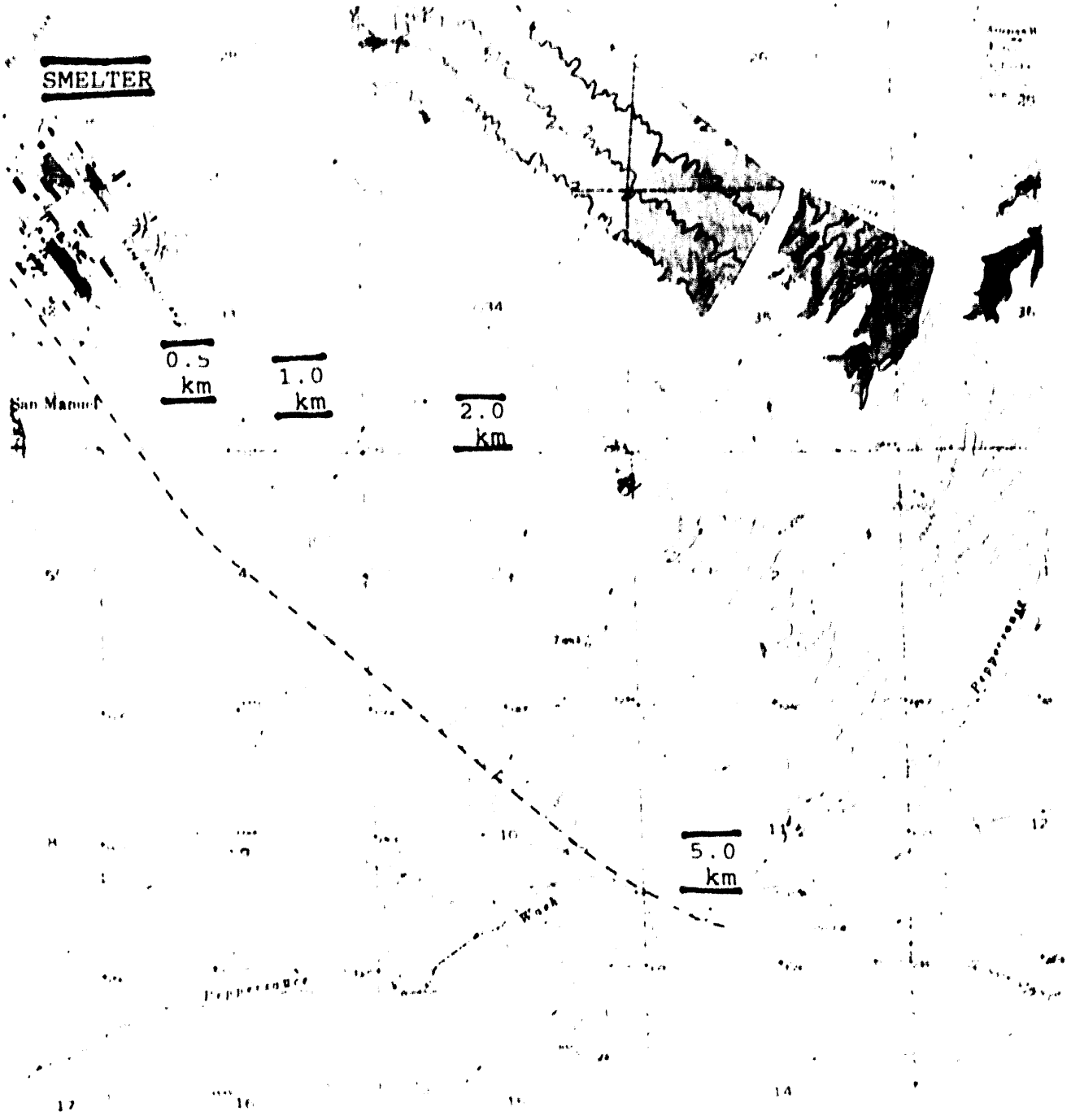


Figure A-6 Details of sampling sites in San Manuel Smelter Canyon, Arizona

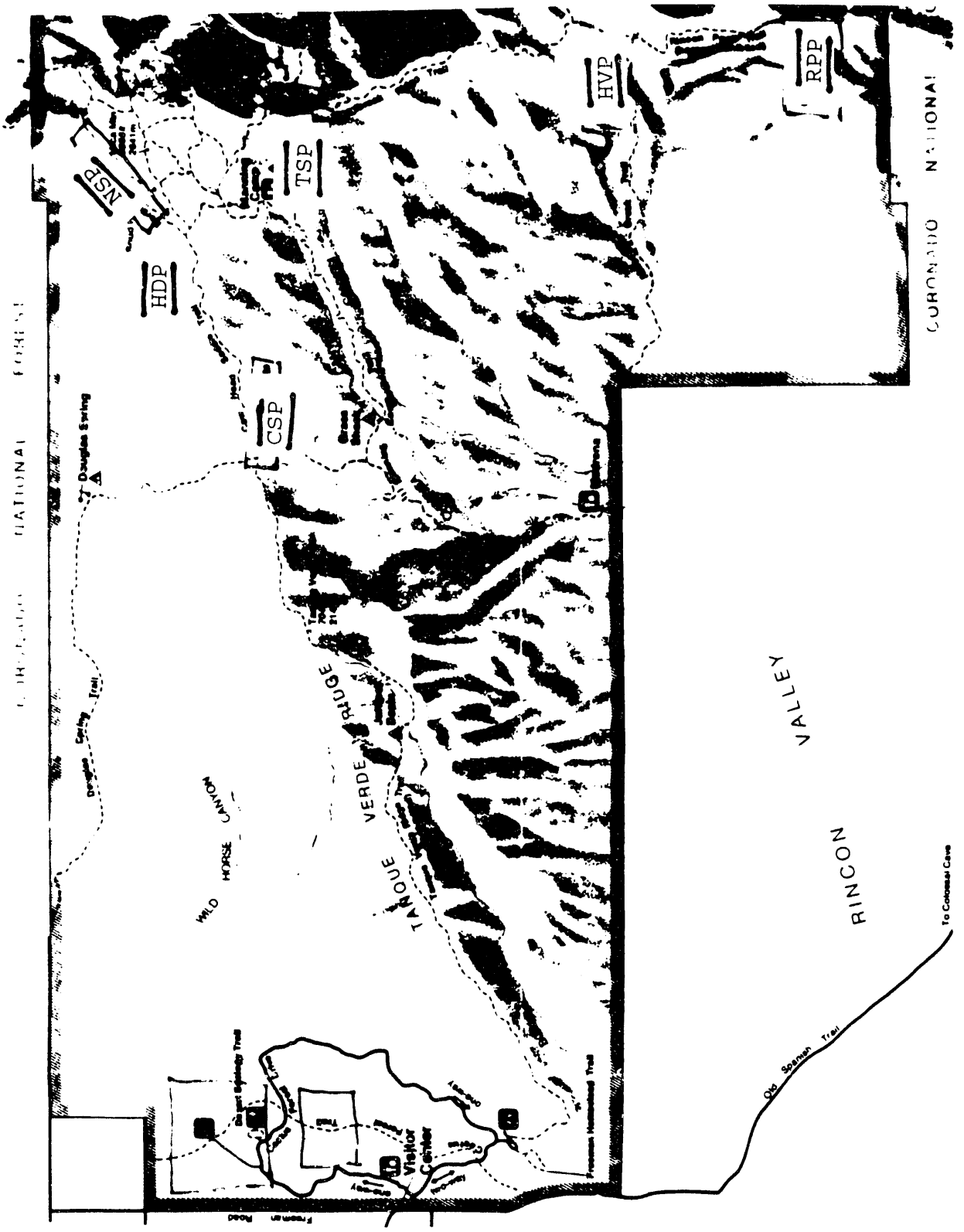


Figure A-7. Overview of sampling sites in RMD, Saguaro National Monument (East), AZ.

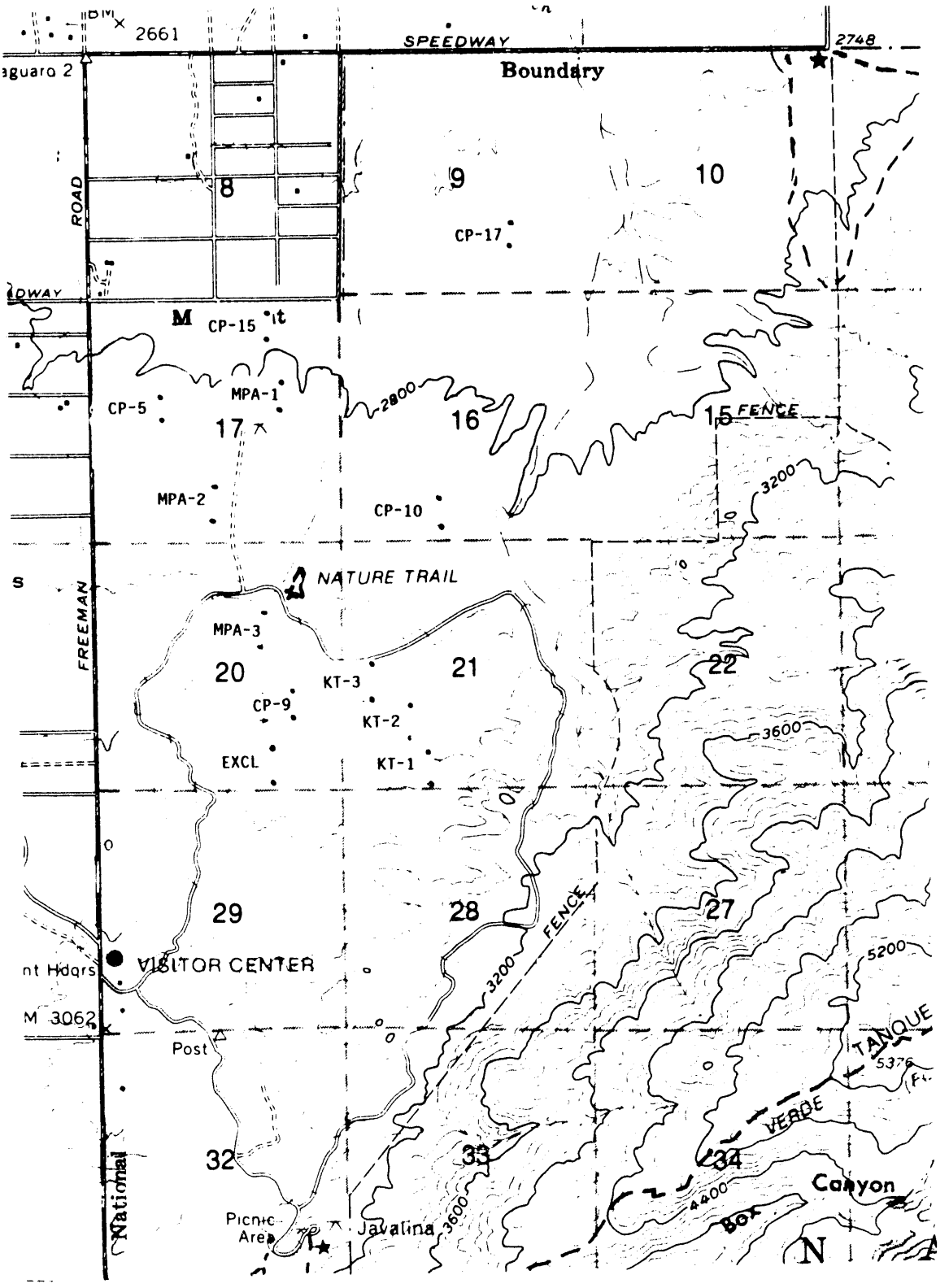


Figure A-8. Details of sampling sites in Cactus Forest, RMD.

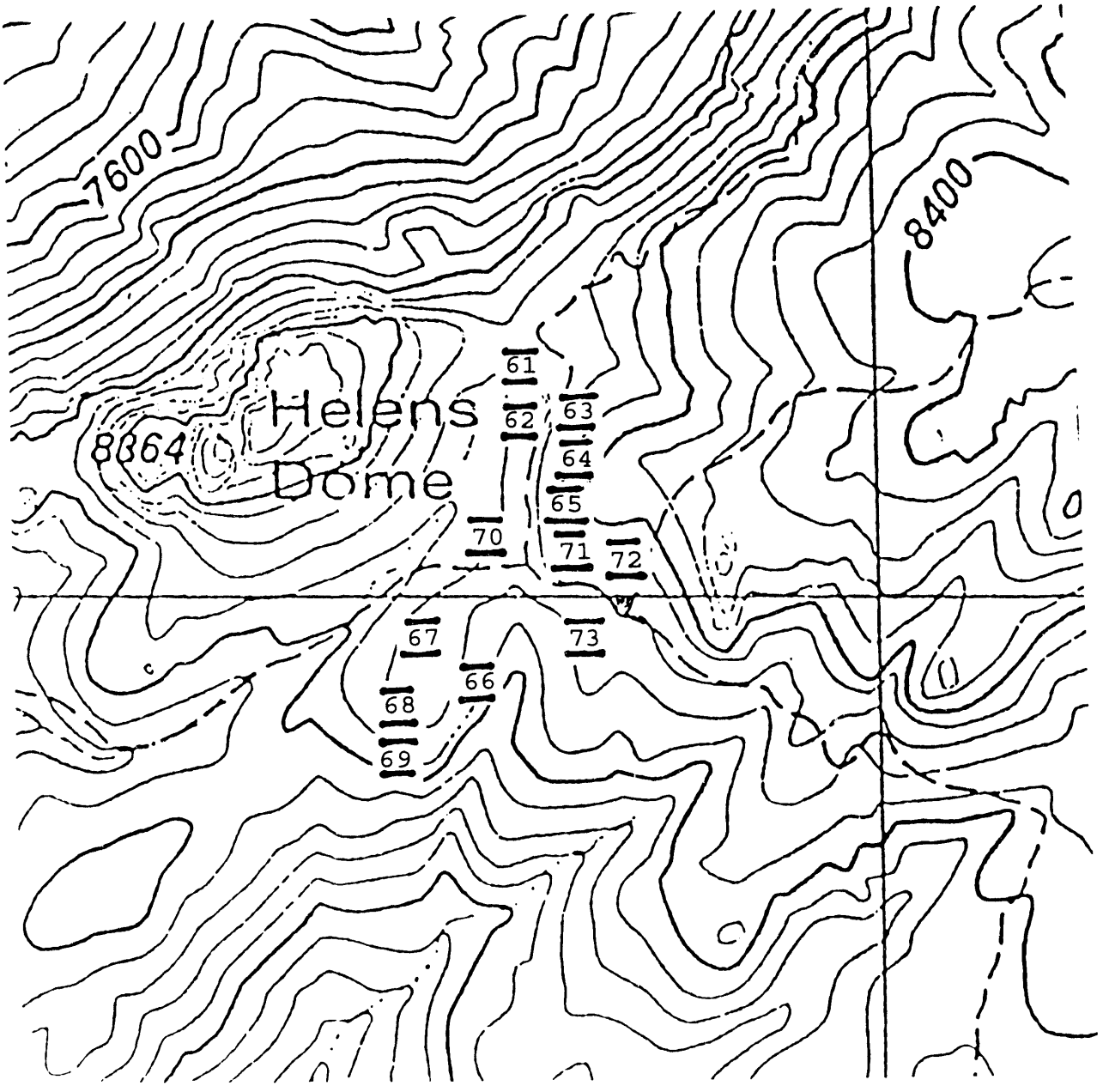


Figure A-9. Details of sampling sites in Helen's Dome, Ponderosa and White Pine, RMD.

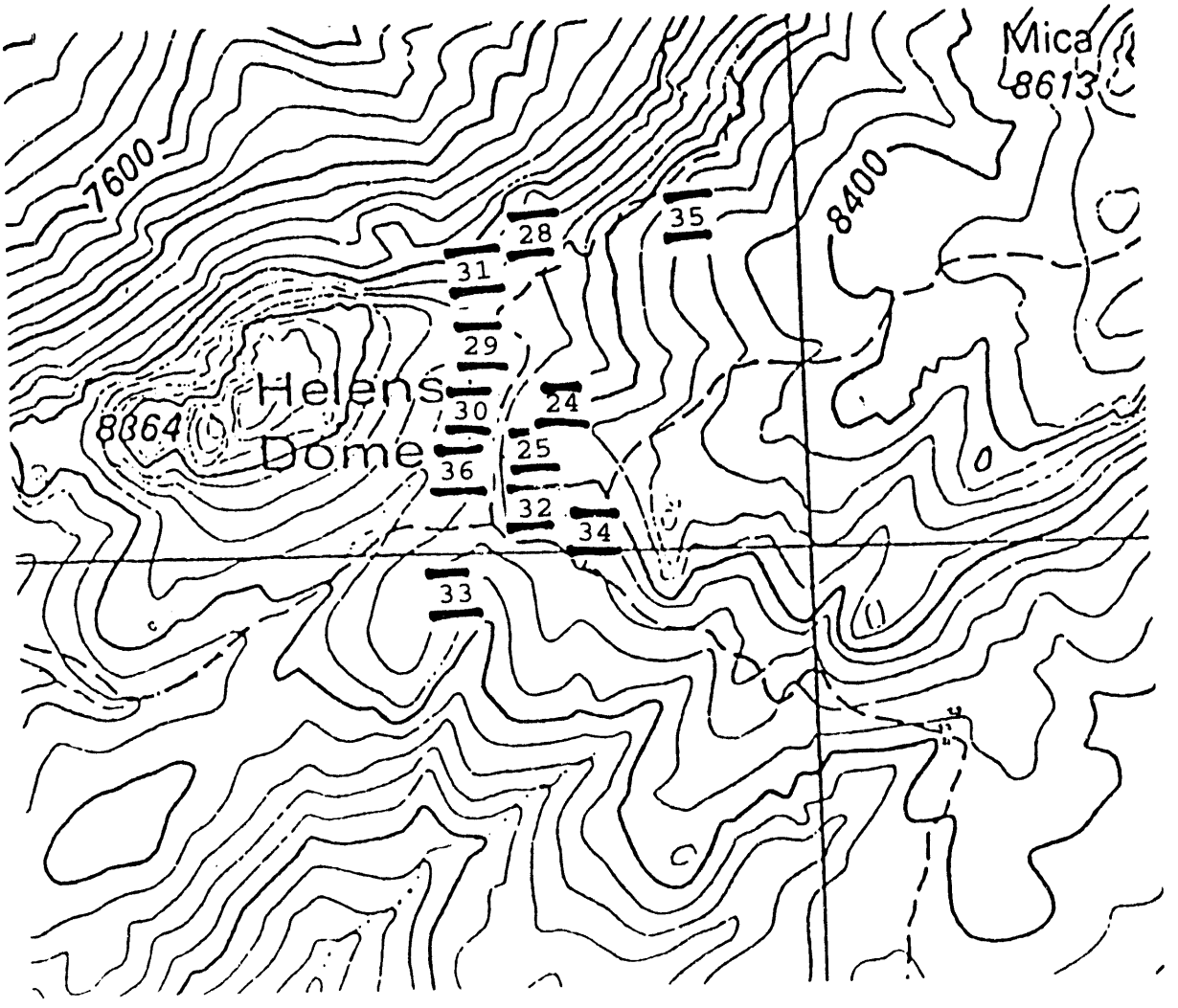


Figure A-10. Details of sampling sites in Helen's Dome, Ponderosa and White Pine, RMD.

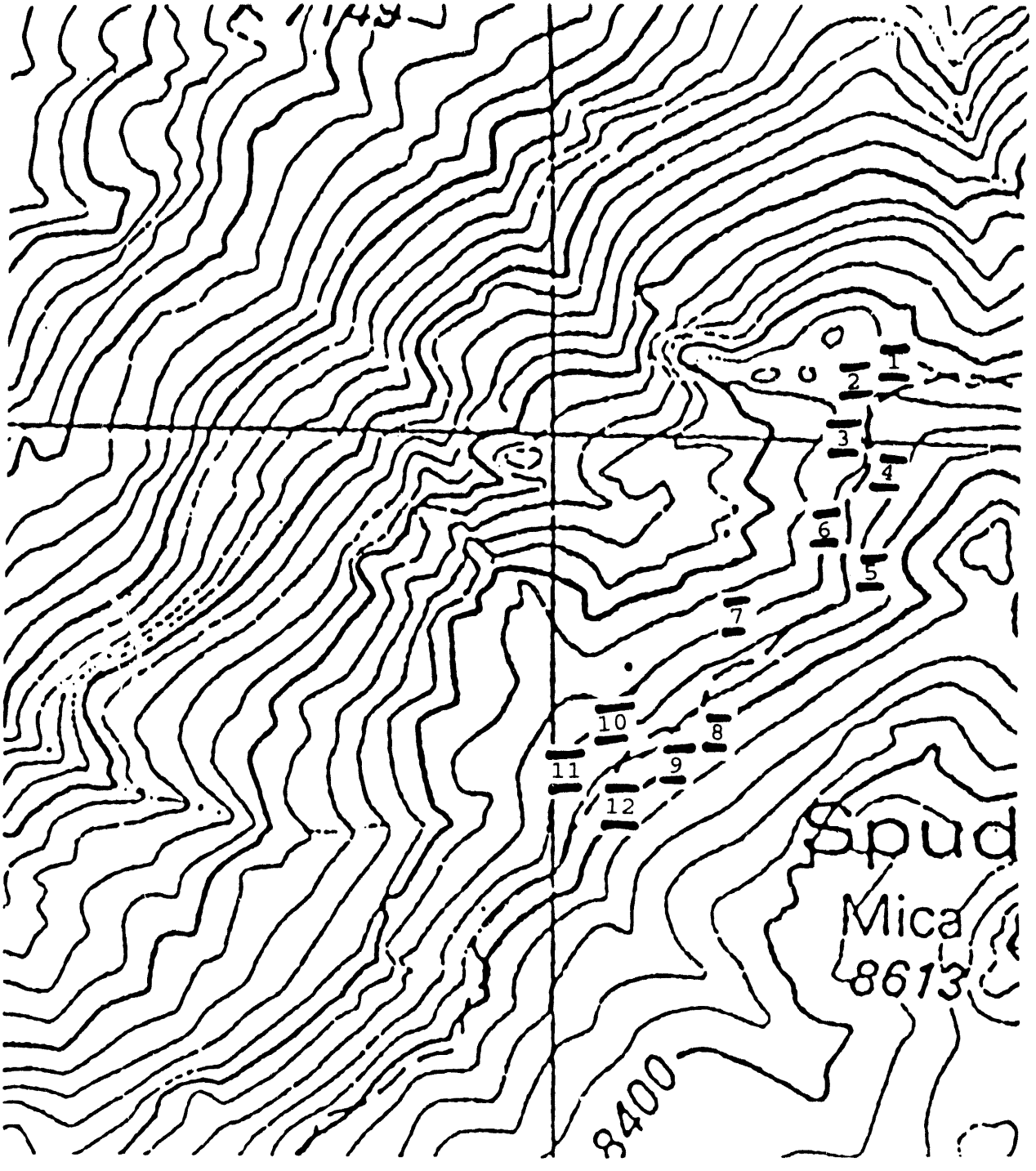


Figure A-11. Sampling sites in North Slope, Ponderosa Pine, White Pine, and Douglas Fir, RMD.

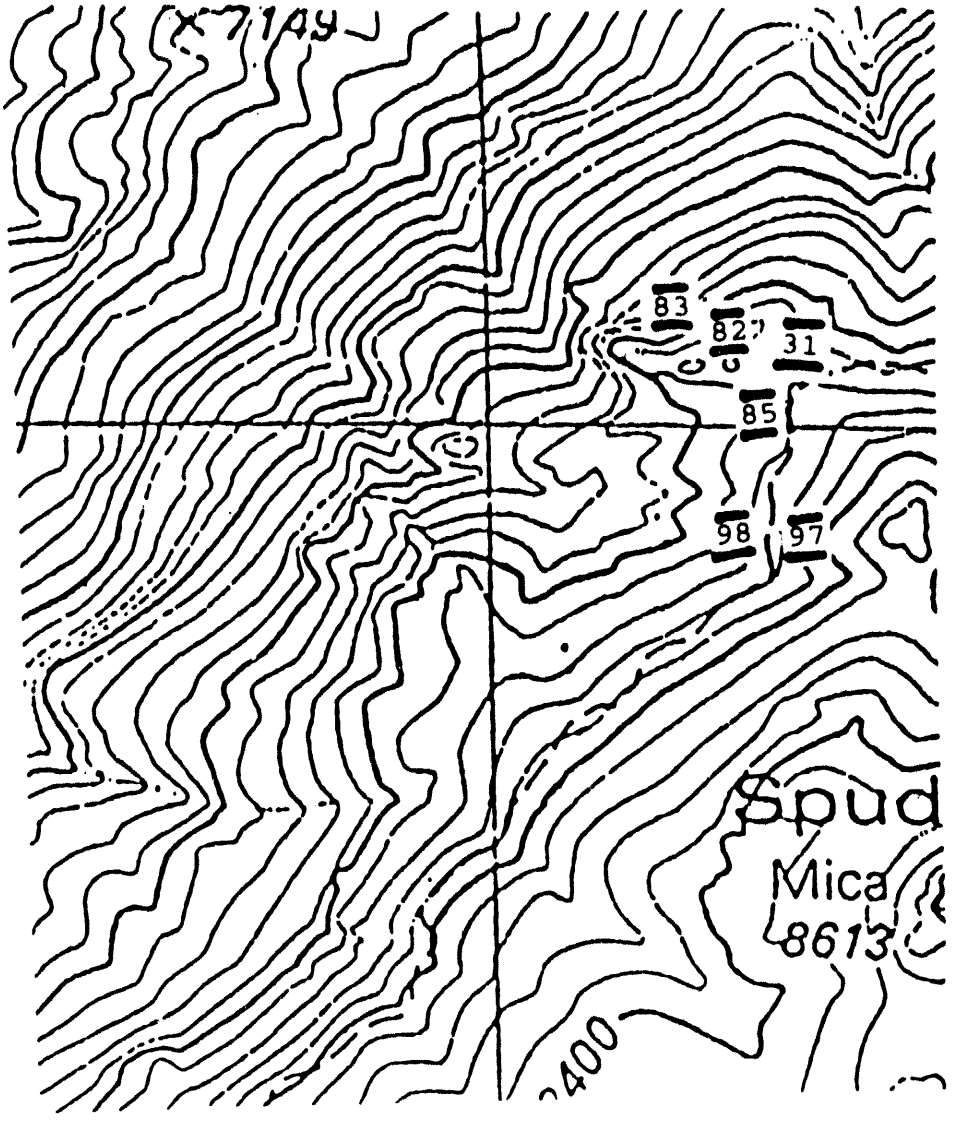


Figure A-12. Sampling sites in North Slope, Ponderosa Pine, White Pine, and Douglas Fir, RMD.

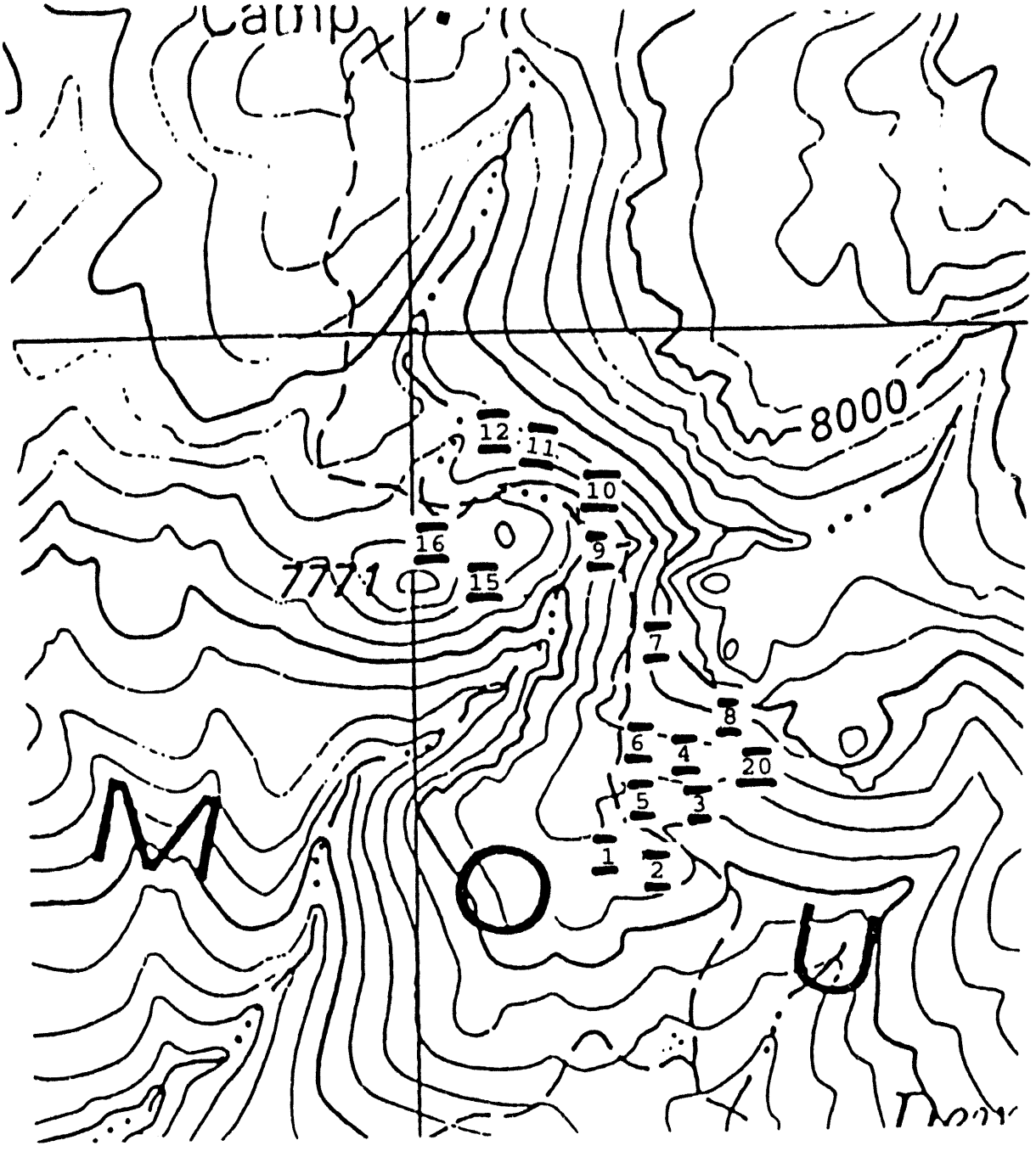


Figure A-13. Details of sampling sites in Tucson Side, Ponderosa and White Pine, RMD

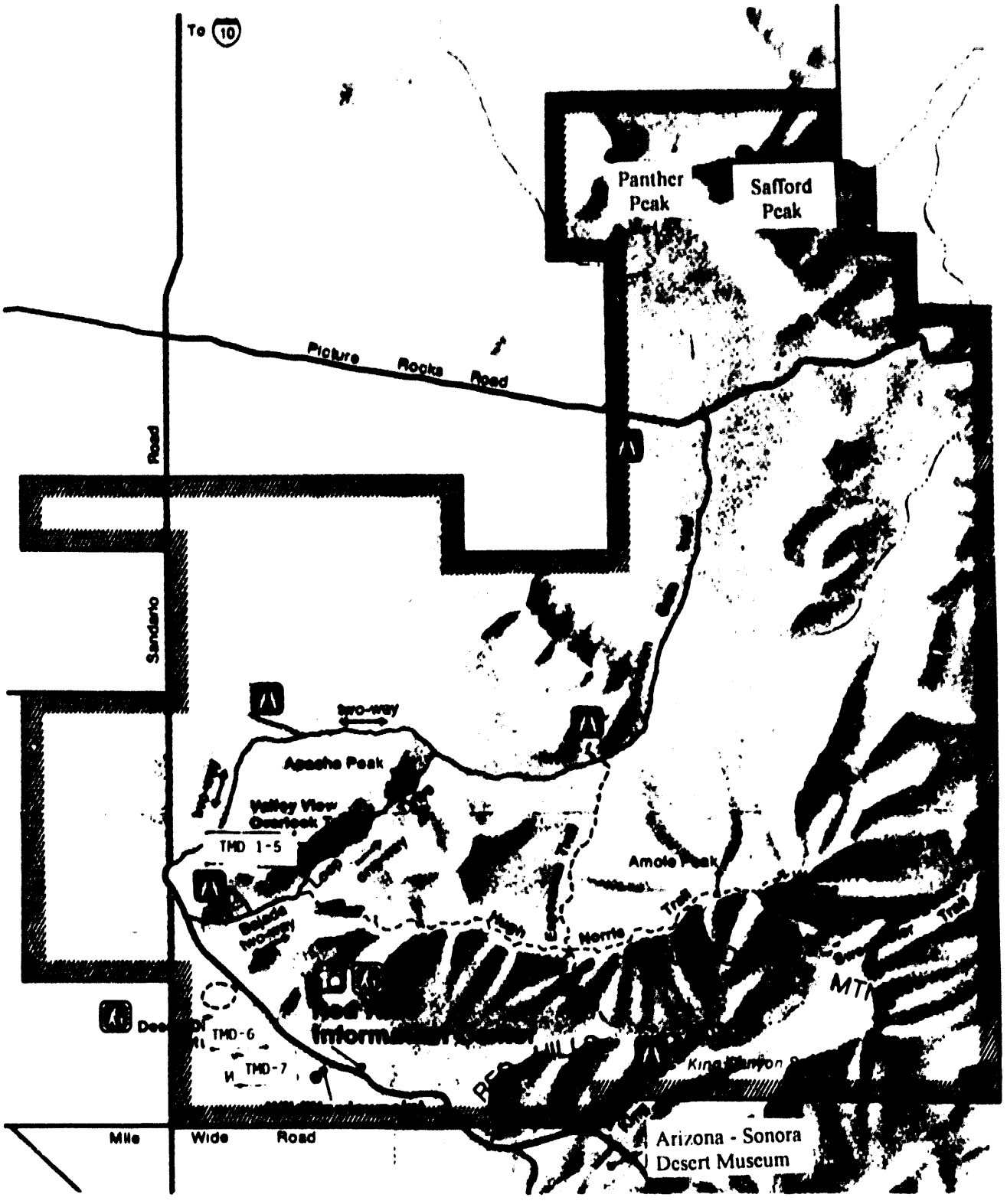


Figure A-14. Sampling sites in Tucson Mountain District, Saguaro National Monument (West).

Appendix B Elemental Concentrations in Soil Quality Assurance Materials

Table B-1. Quality Assurance Data for Automated Thermal Neutron Activation Determination of Individual Elemental Concentrations in Certified Geological Reference Materials (24-26)

Material	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)	Cl (ug/g)
CCRMP MRG-1									
This work	< 6	4.46 ± 0.13	< 1.7	< 8	< 700	< 2.5	11.0 ± 0.5	28 ± 2	160 ± 30
	< 8	4.21 ± 0.12	< 1.5	7.7 ± 2.5	< 600	< 2.0	10.3 ± 0.4	26 ± 1	167 ± 22
Certified	0.11 ± 0.03	4.48 ± 0.15	0.73 ± 0.37	5.4	61 ± 23	---	10.5 ± 0.2	26 ± 4	170 ± 30
NBS 2704									
This work	< 4	6.15 ± 0.18	21.7 ± 2.2	< 8	395 ± 43	6.1 ± 0.7	2.53 ± 0.14	68 ± 3	108 ± 18
	< 3	6.25 ± 0.18	23.3 ± 2.4	< 10	400 ± 60	6.8 ± 0.8	2.57 ± 0.13	68 ± 3	122 ± 16
Certified	---	6.11 ± 0.16	23.4 ± 0.8	---	414 ± 12	7.0	2.60 ± 0.03	72	< 100
NBS 1646									
This work	< 5	6.20 ± 0.17	10.5 ± 1.2	< 17	376 ± 45	151 ± 16	0.90 ± 0.07	78 ± 4	17500 ± 900
	< 4	6.02 ± 0.17	11.0 ± 1.3	< 13	420 ± 50	119 ± 12	0.90 ± 0.07	77 ± 4	13100 ± 900
	< 4	5.86 ± 0.17	10.6 ± 1.2	< 13	450 ± 70	121 ± 13	0.66 ± 0.06	76 ± 4	12800 ± 900
Certified	0.088	6.25 ± 0.20	12 ± 1	---	409	117	0.83 ± 0.03	80 ± 4	13800
NBS 688									
This work	< 5	8.74 ± 0.24	2.4 ± 0.4	< 11	151 ± 30	< 2.3	8.70 ± 0.37	13 ± 1	< 100
Certified	---	9.18 ± 0.05	2.5	2.1	197 ± 12	0.26	8.47 ± 0.36	13 ± 2	33.9 ± 2.6
NBS 1645									
This work	1.2 ± 0.4	2.45 ± 0.07	69 ± 8	< 8	390 ± 40	1.6 ± 0.3	3.21 ± 0.15	1070 ± 50	105 ± 13
Certified	1.75	2.76 ± 0.04	67 ± 3	---	374 ± 26	---	2.6 ± 0.3	74	---
CCRMP SO-1									
This work	< 6	9.20 ± 0.30	2.3 ± 0.4	< 18	900 ± 90	< 4.3	1.62 ± 0.10	110 ± 5	116 ± 25
	< 4	9.04 ± 0.25	1.9 ± 0.4	< 11	930 ± 60	2.0 ± 0.4	1.71 ± 0.11	109 ± 5	< 130
Certified	0.1	9.38 ± 0.17	2.0 ± 0.2	1.0	879 ± 47	2.2	1.80 ± 0.07	102 ± 10	150
CCRMP SO-2									
This work	< 3	7.77 ± 0.22	1.8 ± 0.4	< 12	1020 ± 60	18 ± 2	1.85 ± 0.11	117 ± 5	137 ± 27
	< 3	7.74 ± 0.22	1.8 ± 0.4	< 15	1050 ± 60	18 ± 2	1.67 ± 0.10	119 ± 5	132 ± 22
	< 4	8.04 ± 0.21	< 2.2	< 10	1080 ± 60	16 ± 2	1.90 ± 0.10	117 ± 5	< 110
	< 3	8.00 ± 0.20	< 2.1	< 10	1020 ± 80	17 ± 2	1.86 ± 0.10	117 ± 5	< 100
	< 2	8.01 ± 0.22	1.6 ± 0.3	< 20	1000 ± 70	17 ± 2	1.73 ± 0.10	123 ± 6	136 ± 20
Certified	0.19	8.07 ± 0.18	1.17 ± 0.13	1.5	966 ± 67	17 ± 2	1.96 ± 0.10	112 ± 8	84
CCRMP SO-3									
This work	< 1.9	3.13 ± 0.09	2.8 ± 0.4	< 9	320 ± 30	5.7 ± 0.6	15.8 ± 0.6	38 ± 2	320 ± 30
	< 2.0	3.02 ± 0.09	2.7 ± 0.3	< 8	330 ± 30	5.2 ± 0.6	16.9 ± 0.7	37 ± 2	350 ± 30
Certified	< 0.5	3.06 ± 0.11	2.51 ± 0.13	0.49	300 ± 40	5.5	14.6 ± 0.4	34 ± 2	210
CCRMP SO-4									
This work	< 2.5	5.45 ± 0.16	7.8 ± 0.8	< 10	770 ± 50	5.7 ± 0.7	1.08 ± 0.07	56 ± 3	< 80
	< 3	5.39 ± 0.16	7.0 ± 0.8	< 9	800 ± 50	7.2 ± 0.8	1.15 ± 0.07	57 ± 3	< 80
	< 2.6	5.59 ± 0.15	7.3 ± 0.8	< 9	720 ± 70	6.0 ± 0.7	< 0.3	57 ± 3	< 80
	< 2.2	5.15 ± 0.15	7.1 ± 0.8	< 11	760 ± 40	6.6 ± 0.8	1.03 ± 0.07	56 ± 3	< 90
Certified	0.12	5.46 ± 0.15	7.4 ± 0.2	0.64	700 ± 40	5.2 ± 0.4	1.11 ± 0.05	54 ± 1	30

Table B-1. Quality Assurance Data for Automated Thermal Neutron Activation Determination of Individual Elemental Concentrations in Certified Geological Reference Materials (cont.)

Material	Co (ug/g)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)
CCRMP MRG-1									
This work	86 ± 5	480 ± 30	< 1.9	< 230	3.3 ± 0.4	1.38 ± 0.17	12.7 ± 0.7	21 ± 3	4.0 ± 0.5
	85 ± 4	486 ± 29	< 2.1	< 240	2.9 ± 0.4	1.34 ± 0.20	12.2 ± 0.6	21 ± 4	3.9 ± 0.5
Certified	87 ± 7	430 ± 80	0.57 ± 0.16	134 ± 14	2.9 ± 0.9	1.39 ± 0.12	12.54 ± 0.27	17 ± 4	3.76 ± 0.22
NBS 2704									
This work	13.7 ± 0.7	137 ± 8	5.7 ± 0.4	< 240	6.0 ± 0.5	1.16 ± 0.06	4.07 ± 0.20	16 ± 3	8.1 ± 0.4
	13.1 ± 0.7	142 ± 8	5.5 ± 0.4	< 210	5.7 ± 0.5	1.41 ± 0.09	4.16 ± 0.21	17 ± 3	8.5 ± 0.8
Certified	14.0 ± 0.6	135 ± 5	6.0	99 ± 5	6.0	1.3	4.11 ± 0.10	15	8.0
NBS 1640									
This work	9.4 ± 0.5	78 ± 5	3.34 ± 0.27	< 300	6.2 ± 0.6	1.31 ± 0.08	3.19 ± 0.17	10 ± 3	10.6 ± 0.5
	8.9 ± 0.5	77 ± 5	3.46 ± 0.23	< 340	6.7 ± 1.5	1.25 ± 0.08	3.14 ± 0.16	< 30	10.7 ± 0.6
	9.0 ± 0.5	73 ± 4	3.31 ± 0.20	< 370	5.5 ± 0.5	1.17 ± 0.05	3.15 ± 0.16	< 26	10.8 ± 0.5
Certified	10 ± 1	76 ± 3	3.69 ± 0.10	18 ± 3	4 ± 2	1.4 ± 0.2	3.35 ± 0.10	19	11.2
NBS 688									
This work	44 ± 2	317 ± 19	< 1.5	< 290	3.1 ± 1.1	0.88 ± 0.06	6.89 ± 0.19	< 17	1.48 ± 0.11
Certified	49 ± 3	332 ± 9	0.24 ± 0.15	96	3.4 ± 0.2	1.01 ± 0.02	7.23 ± 0.03	17.4	1.55 ± 0.08
NBS 1645									
This work	8.0 ± 0.4	28100 ± 1700	2.44 ± 0.21	220 ± 60	< 4	0.32 ± 0.04	10.4 ± 0.5	< 13	1.57 ± 0.18
Certified	10.1 ± 0.6	29600 ± 2800	2.8 ± 0.5	110 ± 20	2.0	0.5	11 ± 1	41 ± 20	1.39
CCRMP SO-1									
This work	27 ± 1	170 ± 10	4.7 ± 0.3	< 320	4.5 ± 0.4	1.44 ± 0.07	5.6 ± 0.3	21 ± 5	2.5 ± 0.4
	26 ± 1	171 ± 10	4.6 ± 0.3	< 300	4.0 ± 0.4	1.52 ± 0.06	5.5 ± 0.3	37 ± 6	2.5 ± 0.1
Certified	32 ± 3	160 ± 15	5.07 ± 0.18	61 ± 3	4.5 ± 0.4	1.57 ± 0.05	6.00 ± 0.13	24 ± 1	2.5 ± 0.4
CCRMP SO-2									
This work	7.2 ± 0.4	12.9 ± 1.1	0.32 ± 0.09	< 260	8.3 ± 0.8	3.36 ± 0.19	5.3 ± 0.3	25 ± 4	20 ± 2
	7.3 ± 0.4	13.6 ± 1.1	0.33 ± 0.09	< 300	8.2 ± 0.7	3.20 ± 0.20	5.4 ± 0.3	28 ± 5	20 ± 2
	7.2 ± 0.4	11.6 ± 1.1	< 1	< 290	9.4 ± 0.8	3.18 ± 0.17	5.3 ± 0.3	19 ± 4	20 ± 2
	7.4 ± 0.4	12.0 ± 1.0	< 0.9	< 300	8.2 ± 0.7	3.24 ± 0.18	5.39 ± 0.29	23 ± 5	19.3 ± 1.3
	6.9 ± 0.4	11.7 ± 1.0	< 1.1	< 300	10.0 ± 1.0	3.30 ± 0.20	5.30 ± 0.27	23 ± 4	18.8 ± 1.3
Certified	7.6 ± 0.6	12.3 ± 1.3	0.41 ± 0.05	7 ± 1	8.8 ± 1.4	3.15 ± 0.06	5.56 ± 0.16	24 ± 1	17.4 ± 1.3
CCRMP SO-3									
This work	5.6 ± 0.3	28 ± 2	1.23 ± 0.08	< 200	2.8 ± 0.3	0.77 ± 0.04	1.62 ± 0.08	< 13	4.7 ± 0.3
	5.5 ± 0.3	27 ± 2	1.07 ± 0.08	< 170	2.3 ± 0.3	0.82 ± 0.04	1.62 ± 0.09	< 14	4.9 ± 0.3
Certified	5.5 ± 0.8	26 ± 3	1.12 ± 0.09	17 ± 1	2.8 ± 0.3	0.74 ± 0.05	1.51 ± 0.06	6.4 ± 0.3	4.3 ± 0.2
CCRMP SO-4									
This work	9.3 ± 0.5	68 ± 4	2.76 ± 0.22	< 180	3.9 ± 0.3	1.00 ± 0.07	2.29 ± 0.12	< 17	8.1 ± 0.6
	8.8 ± 0.5	71 ± 4	2.72 ± 0.18	< 210	4.2 ± 0.6	0.98 ± 0.06	2.30 ± 0.12	11 ± 4	7.6 ± 0.8
	9.2 ± 0.5	66 ± 4	2.46 ± 0.15	< 190	3.8 ± 0.4	0.88 ± 0.05	2.40 ± 0.12	14 ± 3	7.5 ± 0.4
	10.0 ± 0.5	68 ± 4	2.38 ± 0.16	< 210	3.5 ± 0.3	0.89 ± 0.05	0.25 ± 0.11	8 ± 2	7.8 ± 0.4
Certified	10.4 ± 1.4	61 ± 6	2.88 ± 0.19	22 ± 1	3.5 ± 0.6	0.97 ± 0.07	2.37 ± 0.07	10.7 ± 0.2	8.0 ± 0.3

Table B-1. Quality Assurance Data for Automated Thermal Neutron Activation Determination of Individual Elemental Concentrations in Certified Geological Reference Materials (cont.)

Material	Hg (ng/g)	I (ug/g)	In (ng/g)	K (%)	La (ug/g)	Lu (ng/g)	Mg (%)	Mn (ug/g)	Na (%)
CCRMP MRG-1									
This work	< 1400	< 24	< 220	0.11 ± 0.02	9.5 ± 0.5	118 ± 20	7.16 ± 0.44	1400 ± 60	0.545 ± 0.023
	< 1000	< 22	< 220	0.16 ± 0.03	9.6 ± 0.5	95 ± 22	7.70 ± 0.40	1370 ± 50	0.536 ± 0.024
Certified	140 ± 40	---	< 500	0.15 ± 0.02	9.8 ± 0.8	120 ± 40	8.17 ± 0.19	1310 ± 100	0.55 ± 0.06
NBS 2704									
This work	1520 ± 360	< 17	< 170	2.03 ± 0.13	31 ± 2	460 ± 30	0.98 ± 0.17	620 ± 30	0.589 ± 0.025
	< 600	< 16	< 190	1.96 ± 0.13	32 ± 2	443 ± 27	1.13 ± 0.07	612 ± 24	0.600 ± 0.030
Certified	1440 ± 70	2.0	---	2.00 ± 0.04	29	600	1.20 ± 0.02	555 ± 19	0.547 ± 0.014
NBS 1646									
This work	< 600	32 ± 4	< 260	1.82 ± 0.14	38 ± 2	400 ± 30	0.83 ± 0.15	360 ± 15	1.96 ± 0.08
	< 600	28 ± 4	< 300	1.79 ± 0.13	38 ± 2	440 ± 30	1.01 ± 0.12	387 ± 15	2.00 ± 0.08
	< 900	31 ± 4	< 240	1.83 ± 0.13	38 ± 2	480 ± 30	0.88 ± 0.13	374 ± 15	2.00 ± 0.08
Certified	63 ± 10	34.2	60	2.10 ± 0.30	37 ± 2	380 ± 60	1.09 ± 0.08	375 ± 20	2.0 ± 0.2
NBS 688									
This work	< 800	< 19	< 210	0.138 ± 0.037	4.7 ± 0.3	330 ± 23	3.64 ± 0.19	1330 ± 60	1.56 ± 0.07
Certified	---	---	---	0.155 ± 0.007	5.3 ± 0.4	350 ± 40	5.26 ± 0.22	1290 ± 20	1.60 ± 0.02
NBS 1645									
This work	< 1100	< 14	220 ± 30	1.33 ± 0.09	8.1 ± 0.5	< 300	0.58 ± 0.05	810 ± 30	0.56 ± 0.02
Certified	1100 ± 500	---	< 790	1.26 ± 0.05	9.0	---	0.74 ± 0.02	780 ± 100	0.54 ± 0.01
CCRMP SO-1									
This work	< 1000	< 24	< 300	2.60 ± 0.17	55 ± 3	293 ± 26	2.05 ± 0.16	949 ± 37	2.05 ± 0.09
	< 600	< 21	< 300	2.38 ± 0.16	57 ± 3	358 ± 24	2.03 ± 0.13	950 ± 40	1.99 ± 0.08
Certified	22 ± 3	12	100	2.68 ± 0.08	54 ± 2	310 ± 20	2.31 ± 0.11	890 ± 30	1.97 ± 0.08
CCRMP SO-2									
This work	< 600	9 ± 3	< 230	2.17 ± 0.15	50 ± 3	538 ± 31	0.51 ± 0.06	727 ± 30	1.91 ± 0.08
	< 600	10 ± 3	< 300	2.34 ± 0.16	44 ± 3	525 ± 30	0.32 ± 0.05	770 ± 30	1.73 ± 0.07
	< 600	< 20	< 210	2.32 ± 0.16	45 ± 3	580 ± 40	0.41 ± 0.05	760 ± 30	1.77 ± 0.08
	< 600	< 18	170 ± 40	2.07 ± 0.14	48 ± 3	560 ± 30	0.48 ± 0.07	749 ± 31	1.88 ± 0.08
	230 ± 220	< 20	< 300	2.40 ± 0.20	46 ± 3	530 ± 30	0.36 ± 0.06	700 ± 30	1.83 ± 0.08
Certified	82 ± 9	15	< 300	2.45 ± 0.04	46.5 ± 0.7	460 ± 60	0.54 ± 0.03	720 ± 20	1.90 ± 0.05
CCRMP SO-3									
This work	< 300	< 14	< 170	1.21 ± 0.08	17.2 ± 1.1	262 ± 15	4.88 ± 0.25	574 ± 23	0.75 ± 0.03
	< 400	< 17	< 140	1.19 ± 0.08	16.9 ± 0.9	261 ± 16	4.00 ± 0.30	570 ± 30	0.73 ± 0.03
Certified	17 ± 7	1.0	100	1.16 ± 0.05	16.9 ± 1.3	230 ± 50	4.98 ± 0.10	520 ± 20	0.74 ± 0.04
CCRMP SO-4									
This work	< 400	< 15	< 160	1.64 ± 0.11	28.4 ± 1.6	388 ± 23	0.53 ± 0.06	660 ± 30	1.03 ± 0.04
	< 500	< 16	< 180	1.74 ± 0.11	27.9 ± 1.7	360 ± 20	0.56 ± 0.06	610 ± 25	0.99 ± 0.04
	< 470	< 14	< 200	1.85 ± 0.13	27.5 ± 1.4	315 ± 24	0.45 ± 0.05	670 ± 30	0.98 ± 0.04
	< 400	< 17	< 180	1.85 ± 0.13	29.1 ± 1.7	360 ± 21	0.58 ± 0.06	640 ± 30	1.01 ± 0.04
Certified	32 ± 10	3.0	100	1.73 ± 0.03	28.2 ± 1.7	370 ± 40	0.56 ± 0.04	600 ± 20	1.00 ± 0.02

Table B-1. Quality Assurance Data for Automated Thermal Neutron Activation Determination of Individual Elemental Concentrations in Certified Geological Reference Materials (cont.)

Material	Nd (ug/g)	Rb (ug/g)	Sb (ng/g)	Sc (ug/g)	Se (ug/g)	Sm (ug/g)	Sr (ug/g)	Ta (ng/g)
CCRMP MRG-1								
This work	< 50	< 20	430 ± 60	54 ± 3	< 16	4.4 ± 0.2	< 400	780 ± 100
	27 ± 8	< 18	440 ± 70	53 ± 3	< 8	4.4 ± 0.2	< 330	720 ± 100
Certified	19 ± 2	8.5 ± 2.4	860 ± 160	55 ± 5	0.19 ± 0.01	4.5 ± 0.5	266 ± 13	800 ± 50
NBS 2704								
This work	29 ± 7	114 ± 7	3720 ± 200	11.8 ± 0.6	2.2 ± 0.7	6.6 ± 0.3	< 250	970 ± 80
	< 20	101 ± 6	3650 ± 200	11.3 ± 0.6	< 4	6.5 ± 0.3	< 260	940 ± 80
Certified	---	100	3790 ± 150	12	1.1	6.7	130	---
NBS 1646								
This work	33 ± 6	82 ± 5	< 370	10.1 ± 0.5	0.5 ± 0.4	6.8 ± 0.3	< 400	1110 ± 90
	40 ± 8	92 ± 6	450 ± 120	10.3 ± 0.6	0.9 ± 0.7	6.7 ± 0.3	< 290	910 ± 80
	43 ± 8	85 ± 5	330 ± 110	10.0 ± 0.5	1.8 ± 0.6	7.1 ± 0.3	< 310	980 ± 80
Certified	36 ± 4	87	790 ± 200	10.8 ± 0.4	0.53 ± 0.09	6.4 ± 0.3	220	1000
NBS 688								
This work	< 35	< 12	< 270	34 ± 2	< 4.5	2.2 ± 0.1	< 310	< 600
Certified	9.6 ± 1	1.90 ± 0.01	300 ± 200	38 ± 3	< 3	2.5 ± 0.2	169 ± 1	310 ± 70
NBS 1645								
This work	< 16	43 ± 4	346000 ± 17000	2.0 ± 0.1	< 7	1.25 ± 0.06	740 ± 90	< 500
Certified	---	41 ± 4	310000 ± 60000	2.0	1.3 ± 0.4	1.24	880 ± 90	220
CCRMP SO-1								
This work	53 ± 8	121 ± 7	< 300	16.8 ± 0.9	< 4	8.3 ± 0.4	410 ± 90	630 ± 70
	55 ± 9	125 ± 7	< 430	16.4 ± 0.9	< 5	8.0 ± 0.4	< 410	680 ± 70
Certified	44 ± 3	139 ± 12	297 ± 25	17.7 ± 0.8	0.091 ± 0.007	7.9 ± 0.5	328 ± 29	700 ± 120
CCRMP SO-2								
This work	64 ± 7	66 ± 4	< 400	10.7 ± 0.6	1.9 ± 1.2	12.3 ± 0.6	330 ± 90	1340 ± 100
	60 ± 8	67 ± 4	< 300	10.8 ± 0.6	< 0.3	11.4 ± 0.5	430 ± 90	1300 ± 100
	72 ± 8	74 ± 5	< 300	10.7 ± 0.6	< 0.4	11.4 ± 0.5	390 ± 80	1180 ± 120
	60 ± 7	77 ± 5	< 340	11.0 ± 0.6	< 0.3	14.6 ± 0.7	360 ± 100	1190 ± 100
	56 ± 6	71 ± 5	< 340	11.0 ± 0.6	< 0.3	11.7 ± 0.5	< 280	1220 ± 90
Certified	57 ± 2	78 ± 6	110 ± 20	11.3 ± 0.3	0.40 ± 0.08	11.8 ± 1.2	340 ± 50	1150 ± 130
CCRMP SO-3								
This work	29 ± 4	40 ± 3	350 ± 60	5.[illegible] ± 0.3	< 3	3.30 ± 0.15	< 230	310 ± 30
	27 ± 5	35 ± 2	< 200	5.[illegible] ± 0.3	< 2.4	3.32 ± 0.15	< 300	360 ± 30
Certified	17 ± 1	39 ± 3	323 ± 6	5.2 ± 0.3	0.034 ± 0.015	3.47 ± 0.19	220 ± 30	430 ± 60
CCRMP SO-4								
This work	26 ± 6	57 ± 7	590 ± 90	8.0 ± 0.4	< 3	4.57 ± 0.21	< 270	670 ± 70
	29 ± 6	69 ± 4	520 ± 70	7.8 ± 0.4	< 4	4.57 ± 0.21	< 230	620 ± 50
	29 ± 5	61 ± 4	590 ± 70	7.5 ± 0.4	0.83 ± 0.34	4.60 ± 0.21	< 220	600 ± 60
	34 ± 6	60 ± 4	510 ± 70	8.3 ± 0.4	< 0.9	4.86 ± 0.23	< 300	670 ± 50
Certified	25 ± 2	69 ± 8	710 ± 30	8.4 ± 0.4	0.49 ± 0.01	4.7 ± 0.2	170 ± 20	620 ± 110

Table B-1. Quality Assurance Data for Automated Thermal Neutron Activation Determination of Individual Elemental Concentrations in Certified Geological Reference Materials (cont.)

Material	Tb (ng/g)	Th (ug/g)	Ti (ug/g)	U (ng/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
CCRMP MRG-1									
This work	400 ± 70	0.86 ± 0.11	22000 ± 3000	244 ± 15	521 ± 19	< 3.9	0.68 ± 0.09	200 ± 30	< 600
	300 ± 110	0.74 ± 0.10	21800 ± 2800	226 ± 14	534 ± 19	< 4.0	0.70 ± 0.10	203 ± 26	< 600
Certified	510 ± 60	0.93 ± 0.18	22600 ± 900	240 ± 40	526 ± 33	0.3 ± 0.1	0.6	191 ± 15	108 ± 16
NBS 2704									
This work	820 ± 80	9.1 ± 0.4	4300 ± 600	3230 ± 120	99 ± 4	2.2 ± 0.4	3.7 ± 0.2	420 ± 50	390 ± 70
	880 ± 80	9.1 ± 0.4	4600 ± 600	3070 ± 120	93 ± 4	2.4 ± 0.6	3.5 ± 0.2	430 ± 60	280 ± 80
Certified	---	9.2	4570 ± 180	3130 ± 130	95 ± 4	2.8	---	438 ± 12	300
NBS 1646									
This work	770 ± 70	10.2 ± 0.4	4300 ± 600	2910 ± 110	89 ± 4	< 6	3.13 ± 0.24	90 ± 30	600 ± 140
	830 ± 80	9.4 ± 0.4	4900 ± 700	2870 ± 110	87 ± 4	< 7	3.50 ± 0.30	104 ± 27	400 ± 100
	730 ± 70	9.2 ± 0.4	4800 ± 600	2830 ± 110	96 ± 5	< 6	3.12 ± 0.25	111 ± 15	370 ± 60
Certified	950	10.0 ± 0.6	4200 ± 800	2990 ± 60	94 ± 1	---	2.24 ± 0.22	138 ± 6	335
NBS 688									
This work	300 ± 110	0.28 ± 0.08	5800 ± 800	368 ± 18	235 ± 9	< 4	1.88 ± 0.15	< 16	< 210
Certified	520 ± 40	0.33 ± 0.02	7010 ± 60	310 ± 24	242 ± 8	---	2.05 ± 0.20	84 ± 10	60.6 ± 1.9
NBS 1645									
This work	< 400	2.14 ± 0.20	970 ± 180	1100 ± 110	21 ± 2	1.7 ± 0.4	0.68 ± 0.10	1540 ± 190	< 160
Certified	---	1.6 ± 0.2	500 ± 200	1110 ± 50	24 ± 7	54	0.6	1700 ± 200	61 ± 9
CCRMP SO-1									
This work	780 ± 80	11.2 ± 0.4	5000 ± 700	1620 ± 70	132 ± 6	< 6	2.15 ± 0.23	120 ± 16	< 190
	850 ± 100	10.6 ± 0.9	4600 ± 600	1670 ± 70	121 ± 5	< 6	2.47 ± 0.20	120 ± 30	< 440
Certified	880 ± 70	12.4 ± 1.2	5300 ± 200	1710 ± 40	133 ± 4	0.7	2.24 ± 0.25	146 ± 5	84 ± 10
CCRMP SO-2									
This work	1360 ± 130	3.36 ± 0.15	8100 ± 1000	968 ± 43	59 ± 3	< 5	4.0 ± 0.3	115 ± 25	700 ± 100
	1440 ± 150	3.37 ± 0.15	6900 ± 900	990 ± 40	55 ± 3	< 5	4.0 ± 0.3	120 ± 16	1510 ± 220
	1400 ± 100	3.30 ± 0.10	8400 ± 1100	890 ± 40	50 ± 3	< 5	3.96 ± 0.26	140 ± 20	800 ± 100
	1380 ± 130	3.34 ± 0.15	7500 ± 1000	930 ± 40	56 ± 3	< 5	3.62 ± 0.24	100 ± 30	950 ± 110
	1480 ± 150	3.35 ± 0.15	8100 ± 1000	889 ± 39	50 ± 3	< 5	3.9 ± 0.3	119 ± 16	720 ± 120
Certified	1620 ± 190	3.8 ± 0.4	8600 ± 200	980 ± 50	57 ± 4	0.4	3.5 ± 0.4	124 ± 5	760 ± 60
CCRMP SO-3									
This work	530 ± 50	3.81 ± 0.16	1900 ± 300	1120 ± 50	35 ± 2	< 3	1.72 ± 0.12	58 ± 8	260 ± 50
	450 ± 60	3.65 ± 0.15	2200 ± 300	1100 ± 40	31 ± 2	< 3	1.59 ± 0.13	55 ± 7	390 ± 60
Certified	500 ± 10	3.88 ± 0.21	2000 ± 200	1110 ± 20	36 ± 4	0.6	1.67 ± 0.18	48.3 ± 1.8	156 ± 13
CCRMP SO-4									
This work	540 ± 50	8.1 ± 0.3	3400 ± 500	2340 ± 90	80 ± 4	< 4	2.61 ± 0.18	93 ± 12	300 ± 50
	610 ± 60	7.8 ± 0.3	3200 ± 400	2350 ± 90	80 ± 4	< 3.6	2.47 ± 0.16	95 ± 12	250 ± 40
	580 ± 70	7.7 ± 0.3	3100 ± 400	2190 ± 80	82 ± 4	1.5 ± 0.4	2.57 ± 0.25	85 ± 11	260 ± 40
	600 ± 60	7.5 ± 0.3	3290 ± 440	2320 ± 90	77 ± 3	< 4	2.51 ± 0.17	91 ± 12	560 ± 90
Certified	610 ± 30	8.6 ± 0.7	3400 ± 200	2380 ± 70	85 ± 5	1.0	2.1 ± 0.4	94 ± 3	270 ± 15

Appendix C: Elemental Concentrations in Soils

Table C-I. Individual Elemental Concentration in Soils from Rhyolite Canyon, Chiricahua National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
42	0	---	6.87 ± 0.38	---	---	394 ± 61	---	1.44 ± 0.17	60 ± 6
		---	5.66 ± 0.27	---	---	357 ± 54	---	1.03 ± 0.11	61 ± 6
		---	5.62 ± 0.31	---	---	392 ± 64	---	0.88 ± 0.13	91 ± 9
	6	---	6.31 ± 0.25	---	---	388 ± 53	---	0.60 ± 0.06	92 ± 9
		---	7.23 ± 0.30	---	---	420 ± 63	---	0.44 ± 0.08	93 ± 9
		---	6.38 ± 0.26	---	---	443 ± 64	---	0.52 ± 0.06	94 ± 9
43	0	---	5.92 ± 0.25	---	---	209 ± 44	---	0.25 ± 0.05	72 ± 7
		---	5.33 ± 0.23	---	---	247 ± 47	---	0.40 ± 0.06	78 ± 8
		---	6.79 ± 0.29	---	---	193 ± 43	---	0.37 ± 0.06	92 ± 9
	6	---	7.40 ± 0.44	---	---	396 ± 66	---	0.58 ± 0.07	171 ± 17
		---	6.23 ± 0.27	---	---	306 ± 59	---	0.59 ± 0.08	135 ± 14
		---	5.21 ± 0.24	---	---	165 ± 28	---	< 0.24	75 ± 8
45	0	---	5.99 ± 0.31	---	---	351 ± 57	---	1.49 ± 0.16	55 ± 6
		---	4.92 ± 0.27	---	---	365 ± 55	---	0.85 ± 0.11	68 ± 7
		---	3.62 ± 0.28	---	---	464 ± 73	---	1.83 ± 0.19	54 ± 6
	6	---	5.80 ± 0.23	---	---	338 ± 47	---	0.35 ± 0.05	76 ± 8
		---	5.99 ± 0.25	---	---	307 ± 49	---	0.26 ± 0.04	79 ± 8
		---	5.34 ± 0.24	---	---	352 ± 53	---	0.37 ± 0.06	82 ± 8
47	0	---	5.46 ± 0.22	---	---	206 ± 41	---	0.33 ± 0.05	66 ± 7
		---	5.46 ± 0.25	---	---	269 ± 44	---	0.25 ± 0.06	89 ± 9
		---	5.74 ± 0.28	---	---	150 ± 37	---	0.42 ± 0.07	64 ± 6
	6	---	5.51 ± 0.22	---	---	231 ± 40	---	0.31 ± 0.05	91 ± 9
		---	5.23 ± 0.22	---	---	121 ± 32	---	< 0.14	63 ± 6
		---	5.61 ± 0.24	---	---	247 ± 40	---	< 0.21	94 ± 9
58	0	---	5.53 ± 0.23	---	---	447 ± 62	---	0.51 ± 0.06	84 ± 8
		---	5.58 ± 0.24	---	---	432 ± 59	---	0.49 ± 0.07	80 ± 8
		---	5.39 ± 0.24	---	---	485 ± 65	---	0.62 ± 0.08	87 ± 9
	6	---	6.37 ± 0.24	---	---	449 ± 56	---	0.49 ± 0.06	147 ± 15
		---	6.02 ± 0.25	---	---	401 ± 54	---	0.34 ± 0.05	120 ± 12
		---	6.01 ± 0.25	---	---	410 ± 52	---	0.48 ± 0.07	86 ± 9

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Dy (ug/g)	Eu (ug/g)
42	0	< 220	42.7 ± 6.46	0.8 ± 0.2	80.3 ± 8.27	6.0 ± 0.6	4.0 ± 0.7	0.513 ± 0.079
		150 ± 60	51.6 ± 5.22	1.1 ± 0.2	91.7 ± 6.63	5.73 ± 0.62	4.5 ± 0.7	0.422 ± 0.066
		130 ± 60	3.26 ± 0.67	0.7 ± 0.2	22.5 ± 2.6	6.91 ± 0.62	8.0 ± 0.9	0.661 ± 0.083
	6	50 ± 50	2.82 ± 0.33	0.9 ± 0.2	25.1 ± 2.08	7.44 ± 0.78	6.2 ± 0.6	0.599 ± 0.078
		180 ± 60	1.26 ± 0.40	0.6 ± 0.2	22.2 ± 2.47	7.68 ± 0.67	6.6 ± 0.6	0.544 ± 0.070
		80 ± 40	3.5 ± 0.4	0.8 ± 0.2	25.5 ± 2.16	7.77 ± 0.82	< 5.7	0.575 ± 0.079
43	0	40 ± 50	1.53 ± 0.45	0.5 ± 0.2	15.2 ± 2.0	5.49 ± 0.50	4.2 ± 0.8	0.31 ± 0.05
		60 ± 60	2.55 ± 0.32	0.8 ± 0.2	13.6 ± 1.35	5.14 ± 0.57	5.3 ± 0.4	0.309 ± 0.057
		60 ± 40	1.31 ± 0.43	0.5 ± 0.2	15.0 ± 1.9	5.23 ± 0.47	6.9 ± 0.6	0.304 ± 0.051
	6	95 ± 40	3.59 ± 0.44	0.7 ± 0.2	23.7 ± 2.09	7.01 ± 0.75	14.5 ± 1.2	0.55 ± 0.08
		65 ± 50	2.26 ± 0.54	1.0 ± 0.2	15.7 ± 1.94	7.05 ± 0.63	10.4 ± 0.9	0.378 ± 0.069
		< 150	1.37 ± 0.18	0.6 ± 0.2	7.76 ± 0.88	4.31 ± 0.46	3.1 ± 0.3	0.181 ± 0.033
45	0	240 ± 60	39.4 ± 5.97	1.4 ± 0.2	77.4 ± 7.96	5.83 ± 0.54	3.4 ± 0.6	0.466 ± 0.076
		113 ± 60	4.63 ± 0.54	0.6 ± 0.2	23.0 ± 2.02	6.39 ± 0.69	4.2 ± 0.6	0.51 ± 0.08
		320 ± 80	27.8 ± 4.25	0.8 ± 0.2	62.5 ± 6.55	5.19 ± 0.51	< 11	0.506 ± 0.086
	6	52 ± 40	2.06 ± 0.26	0.8 ± 0.2	17.0 ± 1.43	7.14 ± 0.74	4.3 ± 0.4	0.346 ± 0.057
		< 92	0.92 ± 0.34	0.6 ± 0.2	15.9 ± 1.87	6.67 ± 0.57	5.2 ± 0.6	0.367 ± 0.051
		212 ± 51	2.54 ± 0.32	0.7 ± 0.2	22.0 ± 1.81	5.99 ± 0.64	5.5 ± 0.5	0.455 ± 0.067
47	0	74 ± 43	0.69 ± 0.38	0.9 ± 0.2	9.46 ± 1.3	4.68 ± 0.44	4.4 ± 0.5	0.194 ± 0.046
		41 ± 43	2.66 ± 0.32	0.5 ± 0.2	14.6 ± 1.38	5.4 ± 0.6	6.1 ± 0.6	0.336 ± 0.055
		48 ± 49	---	0.6 ± 0.2	8.82 ± 1.25	5.01 ± 0.46	4.1 ± 0.5	0.369 ± 0.056
	6	88 ± 38	2.05 ± 0.26	0.9 ± 0.2	11.2 ± 1.15	5.06 ± 0.54	7.4 ± 0.7	0.271 ± 0.048
		< 98	---	0.7 ± 0.2	5.43 ± 0.99	3.81 ± 0.36	4.7 ± 0.4	0.202 ± 0.041
		107 ± 84	2.06 ± 0.26	0.8 ± 0.2	12.4 ± 1.28	5.53 ± 0.59	7.0 ± 0.6	0.283 ± 0.049
58	0	112 ± 32	3.11 ± 0.60	0.6 ± 0.2	26.1 ± 2.9	6.1 ± 0.6	8.0 ± 0.8	0.675 ± 0.079
		< 100	3.46 ± 0.39	1.0 ± 0.2	24.4 ± 1.96	6.0 ± 0.6	6.1 ± 0.6	0.543 ± 0.071
		80 ± 52	2.55 ± 0.54	0.8 ± 0.2	20.6 ± 2.32	6.87 ± 0.60	5.8 ± 0.6	0.587 ± 0.071
	6	66 ± 50	4.58 ± 0.49	0.6 ± 0.2	28.7 ± 2.27	7.41 ± 0.77	9.0 ± 0.8	0.606 ± 0.076
		39 ± 37	3.02 ± 0.55	0.8 ± 0.2	23.4 ± 2.54	7.4 ± 0.6	8.0 ± 0.6	0.511 ± 0.061
		107 ± 60	3.51 ± 0.38	0.8 ± 0.2	22.9 ± 1.82	5.39 ± 0.67	7.8 ± 0.7	0.604 ± 0.074

Table C-I. Individual Elemental Concentration in Soils from Rhyolite Canyon, Chiricahua National Monument (cont.)

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (%)
42	0	---	1.45 ± 0.12	< 130	7.88 ± 0.65	---	---	< 0.36	2.44 ± 0.42
		---	1.54 ± 0.11	< 78	7.24 ± 0.60	---	---	< 0.26	2.79 ± 0.44
		---	1.70 ± 0.13	< 120	8.75 ± 0.72	---	---	< 0.27	2.85 ± 0.44
	6	---	1.77 ± 0.12	< 37	12.4 ± 1.01	---	---	< 0.14	3.56 ± 0.38
		---	1.68 ± 0.13	< 56	11.8 ± 0.96	---	---	< 0.17	3.06 ± 0.27
		---	1.77 ± 0.12	< 43	11.4 ± 0.93	---	---	< 0.15	3.40 ± 0.37
43	0	---	1.60 ± 0.13	< 55	12.5 ± 1.03	---	---	< 0.14	3.05 ± 0.25
		---	1.45 ± 0.10	< 54	9.29 ± 0.76	---	---	< 0.16	2.91 ± 0.25
		201 ± 20	1.52 ± 0.12	< 56	10.6 ± 0.87	---	---	< 0.17	3.24 ± 0.28
	6	385 ± 39	1.65 ± 0.12	< 45	9.76 ± 0.80	---	---	0.20 ± 0.08	3.35 ± 0.38
		---	1.52 ± 0.12	< 59	9.87 ± 0.81	---	---	< 0.15	3.01 ± 0.28
		---	1.49 ± 0.10	< 48	9.39 ± 0.76	---	---	< 0.19	3.12 ± 0.26
45	0	---	1.47 ± 0.12	< 96	6.59 ± 0.56	---	---	< 0.28	1.63 ± 0.35
		---	1.62 ± 0.11	< 83	8.59 ± 0.71	---	---	< 0.20	2.09 ± 0.26
		---	1.49 ± 0.12	< 120	5.98 ± 0.52	---	---	< 0.33	2.00 ± 0.37
	6	---	1.35 ± 0.09	< 32	11.7 ± 0.95	---	---	< 0.11	3.40 ± 0.36
		---	1.30 ± 0.10	< 42	11.5 ± 0.94	---	---	< 0.11	3.03 ± 0.23
		---	1.54 ± 0.11	77 ± 23	10.9 ± 0.89	---	---	< 0.16	2.83 ± 0.25
47	0	---	1.32 ± 0.10	< 42	8.71 ± 0.72	---	---	< 0.14	3.07 ± 0.33
		---	1.58 ± 0.11	< 64	12.9 ± 1.05	---	---	< 0.16	3.18 ± 0.29
		---	1.11 ± 0.09	< 66	10.9 ± 0.89	---	---	< 0.20	2.74 ± 0.28
	6	---	1.26 ± 0.09	< 34	9.30 ± 0.76	---	---	< 0.12	3.15 ± 0.34
		---	1.03 ± 0.08	< 43	7.46 ± 0.61	---	---	< 0.12	3.03 ± 0.24
		---	1.45 ± 0.10	< 46	12.0 ± 0.98	---	---	0.17 ± 0.06	3.23 ± 0.25
58	0	---	1.50 ± 0.12	< 40	12.2 ± 1.0	---	---	< 0.14	2.92 ± 0.33
		---	1.59 ± 0.11	< 54	12.3 ± 1.0	---	---	< 0.14	2.70 ± 0.23
		---	1.61 ± 0.13	< 58	12.2 ± 0.99	---	---	< 0.17	2.82 ± 0.26
	6	---	1.72 ± 0.12	< 33	10.6 ± 0.86	---	---	< 0.11	3.02 ± 0.33
		---	1.61 ± 0.13	< 46	12.8 ± 1.04	---	---	< 0.12	2.88 ± 0.22
		---	1.52 ± 0.10	< 50	11.3 ± 0.92	---	---	< 0.15	2.91 ± 0.25

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (%)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
42	0	---	---	< 0.67	4140 ± 180	1.10 ± 0.04	---	---	167 ± 18
		---	---	< 0.54	3700 ± 170	1.15 ± 0.04	---	---	212 ± 22
		---	---	< 0.61	3480 ± 150	1.43 ± 0.05	---	---	210 ± 22
	6	---	---	< 0.30	732 ± 33	1.80 ± 0.06	---	---	367 ± 38
		---	---	< 0.37	846 ± 39	1.88 ± 0.06	---	---	282 ± 29
		---	---	0.43 ± 0.11	1061 ± 48	1.81 ± 0.07	---	---	331 ± 34
43	0	---	---	< 0.36	820 ± 37	1.82 ± 0.07	---	---	285 ± 29
		---	---	< 0.36	682 ± 31	1.75 ± 0.06	---	---	328 ± 34
		---	---	< 0.37	792 ± 36	1.81 ± 0.06	---	5.3 ± 0.3	264 ± 28
	6	---	---	< 0.37	929 ± 42	1.65 ± 0.06	---	5.8 ± 0.3	354 ± 37
		---	---	< 0.39	799 ± 36	1.67 ± 0.06	---	---	284 ± 29
		---	---	< 0.44	477 ± 22	1.98 ± 0.07	---	---	311 ± 32
45	0	---	---	< 0.54	2300 ± 100	1.02 ± 0.04	---	---	152 ± 17
		---	---	< 0.49	1620 ± 70	1.31 ± 0.05	---	---	237 ± 25
		---	---	< 0.63	3450 ± 160	0.77 ± 0.03	---	---	132 ± 15
	6	---	---	< 0.28	342 ± 16	1.71 ± 0.06	---	---	344 ± 35
		---	---	< 0.31	413 ± 19	1.64 ± 0.06	---	---	260 ± 27
		---	---	< 0.37	488 ± 22	1.58 ± 0.06	---	---	299 ± 31
47	0	---	---	< 0.34	864 ± 40	1.89 ± 0.06	---	---	256 ± 27
		---	---	< 0.41	1040 ± 50	1.79 ± 0.06	---	---	297 ± 31
		---	---	< 0.42	994 ± 46	1.89 ± 0.06	---	---	243 ± 25
	6	---	---	0.34 ± 0.11	538 ± 25	1.89 ± 0.07	---	---	342 ± 35
		---	---	< 0.32	401 ± 18	2.08 ± 0.07	---	---	241 ± 25
		---	---	< 0.32	455 ± 23	1.90 ± 0.07	---	---	336 ± 34
58	0	---	---	< 0.32	848 ± 38	1.57 ± 0.05	---	---	224 ± 24
		---	---	< 0.35	842 ± 38	1.62 ± 0.06	---	---	287 ± 30
		---	---	< 0.38	964 ± 43	1.62 ± 0.06	---	---	236 ± 25
	6	---	---	0.46 ± 0.11	534 ± 24	1.50 ± 0.05	---	---	312 ± 32
		---	---	< 0.32	525 ± 24	1.57 ± 0.06	---	---	258 ± 26
		---	---	< 0.34	692 ± 31	1.67 ± 0.06	---	---	302 ± 31

Table C-I. Individual Elemental Concentration in Soils from Rhyolite Canyon, Chiricahua National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
42	0	1.54 ± 0.33	4.09 ± 0.29	---	28 ± 2	5.46 ± 0.86	< 590	2.33 ± 0.39	---
		1.78 ± 0.27	4.12 ± 0.21	---	19.7 ± 1.8	1.88 ± 0.27	< 560	2.44 ± 0.28	---
		1.25 ± 0.28	4.74 ± 0.33	---	25 ± 2	9.44 ± 1.44	< 620	1.74 ± 0.29	---
	6	0.93 ± 0.19	4.48 ± 0.23	---	26.9 ± 1.4	2.73 ± 0.36	< 230	2.41 ± 0.26	---
		0.88 ± 0.19	4.55 ± 0.32	---	30 ± 3	8.08 ± 1.25	< 230	2.85 ± 0.45	---
		1.03 ± 0.18	4.85 ± 0.24	---	28 ± 3	3.13 ± 0.41	< 280	2.31 ± 0.26	---
43	0	0.54 ± 0.16	3.18 ± 0.22	---	27.6 ± 1.4	5.72 ± 0.90	< 270	3.46 ± 0.54	---
		0.55 ± 0.14	2.85 ± 0.14	---	28 ± 2	7.18 ± 0.76	< 270	3.16 ± 0.34	---
		0.90 ± 0.20	2.84 ± 0.20	---	26 ± 4	8.36 ± 1.29	< 230	3.61 ± 0.57	---
	6	1.58 ± 0.26	4.42 ± 0.22	---	27 ± 2	10.2 ± 1.09	< 290	2.75 ± 0.31	---
		1.10 ± 0.25	3.70 ± 0.26	---	29.1 ± 1.5	12.7 ± 1.94	< 300	3.42 ± 0.53	---
		0.39 ± 0.09	2.13 ± 0.11	---	30 ± 3	5.59 ± 0.58	< 240	4.14 ± 0.43	---
45	0	1.99 ± 0.39	4.11 ± 0.29	---	22.9 ± 1.6	4.89 ± 0.8	< 450	1.88 ± 0.33	---
		1.48 ± 0.25	4.68 ± 0.24	---	26.3 ± 1.7	6.14 ± 0.67	< 450	2.09 ± 0.25	---
		1.70 ± 0.36	4.39 ± 0.31	---	19 ± 2	6.00 ± 0.97	< 570	1.41 ± 0.26	---
	6	0.80 ± 0.17	3.46 ± 0.17	---	29.6 ± 1.5	6.12 ± 0.65	< 180	2.65 ± 0.29	---
		0.68 ± 0.17	3.27 ± 0.23	---	31 ± 2	6.96 ± 1.08	< 210	2.88 ± 0.45	---
		0.82 ± 0.19	4.18 ± 0.22	---	30 ± 2	6.76 ± 0.72	< 210	2.22 ± 0.25	---
47	0	0.55 ± 0.15	2.48 ± 0.17	---	30 ± 2	5.69 ± 0.89	< 260	2.80 ± 0.44	---
		0.72 ± 0.14	3.35 ± 0.17	---	30.4 ± 1.7	7.76 ± 0.81	< 330	3.18 ± 0.34	---
		0.55 ± 0.17	2.28 ± 0.16	---	24 ± 5	5.93 ± 0.93	< 280	2.57 ± 0.41	---
	6	0.52 ± 0.14	2.60 ± 0.14	---	34 ± 2	8.50 ± 0.91	< 200	2.38 ± 0.26	---
		0.26 ± 0.10	1.59 ± 0.11	---	31 ± 2	4.11 ± 0.66	< 210	2.76 ± 0.43	---
		0.34 ± 0.10	2.86 ± 0.14	---	32 ± 2	8.43 ± 0.87	< 180	3.08 ± 0.33	---
58	0	1.07 ± 0.24	4.23 ± 0.30	---	29 ± 2	9.89 ± 1.52	< 260	2.40 ± 0.38	---
		0.91 ± 0.17	4.27 ± 0.21	---	35.5 ± 1.8	7.68 ± 0.80	< 270	2.71 ± 0.29	---
		1.18 ± 0.25	4.37 ± 0.31	---	28 ± 3	9.05 ± 1.40	< 250	2.80 ± 0.44	---
	6	0.66 ± 0.14	4.76 ± 0.24	---	31.7 ± 1.5	10.5 ± 1.08	< 200	2.55 ± 0.27	---
		0.66 ± 0.16	4.64 ± 0.32	---	29 ± 4	10.4 ± 1.59	< 230	2.70 ± 0.42	---
		0.50 ± 0.13	4.27 ± 0.21	---	32 ± 2	8.27 ± 0.85	< 210	2.43 ± 0.26	---

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
42	0	14.8 ± 1.2	1870 ± 330	3.73 ± 0.30	24.9 ± 3.1	370 ± 100	3.01 ± 0.35	138 ± 28	---
		15.3 ± 1.2	1630 ± 300	3.89 ± 0.30	28.0 ± 2.4	400 ± 68	3.14 ± 0.34	134 ± 20	---
		18.5 ± 1.5	2710 ± 460	4.92 ± 0.40	30.1 ± 2.7	< 280	4.18 ± 0.46	116 ± 24	---
	6	23.5 ± 1.9	2460 ± 350	5.48 ± 0.45	22.6 ± 1.9	< 150	4.44 ± 0.46	76 ± 12	---
		24.2 ± 1.9	2620 ± 310	5.64 ± 0.40	23.6 ± 2.3	< 140	4.49 ± 0.48	89 ± 18	---
		24.5 ± 1.9	3220 ± 480	5.37 ± 0.40	29.7 ± 2.3	< 150	4.56 ± 0.48	84 ± 13	---
43	0	25.6 ± 2.0	1880 ± 260	5.55 ± 0.40	19.8 ± 2.0	< 130	3.47 ± 0.38	94 ± 19	---
		26.5 ± 2.1	1880 ± 220	5.70 ± 0.45	18.0 ± 2.2	< 180	3.74 ± 0.40	77 ± 12	---
		26.0 ± 2.1	2060 ± 270	5.87 ± 0.50	15.1 ± 2.0	< 140	4.43 ± 0.47	78 ± 16	---
	6	37.2 ± 3.0	2090 ± 340	7.54 ± 0.60	23.2 ± 2.0	< 160	7.67 ± 0.79	109 ± 17	---
		31.6 ± 2.5	1630 ± 230	6.29 ± 0.50	16.8 ± 2.3	< 140	6.23 ± 0.65	90 ± 18	---
		24.0 ± 1.9	1550 ± 220	5.28 ± 0.40	< 6.1	< 170	3.09 ± 0.32	66 ± 10	---
45	0	11.7 ± 0.9	1840 ± 310	3.46 ± 0.30	26.4 ± 2.7	257 ± 84	2.41 ± 0.31	109 ± 22	---
		15.8 ± 1.2	3030 ± 350	4.82 ± 0.40	31.9 ± 2.8	< 200	3.03 ± 0.35	112 ± 17	---
		10.1 ± 0.8	2330 ± 380	2.73 ± 0.25	28.3 ± 2.7	300 ± 110	2.45 ± 0.31	115 ± 23	---
	6	20.9 ± 1.6	2200 ± 340	6.73 ± 0.60	19.0 ± 1.9	< 99	3.73 ± 0.39	67 ± 10	---
		20.6 ± 1.6	2410 ± 240	6.93 ± 0.60	14.6 ± 1.8	< 93	3.70 ± 0.40	56 ± 11	---
		22.5 ± 1.8	2360 ± 250	5.89 ± 0.50	21.5 ± 2.4	< 130	3.75 ± 0.39	70 ± 11	---
47	0	19.4 ± 1.5	1370 ± 260	5.11 ± 0.40	11.0 ± 1.5	< 140	3.16 ± 0.35	71 ± 14	---
		25.3 ± 2.0	1830 ± 300	6.09 ± 0.50	17.6 ± 2.3	< 150	4.46 ± 0.46	86 ± 13	---
		18.5 ± 1.5	2000 ± 290	5.24 ± 0.40	16.8 ± 2.6	< 180	3.36 ± 0.37	56 ± 11	---
	6	26.1 ± 2.1	1510 ± 260	6.55 ± 0.55	13.7 ± 1.7	< 110	4.74 ± 0.49	77 ± 12	---
		19.9 ± 1.6	1310 ± 230	5.30 ± 0.45	6.9 ± 1.4	< 94	2.93 ± 0.31	49 ± 10	---
		28.2 ± 2.2	1490 ± 200	6.28 ± 0.50	14.1 ± 2.0	< 110	4.68 ± 0.49	71 ± 11	---
58	0	19.6 ± 1.5	2890 ± 420	6.4 ± 0.5	36.4 ± 2.6	< 140	5.03 ± 0.53	88 ± 18	---
		19.7 ± 1.6	2980 ± 250	5.95 ± 0.50	32.0 ± 2.5	< 120	4.05 ± 0.42	70 ± 11	---
		20.1 ± 1.6	2730 ± 260	5.98 ± 0.50	29.4 ± 2.7	< 150	4.28 ± 0.45	67 ± 13	---
	6	28.9 ± 2.3	2960 ± 410	7.36 ± 0.60	37.2 ± 2.5	< 110	5.37 ± 0.55	79 ± 12	---
		27.4 ± 2.2	3080 ± 300	6.84 ± 0.60	28.3 ± 2.3	< 110	5.60 ± 0.58	65 ± 13	---
		21.1 ± 1.7	3290 ± 340	6.51 ± 0.60	29.1 ± 2.4	< 130	4.49 ± 0.46	63 ± 9	---

Table C-11. Individual Elemental Concentration in Soils from Gila Cliffs National Monument, New Mexico

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
21	0	---	6.57 ± 0.28	---	---	659 ± 74	---	0.57 ± 0.07	92 ± 9
		---	7.83 ± 0.31	---	---	483 ± 58	---	0.55 ± 0.08	84 ± 8
		---	6.53 ± 0.27	---	---	450 ± 65	---	0.66 ± 0.08	96 ± 10
	6	---	6.84 ± 0.27	---	---	758 ± 86	---	0.51 ± 0.06	91 ± 9
		---	6.89 ± 0.30	---	---	667 ± 71	---	0.49 ± 0.07	81 ± 8
		---	7.45 ± 0.31	---	---	681 ± 75	---	0.54 ± 0.06	85 ± 8
27	0	---	6.50 ± 0.27	---	---	499 ± 61	---	1.54 ± 0.12	74 ± 7
		---	6.24 ± 0.27	---	---	580 ± 68	---	1.82 ± 0.15	96 ± 10
		---	6.00 ± 0.20	---	---	524 ± 57	---	1.38 ± 0.11	78 ± 8
	6	---	6.70 ± 0.30	---	---	594 ± 65	---	1.48 ± 0.12	115 ± 12
		---	6.70 ± 0.30	---	---	595 ± 73	---	1.61 ± 0.14	120 ± 12
		---	6.80 ± 0.30	---	---	596 ± 72	---	1.16 ± 0.11	110 ± 11

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
21	0	< 100	7.98 ± 0.83	0.4 ± 0.2	40.8 ± 3.06	3.54 ± 0.40	---	7.5 ± 0.7	1.07 ± 0.12
		< 140	5.75 ± 0.92	0.6 ± 0.2	35.9 ± 3.72	3.19 ± 0.33	---	11.1 ± 0.9	0.933 ± 0.094
		180 ± 50	5.62 ± 0.63	0.6 ± 0.2	37.2 ± 2.93	3.22 ± 0.41	---	10.7 ± 0.9	0.966 ± 0.125
	6	20 ± 30	6.27 ± 1.00	0.4 ± 0.2	41.6 ± 4.32	3.93 ± 0.38	---	8.6 ± 0.7	0.984 ± 0.100
		35 ± 60	6.52 ± 0.67	0.6 ± 0.2	44.7 ± 3.24	3.88 ± 0.42	---	10.3 ± 0.5	1.03 ± 0.11
		< 100	7.44 ± 1.15	0.6 ± 0.2	47.0 ± 4.8	4.07 ± 0.36	---	8.5 ± 0.7	1.11 ± 0.10
27	0	210 ± 50	7.39 ± 0.78	0.3 ± 0.2	50.4 ± 3.68	4.09 ± 0.46	---	12.8 ± 1.1	0.875 ± 0.106
		80 ± 40	6.96 ± 1.1	0.4 ± 0.2	52.1 ± 5.35	4.09 ± 0.38	---	10.3 ± 1.3	1.02 ± 0.10
		100 ± 40	7.83 ± 0.80	0.4 ± 0.2	40.4 ± 2.94	4.22 ± 0.45	---	7.0 ± 0.7	0.864 ± 0.096
	6	40 ± 40	7.17 ± 1.1	0.5 ± 0.2	43.5 ± 4.44	4.24 ± 0.37	---	20.1 ± 1.7	0.979 ± 0.089
		100 ± 50	7.46 ± 0.78	0.5 ± 0.2	50.1 ± 3.77	3.82 ± 0.44	---	13.8 ± 1.2	1.07 ± 0.12
		60 ± 50	6.31 ± 1.01	0.3 ± 0.2	51.1 ± 5.29	3.91 ± 0.40	---	12.6 ± 1.0	1.15 ± 0.11

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (%)
21	0	---	2.33 ± 0.16	< 58	10.6 ± 0.86	---	---	< 0.18	3.63 ± 0.31
		---	2.40 ± 0.19	< 58	9.75 ± 0.79	---	---	< 0.18	3.06 ± 0.24
		250 ± 25	2.32 ± 0.16	< 45	11.0 ± 0.90	---	---	< 0.16	3.16 ± 0.36
	6	352 ± 35	2.28 ± 0.18	< 48	10.4 ± 0.85	---	---	< 0.12	3.44 ± 0.27
		---	2.26 ± 0.16	< 54	10.4 ± 0.84	---	---	< 0.21	3.47 ± 0.30
		---	2.45 ± 0.19	< 54	11.1 ± 0.90	---	---	< 0.17	3.63 ± 0.29
27	0	---	2.35 ± 0.16	< 45	10.0 ± 0.81	---	---	< 0.16	3.01 ± 0.35
		---	2.68 ± 0.21	< 59	10.5 ± 0.86	---	---	< 0.15	3.06 ± 0.27
		---	2.09 ± 0.14	< 40	7.82 ± 0.63	---	---	< 0.13	2.90 ± 0.30
	6	---	2.57 ± 0.20	< 50	10.2 ± 0.83	---	---	< 0.14	2.9 ± 0.2
		---	2.54 ± 0.18	< 60	10.9 ± 0.89	---	---	< 0.20	3.0 ± 0.3
		---	2.38 ± 0.19	53 ± 18	12.9 ± 1.05	---	---	< 0.16	3.5 ± 0.3

Table C-II. Individual Elemental Concentration in Soils from Gila Cliffs National Monument, New Mexico (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (%)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
21	0	---	---	< 0.38	956 ± 43	1.95 ± 0.07	---	---	209 ± 22
		---	---	< 0.39	730 ± 33	2.17 ± 0.07	---	---	147 ± 15
		---	---	< 0.37	720 ± 32	1.83 ± 0.06	---	4.4 ± 0.3	161 ± 18
	6	---	---	< 0.33	681 ± 31	1.91 ± 0.07	---	5.9 ± 0.3	157 ± 16
		---	---	< 0.49	654 ± 33	2.01 ± 0.07	---	---	203 ± 21
		---	---	< 0.36	790 ± 36	2.05 ± 0.07	---	---	166 ± 17
27	0	---	---	0.67 ± 0.13	760 ± 34	1.33 ± 0.04	---	---	147 ± 16
		---	---	0.58 ± 0.14	757 ± 35	1.39 ± 0.05	---	---	128 ± 14
		---	---	0.61 ± 0.13	710 ± 30	1.25 ± 0.04	---	---	163 ± 17
		---	---	0.83 ± 0.15	740 ± 30	1.45 ± 0.06	---	---	129 ± 13
	6	---	---	0.54 ± 0.15	920 ± 40	1.42 ± 0.06	---	---	157 ± 17
		---	---	0.72 ± 0.16	810 ± 40	1.52 ± 0.05	---	---	143 ± 15

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
21	0	0.77 ± 0.16	5.09 ± 0.26	---	27 ± 3	9.92 ± 0.99	< 290	1.47 ± 0.18	---
		1.17 ± 0.23	4.26 ± 0.30	---	29.7 ± 1.8	11.6 ± 2.0	< 240	1.76 ± 0.28	---
		0.60 ± 0.17	5.22 ± 0.26	---	26 ± 2	11.3 ± 1.1	< 270	1.72 ± 0.22	---
	6	0.74 ± 0.18	5.15 ± 0.36	---	29 ± 2	9.1 ± 1.8	< 240	1.60 ± 0.27	---
		0.61 ± 0.12	5.25 ± 0.26	---	28.7 ± 1.8	8.13 ± 0.81	< 290	1.49 ± 0.16	---
		0.68 ± 0.15	5.31 ± 0.37	---	30 ± 2	9.12 ± 1.37	< 230	1.69 ± 0.27	---
27	0	0.61 ± 0.15	6.17 ± 0.31	---	23.3 ± 1.5	10.9 ± 2.2	< 290	1.22 ± 0.16	---
		1.11 ± 0.25	6.64 ± 0.47	---	26 ± 2	10.1 ± 2.1	< 300	1.51 ± 0.25	---
		0.83 ± 0.14	5.83 ± 0.29	---	22.9 ± 2.0	8.39 ± 0.84	< 200	1.26 ± 0.14	---
	6	0.48 ± 0.12	6.66 ± 0.47	---	26.3 ± 1.4	11.1 ± 1.67	< 300	1.53 ± 0.24	---
		1.02 ± 0.20	6.82 ± 0.34	---	26.6 ± 1.3	13.7 ± 1.39	< 300	1.65 ± 0.20	---
		0.83 ± 0.20	6.32 ± 0.44	---	32.2 ± 1.8	13.7 ± 2.06	430 ± 110	1.78 ± 0.29	---

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
21	0	17.2 ± 1.3	4480 ± 340	3.89 ± 0.3	49.3 ± 2.7	< 190	5.28 ± 0.54	78 ± 12	---
		14.0 ± 1.1	3300 ± 290	3.30 ± 0.3	43.0 ± 3.2	< 150	4.99 ± 0.52	92 ± 18	---
		14.3 ± 1.1	3900 ± 560	2.91 ± 0.2	36.6 ± 2.3	< 150	5.92 ± 0.62	103 ± 16	---
	6	16.5 ± 1.3	4170 ± 340	3.96 ± 0.3	51.7 ± 2.9	< 110	4.75 ± 0.50	85 ± 17	---
		16.5 ± 1.3	4100 ± 380	4.05 ± 0.35	56.1 ± 4.2	< 200	4.52 ± 0.46	64 ± 9	---
		17.3 ± 1.4	4540 ± 370	3.97 ± 0.3	63.0 ± 3.6	< 140	4.86 ± 0.50	89 ± 18	---
27	0	13.1 ± 1.0	3190 ± 480	3.07 ± 0.25	51.3 ± 3.2	< 160	4.07 ± 0.43	89 ± 13	---
		14.8 ± 1.2	3980 ± 350	3.51 ± 0.3	55.4 ± 3.7	< 130	5.35 ± 0.55	101 ± 20	---
		13.9 ± 1.1	2800 ± 400	3.35 ± 0.3	44 ± 3	< 130	4.27 ± 0.44	83 ± 12	---
	6	17.3 ± 1.4	3900 ± 400	3.6 ± 0.3	50 ± 3	< 120	5.48 ± 0.56	82 ± 16	---
		16.9 ± 1.3	4100 ± 400	3.74 ± 0.3	60 ± 4	< 170	6.64 ± 0.68	78 ± 12	---
		17.1 ± 1.3	4000 ± 300	3.6 ± 0.3	57 ± 3	< 140	6.59 ± 0.68	78 ± 16	---

Table C-III. Individual Elemental Concentration in Soils of Cactus Plot # 5, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (ug/g)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
1	0	< 2	61900 ± 1700	2.6 ± 0.4	< 0.0070	570 ± 40	< 1.9	8300 ± 500	95 ± 4
		< 2.3	61500 ± 1700	3.5 ± 0.4	< 0.010	560 ± 90	2.4 ± 0.5	7500 ± 500	110 ± 5
		5 ± 1	63600 ± 1800	2.5 ± 0.3	< 0.0080	490 ± 70	2.1 ± 0.4	5900 ± 500	107 ± 5
	6	< 3	81300 ± 2300	4.8 ± 0.6	< 0.0110	600 ± 40	5.2 ± 0.7	8500 ± 600	126 ± 6
		< 4	90000 ± 3000	6.5 ± 0.7	< 0.0110	530 ± 40	7.0 ± 0.8	6500 ± 500	118 ± 5
		< 3	76600 ± 2100	3.9 ± 0.5	< 0.0110	540 ± 90	10.3 ± 1.2	14600 ± 800	121 ± 5
2	0	< 2.3	59000 ± 1700	2.9 ± 0.4	< 0.010	560 ± 150	2.4 ± 0.3	20200 ± 1000	116 ± 5
	6	< 4	74200 ± 2100	4.7 ± 0.5	< 0.0120	600 ± 50	8.5 ± 1.1	8300 ± 600	121 ± 6
3	0	< 2.4	61400 ± 1700	3.3 ± 0.5	< 0.0080	560 ± 40	1.8 ± 0.3	6500 ± 500	110 ± 5
	6	< 2.5	74400 ± 2100	3.7 ± 0.5	< 0.0110	640 ± 130	5.4 ± 0.7	5900 ± 500	114 ± 5
4	0	< 2.1	58100 ± 1600	2.6 ± 0.3	< 0.010	550 ± 40	0.9 ± 0.4	6700 ± 500	128 ± 6
	6	< 3	72300 ± 2000	3.6 ± 0.5	< 0.0110	590 ± 40	5.9 ± 0.7	7400 ± 500	115 ± 5
5	0	< 2.2	60300 ± 1700	3.2 ± 0.4	< 0.0070	510 ± 50	1.6 ± 0.3	7100 ± 500	120 ± 5
	6	< 2.3	71600 ± 2000	4.3 ± 0.5	< 0.010	600 ± 40	2.8 ± 0.4	6400 ± 500	115 ± 5
6	0	< 2	62600 ± 1800	3.2 ± 0.4	< 0.010	400 ± 30	2.6 ± 0.3	6500 ± 500	75 ± 3
	6	< 3	80300 ± 2200	4.6 ± 0.6	< 0.0110	620 ± 40	7.3 ± 0.8	6700 ± 500	121 ± 6
7	0	< 2.1	63200 ± 1800	2.9 ± 0.4	< 0.010	540 ± 110	1.3 ± 0.3	7500 ± 500	107 ± 5
	6	< 3	70600 ± 2000	3.6 ± 0.5	< 0.0110	570 ± 40	2.7 ± 0.4	7200 ± 500	115 ± 5
8	0	< 2.1	59800 ± 1700	3.0 ± 0.4	< 0.0070	590 ± 50	1.2 ± 0.2	8000 ± 500	105 ± 5
	6	< 2.3	71900 ± 2000	4.5 ± 0.5	< 0.0090	570 ± 40	3.9 ± 0.4	5200 ± 400	109 ± 5
9	0	< 2.3	65400 ± 1800	2.7 ± 0.3	< 0.010	550 ± 100	< 2.4	7100 ± 500	134 ± 6
	6	< 3	70000 ± 2000	4.1 ± 0.5	< 0.0120	640 ± 90	5.3 ± 0.6	7500 ± 500	123 ± 6
10	0	< 2.2	62800 ± 1800	2.5 ± 0.4	< 0.0080	560 ± 120	0.6 ± 0.2	7900 ± 500	138 ± 6
	6	< 2.3	72900 ± 2000	3.2 ± 0.4	< 0.010	520 ± 30	6.6 ± 0.7	16500 ± 900	110 ± 5
11	0	< 2.3	60600 ± 1700	2.4 ± 0.3	< 0.010	550 ± 140	3.8 ± 0.4	13300 ± 2400	104 ± 5
	6	< 3	72500 ± 2000	3.5 ± 0.5	< 0.010	600 ± 40	8 ± 1	< 3000	112 ± 5
12	0	< 2.4	61400 ± 2300	2.9 ± 0.4	< 0.0080	520 ± 40	6.0 ± 0.7	22500 ± 1100	110 ± 5
	6	< 2.4	74900 ± 2100	3.3 ± 0.4	< 0.010	560 ± 70	5.4 ± 0.6	7500 ± 500	115 ± 5

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	< 90	4.3 ± 0.3	---	24.3 ± 1.5	5.1 ± 0.3	< 190	11.3 ± 0.9	1.23 ± 0.08
		< 90	5.3 ± 0.3	---	31.7 ± 2	6.4 ± 0.4	< 190	11.8 ± 1.0	1.42 ± 0.09
		< 100	4.4 ± 0.3	---	27.0 ± 1.7	5.0 ± 0.4	< 200	13.4 ± 1.0	1.27 ± 0.09
	6	< 80	9.3 ± 0.5	---	42 ± 3	7.8 ± 0.5	< 250	13.3 ± 1.0	1.79 ± 0.10
		< 80	10.3 ± 0.5	---	55 ± 3	10.2 ± 0.6	< 220	11.7 ± 1.0	1.87 ± 0.11
		< 80	9.4 ± 0.5	---	40.1 ± 2.5	8.5 ± 0.5	< 240	12.9 ± 1.0	1.67 ± 0.10
2	0	< 90	5.1 ± 0.3	---	32.6 ± 2.0	5.8 ± 0.3	< 190	12.8 ± 1.0	1.53 ± 0.10
	6	< 80	10.1 ± 0.6	---	47 ± 3	9.8 ± 0.6	< 220	11.0 ± 0.9	1.60 ± 0.08
3	0	< 100	5.0 ± 0.3	---	31.3 ± 1.9	5.0 ± 0.3	< 200	15.6 ± 1.2	1.36 ± 0.07
	6	< 80	8.1 ± 0.4	---	42 ± 3	7.0 ± 0.4	< 240	11.9 ± 0.9	1.67 ± 0.10
4	0	< 80	4.9 ± 0.3	---	33.3 ± 2.1	5.2 ± 0.3	< 190	13.6 ± 1.1	1.60 ± 0.10
	6	< 70	7.9 ± 0.4	---	39.1 ± 2.4	8.0 ± 0.5	< 210	14.4 ± 1.1	1.46 ± 0.07
5	0	< 90	5.4 ± 0.3	---	32.1 ± 2.0	4.8 ± 0.3	< 200	14.3 ± 1.1	1.52 ± 0.10
	6	< 70	8.8 ± 0.5	---	40.4 ± 2.5	7.2 ± 0.4	< 220	12.9 ± 1.0	1.63 ± 0.11
6	0	< 90	4.15 ± 0.24	---	21.5 ± 1.4	3.96 ± 0.23	< 190	12.4 ± 1.0	1.08 ± 0.06
	6	< 80	9.1 ± 0.5	---	55 ± 3	7.7 ± 0.5	< 210	12 ± 1	1.63 ± 0.09
7	0	< 80	4.9 ± 0.3	---	31.2 ± 1.9	5.1 ± 0.3	< 180	12.2 ± 1.0	1.41 ± 0.08
	6	< 80	7.3 ± 0.4	---	43 ± 3	7.0 ± 0.4	< 210	11.4 ± 0.9	1.57 ± 0.09
8	0	< 90	4.7 ± 0.3	---	29.4 ± 1.8	4.3 ± 0.3	< 190	12.3 ± 1.0	1.40 ± 0.09
	6	< 70	8.5 ± 0.5	---	51 ± 3	6.7 ± 0.4	< 200	10.9 ± 0.8	1.55 ± 0.10
9	0	< 90	5.9 ± 0.3	---	33.7 ± 2.1	5.4 ± 0.3	< 190	16.2 ± 1.3	1.68 ± 0.09
	6	< 80	7.3 ± 0.4	---	50 ± 3	6.1 ± 0.3	< 220	12.7 ± 1.0	1.63 ± 0.08
10	0	< 100	5.1 ± 0.3	---	30.6 ± 1.9	4.5 ± 0.3	< 210	18.1 ± 1.4	1.73 ± 0.11
	6	< 80	7.3 ± 0.4	---	42 ± 3	6.3 ± 0.4	< 220	11.4 ± 0.9	1.55 ± 0.09
11	0	< 90	4.7 ± 0.3	---	28.3 ± 1.8	4.8 ± 0.3	< 190	13.6 ± 1.0	1.36 ± 0.07
	6	< 70	7.4 ± 0.4	---	37.3 ± 2.4	6.0 ± 0.4	< 210	10.9 ± 0.9	1.58 ± 0.08
12	0	< 100	5.1 ± 0.3	---	28.7 ± 1.8	4.6 ± 0.3	< 210	13.8 ± 1.0	1.42 ± 0.09
	6	< 80	7.0 ± 0.4	---	38.3 ± 2.4	6.0 ± 0.3	< 230	12.1 ± 0.9	1.62 ± 0.10

Table C-III. Individual Elemental Concentration in Soils of Cactus Plot # 5, Saguaro National Monument (cont.)

Tree #	Depth (in)	F (ug/g)	Fe (ug/g)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (ug/g)
1	0	---	25800 ± 1400	< 15	11.8 ± 0.9	< 0.4	< 14	< 0.18	29500 ± 1900
		---	29200 ± 1600	< 16	15.3 ± 0.9	< 0.4	< 16	< 0.19	28200 ± 1800
		---	25500 ± 1300	< 17	12.9 ± 1.7	< 0.4	< 15	< 0.19	30400 ± 1900
	6	---	33000 ± 1700	19 ± 4	11.6 ± 0.8	< 0.5	< 15	< 0.18	31000 ± 2000
		---	35600 ± 1800	24 ± 4	11.1 ± 1.1	< 0.7	< 16	< 0.21	30500 ± 2000
		---	35100 ± 1800	21 ± 4	13.0 ± 0.8	< 0.5	< 15	< 0.17	32100 ± 2100
2	0	---	31400 ± 1700	15 ± 3	17.8 ± 1.1	< 0.5	< 17	< 0.19	27900 ± 1800
	6	---	34700 ± 1800	< 19	13.3 ± 0.6	< 0.7	< 17	< 0.21	30300 ± 2000
3	0	---	30000 ± 1500	< 17	15.7 ± 0.8	< 0.4	< 16	< 0.19	29700 ± 1900
	6	---	31600 ± 1600	18 ± 3	12.9 ± 0.9	< 0.5	< 15	< 0.17	30900 ± 2000
4	0	---	32200 ± 1800	< 16	18.3 ± 1.1	< 0.4	< 16	< 0.18	28900 ± 1900
	6	---	30700 ± 1700	12 ± 3	12.8 ± 0.5	< 0.6	< 16	0.07 ± 0.03	28200 ± 1800
5	0	---	32600 ± 1800	< 16	19.4 ± 1.7	< 0.4	< 15	< 0.18	27100 ± 1700
	6	---	32400 ± 1600	< 17	14.6 ± 1.0	< 0.4	< 14	< 0.16	31600 ± 2000
6	0	---	21100 ± 1300	< 17	10.3 ± 0.7	< 0.4	< 17	< 0.19	29400 ± 1900
	6	---	31600 ± 1600	17 ± 4	12.3 ± 0.8	< 0.7	< 17	< 0.21	31200 ± 2000
7	0	---	25400 ± 1400	< 17	13.7 ± 0.8	< 0.4	< 15	< 0.18	30400 ± 1900
	6	---	29300 ± 1500	18 ± 4	13.5 ± 0.8	< 0.6	< 16	< 0.20	30300 ± 2000
8	0	---	27500 ± 1400	11 ± 3	15.1 ± 1.1	< 0.4	< 15	< 0.18	28100 ± 1800
	6	---	31800 ± 1600	14 ± 3	13.4 ± 0.9	< 0.4	< 13	< 0.15	30200 ± 2000
9	0	---	31800 ± 1800	< 18	16.6 ± 0.9	< 0.5	< 17	< 0.19	28900 ± 1800
	6	---	29900 ± 1600	< 22	12.5 ± 0.7	< 0.7	< 16	< 0.21	28700 ± 1900
10	0	---	33900 ± 1800	< 18	19.8 ± 1.8	< 0.4	< 16	< 0.19	27600 ± 1800
	6	---	29100 ± 1500	< 19	10.4 ± 0.7	< 0.4	< 13	< 0.16	29100 ± 1900
11	0	---	27700 ± 1600	< 18	11.8 ± 0.6	< 0.5	< 17	< 0.19	30600 ± 2000
	6	---	31200 ± 1600	14 ± 4	11.9 ± 0.9	< 0.6	< 16	< 0.20	32600 ± 2100
12	0	---	26200 ± 1400	< 19	12.8 ± 1.0	< 0.4	< 15	< 0.19	26900 ± 1800
	6	---	29400 ± 1500	15 ± 3	11.1 ± 0.6	< 0.4	< 13	< 0.17	32600 ± 2100

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
1	0	48 ± 3	1.35 ± 0.06	3300 ± 400	770 ± 30	14200 ± 600	47 ± 5	---	137 ± 7
		52 ± 3	1.30 ± 0.06	3600 ± 500	690 ± 30	14900 ± 700	65 ± 7	---	122 ± 6
		52 ± 3	1.71 ± 0.08	< 1400	810 ± 30	14100 ± 600	43 ± 5	---	130 ± 7
	6	56 ± 3	1.58 ± 0.07	4300 ± 500	760 ± 30	14200 ± 600	60 ± 7	---	155 ± 8
		54 ± 3	1.30 ± 0.06	3800 ± 500	670 ± 30	12400 ± 500	76 ± 8	---	152 ± 8
		54 ± 3	1.63 ± 0.08	3500 ± 400	770 ± 30	12800 ± 600	70 ± 8	---	145 ± 7
2	0	55 ± 3	1.63 ± 0.08	5100 ± 1400	790 ± 30	13000 ± 600	75 ± 8	---	114 ± 6
	6	55 ± 3	1.25 ± 0.06	4500 ± 600	710 ± 30	11800 ± 500	71 ± 9	---	159 ± 8
3	0	54 ± 3	2.07 ± 0.10	2600 ± 400	840 ± 30	13300 ± 600	50 ± 6	---	134 ± 7
	6	53 ± 3	1.56 ± 0.07	3400 ± 400	770 ± 30	13600 ± 600	51 ± 6	---	148 ± 7
4	0	59 ± 3	1.68 ± 0.08	2900 ± 500	760 ± 30	14600 ± 700	80 ± 8	---	120 ± 6
	6	53 ± 3	1.64 ± 0.08	3000 ± 500	690 ± 30	13100 ± 600	63 ± 8	---	141 ± 7
5	0	61 ± 4	1.74 ± 0.08	2600 ± 400	900 ± 40	13600 ± 600	55 ± 6	---	125 ± 6
	6	52 ± 3	1.76 ± 0.08	3000 ± 400	750 ± 30	13400 ± 600	64 ± 7	---	148 ± 7
6	0	52 ± 3	1.07 ± 0.05	3300 ± 400	740 ± 30	13200 ± 600	47 ± 6	---	88 ± 7
	6	54 ± 3	1.43 ± 0.07	4800 ± 500	690 ± 30	13400 ± 600	66 ± 8	---	147 ± 7
7	0	52 ± 3	1.53 ± 0.07	2600 ± 400	626 ± 24	14900 ± 700	67 ± 8	---	127 ± 6
	6	52 ± 3	1.32 ± 0.06	3300 ± 400	641 ± 25	13900 ± 600	60 ± 8	---	141 ± 7
8	0	52 ± 3	1.47 ± 0.07	1800 ± 400	800 ± 30	13100 ± 600	49 ± 5	---	133 ± 7
	6	52 ± 3	1.38 ± 0.06	3300 ± 400	630 ± 30	11600 ± 500	54 ± 6	---	141 ± 7
9	0	62 ± 3	1.99 ± 0.09	3900 ± 500	840 ± 30	14500 ± 600	88 ± 9	---	125 ± 6
	6	56 ± 3	1.57 ± 0.08	3400 ± 500	670 ± 30	14300 ± 600	67 ± 8	---	143 ± 7
10	0	70 ± 4	2.29 ± 0.11	3000 ± 500	970 ± 40	14900 ± 600	64 ± 6	---	129 ± 6
	6	52 ± 3	1.40 ± 0.07	3500 ± 400	630 ± 30	14900 ± 600	62 ± 6	---	137 ± 7
11	0	50 ± 3	1.74 ± 0.08	3700 ± 600	780 ± 30	13100 ± 600	72 ± 8	---	122 ± 6
		50 ± 3	1.39 ± 0.07	3000 ± 400	750 ± 30	13000 ± 500	73 ± 9	---	154 ± 8
12	0	52 ± 3	1.78 ± 0.08	5100 ± 500	710 ± 30	13300 ± 600	49 ± 6	---	131 ± 7
	6	53 ± 4	1.48 ± 0.07	2800 ± 400	630 ± 30	14600 ± 600	65 ± 7	---	152 ± 7

Table C-III. Individual Elemental Concentration in Soils of Cactus Plot # 5, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	1.06 ± 0.09	6.5 ± 0.3	0.7 ± 0.3	---	9.6 ± 0.4	< 210	0.97 ± 0.07	1.42 ± 0.13
		1.35 ± 0.10	7.5 ± 0.4	< 3	---	10.3 ± 0.5	< 300	1.27 ± 0.09	1.49 ± 0.14
		1.17 ± 0.09	6.3 ± 0.3	< 2.3	---	10.4 ± 0.5	< 230	1.07 ± 0.10	1.70 ± 0.17
	6	1.21 ± 0.10	10.3 ± 0.5	< 4	---	10.6 ± 0.5	< 250	1.12 ± 0.08	1.99 ± 0.19
		1.30 ± 0.11	11.6 ± 0.6	0.8 ± 0.6	---	11.4 ± 0.5	< 300	1.27 ± 0.09	1.77 ± 0.17
		1.13 ± 0.10	10.4 ± 0.5	< 4	---	10.1 ± 0.5	< 250	1.31 ± 0.09	1.92 ± 0.17
2	0	1.20 ± 0.09	7.3 ± 0.4	< 3	---	10.9 ± 0.5	< 300	1.16 ± 0.11	1.69 ± 0.16
	6	1.39 ± 0.12	10.3 ± 0.5	< 4	---	10.8 ± 0.5	< 300	1.30 ± 0.09	1.78 ± 0.17
3	0	1.14 ± 0.10	7.1 ± 0.4	< 2.4	---	11.0 ± 0.5	< 230	1.34 ± 0.10	2.10 ± 0.19
	6	1.10 ± 0.10	9.3 ± 0.5	0.5 ± 0.5	---	9.8 ± 0.4	< 240	1.17 ± 0.08	1.81 ± 0.17
4	0	1.22 ± 0.09	7.0 ± 0.4	< 3	---	11.6 ± 0.5	< 300	1.36 ± 0.10	1.88 ± 0.18
	6	1.28 ± 0.10	9.0 ± 0.5	< 4	---	10.6 ± 0.5	< 300	1.25 ± 0.08	1.92 ± 0.18
5	0	1.13 ± 0.09	7.3 ± 0.4	< 2.3	---	11.9 ± 0.5	< 230	1.44 ± 0.10	1.82 ± 0.17
	6	1.09 ± 0.09	9.4 ± 0.5	< 3	---	9.4 ± 0.4	< 230	1.24 ± 0.08	1.89 ± 0.18
6	0	1.16 ± 0.10	5.4 ± 0.3	< 3	---	9.7 ± 0.4	< 300	0.84 ± 0.07	1.19 ± 0.11
	6	1.24 ± 0.11	10.4 ± 0.6	< 4	---	10.6 ± 0.5	< 300	1.20 ± 0.08	1.78 ± 0.17
7	0	1.32 ± 0.10	6.8 ± 0.4	< 3	---	10.1 ± 0.5	< 300	1.08 ± 0.08	1.65 ± 0.15
	6	1.09 ± 0.09	8.8 ± 0.5	< 4	---	10.5 ± 0.5	< 300	1.25 ± 0.08	1.73 ± 0.16
8	0	1.23 ± 0.09	6.8 ± 0.4	< 2.2	---	10.2 ± 0.5	< 220	1.13 ± 0.08	1.68 ± 0.16
	6	1.22 ± 0.09	9.3 ± 0.5	< 3	---	9.3 ± 0.4	< 210	1.18 ± 0.08	1.70 ± 0.16
9	0	1.31 ± 0.10	8.2 ± 0.4	< 3	---	12.5 ± 0.6	< 300	1.26 ± 0.09	2.19 ± 0.20
	6	1.17 ± 0.12	8.9 ± 0.5	< 4	---	11.7 ± 0.5	< 300	1.10 ± 0.08	1.91 ± 0.18
10	0	1.14 ± 0.09	7.8 ± 0.4	< 2.3	---	14.2 ± 0.6	< 240	1.38 ± 0.09	2.23 ± 0.21
	6	0.82 ± 0.08	9.3 ± 0.5	0.8 ± 0.5	---	9.9 ± 0.4	< 220	1.07 ± 0.07	1.80 ± 0.17
11	0	1.06 ± 0.09	7.1 ± 0.4	< 3	---	9.4 ± 0.4	< 300	1.20 ± 0.09	1.75 ± 0.16
	6	1.07 ± 0.10	8.9 ± 0.5	< 4	---	10.2 ± 0.5	< 300	1.39 ± 0.09	1.64 ± 0.15
12	0	0.93 ± 0.09	7.2 ± 0.4	< 2.5	---	10.6 ± 0.5	< 230	1.21 ± 0.08	1.79 ± 0.17
	6	1.04 ± 0.09	9.3 ± 0.5	< 3	---	9.9 ± 0.4	< 220	1.08 ± 0.08	1.82 ± 0.17

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	17.6 ± 0.7	3200 ± 400	3.25 ± 0.11	43.9 ± 2.3	1.9 ± 0.5	10.0 ± 0.5	43 ± 15	370 ± 50
		19.2 ± 0.7	3800 ± 500	3.68 ± 0.13	48.5 ± 2.5	3.3 ± 0.5	9.4 ± 0.5	61 ± 8	470 ± 60
		18.2 ± 0.8	3300 ± 400	3.54 ± 0.12	47 ± 3	2.0 ± 0.4	12.5 ± 0.6	27 ± 17	430 ± 80
	6	21.4 ± 0.8	3100 ± 400	3.47 ± 0.13	55 ± 3	2.3 ± 0.9	11.3 ± 0.6	70 ± 9	720 ± 110
		20.3 ± 0.8	3400 ± 500	3.26 ± 0.12	68 ± 3	3.0 ± 0.7	9.0 ± 0.5	73 ± 10	560 ± 90
		21.9 ± 0.9	3700 ± 500	3.31 ± 0.12	54 ± 3	2.1 ± 0.5	11.0 ± 0.6	73 ± 10	910 ± 140
2	0	21.3 ± 0.8	4200 ± 600	3.98 ± 0.14	54 ± 3	2.2 ± 0.4	11.5 ± 0.6	65 ± 9	530 ± 120
	6	21.4 ± 0.8	3900 ± 500	3.41 ± 0.12	63 ± 3	1.9 ± 0.7	8.9 ± 0.5	68 ± 9	890 ± 120
3	0	20.5 ± 0.9	4200 ± 500	4.64 ± 0.16	51 ± 3	3.8 ± 0.6	14.6 ± 0.7	28 ± 18	590 ± 70
	6	21.0 ± 0.8	3800 ± 500	3.66 ± 0.13	57 ± 3	2.9 ± 0.5	10.3 ± 0.5	64 ± 9	780 ± 110
4	0	22.7 ± 0.9	4000 ± 500	4.06 ± 0.14	53 ± 3	2.0 ± 0.4	11.9 ± 0.6	50 ± 7	560 ± 100
	6	20.7 ± 0.8	3700 ± 500	3.93 ± 0.14	59 ± 3	2.8 ± 0.5	12.0 ± 0.6	55 ± 8	710 ± 100
5	0	21.9 ± 0.8	4700 ± 600	4.37 ± 0.15	63 ± 3	2.6 ± 0.6	13.0 ± 0.7	50 ± 16	620 ± 70
	6	20.9 ± 0.8	3600 ± 500	3.76 ± 0.13	56 ± 3	2.7 ± 0.6	12.0 ± 0.6	63 ± 8	940 ± 140
6	0	14.4 ± 0.6	3700 ± 500	3.51 ± 0.12	51 ± 3	2.9 ± 0.7	11.0 ± 0.6	46 ± 6	320 ± 50
	6	20.8 ± 0.9	3300 ± 500	3.49 ± 0.13	53 ± 3	3.1 ± 0.6	10.7 ± 0.6	65 ± 9	730 ± 130
7	0	20.0 ± 0.9	3800 ± 500	3.66 ± 0.13	44.6 ± 2.3	1.4 ± 0.4	10.1 ± 0.5	52 ± 7	440 ± 70
	6	20.7 ± 0.8	3600 ± 500	3.41 ± 0.12	53 ± 3	3.0 ± 0.5	9.3 ± 0.5	48 ± 7	780 ± 210
8	0	19.9 ± 0.8	3900 ± 500	3.73 ± 0.13	57 ± 3	3.1 ± 0.6	10.9 ± 0.6	36 ± 15	480 ± 60
	6	20.2 ± 0.8	3900 ± 500	3.66 ± 0.13	60 ± 3	2.5 ± 1.9	9.5 ± 0.5	63 ± 8	820 ± 130
9	0	24.1 ± 1.0	4100 ± 500	4.42 ± 0.15	52 ± 3	1.7 ± 0.6	14.8 ± 0.7	65 ± 9	510 ± 80
	6	22.1 ± 0.9	2900 ± 400	3.45 ± 0.12	54 ± 3	2.4 ± 0.5	11.0 ± 0.6	58 ± 8	740 ± 100
10	0	25.3 ± 1.0	4600 ± 600	4.43 ± 0.16	52 ± 3	3.3 ± 0.7	16.3 ± 0.8	41 ± 15	660 ± 80
	6	20.2 ± 0.8	3200 ± 400	3.05 ± 0.11	46 ± 3	2.8 ± 0.6	10.1 ± 0.5	62 ± 8	610 ± 100
11	0	19.0 ± 0.8	3500 ± 500	3.38 ± 0.12	47 ± 3	2.5 ± 1.1	12.3 ± 0.6	48 ± 7	330 ± 60
	6	20.1 ± 0.8	3600 ± 500	3.82 ± 0.13	54 ± 3	2.5 ± 0.6	9.8 ± 0.6	54 ± 7	700 ± 130
12	0	20.2 ± 0.8	3300 ± 400	3.55 ± 0.12	49 ± 3	2.2 ± 0.5	12.5 ± 0.6	38 ± 19	420 ± 60
	6	20.7 ± 0.8	3300 ± 400	3.03 ± 0.11	51 ± 3	2.7 ± 0.7	9.8 ± 0.5	64 ± 9	680 ± 100

Table C-IV. Individual Elemental Concentration in Soils of Cactus Plot # 9, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (ug/g)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
1	0	< 2	62900 ± 1800	2.8 ± 0.4	< 0.010	640 ± 150	< 2.5	8800 ± 600	157 ± 7
		< 1.8	64900 ± 1800	2.9 ± 0.4	< 0.011	620 ± 40	< 3	8100 ± 600	164 ± 7
		< 2	65200 ± 1800	2.8 ± 0.4	< 0.008	630 ± 70	1.1 ± 0.2	7900 ± 500	186 ± 8
	6	< 4	84700 ± 2400	3.8 ± 0.5	< 0.013	650 ± 80	6.8 ± 0.8	10700 ± 700	146 ± 7
		< 3	83500 ± 2300	4.7 ± 0.6	< 0.012	580 ± 40	6.5 ± 0.7	8000 ± 600	149 ± 7
		< 3	85800 ± 2400	4.2 ± 0.5	< 0.012	670 ± 110	7.8 ± 0.9	7700 ± 600	140 ± 6
2	0	< 1.7	64300 ± 1800	2.0 ± 0.3	< 0.011	690 ± 40	< 3	8200 ± 500	139 ± 6
	6	< 2.3	76600 ± 2100	3.5 ± 0.5	< 0.012	600 ± 130	6.8 ± 0.8	9100 ± 600	138 ± 6
3	0	< 1.9	68900 ± 1900	2.3 ± 0.4	< 0.009	590 ± 60	1.6 ± 0.3	9200 ± 600	179 ± 8
	6	< 2.5	77500 ± 2200	4.4 ± 0.5	< 0.012	650 ± 50	9.5 ± 1.0	21400 ± 1100	104 ± 5
4	0	< 2.1	68800 ± 1900	2.8 ± 0.4	< 0.012	700 ± 70	5.2 ± 0.6	10900 ± 700	119 ± 5
	6	< 2	70200 ± 2000	3.0 ± 0.4	< 0.011	650 ± 100	11.9 ± 1.4	26700 ± 1300	124 ± 6
5	0	< 2.2	67200 ± 1900	2.7 ± 0.4	< 0.009	640 ± 60	1.6 ± 0.3	8600 ± 600	211 ± 9
	6	< 2.4	78700 ± 2200	3.0 ± 0.4	< 0.012	640 ± 160	4.9 ± 0.6	8400 ± 600	167 ± 7
6	0	< 2	67400 ± 1900	2.2 ± 0.4	< 0.012	630 ± 80	2.1 ± 0.4	8900 ± 600	159 ± 7
		< 2.2	70400 ± 2000	1.9 ± 0.3	< 0.009	630 ± 60	1.8 ± 0.3	7600 ± 600	176 ± 8
		< 2.1	66200 ± 1900	1.8 ± 0.3	< 0.012	540 ± 50	< 3	9900 ± 600	216 ± 10
	6	< 2.5	83800 ± 2300	4.0 ± 0.5	< 0.013	540 ± 50	7.3 ± 0.8	10700 ± 700	158 ± 7
		< 3	78100 ± 2200	2.3 ± 0.3	< 0.010	580 ± 60	16.1 ± 1.7	62000 ± 3000	112 ± 5
		< 3	84200 ± 2400	3.5 ± 0.5	< 0.012	520 ± 70	9.5 ± 1.2	13000 ± 800	138 ± 6
7	0	< 2.2	71300 ± 2000	2.0 ± 0.3	< 0.007	540 ± 70	2.3 ± 0.3	21000 ± 1000	89 ± 4
	6	< 2.3	73800 ± 2100	1.8 ± 0.3	< 0.009	610 ± 50	5.5 ± 0.6	33400 ± 1500	99 ± 5
8	0	< 2.1	71800 ± 2000	2.7 ± 0.4	< 0.010	580 ± 50	1.6 ± 0.3	18100 ± 900	122 ± 5
	6	< 2.5	77300 ± 2200	2.8 ± 0.4	< 0.011	680 ± 70	6.7 ± 0.9	32400 ± 1500	143 ± 6
9	0	< 2.4	73000 ± 2000	2.7 ± 0.4	< 0.009	570 ± 50	4.6 ± 0.5	10100 ± 700	139 ± 6
	6	< 2.5	78800 ± 2200	2.5 ± 0.4	< 0.011	580 ± 50	6.0 ± 0.7	17200 ± 900	148 ± 7
10	0	< 1.9	69700 ± 2000	1.9 ± 0.3	< 0.011	650 ± 60	< 3	8900 ± 600	144 ± 6
	6	< 4	88900 ± 2300	4.7 ± 0.6	< 0.012	690 ± 70	12.2 ± 1.3	10800 ± 700	163 ± 7
11	0	< 2.4	68300 ± 1800	2.2 ± 0.3	< 0.012	610 ± 220	2.5 ± 0.4	8700 ± 600	217 ± 10
	6	< 3	75200 ± 2000	2.8 ± 0.4	< 0.011	550 ± 40	3.3 ± 0.4	7900 ± 500	161 ± 7
12	0	< 2.2	67500 ± 1800	2.1 ± 0.3	< 0.008	570 ± 40	< 2.2	10100 ± 600	174 ± 8
		< 2	69700 ± 1800	2.9 ± 0.4	< 0.011	660 ± 60	1.7 ± 0.3	8700 ± 600	173 ± 8
		< 1.9	66700 ± 1900	2.5 ± 0.4	< 0.012	630 ± 60	< 3	9500 ± 1900	182 ± 8
	6	< 3	87100 ± 2300	4.3 ± 0.5	< 0.012	610 ± 40	6.0 ± 0.7	10200 ± 700	141 ± 6
		< 3	82600 ± 2100	3.9 ± 0.5	< 0.013	600 ± 50	7.4 ± 0.8	10100 ± 700	149 ± 7
		< 3	88000 ± 2500	5.6 ± 0.6	< 0.013	540 ± 50	6.2 ± 0.7	7500 ± 600	129 ± 6

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	< 90	3.41 ± 0.19	---	18.3 ± 1.2	2.74 ± 0.16	< 180	16.0 ± 1.3	1.94 ± 0.09
		< 90	4.26 ± 0.23	---	23.2 ± 1.5	3.05 ± 0.21	< 190	15.4 ± 1.2	2.11 ± 0.11
		< 100	4.54 ± 0.25	---	22.7 ± 1.5	3.2 ± 0.3	< 200	18.5 ± 1.5	2.34 ± 0.14
	6	< 90	6.8 ± 0.4	---	32.5 ± 2.1	4.7 ± 0.3	< 240	13.6 ± 1.1	2.22 ± 0.12
		< 80	7.5 ± 0.4	---	37.6 ± 2.3	5.1 ± 0.3	< 230	13.7 ± 1.4	1.97 ± 0.08
		< 90	8.0 ± 0.4	---	45 ± 3	5.1 ± 0.3	< 300	13.7 ± 1.1	1.97 ± 0.09
2	0	< 90	3.82 ± 0.21	---	16.7 ± 1.1	2.92 ± 0.18	< 190	13.6 ± 1.1	1.88 ± 0.10
	6	< 90	6.3 ± 0.3	---	26.9 ± 1.7	4.3 ± 0.3	< 230	13.7 ± 1.2	1.98 ± 0.13
3	0	< 100	5.0 ± 0.3	---	23.2 ± 1.5	3.6 ± 0.3	< 200	17.4 ± 1.3	2.30 ± 0.12
	6	< 90	7.0 ± 0.4	---	37.4 ± 2.4	5.0 ± 0.4	< 250	8.8 ± 0.7	1.47 ± 0.07
4	0	< 100	4.8 ± 0.3	---	20.0 ± 1.3	5.5 ± 0.3	< 210	10.6 ± 0.9	1.70 ± 0.08
	6	< 80	6.1 ± 0.3	---	30.9 ± 1.9	5.2 ± 0.3	< 210	11.2 ± 0.9	1.87 ± 0.10
5	0	< 110	5.1 ± 0.3	---	21.8 ± 1.5	3.07 ± 0.21	< 230	20.0 ± 1.5	2.57 ± 0.13
	6	< 90	6.7 ± 0.4	---	46 ± 3	4.1 ± 0.3	< 300	16.5 ± 1.2	2.22 ± 0.12
6	0	< 100	4.39 ± 0.24	---	16.9 ± 1.2	3.16 ± 0.19	< 210	16.6 ± 1.3	2.00 ± 0.10
		< 110	4.9 ± 0.3	---	21.2 ± 1.4	3.69 ± 0.21	< 230	18.2 ± 1.4	2.14 ± 0.10
		< 100	4.7 ± 0.3	---	20.0 ± 1.4	3.03 ± 0.18	< 220	21.6 ± 1.8	2.70 ± 0.13
	6	< 90	6.4 ± 0.4	---	48 ± 3	4.7 ± 0.3	< 250	15.2 ± 1.2	2.09 ± 0.13
		< 80	8.2 ± 0.4	---	43 ± 3	8.1 ± 0.5	< 230	12.2 ± 0.9	1.75 ± 0.10
		< 80	7.9 ± 0.4	---	50 ± 3	6.4 ± 0.4	< 230	12.8 ± 1.0	1.92 ± 0.09

Table C-IV. Individual Elemental Concentration in Soils of Cactus Plot # 9, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
7	0	< 80	9.8 ± 0.5	...	48 ± 3	10.9 ± 0.6	< 180	7.0 ± 0.6	1.30 ± 0.06
	6	< 70	9.3 ± 0.5	...	52 ± 3	12.2 ± 0.7	< 210	7.8 ± 0.6	1.48 ± 0.08
8	0	< 90	7.4 ± 0.4	...	34.4 ± 2.2	10.8 ± 0.6	< 190	10.6 ± 0.8	1.71 ± 0.08
	6	< 80	8.6 ± 0.5	...	43 ± 3	15.0 ± 0.8	< 220	11.3 ± 1.0	2.15 ± 0.12
9	0	< 110	6.3 ± 0.3	...	26.5 ± 1.8	7.7 ± 0.4	< 220	12.2 ± 1.0	1.98 ± 0.12
	6	< 80	8.4 ± 0.5	...	40 ± 3	10.4 ± 0.6	< 230	15.4 ± 1.2	2.14 ± 0.13
10	0	< 90	4.43 ± 0.24	...	16.9 ± 1.2	3.92 ± 0.23	< 210	13.5 ± 1.1	1.90 ± 0.09
	6	< 90	9.9 ± 0.5	...	49 ± 3	10.3 ± 0.6	< 210	13.7 ± 1.2	2.34 ± 0.11
11	0	< 90	4.3 ± 0.3	...	22.1 ± 1.4	3.24 ± 0.2	< 250	18.9 ± 1.5	2.49 ± 0.13
	6	< 90	5.5 ± 0.3	...	31.1 ± 2.0	4.01 ± 0.24	< 210	15.4 ± 1.2	2.04 ± 0.10
12	0	< 80	4.16 ± 0.24	...	22.3 ± 1.4	2.85 ± 0.18	< 220	18.6 ± 1.4	2.17 ± 0.13
		< 80	4.7 ± 0.3	...	23.2 ± 1.5	3.46 ± 0.20	< 240	17.7 ± 1.3	2.20 ± 0.11
		< 90	4.43 ± 0.24	...	23.7 ± 1.5	3.18 ± 0.21	< 200	18.1 ± 1.5	2.37 ± 0.12
	6	< 110	7.0 ± 0.4	...	33.7 ± 2.1	5.0 ± 0.3	< 230	14.5 ± 1.1	1.98 ± 0.11
		< 100	7.0 ± 0.4	...	31.5 ± 2.0	5.3 ± 0.3	< 230	14.6 ± 1.1	1.95 ± 0.09
		< 80	7.6 ± 0.4	...	39.0 ± 2.4	5.5 ± 0.3	< 230	11.8 ± 1.0	1.93 ± 0.11

Tree #	Depth (in)	F (ug/g)	Fe (ug/g)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (ug/g)
1	0	...	23000 ± 1300	< 19	14.8 ± 0.9	< 0.4	< 15	< 0.18	31600 ± 2100
		...	26000 ± 1300	< 18	17.8 ± 1.3	< 0.4	< 15	< 0.19	30300 ± 1900
		...	30200 ± 1500	< 18	22.5 ± 1.8	< 0.4	< 15	< 0.19	29600 ± 1900
	6	...	32300 ± 1700	22 ± 4	11.7 ± 1.0	< 0.7	< 17	< 0.23	28400 ± 1900
		...	30300 ± 1700	18 ± 4	12.9 ± 0.7	< 0.5	< 17	< 0.22	29000 ± 1900
		...	34000 ± 1700	22 ± 4	13.1 ± 0.6	< 0.5	< 16	< 0.18	29700 ± 1900
2	0	...	21900 ± 1100	< 18	13.4 ± 1.1	< 0.4	< 15	< 0.19	32700 ± 2100
	6	...	26100 ± 1300	< 22	12.0 ± 1.3	< 0.5	< 17	< 0.22	32100 ± 2100
3	0	...	27600 ± 1400	16 ± 3	16.9 ± 1.1	< 0.4	< 14	< 0.18	28100 ± 1800
	6	...	27700 ± 1400	< 20	9.5 ± 0.4	< 0.5	< 14	< 0.18	27700 ± 1800
4	0	...	22600 ± 1200	< 20	10.0 ± 0.5	< 0.4	< 17	< 0.21	31800 ± 2100
	6	...	25700 ± 1300	< 20	10.7 ± 1.0	< 0.4	< 15	< 0.20	27600 ± 1800
5	0	...	37200 ± 1900	16 ± 3	21.8 ± 1.4	< 0.5	< 17	< 0.20	28700 ± 1900
	6	...	33300 ± 1700	< 22	14.8 ± 1.0	< 0.5	< 16	< 0.19	31100 ± 2000
6	0	...	25200 ± 1300	< 21	14.3 ± 1.0	< 0.4	< 17	< 0.21	30900 ± 2000
		...	33600 ± 1700	19 ± 4	19 ± 1	< 0.5	< 17	< 0.20	29000 ± 1900
		...	34800 ± 1800	< 21	20.9 ± 1.2	< 0.5	< 19	< 0.22	30300 ± 2000
	6	...	32800 ± 1700	18 ± 5	12.4 ± 1.4	< 0.5	< 19	< 0.24	29100 ± 1900
		...	33000 ± 1700	20 ± 4	9.8 ± 0.9	< 0.6	18 ± 3	< 0.17	30700 ± 2000
		...	40700 ± 2000	28 ± 5	11.2 ± 0.4	< 0.6	< 18	< 0.23	25500 ± 1700
7	0	...	33700 ± 1700	16 ± 3	8.1 ± 0.3	< 0.5	< 14	< 0.17	25600 ± 1700
	6	...	33100 ± 1700	18 ± 3	8 ± 1	< 0.5	< 13	< 0.15	30700 ± 2000
8	0	...	31500 ± 1600	< 19	11.7 ± 0.8	< 0.5	< 16	< 0.19	29000 ± 1900
	6	...	32300 ± 1600	16 ± 4	10.7 ± 1.0	< 0.5	< 17	< 0.21	29800 ± 2000
9	0	...	29400 ± 1500	< 22	12.9 ± 1.3	< 0.5	< 17	< 0.20	29300 ± 1900
	6	...	33700 ± 1700	18 ± 4	12.8 ± 1.3	< 0.5	< 15	< 0.17	34400 ± 2200
10	0	...	23100 ± 1200	18 ± 4	10.1 ± 0.6	< 0.4	< 17	< 0.20	32300 ± 2100
	6	...	35800 ± 1900	30 ± 5	9.9 ± 0.6	< 0.8	< 19	< 0.21	28500 ± 1900
11	0	...	30800 ± 1700	< 22	21.7 ± 1.2	< 0.5	< 15	< 0.18	31000 ± 2000
	6	...	28000 ± 1500	10 ± 3	14.2 ± 0.9	< 0.6	< 17	< 0.20	29100 ± 1900
12	0	...	25400 ± 1300	18 ± 4	18.7 ± 1.4	< 0.4	< 16	< 0.21	29000 ± 1900
		...	26800 ± 1300	< 22	17.8 ± 1.2	< 0.4	< 14	< 0.18	31600 ± 2100
		...	28100 ± 1400	< 17	20.8 ± 1.6	< 0.4	< 16	< 0.20	31700 ± 2000
	6	...	31100 ± 1600	16 ± 4	12.0 ± 0.7	< 0.5	< 17	< 0.21	29800 ± 2000
		...	30100 ± 1500	28 ± 5	12.1 ± 0.7	< 0.5	< 19	< 0.22	29300 ± 2000
		...	30400 ± 1600	13 ± 3	10.4 ± 1.0	< 0.5	< 17	< 0.22	30600 ± 2000

Table C-IV. Individual Elemental Concentration in Soils of Cactus Plot # 9, Saguaro National Monument (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
1	0	73 ± 4	1.81 ± 0.08	< 1800	610 ± 30	17900 ± 800	92 ± 9	---	118 ± 6
		83 ± 4	1.52 ± 0.07	< 1900	613 ± 25	18400 ± 800	84 ± 8	---	124 ± 6
		87 ± 5	1.84 ± 0.09	1900 ± 400	800 ± 30	16700 ± 700	83 ± 8	---	122 ± 6
	6	70 ± 4	1.44 ± 0.07	3400 ± 500	630 ± 30	18500 ± 800	81 ± 9	---	146 ± 7
		71 ± 4	1.45 ± 0.07	3800 ± 500	780 ± 30	16000 ± 700	99 ± 10	---	130 ± 7
		70 ± 4	1.31 ± 0.07	3000 ± 400	840 ± 30	15600 ± 700	63 ± 8	---	143 ± 7
2	0	69 ± 4	1.39 ± 0.07	1800 ± 400	619 ± 25	18400 ± 800	63 ± 7	---	131 ± 7
	6	66 ± 4	1.21 ± 0.06	3300 ± 500	680 ± 30	16600 ± 700	77 ± 9	---	140 ± 7
3	0	87 ± 5	1.60 ± 0.08	2500 ± 500	680 ± 30	17800 ± 700	85 ± 8	---	121 ± 6
	6	52 ± 3	0.74 ± 0.04	4800 ± 500	588 ± 25	15000 ± 600	43 ± 7	---	121 ± 6
4	0	60 ± 3	0.92 ± 0.05	3600 ± 500	623 ± 24	18000 ± 800	59 ± 7	---	129 ± 7
	6	62 ± 3	1.00 ± 0.05	4800 ± 600	614 ± 25	15800 ± 700	66 ± 8	---	122 ± 6
5	0	98 ± 6	2.03 ± 0.10	2100 ± 500	1010 ± 40	17500 ± 700	98 ± 10	---	124 ± 6
	6	83 ± 5	1.59 ± 0.08	2600 ± 500	850 ± 30	18000 ± 800	76 ± 9	---	125 ± 7
6	0	76 ± 4	1.79 ± 0.09	2500 ± 500	720 ± 30	18900 ± 800	77 ± 9	---	128 ± 7
		84 ± 5	2.00 ± 0.10	3300 ± 500	880 ± 40	17100 ± 700	91 ± 9	---	128 ± 7
		107 ± 6	2.19 ± 0.11	< 2100	1000 ± 40	18500 ± 800	102 ± 10	---	121 ± 6
	6	73 ± 4	1.52 ± 0.08	3900 ± 500	870 ± 30	17200 ± 700	71 ± 8	---	129 ± 7
		55 ± 3	1.31 ± 0.07	5400 ± 500	680 ± 30	10200 ± 400	46 ± 8	---	156 ± 8
		67 ± 4	1.27 ± 0.07	6700 ± 700	790 ± 30	12300 ± 500	65 ± 9	---	120 ± 7
7	0	43 ± 3	0.66 ± 0.04	5700 ± 500	710 ± 30	11000 ± 500	37 ± 7	---	152 ± 8
	6	50 ± 3	0.72 ± 0.05	6000 ± 500	700 ± 30	10900 ± 500	43 ± 7	---	162 ± 8
8	0	61 ± 3	1.02 ± 0.05	6600 ± 600	730 ± 30	15600 ± 700	58 ± 8	---	145 ± 7
	6	68 ± 4	1.01 ± 0.06	7200 ± 600	760 ± 30	13400 ± 600	50 ± 7	---	154 ± 8
9	0	63 ± 4	1.33 ± 0.07	4400 ± 600	760 ± 30	15200 ± 600	59 ± 8	---	146 ± 7
	6	73 ± 5	1.49 ± 0.08	5200 ± 500	790 ± 30	13500 ± 600	68 ± 9	---	165 ± 8
10	0	70 ± 4	1.41 ± 0.07	3600 ± 600	720 ± 30	18700 ± 800	68 ± 7	---	131 ± 7
	6	77 ± 4	1.08 ± 0.05	6300 ± 700	750 ± 30	11900 ± 500	109 ± 12	---	155 ± 8
11	0	101 ± 5	1.95 ± 0.09	2800 ± 400	760 ± 30	18300 ± 800	134 ± 12	---	123 ± 6
	6	75 ± 4	1.48 ± 0.07	3000 ± 500	680 ± 30	17900 ± 800	90 ± 9	---	130 ± 7
12	0	87 ± 5	1.79 ± 0.08	2700 ± 500	750 ± 30	18500 ± 800	80 ± 7	---	124 ± 6
		85 ± 5	1.63 ± 0.08	2500 ± 400	730 ± 30	18700 ± 800	85 ± 8	---	123 ± 6
		88 ± 5	1.71 ± 0.08	3300 ± 500	700 ± 30	19300 ± 900	87 ± 8	---	125 ± 6
	6	65 ± 4	1.58 ± 0.08	3900 ± 600	700 ± 30	16900 ± 700	86 ± 9	---	146 ± 7
		71 ± 4	1.21 ± 0.06	4100 ± 500	710 ± 30	16900 ± 700	57 ± 7	---	130 ± 7
		63 ± 4	1.09 ± 0.05	5300 ± 600	700 ± 30	15700 ± 700	57 ± 7	---	146 ± 7

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	0.67 ± 0.07	6.6 ± 0.4	< 3	---	14.1 ± 0.6	< 250	0.94 ± 0.07	2.26 ± 0.21
		0.73 ± 0.08	7.8 ± 0.4	< 3	---	16.3 ± 0.7	< 300	1.69 ± 0.11	2.49 ± 0.23
		0.72 ± 0.08	8.4 ± 0.5	< 3	---	17.4 ± 0.8	< 230	1.39 ± 0.09	2.9 ± 0.3
	6	0.47 ± 0.09	11.0 ± 0.6	< 4	---	13.8 ± 0.6	< 300	1.09 ± 0.08	2.00 ± 0.18
		0.97 ± 0.11	10.6 ± 0.6	< 4	---	14.1 ± 0.6	< 300	1.21 ± 0.09	2.00 ± 0.18
		0.42 ± 0.08	11.4 ± 0.6	< 0.6	---	12.9 ± 0.6	< 300	1.20 ± 0.09	2.21 ± 0.21
2	0	0.39 ± 0.07	7.0 ± 0.4	< 2.3	---	12.8 ± 0.6	< 250	1.00 ± 0.07	2.05 ± 0.19
	6	0.53 ± 0.10	9.5 ± 0.5	< 3	---	13.3 ± 0.6	< 300	1.12 ± 0.08	2.06 ± 0.19
3	0	0.62 ± 0.08	8.6 ± 0.5	< 3	---	16.7 ± 0.8	< 210	1.02 ± 0.07	2.57 ± 0.24
	6	0.85 ± 0.10	10.2 ± 0.5	< 3	---	9.2 ± 0.4	250 ± 70	0.98 ± 0.07	1.35 ± 0.13
4	0	0.61 ± 0.09	7.9 ± 0.4	< 3	---	11.1 ± 0.5	< 300	0.86 ± 0.08	1.60 ± 0.14
	6	0.71 ± 0.09	9.1 ± 0.5	< 3	---	12.3 ± 0.6	310 ± 70	0.89 ± 0.06	1.76 ± 0.16
5	0	0.55 ± 0.09	9.3 ± 0.5	< 3	---	19.4 ± 0.9	< 300	1.80 ± 0.11	3.1 ± 0.3
	6	0.73 ± 0.09	10.5 ± 0.6	< 3	---	15.2 ± 0.7	< 300	1.06 ± 0.09	2.43 ± 0.23
6	0	0.42 ± 0.08	8.0 ± 0.4	< 3	---	14.6 ± 0.7	< 300	1.10 ± 0.08	2.52 ± 0.23
		0.70 ± 0.09	9.3 ± 0.5	< 3	---	16.7 ± 0.8	< 300	1.26 ± 0.09	2.8 ± 0.3
		0.45 ± 0.09	9.4 ± 0.5	< 3	---	21.6 ± 1.0	< 300	1.47 ± 0.09	3.2 ± 0.3
	6	0.81 ± 0.11	11.1 ± 0.6	< 3	---	14.8 ± 0.7	< 300	1.05 ± 0.07	2.33 ± 0.21
		1.17 ± 0.10	11.8 ± 0.6	< 3	---	11.4 ± 0.5	< 240	1.12 ± 0.09	1.79 ± 0.17
		0.75 ± 0.09	12.7 ± 0.7	< 4	---	13.9 ± 0.6	< 300	1.23 ± 0.10	2.08 ± 0.19

Table C-IV. Individual Elemental Concentration in Soils of Cactus Plot # 9, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
7	0	1.89 ± 0.11	10.8 ± 0.6	< 3	---	7.6 ± 0.4	< 210	1.21 ± 0.08	1.02 ± 0.10
	6	1.88 ± 0.12	11.2 ± 0.6	< 0.5	---	9.1 ± 0.4	< 220	1.21 ± 0.08	1.21 ± 0.11
8	0	1.39 ± 0.09	10.3 ± 0.5	< 3	---	10.9 ± 0.5	< 300	1.27 ± 0.08	1.65 ± 0.15
	6	1.48 ± 0.12	11.9 ± 0.6	< 3	---	12.9 ± 0.6	< 300	1.18 ± 0.08	1.79 ± 0.17
9	0	0.91 ± 0.10	9.7 ± 0.5	< 3	---	12.5 ± 0.6	< 250	1.22 ± 0.08	2.03 ± 0.19
	6	1.16 ± 0.10	11.8 ± 0.6	< 3	---	14.2 ± 0.6	< 240	1.13 ± 0.08	2.15 ± 0.19
10	0	0.61 ± 0.08	8.0 ± 0.4	< 3	---	13.2 ± 0.6	< 300	1.11 ± 0.08	2.15 ± 0.20
	6	1.32 ± 0.11	12.7 ± 0.7	< 5	---	14.7 ± 0.7	< 300	1.17 ± 0.14	2.06 ± 0.19
11	0	0.58 ± 0.07	8.5 ± 0.5	< 4	---	19.6 ± 0.9	< 240	1.25 ± 0.09	2.68 ± 0.25
	6	0.44 ± 0.09	9.3 ± 0.5	< 4	---	15.3 ± 0.7	< 300	1.13 ± 0.09	2.29 ± 0.21
12	0	0.49 ± 0.07	8.1 ± 0.4	< 0.4	---	17.2 ± 0.8	< 300	1.20 ± 0.09	2.38 ± 0.22
		0.69 ± 0.08	8.6 ± 0.5	< 3	---	16.9 ± 0.8	240 ± 80	1.29 ± 0.09	2.63 ± 0.24
		0.62 ± 0.09	8.4 ± 0.4	< 3	---	16.0 ± 0.7	< 300	1.12 ± 0.07	2.73 ± 0.25
	6	0.61 ± 0.09	11.1 ± 0.6	< 4	---	12.5 ± 0.6	< 250	0.99 ± 0.07	2.15 ± 0.20
		0.61 ± 0.09	10.8 ± 0.6	< 0.7	---	14.6 ± 0.7	< 300	1.22 ± 0.08	2.19 ± 0.20
		0.74 ± 0.10	11.4 ± 0.6	< 3	---	12.9 ± 0.6	< 300	1.11 ± 0.09	1.86 ± 0.17

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	26.9 ± 1.2	2900 ± 400	3.90 ± 0.14	36.6 ± 2.0	< 4	12.2 ± 0.6	45 ± 6	430 ± 60
		30.9 ± 1.2	3700 ± 500	8.0 ± 0.3	47.9 ± 2.5	< 4	12.0 ± 0.6	52 ± 7	760 ± 100
		33.5 ± 1.3	4300 ± 600	4.99 ± 0.17	48 ± 3	1.7 ± 0.4	13.4 ± 0.7	55 ± 8	940 ± 150
	6	24.8 ± 1.0	3100 ± 400	3.12 ± 0.11	48 ± 3	2.6 ± 0.7	9.8 ± 0.6	69 ± 9	790 ± 110
		25.9 ± 1.0	3800 ± 500	3.50 ± 0.13	58 ± 3	2.3 ± 0.4	10.3 ± 0.6	67 ± 9	450 ± 120
		24.7 ± 1.0	4100 ± 600	3.34 ± 0.12	64 ± 3	3.9 ± 1.5	10.6 ± 0.6	69 ± 9	520 ± 70
2	0	24.7 ± 1.0	3000 ± 400	3.33 ± 0.12	33.7 ± 2.0	< 4	10.2 ± 0.6	47 ± 7	500 ± 60
	6	24.5 ± 1.0	2900 ± 400	3.22 ± 0.12	43 ± 3	2.7 ± 0.6	9.7 ± 0.7	58 ± 8	480 ± 140
3	0	30.8 ± 1.3	3800 ± 500	3.99 ± 0.14	48 ± 3	1.0 ± 0.4	12.4 ± 0.7	52 ± 7	780 ± 100
	6	18.6 ± 0.7	2900 ± 400	2.77 ± 0.10	54 ± 3	2.3 ± 0.6	6.2 ± 0.4	61 ± 9	420 ± 60
4	0	20.5 ± 0.8	3000 ± 400	2.75 ± 0.10	46 ± 3	< 5	7.1 ± 0.4	61 ± 8	400 ± 130
	6	21.4 ± 0.9	3300 ± 400	3.13 ± 0.11	46.1 ± 2.4	< 4	8.3 ± 0.5	53 ± 7	410 ± 100
5	0	38.3 ± 1.5	4200 ± 600	5.8 ± 0.2	53 ± 3	< 5	14.3 ± 0.7	55 ± 8	830 ± 180
	6	28.5 ± 1.1	3600 ± 500	3.61 ± 0.13	53 ± 3	2.4 ± 0.6	12.2 ± 0.7	58 ± 8	650 ± 80
6	0	27.9 ± 1.1	3400 ± 400	3.64 ± 0.13	41.1 ± 2.3	< 5	13.8 ± 0.7	52 ± 7	530 ± 120
		31.6 ± 1.2	4400 ± 600	4.22 ± 0.15	54 ± 3	2.8 ± 0.6	14.8 ± 0.8	54 ± 8	790 ± 100
		39.6 ± 1.5	4600 ± 600	4.71 ± 0.16	53 ± 3	< 5	16.6 ± 0.8	49 ± 7	820 ± 130
	6	28.7 ± 1.1	3600 ± 500	3.32 ± 0.12	60 ± 3	1.8 ± 0.4	11.4 ± 0.6	76 ± 10	540 ± 110
		19.9 ± 0.8	3200 ± 400	4.24 ± 0.15	58 ± 3	3.2 ± 0.5	11.4 ± 0.6	66 ± 9	350 ± 110
		25.8 ± 1.0	4100 ± 600	3.85 ± 0.14	63 ± 3	2.3 ± 0.6	9.1 ± 0.5	82 ± 11	440 ± 80
7	0	14.2 ± 0.6	3600 ± 500	3.11 ± 0.11	55 ± 3	3.0 ± 0.5	4.38 ± 0.24	73 ± 10	330 ± 50
	6	15.7 ± 0.6	3200 ± 400	3.45 ± 0.12	53 ± 3	3.1 ± 0.5	5.5 ± 0.3	66 ± 9	320 ± 70
8	0	20.1 ± 0.8	3200 ± 400	3.83 ± 0.13	53 ± 3	4.6 ± 0.7	8.0 ± 0.4	64 ± 9	460 ± 140
	6	21.1 ± 0.8	3900 ± 600	3.72 ± 0.13	53 ± 3	3.3 ± 0.6	7.7 ± 0.4	67 ± 9	450 ± 160
9	0	23.2 ± 0.9	3100 ± 400	3.34 ± 0.12	45 ± 3	2.9 ± 0.5	8.7 ± 0.5	64 ± 9	470 ± 70
	6	23.6 ± 0.9	3600 ± 500	3.98 ± 0.14	54 ± 3	3.7 ± 0.9	12.3 ± 0.6	61 ± 9	440 ± 60
10	0	24.3 ± 0.9	2900 ± 400	3.02 ± 0.11	36.9 ± 2.2	< 5	9.8 ± 0.5	55 ± 8	360 ± 100
	6	22.4 ± 0.9	3600 ± 500	3.65 ± 0.13	63 ± 3	3.5 ± 0.6	7.9 ± 0.4	77 ± 11	510 ± 90
11	0	36.2 ± 1.6	3900 ± 500	5.07 ± 0.18	48 ± 3	< 5	13.8 ± 0.7	58 ± 8	580 ± 110
	6	28.1 ± 1.2	3300 ± 400	3.66 ± 0.13	43.3 ± 2.3	1.2 ± 0.5	10.9 ± 0.6	58 ± 8	750 ± 100
12	0	30.7 ± 1.2	4000 ± 500	4.51 ± 0.15	39.2 ± 2.1	1.3 ± 0.5	12.8 ± 0.7	40 ± 14	580 ± 70
		31.5 ± 1.2	3500 ± 500	4.30 ± 0.15	45.3 ± 2.4	2.2 ± 0.8	12.6 ± 0.6	54 ± 7	730 ± 90
		33.0 ± 1.3	3700 ± 500	4.48 ± 0.15	46.3 ± 2.4	< 4	13.1 ± 0.7	52 ± 7	830 ± 120
	6	26.7 ± 1.0	3900 ± 500	3.27 ± 0.12	53 ± 3	3.0 ± 0.8	10.8 ± 0.6	75 ± 10	680 ± 140
		26.1 ± 1.0	3500 ± 500	3.49 ± 0.13	52 ± 3	2.6 ± 0.6	9.7 ± 0.5	67 ± 9	450 ± 130
		23.1 ± 0.9	3200 ± 500	3.01 ± 0.11	57 ± 3	2.3 ± 0.5	8.6 ± 0.5	75 ± 10	320 ± 70

Table C-V. Individual Elemental Concentration in Soils of Cactus Plot # 10, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (ug/g)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
1	0	< 2	15000 ± 4000	3.5 ± 0.4	< 0.008	610 ± 40	0.8 ± 0.5	6800 ± 500	101 ± 5
		< 2	65700 ± 1800	3.9 ± 0.5	< 0.011	610 ± 40	< 2.5	7100 ± 500	94 ± 4
		< 2	68100 ± 1900	3.7 ± 0.5	< 0.008	620 ± 130	0.71 ± 0.22	7100 ± 500	112 ± 5
	6	< 3	87700 ± 2500	6.0 ± 0.7	< 0.011	500 ± 50	8.7 ± 0.9	7500 ± 500	98 ± 5
		< 2.5	86600 ± 2400	5.5 ± 0.6	< 0.012	520 ± 40	6.7 ± 0.9	6600 ± 500	72 ± 3
		< 3	92000 ± 3000	6.9 ± 0.8	< 0.011	510 ± 130	15.7 ± 1.7	11400 ± 700	90 ± 4
2	0	< 2.1	63200 ± 1800	3.0 ± 0.4	< 0.011	530 ± 40	3.8 ± 0.5	8000 ± 500	119 ± 5
	6	< 3	87700 ± 2500	7.2 ± 0.8	< 0.011	530 ± 50	13.9 ± 1.5	7100 ± 500	99 ± 5
3	0	< 2.1	68000 ± 1900	3.2 ± 0.4	< 0.008	610 ± 40	1.7 ± 0.3	8800 ± 600	117 ± 5
	6	< 2.5	76500 ± 2100	6.6 ± 0.7	< 0.01	450 ± 40	17.4 ± 1.9	43300 ± 2000	98 ± 4
4	0	< 2	63100 ± 1800	3.3 ± 0.4	< 0.01	580 ± 40	2.8 ± 0.4	17600 ± 900	102 ± 5
	6	< 3	74100 ± 2100	6.2 ± 0.7	< 0.011	520 ± 70	23 ± 2	35600 ± 1700	104 ± 5
5	0	< 2.1	63000 ± 1800	3.5 ± 0.4	< 0.008	530 ± 50	2.2 ± 0.3	6700 ± 500	114 ± 5
	6	< 3	86300 ± 2400	6.1 ± 0.7	0.015 ± 0.004	430 ± 50	27 ± 3	29200 ± 1400	87 ± 4
6	0	< 2.1	59900 ± 1700	2.7 ± 0.4	< 0.01	590 ± 50	< 2.3	6700 ± 500	133 ± 6
		< 2	64100 ± 1800	3.5 ± 0.4	< 0.007	640 ± 100	1.3 ± 0.3	7400 ± 500	112 ± 5
		< 1.9	63300 ± 1800	3.0 ± 0.4	< 0.01	550 ± 50	1.6 ± 0.3	14100 ± 800	93 ± 4
	6	< 2.4	66800 ± 1900	5.4 ± 0.6	< 0.011	440 ± 60	22.6 ± 2.4	49100 ± 2200	101 ± 5
		< 3	80500 ± 2300	6.5 ± 0.7	< 0.011	560 ± 40	13.2 ± 1.4	8500 ± 600	113 ± 5
		< 2.4	70400 ± 2000	4.9 ± 0.6	< 0.011	510 ± 50	16.0 ± 1.7	29800 ± 1400	96 ± 4
7	0	< 2.1	65200 ± 1800	3.4 ± 0.4	< 0.008	560 ± 60	2.0 ± 0.3	14800 ± 800	114 ± 5
	6	< 2.4	68600 ± 1900	6.6 ± 0.7	< 0.01	460 ± 40	35 ± 4	72000 ± 3000	104 ± 5
8	0	< 2.2	66600 ± 1900	4.2 ± 0.5	< 0.01	540 ± 40	3.7 ± 0.7	17900 ± 900	119 ± 5
	6	< 2.3	73600 ± 2100	5.4 ± 0.6	< 0.01	510 ± 40	22.2 ± 2.4	46400 ± 2100	104 ± 5
9	0	< 2.3	64900 ± 1800	3.3 ± 0.4	< 0.008	500 ± 90	3.0 ± 0.4	25200 ± 1200	107 ± 5
	6	< 2.4	67100 ± 1900	4.7 ± 0.6	< 0.01	500 ± 40	7.6 ± 0.9	30600 ± 1500	103 ± 5
10	0	< 1.9	60400 ± 1700	2.6 ± 0.3	< 0.009	540 ± 40	< 2.2	< 3000	100 ± 4
	6	< 2.5	76200 ± 2100	5.6 ± 0.6	< 0.011	530 ± 50	16.7 ± 1.8	21600 ± 1100	101 ± 5
11	0	< 2	60000 ± 1700	3.3 ± 0.4	< 0.009	500 ± 50	< 2.2	7500 ± 500	118 ± 5
	6	< 3	92000 ± 3000	6.4 ± 0.7	< 0.01	460 ± 40	11.5 ± 1.2	6300 ± 500	100 ± 5
12	0	< 2.2	70700 ± 2000	4.1 ± 0.5	< 0.008	540 ± 40	1.6 ± 0.4	5400 ± 400	103 ± 5
		< 3	70300 ± 2000	5.4 ± 0.6	< 0.01	640 ± 90	2.1 ± 0.5	7700 ± 500	154 ± 7
		< 3	65200 ± 1800	4.1 ± 0.5	< 0.008	570 ± 40	6.6 ± 0.8	25800 ± 1300	111 ± 5
	6	< 3	93000 ± 3000	6.9 ± 0.8	0.013 ± 0.003	420 ± 40	19.1 ± 2	5900 ± 500	68 ± 3
		< 4	79000 ± 2200	6.1 ± 0.7	< 0.011	620 ± 50	5.2 ± 0.6	9600 ± 600	124 ± 6
		< 3	79200 ± 2200	5.7 ± 0.7	< 0.01	490 ± 40	8.5 ± 1.0	7700 ± 600	80 ± 4

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	< 90	5.4 ± 0.3	---	31 ± 2	5.5 ± 0.3	< 190	11.8 ± 1.0	1.45 ± 0.08
		< 90	5.4 ± 0.3	---	27.4 ± 1.8	5.2 ± 0.3	< 190	10.6 ± 0.8	1.42 ± 0.07
		< 90	5.7 ± 0.3	---	31.9 ± 2.0	5.5 ± 0.3	< 200	11.2 ± 0.9	1.62 ± 0.09
	6	< 70	7.8 ± 0.4	---	46 ± 3	8.4 ± 0.5	< 220	11.6 ± 0.9	1.47 ± 0.07
		< 80	7.1 ± 0.4	---	35.3 ± 2.2	7.4 ± 0.4	< 210	7.0 ± 0.6	1.28 ± 0.07
		< 70	8.4 ± 0.4	---	45 ± 3	8.9 ± 0.6	< 230	7.4 ± 0.9	1.57 ± 0.10
2	0	< 90	5.3 ± 0.3	---	33.9 ± 2.1	5.2 ± 0.3	< 200	13.4 ± 1.0	1.56 ± 0.09
	6	< 70	9.4 ± 0.5	---	62 ± 4	8.4 ± 0.5	< 210	9.9 ± 1.0	1.50 ± 0.06
3	0	< 90	5.6 ± 0.3	---	32.4 ± 2.0	5.3 ± 0.3	< 200	15.9 ± 1.3	1.57 ± 0.08
	6	< 70	7.2 ± 0.4	---	38 ± 2	7.1 ± 0.4	< 220	12.0 ± 0.9	1.63 ± 0.11
4	0	< 90	6.0 ± 0.3	---	31.1 ± 2.0	5.5 ± 0.3	< 190	12.3 ± 1.0	1.44 ± 0.09
	6	< 80	7.5 ± 0.4	---	42 ± 3	7.2 ± 0.4	< 210	12 ± 1	1.55 ± 0.08
5	0	< 90	5.6 ± 0.3	---	31.4 ± 2	5.6 ± 0.3	< 200	15.8 ± 1.2	1.58 ± 0.09
	6	< 70	7.8 ± 0.4	---	47 ± 3	9.9 ± 0.6	< 210	8.5 ± 0.7	1.48 ± 0.09
6	0	< 90	5.8 ± 0.3	---	32.7 ± 2.1	4.5 ± 0.3	< 200	17.0 ± 1.3	1.78 ± 0.11
		< 90	5.9 ± 0.3	---	31.1 ± 1.9	4.8 ± 0.3	< 200	13.9 ± 1.1	1.60 ± 0.09
		< 80	5.5 ± 0.3	---	27.2 ± 1.7	4.8 ± 0.3	< 180	10.7 ± 0.9	1.26 ± 0.06
	6	< 70	7.4 ± 0.4	---	35.3 ± 2.2	5.6 ± 0.3	< 210	9.7 ± 0.8	1.43 ± 0.07
		< 80	8.3 ± 0.4	---	44 ± 3	7.2 ± 0.4	< 230	10.7 ± 0.8	1.58 ± 0.08
		< 70	7.5 ± 0.4	---	35.3 ± 2.2	5.9 ± 0.4	< 210	10.2 ± 1.0	1.56 ± 0.10

Table C-V. Individual Elemental Concentration in Soils of Cactus Plot # 10, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
7	0	< 90	6.6 ± 0.4	---	31.5 ± 2	5.9 ± 0.3	< 200	12.9 ± 1.0	1.50 ± 0.08
	6	< 80	8.3 ± 0.4	---	33.6 ± 2.2	6.3 ± 0.4	< 220	10.7 ± 0.8	1.59 ± 0.11
8	0	< 80	5.7 ± 0.3	---	33 ± 2	7.1 ± 0.4	< 190	12.4 ± 1.1	1.58 ± 0.08
	6	< 70	9.4 ± 0.5	---	43 ± 3	7.8 ± 0.5	< 190	10.1 ± 1.0	1.54 ± 0.06
9	0	< 100	6.2 ± 0.3	---	34.1 ± 2.1	7.0 ± 0.4	< 210	13.5 ± 1.0	1.52 ± 0.09
	6	< 70	7.1 ± 0.4	---	36.4 ± 2.3	7.8 ± 0.4	< 230	11.9 ± 0.9	1.41 ± 0.06
10	0	< 80	5.1 ± 0.3	---	28.6 ± 1.8	4.7 ± 0.3	< 180	13.1 ± 1.0	1.39 ± 0.07
	6	< 70	7.6 ± 0.4	---	37.5 ± 2.3	7.1 ± 0.4	< 210	11.3 ± 0.9	1.55 ± 0.07
11	0	< 80	6.2 ± 0.3	---	36.3 ± 2.3	5.0 ± 0.3	< 190	15.4 ± 1.2	1.6 ± 0.1
	6	< 70	8.8 ± 0.5	---	47 ± 3	9.8 ± 0.6	< 200	10.6 ± 0.9	1.62 ± 0.10
12	0	< 90	7.1 ± 0.4	---	33.2 ± 2.1	6.1 ± 0.4	< 200	11.3 ± 1.0	1.36 ± 0.07
		< 90	8.6 ± 0.5	---	44 ± 3	7.8 ± 0.5	< 200	15.9 ± 1.3	1.98 ± 0.12
		< 100	6.1 ± 0.3	---	32.1 ± 2.0	5.8 ± 0.3	< 200	9.4 ± 0.8	1.42 ± 0.09
	6	< 70	6.8 ± 0.4	---	42 ± 3	10.3 ± 0.6	< 200	8.1 ± 0.6	1.25 ± 0.06
		< 70	8.8 ± 0.5	---	57 ± 3	8.6 ± 0.5	< 210	10.9 ± 0.9	1.75 ± 0.09
		< 70	7.2 ± 0.4	---	36.3 ± 2.3	8.0 ± 0.5	< 210	7.8 ± 0.6	1.41 ± 0.09

Tree #	Depth (in)	F (ug/g)	Fe (ug/g)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (ug/g)
1	0	---	28800 ± 1500	14 ± 3	12.9 ± 0.8	< 0.4	< 14	< 0.18	28800 ± 1800
		---	28300 ± 1400	17 ± 3	10.2 ± 0.5	< 0.4	< 16	< 0.19	30100 ± 1900
		---	31300 ± 1600	19 ± 4	14.2 ± 1.6	< 0.4	< 14	< 0.18	27000 ± 1700
	6	---	35300 ± 1800	23 ± 4	10.5 ± 0.6	< 0.5	5.9 ± 1.8	< 0.16	29500 ± 1900
		---	28800 ± 1500	< 19	6.4 ± 0.8	< 0.5	< 15	< 0.20	27200 ± 1800
		---	35600 ± 1800	25 ± 4	8.8 ± 1.2	< 0.5	8 ± 3	< 0.17	26300 ± 1700
2	0	---	32000 ± 1600	< 16	14.8 ± 0.8	< 0.4	< 17	< 0.19	29100 ± 1900
	6	---	36800 ± 1800	21 ± 4	9.7 ± 0.4	< 0.5	< 16	< 0.20	26900 ± 1700
3	0	---	32200 ± 1600	15 ± 3	14.6 ± 0.8	< 0.4	< 15	< 0.19	27000 ± 1700
	6	---	31700 ± 1600	14 ± 5	9.5 ± 1.1	< 0.5	14 ± 3	0.11 ± 0.03	25600 ± 1700
4	0	---	30700 ± 1600	< 16	14.4 ± 1.0	< 0.4	< 17	< 0.19	29400 ± 1900
	6	---	35600 ± 1800	< 18	11.9 ± 0.7	< 0.5	11.1 ± 2.4	< 0.20	23100 ± 1500
5	0	---	35700 ± 1800	12 ± 3	15.8 ± 1.1	< 0.4	< 16	< 0.18	27300 ± 1700
	6	---	36200 ± 1800	21 ± 4	7.4 ± 0.9	< 0.5	15.2 ± 2.3	< 0.15	26100 ± 1700
6	0	---	39300 ± 2000	14 ± 3	19.0 ± 1.3	< 0.4	< 18	< 0.20	30700 ± 2000
		---	34400 ± 1800	< 16	16.0 ± 1.2	< 0.4	< 16	< 0.19	28700 ± 1800
		---	24800 ± 1200	< 16	10.7 ± 0.5	< 0.4	< 15	< 0.18	28400 ± 1800
	6	---	29600 ± 1500	20 ± 4	12.2 ± 0.8	< 0.5	16 ± 3	< 0.20	23200 ± 1500
		---	35000 ± 1800	16 ± 3	12.5 ± 0.9	< 0.5	< 15	< 0.17	27100 ± 1800
		---	29000 ± 1500	16 ± 3	11.2 ± 1.1	< 0.5	< 16	< 0.20	25200 ± 1600
7	0	---	32100 ± 1600	16 ± 4	14.4 ± 0.9	< 0.4	< 15	< 0.18	25200 ± 1600
	6	---	28400 ± 1500	19 ± 4	9.3 ± 0.5	< 0.5	26 ± 3	< 0.16	23300 ± 1600
8	0	---	32600 ± 1700	< 17	14.3 ± 0.9	< 0.4	< 17	< 0.19	27300 ± 1700
	6	---	29000 ± 1500	14 ± 3	8.8 ± 0.4	< 0.5	15.3 ± 2.4	< 0.18	24200 ± 1600
9	0	---	33300 ± 1700	< 18	15.3 ± 1.0	< 0.5	< 16	0.10 ± 0.03	25200 ± 1700
	6	---	38200 ± 2000	13 ± 3	12.0 ± 0.6	< 0.5	7 ± 2	< 0.17	28400 ± 1800
10	0	---	30600 ± 1500	< 16	12.0 ± 0.8	< 0.4	< 16	< 0.18	29300 ± 1900
	6	---	35600 ± 1800	13 ± 3	10.5 ± 0.4	< 0.5	7.8 ± 2.5	< 0.20	25800 ± 1700
11	0	---	37900 ± 1900	19 ± 4	19.8 ± 1.5	< 0.4	< 17	< 0.19	27700 ± 1800
	6	---	40000 ± 2100	21 ± 4	10.4 ± 1.1	< 0.5	7.7 ± 2.1	< 0.19	25700 ± 1700
12	0	---	29200 ± 1500	17 ± 4	11.6 ± 0.7	< 0.5	< 15	< 0.18	28200 ± 1800
		---	44300 ± 2500	17 ± 3	19.2 ± 1.1	< 0.6	< 18	< 0.19	26700 ± 1700
		---	29000 ± 1500	< 18	11.9 ± 0.8	< 0.5	< 16	< 0.18	25200 ± 1600
	6	---	34900 ± 1800	21 ± 3	5.8 ± 0.4	< 0.5	10.1 ± 2.0	< 0.14	32100 ± 2100
		---	37300 ± 2000	15 ± 3	13.4 ± 0.7	< 0.8	< 17	< 0.20	26200 ± 1700
		---	29300 ± 1500	12 ± 4	6.9 ± 1.0	< 0.5	< 13	< 0.15	31100 ± 2000

Table C-V. Individual Elemental Concentration in Soils of Cactus Plot # 10, Saguaro National Monument (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
1	0	50 ± 3	1.38 ± 0.07	3800 ± 500	710 ± 30	14800 ± 600	50 ± 6	---	141 ± 7
		47.1 ± 2.5	1.20 ± 0.06	4300 ± 500	690 ± 30	14700 ± 700	44 ± 6	---	131 ± 7
		54 ± 3	1.23 ± 0.06	4000 ± 500	700 ± 30	14900 ± 600	47 ± 6	---	136 ± 7
	6	52 ± 3	1.10 ± 0.05	5500 ± 500	573 ± 25	12200 ± 500	56 ± 7	---	149 ± 8
		37.7 ± 2.1	0.70 ± 0.04	5600 ± 600	424 ± 18	12500 ± 500	44 ± 7	---	138 ± 7
		49 ± 3	0.80 ± 0.04	6000 ± 500	531 ± 23	11300 ± 500	35 ± 6	---	129 ± 7
2	0	56 ± 3	1.65 ± 0.08	3000 ± 400	760 ± 30	13400 ± 600	61 ± 7	---	133 ± 7
	6	52 ± 3	1.02 ± 0.05	5700 ± 500	601 ± 24	10200 ± 400	44 ± 6	---	140 ± 7
3	0	58 ± 3	1.77 ± 0.08	4800 ± 500	760 ± 30	13300 ± 600	46 ± 6	---	127 ± 6
	6	54 ± 3	1.29 ± 0.06	4700 ± 500	544 ± 23	9700 ± 400	42 ± 7	---	116 ± 6
4	0	50 ± 3	1.41 ± 0.07	4600 ± 500	730 ± 30	13100 ± 600	54 ± 6	---	126 ± 6
	6	54 ± 3	1.35 ± 0.07	5500 ± 500	670 ± 30	9800 ± 400	57 ± 8	---	114 ± 6
5	0	57 ± 3	1.96 ± 0.09	3400 ± 400	900 ± 40	12100 ± 500	52 ± 6	---	117 ± 6
	6	50 ± 3	0.79 ± 0.04	6700 ± 600	475 ± 19	8700 ± 400	51 ± 7	---	129 ± 7
6	0	63 ± 3	2.13 ± 0.10	3300 ± 500	1010 ± 40	13200 ± 600	63 ± 7	---	131 ± 7
		56 ± 3	1.59 ± 0.08	3800 ± 500	910 ± 40	13300 ± 600	51 ± 6	---	125 ± 6
		46.7 ± 2.5	1.21 ± 0.06	3700 ± 1000	600 ± 23	13000 ± 600	47 ± 6	---	124 ± 6
	6	51 ± 3	1.04 ± 0.05	4600 ± 500	587 ± 23	10700 ± 400	39 ± 6	---	109 ± 6
		58 ± 4	1.09 ± 0.06	4900 ± 500	670 ± 30	11100 ± 500	50 ± 7	---	133 ± 7
		48 ± 3	1.02 ± 0.05	4600 ± 600	570 ± 22	11100 ± 500	42 ± 7	---	123 ± 6
7	0	54 ± 3	1.56 ± 0.07	5100 ± 600	810 ± 30	13100 ± 600	50 ± 6	---	125 ± 6
	6	54 ± 3	1.01 ± 0.05	4200 ± 500	600 ± 30	9500 ± 400	48 ± 6	---	114 ± 6
8	0	60 ± 3	1.37 ± 0.07	5400 ± 500	710 ± 30	12500 ± 600	49 ± 7	---	125 ± 6
	6	53 ± 3	0.89 ± 0.05	6100 ± 600	517 ± 21	9900 ± 400	49 ± 7	---	117 ± 6
9	0	52 ± 3	1.61 ± 0.08	5200 ± 600	760 ± 30	12500 ± 500	45 ± 6	---	120 ± 6
	6	54 ± 3	1.52 ± 0.07	5800 ± 500	940 ± 40	11000 ± 500	45 ± 6	---	127 ± 7
10	0	50 ± 3	1.61 ± 0.08	4000 ± 500	800 ± 30	13000 ± 600	41 ± 5	---	127 ± 6
	6	54 ± 3	1.31 ± 0.07	5900 ± 600	700 ± 30	10200 ± 400	47 ± 6	---	131 ± 7
11	0	57 ± 3	2.03 ± 0.10	3100 ± 500	920 ± 40	12900 ± 600	61 ± 7	---	123 ± 6
	6	50 ± 3	1.17 ± 0.06	5600 ± 500	600 ± 30	9100 ± 400	51 ± 7	---	137 ± 7
12	0	47 ± 3	1.32 ± 0.06	3200 ± 500	690 ± 30	12500 ± 500	53 ± 7	---	134 ± 7
		60 ± 3	2.44 ± 0.11	5600 ± 500	830 ± 30	11400 ± 500	99 ± 12	---	147 ± 8
		51 ± 3	1.12 ± 0.06	6400 ± 600	730 ± 30	10700 ± 400	58 ± 7	---	128 ± 7
	6	44 ± 3	0.86 ± 0.05	5800 ± 400	419 ± 18	7800 ± 300	39 ± 6	---	148 ± 8
		57 ± 3	1.28 ± 0.07	5400 ± 500	720 ± 30	10800 ± 500	86 ± 12	---	142 ± 7
		42 ± 3	0.81 ± 0.04	5000 ± 500	437 ± 19	9900 ± 400	46 ± 7	---	147 ± 7

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	1.09 ± 0.10	7.8 ± 0.4	< 3	---	9.6 ± 0.4	< 210	1.16 ± 0.08	1.68 ± 0.17
		1.24 ± 0.10	7.6 ± 0.4	< 3	---	8.8 ± 0.4	< 300	1.02 ± 0.08	1.48 ± 0.13
		1.35 ± 0.11	8.4 ± 0.4	< 3	---	10.4 ± 0.5	< 210	1.20 ± 0.12	1.73 ± 0.16
	6	1.23 ± 0.11	10.9 ± 0.6	< 3	---	9.1 ± 0.4	< 220	0.97 ± 0.07	1.62 ± 0.15
		0.99 ± 0.11	9.6 ± 0.5	< 3	---	7.6 ± 0.3	< 250	0.79 ± 0.06	1.07 ± 0.11
		1.42 ± 0.11	11.7 ± 0.6	< 3	---	8.7 ± 0.4	< 220	1.00 ± 0.09	1.41 ± 0.13
2	0	0.94 ± 0.09	8.2 ± 0.4	< 0.4	---	10.2 ± 0.5	< 300	1.32 ± 0.08	1.95 ± 0.18
	6	1.20 ± 0.10	11.4 ± 0.6	< 3	---	10.0 ± 0.5	< 300	1.10 ± 0.08	1.52 ± 0.14
3	0	1.18 ± 0.10	8.3 ± 0.4	< 3	---	11.6 ± 0.5	340 ± 70	1.16 ± 0.08	2.25 ± 0.21
	6	1.01 ± 0.09	9.5 ± 0.5	< 1	---	9.7 ± 0.4	< 220	1.14 ± 0.08	1.73 ± 0.16
4	0	1.06 ± 0.08	7.8 ± 0.4	< 3	---	9.7 ± 0.4	< 300	1.09 ± 0.09	1.83 ± 0.17
	6	1.02 ± 0.10	9.6 ± 0.5	< 3	---	10.7 ± 0.5	< 300	1.17 ± 0.08	1.72 ± 0.16
5	0	1.28 ± 0.10	8.3 ± 0.4	< 3	---	11.4 ± 0.5	< 230	1.53 ± 0.10	2.2 ± 0.2
	6	1.66 ± 0.12	11.3 ± 0.6	< 3	---	8.6 ± 0.4	< 210	1.09 ± 0.08	1.25 ± 0.11
6	0	1.06 ± 0.09	8.5 ± 0.5	< 0.5	---	11.8 ± 0.5	< 300	1.52 ± 0.10	2.36 ± 0.22
		1.13 ± 0.09	8.1 ± 0.4	< 0.9	---	10.9 ± 0.5	< 230	1.32 ± 0.09	1.93 ± 0.19
		1.04 ± 0.09	7.0 ± 0.4	< 0.8	---	9.1 ± 0.4	< 300	0.93 ± 0.06	1.53 ± 0.14
	6	1.13 ± 0.11	8.4 ± 0.5	< 3	---	9.8 ± 0.5	< 300	1.12 ± 0.08	1.57 ± 0.14
		1.39 ± 0.11	10.2 ± 0.6	< 3	---	10.4 ± 0.5	< 240	1.11 ± 0.09	1.63 ± 0.15
		1.23 ± 0.11	8.7 ± 0.5	< 0.8	---	9.3 ± 0.4	< 300	1.41 ± 0.09	1.37 ± 0.13

Table C-V. Individual Elemental Concentration in Soils of Cactus Plot # 10, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
7	0	1.21 ± 0.10	8.5 ± 0.5	< 3	---	10.6 ± 0.5	< 230	1.19 ± 0.08	1.87 ± 0.17
	6	1.15 ± 0.10	8.7 ± 0.5	< 3	---	10.3 ± 0.5	< 230	0.96 ± 0.08	1.61 ± 0.15
8	0	1.20 ± 0.10	8.4 ± 0.4	< 3	---	11.0 ± 0.5	< 300	1.15 ± 0.08	1.82 ± 0.17
	6	1.06 ± 0.10	9.1 ± 0.5	< 3	---	10.3 ± 0.5	< 250	0.96 ± 0.07	1.59 ± 0.14
9	0	1.13 ± 0.10	8.4 ± 0.5	< 3	---	10.3 ± 0.5	< 240	1.62 ± 0.11	1.84 ± 0.17
	6	1.31 ± 0.10	9.2 ± 0.5	< 3	---	10.9 ± 0.5	< 300	1.24 ± 0.09	1.78 ± 0.17
10	0	1.06 ± 0.09	7.4 ± 0.4	< 2.5	---	9.7 ± 0.4	< 300	1.22 ± 0.09	1.90 ± 0.17
	6	1.34 ± 0.12	9.9 ± 0.5	< 3	---	10.4 ± 0.5	< 300	1.14 ± 0.08	1.69 ± 0.16
11	0	1.25 ± 0.09	8.2 ± 0.4	< 3	---	11.0 ± 0.5	< 300	1.40 ± 0.09	2.17 ± 0.20
	6	1.10 ± 0.10	12.1 ± 0.7	< 3	---	10.2 ± 0.5	< 300	1.18 ± 0.08	1.65 ± 0.15
12	0	1.14 ± 0.09	8.6 ± 0.5	< 3	---	9.4 ± 0.4	< 220	1.08 ± 0.07	1.61 ± 0.15
		1.23 ± 0.09	11.0 ± 0.6	< 4	---	11.8 ± 0.5	< 300	1.46 ± 0.12	2.44 ± 0.22
		0.95 ± 0.09	8.2 ± 0.4	< 3	---	9.7 ± 0.4	< 230	1.47 ± 0.11	1.38 ± 0.13
	6	1.08 ± 0.10	11.4 ± 0.6	< 3	---	8.2 ± 0.4	< 190	1.04 ± 0.07	1.22 ± 0.11
		1.24 ± 0.11	11.3 ± 0.6	< 4	---	10.9 ± 0.5	< 300	1.24 ± 0.09	1.75 ± 0.16
		0.97 ± 0.09	9.6 ± 0.5	< 3	---	7.6 ± 0.3	< 210	0.80 ± 0.06	1.14 ± 0.11

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	18.3 ± 0.7	3600 ± 500	3.49 ± 0.12	52 ± 3	2.5 ± 0.5	10.6 ± 0.5	58 ± 8	510 ± 60
		17.0 ± 0.7	3300 ± 400	3.04 ± 0.11	52 ± 3	2.3 ± 0.4	8.7 ± 0.5	58 ± 8	370 ± 80
		21.1 ± 0.8	3900 ± 500	3.68 ± 0.13	51 ± 3	2.1 ± 0.4	9.2 ± 0.5	68 ± 9	490 ± 110
	6	19.1 ± 0.7	3300 ± 400	3.34 ± 0.12	65 ± 3	3.0 ± 0.5	8.6 ± 0.5	74 ± 10	370 ± 130
		14.4 ± 0.6	2500 ± 400	2.41 ± 0.09	57 ± 3	2.0 ± 0.6	4.8 ± 0.3	63 ± 9	210 ± 70
		17.5 ± 0.7	3400 ± 400	2.99 ± 0.11	74 ± 3	3.8 ± 0.6	6.5 ± 0.4	72 ± 10	290 ± 50
2	0	23.0 ± 0.9	3800 ± 500	4.10 ± 0.14	51 ± 3	2.6 ± 1.5	12.3 ± 0.6	65 ± 9	620 ± 110
	6	19.4 ± 0.8	3700 ± 500	3.16 ± 0.11	70 ± 3	2.2 ± 0.5	7.3 ± 0.4	76 ± 10	400 ± 60
3	0	22.5 ± 0.9	3900 ± 500	4.23 ± 0.15	55 ± 3	2.5 ± 0.4	13.9 ± 0.8	56 ± 8	530 ± 70
	6	17.5 ± 0.7	3100 ± 400	3.30 ± 0.12	68 ± 3	2.5 ± 0.5	10.3 ± 0.6	64 ± 9	400 ± 90
4	0	19.4 ± 0.8	3500 ± 500	3.56 ± 0.12	54 ± 3	2.6 ± 0.8	10.3 ± 0.5	67 ± 9	550 ± 70
	6	19.5 ± 0.8	3900 ± 500	3.50 ± 0.13	68 ± 3	2.7 ± 0.6	10.1 ± 0.5	69 ± 10	470 ± 80
5	0	22.9 ± 0.9	4200 ± 600	4.60 ± 0.16	57 ± 3	2.5 ± 0.4	14.8 ± 0.7	58 ± 8	560 ± 110
	6	17.5 ± 0.7	3200 ± 400	2.92 ± 0.11	70 ± 3	3.2 ± 0.5	6.1 ± 0.3	80 ± 11	300 ± 90
6	0	24.8 ± 1.0	4400 ± 600	4.35 ± 0.15	59 ± 3	1.9 ± 0.8	15.5 ± 0.8	61 ± 8	740 ± 90
		20.8 ± 0.8	4300 ± 600	3.84 ± 0.13	59 ± 3	2.3 ± 0.4	11.7 ± 0.6	62 ± 8	640 ± 120
		17.3 ± 0.7	3400 ± 400	3.17 ± 0.11	51 ± 3	2.6 ± 0.5	9.1 ± 0.5	58 ± 8	380 ± 90
	6	18.7 ± 0.7	3600 ± 500	3.25 ± 0.12	58 ± 3	2.5 ± 0.6	8.3 ± 0.5	54 ± 8	490 ± 70
		21.2 ± 0.8	3500 ± 500	3.38 ± 0.12	62 ± 7	3.2 ± 0.6	8.7 ± 0.5	68 ± 9	510 ± 90
		17.7 ± 0.7	3300 ± 400	3.66 ± 0.13	52 ± 3	2.8 ± 0.7	7.8 ± 0.4	59 ± 8	420 ± 90
7	0	20.8 ± 0.8	3800 ± 500	3.73 ± 0.13	55 ± 3	2.7 ± 0.5	11.1 ± 0.6	62 ± 8	540 ± 90
	6	17.9 ± 0.7	3100 ± 400	2.81 ± 0.10	58 ± 3	2.5 ± 0.5	8.0 ± 0.4	58 ± 8	370 ± 100
8	0	22.0 ± 0.9	3600 ± 500	3.52 ± 0.12	55 ± 3	2.5 ± 0.4	10.1 ± 0.5	60 ± 8	580 ± 80
	6	17.9 ± 0.7	2700 ± 400	2.76 ± 0.10	52 ± 3	2.2 ± 0.4	6.7 ± 0.4	56 ± 8	330 ± 50
9	0	20.4 ± 0.8	3900 ± 500	3.98 ± 0.14	57 ± 3	2.6 ± 0.5	11.7 ± 0.6	72 ± 10	580 ± 90
	6	20.2 ± 0.8	3800 ± 500	3.46 ± 0.12	62 ± 3	3.0 ± 0.5	12.2 ± 0.6	59 ± 8	540 ± 70
10	0	19.1 ± 0.8	3900 ± 500	3.61 ± 0.13	50 ± 3	2.2 ± 0.5	12.3 ± 0.6	54 ± 7	490 ± 60
	6	19.0 ± 0.7	4100 ± 500	3.34 ± 0.12	65 ± 3	2.5 ± 0.4	10.2 ± 0.5	71 ± 10	410 ± 60
11	0	22.9 ± 0.9	5100 ± 700	4.51 ± 0.15	62 ± 3	2.3 ± 0.9	14.9 ± 0.7	62 ± 8	790 ± 110
	6	19.8 ± 0.8	3600 ± 500	3.33 ± 0.12	73 ± 3	3.7 ± 0.6	8.8 ± 0.5	85 ± 11	420 ± 60
12	0	19.2 ± 0.8	4100 ± 500	3.39 ± 0.12	55 ± 3	2.2 ± 0.4	9.6 ± 0.5	50 ± 7	370 ± 70
		29.5 ± 1.1	3800 ± 500	4.80 ± 0.17	68 ± 3	2.8 ± 0.6	15.0 ± 0.8	84 ± 11	550 ± 130
		19.1 ± 0.7	3400 ± 500	2.9 ± 0.1	52 ± 3	2.2 ± 0.5	7.4 ± 0.4	49 ± 22	430 ± 70
	6	16.2 ± 0.6	2800 ± 400	2.44 ± 0.09	66 ± 3	2.7 ± 0.5	6.6 ± 0.3	77 ± 10	190 ± 50
		23.0 ± 0.9	3900 ± 500	3.40 ± 0.12	65 ± 3	2.1 ± 0.4	8.6 ± 0.4	77 ± 10	890 ± 220
		16.1 ± 0.6	2700 ± 400	2.38 ± 0.09	54 ± 3	3.2 ± 0.7	5.6 ± 0.3	69 ± 9	480 ± 90

Table C-VI. Individual Elemental Concentration in Soils of Cactus Plot # 15, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (ug/g)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
1	0	< 3	64200 ± 1800	3.2 ± 0.4	< 0.010	620 ± 50	3.4 ± 0.4	7200 ± 600	124 ± 6
		< 2.3	64500 ± 1800	3.8 ± 0.5	< 0.007	550 ± 50	1.4 ± 0.3	7600 ± 500	99 ± 4
		< 2.1	63100 ± 1800	3.0 ± 0.4	< 0.009	530 ± 40	2.5 ± 0.5	7500 ± 500	98 ± 4
	6	< 4	75200 ± 2100	4.7 ± 0.6	< 0.011	600 ± 50	5.9 ± 0.8	6900 ± 500	116 ± 5
		< 3	73600 ± 2100	3.9 ± 0.5	< 0.011	620 ± 50	8.2 ± 0.9	7800 ± 600	113 ± 5
		< 4	75200 ± 2100	3.6 ± 0.4	< 0.011	680 ± 50	8.5 ± 0.9	10300 ± 700	115 ± 5
2	0	< 2.4	65300 ± 1800	3.3 ± 0.4	< 0.007	610 ± 50	3.0 ± 0.4	9400 ± 600	87 ± 4
	6	< 3	82900 ± 2300	5.3 ± 0.6	< 0.010	580 ± 80	12.9 ± 1.4	10000 ± 600	103 ± 5
3	0	< 3	61400 ± 1700	3.8 ± 0.5	< 0.009	590 ± 80	2.9 ± 0.4	43600 ± 2000	114 ± 5
	6	< 3	60900 ± 1700	4.3 ± 0.5	< 0.009	510 ± 50	15.9 ± 1.7	59000 ± 3000	89 ± 4
4	0	< 2.2	62100 ± 1700	4.0 ± 0.5	< 0.010	550 ± 40	6.9 ± 0.8	29900 ± 1400	87 ± 4
	6	< 2.4	76400 ± 2100	5.5 ± 0.6	< 0.011	560 ± 40	13.5 ± 1.5	14700 ± 800	101 ± 5
5	0	< 2	58700 ± 1600	4.0 ± 0.5	< 0.007	520 ± 40	2.5 ± 0.3	45400 ± 2000	84 ± 4
	6	< 2.2	71200 ± 2000	4.3 ± 0.5	< 0.010	540 ± 40	7.7 ± 0.8	20000 ± 1000	90 ± 4
6	0	< 2.1	60500 ± 1700	4.3 ± 0.5	< 0.010	530 ± 40	4.2 ± 0.6	72000 ± 3000	76 ± 3
		< 2.2	67100 ± 1900	4.2 ± 0.5	< 0.008	520 ± 50	3.8 ± 0.5	29600 ± 1400	81 ± 4
		< 2.3	66900 ± 1900	4.0 ± 0.5	< 0.011	550 ± 40	2.9 ± 0.4	9600 ± 600	101 ± 5
	6	< 2.2	66100 ± 1900	5.0 ± 0.9	< 0.011	500 ± 40	13.9 ± 1.5	57800 ± 2500	82 ± 4
		< 2.2	62900 ± 1800	4.5 ± 0.5	< 0.011	470 ± 40	8.2 ± 0.9	59000 ± 3000	79 ± 4
		< 2.4	69800 ± 2000	5.3 ± 0.6	< 0.011	510 ± 40	9.2 ± 1.0	22100 ± 1100	103 ± 5
7	0	< 1.9	52000 ± 1500	2.9 ± 0.4	< 0.007	570 ± 40	2.4 ± 0.3	78000 ± 3000	68 ± 3
	6	< 3	72000 ± 2000	6.9 ± 0.8	< 0.010	510 ± 60	20.2 ± 2.2	44600 ± 2000	86 ± 4
	31	< 2.4	64200 ± 1800	5.0 ± 0.6	< 0.007	520 ± 40	12.9 ± 1.4	50700 ± 2200	86 ± 4
8	0	< 2	62600 ± 1800	3.9 ± 0.5	< 0.009	530 ± 40	1.7 ± 0.3	11000 ± 600	95 ± 4
	6	< 2.3	72800 ± 2000	5.6 ± 0.6	< 0.010	560 ± 40	12.5 ± 1.3	13300 ± 700	88 ± 4
9	0	< 2.1	66800 ± 1900	3.7 ± 0.5	< 0.008	510 ± 40	2.6 ± 0.4	13500 ± 800	85 ± 4
	6	< 2.3	74500 ± 2100	5.6 ± 0.6	< 0.010	520 ± 60	20.5 ± 2.2	49200 ± 2200	83 ± 4
10	0	< 2	64500 ± 1800	3.9 ± 0.5	< 0.010	470 ± 40	3.2 ± 0.4	14100 ± 800	82 ± 4
	6	< 1.9	62300 ± 1700	4.3 ± 0.5	< 0.010	490 ± 40	13.8 ± 1.5	58000 ± 3000	73 ± 3
11	0	< 2.1	65300 ± 1800	3.2 ± 0.4	< 0.008	560 ± 40	< 2.1	8100 ± 500	108 ± 5
	6	< 3	96000 ± 3000	7.4 ± 0.8	< 0.010	470 ± 60	14.0 ± 1.5	7900 ± 500	109 ± 5
12	0	< 2.3	65900 ± 1800	3.5 ± 0.4	< 0.010	520 ± 40	5.1 ± 0.7	10400 ± 700	98 ± 5
		< 2.1	62800 ± 1800	3.8 ± 0.5	< 0.010	500 ± 40	2.2 ± 0.3	8900 ± 600	120 ± 5
		< 1.9	51200 ± 1500	2.6 ± 0.4	< 0.007	570 ± 40	8.2 ± 0.9	75000 ± 3000	78 ± 4
	6	< 3	88900 ± 2500	7.8 ± 0.8	< 0.011	560 ± 40	17.6 ± 1.9	8500 ± 500	110 ± 5
		1.7 ± 0.5	97000 ± 3000	8.4 ± 1.0	< 0.010	480 ± 50	22.7 ± 2.4	9000 ± 600	84 ± 4
		< 2.5	86500 ± 2400	7.0 ± 0.8	< 0.010	580 ± 40	13.6 ± 1.4	7800 ± 500	97 ± 4

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	< 90	7.0 ± 0.4	---	41 ± 3	6.9 ± 0.5	< 190	10.6 ± 0.8	1.72 ± 0.11
		< 90	5.6 ± 0.3	---	32.6 ± 2.0	5.5 ± 0.3	< 190	9.4 ± 0.7	1.33 ± 0.08
		< 80	5.2 ± 0.3	---	30.8 ± 1.9	5.6 ± 0.3	< 180	8.5 ± 0.7	1.22 ± 0.05
	6	< 80	10.6 ± 0.6	---	42 ± 3	8.5 ± 0.5	< 210	9.5 ± 0.8	1.56 ± 0.07
		< 80	8.4 ± 0.4	---	41 ± 3	7.7 ± 0.4	< 240	9.1 ± 0.7	1.57 ± 0.09
		< 80	9.4 ± 0.5	---	46 ± 3	8.2 ± 0.5	< 220	9.5 ± 0.8	1.61 ± 0.07
2	0	< 90	6.0 ± 0.3	---	29.6 ± 1.9	5.9 ± 0.4	< 200	7.6 ± 0.6	1.22 ± 0.07
	6	< 70	10.5 ± 0.6	---	46 ± 3	8.7 ± 0.5	< 220	9.4 ± 0.7	1.46 ± 0.07
3	0	< 80	7.8 ± 0.4	---	44 ± 3	8.9 ± 0.5	< 180	8.6 ± 0.8	1.58 ± 0.12
	6	< 70	8.1 ± 0.4	---	43 ± 3	8.9 ± 0.5	< 190	7.7 ± 0.6	1.38 ± 0.10
4	0	< 80	6.2 ± 0.3	---	33.8 ± 2.1	7.0 ± 0.4	< 190	9.1 ± 0.7	1.22 ± 0.06
	6	< 70	9.3 ± 0.5	---	48 ± 3	9.2 ± 0.5	< 210	9.8 ± 0.8	1.63 ± 0.10
5	0	< 90	6.0 ± 0.3	---	32.1 ± 2.0	6.5 ± 0.4	< 180	8.7 ± 0.8	1.23 ± 0.08
	6	< 80	7.3 ± 0.4	---	38.7 ± 2.4	8.0 ± 0.5	< 220	8.1 ± 0.6	1.29 ± 0.06
6	0	< 90	6.0 ± 0.3	---	30.3 ± 1.9	8.0 ± 0.5	< 180	6.8 ± 0.6	1.24 ± 0.10
		< 100	6.6 ± 0.4	---	32 ± 2	11.0 ± 0.6	< 200	7.5 ± 0.7	1.26 ± 0.08
		< 80	7.0 ± 0.4	---	34.6 ± 2.1	8.6 ± 0.5	< 190	10.7 ± 1.0	1.40 ± 0.07
	6	< 70	7.7 ± 0.4	---	33.1 ± 2.1	10.7 ± 0.6	< 200	6.9 ± 0.6	1.31 ± 0.09
		< 80	7.1 ± 0.4	---	34.2 ± 2.1	12.9 ± 0.8	< 210	6.8 ± 0.5	1.25 ± 0.10
		< 80	8.1 ± 0.4	---	48 ± 3	9.5 ± 0.6	< 210	10.8 ± 0.9	1.40 ± 0.07

Table C-VI. Individual Elemental Concentration in Soils of Cactus Plot # 15, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
7	0	< 90	4.9 ± 0.3	---	29.0 ± 1.8	5.9 ± 0.4	< 170	6.6 ± 0.5	1.03 ± 0.10
	6	< 70	8.5 ± 0.5	---	44 ± 3	9.0 ± 0.5	< 210	8.6 ± 0.8	1.48 ± 0.10
	31	< 80	7.9 ± 0.4	---	44 ± 3	8.9 ± 0.5	< 170	7.6 ± 0.6	1.31 ± 0.11
8	0	< 80	6.6 ± 0.3	---	38.7 ± 2.4	6.8 ± 0.4	< 180	9.4 ± 0.9	1.26 ± 0.06
	6	< 70	8.3 ± 0.4	---	45 ± 3	8.0 ± 0.5	< 190	8.6 ± 0.7	1.28 ± 0.06
9	0	< 90	6.2 ± 0.3	---	33.1 ± 2.1	6.7 ± 0.4	< 190	8.4 ± 0.7	1.19 ± 0.06
	6	< 70	7.5 ± 0.4	---	39.8 ± 2.5	7.9 ± 0.4	< 220	8.7 ± 0.7	1.44 ± 0.09
10	0	< 80	6.1 ± 0.3	---	31.8 ± 2.0	7.4 ± 0.4	< 180	8.6 ± 0.7	1.20 ± 0.06
	6	< 70	6.5 ± 0.3	---	33.9 ± 2.1	7.2 ± 0.4	< 190	7.3 ± 0.6	1.18 ± 0.08
11	0	< 90	6.0 ± 0.3	---	36.5 ± 2.3	5.7 ± 0.3	< 200	11.9 ± 1.0	1.51 ± 0.08
	6	< 70	11.2 ± 0.6	---	50 ± 3	9.0 ± 0.5	< 220	10.5 ± 0.8	1.85 ± 0.09
12	0	< 90	6.4 ± 0.3	---	35.8 ± 2.3	6.4 ± 0.4	< 210	10.5 ± 1.0	1.33 ± 0.07
		< 90	6.1 ± 0.3	---	36.0 ± 2.2	5.8 ± 0.4	< 190	14.1 ± 1.1	1.57 ± 0.10
		< 90	4.52 ± 0.25	---	26.7 ± 1.7	4.8 ± 0.3	< 180	8.8 ± 0.9	1.04 ± 0.06
	6	< 70	10.0 ± 0.5	---	55 ± 3	9.3 ± 0.5	< 200	12.4 ± 1.0	1.77 ± 0.10
		< 70	8.7 ± 0.5	---	44 ± 3	9.3 ± 0.5	< 200	9.8 ± 0.8	1.59 ± 0.09
		< 70	9.3 ± 0.5	---	46 ± 3	8.3 ± 0.5	< 210	10.0 ± 0.8	1.47 ± 0.07

Tree #	Depth (in)	F (ug/g)	Fe (ug/g)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (ug/g)
1	0	---	34200 ± 1900	15 ± 3	14.3 ± 1.6	< 0.6	< 16	< 0.19	28200 ± 1800
		---	29100 ± 1500	< 18	12.2 ± 0.9	< 0.4	< 14	< 0.17	26400 ± 1700
		---	25700 ± 1400	< 18	9.6 ± 0.6	< 0.4	< 15	< 0.18	27500 ± 1800
	6	---	34200 ± 1700	12 ± 4	10.2 ± 0.5	< 0.7	< 16	< 0.21	28100 ± 1900
		---	33200 ± 1800	13 ± 4	11.6 ± 0.7	< 0.5	< 14	< 0.17	30700 ± 2000
		---	34600 ± 1800	< 22	11.5 ± 0.5	< 0.8	4.9 ± 1.9	< 0.21	27300 ± 1800
2	0	---	24200 ± 1300	20 ± 4	8.8 ± 0.5	< 0.4	< 14	< 0.18	27100 ± 1800
	6	---	32500 ± 1600	19 ± 4	7.7 ± 0.3	< 0.5	8 ± 2	0.12 ± 0.03	30500 ± 2000
3	0	---	38000 ± 2100	< 18	13.5 ± 1.5	< 0.6	< 16	< 0.18	25200 ± 1600
	6	---	32000 ± 1700	< 19	9.8 ± 1.4	< 0.7	12 ± 2	< 0.18	23200 ± 1500
4	0	---	31300 ± 1600	15 ± 3	10.4 ± 0.7	< 0.4	< 17	< 0.19	27000 ± 1700
	6	---	38200 ± 2000	20 ± 3	10.7 ± 1.3	< 0.5	< 15	< 0.19	27300 ± 1800
5	0	---	28300 ± 1400	< 14	11.3 ± 0.8	< 0.4	< 14	< 0.17	23500 ± 1500
	6	---	30600 ± 1600	< 15	10.2 ± 0.6	< 0.4	6.7 ± 2.0	< 0.16	28000 ± 1800
6	0	---	24500 ± 1300	11 ± 2	8.6 ± 1.3	< 0.4	< 15	< 0.18	23700 ± 1500
		---	27300 ± 1400	15 ± 3	9.1 ± 1.1	< 0.4	< 15	< 0.18	26400 ± 1700
		---	36300 ± 1900	14 ± 3	12.5 ± 0.9	< 0.5	< 17	< 0.19	30700 ± 2000
	6	---	27700 ± 1400	18 ± 3	8.5 ± 0.9	< 0.4	10 ± 2	< 0.19	25100 ± 1600
		---	25600 ± 1300	11 ± 3	8.3 ± 0.9	< 0.4	< 13	< 0.16	25800 ± 1700
		---	37400 ± 1900	6 ± 2	13.4 ± 0.7	< 0.5	< 17	< 0.20	27500 ± 1800
7	0	---	25900 ± 1300	8 ± 3	11.1 ± 1.4	< 0.4	< 13	< 0.15	21300 ± 1400
	6	---	34200 ± 1800	13 ± 3	10.5 ± 1.1	< 0.5	13 ± 2	< 0.16	23500 ± 1500
	31	---	29500 ± 1500	< 17	9.2 ± 0.6	< 0.4	14 ± 2	< 0.16	21400 ± 1400
8	0	---	33900 ± 1700	12 ± 3	14.2 ± 0.8	< 0.4	< 15	< 0.17	28000 ± 1800
	6	---	32700 ± 1700	18 ± 3	11.6 ± 0.6	< 0.4	< 15	< 0.18	25500 ± 1600
9	0	---	28500 ± 1500	11 ± 3	10.3 ± 0.5	< 0.4	< 14	< 0.18	26000 ± 1700
	6	---	28800 ± 1500	22 ± 3	7.7 ± 0.7	< 0.5	13 ± 2	< 0.16	26300 ± 1700
10	0	---	27900 ± 1400	< 16	11.4 ± 0.7	< 0.4	< 15	< 0.18	26600 ± 1700
	6	---	24000 ± 1200	15 ± 3	7.6 ± 0.8	< 0.4	13.2 ± 2.3	< 0.18	23500 ± 1500
11	0	---	33300 ± 1700	< 17	16.2 ± 1.0	< 0.4	< 15	< 0.18	26000 ± 1700
	6	---	36800 ± 1900	23 ± 4	9.0 ± 1.1	< 0.5	< 15	< 0.17	27000 ± 1800
12	0	---	33600 ± 1700	< 16	12.6 ± 0.8	< 0.5	< 19	< 0.21	23400 ± 2100
		---	38700 ± 2000	< 16	17.2 ± 1.3	< 0.4	< 17	< 0.19	28100 ± 2400
		---	25100 ± 1300	13 ± 3	10.6 ± 0.7	< 0.4	< 14	< 0.17	20500 ± 1400
	6	---	36700 ± 1900	21 ± 4	8.9 ± 0.8	< 0.5	< 16	< 0.19	27400 ± 1800
		---	34100 ± 1700	20 ± 4	6.7 ± 0.8	< 0.5	9.8 ± 1.9	< 0.19	27100 ± 1800
		---	34600 ± 1800	20 ± 3	10.6 ± 0.5	< 0.5	< 13	< 0.15	28100 ± 1800

Table C-VI. Individual Elemental Concentration in Soils of Cactus Plot # 15, Saguaro National Monument (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	Rb (ug/g)
1	0	47.9 ± 2.4	1.45 ± 0.07	4500 ± 500	620 ± 30	13600 ± 600	78 ± 10	138 ± 7
		47 ± 3	0.98 ± 0.05	3200 ± 500	650 ± 30	13900 ± 600	45 ± 6	133 ± 7
		44.6 ± 2.4	0.97 ± 0.05	4100 ± 500	580 ± 30	14300 ± 600	60 ± 7	118 ± 6
	6	50 ± 3	0.99 ± 0.05	4700 ± 600	700 ± 30	12400 ± 500	85 ± 11	154 ± 8
		53 ± 3	1.11 ± 0.06	4300 ± 400	640 ± 30	13700 ± 600	55 ± 7	135 ± 7
		50 ± 3	1.04 ± 0.05	6500 ± 600	640 ± 30	12900 ± 500	73 ± 12	152 ± 8
2	0	40.7 ± 2.5	0.75 ± 0.04	2900 ± 400	621 ± 24	13500 ± 600	42 ± 6	142 ± 7
	6	48 ± 3	0.98 ± 0.05	4200 ± 400	650 ± 30	11600 ± 500	58 ± 7	151 ± 8
3	0	45.2 ± 2.4	1.28 ± 0.06	7400 ± 600	623 ± 25	10900 ± 500	66 ± 9	134 ± 7
	6	40.9 ± 2.4	0.83 ± 0.04	7200 ± 600	558 ± 22	9800 ± 400	49 ± 8	127 ± 7
4	0	45.2 ± 2.4	0.96 ± 0.05	8800 ± 700	700 ± 30	1170 ± 500	39 ± 5	124 ± 6
	6	53 ± 3	0.93 ± 0.05	7000 ± 600	650 ± 30	11900 ± 500	53 ± 7	130 ± 7
5	0	42 ± 3	0.87 ± 0.04	7800 ± 600	600 ± 24	11200 ± 500	44 ± 5	115 ± 6
	6	46 ± 3	0.77 ± 0.04	4600 ± 500	578 ± 24	12500 ± 500	44 ± 6	145 ± 7
6	0	39.7 ± 2.1	0.58 ± 0.03	7100 ± 600	541 ± 22	11300 ± 500	48 ± 6	112 ± 6
		40.7 ± 2.2	0.67 ± 0.04	6200 ± 500	613 ± 25	13300 ± 600	45 ± 6	140 ± 7
		52 ± 3	1.04 ± 0.05	4500 ± 500	740 ± 30	13100 ± 600	44 ± 6	135 ± 7
	6	42.9 ± 2.3	0.63 ± 0.03	6900 ± 600	581 ± 23	12100 ± 500	36 ± 5	126 ± 6
		38.3 ± 2.3	0.62 ± 0.03	5700 ± 500	567 ± 24	12700 ± 500	29 ± 5	131 ± 7
		54 ± 3	1.18 ± 0.06	5700 ± 600	770 ± 30	12400 ± 500	65 ± 7	130 ± 7
7	0	35.4 ± 2.1	0.69 ± 0.04	6600 ± 500	529 ± 22	9800 ± 400	30 ± 5	106 ± 5
	6	46 ± 3	0.82 ± 0.04	5000 ± 500	580 ± 30	9100 ± 400	45 ± 6	115 ± 6
	31	41.8 ± 2.3	0.81 ± 0.04	6300 ± 400	517 ± 21	9500 ± 400	52 ± 6	129 ± 6
8	0	49 ± 3	1.10 ± 0.05	4400 ± 500	690 ± 30	11800 ± 500	44 ± 6	130 ± 7
	6	47 ± 3	0.88 ± 0.05	4700 ± 400	564 ± 22	10400 ± 400	40 ± 6	130 ± 6
9	0	44 ± 3	0.91 ± 0.05	3600 ± 400	670 ± 30	12500 ± 500	37 ± 5	131 ± 7
	6	44 ± 3	0.84 ± 0.04	5200 ± 500	531 ± 22	10700 ± 500	48 ± 6	126 ± 6
10	0	43.5 ± 2.3	0.82 ± 0.04	5200 ± 500	594 ± 24	13700 ± 600	30 ± 4	124 ± 6
	6	39.2 ± 2.1	0.66 ± 0.03	5500 ± 500	481 ± 20	11400 ± 500	39 ± 5	120 ± 6
11	0	53 ± 3	1.37 ± 0.07	3500 ± 400	770 ± 30	14200 ± 600	53 ± 6	130 ± 7
	6	57 ± 3	1.09 ± 0.05	5400 ± 500	710 ± 30	10100 ± 400	54 ± 7	136 ± 7
12	0	41.2 ± 2.3	1.28 ± 0.06	4600 ± 600	830 ± 30	10500 ± 500	53 ± 6	126 ± 6
		61 ± 3	1.65 ± 0.08	3700 ± 500	880 ± 40	12900 ± 600	55 ± 6	127 ± 6
		39.9 ± 2.3	0.97 ± 0.05	8000 ± 600	660 ± 30	9600 ± 400	41 ± 5	92 ± 5
	6	60 ± 3	1.23 ± 0.06	6200 ± 600	700 ± 30	10300 ± 400	58 ± 7	142 ± 7
		48 ± 3	0.90 ± 0.05	5700 ± 500	528 ± 21	9600 ± 400	37 ± 6	140 ± 7
		50 ± 3	1.05 ± 0.05	5100 ± 500	589 ± 25	10400 ± 400	47 ± 6	142 ± 7

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	1.09 ± 0.09	9.00 ± 0.5	< 4	---	9.2 ± 0.4	< 300	1.27 ± 0.10	2.04 ± 0.20
		1.21 ± 0.09	7.6 ± 0.4	< 2.3	---	9.0 ± 0.4	< 200	1.25 ± 0.09	1.32 ± 0.12
		1.10 ± 0.08	7.1 ± 0.4	< 3	---	8.4 ± 0.4	< 240	1.00 ± 0.08	1.17 ± 0.10
	6	1.09 ± 0.10	10.8 ± 0.6	< 4	---	9.7 ± 0.4	< 300	1.17 ± 0.10	1.59 ± 0.15
		1.34 ± 0.10	9.8 ± 0.5	< 3	---	9.4 ± 0.4	< 230	1.08 ± 0.07	1.48 ± 0.14
		1.21 ± 0.10	10.6 ± 0.6	< 4	---	9.9 ± 0.5	< 300	1.22 ± 0.09	1.58 ± 0.15
2	0	1.08 ± 0.09	7.4 ± 0.4	< 2.4	---	7.8 ± 0.4	< 210	1.15 ± 0.08	1.03 ± 0.09
	6	1.1[illegible] ± 0.10	11.2 ± 0.6	< 3	---	8.9 ± 0.4	< 220	1.10 ± 0.08	1.50 ± 0.14
3	0	1.23 ± 0.09	9.6 ± 0.5	< 4	---	8.6 ± 0.4	< 300	1.41 ± 0.11	1.64 ± 0.20
	6	1.11 ± 0.10	8.8 ± 0.5	< 4	---	7.9 ± 0.4	< 240	1.26 ± 0.08	1.11 ± 0.10
4	0	1.25 ± 0.10	8.1 ± 0.4	< 3	---	8.3 ± 0.4	< 300	1.21 ± 0.09	1.40 ± 0.13
	6	1.42 ± 0.12	10.5 ± 0.6	< 3	---	10.5 ± 0.5	< 300	1.39 ± 0.09	1.39 ± 0.13
5	0	1.33 ± 0.10	7.5 ± 0.4	< 3	---	8.0 ± 0.4	280 ± 70	1.18 ± 0.08	1.23 ± 0.11
	6	1.31 ± 0.11	8.8 ± 0.5	< 3	---	8.0 ± 0.4	< 220	1.14 ± 0.08	1.28 ± 0.12
6	0	1.25 ± 0.10	7.7 ± 0.4	< 3	---	7.5 ± 0.3	210 ± 50	0.99 ± 0.07	1.00 ± 0.09
		1.39 ± 0.11	8.3 ± 0.4	< 3	---	7.3 ± 0.3	< 220	1.13 ± 0.08	1.04 ± 0.10
		1.49 ± 0.11	9.0 ± 0.5	< 3	---	10.1 ± 0.5	< 300	1.43 ± 0.09	1.53 ± 0.14
	6	1.50 ± 0.12	8.6 ± 0.5	< 3	---	8.2 ± 0.4	330 ± 80	1.11 ± 0.08	1.05 ± 0.10
		1.23 ± 0.10	8.3 ± 0.4	< 3	---	6.8 ± 0.3	< 210	1.20 ± 0.08	1.08 ± 0.10
		1.67 ± 0.13	9.8 ± 0.5	< 3	---	10.7 ± 0.5	< 300	1.38 ± 0.09	1.58 ± 0.15

Table C-VI. Individual Elemental Concentration in Soils of Cactus Plot # 15, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
7	0	1.27 ± 0.10	6.6 ± 0.4	< 3	---	6.3 ± 0.3	310 ± 70	1.08 ± 0.07	0.92 ± 0.09
	6	1.48 ± 0.11	10.0 ± 0.5	< 3	---	8.0 ± 0.4	< 220	1.16 ± 0.08	1.24 ± 0.12
	31	1.23 ± 0.09	9.1 ± 0.5	< 3	---	7.8 ± 0.4	200 ± 50	1.03 ± 0.07	1.17 ± 0.11
8	0	1.38 ± 0.10	8.5 ± 0.5	< 3	---	9.2 ± 0.4	< 300	1.29 ± 0.08	1.43 ± 0.13
	6	1.51 ± 0.12	9.4 ± 0.5	< 3	---	8.7 ± 0.4	< 250	1.19 ± 0.08	1.22 ± 0.11
9	0	1.21 ± 0.09	8.0 ± 0.4	< 0.5	---	8.4 ± 0.4	< 220	1.32 ± 0.09	1.30 ± 0.13
	6	1.15 ± 0.10	9.2 ± 0.5	< 3	---	8.0 ± 0.4	< 210	1.04 ± 0.07	1.28 ± 0.12
10	0	1.46 ± 0.10	7.8 ± 0.4	< 0.4	---	8.2 ± 0.4	< 300	1.14 ± 0.08	1.18 ± 0.11
	6	1.06 ± 0.10	7.3 ± 0.4	< 3	---	7.4 ± 0.3	190 ± 60	1.00 ± 0.08	1.04 ± 0.09
11	0	1.18 ± 0.10	8.4 ± 0.4	< 3	---	10.2 ± 0.5	< 220	1.41 ± 0.09	1.80 ± 0.16
	6	1.27 ± 0.10	11.8 ± 0.6	< 0.5	---	10.4 ± 0.5	< 230	1.07 ± 0.08	0.59 ± 0.15
12	0	1.08 ± 0.09	8.6 ± 0.5	< 3	---	7.3 ± 0.3	< 300	1.30 ± 0.09	1.48 ± 0.14
		1.43 ± 0.10	8.6 ± 0.5	< 3	---	11.7 ± 0.5	< 300	1.51 ± 0.10	1.98 ± 0.18
		0.94 ± 0.08	6.4 ± 0.3	< 3	---	7.6 ± 0.4	600 ± 80	0.96 ± 0.07	1.22 ± 0.11
	6	1.23 ± 0.10	11.6 ± 0.6	< 3	---	1[illegible].0 ± 0.6	< 300	1.14 ± 0.08	1.78 ± 0.17
		1.35 ± 0.11	11.7 ± 0.6	< 3	---	9.7 ± 0.4	< 300	0.92 ± 0.07	1.39 ± 0.13
		1.29 ± 0.10	11.0 ± 0.6	< 3	---	9.8 ± 0.5	< 210	1.14 ± 0.08	1.48 ± 0.13

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	19 ± 3	3400 ± 500	3.44 ± 0.12	56 ± 3	2.6 ± 0.5	8.7 ± 0.5	72 ± 10	460 ± 60
		17.4 ± 0.7	3700 ± 500	3.23 ± 0.11	54 ± 3	2.3 ± 0.4	7.1 ± 0.4	42 ± 17	380 ± 50
		16.4 ± 0.6	3000 ± 400	2.91 ± 0.10	45.9 ± 2.3	2.4 ± 0.5	6.5 ± 0.3	58 ± 8	330 ± 60
	6	19.6 ± 0.8	3200 ± 400	3.20 ± 0.12	61 ± 3	2.9 ± 0.6	7.1 ± 0.4	75 ± 10	600 ± 110
		20.0 ± 0.8	3300 ± 400	3.27 ± 0.12	58 ± 3	3.2 ± 1.4	7.1 ± 0.4	70 ± 9	760 ± 110
		19.6 ± 0.8	3600 ± 500	3.19 ± 0.12	60 ± 3	2.6 ± 0.5	7.3 ± 0.4	71 ± 10	740 ± 110
2	0	14.9 ± 0.6	3800 ± 500	2.76 ± 0.10	42.1 ± 2.3	2.3 ± 0.4	5.4 ± 0.3	46 ± 20	300 ± 50
	6	18.8 ± 0.8	3000 ± 400	3.04 ± 0.11	63 ± 3	2.7 ± 0.5	6.8 ± 0.4	75 ± 10	530 ± 90
3	0	19.9 ± 2.3	4000 ± 500	3.45 ± 0.12	56 ± 3	2.4 ± 0.6	7.1 ± 0.4	76 ± 10	380 ± 50
	6	15.2 ± 0.6	3300 ± 400	2.84 ± 0.10	56 ± 3	2.8 ± 0.5	5.4 ± 0.3	56 ± 8	610 ± 90
4	0	16.5 ± 0.6	3600 ± 500	3.21 ± 0.11	55 ± 3	2.9 ± 1.1	8.0 ± 0.4	61 ± 8	460 ± 60
	6	18.3 ± 0.7	3700 ± 500	3.36 ± 0.12	71 ± 3	2.7 ± 0.5	7.9 ± 0.4	66 ± 9	420 ± 60
5	0	16.1 ± 0.6	3500 ± 500	3.11 ± 0.11	52 ± 3	2.4 ± 0.4	6.8 ± 0.4	56 ± 8	470 ± 130
	6	16.6 ± 0.6	3500 ± 500	3.07 ± 0.11	53 ± 3	3.0 ± 0.6	6.2 ± 0.3	61 ± 8	420 ± 100
6	0	13.6 ± 0.5	3100 ± 400	2.69 ± 0.10	44 ± 2	1.8 ± 0.3	4.6 ± 0.3	58 ± 8	340 ± 50
		14.6 ± 0.6	3200 ± 400	2.94 ± 0.11	53 ± 3	3.4 ± 0.6	5.3 ± 0.3	63 ± 9	360 ± 90
		19.1 ± 0.7	3900 ± 500	3.39 ± 0.12	62 ± 3	3.0 ± 0.6	8.3 ± 0.4	57 ± 8	510 ± 70
	6	14.5 ± 0.6	3300 ± 500	2.86 ± 0.10	56 ± 6	2.0 ± 0.4	5.4 ± 0.4	56 ± 8	350 ± 70
		13.7 ± 0.5	3300 ± 400	3.02 ± 0.11	49 ± 5	2.3 ± 0.4	4.7 ± 0.3	53 ± 7	330 ± 50
		18.8 ± 0.7	3900 ± 500	3.72 ± 0.13	68 ± 3	3.4 ± 0.5	9.2 ± 0.5	60 ± 8	560 ± 80
7	0	13.2 ± 0.5	3300 ± 400	2.71 ± 0.10	46 ± 2	2.9 ± 0.7	5.3 ± 0.3	47 ± 7	480 ± 60
	6	16.3 ± 0.6	3400 ± 400	3.10 ± 0.11	69 ± 3	3.0 ± 0.5	6.5 ± 0.4	62 ± 9	420 ± 60
	31	15.8 ± 0.6	3200 ± 400	3.07 ± 0.11	55 ± 3	2.5 ± 0.5	5.1 ± 0.3	65 ± 9	690 ± 110
8	0	18.1 ± 0.7	4100 ± 500	3.56 ± 0.12	59 ± 3	2.6 ± 0.6	8.5 ± 0.4	62 ± 8	600 ± 70
	6	16.2 ± 0.6	3800 ± 500	3.39 ± 0.12	68 ± 3	2.6 ± 0.4	6.8 ± 0.4	54 ± 8	420 ± 60
9	0	15.6 ± 0.6	3600 ± 500	3.56 ± 0.12	50 ± 2	2.1 ± 0.5	6.8 ± 0.4	66 ± 9	460 ± 70
	6	15.4 ± 0.6	3000 ± 400	2.74 ± 0.10	53 ± 3	3.2 ± 0.5	7.0 ± 0.4	59 ± 8	310 ± 50
10	0	15.1 ± 0.6	3200 ± 400	3.26 ± 0.11	52 ± 3	2.6 ± 0.7	6.5 ± 0.3	60 ± 8	400 ± 60
	6	12.9 ± 0.5	2700 ± 400	2.92 ± 0.11	44.7 ± 2.3	3.0 ± 0.5	5.2 ± 0.3	50 ± 7	260 ± 70
11	0	20.6 ± 0.8	3800 ± 500	3.87 ± 0.14	57 ± 3	2.2 ± 0.4	10.4 ± 0.6	62 ± 9	570 ± 90
	6	19.6 ± 0.8	3600 ± 500	3.14 ± 0.11	71 ± 3	4.1 ± 0.7	8.1 ± 0.4	72 ± 10	300 ± 80
12	0	18.4 ± 0.7	4100 ± 500	3.25 ± 0.12	55 ± 3	2.3 ± 0.5	8.0 ± 0.4	66 ± 9	490 ± 80
		23.2 ± 0.9	4400 ± 600	4.18 ± 0.15	62 ± 3	2.7 ± 0.5	13.1 ± 0.7	60 ± 8	780 ± 120
		14.2 ± 0.6	2800 ± 400	2.7 ± 0.1	45.6 ± 2.3	2.0 ± 0.4	7.6 ± 0.4	57 ± 8	420 ± 60
	6	20.1 ± 0.8	3600 ± 500	3.65 ± 0.13	70 ± 6	3.3 ± 0.6	10.5 ± 0.6	78 ± 10	280 ± 110
		16.6 ± 0.7	2800 ± 400	2.75 ± 0.10	66 ± 3	2.1 ± 0.5	6.9 ± 0.4	77 ± 10	240 ± 50
		19.2 ± 0.7	3700 ± 500	3.31 ± 0.12	70 ± 3	3.2 ± 0.6	7.9 ± 0.4	68 ± 9	490 ± 70

Table C-VII. Individual Elemental Concentration in Soils of Cactus Plot # 17, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (ug/g)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
1	0	< 2	65400 ± 1800	3.4 ± 0.4	< 0.011	550 ± 50	1.8 ± 0.6	8200 ± 600	124 ± 6
	6	< 3	82200 ± 2300	5.6 ± 0.7	< 0.012	520 ± 40	14.2 ± 1.5	13000 ± 800	87 ± 4
2	0	< 2	66300 ± 1900	3.7 ± 0.5	< 0.008	580 ± 40	1.3 ± 0.3	7600 ± 500	136 ± 6
	6	< 2.5	81600 ± 2300	4.4 ± 0.5	< 0.011	640 ± 70	11.1 ± 1.2	9700 ± 600	111 ± 5
3	0	< 2.1	64400 ± 1800	4.7 ± 0.6	< 0.011	520 ± 40	2.4 ± 0.4	6600 ± 500	138 ± 6
		< 2	65000 ± 1800	3.9 ± 0.5	< 0.008	560 ± 40	1.2 ± 0.3	7200 ± 500	132 ± 6
		< 1.9	63200 ± 1800	3.8 ± 0.5	< 0.010	540 ± 50	< 2.5	6100 ± 500	135 ± 6
	6	< 2.4	86400 ± 2400	5.4 ± 0.6	< 0.011	560 ± 50	9.3 ± 1.0	7900 ± 500	104 ± 5
		< 3	93000 ± 3000	6.2 ± 0.7	< 0.010	530 ± 40	9 ± 1	7800 ± 600	99 ± 5
		< 3	94000 ± 3000	7.5 ± 0.8	< 0.011	580 ± 50	11.4 ± 1.2	8400 ± 600	106 ± 5
4	0	< 2.1	66700 ± 1900	4.2 ± 0.5	< 0.008	560 ± 90	1.6 ± 0.3	7000 ± 500	129 ± 6
	6	< 2.3	82600 ± 2300	4.2 ± 0.5	< 0.011	420 ± 40	2.5 ± 0.3	4600 ± 400	87 ± 4
5	0	< 2.1	67500 ± 1900	4.0 ± 0.5	< 0.011	590 ± 40	2.8 ± 0.4	8400 ± 600	117 ± 5
	6	< 2.4	76700 ± 2100	4.4 ± 0.6	< 0.012	570 ± 120	9.9 ± 1.1	9400 ± 600	132 ± 6
6	0	< 2.1	71400 ± 2000	3.7 ± 0.5	< 0.008	530 ± 50	2.4 ± 0.4	7300 ± 500	88 ± 4
		< 3	69500 ± 1900	4.1 ± 0.5	< 0.011	620 ± 80	1.9 ± 0.3	9100 ± 2100	157 ± 7
		< 2.4	68900 ± 1900	4.7 ± 0.5	< 0.008	570 ± 60	1.6 ± 0.3	7600 ± 500	150 ± 7
	6	< 2.5	84300 ± 2400	5.8 ± 0.6	< 0.010	510 ± 40	8.0 ± 0.9	6700 ± 500	108 ± 5
		< 3	86800 ± 2400	6.0 ± 0.7	< 0.012	490 ± 40	9.0 ± 1.1	8700 ± 600	98 ± 5
		< 3	75600 ± 2100	4.7 ± 0.6	< 0.011	570 ± 40	4.6 ± 0.5	10900 ± 700	133 ± 6
7	0	< 4	80000 ± 3000	4.5 ± 0.5	< 0.012	430 ± 80	2.7 ± 0.8	4300 ± 400	100 ± 5
	6	< 3	90000 ± 3000	6.9 ± 0.8	< 0.014	310 ± 40	4.3 ± 0.5	5300 ± 500	124 ± 6
8	0	< 2.3	69500 ± 1900	3.6 ± 0.5	< 0.008	590 ± 60	0.92 ± 0.18	6100 ± 500	122 ± 5
	6	< 3	92000 ± 3000	7.1 ± 0.8	< 0.011	470 ± 40	13.2 ± 1.4	7500 ± 600	90 ± 4
9	0	< 4	69400 ± 1900	4.2 ± 0.5	< 0.012	450 ± 50	6.4 ± 0.7	19000 ± 1100	93 ± 4
	6	< 3	84400 ± 2400	5.0 ± 0.6	< 0.013	320 ± 40	14.4 ± 1.6	29900 ± 1500	73 ± 3
10	0	< 2.3	66600 ± 1900	3.3 ± 0.8	< 0.008	610 ± 60	2.7 ± 0.4	8400 ± 600	133 ± 6
	6	< 3	75000 ± 2100	4.1 ± 0.5	< 0.011	540 ± 120	10.0 ± 1.1	13200 ± 800	113 ± 5
11	0	< 3	68700 ± 1900	3.4 ± 0.4	< 0.011	570 ± 40	1.5 ± 0.3	7500 ± 500	112 ± 5
	6	< 3	90000 ± 3000	6.3 ± 0.7	< 0.011	490 ± 40	16.8 ± 1.8	7600 ± 500	96 ± 4
12	0	< 2.4	77600 ± 2200	4.4 ± 0.5	< 0.009	380 ± 40	2.3 ± 0.3	5700 ± 500	60 ± 3
		< 3	76200 ± 2100	4.9 ± 0.6	< 0.009	370 ± 40	1.8 ± 0.4	7100 ± 600	62 ± 3
		< 3	73600 ± 2100	3.5 ± 0.4	< 0.011	350 ± 40	1.9 ± 0.6	5900 ± 500	59 ± 3
	6	< 3	84400 ± 2400	3.5 ± 0.5	< 0.012	270 ± 40	8.4 ± 0.9	11000 ± 3000	42 ± 2
		< 3	85000 ± 3000	8.0 ± 0.9	< 0.012	340 ± 40	6.4 ± 0.8	9000 ± 700	67 ± 3
		< 3	81200 ± 2300	6.5 ± 0.7	< 0.012	300 ± 40	14.2 ± 1.5	22200 ± 1200	63 ± 3

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	< 100	6.2 ± 0.3	---	26.4 ± 1.7	8.9 ± 0.5	< 210	11.3 ± 0.9	1.72 ± 0.10
	6	< 90	7.8 ± 0.4	---	33.3 ± 2.1	13.2 ± 0.8	< 240	7.9 ± 0.7	1.39 ± 0.08
2	0	< 100	6.1 ± 0.3	---	27.8 ± 1.7	7.5 ± 0.5	< 210	11.9 ± 0.9	1.81 ± 0.10
	6	< 80	8.8 ± 0.5	---	51 ± 3	12.5 ± 0.7	< 240	10.8 ± 0.9	1.61 ± 0.08
3	0	< 90	6.2 ± 0.3	---	32.9 ± 2.1	8.5 ± 0.5	< 200	10.8 ± 1.0	1.86 ± 0.11
		< 100	6.1 ± 0.3	---	33.7 ± 2.1	8.1 ± 0.5	< 210	12.1 ± 0.9	1.83 ± 0.11
		< 90	5.4 ± 0.3	---	30.3 ± 1.9	7.7 ± 0.5	< 200	11.8 ± 0.9	1.81 ± 0.10
	6	< 80	7.4 ± 0.4	---	51 ± 3	10.4 ± 0.6	< 220	8.6 ± 0.7	1.69 ± 0.09
		< 80	9.5 ± 0.5	---	54 ± 3	11.4 ± 0.7	< 230	9.6 ± 0.8	1.65 ± 0.09
		< 80	9.4 ± 0.5	---	57 ± 3	11.2 ± 0.6	< 230	12.8 ± 1.1	1.84 ± 0.10
4	0	< 110	6.0 ± 0.3	---	33.5 ± 2.1	11.8 ± 0.7	< 230	13.9 ± 1.1	1.76 ± 0.11
	6	< 100	6.5 ± 0.3	---	49 ± 3	19.9 ± 1.1	< 300	9.2 ± 0.8	1.23 ± 0.06
5	0	< 90	6.4 ± 0.3	---	27.7 ± 1.8	11.0 ± 0.7	< 210	11.8 ± 1.1	1.69 ± 0.09
	6	< 80	7.7 ± 0.4	---	48 ± 3	11.3 ± 0.6	< 230	13.7 ± 1.1	1.92 ± 0.11
6	0	< 100	5.2 ± 0.3	---	25.4 ± 1.7	13.5 ± 0.8	< 210	7.8 ± 0.7	1.24 ± 0.06
		< 100	6.4 ± 0.3	---	37.5 ± 2.4	9.5 ± 0.6	< 220	16.0 ± 1.2	2.15 ± 0.13
		< 100	6.0 ± 0.3	---	34.9 ± 2.2	9.3 ± 0.6	< 220	14.1 ± 1.1	2.06 ± 0.14
	6	< 80	7.8 ± 0.4	---	64 ± 4	13.1 ± 0.8	< 240	11.4 ± 0.9	1.56 ± 0.07
		< 80	7.8 ± 0.4	---	44 ± 3	12.0 ± 0.7	< 230	10.4 ± 0.9	1.65 ± 0.10
		< 80	6.7 ± 0.4	---	47 ± 3	10.1 ± 0.6	< 300	12.4 ± 1.9	1.80 ± 0.09

Table C-VII. Individual Elemental Concentration in Soils of Cactus Plot # 17, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
7	0	< 110	6.5 ± 0.3	---	22.5 ± 1.6	34.6 ± 2.0	< 240	10.2 ± 0.9	1.42 ± 0.07
	6	< 110	7.1 ± 0.4	---	41 ± 3	35.6 ± 2.1	< 300	13.5 ± 1.1	1.94 ± 0.12
8	0	< 100	5.8 ± 0.3	---	32.9 ± 2.1	11.3 ± 0.6	< 210	11.5 ± 0.9	1.64 ± 0.08
	6	< 80	7.9 ± 0.4	---	44 ± 3	12.3 ± 0.7	< 240	8.8 ± 0.8	1.62 ± 0.10
9	0	< 110	5.0 ± 0.3	---	21.1 ± 1.5	29.0 ± 1.6	< 240	9.0 ± 0.7	1.37 ± 0.09
	6	< 90	4.7 ± 0.3	---	32.3 ± 2.1	36.8 ± 2.1	< 250	7.4 ± 0.6	1.22 ± 0.09
10	0	< 100	6.0 ± 0.3	---	28.5 ± 1.8	5.6 ± 0.3	< 210	10.7 ± 0.9	1.77 ± 0.10
	6	< 80	7.5 ± 0.4	---	42 ± 3	6.5 ± 0.4	< 240	9.3 ± 0.7	1.51 ± 0.07
11	0	< 100	5.0 ± 0.3	---	25.1 ± 1.6	8.2 ± 0.5	< 210	10.8 ± 1.0	1.45 ± 0.08
	6	< 80	6.5 ± 0.4	---	44 ± 3	8.9 ± 0.5	< 230	10.5 ± 1.0	1.38 ± 0.08
12	0	< 130	5.9 ± 0.3	---	42 ± 3	32.1 ± 1.8	< 300	5.5 ± 0.7	0.91 ± 0.06
		< 120	7.5 ± 0.4	---	59 ± 4	46 ± 3	< 300	6.4 ± 0.5	1.11 ± 0.07
		< 110	6.3 ± 0.3	---	47 ± 3	41.0 ± 2.3	< 300	6.0 ± 0.7	1.04 ± 0.06
	6	< 120	4.49 ± 0.25	---	30.8 ± 1.9	34.5 ± 2	< 300	< 6	0.68 ± 0.04
		< 110	8.5 ± 0.5	---	70 ± 4	59 ± 3	< 300	6.4 ± 2.0	1.24 ± 0.06
		< 100	8.9 ± 0.5	---	83 ± 5	55 ± 3	< 300	7.2 ± 0.6	1.19 ± 0.08

Tree #	Depth (in)	F (ug/g)	Fe (ug/g)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (ug/g)
1	0	---	33100 ± 1700	17 ± 3	14.3 ± 0.9	< 0.4	< 18	< 0.21	29600 ± 1900
		---	23900 ± 1200	14 ± 4	8.7 ± 0.7	< 0.5	< 22	< 0.24	32600 ± 2200
		---	20700 ± 1100	16 ± 4	7.6 ± 0.7	< 0.7	< 22	< 0.25	35500 ± 2300
	6	---	15600 ± 800	17 ± 5	3.7 ± 0.4	< 0.5	< 23	< 0.30	36300 ± 2400
		---	28200 ± 1500	14 ± 4	6.7 ± 0.6	< 0.7	< 23	< 0.24	34400 ± 2300
		---	26700 ± 1400	19 ± 4	6.8 ± 0.9	< 0.6	23 ± 5	0.10 ± 0.03	31400 ± 2100
2	0	---	33500 ± 1700	18 ± 4	16 ± 1	< 0.4	< 16	< 0.19	27900 ± 1800
	6	---	34700 ± 1700	24 ± 4	10.2 ± 0.5	< 0.5	< 15	< 0.18	32000 ± 2100
3	0	---	36100 ± 1800	15 ± 3	18.7 ± 1.4	< 0.4	< 18	< 0.20	28200 ± 1800
		---	36900 ± 1900	< 18	19.6 ± 1.4	< 0.4	< 16	< 0.19	28300 ± 1800
		---	34900 ± 1800	< 18	17.7 ± 1.2	< 0.4	< 17	< 0.20	29600 ± 1900
	6	---	33200 ± 1700	16 ± 3	8.2 ± 0.7	< 0.5	11.2 ± 2.2	< 0.21	28800 ± 1900
		---	38500 ± 2000	25 ± 4	9.1 ± 1.0	< 0.5	< 14	< 0.17	27600 ± 1800
		---	36900 ± 1900	22 ± 4	7.7 ± 0.8	< 0.5	< 17	< 0.21	28700 ± 1900
4	0	---	37300 ± 1900	< 20	19.7 ± 1.3	< 0.5	< 18	< 0.21	27800 ± 1800
	6	---	26200 ± 1300	24 ± 4	9.1 ± 0.4	< 0.5	< 18	< 0.21	35300 ± 2300
5	0	---	31700 ± 1600	< 20	12.6 ± 0.8	< 0.4	< 18	< 0.20	31900 ± 2100
	6	---	33200 ± 1700	19 ± 4	9.8 ± 1.0	< 0.5	< 18	< 0.22	29700 ± 1900
6	0	---	24900 ± 1300	< 20	10.5 ± 0.4	< 0.4	< 15	< 0.19	28800 ± 1900
		---	40200 ± 2100	18 ± 4	22.3 ± 1.6	< 0.7	< 20	< 0.22	29400 ± 1900
		---	37200 ± 1900	14 ± 4	19.6 ± 1.7	< 0.5	< 17	< 0.20	25300 ± 1600
	6	---	35700 ± 1800	19 ± 4	10.4 ± 0.4	< 0.5	< 15	< 0.17	33000 ± 2100
		---	35300 ± 1800	< 21	10 ± 1	< 0.5	< 18	< 0.22	27100 ± 1800
		---	35900 ± 1900	18 ± 4	11.3 ± 0.5	< 0.5	< 16	< 0.18	30400 ± 2000
7	0	---	25900 ± 1300	< 21	12.3 ± 0.5	< 0.7	< 21	< 0.24	41000 ± 3000
	6	---	31400 ± 1600	25 ± 4	10.4 ± 1.0	< 0.6	< 22	< 0.30	39000 ± 3000
8	0	---	33900 ± 1700	< 19	19.1 ± 1.4	< 0.4	< 15	< 0.19	29100 ± 1900
	6	---	35100 ± 1900	21 ± 4	8.2 ± 0.8	< 0.6	12 ± 2	< 0.17	26200 ± 1700
9	0	---	22400 ± 1200	15 ± 4	8.3 ± 1.2	< 0.7	< 21	< 0.24	33600 ± 2200
	6	---	22300 ± 1100	14 ± 4	6.1 ± 0.6	< 0.6	11 ± 3	< 0.25	36100 ± 2300
10	0	---	30200 ± 1500	12 ± 4	12.2 ± 0.9	< 0.4	< 15	< 0.19	28200 ± 1900
	6	---	31700 ± 1700	20 ± 3	9.3 ± 0.4	< 0.5	< 15	< 0.17	30500 ± 2000
11	0	---	27100 ± 1400	< 20	11.4 ± 0.8	< 0.6	< 17	< 0.21	29400 ± 1900
	6	---	31300 ± 1600	18 ± 4	7.6 ± 0.7	< 0.5	< 17	< 0.22	27500 ± 1800
12	0	---	20800 ± 1100	21 ± 4	8.9 ± 0.6	< 0.5	< 21	< 0.24	31500 ± 2000
	6	---	29700 ± 1500	15 ± 4	7.4 ± 1.0	< 0.5	< 18	< 0.22	28900 ± 1900

Table C-VII. Individual Elemental Concentration in Soils of Cactus Plot # 17, Saguaro National Monument (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
1	0	64 ± 3	1.18 ± 0.06	4200 ± 600	970 ± 40	16800 ± 800	57 ± 6	---	149 ± 7
	6	41.7 ± 2.4	0.79 ± 0.04	5500 ± 500	680 ± 30	15100 ± 600	33 ± 5	---	181 ± 9
2	0	65 ± 4	1.36 ± 0.07	3100 ± 500	870 ± 30	16100 ± 700	72 ± 8	---	137 ± 7
	6	55 ± 4	1.12 ± 0.06	3900 ± 500	830 ± 30	13400 ± 600	48 ± 7	---	153 ± 8
3	0	70 ± 4	1.17 ± 0.06	3500 ± 500	870 ± 30	14900 ± 700	68 ± 7	---	150 ± 7
		66 ± 4	1.36 ± 0.07	2000 ± 400	940 ± 40	14900 ± 600	62 ± 7	---	150 ± 7
		69 ± 4	1.27 ± 0.06	2900 ± 500	900 ± 40	15900 ± 700	58 ± 7	---	157 ± 8
	6	53 ± 3	0.91 ± 0.05	5100 ± 600	623 ± 25	13900 ± 600	46 ± 7	---	163 ± 8
		52 ± 3	0.88 ± 0.05	4800 ± 500	700 ± 30	11100 ± 500	41 ± 7	---	154 ± 8
		56 ± 3	1.08 ± 0.06	5600 ± 600	720 ± 30	13200 ± 600	53 ± 7	---	159 ± 8
4	0	64 ± 4	1.52 ± 0.07	2500 ± 500	1120 ± 40	16000 ± 700	57 ± 7	---	189 ± 9
	6	39 ± 3	0.99 ± 0.05	2800 ± 500	1230 ± 50	18700 ± 800	30 ± 6	---	249 ± 12
5	0	57 ± 3	1.31 ± 0.06	4400 ± 500	840 ± 30	16700 ± 700	48 ± 7	---	166 ± 8
	6	65 ± 3	1.62 ± 0.08	5100 ± 600	800 ± 30	14400 ± 600	58 ± 7	---	154 ± 8
6	0	42.7 ± 2.5	0.87 ± 0.04	2700 ± 400	660 ± 30	16400 ± 700	40 ± 6	---	193 ± 9
		77 ± 4	1.89 ± 0.09	3400 ± 500	1030 ± 40	15000 ± 700	100 ± 10	---	157 ± 8
		71 ± 4	1.67 ± 0.08	3900 ± 600	970 ± 40	16000 ± 700	87 ± 9	---	152 ± 7
	6	51.3 ± 2.3	1.32 ± 0.07	4500 ± 400	770 ± 30	13300 ± 600	55 ± 7	---	179 ± 9
		52 ± 3	1.15 ± 0.06	5400 ± 600	750 ± 30	11900 ± 500	43 ± 6	---	175 ± 9
		67 ± 4	1.77 ± 0.08	3900 ± 500	980 ± 40	13800 ± 600	86 ± 9	---	145 ± 7
7	0	42.2 ± 2.3	1.21 ± 0.06	4200 ± 600	1070 ± 40	19000 ± 900	54 ± 8	---	374 ± 17
	6	59 ± 3	1.51 ± 0.07	5100 ± 600	1280 ± 50	18500 ± 800	62 ± 8	---	408 ± 19
8	0	57 ± 3	1.35 ± 0.06	3100 ± 500	750 ± 30	15900 ± 700	60 ± 6	---	195 ± 9
	6	51 ± 3	0.88 ± 0.04	5800 ± 500	640 ± 30	11600 ± 500	61 ± 8	---	149 ± 7
9	0	43 ± 2	0.90 ± 0.05	5200 ± 600	960 ± 40	15300 ± 700	47 ± 7	---	269 ± 13
	6	38.4 ± 2.2	0.82 ± 0.04	5100 ± 600	800 ± 30	15600 ± 700	28 ± 6	---	346 ± 16
10	0	62 ± 4	1.22 ± 0.06	3400 ± 500	670 ± 30	14400 ± 600	66 ± 7	---	133 ± 7
	6	55 ± 3	0.90 ± 0.04	5100 ± 500	770 ± 40	13400 ± 600	70 ± 8	---	120 ± 6
11	0	54 ± 3	1.19 ± 0.06	3800 ± 500	750 ± 30	17300 ± 800	58 ± 7	---	156 ± 8
	6	51 ± 3	1.28 ± 0.06	4600 ± 500	700 ± 30	13500 ± 600	45 ± 6	---	157 ± 8
12	0	26.5 ± 1.5	0.82 ± 0.04	3700 ± 600	1340 ± 50	19000 ± 800	26 ± 5	---	326 ± 15
		29.2 ± 1.7	0.92 ± 0.05	5600 ± 700	1420 ± 60	17100 ± 700	41 ± 7	---	329 ± 15
		26.8 ± 1.4	0.71 ± 0.04	4300 ± 600	1210 ± 50	18500 ± 800	46 ± 8	---	320 ± 15
	6	18.5 ± 1.0	0.70 ± 0.04	3000 ± 600	1800 ± 70	21600 ± 900	< 23	---	364 ± 17
		33.6 ± 2.1	0.91 ± 0.05	4300 ± 600	1670 ± 70	15300 ± 700	45 ± 9	---	303 ± 14
		33.1 ± 1.8	0.87 ± 0.04	7500 ± 800	1440 ± 60	14500 ± 600	30 ± 6	---	311 ± 15

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	0.84 ± 0.08	8.4 ± 0.4	< 3	---	11.9 ± 0.5	< 300	1.55 ± 0.10	1.83 ± 0.17
	6	0.91 ± 0.11	9.9 ± 0.5	< 3	---	7.8 ± 0.4	< 300	1.36 ± 0.09	1.19 ± 0.11
2	0	0.81 ± 0.08	8.0 ± 0.4	< 3	---	12.1 ± 0.5	< 230	1.55 ± 0.10	1.88 ± 0.17
	6	0.76 ± 0.08	10.8 ± 0.6	< 3	---	9.9 ± 0.4	< 250	1.42 ± 0.10	1.58 ± 0.15
3	0	1.12 ± 0.10	8.3 ± 0.4	< 3	---	12.9 ± 0.6	< 300	1.68 ± 0.11	1.82 ± 0.17
		0.97 ± 0.09	8.1 ± 0.4	< 3	---	12.2 ± 0.6	< 240	1.83 ± 0.11	1.86 ± 0.18
		1.00 ± 0.09	7.8 ± 0.4	< 3	---	12.7 ± 0.6	< 300	2.03 ± 0.12	1.79 ± 0.17
	6	0.87 ± 0.09	10.7 ± 0.6	< 3	---	10.2 ± 0.5	< 300	1.57 ± 0.10	1.47 ± 0.14
		0.94 ± 0.09	11.9 ± 0.6	< 3	---	9.3 ± 0.4	< 230	1.35 ± 0.10	1.39 ± 0.13
		0.79 ± 0.09	11.9 ± 0.6	< 3	---	11.2 ± 0.5	< 300	1.66 ± 0.12	1.82 ± 0.17
4	0	0.85 ± 0.09	8.6 ± 0.5	< 3	---	11.9 ± 0.5	< 300	2.19 ± 0.15	2.03 ± 0.19
	6	1.00 ± 0.10	10.2 ± 0.6	< 3	---	7.4 ± 0.3	< 300	2.31 ± 0.16	1.31 ± 0.12
5	0	1.10 ± 0.09	8.8 ± 0.5	< 3	---	11.2 ± 0.5	< 300	1.70 ± 0.11	1.83 ± 0.16
	6	0.76 ± 0.10	10.1 ± 0.5	< 3	---	13.0 ± 0.6	< 300	1.55 ± 0.10	1.97 ± 0.18
6	0	0.96 ± 0.10	7.9 ± 0.4	< 3	---	8.4 ± 0.4	< 220	1.95 ± 0.12	1.26 ± 0.12
		1.19 ± 0.10	9.3 ± 0.5	0.7 ± 0.6	---	14.7 ± 0.7	< 300	2.08 ± 0.13	2.29 ± 0.21
		0.99 ± 0.09	9.2 ± 0.5	< 3	---	13.8 ± 0.6	< 300	1.88 ± 0.11	2.19 ± 0.20
	6	0.89 ± 0.08	10.8 ± 0.6	< 3	---	9.6 ± 0.4	< 240	1.69 ± 0.11	1.67 ± 0.15
		0.89 ± 0.10	10.7 ± 0.6	< 3	---	10.2 ± 0.5	< 300	1.68 ± 0.11	1.44 ± 0.14
		0.98 ± 0.10	9.6 ± 0.5	< 4	---	12.9 ± 0.6	< 300	1.62 ± 0.11	1.95 ± 0.18

Table C-VII. Individual Elemental Concentration in Soils of Cactus Plot # 17, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
7	0	0.99 ± 0.09	12.8 ± 0.7	< 4	...	8.8 ± 0.4	< 300	4.8 ± 0.3	1.46 ± 0.13
	6	1.13 ± 0.13	15.3 ± 0.8	< 3	...	14.2 ± 0.7	< 400	6.3 ± 0.4	1.98 ± 0.19
8	0	1.13 ± 0.10	8.4 ± 0.4	< 3	...	11.0 ± 0.5	< 230	2.15 ± 0.13	1.70 ± 0.16
	6	1.07 ± 0.11	10.8 ± 0.6	< 4	...	9.6 ± 0.4	< 240	1.41 ± 0.10	1.29 ± 0.12
9	0	0.85 ± 0.10	9.3 ± 0.5	< 4	...	8.9 ± 0.4	< 400	2.80 ± 0.18	1.24 ± 0.12
	6	0.76 ± 0.11	11.4 ± 0.6	< 3	...	8.3 ± 0.4	< 300	3.57 ± 0.23	1.10 ± 0.11
10	0	0.80 ± 0.08	7.6 ± 0.4	< 3	...	11.6 ± 0.5	< 230	1.44 ± 0.09	1.68 ± 0.16
	6	0.80 ± 0.10	8.9 ± 0.5	< 4	...	10.2 ± 0.5	< 240	1.04 ± 0.09	1.38 ± 0.13
11	0	0.96 ± 0.09	7.0 ± 0.4	< 3	...	9.7 ± 0.4	< 300	1.40 ± 0.09	1.53 ± 0.15
	6	0.98 ± 0.10	9.9 ± 0.5	< 3	...	10.0 ± 0.5	< 300	1.10 ± 0.09	1.40 ± 0.13
12	0	1.10 ± 0.11	9.8 ± 0.5	< 3	...	5.35 ± 0.25	< 300	3.63 ± 0.23	0.88 ± 0.09
		1.52 ± 0.11	11.1 ± 0.6	< 4	...	6.4 ± 0.3	< 300	3.70 ± 0.23	1.11 ± 0.11
		1.23 ± 0.10	10.1 ± 0.5	< 4	...	5.6 ± 0.3	< 400	3.57 ± 0.21	0.83 ± 0.08
	6	0.80 ± 0.10	10.1 ± 0.5	< 4	...	4.14 ± 0.19	< 400	3.12 ± 0.20	0.58 ± 0.06
		1.86 ± 0.13	12.6 ± 0.7	< 5	...	6.9 ± 0.3	< 400	3.38 ± 0.22	1.05 ± 0.10
		1.88 ± 0.15	12.5 ± 0.7	< 3	...	7.4 ± 0.3	< 400	3.27 ± 0.21	1.01 ± 0.10

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	22.2 ± 0.9	3900 ± 500	3.90 ± 0.14	55 ± 3	1.5 ± 0.5	8.7 ± 0.5	56 ± 8	600 ± 90
	6	15.1 ± 0.6	2900 ± 400	2.71 ± 0.10	50 ± 3	3.0 ± 0.6	5.5 ± 0.3	62 ± 9	290 ± 50
2	0	22.7 ± 0.9	4100 ± 500	4.28 ± 0.15	61 ± 3	2.1 ± 0.4	9.6 ± 0.5	54 ± 7	660 ± 80
	6	19.0 ± 0.7	3000 ± 400	3.32 ± 0.12	63 ± 3	3.0 ± 0.5	8.6 ± 0.5	73 ± 10	360 ± 70
3	0	26 ± 1	4100 ± 500	4.45 ± 0.16	65 ± 3	2.3 ± 0.5	8.9 ± 0.5	52 ± 7	780 ± 160
		24.1 ± 0.9	4400 ± 600	4.30 ± 0.15	66 ± 3	2.7 ± 0.5	10.0 ± 0.5	59 ± 8	750 ± 120
		23.7 ± 0.9	3400 ± 500	4.34 ± 0.15	61 ± 3	2.5 ± 0.4	9.0 ± 0.5	55 ± 8	690 ± 120
	6	19.1 ± 0.7	2900 ± 400	2.92 ± 0.11	57 ± 3	2.2 ± 0.4	5.8 ± 0.3	73 ± 10	310 ± 50
		18.8 ± 0.7	3800 ± 500	3.23 ± 0.12	82 ± 4	2.8 ± 0.5	6.4 ± 0.3	78 ± 11	410 ± 80
		19.3 ± 0.8	3800 ± 500	3.50 ± 0.13	70 ± 3	3.0 ± 0.5	8.3 ± 0.5	76 ± 10	250 ± 90
4	0	23.7 ± 0.9	4500 ± 600	4.77 ± 0.17	62 ± 3	3.0 ± 0.5	11.8 ± 0.6	60 ± 8	800 ± 90
	6	15.1 ± 0.5	2800 ± 400	3.39 ± 0.12	44 ± 3	4.1 ± 0.7	7.5 ± 0.4	57 ± 8	390 ± 60
5	0	20.5 ± 0.8	4200 ± 600	3.59 ± 0.13	55 ± 3	2.9 ± 0.8	9.8 ± 0.5	63 ± 9	410 ± 100
	6	23.2 ± 0.9	3400 ± 500	4.08 ± 0.14	60 ± 3	2.0 ± 0.5	12.5 ± 0.6	65 ± 9	450 ± 60
6	0	15.9 ± 0.6	3300 ± 500	3.38 ± 0.12	47 ± 3	3.0 ± 0.5	6.0 ± 0.3	61 ± 8	350 ± 60
		28.9 ± 1.1	5000 ± 700	5.13 ± 0.18	66 ± 3	2.3 ± 0.7	13.3 ± 0.7	66 ± 9	1230 ± 150
		26.6 ± 1.0	4500 ± 600	4.62 ± 0.16	64 ± 3	3.1 ± 0.9	11.4 ± 0.6	71 ± 9	1250 ± 150
	6	20.1 ± 0.8	3300 ± 400	3.73 ± 0.13	66 ± 3	2.8 ± 0.5	10.1 ± 0.5	72 ± 10	390 ± 60
		17.9 ± 0.7	3200 ± 400	3.48 ± 0.13	66 ± 3	3.1 ± 0.6	8.5 ± 0.4	55 ± 22	270 ± 50
		23.5 ± 0.9	3900 ± 500	3.98 ± 0.14	59 ± 3	3.2 ± 0.5	14.8 ± 0.8	69 ± 9	340 ± 50
7	0	17.3 ± 0.7	3400 ± 500	5.90 ± 0.21	37.3 ± 2.5	6.7 ± 1.1	8.7 ± 0.5	73 ± 10	740 ± 110
	6	21.5 ± 0.8	3400 ± 500	7.2 ± 0.3	53 ± 3	7.5 ± 1.3	11.1 ± 0.6	61 ± 21	300 ± 90
8	0	22.9 ± 0.9	3800 ± 500	4.50 ± 0.16	57 ± 3	2.4 ± 0.4	9.0 ± 0.5	64 ± 9	1260 ± 160
	6	16.4 ± 0.6	2900 ± 400	3.18 ± 0.12	68 ± 3	3.0 ± 0.5	6.8 ± 0.5	77 ± 11	270 ± 60
9	0	17.0 ± 0.7	2700 ± 400	3.05 ± 0.11	36.1 ± 2.5	4.0 ± 0.6	7.0 ± 0.4	68 ± 9	410 ± 80
	6	13.4 ± 0.5	2200 ± 300	2.93 ± 0.11	37.5 ± 2.4	6.0 ± 0.9	6.1 ± 0.3	40 ± 23	190 ± 50
10	0	25.8 ± 1.0	3300 ± 400	4.51 ± 0.16	49 ± 3	2.2 ± 0.4	8.0 ± 0.4	62 ± 8	810 ± 120
	6	18.8 ± 0.8	3500 ± 500	2.94 ± 0.11	56 ± 3	3.3 ± 0.6	7.1 ± 0.4	65 ± 9	290 ± 40
11	0	20.2 ± 0.8	3100 ± 400	3.72 ± 0.13	51 ± 3	2.0 ± 0.4	8.9 ± 0.5	48 ± 7	710 ± 100
	6	18.7 ± 0.7	2800 ± 400	3.29 ± 0.12	59 ± 3	3.1 ± 0.5	9.1 ± 0.5	50 ± 20	170 ± 50
12	0	11.1 ± 0.5	2300 ± 300	3.94 ± 0.14	41 ± 3	6.3 ± 0.9	5.3 ± 0.3	67 ± 9	570 ± 90
		11.9 ± 0.5	2900 ± 400	5.13 ± 0.18	52 ± 3	6.6 ± 1.1	6.3 ± 0.4	65 ± 9	580 ± 100
		10.4 ± 0.4	2600 ± 400	4.79 ± 0.17	47 ± 3	4.3 ± 0.7	5.3 ± 0.3	58 ± 8	470 ± 90
	6	7.6 ± 0.3	1600 ± 300	3.17 ± 0.11	30 ± 3	8.2 ± 1.1	5.2 ± 0.3	< 10	70 ± 30
		12.2 ± 0.5	2800 ± 400	5.67 ± 0.20	65 ± 9	5.1 ± 1.2	6.7 ± 0.4	60 ± 9	200 ± 60
		11.9 ± 0.5	2500 ± 400	5.92 ± 0.21	68 ± 4	5.8 ± 0.9	6.1 ± 0.3	35 ± 23	220 ± 50

Table C-VIII. Individual Elemental Concentration in Soils from the Catalina Mountains

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ug/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
74	0	...	6.94 ± 0.31	...	...	285 ± 60	...	0.62 ± 0.10	21.4 ± 2.3
		...	2.86 ± 0.22	...	...	278 ± 58	...	1.36 ± 0.16	17.0 ± 1.9
		...	5.92 ± 0.28	...	...	358 ± 53	...	0.67 ± 0.10	21.7 ± 2.3
	6	...	7.89 ± 0.31	...	...	142 ± 28	...	0.53 ± 0.07	14.6 ± 1.5
		...	7.99 ± 0.34	...	...	405 ± 60	...	1.13 ± 0.12	27.3 ± 2.8
		...	8.36 ± 0.35	...	...	294 ± 42	...	0.65 ± 0.10	20.9 ± 2.1
	12	...	7.42 ± 0.30	...	...	150 ± 36	...	0.56 ± 0.07	15.6 ± 1.6
		...	8.74 ± 0.37	...	...	334 ± 46	...	0.75 ± 0.10	28.1 ± 2.8
		...	8.39 ± 0.37	...	...	397 ± 58	...	0.64 ± 0.09	24.1 ± 2.5

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
74	0	217 ± 62	...	0.8 ± 0.2	9.19 ± 1.43	2.9 ± 0.3	...	< 9.3	0.333 ± 0.065
		300 ± 60	34.4 ± 3.51	1.1 ± 0.2	61.4 ± 4.66	2.01 ± 0.32	...	< 9.9	0.107 ± 0.060
		< 180	147 ± 22	0.5 ± 0.2	197 ± 19	2.52 ± 0.34	...	1.97 ± 0.4	0.394 ± 0.065
	6	< 160	1.38 ± 0.19	0.7 ± 0.2	6.71 ± 0.84	1.56 ± 0.20	...	2.7 ± 0.5	0.184 ± 0.036
		96 ± 49	1.83 ± 0.54	0.4 ± 0.2	20.9 ± 2.36	2.64 ± 0.28	...	1.8 ± 0.3	0.436 ± 0.063
		< 200	3.21 ± 0.37	0.4 ± 0.2	13.4 ± 1.34	2.18 ± 0.27	...	4.1 ± 0.6	0.285 ± 0.051
	12	157 ± 68	< 0.3	0.3 ± 0.2	5.46 ± 0.85	1.64 ± 0.19	...	< 5.9	0.174 ± 0.036
		50 ± 40	3.39 ± 0.38	0.4 ± 0.2	21.7 ± 1.78	2.82 ± 0.33	...	4.6 ± 0.6	0.441 ± 0.063
		26 ± 59	0.64 ± 0.34	0.4 ± 0.2	14.0 ± 1.65	2.54 ± 0.27	...	4.8 ± 0.6	0.413 ± 0.055

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (%)
74	0	425 ± 43	0.95 ± 0.08	< 71	2.40 ± 0.23	...	...	< 0.24	1.69 ± 0.28
		...	0.73 ± 0.05	< 67	1.87 ± 0.22	...	...	< 0.25	0.86 ± 0.23
		...	0.94 ± 0.07	< 76	2.28 ± 0.24	...	...	< 0.23	2.06 ± 0.26
	6	515 ± 52	0.68 ± 0.05	< 47	2.29 ± 0.20	...	...	< 0.16	2.42 ± 0.29
		...	1.00 ± 0.08	< 74	2.58 ± 0.23	...	...	< 0.19	2.36 ± 0.30
		...	1.10 ± 0.08	< 84	2.14 ± 0.20	...	...	< 0.25	2.98 ± 0.33
	12	617 ± 62	0.71 ± 0.05	< 48	2.01 ± 0.18	...	...	< 0.16	2.04 ± 0.25
		...	1.19 ± 0.08	< 76	2.34 ± 0.21	...	...	< 0.19	2.75 ± 0.29
		...	0.99 ± 0.08	< 79	2.16 ± 0.20	...	...	< 0.24	2.5 ± 0.3

Table C-VIII. Individual Elemental Concentration in Soils from the Catalina Mountains (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (%)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
74	0	...	...	< 0.55	1960 ± 90	2.43 ± 0.08	...	...	134 ± 15
		...	...	< 0.52	1860 ± 80	0.58 ± 0.02	...	...	77 ± 12
		...	...	< 0.47	1480 ± 70	2.14 ± 0.08	...	...	148 ± 18
	6	...	...	< 0.40	818 ± 37	3.20 ± 0.11	...	5.0 ± 0.3	166 ± 18
		...	...	< 0.52	875 ± 39	2.81 ± 0.10	...	...	157 ± 17
		...	...	< 0.52	1850 ± 80	3.04 ± 0.11	...	...	186 ± 20
	12	...	...	< 0.40	1190 ± 50	3.04 ± 0.10	...	5.8 ± 0.3	153 ± 16
		...	...	< 0.49	1530 ± 70	3.00 ± 0.10	...	...	202 ± 21
		...	...	< 0.51	1600 ± 70	3.21 ± 0.11	...	...	165 ± 17

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
74	0	0.89 ± 0.23	3.63 ± 0.25	...	27.1 ± 1.8	2.97 ± 0.54	< 480	1.69 ± 0.30	...
		0.87 ± 0.25	2.35 ± 0.12	...	9.4 ± 0.6	2.11 ± 0.42	< 480	0.67 ± 0.16	...
		1.03 ± 0.26	3.29 ± 0.23	...	23.9 ± 1.9	1.93 ± 0.41	< 330	3.90 ± 0.63	...
	6	0.41 ± 0.11	2.69 ± 0.13	...	28 ± 2	1.92 ± 0.24	< 270	1.84 ± 0.20	...
		0.57 ± 0.18	4.15 ± 0.29	...	27.1 ± 1.7	3.16 ± 0.58	< 370	1.56 ± 0.27	...
		0.54 ± 0.15	4.21 ± 0.21	...	29 ± 3	2.66 ± 0.33	< 360	2.06 ± 0.23	...
	12	0.29 ± 0.11	2.89 ± 0.20	...	29.4 ± 1.5	2.74 ± 0.45	< 300	2.08 ± 0.33	...
		0.52 ± 0.15	4.80 ± 0.24	...	28.4 ± 1.4	2.37 ± 0.33	< 390	1.97 ± 0.22	...
		0.29 ± 0.15	4.28 ± 0.30	...	32.5 ± 1.6	3.56 ± 0.63	< 330	1.70 ± 0.27	...

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
74	0	4.12 ± 0.35	710 ± 230	2.29 ± 0.2	15.5 ± 2	< 260	1.89 ± 0.29	60 ± 13	...
		2.94 ± 0.27	870 ± 210	0.97 ± 0.1	13.8 ± 1.7	269 ± 57	1.14 ± 0.17	94 ± 15	...
		3.83 ± 0.34	1280 ± 290	1.4 ± 0.1	14.4 ± 2.1	1140 ± 150	2.07 ± 0.28	99 ± 20	...
	6	2.96 ± 0.24	< 3700	2.12 ± 0.15	6.8 ± 2.0	< 150	2.08 ± 0.22	41 ± 6	...
		5.02 ± 0.42	1740 ± 400	1.72 ± 0.15	13.5 ± 2.7	< 170	1.15 ± 0.19	57 ± 12	...
		4.53 ± 0.37	< 4800	2.07 ± 0.15	13.2 ± 2.7	< 220	2.76 ± 0.29	54 ± 9	...
	12	4.86 ± 0.40	< 3700	1.91 ± 0.15	< 5.4	< 160	3.53 ± 0.37	36 ± 8	...
		4.31 ± 0.36	1260 ± 280	2.24 ± 0.2	14.9 ± 2.6	< 180	2.45 ± 0.27	62 ± 10	...
		5.62 ± 0.47	1590 ± 300	1.86 ± 0.15	8.7 ± 2.6	< 210	3.13 ± 0.34	49 ± 10	...

Table C-IX. Individual Elemental Concentration in Soils from Cowhead Saddle, RMD, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
1	0	< 1.9	7.15 ± 0.20	2.13 ± 0.37	< 12	683 ± 48	< 2.5	1.07 ± 0.07	107 ± 5
		< 1.9	6.57 ± 0.25	2.57 ± 0.37	< 14	580 ± 70	2.0 ± 0.5	0.99 ± 0.07	140 ± 6
		< 2.6	6.67 ± 0.19	4.1 ± 0.6	< 14	739 ± 46	2.8 ± 0.4	1.19 ± 0.07	85 ± 4
	6	< 2.3	7.09 ± 0.20	1.56 ± 0.31	< 10	740 ± 60	2.14 ± 0.33	0.77 ± 0.06	78 ± 4
		< 1.7	7.15 ± 0.20	1.45 ± 0.27	< 12	630 ± 60	1.11 ± 0.29	0.85 ± 0.05	86 ± 4
		< 2	7.29 ± 0.20	< 1.9	< 13	822 ± 44	< 2.9	1.01 ± 0.06	88 ± 4
2	0	< 3.7	7.62 ± 0.21	1.39 ± 0.31	< 14	507 ± 41	1.58 ± 0.44	2.27 ± 0.12	81 ± 4
	6	< 3	8.07 ± 0.23	1.76 ± 0.32	< 10	526 ± 37	1.30 ± 0.35	2.14 ± 0.11	69 ± 3
3	0	< 1.8	6.93 ± 0.19	2.60 ± 0.42	< 12	740 ± 60	1.04 ± 0.30	0.85 ± 0.06	96 ± 4
	6	< 2.4	7.24 ± 0.20	2.42 ± 0.38	< 13	610 ± 70	3.39 ± 0.44	1.30 ± 0.08	82 ± 4
4	0	< 3.4	7.53 ± 0.21	2.60 ± 0.42	< 14	659 ± 43	2.40 ± 0.38	1.65 ± 0.10	55 ± 3
	6	< 3.4	7.81 ± 0.22	1.46 ± 0.30	< 9	440 ± 44	2.11 ± 0.31	3.02 ± 0.14	49 ± 2
5	0	< 3.2	7.32 ± 0.20	2.08 ± 0.34	< 13	402 ± 43	2.2 ± 0.6	2.64 ± 0.14	79 ± 4
	6	< 3.6	7.62 ± 0.21	1.24 ± 0.26	< 12	326 ± 47	2.64 ± 0.37	2.64 ± 0.14	82 ± 4
6	0	< 4.2	7.64 ± 0.21	4.4 ± 0.6	< 15	447 ± 46	4.4 ± 0.6	1.96 ± 0.11	94 ± 4
	6	< 3.8	8.82 ± 0.25	1.65 ± 0.33	< 15	279 ± 38	6.0 ± 0.7	1.92 ± 0.11	78 ± 4
7	0	< 3.1	7.87 ± 0.22	3.26 ± 0.48	< 12	700 ± 60	2.3 ± 0.8	2.21 ± 0.12	121 ± 5
	6	< 3	8.18 ± 0.23	< 2	< 14	736 ± 43	1.91 ± 0.35	2.09 ± 0.11	102 ± 5
8	0	< 4.5	7.84 ± 0.22	2.13 ± 0.35	< 14	532 ± 44	< 3.3	2.97 ± 0.15	88 ± 4
	6	< 3.4	8.10 ± 0.23	0.89 ± 0.26	< 14	451 ± 36	1.8 ± 0.4	2.57 ± 0.13	102 ± 5
9	0	< 2.9	6.68 ± 0.19	4.3 ± 0.6	< 11	549 ± 37	2.71 ± 0.38	1.73 ± 0.10	79 ± 4
	6	< 2.7	7.26 ± 0.20	2.43 ± 0.41	< 14	600 ± 60	2.03 ± 0.34	1.62 ± 0.09	89 ± 4
10	0	< 3.4	7.02 ± 0.20	3.41 ± 0.47	< 14	610 ± 90	< 3.2	1.79 ± 0.10	88 ± 4
		< 3	7.13 ± 0.20	2.10 ± 0.38	< 15	450 ± 70	< 3.6	1.71 ± 0.10	98 ± 4
		< 3.1	6.99 ± 0.20	4.9 ± 0.6	< 11	400 ± 70	4.1 ± 0.5	1.67 ± 0.10	75 ± 3
	6	< 3	8.35 ± 0.23	< 2.2	< 15	340 ± 90	1.2 ± 0.4	1.69 ± 0.09	84 ± 4
		< 4.6	7.75 ± 0.22	1.28 ± 0.29	< 14	524 ± 45	< 3.2	1.28 ± 0.08	79 ± 4
		2.4 ± 0.6	7.16 ± 0.20	1.95 ± 0.39	< 14	564 ± 49	< 3.4	1.67 ± 0.09	85 ± 4
11	0	< 3.6	6.37 ± 0.18	3.87 ± 0.48	< 13	553 ± 41	2.9 ± 0.6	1.36 ± 0.09	94 ± 4
	6	< 2.7	6.78 ± 0.19	1.73 ± 0.31	< 12	480 ± 70	1.01 ± 0.32	1.17 ± 0.07	71 ± 3

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	40 ± 50	3.16 ± 0.2	0.48 ± 0.2	18.4 ± 1.2	3.22 ± 0.21	< 230	11.3 ± 0.9	1.28 ± 0.08
		< 100	2.63 ± 0.16	0.74 ± 0.2	16.3 ± 1.1	2.04 ± 0.15	< 220	20.1 ± 1.7	1.50 ± 0.09
		100 ± 50	3.03 ± 0.17	0.78 ± 0.2	15.0 ± 1.1	2.68 ± 0.19	< 240	10.4 ± 0.8	1.19 ± 0.08
	6	70 ± 50	2.79 ± 0.18	0.52 ± 0.2	17.1 ± 1.1	2.99 ± 0.18	< 210	8.3 ± 0.7	1.07 ± 0.06
		< 80	2.67 ± 0.14	0.84 ± 0.2	17.4 ± 1.1	3.11 ± 0.20	< 220	8.8 ± 0.7	1.06 ± 0.07
		< 80	2.09 ± 0.12	0.45 ± 0.2	22.2 ± 1.4	3.34 ± 0.19	< 200	9.5 ± 0.8	1.07 ± 0.05
2	0	60 ± 50	12.4 ± 0.7	0.52 ± 0.2	7.2 ± 0.8	5.21 ± 0.3	< 280	10.5 ± 0.9	1.69 ± 0.09
	6	60 ± 50	13.1 ± 0.7	1.13 ± 0.2	11.2 ± 0.9	5.14 ± 0.29	< 260	5.8 ± 0.5	1.48 ± 0.09
3	0	< 90	3.32 ± 0.18	0.38 ± 0.2	16.3 ± 1.1	2.79 ± 0.16	< 250	11.4 ± 0.9	1.15 ± 0.07
	6	80 ± 60	6.04 ± 0.33	0.34 ± 0.2	22.7 ± 1.5	4.76 ± 0.29	< 260	10.4 ± 1.0	1.10 ± 0.07
4	0	< 110	10.0 ± 0.5	1.15 ± 0.2	18.0 ± 1.3	4.10 ± 0.24	< 290	7.7 ± 0.7	1.03 ± 0.07
	6	110 ± 40	26.1 ± 1.4	0.38 ± 0.2	28.9 ± 1.9	4.78 ± 0.28	< 260	7.2 ± 0.6	1.21 ± 0.08
5	0	80 ± 50	15.9 ± 0.8	0.37 ± 0.2	24.1 ± 1.6	7.64 ± 0.44	< 320	6.5 ± 0.6	1.45 ± 0.09
	6	110 ± 60	16.8 ± 0.9	0.74 ± 0.2	51.7 ± 3.2	9.0 ± 0.5	< 260	7.0 ± 0.7	1.32 ± 0.07
6	0	< 130	11.1 ± 0.6	0.38 ± 0.2	16.6 ± 1.3	7.33 ± 0.42	< 290	6.3 ± 0.6	1.50 ± 0.08
	6	70 ± 40	12.7 ± 0.7	0.38 ± 0.2	28.8 ± 1.9	9.5 ± 0.6	< 290	7.0 ± 0.7	1.32 ± 0.07
7	0	40 ± 50	12.6 ± 0.7	0.65 ± 0.2	14.8 ± 1.1	4.94 ± 0.33	< 300	6.8 ± 0.6	1.99 ± 0.12
	6	< 100	13.7 ± 0.7	0.37 ± 0.2	16.1 ± 1.1	5.32 ± 0.30	< 500	5.4 ± 0.5	1.57 ± 0.07
8	0	40 ± 50	18.1 ± 0.9	0.49 ± 0.2	27.6 ± 1.9	5.05 ± 0.30	< 310	6.3 ± 0.6	1.78 ± 0.09
	6	103 ± 30	2[illegible]6 ± 1.1	0.39 ± 0.2	31.3 ± 2.0	4.78 ± 0.28	< 320	6.5 ± 0.7	1.82 ± 0.09
9	0	< 140	10.0 ± 0.6	0.33 ± 0.2	23.6 ± 1.6	4.20 ± 0.25	< 290	7.3 ± 0.7	1.27 ± 0.09
	6	< 100	9.08 ± 0.48	0.45 ± 0.2	25.1 ± 1.6	4.12 ± 0.3	< 290	6.9 ± 0.6	1.28 ± 0.08
10	0	< 130	9.1 ± 0.5	0.32 ± 0.2	15.6 ± 1.1	3.28 ± 0.20	< 270	12.8 ± 1.1	1.34 ± 0.08
		90 ± 50	10.7 ± 0.6	0.37 ± 0.2	13.9 ± 1.1	2.99 ± 0.18	< 280	13.9 ± 1.2	1.38 ± 0.07
		< 120	11.2 ± 0.6	0.16 ± 0.2	19.3 ± 1.4	4.12 ± 0.25	< 300	10.6 ± 0.9	1.31 ± 0.09
	6	< 110	10.2 ± 0.5	0.21 ± 0.2	24.3 ± 1.6	4.99 ± 0.32	< 310	11.8 ± 0.9	1.24 ± 0.07
		80 ± 50	17.7 ± 0.9	0.2 ± 0.2	31.8 ± 2.1	6.82 ± 0.40	< 260	7.9 ± 0.7	1.30 ± 0.08
		70 ± 50	10.1 ± 0.5	0.2 ± 0.2	20.6 ± 1.4	3.62 ± 0.22	< 270	10.2 ± 1.0	1.26 ± 0.08
11	0	< 120	8.9 ± 0.49	0.2 ± 0.2	27.1 ± 1.8	4.62 ± 0.30	< 300	7.9 ± 1.7	1.27 ± 0.06
	6	< 90	7.67 ± 0.41	0.24 ± 0.2	29.9 ± 1.9	4.93 ± 0.29	< 230	6.2 ± 0.6	0.97 ± 0.06

Table C-IX. Individual Elemental Concentration in Soils from Cowhead Saddle, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ng/g)	I (ug/g)	In (ug/g)	K (%)
1	0	---	1.26 ± 0.06	< 18	12.6 ± 0.9	< 370	< 12	< 0.13	3.05 ± 0.19
		---	1.13 ± 0.06	< 20	16.1 ± 0.8	< 420	< 20	< 0.20	3.18 ± 0.21
		---	1.11 ± 0.06	< 21	9.3 ± 0.8	< 500	< 16	< 0.16	2.96 ± 0.19
	6	---	1.06 ± 0.05	< 20	7.86 ± 0.44	< 400	< 15	< 0.12	3.15 ± 0.20
		---	1.09 ± 0.06	< 17	8.9 ± 0.5	< 340	< 11	< 0.12	3.36 ± 0.22
		---	0.80 ± 0.04	< 19	7.91 ± 0.36	< 390	< 14	< 0.20	3.50 ± 0.2[illegible]
2	0	---	4.10 ± 0.23	25 ± 4	6.92 ± 0.48	< 700	< 21	< 0.18	1.81 ± 0.12
	6	---	4.17 ± 0.22	< 21	5.7 ± 0.6	< 480	< 19	< 0.14	1.89 ± 0.13
3	0	---	1.29 ± 0.07	< 19	11.2 ± 0.7	< 360	< 15	< 0.15	3.30 ± 0.21
	6	---	1.8 ± 0.1	17 ± 6	7.8 ± 0.7	< 460	< 23	< 0.30	2.87 ± 0.19
4	0	---	2.37 ± 0.13	< 23	6.0 ± 0.6	< 600	< 22	< 0.19	2.83 ± 0.19
	6	---	4.88 ± 0.25	14 ± 4	5.0 ± 0.5	< 600	< 21	< 0.14	2.08 ± 0.14
5	0	---	4.42 ± 0.22	11 ± 4	5.4 ± 0.5	< 600	< 21	< 0.20	1.80 ± 0.13
	6	---	4.77 ± 0.27	22 ± 4	5.75 ± 0.43	< 600	< 24	< 0.30	2.02 ± 0.14
6	0	---	4.30 ± 0.23	16 ± 4	7.0 ± 0.6	< 800	< 27	< 0.20	2.03 ± 0.14
	6	---	4.22 ± 0.22	22 ± 4	4.84 ± 0.41	< 600	< 23	0.31 ± 0.04	1.66 ± 0.12
7	0	---	5.04 ± 0.26	20 ± 4	8.2 ± 0.7	< 500	< 22	< 0.19	2.22 ± 0.15
	6	---	4.95 ± 0.28	15 ± 4	6.36 ± 0.29	< 500	< 19	< 0.30	2.31 ± 0.16
8	0	---	5.15 ± 0.28	< 20	6.47 ± 0.38	< 800	< 20	< 0.20	1.90 ± 0.13
	6	---	5.53 ± 0.30	15 ± 4	6.1 ± 0.5	< 500	< 20	< 0.15	1.66 ± 0.11
9	0	---	2.70 ± 0.14	< 21	7.7 ± 0.7	< 500	< 23	< 0.20	2.19 ± 0.15
	6	---	2.75 ± 0.15	< 19	7.7 ± 0.7	< 490	< 17	< 0.30	2.52 ± 0.17
10	0	---	3.25 ± 0.17	< 20	8.5 ± 0.8	< 700	< 19	< 0.20	2.28 ± 0.15
		---	3.95 ± 0.21	14 ± 4	7.61 ± 0.43	< 490	< 20	< 0.14	2.12 ± 0.14
		---	3.52 ± 0.18	< 22	6.8 ± 0.7	< 600	< 25	< 0.20	2.16 ± 0.15
	6	---	3.45 ± 0.19	< 22	5.34 ± 0.36	< 500	< 17	< 0.30	1.88 ± 0.13
		---	4.79 ± 0.25	15 ± 3	6.4 ± 0.6	< 800	< 19	< 0.18	2.34 ± 0.15
		---	3.65 ± 0.19	< 21	7.39 ± 0.38	< 470	< 19	< 0.13	2.16 ± 0.14
11	0	---	2.62 ± 0.14	< 19	8.29 ± 0.41	< 700	< 30	< 0.20	2.05 ± 0.21
	6	---	2.43 ± 0.12	15 ± 3	7.12 ± 0.34	< 440	< 17	< 0.20	2.02 ± 0.14

Tree #	Depth (in)	La (ug/g)	Lu (ng/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
1	0	50 ± 3	1450 ± 70	1890 ± 410	365 ± 17	1.98 ± 0.08	59 ± 6	---	130 ± 9
		63.6 ± 3.5	2690 ± 120	< 2100	570 ± 30	2.15 ± 0.10	85 ± 9	---	105 ± 5
		41.6 ± 2.2	1270 ± 60	3800 ± 900	540 ± 20	1.95 ± 0.08	37 ± 6	---	150 ± 7
	6	36.5 ± 2.1	968 ± 47	1980 ± 450	267 ± 13	1.92 ± 0.08	35 ± 5	---	136 ± 7
		38.4 ± 2.3	1140 ± 50	2010 ± 320	324 ± 15	1.92 ± 0.08	41 ± 5	---	135 ± 6
		39.2 ± 2.0	1130 ± 50	< 1900	382 ± 18	2.22 ± 0.10	42 ± 5	---	132 ± 6
2	0	42.0 ± 2.3	1140 ± 60	7200 ± 700	1070 ± 50	2.27 ± 0.08	40 ± 7	---	99 ± 6
	6	34.8 ± 2.0	579 ± 30	9400 ± 800	1000 ± 40	2.32 ± 0.10	34 ± 6	---	120 ± 6
3	0	43.0 ± 2.5	1600 ± 80	< 1400	680 ± 30	2.03 ± 0.09	46 ± 5	---	138 ± 7
	6	34.7 ± 1.9	1600 ± 80	4500 ± 700	1290 ± 60	2.07 ± 0.09	49 ± 7	---	131 ± 6
4	0	26.8 ± 1.5	859 ± 43	7100 ± 800	1080 ± 50	2.11 ± 0.09	26 ± 7	---	120 ± 6
	6	25.7 ± 1.5	926 ± 45	18500 ± 1200	1370 ± 60	1.81 ± 0.08	27 ± 5	---	132 ± 7
5	0	37.9 ± 2.2	650 ± 33	8600 ± 700	1580 ± 70	1.88 ± 0.08	37 ± 6	---	142 ± 7
	6	36.0 ± 1.9	757 ± 39	13800 ± 1000	1360 ± 60	1.71 ± 0.08	37 ± 9	---	148 ± 7
6	0	50.2 ± 2.6	592 ± 33	8000 ± 800	1630 ± 80	2.1 ± 0.1	47 ± 8	---	146 ± 8
	6	37.3 ± 2.1	649 ± 34	9200 ± 800	1080 ± 50	1.88 ± 0.08	37 ± 6	---	152 ± 8
7	0	61.2 ± 3.6	740 ± 38	8600 ± 800	1280 ± 60	2.23 ± 0.09	66 ± 7	---	132 ± 7
	6	47.8 ± 3.2	458 ± 25	7000 ± 700	1300 ± 60	2.27 ± 0.10	56 ± 7	---	128 ± 7
8	0	46.1 ± 2.5	516 ± 30	13100 ± 1100	1870 ± 80	2.11 ± 0.10	56 ± 8	---	111 ± 6
	6	49.1 ± 2.8	597 ± 32	10300 ± 800	1540 ± 70	2.16 ± 0.09	43 ± 6	---	113 ± 6
9	0	37.6 ± 2.2	881 ± 44	6200 ± 700	1250 ± 60	1.95 ± 0.08	40 ± 6	---	133 ± 7
	6	40.4 ± 2.3	871 ± 42	4700 ± 500	1010 ± 50	2.15 ± 0.09	45 ± 7	---	121 ± 6
10	0	43.9 ± 2.4	1530 ± 70	5100 ± 800	1220 ± 60	2.39 ± 0.11	43 ± 7	---	114 ± 6
		47.5 ± 2.6	1790 ± 80	4600 ± 600	1220 ± 50	2.33 ± 0.10	42 ± 5	---	119 ± 6
		36.5 ± 2.1	1430 ± 70	5300 ± 700	1540 ± 70	1.98 ± 0.08	42 ± 7	---	117 ± 6
	6	37.2 ± 2.1	1860 ± 90	3270 ± 480	820 ± 40	2.84 ± 0.12	46 ± 7	---	127 ± 6
		39.9 ± 2.1	896 ± 47	9300 ± 800	1180 ± 50	1.95 ± 0.07	47 ± 8	---	190 ± 9
		40.6 ± 2.1	1360 ± 60	3900 ± 600	1000 ± 50	2.25 ± 0.09	36 ± 5	---	134 ± 7
11	0	48.3 ± 2.8	784 ± 39	6000 ± 800	2020 ± 90	1.84 ± 0.08	54 ± 8	---	118 ± 6
	6	33.3 ± 1.8	777 ± 38	5700 ± 600	810 ± 40	1.73 ± 0.07	27 ± 4	---	130 ± 7

Table C-IX. Individual Elemental Concentration in Soils from Cowhead Saddle, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	0.30 ± 0.09	6.47 ± 0.34	< 80	---	8.93 ± 0.40	< 200	0.88 ± 0.06	1.72 ± 0.16
		0.48 ± 0.08	5.03 ± 0.27	1.1 ± 0.9	---	12.5 ± 0.6	< 280	0.75 ± 0.07	2.56 ± 0.25
		0.67 ± 0.11	5.26 ± 0.28	1.5 ± 0.6	---	8.26 ± 0.38	220 ± 70	0.79 ± 0.06	1.43 ± 0.14
	6	< 0.3	6.72 ± 0.36	1.0 ± 0.8	---	7.24 ± 0.33	< 200	0.80 ± 0.07	1.08 ± 0.10
		0.25 ± 0.08	6.08 ± 0.32	38 ± 27	---	6.73 ± 0.30	180 ± 50	0.86 ± 0.08	1.32 ± 0.12
		< 0.3	7.10 ± 0.38	0.8 ± 0.8	---	7.62 ± 0.35	< 230	0.85 ± 0.07	1.21 ± 0.11
2	0	< 0.35	11.3 ± 0.6	1.4 ± 0.5	---	7.83 ± 0.36	< 300	1.49 ± 0.10	1.49 ± 0.14
	6	0.28 ± 0.09	11.9 ± 0.6	< 2.3	---	6.25 ± 0.28	< 280	1.11 ± 0.08	0.83 ± 0.08
3	0	0.32 ± 0.07	5.66 ± 0.3	123 ± 33	---	7.72 ± 0.35	< 240	0.84 ± 0.06	1.60 ± 0.15
	6	0.40 ± 0.08	7.85 ± 0.42	1.4 ± 0.5	---	7.36 ± 0.34	< 380	0.90 ± 0.07	1.47 ± 0.14
4	0	0.30 ± 0.09	8.37 ± 0.45	1.5 ± 0.6	---	5.55 ± 0.26	310 ± 80	0.76 ± 0.06	1.02 ± 0.10
	6	< 0.27	15.1 ± 0.8	0.9 ± 0.4	---	5.38 ± 0.24	< 300	0.57 ± 0.06	1.03 ± 0.10
5	0	0.61 ± 0.11	13.7 ± 0.7	37 ± 29	---	6.32 ± 0.28	< 350	1.15 ± 0.08	0.93 ± 0.09
	6	< 0.3	16.1 ± 0.9	0.4 ± 0.4	---	7.05 ± 0.32	< 400	1.43 ± 0.11	0.97 ± 0.09
6	0	0.51 ± 0.10	12.9 ± 0.7	< 4.3	---	7.64 ± 0.34	< 300	1.43 ± 0.10	1.07 ± 0.12
	6	0.28 ± 0.10	15.5 ± 0.8	0.9 ± 0.5	---	7.00 ± 0.33	< 300	1.18 ± 0.12	0.84 ± 0.08
7	0	0.58 ± 0.11	11.6 ± 0.6	48 ± 44	---	9.66 ± 0.44	< 340	1.14 ± 0.10	1.17 ± 0.12
	6	< 0.32	12.3 ± 0.7	1.3 ± 0.5	---	6.89 ± 0.31	< 310	1.16 ± 0.11	0.84 ± 0.08
8	0	< 0.35	15.1 ± 0.8	0.4 ± 0.4	---	7.69 ± 0.35	< 300	1.19 ± 0.09	1.00 ± 0.10
	6	< 0.35	14.3 ± 0.8	0.8 ± 0.4	---	8.23 ± 0.38	< 300	1.01 ± 0.09	1.02 ± 0.10
9	0	0.45 ± 0.12	10.1 ± 0.5	35 ± 16	---	6.69 ± 0.30	340 ± 90	0.90 ± 0.07	1.06 ± 0.11
	6	< 0.32	9.7 ± 0.5	< 3.2	---	6.37 ± 0.29	< 280	1.01 ± 0.08	1.07 ± 0.10
10	0	0.38 ± 0.09	10.1 ± 0.5	1.9 ± 0.7	---	8.67 ± 0.40	< 300	0.99 ± 0.07	1.68 ± 0.16
		< 0.36	11.0 ± 0.6	0.7 ± 0.3	---	9.37 ± 0.43	< 300	0.93 ± 0.08	1.79 ± 0.16
		0.70 ± 0.12	11.6 ± 0.6	70 ± 24	---	7.25 ± 0.33	< 370	0.80 ± 0.07	1.48 ± 0.16
	6	< 0.36	12.6 ± 0.7	< 3.4	---	6.66 ± 0.30	< 280	1.43 ± 0.11	1.85 ± 0.19
		< 0.33	18.5 ± 1.0	1.2 ± 0.7	---	7.28 ± 0.33	< 300	1.38 ± 0.09	1.15 ± 0.11
		0.39 ± 0.10	10.9 ± 0.6	1.2 ± 0.7	---	8.01 ± 0.37	< 300	1.05 ± 0.08	1.45 ± 0.14
11	0	0.66 ± 0.08	9.8 ± 0.5	1.1 ± 0.6	---	8.66 ± 0.39	< 400	0.91 ± 0.07	1.17 ± 0.11
	6	0.39 ± 0.09	9.8 ± 0.5	1.7 ± 0.5	---	5.86 ± 0.28	< 280	0.98 ± 0.07	0.92 ± 0.09

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	20.9 ± 0.8	3000 ± 300	4.4 ± 0.3	40 ± 3	2.3 ± 0.6	10.3 ± 0.5	41 ± 6	790 ± 100
		26 ± 1	2730 ± 370	5.22 ± 0.18	21.3 ± 1.8	< 5	19.2 ± 1.0	34 ± 5	430 ± 60
		16.3 ± 0.6	2700 ± 300	3.56 ± 0.13	32.0 ± 2.1	< 5	9.15 ± 0.48	39 ± 6	440 ± 180
	6	13.5 ± 0.5	2710 ± 360	4.24 ± 0.15	30.6 ± 2	1.27 ± 0.44	6.82 ± 0.37	< 5	205 ± 41
		16.8 ± 0.7	2740 ± 370	3.57 ± 0.12	28.9 ± 1.9	< 4.3	7.36 ± 0.40	30 ± 4	560 ± 80
		16.4 ± 0.7	2670 ± 360	4.36 ± 0.15	23.5 ± 1.7	< 4.7	7.80 ± 0.48	32 ± 5	210 ± 80
2	0	12.4 ± 0.4	5400 ± 700	4.07 ± 0.14	130 ± 5	< 5	9.04 ± 0.50	119 ± 15	440 ± 160
	6	9.77 ± 0.38	5400 ± 700	2.92 ± 0.11	126 ± 5	3.4 ± 1.1	4.17 ± 0.26	120 ± 20	220 ± 60
3	0	19.5 ± 0.8	2280 ± 330	3.63 ± 0.13	26.8 ± 2	2.4 ± 0.6	10.6 ± 0.6	47 ± 6	770 ± 100
	6	15.1 ± 0.6	2920 ± 420	4.40 ± 0.15	34.8 ± 2.3	1.7 ± 0.8	11.4 ± 0.6	116 ± 15	210 ± 70
4	0	9.98 ± 0.4	2920 ± 430	2.47 ± 0.09	48.6 ± 3.1	1.4 ± 0.5	5.88 ± 0.34	68 ± 9	340 ± 70
	6	7.73 ± 0.3	5400 ± 700	2.33 ± 0.08	102 ± 4	2.18 ± 0.41	6.50 ± 0.36	74 ± 17	190 ± 70
5	0	11.7 ± 0.4	5200 ± 700	2.83 ± 0.10	106 ± 5	3.2 ± 0.7	4.68 ± 0.32	108 ± 14	430 ± 90
	6	12.6 ± 0.4	5900 ± 800	3.72 ± 0.13	115 ± 5	3.0 ± 0.6	5.61 ± 0.31	120 ± 16	165 ± 40
6	0	13.8 ± 1.4	4500 ± 600	3.32 ± 0.12	121 ± 5	4.4 ± 2.8	4.19 ± 0.25	150 ± 19	450 ± 90
	6	13.0 ± 0.5	4800 ± 600	3.47 ± 0.12	114 ± 5	5.7 ± 0.9	4.12 ± 0.28	232 ± 34	157 ± 46
7	0	16.9 ± 0.7	5700 ± 700	2.85 ± 0.11	117 ± 5	1.9 ± 1.2	5.08 ± 0.30	103 ± 14	680 ± 140
	6	13.3 ± 0.5	4300 ± 600	2.45 ± 0.09	120 ± 5	< 4.9	3.12 ± 0.27	98 ± 13	206 ± 40
8	0	12.0 ± 0.4	6300 ± 800	2.61 ± 0.09	142 ± 6	2.7 ± 0.6	4.17 ± 0.26	109 ± 14	370 ± 80
	6	13.2 ± 0.5	6900 ± 900	2.89 ± 0.10	133 ± 6	2.8 ± 0.6	4.22 ± 0.28	89 ± 17	180 ± 60
9	0	12.7 ± 0.5	3900 ± 600	2.90 ± 0.11	64.3 ± 3.5	2.3 ± 0.5	6.25 ± 0.36	78 ± 11	450 ± 90
	6	13.5 ± 0.5	3200 ± 430	3.16 ± 0.11	65.4 ± 3.4	< 4.9	6.16 ± 0.36	52 ± 8	210 ± 39
10	0	16.6 ± 0.6	3430 ± 480	3.75 ± 0.13	88.4 ± 4.1	< 5	12.8 ± 0.7	60 ± 8	400 ± 120
		16.2 ± 0.6	3590 ± 500	3.74 ± 0.13	113 ± 5	< 5	12.8 ± 0.7	45 ± 15	240 ± 90
		13.1 ± 0.5	4100 ± 600	3.11 ± 0.12	100 ± 5	2.9 ± 1.1	9.2 ± 0.5	72 ± 10	380 ± 120
	6	14.9 ± 0.6	3200 ± 440	3.88 ± 0.14	92.8 ± 4.3	< 6	11.7 ± 0.6	< 11	132 ± 36
		12.0 ± 0.4	5100 ± 700	3.55 ± 0.13	143 ± 6	4.6 ± 0.7	6.72 ± 0.4	91 ± 12	310 ± 140
		14.6 ± 0.6	3800 ± 500	3.46 ± 0.12	102 ± 4	< 5	9.35 ± 0.5	42 ± 14	201 ± 40
11	0	17.1 ± 0.7	3350 ± 500	3.04 ± 0.11	60.7 ± 3.3	< 4.9	5.59 ± 0.31	70 ± 10	520 ± 90
	6	11.4 ± 0.4	3450 ± 480	2.44 ± 0.09	60.2 ± 3	1.8 ± 0.6	5.51 ± 0.31	41 ± 14	240 ± 60

Table C-X. Individual Elemental Concentration in Soils from the Exclosure Site, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
West	0	---	8.6 ± 0.3	---	---	652 ± 68	---	5100 ± 500	95 ± 7
		---	9.0 ± 0.3	---	---	610 ± 70	---	5400 ± 700	104 ± 7
		---	8.5 ± 0.3	---	---	600 ± 60	---	5300 ± 700	116 ± 8
		---	8.1 ± 0.3	---	---	600 ± 70	---	5400 ± 600	103 ± 7
	6	---	9.7 ± 0.4	---	---	480 ± 50	---	5700 ± 600	99 ± 7
		---	10.4 ± 0.4	---	---	480 ± 80	---	4100 ± 700	138 ± 10
		---	9.6 ± 0.4	---	---	600 ± 70	---	8700 ± 900	116 ± 8
		---	9.1 ± 0.3	---	---	500 ± 50	---	9000 ± 800	117 ± 8
	12	---	10.9 ± 0.4	---	---	580 ± 70	---	5900 ± 700	103 ± 7
		---	10.9 ± 0.4	---	---	360 ± 60	---	6400 ± 800	145 ± 10
		---	10.6 ± 0.4	---	---	560 ± 70	---	6400 ± 700	122 ± 9
		---	9.1 ± 0.3	---	---	540 ± 80	---	12000 ± 900	114 ± 8
North	0	---	7.4 ± 0.3	---	---	620 ± 60	---	6600 ± 700	103 ± 7
		---	7.9 ± 0.3	---	---	580 ± 70	---	6200 ± 800	109 ± 8
		---	8.6 ± 0.3	---	---	570 ± 70	---	7200 ± 700	120 ± 8
	6	---	8.9 ± 0.3	---	---	520 ± 70	---	6100 ± 700	126 ± 9
		---	9.1 ± 0.6	---	---	480 ± 70	---	6400 ± 800	128 ± 9
		---	8.4 ± 0.3	---	---	480 ± 60	---	6200 ± 800	126 ± 9
	12	---	9.5 ± 0.4	---	---	574 ± 70	---	6100 ± 600	131 ± 9
		---	10.3 ± 0.4	---	---	480 ± 60	---	7100 ± 800	135 ± 10
		---	8.2 ± 0.3	---	---	520 ± 70	---	6100 ± 800	130 ± 10
North, under Palo Verde Tree									
	0	---	7.1 ± 0.3	---	---	540 ± 70	---	6600 ± 800	118 ± 8
		---	7.4 ± 0.3	---	---	610 ± 70	---	7300 ± 700	110 ± 8
		---	8.1 ± 0.3	---	---	530 ± 70	---	6300 ± 800	115 ± 8
		---	7.2 ± 0.3	---	---	490 ± 70	---	7000 ± 800	107 ± 8
	6	---	8.3 ± 0.3	---	---	540 ± 70	---	7300 ± 700	121 ± 9
	12	---	9.0 ± 0.3	---	---	540 ± 60	---	6400 ± 700	128 ± 9

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
West	0	< 20	11.7 ± 1.2	0.4 ± 0.2	62 ± 3	24.6 ± 1.78	---	6.9 ± 0.6	1.45 ± 0.11
		90 ± 20	15.7 ± 1.64	0.4 ± 0.2	64 ± 4	29.4 ± 2.13	---	6.8 ± 0.6	1.64 ± 0.13
		< 110	12.7 ± 1.3	0.7 ± 0.2	79 ± 4	25.0 ± 1.8	---	7.8 ± 0.7	1.67 ± 0.12
		70 ± 20	14.0 ± 1.46	0.3 ± 0.2	60 ± 3	29.3 ± 2.12	---	7.5 ± 0.7	1.62 ± 0.12
	6	110 ± 30	15.3 ± 1.57	0.2 ± 0.2	61 ± 3	29.4 ± 2.12	---	7.1 ± 0.6	1.56 ± 0.12
		70 ± 30	22.5 ± 2.32	0.2 ± 0.2	75 ± 4	36.8 ± 2.66	---	8.0 ± 0.7	2.17 ± 0.16
		100 ± 30	17.0 ± 1.73	0.4 ± 0.2	69 ± 4	35.6 ± 2.55	---	8.2 ± 0.9	1.99 ± 0.14
		110 ± 20	16.7 ± 1.72	0.5 ± 0.2	63 ± 4	34.1 ± 2.46	---	7.9 ± 0.7	1.83 ± 0.13
	12	82 ± 19	18.8 ± 1.93	0.4 ± 0.2	68 ± 4	35.0 ± 2.53	---	8.4 ± 0.7	1.92 ± 0.15
		140 ± 20	22.8 ± 2.36	0.2 ± 0.2	77 ± 4	36.9 ± 2.67	---	8.7 ± 0.7	2.08 ± 0.16
		< 90	18.3 ± 1.88	0.4 ± 0.2	68 ± 4	41.7 ± 3.01	---	9.0 ± 0.8	1.97 ± 0.15
		< 100	18.0 ± 1.9	1.1 ± 0.2	63 ± 4	34.5 ± 2.52	---	7.6 ± 0.7	1.81 ± 0.15
North	0	< 80	9.13 ± 0.94	0.4 ± 0.2	46 ± 3	16.6 ± 1.21	---	7.0 ± 0.8	1.28 ± 0.09
		< 140	11.0 ± 1.17	0.5 ± 0.2	45 ± 3	19.0 ± 1.4	---	7.6 ± 0.9	1.36 ± 0.11
		140 ± 30	10.1 ± 1.05	0.6 ± 0.2	50 ± 3	21.1 ± 1.53	---	8.5 ± 0.8	1.45 ± 0.11
	6	90 ± 20	14.8 ± 1.56	0.5 ± 0.2	50 ± 3	27.5 ± 1.99	---	8.2 ± 0.7	1.76 ± 0.13
		< 140	14.6 ± 1.5	0.4 ± 0.2	53 ± 3	26.8 ± 1.94	---	9.1 ± 0.8	1.64 ± 0.13
		< 110	15.7 ± 1.65	0.4 ± 0.2	52 ± 3	27.2 ± 1.98	---	8.2 ± 0.7	1.71 ± 0.14
	12	90 ± 20	19.7 ± 2.01	0.4 ± 0.2	61 ± 3	27.2 ± 1.97	---	13 ± 4	1.87 ± 0.14
		70 ± 30	17.1 ± 1.78	0.7 ± 0.2	54 ± 3	25.5 ± 1.85	---	9.0 ± 0.8	1.65 ± 0.13
		100 ± 40	13.6 ± 1.4	0.6 ± 0.2	54 ± 3	24.4 ± 1.77	---	8.4 ± 0.7	1.55 ± 0.12
North, under Palo Verde tree									
	0	320 ± 50	15.2 ± 1.61	0.5 ± 0.2	53 ± 3	24.1 ± 1.77	---	7.6 ± 0.7	1.39 ± 0.12
		140 ± 50	12.8 ± 1.32	0.2 ± 0.2	54 ± 3	22.7 ± 1.65	---	7.5 ± 0.6	1.44 ± 0.11
		< 150	12.8 ± 1.36	0.5 ± 0.2	52 ± 3	21.4 ± 1.57	---	7.8 ± 0.7	1.42 ± 0.11
		140 ± 40	11.2 ± 1.16	0.4 ± 0.2	52 ± 3	18.7 ± 1.36	---	7.0 ± 0.7	1.43 ± 0.11
	6	140 ± 30	15.5 ± 1.61	0.5 ± 0.2	62 ± 4	27.3 ± 1.98	---	8.5 ± 0.9	1.62 ± 0.13
	12	100 ± 20	14.1 ± 1.45	0.5 ± 0.2	57 ± 3	27.1 ± 1.96	---	7.5 ± 0.6	1.83 ± 0.14

Table C-X. Individual Elemental Concentration in Soils from the Exclosure Site, Saguaro National Monument (cont.)

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ng/g)	K (%)
West	0	349 ± 35	4.06 ± 0.25	< 30	7.76 ± 0.57	---	---	< 100	3.6 ± 0.4
		125 ± 13	4.37 ± 0.22	< 40	8.44 ± 0.63	---	---	< 110	3.4 ± 0.3
		---	5.25 ± 0.32	< 40	13.1 ± 0.9	---	---	< 160	3.2 ± 0.2
		---	4.18 ± 0.22	< 40	7.27 ± 0.55	---	---	< 120	3.4 ± 0.3
	6	890 ± 89	4.55 ± 0.28	< 30	5.84 ± 0.44	---	---	< 100	3.2 ± 0.3
		---	5.10 ± 0.26	< 50	7.88 ± 0.60	---	---	< 190	3.6 ± 0.3
		---	4.81 ± 0.29	< 50	7.54 ± 0.55	---	---	< 140	3.1 ± 0.2
		---	4.47 ± 0.23	< 30	8.34 ± 0.62	---	---	150 ± 40	3.4 ± 0.4
	12	665 ± 67	5.26 ± 0.32	< 50	6.51 ± 0.50	---	---	< 110	3.4 ± 0.3
		---	5.38 ± 0.28	< 50	8.14 ± 0.62	---	---	< 170	3.1 ± 0.3
		---	5.02 ± 0.31	< 40	5.66 ± 0.44	---	---	< 130	3.4 ± 0.3
		---	4.39 ± 0.23	< 30	7.80 ± 0.61	---	---	< 110	3.1 ± 0.3
North	0	470 ± 47	2.76 ± 0.17	< 40	8.14 ± 0.59	---	---	< 110	3.0 ± 0.2
		---	2.98 ± 0.15	< 50	9.86 ± 0.72	---	---	< 180	3.0 ± 0.3
		---	3.14 ± 0.19	< 30	8.84 ± 0.64	---	---	< 110	2.7 ± 0.3
	6	555 ± 56	3.54 ± 0.18	< 50	8.35 ± 0.63	---	---	< 120	2.8 ± 0.2
		---	3.57 ± 0.22	< 50	7.41 ± 0.55	---	---	< 190	2.7 ± 0.3
		---	3.59 ± 0.19	< 50	8.43 ± 0.63	---	---	< 140	2.5 ± 0.2
	12	335 ± 34	4.08 ± 0.25	< 30	7.25 ± 0.54	---	---	< 110	2.8 ± 0.3
		---	3.58 ± 0.18	< 50	8.39 ± 0.63	---	---	< 120	2.7 ± 0.2
		---	3.51 ± 0.22	< 50	7.51 ± 0.56	---	---	< 180	3.1 ± 0.3
North, under Palo Verde tree									
	0	---	3.34 ± 0.17	< 50	8.33 ± 0.63	---	---	< 140	2.8 ± 0.2
		---	3.22 ± 0.20	< 30	6.91 ± 0.52	---	---	< 120	3.3 ± 0.4
		---	3.26 ± 0.17	< 50	9.34 ± 0.69	---	---	< 200	3.1 ± 0.3
		420 ± 42	3.32 ± 0.2	< 40	9.24 ± 0.67	---	---	< 140	2.6 ± 0.2
	6	702 ± 70	3.76 ± 0.19	< 30	8.80 ± 0.65	---	---	150 ± 50	2.8 ± 0.3
	12	728 ± 73	3.83 ± 0.24	< 50	7.74 ± 0.57	---	---	< 120	2.9 ± 0.3

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
West	0	---	---	6600 ± 800	570 ± 30	8400 ± 300	---	7.39 ± 0.3	222 ± 23
		---	---	6800 ± 1000	650 ± 30	7100 ± 300	---	---	237 ± 25
		---	---	6400 ± 1300	630 ± 30	8400 ± 300	---	---	235 ± 24
		---	---	7800 ± 1000	690 ± 30	7500 ± 300	---	---	247 ± 26
	6	---	---	8200 ± 900	600 ± 30	5640 ± 200	---	6.89 ± 0.3	220 ± 23
		---	---	9500 ± 1500	800 ± 40	5200 ± 200	---	---	218 ± 23
		---	---	8400 ± 1400	790 ± 40	6400 ± 200	---	---	260 ± 27
		---	---	8400 ± 1000	770 ± 30	6900 ± 200	---	---	225 ± 23
	12	---	---	9500 ± 1200	860 ± 40	5000 ± 180	---	6.78 ± 0.3	245 ± 26
		---	---	9700 ± 1400	640 ± 30	3810 ± 140	---	---	227 ± 24
		---	---	10200 ± 1300	730 ± 30	3250 ± 120	---	---	261 ± 28
		---	---	9100 ± 1000	770 ± 30	6300 ± 200	---	---	232 ± 25
North	0	---	---	4900 ± 1100	550 ± 20	15500 ± 500	---	6.42 ± 0.3	166 ± 17
		---	---	6200 ± 1500	700 ± 30	14700 ± 500	---	---	177 ± 19
		---	---	6300 ± 1000	630 ± 30	13600 ± 500	---	---	171 ± 18
	6	---	---	7100 ± 1300	720 ± 30	11000 ± 500	---	7.49 ± 0.3	181 ± 20
		---	---	6700 ± 1200	740 ± 30	10800 ± 400	---	---	164 ± 17
		---	---	6200 ± 1600	690 ± 30	11200 ± 400	---	---	186 ± 20
	12	---	---	8900 ± 1100	870 ± 40	8100 ± 300	---	6.9 ± 0.3	171 ± 18
		---	---	7600 ± 1400	760 ± 30	10200 ± 400	---	---	185 ± 20
		---	---	7500 ± 1600	670 ± 30	12400 ± 500	---	---	175 ± 18
North, under Palo Verde tree									
	0	---	---	6100 ± 1300	710 ± 30	10700 ± 400	---	---	180 ± 19
		---	---	4200 ± 900	660 ± 30	10600 ± 400	---	---	179 ± 19
		---	---	7400 ± 1700	850 ± 40	11800 ± 500	---	---	182 ± 19
		---	---	5100 ± 1100	620 ± 30	11800 ± 400	---	6.8 ± 0.3	168 ± 18
	6	---	---	6900 ± 900	740 ± 30	10700 ± 400	---	7.6 ± 0.3	182 ± 19
	12	---	---	7300 ± 1300	800 ± 40	10000 ± 400	---	7.6 ± 0.3	185 ± 19

Table C-X. Individual Elemental Concentration in Soils from the Exclosure Site, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
West	0	1.81 ± 0.33	14.4 ± 1.4	---	30.0 ± 2.4	7.63 ± 0.76	< 170	1.26 ± 0.22	0.95 ± 0.22
		1.97 ± 0.36	15.2 ± 1.5	---	28.3 ± 1.4	8.87 ± 0.89	< 200	1.31 ± 0.24	0.93 ± 0.23
		1.69 ± 0.32	14.4 ± 1.4	---	27.8 ± 2.2	9.06 ± 0.91	< 200	1.62 ± 0.27	1.06 ± 0.24
		1.84 ± 0.33	15.1 ± 1.5	---	25.7 ± 2.0	8.75 ± 0.88	< 170	1.53 ± 0.26	0.85 ± 0.20
	6	1.49 ± 0.28	14.5 ± 1.4	---	26.8 ± 1.7	8.34 ± 0.84	< 190	1.21 ± 0.22	0.90 ± 0.22
		1.28 ± 0.30	16.2 ± 1.6	---	27.7 ± 1.5	11.4 ± 1.15	< 300	1.49 ± 0.28	1.23 ± 0.29
		1.44 ± 0.24	16.1 ± 1.6	---	26.0 ± 2.1	10.0 ± 1.01	< 200	1.41 ± 0.24	0.99 ± 0.23
		1.40 ± 0.29	15.5 ± 1.6	---	24.8 ± 1.4	10.3 ± 1.03	< 200	1.49 ± 0.25	1.17 ± 0.27
	12	1.45 ± 0.35	16.7 ± 1.7	---	25.7 ± 2.6	9.99 ± 1.01	< 200	1.35 ± 0.24	1.04 ± 0.27
		1.30 ± 0.31	16.8 ± 1.7	---	26.4 ± 2.4	12.2 ± 1.23	< 300	1.64 ± 0.31	1.20 ± 0.31
		1.25 ± 0.33	17.7 ± 1.8	---	25.1 ± 2.0	11.0 ± 1.11	< 190	1.23 ± 0.24	1.31 ± 0.32
		1.27 ± 0.36	15.7 ± 1.6	---	24.6 ± 2.6	10.2 ± 1.04	< 200	1.41 ± 0.29	1.02 ± 0.28
North	0	1.01 ± 0.21	9.9 ± 1.0	---	30.7 ± 3.0	8.26 ± 0.83	< 200	1.28 ± 0.21	1.00 ± 0.23
		1.59 ± 0.28	10.4 ± 1.0	---	31.0 ± 1.5	8.88 ± 0.90	< 300	1.27 ± 0.23	1.12 ± 0.25
		1.79 ± 0.29	10.8 ± 1.1	---	29.9 ± 2.2	9.70 ± 0.97	< 190	1.19 ± 0.21	1.16 ± 0.27
	6	1.43 ± 0.28	12.2 ± 1.2	---	26.5 ± 2.4	10.8 ± 1.1	< 200	1.42 ± 0.26	0.95 ± 0.23
		1.46 ± 0.30	12.2 ± 1.2	---	27.6 ± 2.3	10.8 ± 1.0	< 300	1.33 ± 0.22	1.23 ± 0.28
		1.91 ± 0.38	12.3 ± 1.2	---	28.6 ± 1.8	11.2 ± 1.1	< 200	1.36 ± 0.26	1.05 ± 0.26
	12	1.38 ± 0.28	13.9 ± 1.4	---	27.2 ± 1.4	11.4 ± 1.15	< 200	1.28 ± 0.23	1.28 ± 0.30
		1.63 ± 0.36	13.5 ± 1.4	---	25 ± 4	11.5 ± 1.16	< 200	1.39 ± 0.25	0.88 ± 0.25
		1.74 ± 0.30	12.0 ± 1.2	---	26 ± 3	10.2 ± 1.03	< 300	1.47 ± 0.25	1.31 ± 0.29
North, under Palo Verde tree									
	0	1.49 ± 0.34	11.4 ± 1.1	---	25.6 ± 1.5	9.72 ± 0.98	< 200	1.36 ± 0.26	0.91 ± 0.23
		1.29 ± 0.27	11.3 ± 1.1	---	25 ± 2	8.77 ± 0.88	< 200	1.26 ± 0.22	1.08 ± 0.26
		1.76 ± 0.32	11.0 ± 1.1	---	25.5 ± 1.9	9.34 ± 0.94	< 300	1.40 ± 0.25	0.87 ± 0.21
		1.74 ± 0.29	10.6 ± 1.1	---	27 ± 3	8.13 ± 0.81	< 190	1.10 ± 0.19	1.17 ± 0.27
	6	1.27 ± 0.32	12.9 ± 1.3	---	27.1 ± 1.8	10.0 ± 1.01	< 200	1.36 ± 0.25	1.25 ± 0.29
	12	1.41 ± 0.24	12.4 ± 1.2	---	25 ± 3	10.3 ± 1.04	< 200	1.15 ± 0.21	1.45 ± 0.33

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
West	0	15.4 ± 0.8	3600 ± 500	4.34 ± 0.3	80 ± 4	< 100	3.87 ± 0.41	104 ± 11	---
		16.3 ± 0.8	4300 ± 300	4.63 ± 0.4	73 ± 4	< 100	4.07 ± 0.46	103 ± 16	---
		19.4 ± 1.0	4700 ± 300	4.99 ± 0.4	92 ± 5	< 120	4.71 ± 0.49	83 ± 9	---
		16.4 ± 0.8	4100 ± 300	4.34 ± 0.3	71 ± 4	< 110	4.00 ± 0.44	108 ± 16	---
	6	15.6 ± 0.8	3700 ± 500	4.11 ± 0.3	75 ± 4	< 100	3.91 ± 0.42	105 ± 11	---
		19.1 ± 1.0	4600 ± 500	4.32 ± 0.3	93 ± 6	< 150	4.53 ± 0.50	121 ± 19	---
		19 ± 1	4500 ± 400	4.26 ± 0.3	84 ± 5	< 130	4.42 ± 0.46	94 ± 10	---
		17.5 ± 0.9	4200 ± 600	4.19 ± 0.3	84 ± 4	< 110	4.45 ± 0.48	103 ± 15	---
	12	16.7 ± 0.9	3200 ± 300	4.58 ± 0.4	85 ± 5	< 110	4.34 ± 0.47	130 ± 14	---
		20.6 ± 1.1	4500 ± 400	4.03 ± 0.3	84 ± 5	< 130	5.01 ± 0.56	111 ± 17	---
		18.3 ± 1.0	3700 ± 300	4.09 ± 0.3	77 ± 4	< 120	4.42 ± 0.49	127 ± 14	---
		16.4 ± 0.9	3800 ± 500	4.20 ± 0.3	80 ± 4	< 110	5.17 ± 0.58	120 ± 19	---
North	0	17.2 ± 0.9	3000 ± 300	4.58 ± 0.4	50 ± 3	< 90	4.43 ± 0.46	56 ± 6	---
		18.9 ± 1.0	2900 ± 300	4.36 ± 0.3	60 ± 4	< 140	4.73 ± 0.50	88 ± 13	---
		20.8 ± 1.1	3200 ± 500	4.57 ± 0.4	50 ± 3	< 110	5.25 ± 0.55	72 ± 8	---
	6	21.2 ± 1.1	3500 ± 300	4.48 ± 0.3	61 ± 4	< 110	5.07 ± 0.55	91 ± 14	---
		20.4 ± 1.0	3800 ± 400	4.4 ± 0.3	61 ± 4	< 150	4.81 ± 0.51	84 ± 9	---
		21.0 ± 1.1	2900 ± 300	4.35 ± 0.3	57 ± 4	< 120	5.67 ± 0.62	82 ± 13	---
	12	22.5 ± 1.2	3200 ± 500	4.37 ± 0.3	84 ± 4	< 120	5.42 ± 0.57	80 ± 9	---
		20.6 ± 1.1	3600 ± 400	4.44 ± 0.3	71 ± 4	< 110	5.15 ± 0.56	99 ± 15	---
		20.6 ± 1.1	3200 ± 300	4.25 ± 0.3	57 ± 4	< 140	5.01 ± 0.52	88 ± 10	---
North, under Palo Verde tree									
	0	18.3 ± 1.0	4400 ± 400	4.25 ± 0.3	57 ± 4	< 120	4.47 ± 0.50	153 ± 23	---
		16.9 ± 0.9	3100 ± 400	4.05 ± 0.3	66 ± 4	< 120	4.41 ± 0.47	81 ± 9	---
		18.2 ± 0.9	3700 ± 300	4.14 ± 0.3	61 ± 4	< 160	4.70 ± 0.51	128 ± 19	---
		16.7 ± 0.9	3200 ± 300	3.95 ± 0.3	59 ± 3	< 120	4.20 ± 0.44	98 ± 10	---
	6	18.8 ± 1.0	3600 ± 500	5.54 ± 0.4	70 ± 4	< 110	4.59 ± 0.49	86 ± 13	---
	12	20.6 ± 1.1	3500 ± 300	4.39 ± 0.3	67 ± 4	< 110	4.89 ± 0.51	89 ± 10	---

Table C-XI. Individual Elemental Concentration in Soils under Helen's Dome White Pines, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
61	0	< 4	6.95 ± 0.20	7.6 ± 0.9	< 14	450 ± 60	6.1 ± 0.7	0.92 ± 0.07	70 ± 3
	6	< 3.2	7.76 ± 0.22	4.6 ± 0.6	< 10	393 ± 38	4.6 ± 0.5	0.76 ± 0.06	82 ± 4
62	0	< 2.8	7.88 ± 0.22	6.8 ± 0.8	< 14	470 ± 90	2.1 ± 0.3	0.84 ± 0.06	83 ± 4
	6	< 2.8	7.85 ± 0.22	3.87 ± 0.48	< 13	352 ± 34	5.8 ± 0.7	0.81 ± 0.06	97 ± 4
63	0	< 3.5	7.12 ± 0.21	5.9 ± 0.7	< 15	463 ± 43	2.42 ± 0.42	0.85 ± 0.07	76 ± 4
	6	1.9 ± 0.5	7.42 ± 0.21	3.14 ± 0.41	< 10	380 ± 50	3.25 ± 0.48	0.85 ± 0.06	84 ± 4
64	0	< 2.6	7.12 ± 0.20	9 ± 1	< 14	406 ± 48	4.8 ± 0.6	0.94 ± 0.07	98 ± 4
	6	< 2.8	7.72 ± 0.22	3.81 ± 0.48	< 14	498 ± 44	2.0 ± 0.6	0.79 ± 0.06	103 ± 5
65	0	< 3.6	8.24 ± 0.23	5.0 ± 0.6	< 15	370 ± 90	2.07 ± 0.37	0.80 ± 0.06	84 ± 4
	6	< 2.7	8.53 ± 0.24	3.12 ± 0.44	< 10	373 ± 33	1.08 ± 0.28	0.84 ± 0.06	87 ± 4
66	0	< 4.8	5.92 ± 0.18	9.9 ± 1.1	< 17	430 ± 50	4.8 ± 0.6	1.60 ± 0.11	66 ± 4
		< 3.4	7.87 ± 0.23	9 ± 1	< 12	359 ± 39	3.71 ± 0.48	1.03 ± 0.14	89 ± 4
		< 3.3	6.26 ± 0.19	10.6 ± 1.2	< 16	358 ± 37	5.2 ± 0.6	1.27 ± 0.10	75 ± 4
	6	< 2.9	8.89 ± 0.25	3.14 ± 0.43	< 15	380 ± 80	3.4 ± 0.5	1.01 ± 0.07	114 ± 5
		< 3.9	8.80 ± 0.25	1.63 ± 0.38	< 17	311 ± 41	2.7 ± 0.6	1.22 ± 0.08	97 ± 5
		< 3.3	8.83 ± 0.25	2.74 ± 0.44	< 12	350 ± 70	3.37 ± 0.47	1.19 ± 0.08	103 ± 5
67	0	< 3	7.85 ± 0.22	6.5 ± 0.8	< 15	443 ± 35	3.3 ± 0.6	1.28 ± 0.09	124 ± 6
	6	< 3.2	8.62 ± 0.24	2.82 ± 0.42	< 16	419 ± 38	4.5 ± 0.6	1.40 ± 0.09	126 ± 6
68	0	< 4.1	6.80 ± 0.20	8.3 ± 1.3	< 18	450 ± 70	7.5 ± 0.9	1.26 ± 0.09	79 ± 4
	6	< 3.2	8.20 ± 0.23	5.4 ± 0.7	< 13	380 ± 38	5.5 ± 0.8	1.08 ± 0.07	90 ± 4
69	0	< 2.9	7.53 ± 0.22	5.8 ± 0.7	< 16	381 ± 35	4.9 ± 0.6	1.30 ± 0.09	109 ± 5
	6	< 3.2	8.31 ± 0.23	2.76 ± 0.41	< 16	311 ± 34	5.1 ± 0.6	0.96 ± 0.07	123 ± 6
70	0	< 4.2	5.54 ± 0.17	7.5 ± 0.9	< 16	326 ± 47	8.0 ± 0.9	1.15 ± 0.10	47 ± 2
		< 3.4	6.06 ± 0.19	7.5 ± 0.8	< 11	337 ± 38	6.9 ± 0.8	1.38 ± 0.11	57 ± 3
		< 3.1	7.96 ± 0.36	7.6 ± 0.9	< 16	419 ± 48	2.42 ± 0.38	0.78 ± 0.07	78 ± 4
	6	< 2.9	8.66 ± 0.24	2.76 ± 0.42	< 15	520 ± 90	6.5 ± 0.8	1.16 ± 0.08	86 ± 4
		< 3.3	8.30 ± 0.23	3.06 ± 0.46	< 15	428 ± 45	5.8 ± 1.0	0.86 ± 0.07	69 ± 3
		< 2.8	8.63 ± 0.24	2.82 ± 0.44	< 11	415 ± 35	4.3 ± 0.5	0.94 ± 0.07	79 ± 4
71	0	< 3	7.12 ± 0.21	8.2 ± 0.9	< 16	440 ± 70	3.4 ± 0.6	0.85 ± 0.07	87 ± 4
		< 3	6.9 ± 0.2	12 ± 1	< 10	390 ± 30	5.6 ± 0.7	1.06 ± 0.08	79 ± 4
		< 4	6.6 ± 0.2	9 ± 1	< 20	380 ± 70	3.4 ± 0.5	1.15 ± 0.08	87 ± 4
	6	< 3	8.3 ± 0.2	2.3 ± 0.4	< 10	400 ± 100	2.8 ± 0.5	0.77 ± 0.05	87 ± 4
		< 2	8.7 ± 0.2	1.9 ± 0.4	< 10	420 ± 50	1.5 ± 0.4	0.88 ± 0.06	77 ± 3
		< 2	8.6 ± 0.2	1.3 ± 0.3	< 10	370 ± 80	2.6 ± 0.6	0.93 ± 0.07	66 ± 3
72	0	< 4	5.7 ± 0.2	4.7 ± 0.6	< 20	420 ± 40	3.8 ± 0.6	1.03 ± 0.08	81 ± 4
	6	< 2	7.4 ± 0.2	1.9 ± 0.3	< 10	400 ± 60	< 3	0.86 ± 0.06	93 ± 4
73	0	< 3	7.0 ± 0.2	6.1 ± 0.7	< 10	500 ± 90	2.8 ± 0.4	1.00 ± 0.08	61 ± 3
	6	< 3	7.5 ± 0.2	2.9 ± 0.4	< 10	480 ± 60	3.1 ± 0.4	0.73 ± 0.05	73 ± 3

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
61	0	180 ± 60	6.15 ± 0.33	0.37 ± 0.2	25.3 ± 1.7	5.4 ± 0.32	< 310	9.5 ± 0.9	1.02 ± 0.07
	6	66 ± 19	5.93 ± 0.34	< 0.2	27.2 ± 1.8	5.06 ± 0.29	< 250	11.2 ± 0.9	1.00 ± 0.06
62	0	< 100	6.73 ± 0.36	0.18 ± 0.2	27.9 ± 1.8	5.61 ± 0.36	< 310	13.9 ± 1.1	1.03 ± 0.07
	6	< 110	5.69 ± 0.31	0.25 ± 0.2	27.2 ± 1.8	5.32 ± 0.32	< 240	12.9 ± 1.0	1.17 ± 0.07
63	0	130 ± 50	4.60 ± 0.26	0.13 ± 0.2	18.0 ± 1.3	4.41 ± 0.39	< 300	13.5 ± 1.1	0.94 ± 0.04
	6	100 ± 40	4.02 ± 0.24	0.15 ± 0.2	55.3 ± 3.4	4.06 ± 0.27	< 240	14.4 ± 1.1	1.06 ± 0.07
64	0	90 ± 50	5.61 ± 0.31	0.17 ± 0.2	26.0 ± 1.7	4.92 ± 0.29	< 300	10.8 ± 1.2	1.16 ± 0.07
	6	< 110	5.94 ± 0.33	0.18 ± 0.2	32.4 ± 2.0	5.43 ± 0.33	< 240	12.1 ± 1.0	1.23 ± 0.09
65	0	< 100	4.49 ± 0.24	0.15 ± 0.2	17.3 ± 1.3	4.70 ± 0.31	< 270	12.3 ± 1.0	1.04 ± 0.06
	6	60 ± 40	4.19 ± 0.24	0.18 ± 0.2	19.1 ± 1.3	4.68 ± 0.30	< 230	12.3 ± 0.9	1.11 ± 0.07
66	0	147 ± 28	6.39 ± 0.35	0.11 ± 0.2	23.0 ± 1.7	5.36 ± 0.45	< 430	7.9 ± 0.9	0.96 ± 0.09
		< 160	5.42 ± 0.33	0.13 ± 0.2	21.3 ± 1.6	5.10 ± 0.30	< 340	11.0 ± 0.9	1.05 ± 0.07
		290 ± 70	6.28 ± 0.34	0.16 ± 0.2	22.5 ± 1.5	5.06 ± 0.30	< 440	9.8 ± 0.9	0.91 ± 0.07
	6	80 ± 40	5.06 ± 0.28	0.13 ± 0.2	39.5 ± 2.5	5.13 ± 0.30	< 250	16.6 ± 1.3	1.29 ± 0.06
		70 ± 50	4.17 ± 0.23	0.19 ± 0.2	24.7 ± 1.7	4.23 ± 0.30	< 290	18.6 ± 1.4	1.31 ± 0.09
		190 ± 70	4.55 ± 0.27	0.13 ± 0.2	36.2 ± 2.3	4.42 ± 0.26	< 280	15.4 ± 1.2	1.26 ± 0.07
67	0	140 ± 60	5.91 ± 0.31	0.12 ± 0.2	22.6 ± 1.5	4.94 ± 0.3	< 350	15.6 ± 1.2	1.53 ± 0.11
	6	< 130	5.94 ± 0.32	0.14 ± 0.2	28.5 ± 1.9	4.92 ± 0.29	< 280	13.2 ± 1.2	1.30 ± 0.07
68	0	< 150	5.68 ± 0.31	0.17 ± 0.2	23.5 ± 1.7	4.74 ± 0.28	< 400	11.5 ± 1.1	1.00 ± 0.06
	6	137 ± 27	4.37 ± 0.27	0.2 ± 0.2	28.3 ± 1.9	4.34 ± 0.26	< 290	15.2 ± 1.2	1.11 ± 0.08

Table C-XI. Individual Elemental Concentration in Soils under Helen's Dome White Pines, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
69	0	180 ± 70	5.79 ± 0.31	0.18 ± 0.2	21.8 ± 1.5	4.78 ± 0.30	< 360	12.2 ± 1.0	1.19 ± 0.06
	6	110 ± 40	6.25 ± 0.34	0.19 ± 0.2	25.4 ± 1.7	5.13 ± 0.34	< 270	14.3 ± 1.2	1.36 ± 0.09
70	0	69 ± 21	4.84 ± 0.28	0.16 ± 0.2	19.0 ± 1.5	4.81 ± 0.30	< 480	7.0 ± 0.9	0.70 ± 0.07
		340 ± 90	5.27 ± 0.35	0.44 ± 0.2	21.4 ± 1.5	4.81 ± 0.28	< 490	8.9 ± 0.8	0.75 ± 0.06
		150 ± 80	6.10 ± 0.33	0.35 ± 0.2	22.9 ± 1.5	6.03 ± 0.37	< 440	9.1 ± 0.8	0.99 ± 0.07
	6	70 ± 50	4.96 ± 0.27	0.15 ± 0.2	23.3 ± 1.5	5.56 ± 0.36	< 280	10.6 ± 0.8	1.13 ± 0.08
		< 110	4.52 ± 0.24	0.24 ± 0.2	19.5 ± 1.3	4.64 ± 0.27	< 290	9.8 ± 0.9	1.02 ± 0.07
		< 130	4.79 ± 0.27	0.09 ± 0.1	27.2 ± 1.8	5.14 ± 0.29	< 280	11.5 ± 1.0	1.08 ± 0.07
71	0	170 ± 70	5.11 ± 0.29	0.29 ± 0.2	22.1 ± 1.6	4.54 ± 0.27	< 300	11.0 ± 1.7	1.16 ± 0.08
		120 ± 50	4.9 ± 0.3	0.36 ± 0.2	22 ± 1	4.8 ± 0.3	< 300	12.5 ± 1.0	1.08 ± 0.07
		< 100	4.7 ± 0.3	0.18 ± 0.2	19 ± 1	4.7 ± 0.3	< 400	16 ± 2	1.22 ± 0.09
	6	80 ± 20	3.9 ± 0.2	0.57 ± 0.2	19 ± 1	4.4 ± 0.3	< 300	14 ± 1	1.07 ± 0.08
		< 100	4.2 ± 0.2	0.2 ± 0.2	56 ± 3	4.2 ± 0.2	< 300	19 ± 1	1.04 ± 0.07
		100 ± 50	3.7 ± 0.2	0.15 ± 0.1	21 ± 1	3.8 ± 0.2	< 300	14 ± 1	0.92 ± 0.05
72	0	80 ± 50	4.8 ± 0.3	0.07 ± 0.1	21 ± 1	4.2 ± 0.3	< 300	11 ± 1	1.01 ± 0.05
	6	< 100	3.5 ± 0.2	0.09 ± 0.1	21 ± 1	3.8 ± 0.2	< 300	13 ± 1	1.08 ± 0.07
73	0	< 100	4.9 ± 0.3	0.18 ± 0.2	21 ± 1	4.6 ± 0.3	< 300	15 ± 2	0.92 ± 0.08
	6	40 ± 40	3.9 ± 0.2	0.09 ± 0.1	23 ± 2	4.3 ± 0.3	< 300	15 ± 1	0.95 ± 0.08

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ng/g)	I (ug/g)	In (ng/g)	K (%)
61	0	---	2.27 ± 0.12	17 ± 4	6.7 ± 0.5	< 800	< 27	< 300	3.09 ± 0.20
	6	---	2.56 ± 0.13	22 ± 4	8.81 ± 0.46	< 500	< 19	< 230	3.24 ± 0.21
62	0	---	2.49 ± 0.13	14 ± 3	8.7 ± 0.6	< 500	< 20	< 220	3.14 ± 0.20
	6	---	2.35 ± 0.12	21 ± 3	7.6 ± 0.7	< 500	< 22	< 240	3.25 ± 0.21
63	0	---	1.61 ± 0.08	25 ± 4	8.18 ± 0.33	< 700	< 24	< 290	3.66 ± 0.23
	6	---	1.67 ± 0.09	17 ± 3	8.27 ± 0.38	< 470	< 18	< 220	3.58 ± 0.23
64	0	---	2.01 ± 0.10	17 ± 4	9.3 ± 0.5	< 490	< 19	< 220	2.90 ± 0.19
	6	---	2.21 ± 0.11	16 ± 3	7.7 ± 0.7	< 500	< 19	< 230	3.01 ± 0.19
65	0	---	1.79 ± 0.09	19 ± 4	7.36 ± 0.33	< 700	< 19	< 260	3.24 ± 0.21
	6	---	1.79 ± 0.09	25 ± 4	7.68 ± 0.43	< 450	< 15	< 210	3.38 ± 0.22
66	0	---	1.87 ± 0.10	< 22	5.6 ± 0.6	< 900	< 41	< 420	1.95 ± 0.13
		---	1.97 ± 0.10	22 ± 4	7.59 ± 0.35	< 600	< 28	< 310	2.64 ± 0.17
		---	1.95 ± 0.10	12 ± 3	7.33 ± 0.35	< 600	< 32	< 320	2.25 ± 0.16
	6	---	2.23 ± 0.12	22 ± 4	8.15 ± 0.34	< 600	< 22	< 260	3.19 ± 0.21
		---	1.98 ± 0.10	< 24	9.6 ± 1.0	< 700	< 21	< 280	3.09 ± 0.20
		---	2.11 ± 0.11	26 ± 5	8.19 ± 0.34	< 600	< 19	< 250	2.87 ± 0.19
67	0	---	2.52 ± 0.13	16 ± 4	10.9 ± 0.6	< 500	< 23	< 260	2.64 ± 0.17
	6	---	2.44 ± 0.13	21 ± 4	8.84 ± 0.42	< 600	< 24	< 280	2.80 ± 0.18
68	0	---	2.06 ± 0.11	< 25	9.07 ± 0.48	< 800	< 35	< 380	2.15 ± 0.15
	6	---	2.20 ± 0.11	24 ± 4	9.71 ± 0.48	< 500	< 20	< 260	2.46 ± 0.17
69	0	---	2.15 ± 0.11	16 ± 4	8.00 ± 0.32	< 500	< 23	< 260	2.41 ± 0.16
	6	---	2.49 ± 0.13	< 22	7.6 ± 0.6	< 600	< 23	< 270	2.41 ± 0.16
70	0	---	1.49 ± 0.08	< 24	6.5 ± 1.3	< 800	< 46	< 450	2.14 ± 0.15
		---	1.65 ± 0.08	< 22	6.72 ± 0.32	< 600	< 47	< 440	2.12 ± 0.14
		---	2.0 ± 0.1	< 23	8.3 ± 0.5	< 600	< 40	< 300	2.84 ± 0.19
	6	---	1.96 ± 0.10	< 21	7.8 ± 0.7	< 500	< 24	< 280	3.19 ± 0.21
		---	1.64 ± 0.08	< 22	6.8 ± 0.7	< 600	< 23	< 280	3.36 ± 0.21
		---	1.85 ± 0.09	18 ± 4	8.15 ± 0.38	< 480	< 21	< 250	3.16 ± 0.20
71	0	---	1.87 ± 0.10	< 23	9.2 ± 0.7	< 600	< 27	< 290	3.12 ± 0.21
		---	1.78 ± 0.09	< 20	8.7 ± 0.9	< 600	< 30	< 300	3.0 ± 0.2
		---	1.69 ± 0.09	16 ± 5	9.4 ± 0.9	< 800	< 40	< 300	3.2 ± 0.2
	6	---	1.75 ± 0.09	23 ± 4	8.3 ± 0.3	< 500	< 20	< 300	3.4 ± 0.2
		---	1.78 ± 0.09	12 ± 3	9.3 ± 0.4	< 400	< 20	< 300	3.8 ± 0.2
		---	1.66 ± 0.09	< 20	7.4 ± 0.3	< 400	< 30	< 200	3.6 ± 0.2
72	0	---	1.58 ± 0.08	20 ± 4	8.5 ± 0.3	< 700	< 40	< 300	3.0 ± 0.2
	6	---	1.46 ± 0.07	10 ± 3	10.1 ± 0.5	< 400	< 20	< 300	3.5 ± 0.2
73	0	---	1.94 ± 0.10	< 20	13.0 ± 0.9	< 500	< 30	< 300	3.8 ± 0.2
	6	---	1.84 ± 0.10	16 ± 3	12.8 ± 0.7	< 500	< 20	< 200	4.1 ± 0.3

Table C-XI. Individual Elemental Concentration in Soils under Helen's Dome White Pines, Saguaro National Monument (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ng/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
61	0	29.9 ± 1.6	1440 ± 70	3200 ± 600	1360 ± 60	1.37 ± 0.06	37 ± 8	---	189 ± 9
	6	36.3 ± 2.1	1680 ± 80	4000 ± 600	886 ± 35	1.44 ± 0.06	35 ± 6	---	200 ± 10
62	0	35.5 ± 2.2	1980 ± 90	2740 ± 500	1250 ± 60	1.61 ± 0.07	36 ± 6	---	185 ± 9
	6	40.8 ± 2.2	1820 ± 90	4800 ± 600	1110 ± 50	1.68 ± 0.08	73 ± 9	---	172 ± 8
63	0	31.5 ± 1.8	1810 ± 90	3200 ± 1300	1280 ± 60	1.74 ± 0.07	38 ± 7	---	189 ± 9
	6	38.4 ± 2.2	1990 ± 90	3600 ± 600	680 ± 30	1.83 ± 0.08	32 ± 5	---	196 ± 9
64	0	44.3 ± 2.7	1600 ± 80	3500 ± 500	1000 ± 50	1.78 ± 0.08	50 ± 7	---	155 ± 8
	6	44.3 ± 2.3	1600 ± 70	3800 ± 600	580 ± 30	1.99 ± 0.09	63 ± 8	---	160 ± 8
65	0	38.5 ± 2.1	1620 ± 80	3100 ± 600	740 ± 30	1.99 ± 0.08	39 ± 7	---	178 ± 9
	6	38.8 ± 2.2	1730 ± 80	3500 ± 500	640 ± 30	2.11 ± 0.09	39 ± 5	---	209 ± 10
66	0	32.5 ± 1.7	960 ± 50	< 3700	2390 ± 110	1.29 ± 0.05	37 ± 9	---	150 ± 8
		38.9 ± 2.1	1440 ± 70	4200 ± 700	1710 ± 80	2.02 ± 0.09	38 ± 7	---	191 ± 10
		32.7 ± 1.8	1240 ± 60	3700 ± 700	2330 ± 100	1.52 ± 0.07	40 ± 7	---	151 ± 8
	6	47.3 ± 2.5	1990 ± 90	4500 ± 600	1640 ± 70	2.39 ± 0.11	68 ± 9	---	194 ± 9
		43.6 ± 2.4	2080 ± 100	3100 ± 500	860 ± 40	2.44 ± 0.10	53 ± 8	---	177 ± 9
		47.6 ± 2.7	1840 ± 90	3500 ± 700	610 ± 30	2.42 ± 0.10	44 ± 6	---	208 ± 10
67	0	53.5 ± 3.2	1950 ± 90	2900 ± 600	1450 ± 70	2.12 ± 0.09	64 ± 8	---	170 ± 8
	6	50.8 ± 2.8	1680 ± 80	4600 ± 700	1120 ± 50	2.33 ± 0.10	72 ± 9	---	162 ± 8
68	0	37.6 ± 2.0	1900 ± 90	3900 ± 800	2040 ± 90	2.02 ± 0.08	42 ± 8	---	149 ± 8
	6	43.0 ± 2.2	2270 ± 110	3700 ± 700	780 ± 40	2.53 ± 0.11	47 ± 6	---	175 ± 9
69	0	48.6 ± 2.9	1520 ± 70	< 2100	1590 ± 70	2.10 ± 0.09	65 ± 8	---	152 ± 8
	6	50.5 ± 2.7	1780 ± 80	5100 ± 700	790 ± 40	2.27 ± 0.10	66 ± 8	---	148 ± 7
70	0	23.6 ± 1.3	747 ± 40	< 4100	3140 ± 140	1.28 ± 0.05	25 ± 8	---	119 ± 7
		25.4 ± 1.5	1270 ± 60	3000 ± 700	3770 ± 170	1.43 ± 0.06	21 ± 6	---	140 ± 7
		32.5 ± 1.8	1320 ± 60	< 2800	2440 ± 110	1.99 ± 0.09	33 ± 6	---	171 ± 9
	6	36 ± 2	1450 ± 70	3800 ± 600	1140 ± 50	2.23 ± 0.10	40 ± 7	---	170 ± 8
		32.8 ± 1.8	1230 ± 60	2500 ± 500	1210 ± 50	2.08 ± 0.09	32 ± 6	---	182 ± 9
		37.3 ± 2.1	1570 ± 70	4000 ± 600	1170 ± 50	2.26 ± 0.10	26 ± 4	---	196 ± 9
71	0	36.6 ± 2.1	1810 ± 90	2800 ± 600	1640 ± 70	1.94 ± 0.08	41 ± 7	---	186 ± 9
		36 ± 2	1670 ± 80	2900 ± 500	1300 ± 60	1.85 ± 0.09	35 ± 5	---	152 ± 7
		40 ± 2	2010 ± 100	2900 ± 500	1140 ± 50	2.15 ± 0.09	42 ± 6	---	181 ± 9
	6	39 ± 2	1870 ± 90	2600 ± 500	670 ± 30	2.28 ± 0.10	31 ± 4	---	189 ± 9
		36 ± 2	2300 ± 100	2100 ± 400	930 ± 40	2.32 ± 0.08	36 ± 4	---	197 ± 9
		30 ± 2	1970 ± 90	3700 ± 900	1160 ± 50	2.37 ± 0.08	21 ± 3	---	175 ± 8
72	0	39 ± 2	1500 ± 70	1200 ± 400	1530 ± 70	1.98 ± 0.08	24 ± 4	---	151 ± 8
	6	40 ± 2	1990 ± 90	2400 ± 500	700 ± 30	2.26 ± 0.09	35 ± 4	---	195 ± 9
73	0	28 ± 2	2500 ± 100	< 2000	1760 ± 80	1.40 ± 0.06	25 ± 5	---	202 ± 10
	6	34 ± 2	2300 ± 100	< 2000	770 ± 30	1.54 ± 0.07	26 ± 3	---	201 ± 9

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
61	0	1.07 ± 0.12	8.95 ± 0.4[illegible]	1.5 ± 0.6	---	6.22 ± 0.29	< 400	1.16 ± 0.11	1.25 ± 0.12
	6	0.48 ± 0.08	10.1 ± 0.5	1.1 ± 0.8	---	7.64 ± 0.35	< 280	1.31 ± 0.09	1.48 ± 0.14
62	0	0.63 ± 0.09	9.9 ± 0.5	1.6 ± 1.0	---	7.65 ± 0.35	< 320	1.33 ± 0.09	1.88 ± 0.18
	6	0.45 ± 0.08	9.6 ± 0.5	< 3.4	---	8.50 ± 0.39	< 360	1.45 ± 0.10	1.63 ± 0.15
63	0	0.67 ± 0.11	8.36 ± 0.44	2.3 ± 0.8	---	7.23 ± 0.34	< 300	1.18 ± 0.08	1.72 ± 0.16
	6	0.25 ± 0.07	8.75 ± 0.46	1.3 ± 1.0	---	8.73 ± 0.40	< 270	1.33 ± 0.10	1.78 ± 0.17
64	0	0.76 ± 0.11	9.07 ± 0.48	2.0 ± 1.2	---	9.44 ± 0.43	< 310	1.24 ± 0.09	1.72 ± 0.16
	6	0.43 ± 0.08	10.3 ± 0.6	2.5 ± 0.8	---	8.8 ± 0.4	< 300	1.20 ± 0.09	1.58 ± 0.15
65	0	0.82 ± 0.11	9.8 ± 0.5	< 3.8	---	8.67 ± 0.4	< 300	1.93 ± 0.15	1.66 ± 0.15
	6	0.42 ± 0.10	10.5 ± 0.6	1.8 ± 0.6	---	8.55 ± 0.39	< 230	1.04 ± 0.07	1.60 ± 0.15
66	0	1.84 ± 0.16	8.33 ± 0.45	< 4.8	---	6.17 ± 0.28	< 700	1.78 ± 0.12	1.18 ± 0.14
		0.68 ± 0.12	10.0 ± 0.5	0.8 ± 0.4	---	7.98 ± 0.36	< 410	1.12 ± 0.08	1.49 ± 0.14
		1.21 ± 0.14	8.86 ± 0.47	1.4 ± 0.8	---	6.43 ± 0.29	< 500	0.95 ± 0.07	1.50 ± 0.15
	6	< 0.37	11.9 ± 0.6	0.9 ± 0.5	---	10.5 ± 0.48	< 350	1.40 ± 0.11	2.15 ± 0.20
		< 0.41	11.5 ± 0.6	1.4 ± 1.1	---	10.2 ± 0.47	< 300	1.77 ± 0.12	2.23 ± 0.21
		0.40 ± 0.11	12.5 ± 0.7	2.1 ± 0.7	---	11.0 ± 0.5	< 280	1.58 ± 0.11	1.88 ± 0.17
67	0	0.71 ± 0.11	12.3 ± 0.7	1.1 ± 1.0	---	11.6 ± 0.5	< 300	1.18 ± 0.08	2.26 ± 0.22
	6	0.30 ± 0.07	13.3 ± 0.7	0.9 ± 0.7	---	11.0 ± 0.5	< 300	1.3 ± 0.2	1.92 ± 0.21
68	0	1.12 ± 0.14	8.67 ± 0.47	2.8 ± 0.9	---	7.62 ± 0.35	< 500	1.22 ± 0.09	1.51 ± 0.14
	6	0.77 ± 0.12	10.6 ± 0.6	2.9 ± 0.8	---	9.14 ± 0.42	< 300	1.42 ± 0.10	1.83 ± 0.17

Table C-XI. Individual Elemental Concentration in Soils under Helen's Dome White Pines, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
69	0	0.65 ± 0.12	10.3 ± 0.5	1.4 ± 0.6	---	10.4 ± 0.48	< 370	1.05 ± 0.07	1.78 ± 0.16
	6	< 0.36	11.9 ± 0.6	0.7 ± 0.5	---	10.9 ± 0.5	< 300	1.32 ± 0.09	1.81 ± 0.17
70	0	1.61 ± 0.16	6.62 ± 0.36	1.2 ± 0.7	---	4.35 ± 0.20	< 800	0.90 ± 0.07	0.78 ± 0.08
		1.60 ± 0.14	7.28 ± 0.40	1.6 ± 0.9	---	4.89 ± 0.22	< 700	1.05 ± 0.09	0.97 ± 0.10
		0.67 ± 0.12	10.1 ± 0.5	< 3	---	6.86 ± 0.32	< 500	1.20 ± 0.08	1.34 ± 0.14
	6	0.42 ± 0.09	10.4 ± 0.6	< 3.5	---	7.26 ± 0.33	< 300	1.32 ± 0.09	1.45 ± 0.14
		0.39 ± 0.08	9.21 ± 0.49	< 3.6	---	6.78 ± 0.32	< 390	1.22 ± 0.08	1.38 ± 0.14
		0.42 ± 0.08	10.3 ± 0.6	1.6 ± 1.1	---	7.50 ± 0.34	< 310	1.36 ± 0.10	1.50 ± 0.14
71	0	1.05 ± 0.13	8.61 ± 0.46	< 3	---	8.11 ± 0.37	< 400	0.92 ± 0.07	1.81 ± 0.18
		1.5 ± 0.1	8.2 ± 0.4	1.7 ± 0.6	---	7.6 ± 0.3	< 400	0.98 ± 0.08	1.6 ± 0.2
		0.7 ± 0.1	8.9 ± 0.5	2 ± 1	---	9.4 ± 0.4	< 400	1.3 ± 0.1	2.0 ± 0.2
	6	0.37 ± 0.08	10.2 ± 0.5	1.8 ± 0.7	---	8.5 ± 0.4	< 300	1.04 ± 0.08	1.8 ± 0.2
		< 0.3	9.9 ± 0.5	3.4 ± 0.9	---	9.6 ± 0.4	< 200	1.33 ± 0.09	1.8 ± 0.2
		< 0.3	9.0 ± 0.5	1.0 ± 0.5	---	6.6 ± 0.3	< 300	1.09 ± 0.08	1.7 ± 0.2
72	0	0.8 ± 0.1	7.7 ± 0.4	< 4	---	8.6 ± 0.4	< 400	1.23 ± 0.09	1.5 ± 0.1
	6	< 0.3	8.2 ± 0.4	3.0 ± 0.8	---	8.4 ± 0.4	< 300	1.31 ± 0.09	1.9 ± 0.2
73	0	0.72 ± 0.10	8.5 ± 0.5	< 3	---	7.3 ± 0.3	< 400	1.6 ± 0.1	1.8 ± 0.2
	6	0.37 ± 0.07	9.0 ± 0.5	< 3	---	6.5 ± 0.3	< 300	1.6 ± 0.1	1.8 ± 0.2

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
61	0	12.3 ± 0.5	2400 ± 300	2.85 ± 0.11	40.8 ± 3.0	< 4.8	9.5 ± 0.5	69 ± 10	340 ± 80
	6	14.4 ± 0.6	3340 ± 470	3.78 ± 0.14	48.7 ± 2.8	2.1 ± 0.7	11.6 ± 0.6	32 ± 20	190 ± 45
62	0	15.5 ± 0.6	3180 ± 450	4.71 ± 0.17	49.2 ± 3.2	< 4.7	13.2 ± 0.7	70 ± 10	490 ± 100
	6	16.5 ± 0.7	2670 ± 410	4.97 ± 0.17	42.0 ± 2.6	< 4.5	12.3 ± 0.6	52 ± 8	197 ± 41
63	0	14.0 ± 0.5	1880 ± 310	3.40 ± 0.13	29.9 ± 2.6	< 4.9	12.1 ± 0.7	56 ± 8	340 ± 140
	6	16.2 ± 0.6	2820 ± 400	4.96 ± 0.17	27.9 ± 2.2	< 4.7	14.4 ± 0.7	25 ± 16	216 ± 46
64	0	18.3 ± 0.7	3080 ± 430	4.83 ± 0.17	41.1 ± 2.8	< 4.9	11.0 ± 0.6	58 ± 8	610 ± 150
	6	17.7 ± 0.7	3150 ± 430	3.72 ± 0.13	39.4 ± 2.4	< 4.9	11.0 ± 0.6	56 ± 8	230 ± 70
65	0	16.3 ± 0.6	2730 ± 410	5.88 ± 0.21	38.8 ± 2.7	< 5	11.4 ± 0.6	52 ± 7	560 ± 110
	6	17.0 ± 0.7	2630 ± 360	3.88 ± 0.14	33.2 ± 2.2	< 4.8	11.6 ± 0.6	28 ± 14	200 ± 60
66	0	12.4 ± 0.5	2900 ± 600	4.98 ± 0.18	33.8 ± 3.8	2.1 ± 0.7	7.18 ± 0.5	78 ± 11	390 ± 100
		17.0 ± 0.7	2520 ± 430	3.30 ± 0.12	32.9 ± 3.0	< 6	10.1 ± 0.5	72 ± 24	212 ± 48
		13.9 ± 1.2	2520 ± 460	3.03 ± 0.12	26.9 ± 3.4	< 6	8.38 ± 0.47	106 ± 14	490 ± 110
	6	22.7 ± 0.9	2690 ± 400	4.74 ± 0.17	30.9 ± 2.4	4.4 ± 2.8	14.6 ± 0.7	70 ± 10	160 ± 60
		21.0 ± 0.8	2680 ± 380	4.90 ± 0.17	32.2 ± 2.5	< 6	16.4 ± 0.8	55 ± 8	450 ± 90
		23.5 ± 0.9	2880 ± 420	4.66 ± 0.17	30.2 ± 2.4	3.4 ± 1.6	14.0 ± 0.7	56 ± 19	209 ± 48
67	0	25.1 ± 1.0	2720 ± 420	4.30 ± 0.15	37 ± 3	< 5	13.5 ± 0.7	74 ± 10	690 ± 110
	6	25 ± 1	2910 ± 430	4.34 ± 0.16	36.2 ± 2.7	< 6	11.9 ± 0.6	68 ± 10	280 ± 50
68	0	15.9 ± 0.6	3200 ± 500	3.51 ± 0.13	38.1 ± 3.6	< 6	14.4 ± 0.7	83 ± 11	490 ± 150
	6	19.8 ± 0.8	2910 ± 410	4.33 ± 0.16	40.5 ± 2.5	< 6	16.1 ± 0.8	57 ± 20	310 ± 60
69	0	20.4 ± 0.8	2630 ± 400	4.23 ± 0.15	36.9 ± 2.9	< 6	10.8 ± 0.6	87 ± 12	530 ± 140
	6	22.2 ± 0.9	3070 ± 440	4.37 ± 0.16	39.5 ± 2.8	6.0 ± 2.8	12.3 ± 0.6	70 ± 10	207 ± 42
70	0	9.77 ± 0.39	1800 ± 500	2.95 ± 0.12	26.6 ± 3.7	1.4 ± 0.6	5.95 ± 0.35	82 ± 12	250 ± 80
		11.0 ± 0.4	2500 ± 600	3.49 ± 0.13	33.2 ± 4.7	< 6	9.6 ± 0.5	63 ± 31	210 ± 50
		17.6 ± 0.7	2420 ± 440	3.53 ± 0.13	34.0 ± 3.5	3.0 ± 2.6	8.96 ± 0.49	68 ± 9	520 ± 100
	6	19.1 ± 0.8	2790 ± 420	3.70 ± 0.13	37.2 ± 2.7	< 5	10.1 ± 0.5	< 10	213 ± 40
		16.1 ± 0.6	2600 ± 400	3.44 ± 0.12	26.9 ± 2.4	< 5	9.41 ± 0.5	37 ± 6	340 ± 70
		18.5 ± 0.7	2760 ± 410	3.87 ± 0.14	35.2 ± 2.9	2.9 ± 0.8	12.0 ± 0.7	68 ± 9	520 ± 100
71	0	16.4 ± 0.6	2520 ± 400	3.17 ± 0.12	38.3 ± 3.5	< 6	12.6 ± 0.7	90 ± 12	450 ± 90
		14.7 ± 0.6	2800 ± 500	3.4 ± 0.1	34 ± 3	3 ± 2	12.1 ± 0.6	80 ± 10	260 ± 40
		16.3 ± 0.6	2200 ± 400	4.8 ± 0.2	23 ± 2	2.5 ± 1.0	14.7 ± 0.8	60 ± 9	290 ± 50
	6	17.1 ± 0.7	2700 ± 400	4.2 ± 0.1	29 ± 2	< 5	13.5 ± 0.7	30 ± 20	260 ± 70
		16.0 ± 0.6	2800 ± 400	4.8 ± 0.2	23 ± 2	< 5	16.4 ± 0.8	49 ± 7	240 ± 40
		14.9 ± 0.6	2100 ± 300	3.6 ± 0.1	22 ± 2	< 5	14.0 ± 0.7	44 ± 6	210 ± 30
72	0	14.9 ± 0.6	2600 ± 400	3.4 ± 0.1	27 ± 2	< 6	10.3 ± 0.5	36 ± 6	310 ± 50
	6	16.4 ± 0.6	3200 ± 400	4.6 ± 0.2	33 ± 2	< 5	13.8 ± 0.7	20 ± 20	390 ± 70
73	0	11.5 ± 0.4	3600 ± 500	3.8 ± 0.1	36 ± 3	< 5	17.3 ± 0.9	80 ± 10	330 ± 50
	6	12.9 ± 0.5	3300 ± 500	4.3 ± 0.1	30 ± 2	2.3 ± 0.7	16.2 ± 0.8	< 9	390 ± 50

Note: Severe growth depression observed in tree #'s 67 (4).

Table C-XII. Individual Elemental Concentration in Soils from Kiln Trail, Cactus Forest, RMD, Saguaro National Monument

Site #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
KT-3	0	---	6.8 ± 0.3	---	---	580 ± 80	---	16000 ± 1300	160 ± 11
		---	7.3 ± 0.5	---	---	580 ± 60	---	16300 ± 1300	131 ± 9
		---	7.4 ± 0.3	---	---	510 ± 50	---	12600 ± 900	135 ± 10
	6	---	7.1 ± 0.3	---	---	600 ± 80	---	22800 ± 1600	141 ± 10
		---	7.3 ± 0.3	---	---	560 ± 70	---	24300 ± 1800	139 ± 10
		---	7.1 ± 0.3	---	---	590 ± 70	---	27700 ± 1600	148 ± 10
	12	---	7.2 ± 0.3	---	---	540 ± 70	---	29600 ± 1800	160 ± 11
		---	7.3 ± 0.3	---	---	630 ± 80	---	23300 ± 1700	130 ± 9
		---	7.0 ± 0.3	---	---	570 ± 70	---	32700 ± 2000	133 ± 9
KT-1	0	---	6.7 ± 0.3	---	---	630 ± 60	---	22000 ± 1400	174 ± 12
		---	6.6 ± 0.3	---	---	620 ± 70	---	19900 ± 1400	139 ± 10
		---	6.8 ± 0.3	---	---	530 ± 90	---	10600 ± 1000	153 ± 11
	6	---	8.0 ± 0.3	---	---	680 ± 80	---	9200 ± 900	121 ± 9
	12	---	8.1 ± 0.3	---	---	590 ± 60	---	10600 ± 800	127 ± 9
Cement Residue from Storage Bunkers									
KT-1	0	---	2.91 ± 0.15	---	---	410 ± 50	---	85000 ± 4000	39 ± 3
Limestone near Kiln 1									
KT-1	0	---	0.67 ± 0.07	---	---	67 ± 12	---	328000 ± 18000	7.9 ± 0.6
		---	0.33 ± 0.05	---	---	68 ± 13	---	383000 ± 17000	3.5 ± 0.3
		---	0.22 ± 0.03	---	---	32 ± 11	---	378000 ± 17000	8.3 ± 0.6
		---	0.27 ± 0.05	---	---	20 ± 9	---	395000 ± 18000	4.0 ± 0.4
Slag Inside Kiln 1									
KT-1	0	---	7.8 ± 0.3	---	---	610 ± 70	---	23600 ± 1600	83 ± 6
		---	7.6 ± 0.3	---	---	610 ± 60	---	24400 ± 1500	86 ± 6
		---	7.5 ± 0.3	---	---	660 ± 70	---	27400 ± 1500	87 ± 6

Site #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
KT-3	0	< 140	7.94 ± 0.88	1.3 ± 0.2	40 ± 2	17.6 ± 1.31	---	14.3 ± 1.1	2.06 ± 0.15
		70 ± 30	6.65 ± 0.70	1.3 ± 0.2	39 ± 2	16.1 ± 1.18	---	12.8 ± 1.0	1.81 ± 0.13
		110 ± 30	7.41 ± 0.82	1.1 ± 0.2	32 ± 2	15.9 ± 1.18	---	12.4 ± 1.0	1.64 ± 0.12
	6	220 ± 40	7.50 ± 0.79	1.9 ± 0.2	38 ± 2	18.8 ± 1.4	---	9.8 ± 0.8	1.89 ± 0.14
		120 ± 50	7.56 ± 0.84	2.8 ± 0.2	44 ± 3	20.0 ± 1.46	---	8.5 ± 0.7	1.87 ± 0.14
		50 ± 40	7.44 ± 0.77	2.9 ± 0.2	37.9 ± 3.23	18.5 ± 1.88	---	10.6 ± 0.9	1.85 ± 0.16
	12	50 ± 30	8.12 ± 0.88	2.8 ± 0.2	40.4 ± 3.12	21.1 ± 1.5	---	10.2 ± 0.8	1.98 ± 0.17
		< 100	7.16 ± 0.74	2.7 ± 0.2	37.7 ± 3.26	18.9 ± 1.93	---	9.7 ± 0.8	1.70 ± 0.16
		< 100	7.45 ± 0.82	4 ± 1	37.7 ± 3.05	21.1 ± 1.54	---	10.6 ± 1.0	1.71 ± 0.15
KT-1	0	20 ± 30	4.39 ± 0.47	1.7 ± 0.2	39.5 ± 3.4	4.19 ± 0.39	---	14.6 ± 1.2	2.11 ± 0.18
		60 ± 40	5.0 ± 0.6	1.7 ± 0.2	33.7 ± 2.6	4.14 ± 0.38	---	13.8 ± 1.1	1.78 ± 0.16
		70 ± 50	5.19 ± 0.55	0.7 ± 0.2	34.2 ± 2.9	3.68 ± 0.33	---	11.7 ± 1.0	2.13 ± 0.19
	6	< 100	8.66 ± 0.95	0.4 ± 0.2	41.7 ± 3.35	6.22 ± 0.53	---	9.5 ± 0.8	1.85 ± 0.17
	12	20 ± 40	8.29 ± 0.85	0.5 ± 0.2	43.7 ± 3.67	6.24 ± 0.50	---	10.9 ± 0.9	1.68 ± 0.15
Cement Residue from Storage Bunkers									
KT-1	0	160 ± 50	0.46 ± 0.32	1.8 ± 0.2	6.52 ± 0.89	35 ± 2.5	---	3.4 ± 0.3	0.58 ± 0.06
Limestone near Kiln 1									
KT-1	0	< 50	0.34 ± 0.08	38.5 ± 1.0	12.3 ± 1.06	0.09 ± 0.04	---	< 3	0.09 ± 0.02
		10 ± 30	0.45 ± 0.19	44.5 ± 1.0	11.8 ± 0.93	0.13 ± 0.05	---	< 1.8	0.07 ± 0.02
		10 ± 30	0.30 ± 0.08	43 ± 1	6.88 ± 0.64	0.20 ± 0.06	---	< 1.7	0.13 ± 0.02
		< 30	0.23 ± 0.20	45.9 ± 1.0	20.4 ± 1.53	0.14 ± 0.06	---	< 1.9	0.09 ± 0.02
Slag Inside Kiln 1									
KT-1	0	< 130	8.16 ± 0.83	0.7 ± 0.2	39.2 ± 3.32	12.5 ± 0.9	---	7.0 ± 0.6	1.47 ± 0.13
		40 ± 40	8.55 ± 0.90	0.6 ± 0.2	40.5 ± 3.02	11.4 ± 0.84	---	7.1 ± 0.7	1.46 ± 0.13
		< 30	7.82 ± 0.80	0.4 ± 0.2	39.4 ± 3.32	12.7 ± 0.9	---	7.5 ± 0.7	1.41 ± 0.12

Table C-XII. Individual Elemental Concentration in Soils from Kiln Trail, Cactus Forest, RMD, Saguaro National Monument (cont.)

Site #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ng/g)	K (%)
KT-3	0	564 ± 56	3.26 ± 0.17	< 50	15.3 ± 1.1	---	---	< 180	2.7 ± 0.2
		130 ± 13	2.70 ± 0.17	< 40	11.5 ± 0.8	---	---	< 130	2.7 ± 0.2
		---	2.73 ± 0.14	< 30	12.9 ± 0.9	---	---	< 100	3.1 ± 0.3
	6	571 ± 57	2.80 ± 0.17	< 50	9.29 ± 0.68	---	---	< 120	2.9 ± 0.2
		---	2.71 ± 0.14	< 50	8.81 ± 0.65	---	---	< 190	3.4 ± 0.3
		---	2.68 ± 0.19	< 30	9.52 ± 0.96	---	---	< 110	2.8 ± 0.3
	12	357 ± 36	2.78 ± 0.19	< 40	9.25 ± 0.94	---	---	< 120	3.0 ± 0.2
		---	2.58 ± 0.18	< 50	8.54 ± 0.87	---	---	< 180	3.0 ± 0.3
		---	2.72 ± 0.19	< 40	9.51 ± 0.97	---	---	< 130	2.6 ± 0.2
KT-1	0	292 ± 29	2.56 ± 0.18	< 30	14.8 ± 1.4	---	---	< 120	2.7 ± 0.3
		---	2.51 ± 0.17	< 40	18.4 ± 1.8	---	---	< 110	2.7 ± 0.2
		---	2.50 ± 0.17	< 50	13.9 ± 1.4	---	---	< 180	2.6 ± 0.2
	6	406 ± 41	2.96 ± 0.21	< 40	12.8 ± 1.3	---	---	< 140	2.8 ± 0.2
	12	419 ± 42	2.95 ± 0.21	< 30	12.1 ± 1.2	---	---	< 110	2.9 ± 0.3
Cement Residue from Storage Bunkers									
KT-1	0	---	0.40 ± 0.03	< 40	4.84 ± 0.50	---	---	< 110	1.46 ± 0.17
Limestone near Kiln 1									
KT-1	0	110 ± 11	0.16 ± 0.01	< 30	1.22 ± 0.12	---	---	< 100	< 0.30
		< 100	0.11 ± 0.01	< 15	0.51 ± 0.06	---	---	< 50	< 0.14
		< 100	0.24 ± 0.02	< 11	0.44 ± 0.05	---	---	< 40	< 0.13
		100 ± 10	0.07 ± 0.01	< 16	0.24 ± 0.04	---	---	< 40	< 0.15
Slag Inside Kiln 1									
KT-1	0	< 100	2.70 ± 0.19	< 40	7.75 ± 0.78	---	---	< 170	3.3 ± 0.3
		< 100	2.78 ± 0.19	< 40	8.09 ± 0.82	---	---	< 120	2.7 ± 0.2
		100 ± 10	2.66 ± 0.18	< 30	7.07 ± 0.71	---	---	< 100	3.7 ± 0.4

Site #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
KT-3	0	---	---	8800 ± 1400	720 ± 30	14200 ± 600	---	8.1 ± 0.3	142 ± 15
		---	---	5700 ± 1200	640 ± 30	14800 ± 500	---	---	140 ± 15
		---	---	5300 ± 1000	610 ± 30	15200 ± 500	---	---	150 ± 16
	6	---	---	6400 ± 1400	680 ± 30	13500 ± 500	---	7.8 ± 0.3	136 ± 14
		---	---	6400 ± 1300	630 ± 30	14300 ± 500	---	---	163 ± 17
		---	---	7000 ± 1000	690 ± 30	13500 ± 500	---	---	155 ± 13
	12	---	---	7900 ± 1100	760 ± 30	13600 ± 500	---	7.5 ± 0.3	148 ± 13
		---	---	6500 ± 1500	680 ± 30	13800 ± 500	---	---	151 ± 13
		---	---	7900 ± 1300	610 ± 30	13500 ± 500	---	---	146 ± 13
KT-1	0	---	---	8100 ± 1200	780 ± 30	15900 ± 500	---	8.0 ± 0.3	113 ± 10
		---	---	6300 ± 1100	590 ± 30	16400 ± 600	---	---	110 ± 10
		---	---	< 4000	630 ± 30	17100 ± 600	---	---	117 ± 10
	6	---	---	5400 ± 1200	670 ± 30	13500 ± 500	---	7.7 ± 0.3	130 ± 12
	12	---	---	6900 ± 900	660 ± 30	13400 ± 500	---	7.8 ± 0.3	129 ± 11
Cement Residue from Storage Bunkers									
KT-1	0	---	---	< 3000	450 ± 20	11700 ± 400	---	---	77 ± 7
Limestone near Kiln 1									
KT-1	0	---	---	3600 ± 800	384 ± 18	44 ± 14	---	11.5 ± 0.3	7.3 ± 1.6
		---	---	2900 ± 500	90 ± 4	< 50	---	10.2 ± 0.3	3.0 ± 1.4
		---	---	3300 ± 400	103 ± 5	43 ± 10	---	9.9 ± 0.3	5.0 ± 1.6
		---	---	2600 ± 500	104 ± 6	62 ± 12	---	9.7 ± 0.3	6.2 ± 1.5
Slag Inside Kiln 1									
KT-1	0	---	---	9200 ± 1400	690 ± 30	14100 ± 500	---	9.7 ± 0.3	149 ± 13
		---	---	10300 ± 1400	690 ± 30	14300 ± 500	---	9.8 ± 0.3	144 ± 12
		---	---	12000 ± 1200	710 ± 30	13100 ± 500	---	10.4 ± 0.3	148 ± 12

Table C-XII. Individual Elemental Concentration in Soils from Kiln Trail, Cactus Forest, RMD, Saguaro National Monument (cont.)

Site #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
KT-3	0	1.42 ± 0.28	10 ± 1	...	28.4 ± 1.4	12.5 ± 1.25	< 300	1.53 ± 0.28	0.98 ± 0.24
		1.36 ± 0.24	9.06 ± 0.9	...	28.9 ± 1.5	10.3 ± 1.03	< 180	0.95 ± 0.19	1.59 ± 0.35
		1.77 ± 0.30	9.27 ± 0.93	...	27.9 ± 1.8	10.2 ± 1.03	< 190	1.32 ± 0.24	0.75 ± 0.19
	6	1.05 ± 0.23	9.86 ± 0.99	...	25.3 ± 2.0	11.1 ± 1.1	< 200	0.74 ± 0.16	1.55 ± 0.34
		1.66 ± 0.31	10.2 ± 1.0	...	28 ± 2	11.9 ± 1.2	< 300	1.20 ± 0.23	0.98 ± 0.23
		1.31 ± 0.23	10.1 ± 0.5	...	28.1 ± 1.6	12.5 ± 1.6	< 200	1.10 ± 0.14	2.03 ± 0.29
	12	1.69 ± 0.30	10.2 ± 0.5	...	27.2 ± 1.4	12.6 ± 1.6	< 200	1.02 ± 0.19	1.80 ± 0.26
		1.19 ± 0.22	9.82 ± 0.5	...	27 ± 3	10.3 ± 1.3	< 300	1.08 ± 0.14	1.55 ± 0.24
		1.32 ± 0.25	10.0 ± 0.5	...	26 ± 3	11.1 ± 1.4	< 180	1.30 ± 0.23	1.37 ± 0.21
KT-1	0	1.08 ± 0.25	8.44 ± 0.43	...	29.0 ± 1.7	13 ± 2	210 ± 100	1.25 ± 0.16	2.78 ± 0.38
		1.05 ± 0.22	8.29 ± 0.42	...	30.0 ± 1.6	12.8 ± 1.6	< 200	1.75 ± 0.29	1.89 ± 0.27
		1.08 ± 0.21	8.41 ± 0.43	...	27 ± 3	9.5 ± 1.8	< 300	1.03 ± 0.15	2.01 ± 0.29
	6	1.79 ± 0.34	11.0 ± 0.5	...	28.6 ± 1.4	11.2 ± 1.4	< 180	1.34 ± 0.25	1.72 ± 0.26
	12	1.01 ± 0.18	11.0 ± 0.6	...	29.4 ± 1.6	10.8 ± 1.4	< 190	0.93 ± 0.13	1.76 ± 0.26
Cement Residue from Storage Bunkers									
KT-1	0	0.38 ± 0.14	2.35 ± 0.12	...	30 ± 2	3.65 ± 0.48	370 ± 90	0.46 ± 0.11	0.51 ± 0.10
Limestone near Kiln 1									
KT-1	0	0.24 ± 0.06	0.71 ± 0.03	...	4.7 ± 0.6	0.98 ± 0.13	< 170	0.18 ± 0.04	0.10 ± 0.04
		0.09 ± 0.05	0.18 ± 0.01	...	1.2 ± 0.1	1.00 ± 0.13	360 ± 60	0.07 ± 0.03	< 0.05
		0.53 ± 0.09	0.32 ± 0.01	...	2.63 ± 0.18	1.05 ± 0.14	310 ± 40	0.08 ± 0.03	0.09 ± 0.03
		0.29 ± 0.06	0.27 ± 0.01	...	0.93 ± 0.09	1.24 ± 0.16	300 ± 50	0.05 ± 0.04	0.09 ± 0.03
Slag Inside Kiln 1									
KT-1	0	1.45 ± 0.21	10.2 ± 0.52	...	28 ± 4	7.54 ± 0.98	< 200	1.02 ± 0.13	1.04 ± 0.16
		1.59 ± 0.23	10.4 ± 0.53	...	29.0 ± 1.4	7.9 ± 1.4	< 170	1.18 ± 0.20	1.50 ± 0.22
		1.23 ± 0.19	9.98 ± 0.51	...	30.7 ± 1.7	7.18 ± 0.93	< 180	1.06 ± 0.13	1.35 ± 0.20

Site #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
KT-3	0	23.8 ± 1.2	4100 ± 300	4.81 ± 0.3	52 ± 3	< 140	6.13 ± 0.64	74 ± 11	...
		18.8 ± 1.0	3100 ± 300	3.8 ± 0.3	54 ± 4	< 110	4.87 ± 0.51	75 ± 8	...
		20.6 ± 1.1	3000 ± 400	4.03 ± 0.3	51 ± 3	< 100	5.28 ± 0.56	74 ± 11	...
	6	19.1 ± 1.0	3000 ± 300	3.8 ± 0.3	47 ± 3	< 110	5.41 ± 0.56	66 ± 7	...
		20 ± 1	2700 ± 300	3.72 ± 0.3	52 ± 4	< 140	6.30 ± 0.66	78 ± 12	...
		22.8 ± 1.8	2400 ± 400	3.64 ± 0.3	50 ± 3	< 110	5.19 ± 0.44	56 ± 11	...
	12	20.4 ± 1.6	3700 ± 300	4.3 ± 0.3	59 ± 4	< 110	5.34 ± 0.46	67 ± 14	...
		18.0 ± 1.4	2800 ± 300	3.86 ± 0.3	53 ± 4	< 140	4.97 ± 0.42	67 ± 14	...
		17.8 ± 1.4	3200 ± 300	3.91 ± 0.3	51 ± 3	< 110	5.03 ± 0.44	71 ± 14	...
KT-1	0	32.0 ± 2.5	4200 ± 600	3.97 ± 0.3	53 ± 3	< 120	9.11 ± 0.75	79 ± 16	...
		23.8 ± 1.9	3600 ± 300	4.3 ± 0.3	49 ± 3	< 100	7.94 ± 0.66	71 ± 14	...
		26.9 ± 2.1	3500 ± 300	3.84 ± 0.3	48 ± 7	< 140	8.50 ± 0.70	69 ± 14	...
	6	21.9 ± 1.7	3300 ± 300	3.45 ± 0.3	64 ± 4	< 110	7.33 ± 0.62	91 ± 19	...
	12	21.9 ± 1.7	3300 ± 500	3.35 ± 0.2	65 ± 3	< 110	5.00 ± 0.42	82 ± 17	...
Cement Residue from Storage Bunkers									
KT-1	0	6.16 ± 0.50	1490 ± 150	2.63 ± 0.2	9.6 ± 1.3	< 100	2.44 ± 0.23	21 ± 5	...
Limestone near Kiln 1									
KT-1	0	0.74 ± 0.06	330 ± 90	0.9 ± 0.1	14.4 ± 1.0	< 80	0.28 ± 0.04	10 ± 2	...
		0.21 ± 0.03	< 1100	1.76 ± 0.12	13.1 ± 0.9	< 40	0.19 ± 0.04	6.8 ± 1.7	...
		0.35 ± 0.04	160 ± 50	0.84 ± 0.10	9.9 ± 0.6	< 40	0.28 ± 0.04	12 ± 2	...
		0.30 ± 0.04	< 1000	2.21 ± 0.15	33.3 ± 1.5	< 40	0.20 ± 0.05	9.6 ± 2.3	...
Slag Inside Kiln 1									
KT-1	0	14.7 ± 1.1	3000 ± 300	2.85 ± 0.18	59 ± 4	< 130	3.93 ± 0.33	84 ± 17	...
		14.8 ± 1.2	3600 ± 300	2.99 ± 0.20	55 ± 3	< 110	4.16 ± 0.36	90 ± 18	...
		14.3 ± 1.1	3200 ± 500	2.97 ± 0.20	53 ± 3	< 100	3.48 ± 0.29	76 ± 15	...

Table C-XIII. Individual Elemental Concentration in Soils under Cactus along Cactus Forest Trail, RMD, Saguaro National Monument

Site #	Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
KT-2	51	0	...	6.9 ± 0.3	...	...	590 ± 60	...	7800 ± 700	128 ± 9
			...	7.0 ± 0.3	...	...	520 ± 70	...	9100 ± 900	149 ± 11
			...	6.9 ± 0.3	...	...	570 ± 60	...	9000 ± 900	126 ± 9
		6	...	8.2 ± 0.3	...	...	604 ± 60	...	7300 ± 700	149 ± 11
			...	8.5 ± 0.3	...	...	565 ± 61	...	7900 ± 800	120 ± 8
			...	7.4 ± 0.3	...	...	618 ± 64	...	14300 ± 1300	122 ± 9
	52	0	...	7.0 ± 0.3	...	...	620 ± 80	...	10900 ± 900	101 ± 7
			...	6.7 ± 0.2	...	...	637 ± 58	...	10800 ± 800	94 ± 7
			...	6.8 ± 0.3	...	...	680 ± 70	...	9600 ± 900	165 ± 12
		6	...	7.5 ± 0.3	...	...	730 ± 80	...	11800 ± 1100	115 ± 8
			...	7.3 ± 0.3	...	...	490 ± 60	...	17700 ± 1300	108 ± 8
			...	7.2 ± 0.3	...	...	620 ± 70	...	8900 ± 700	124 ± 9
	53	0	...	6.8 ± 0.3	...	...	590 ± 60	...	4000 ± 500	62 ± 4
			...	6.3 ± 0.3	...	...	630 ± 70	...	5800 ± 700	84 ± 6
			...	6.6 ± 0.3	...	...	613 ± 63	...	4800 ± 600	94 ± 7
		6	...	9.3 ± 0.3	...	...	490 ± 50	...	7900 ± 700	132 ± 9
			...	9.0 ± 0.3	...	...	480 ± 50	...	6700 ± 700	112 ± 8
			...	8.6 ± 0.3	...	...	460 ± 60	...	10700 ± 1100	125 ± 9
	54	0	...	6.7 ± 0.3	...	...	580 ± 60	...	8000 ± 800	132 ± 9
			...	6.6 ± 0.3	...	...	530 ± 60	...	8500 ± 700	166 ± 12
			...	7.0 ± 0.3	...	...	610 ± 70	...	8300 ± 800	160 ± 11
		6	...	8.0 ± 0.3	...	...	540 ± 80	...	8300 ± 900	112 ± 8
			...	7.8 ± 0.3	...	...	470 ± 70	...	8600 ± 800	123 ± 9
			...	8.6 ± 0.3	...	...	510 ± 50	...	7500 ± 700	109 ± 8

Site #	Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Dy (ug/g)	Eu (ug/g)
KT-2	51	0	< 30	4.64 ± 0.53	0.3 ± 0.2	37.0 ± 2.8	5.49 ± 0.44	12 ± 1	1.76 ± 0.15
			< 140	6.12 ± 0.63	0.5 ± 0.2	40.5 ± 3.4	6.45 ± 0.51	15.6 ± 1.3	1.90 ± 0.17
			40 ± 50	5.59 ± 0.63	0.3 ± 0.2	28.6 ± 2.3	6.33 ± 0.49	11.0 ± 0.9	1.66 ± 0.14
		6	150 ± 50	9.22 ± 0.94	0.1 ± 0.1	43.8 ± 3.6	8.36 ± 0.64	13.3 ± 1.1	2.08 ± 0.18
			10 ± 40	8.55 ± 0.91	0.3 ± 0.2	41.3 ± 3.1	9.04 ± 0.69	12.3 ± 1.0	1.81 ± 0.16
			< 150	6.59 ± 0.68	0.9 ± 0.2	31.9 ± 2.7	7.23 ± 0.56	13.4 ± 1.1	1.81 ± 0.16
	52	0	< 110	4.79 ± 0.55	0.3 ± 0.2	25.1 ± 2.0	5.34 ± 0.43	9.9 ± 0.9	1.52 ± 0.13
			50 ± 40	5.37 ± 0.56	0.2 ± 0.2	27.1 ± 2.3	5.32 ± 0.42	12.2 ± 1.0	1.32 ± 0.12
			20 ± 40	5.19 ± 0.59	0.2 ± 0.2	30.1 ± 2.4	5.44 ± 0.43	11.0 ± 1.1	1.93 ± 0.16
		6	40 ± 40	6.57 ± 0.68	0.4 ± 0.2	30.4 ± 2.6	5.53 ± 0.42	11.2 ± 0.9	1.69 ± 0.15
			< 110	6.03 ± 0.67	1.0 ± 0.2	29.0 ± 2.3	5.91 ± 0.49	10.1 ± 0.9	1.66 ± 0.14
			40 ± 40	6.45 ± 0.67	0.2 ± 0.2	32.7 ± 2.8	6.29 ± 0.48	10.7 ± 0.9	1.81 ± 0.15
	53	0	< 100	7.51 ± 0.80	0.4 ± 0.2	38.3 ± 2.9	30.9 ± 2.21	5.0 ± 0.6	0.98 ± 0.09
			< 120	8.97 ± 0.92	0.3 ± 0.2	46.0 ± 3.8	31.9 ± 2.27	5.5 ± 0.5	1.11 ± 0.10
			< 90	12.1 ± 1.26	0.3 ± 0.2	46.9 ± 3.5	32.7 ± 2.34	6.4 ± 0.6	1.32 ± 0.12
		6	60 ± 30	13.2 ± 1.35	0.2 ± 0.2	52.8 ± 4.4	90.6 ± 6.43	7.8 ± 0.7	1.79 ± 0.16
			< 100	9.9 ± 1.07	0.2 ± 0.2	53.8 ± 4.1	95.6 ± 6.79	8.0 ± 0.8	1.71 ± 0.15
			< 120	13.3 ± 1.36	0.6 ± 0.2	54.7 ± 4.6	62.4 ± 4.44	8.7 ± 0.7	2.07 ± 0.18
	54	0	< 100	4.38 ± 0.53	0.3 ± 0.2	28.2 ± 2.3	3.96 ± 0.37	8.7 ± 0.9	1.85 ± 0.16
			< 100	4.16 ± 0.47	0.3 ± 0.2	29.9 ± 2.6	3.55 ± 0.31	16.6 ± 1.4	2.02 ± 0.17
			< 90	4.65 ± 0.55	0.1 ± 0.2	32.9 ± 2.7	5.17 ± 0.44	15.4 ± 1.4	2.12 ± 0.18
		6	< 140	6.74 ± 0.70	0.2 ± 0.2	33.3 ± 2.8	5.73 ± 0.46	12.9 ± 1.0	1.68 ± 0.14
			< 110	6.67 ± 0.72	0.4 ± 0.2	33.7 ± 2.7	5.43 ± 0.43	11.8 ± 1.0	1.72 ± 0.15
			20 ± 40	9.96 ± 1.03	0.4 ± 0.2	39.0 ± 3.3	7.36 ± 0.58	9.2 ± 0.8	1.72 ± 0.15

Table C-XIII. Individual Elemental Concentration in Soils under Cactus along Cactus Forest Trail, RMD, Saguaro National Monument (cont.)

Site #	Tree #	Depth (in)	F (ug/g)	Fe (ug/g)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (ug/g)
KT-2	51	0	247 ± 25	2.70 ± 0.19	< 40	18.2 ± 1.8	...	...	< 110	2.8 ± 0.2
			...	3.32 ± 0.23	< 50	20.1 2.0	...	...	< 180	2.8 ± 0.3
			...	2.55 ± 0.18	< 40	11.5 1.1	...	...	< 140	2.6 ± 0.2
		6	428 ± 43	3.29 ± 0.23	< 30	14.7 ± 1.4	...	...	140 ± 50	3.2 ± 0.3
			...	3.18 ± 0.22	< 40	8.62 ± 0.87	...	...	< 120	2.8 ± 0.2
			...	2.80 ± 0.19	< 50	9.72 ± 0.98	...	...	< 190	2.8 ± 0.3
	52	0	322 ± 32	2.01 ± 0.14	< 40	6.91 ± 0.70	...	...	< 130	2.8 ± 0.2
			300 ± 30	2.21 ± 0.15	< 30	8.20 ± 0.83	...	...	< 100	2.6 ± 0.3
			...	2.44 ± 0.17	< 40	13.5 ± 1.3	...	...	< 110	3.1 ± 0.2
		6	364 ± 36	2.47 ± 0.17	< 50	9.66 ± 0.97	...	...	< 170	3.0 ± 0.3
			...	2.51 ± 0.17	< 40	9.62 ± 0.97	...	...	< 130	2.45 ± 0.20
			...	2.66 ± 0.19	< 30	12.7 ± 1.2	...	...	< 110	2.8 ± 0.3
	53	0	304 ± 30	2.67 ± 0.19	< 40	8.68 ± 0.88	...	...	< 100	2.6 ± 0.2
			...	3.41 ± 0.24	< 40	12.8 ± 1.29	...	...	< 160	2.3 ± 0.2
			...	3.13 ± 0.22	< 40	9.62 ± 0.98	...	...	< 130	2.5 ± 0.2
		6	533 ± 53	3.96 ± 0.28	< 30	8.71 ± 0.89	...	...	120 ± 30	2.2 ± 0.3
			...	4.09 ± 0.29	< 40	8.82 ± 0.91	...	...	< 100	3.0 ± 0.2
			...	3.78 ± 0.26	< 40	7.43 ± 0.76	...	...	< 160	2.9 ± 0.3
	54	0	347 ± 35	2.07 ± 0.14	< 40	12.0 ± 1.21	...	...	< 120	2.8 ± 0.2
			...	2.55 ± 0.18	< 30	20.4 ± 2.06	...	...	< 100	3.0 ± 0.3
			...	2.73 ± 0.19	< 40	18.2 ± 1.84	...	...	< 110	3.1 ± 0.2
		6	406 ± 41	2.66 ± 0.18	< 50	10.6 ± 1.07	...	...	< 190	2.8 ± 0.3
			...	2.64 ± 0.18	< 50	12.8 ± 1.29	...	...	< 140	2.8 ± 0.2
			...	3.13 ± 0.22	< 30	8.57 ± 0.87	...	...	< 110	2.9 ± 0.3

Site #	Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
KT-2	51	0	...	...	4400 ± 900	490 ± 20	18200 ± 700	...	7.0 ± 0.3	118 ± 10
			...	...	< 4000	760 ± 30	16700 ± 600	...	...	124 ± 11
			...	...	4300 ± 1100	740 ± 30	16800 ± 600	...	...	111 ± 10
		6	...	...	6500 ± 1100	770 ± 30	13800 ± 500	...	5.3 ± 0.3	136 ± 12
			...	...	4100 ± 1000	680 ± 30	13200 ± 500	...	...	144 ± 12
			...	...	< 4000	680 ± 30	15100 ± 500	...	...	126 ± 11
	52	0	...	...	5300 ± 1100	570 ± 30	17600 ± 600	...	7.3 ± 0.3	120 ± 10
			...	...	3500 ± 700	630 ± 30	16800 ± 600	...	...	114 ± 10
			...	...	5600 ± 1200	630 ± 30	16800 ± 600	...	...	120 ± 11
		6	...	...	6700 ± 1500	570 ± 30	17200 ± 600	...	8.0 ± 0.3	121 ± 11
			...	...	6800 ± 1400	580 ± 30	15300 ± 500	...	...	124 ± 11
			...	...	7200 ± 1100	600 ± 30	15500 ± 500	...	...	127 ± 11
	53	0	...	...	3100 ± 700	470 ± 20	12600 ± 400	...	6.2 ± 0.3	160 ± 14
			...	...	5000 ± 1200	620 ± 30	12000 ± 400	...	...	161 ± 14
			...	...	5900 ± 1100	750 ± 30	10500 ± 400	...	...	148 ± 13
		6	...	...	9600 ± 1100	610 ± 30	6700 ± 200	...	6.6 ± 0.3	196 ± 17
			...	...	8300 ± 1100	460 ± 20	7600 ± 300	...	...	198 ± 17
			...	...	10500 ± 1500	680 ± 30	7100 ± 300	...	...	170 ± 15
	54	0	...	...	4700 ± 1000	490 ± 20	17800 ± 600	...	5.7 ± 0.3	121 ± 11
			...	...	4000 ± 900	610 ± 30	17000 ± 600	...	...	117 ± 11
			...	...	4200 ± 1100	640 ± 30	16300 ± 600	...	...	109 ± 10
		6	...	...	< 4000	660 ± 30	15200 ± 600	...	6.6 ± 0.3	134 ± 12
			...	...	4900 ± 1000	720 ± 30	15400 ± 500	...	...	126 ± 11
			...	...	9200 ± 1200	740 ± 30	13100 ± 400	...	...	144 ± 13

Table C-XIII. Individual Elemental Concentration in Soils under Cactus along Cactus Forest Trail, RMD, Saguaro National Monument (cont.)

Site #	Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
KT-2	51	0	1.22 ± 0.22	7.83 ± 0.40	---	32.7 ± 1.5	12.2 ± 1.6	< 200	0.91 ± 0.17	2.12 ± 0.29
			1.20 ± 0.19	9.08 ± 0.46	---	28 ± 4	13.1 ± 1.7	< 300	1.08 ± 0.14	2.40 ± 0.33
			0.79 ± 0.19	7.90 ± 0.40	---	30.3 ± 1.6	11.5 ± 1.5	< 190	0.84 ± 0.16	1.64 ± 0.24
		6	1.29 ± 0.21	11.4 ± 0.58	---	30 ± 3	13.1 ± 1.7	< 200	1.40 ± 0.17	2.30 ± 0.32
			1.13 ± 0.21	10.9 ± 0.55	---	30 ± 2	11.2 ± 1.4	< 200	1.30 ± 0.24	1.77 ± 0.25
			0.98 ± 0.20	9.34 ± 0.47	---	30 ± 2	11.1 ± 1.4	< 300	0.91 ± 0.12	1.85 ± 0.26
	52	0	0.82 ± 0.16	7.49 ± 0.38	---	30.3 ± 1.7	9.6 ± 1.3	< 170	0.74 ± 0.14	1.37 ± 0.20
			1.11 ± 0.18	7.47 ± 0.38	---	33.1 ± 1.5	8.27 ± 1.08	< 180	0.84 ± 0.11	1.46 ± 0.21
			1.42 ± 0.24	8.94 ± 0.45	---	30 ± 2	11.8 ± 1.9	< 200	1.31 ± 0.22	1.97 ± 0.27
		6	0.87 ± 0.16	8.92 ± 0.45	---	31 ± 2	10.4 ± 1.3	< 200	1.03 ± 0.13	1.61 ± 0.23
			1.08 ± 0.21	9.19 ± 0.47	---	32.7 ± 1.5	10.1 ± 1.3	< 170	0.97 ± 0.18	1.53 ± 0.22
			1.33 ± 0.23	9.93 ± 0.50	---	31.6 ± 1.5	11.1 ± 1.4	< 190	1.17 ± 0.15	1.58 ± 0.23
	53	0	2.28 ± 0.32	8.41 ± 0.43	---	33 ± 2	5.65 ± 0.74	< 180	1.15 ± 0.20	0.80 ± 0.13
			2.02 ± 0.28	8.83 ± 0.45	---	31 ± 3	6.64 ± 0.86	< 200	1.36 ± 0.17	0.99 ± 0.16
			2.49 ± 0.35	9.79 ± 0.50	---	32 ± 3	7.63 ± 1.00	< 180	1.11 ± 0.20	1.15 ± 0.18
		6	1.65 ± 0.26	13.7 ± 0.7	---	28.4 ± 1.4	10.8 ± 1.4	< 190	1.65 ± 0.21	1.53 ± 0.25
			2.11 ± 0.33	13.9 ± 0.7	---	24 ± 2	10.5 ± 1.3	< 190	1.41 ± 0.25	1.42 ± 0.23
			2.35 ± 0.36	13.4 ± 0.6	---	24 ± 4	11.7 ± 1.5	< 200	1.02 ± 0.15	1.86 ± 0.27
	54	0	1.11 ± 0.21	7.80 ± 0.39	---	33.0 ± 1.5	14.1 ± 1.8	< 160	1.03 ± 0.18	1.41 ± 0.21
			1.18 ± 0.23	8.42 ± 0.43	---	32 ± 4	15.6 ± 2.0	< 180	1.09 ± 0.14	2.34 ± 0.32
			1.18 ± 0.22	8.97 ± 0.45	---	31 ± 4	15.9 ± 2.1	< 200	1.16 ± 0.21	2.37 ± 0.33
		6	1.27 ± 0.22	10.1 ± 0.5	---	32.5 ± 1.8	11.1 ± 1.4	< 300	1.08 ± 0.14	1.70 ± 0.24
			1.08 ± 0.21	9.90 ± 0.50	---	32 ± 3	11.6 ± 1.5	< 190	1.18 ± 0.21	1.77 ± 0.25
			0.88 ± 0.21	12.3 ± 0.63	---	30.4 ± 1.5	12.2 ± 1.6	< 200	1.00 ± 0.14	1.77 ± 0.26

Site #	Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
KT-2	51	0	23.4 ± 1.8	2600 ± 300	6.87 ± 0.5	40 ± 3	< 90	10.7 ± 0.8	80 ± 16	---
			25.8 ± 2.0	4700 ± 400	4.56 ± 0.4	58 ± 4	< 140	8.13 ± 0.66	70 ± 14	---
			22.5 ± 1.8	3200 ± 300	3.81 ± 0.3	49 ± 3	< 110	5.81 ± 0.49	70 ± 14	---
		6	24.5 ± 1.9	3600 ± 500	4.09 ± 0.3	64 ± 4	< 110	7.47 ± 0.61	76 ± 15	---
			20.8 ± 1.6	3600 ± 300	6.8 ± 0.5	64 ± 4	< 100	9.12 ± 0.75	101 ± 20	---
			21.7 ± 1.7	4100 ± 400	3.69 ± 0.3	54 ± 4	< 140	6.84 ± 0.56	71 ± 14	---
	52	0	17.6 ± 1.4	3300 ± 300	2.8 ± 0.2	43 ± 3	< 110	4.74 ± 0.40	65 ± 13	---
			15.8 ± 1.2	3000 ± 400	3.08 ± 0.2	41 ± 2	< 100	4.98 ± 0.41	63 ± 13	---
			29.1 ± 2.3	3700 ± 300	3.28 ± 0.2	48 ± 3	< 100	7.15 ± 0.59	90 ± 18	---
		6	19.9 ± 1.6	3000 ± 300	3.38 ± 0.3	38 ± 3	< 120	5.20 ± 0.43	61 ± 13	---
			18.4 ± 1.4	3200 ± 300	2.97 ± 0.2	43 ± 3	< 100	5.66 ± 0.48	86 ± 18	---
			22.2 ± 1.8	3300 ± 500	3.32 ± 0.3	48 ± 3	< 100	5.84 ± 0.48	68 ± 14	---
	53	0	11.9 ± 0.9	3000 ± 300	3.42 ± 0.3	51 ± 3	< 80	3.07 ± 0.28	83 ± 16	---
			14.4 ± 1.1	4000 ± 300	4.0 ± 0.3	73 ± 4	< 120	3.78 ± 0.32	72 ± 14	---
			13.4 ± 1.0	3100 ± 300	3.51 ± 0.3	55 ± 3	< 110	4.21 ± 0.36	97 ± 20	---
		6	22.0 ± 1.7	3400 ± 500	4.21 ± 0.3	80 ± 4	< 100	5.40 ± 0.47	100 ± 20	---
			21.9 ± 1.7	3600 ± 300	4.28 ± 0.3	84 ± 5	< 90	4.72 ± 0.45	123 ± 25	---
			18.4 ± 1.4	3900 ± 400	3.79 ± 0.3	64 ± 4	< 130	4.79 ± 0.42	81 ± 16	---
	54	0	23.1 ± 1.8	2700 ± 200	3.08 ± 0.2	41 ± 3	< 100	5.22 ± 0.45	81 ± 1[illegible]	---
			31.0 ± 2.5	3800 ± 500	4.91 ± 0.4	49 ± 3	< 100	9.38 ± 0.77	65 ± [illegible]	---
			29.3 ± 2.3	3800 ± 300	4.35 ± 0.3	49 ± 3	< 100	7.52 ± 0.63	86 ± [illegible]	---
		6	20.4 ± 1.6	3800 ± 300	3.65 ± 0.3	59 ± 4	< 140	6.35 ± 0.53	62 ± 12	---
			21.7 ± 1.7	4400 ± 300	3.76 ± 0.3	56 ± 3	< 120	6.67 ± 0.56	81 ± 16	---
			19.9 ± 1.6	3400 ± 500	3.3 ± 0.3	61 ± 3	< 110	5.58 ± 0.47	95 ± 19	---

Note: Cacti 51 - 53 appeared to be relatively healthy individuals, while Cactus 54 exhibited substantial browning on the south side coupled with general spine loss over the lower portion of the bole.

Table C-XIV. Individual Elemental Concentration in Soils under North Slope Douglas Fir, RMD, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
81	0	< 4	6.3 ± 0.2	4.4 ± 0.6	< 10	480 ± 60	6.5 ± 0.8	1.10 ± 0.20	94 ± 4
	6	< 3	7.7 ± 0.2	4.5 ± 0.6	< 10	450 ± 50	5.2 ± 0.6	0.90 ± 0.06	94 ± 4
84	0	< 3	7.1 ± 0.3	7.7 ± 0.9	< 10	420 ± 70	4.2 ± 0.5	1.01 ± 0.08	68 ± 3
	6	< 3	7.7 ± 0.2	1.9 ± 0.4	< 10	330 ± 30	5.0 ± 0.7	0.79 ± 0.06	59 ± 3
85	0	< 4	0.64 ± 0.20	7.1 ± 0.8	< 10	470 ± 40	2.6 ± 0.4	0.97 ± 0.07	58 ± 3
	6	< 3	8.2 ± 0.2	2.1 ± 0.4	< 10	380 ± 30	1.9 ± 0.3	0.96 ± 0.07	71 ± 3
86	0	< 2	7.6 ± 0.2	4.6 ± 0.6	< 10	310 ± 50	3.0 ± 0.7	1.10 ± 0.07	55 ± 2
	6	< 3	6.5 ± 0.2	2.1 ± 0.4	< 10	260 ± 70	3.0 ± 0.4	0.83 ± 0.06	49 ± 2
87	0	< 3	6.9 ± 0.2	6.0 ± 0.7	< 10	340 ± 40	5.5 ± 0.6	1.14 ± 0.08	48 ± 2
	6	< 2	8.1 ± 0.2	2.5 ± 0.4	< 10	320 ± 40	4.7 ± 0.6	0.80 ± 0.06	47 ± 2
89	0	< 3	7.2 ± 0.2	4.3 ± 0.5	< 10	340 ± 70	3.4 ± 0.5	0.90 ± 0.07	53 ± 2
	6	< 3	6.5 ± 0.2	2.4 ± 0.4	< 10	320 ± 40	3.3 ± 0.4	0.91 ± 0.07	56 ± 3
90	0	< 3	7.1 ± 0.2	8.3 ± 0.9	< 10	460 ± 60	3.1 ± 0.4	1.18 ± 0.08	93 ± 4
		< 3	7.6 ± 0.2	8.4 ± 1.0	< 10	580 ± 50	3.2 ± 0.5	1.23 ± 0.09	84 ± 4
		< 3.3	8.36 ± 0.23	8.7 ± 1.0	< 12	500 ± 80	3.26 ± 0.44	1.06 ± 0.08	117 ± 5
	6	< 2.6	8.05 ± 0.23	4.0 ± 0.5	< 13	478 ± 35	3.40 ± 0.44	1.03 ± 0.07	90 ± 4
		< 3.6	8.21 ± 0.23	3.43 ± 0.45	< 14	477 ± 46	3.2 ± 0.7	0.97 ± 0.07	78 ± 4
		< 9	8.20 ± 0.23	3.5 ± 0.5	< 11	700 ± 230	3.41 ± 0.45	0.86 ± 0.06	93 ± 5
95	0	< 2.5	7.67 ± 0.21	5.2 ± 0.6	< 14	390 ± 60	2.12 ± 0.37	0.92 ± 0.07	44 ± 2
	6	< 2.8	8.86 ± 0.25	2.46 ± 0.38	< 13	295 ± 31	3.4 ± 0.6	0.64 ± 0.06	48 ± 2
96	0	< 3.6	8.02 ± 0.23	6.7 ± 0.8	< 15	314 ± 38	2.38 ± 0.41	0.74 ± 0.07	54 ± 3
	6	< 2.8	7.95 ± 0.22	2.09 ± 0.38	< 10	330 ± 140	2.53 ± 0.37	0.82 ± 0.11	48 ± 2
99	0	< 3	7.40 ± 0.21	9.4 ± 1.0	< 14	560 ± 70	7.0 ± 0.9	1.34 ± 0.09	91 ± 4
	6	< 3	7.59 ± 0.21	6.4 ± 0.7	< 14	540 ± 130	8.4 ± 0.9	1.11 ± 0.08	96 ± 4

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
81	0	< 100	6.3 ± 0.3	0.15 ± 0.2	23 ± 2	5.8 ± 0.4	< 300	11.0 ± 0.9	1.27 ± 0.08
	6	< 100	6.7 ± 0.4	0.14 ± 0.2	33 ± 2	6.1 ± 0.3	< 300	9.1 ± 0.9	1.06 ± 0.05
84	0	60 ± 50	4.9 ± 0.3	0.16 ± 0.2	21 ± 1	4.5 ± 0.3	< 300	14 ± 1	0.85 ± 0.06
	6	80 ± 50	3.7 ± 0.2	0.10 ± 0.1	20 ± 1	4.3 ± 0.2	< 300	9.4 ± 0.8	0.70 ± 0.03
85	0	190 ± 90	4.9 ± 0.3	0.18 ± 0.2	16 ± 1	4.5 ± 0.3	< 300	12 ± 1	0.94 ± 0.07
	6	< 100	4.6 ± 0.3	0.11 ± 0.2	27 ± 2	4.3 ± 0.2	< 300	13 ± 1	0.98 ± 0.07
86	0	< 100	4.3 ± 0.2	0.32 ± 0.2	16 ± 1	4.0 ± 0.2	< 300	9.3 ± 0.8	0.68 ± 0.05
	6	140 ± 60	3.7 ± 0.2	0.14 ± 0.2	16 ± 1	4.1 ± 0.3	< 300	9.1 ± 0.8	0.67 ± 0.04
87	0	< 100	4.3 ± 0.3	0.13 ± 0.2	17 ± 1	4.0 ± 0.2	< 300	6.2 ± 0.5	0.61 ± 0.05
	6	< 100	4.1 ± 0.2	0.34 ± 0.2	17 ± 1	4.3 ± 0.2	< 300	8.8 ± 0.7	0.63 ± 0.04
89	0	< 100	3.8 ± 0.2	0.26 ± 0.2	17 ± 1	3.8 ± 0.2	< 300	8.6 ± 0.8	0.77 ± 0.06
	6	80 ± 50	4.3 ± 0.3	0.1 ± 0.1	21 ± 1	4.5 ± 0.3	< 300	10.4 ± 0.9	0.94 ± 0.06
90	0	110 ± 50	5.2 ± 0.3	0.18 ± 0.2	23 ± 2	4.6 ± 0.3	< 300	12.2 ± 1.0	1.00 ± 0.08
		< 100	6.0 ± 0.3	0.34 ± 0.2	22 ± 2	5.1 ± 0.3	< 400	14 ± 1	1.00 ± 0.06
		90 ± 50	6.33 ± 0.35	0.2 ± 0.2	25 ± 2	5.4 ± 0.3	< 300	13.9 ± 1.2	1.28 ± 0.09
	6	80 ± 40	5.53 ± 0.29	0.21 ± 0.2	23.4 ± 1.5	5.3 ± 0.3	< 250	11.1 ± 0.9	1.11 ± 0.07
		110 ± 50	5.39 ± 0.29	0.32 ± 0.2	26 ± 2	5.28 ± 0.31	< 260	11.7 ± 0.9	1.10 ± 0.08
		< 100	4.6 ± 0.5	0.4 ± 0.2	34 ± 3	5.44 ± 0.37	< 290	13.5 ± 1.6	1.10 ± 0.14
95	0	< 140	3.73 ± 0.21	0.14 ± 0.1	13 ± 1	4.08 ± 0.24	< 300	8.6 ± 0.7	0.67 ± 0.05
	6	< 120	4.07 ± 0.22	0.07 ± 0.1	15 ± 1	4.54 ± 0.26	< 300	9.9 ± 0.9	0.72 ± 0.06
96	0	30 ± 50	3.66 ± 0.23	0.37 ± 0.2	14.3 ± 1.1	4.15 ± 0.24	< 300	10.1 ± 0.8	0.77 ± 0.07
	6	< 120	3.50 ± 0.21	0.32 ± 0.2	15.1 ± 1.1	3.98 ± 0.27	< 370	11.3 ± 0.9	1.5 ± 0.4
99	0	< 130	6.69 ± 0.35	0.15 ± 0.1	29.3 ± 1.9	6.07 ± 0.38	< 290	8.7 ± 0.7	1.14 ± 0.07
	6	50 ± 40	7.01 ± 0.38	0.16 ± 0.1	31.1 ± 2.0	6.08 ± 0.42	< 300	8.5 ± 1.1	1.16 ± 0.07

Table C-XIV. Individual Elemental Concentration in Soils under North Slope Douglas Fir, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ng/g)	I (ug/g)	In (ng/g)	K (%)
81	0	---	2.3 ± 0.1	< 20	7.5 ± 0.6	< 700	< 20	< 300	2.4 ± 0.2
	6	---	2.5 ± 0.1	23 ± 5	7.9 ± 0.4	< 500	< 20	< 300	2.7 ± 0.3
84	0	---	1.82 ± 0.09	20 ± 5	8.1 ± 0.5	< 500	< 30	< 400	2.7 ± 0.3
	6	---	1.59 ± 0.09	< 20	6.9 ± 0.3	< 500	< 20	< 200	2.9 ± 0.3
85	0	---	1.88 ± 0.10	< 20	9.1 ± 0.5	< 700	< 30	< 300	2.6 ± 0.3
	6	---	1.9 ± 0.1	21 ± 4	8.6 ± 0.4	< 400	< 20	< 300	3.2 ± 0.3
86	0	---	1.45 ± 0.07	17 ± 4	6.1 ± 0.4	< 400	< 20	< 300	3.2 ± 0.3
	6	---	1.42 ± 0.08	24 ± 5	6.5 ± 0.3	< 600	< 20	< 300	3.2 ± 0.4
87	0	---	1.40 ± 0.07	< 20	5.7 ± 0.4	< 500	< 30	< 300	2.9 ± 0.3
	6	---	1.46 ± 0.07	< 20	6.2 ± 0.3	< 400	< 20	< 300	3.2 ± 0.3
89	0	---	1.40 ± 0.08	17 ± 4	6.5 ± 0.6	< 500	< 20	< 300	3.1 ± 0.3
	6	---	1.58 ± 0.08	13 ± 4	6.1 ± 0.5	< 600	< 20	< 300	3.2 ± 0.4
90	0	---	2.0 ± 0.1	20 ± 4	9.4 ± 0.5	< 600	< 20	< 300	2.7 ± 0.3
		---	2.1 ± 0.1	15 ± 4	8.3 ± 0.4	< 500	< 20	< 300	2.2 ± 0.3
		---	2.34 ± 0.12	< 23	10.4 ± 0.5	< 600	< 20	< 230	3.09 ± 0.20
	6	---	2.23 ± 0.11	18 ± 3	9.5 ± 0.7	< 470	< 18	< 250	3.37 ± 0.22
		---	2.07 ± 0.11	21 ± 4	8.5 ± 0.7	< 700	< 19	< 240	3.30 ± 0.21
		---	2.50 ± 0.21	17 ± 4	9.98 ± 0.43	11500 ± 2100	< 18	< 210	3.25 ± 0.21
95	0	---	1.18 ± 0.06	18 ± 4	4.92 ± 0.30	< 450	< 28	< 300	3.99 ± 0.26
	6	---	1.31 ± 0.07	22 ± 4	5.29 ± 0.43	< 500	< 20	< 300	4.02 ± 0.26
96	0	---	1.30 ± 0.07	< 24	7.3 ± 0.7	< 700	< 27	< 300	3.59 ± 0.23
	6	---	1.37 ± 0.07	21 ± 4	7.03 ± 0.46	< 480	< 25	< 270	3.82 ± 0.24
99	0	---	2.40 ± 0.12	21 ± 4	7.40 ± 0.38	< 500	< 20	< 290	2.54 ± 0.17
	6	---	2.47 ± 0.13	13 ± 4	7.0 ± 0.5	< 600	< 20	< 290	2.77 ± 0.18

Tree #	Depth (in)	La (ug/g)	Lu (ng/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
81	0	46 ± 3	1140 ± 60	3500 ± 500	1160 ± 60	1.96 ± 0.08	31 ± 4	---	144 ± 7
	6	43 ± 2	1050 ± 50	5400 ± 700	790 ± 40	1.94 ± 0.08	39 ± 6	---	149 ± 7
84	0	32 ± 2	2000 ± 90	< 3000	2040 ± 90	1.89 ± 0.08	28 ± 4	---	170 ± 8
	6	28 ± 2	1540 ± 70	2900 ± 700	1240 ± 60	2.14 ± 0.10	25 ± 4	---	173 ± 8
85	0	31 ± 2	1510 ± 70	2700 ± 600	1510 ± 70	2.14 ± 0.09	20 ± 4	---	154 ± 8
	6	35 ± 2	1950 ± 90	2300 ± 500	980 ± 50	2.38 ± 0.10	35 ± 4	---	184 ± 9
86	0	26 ± 1	1300 ± 60	2900 ± 600	2060 ± 90	2.10 ± 0.09	24 ± 4	---	185 ± 9
	6	24 ± 1	1430 ± 70	2100 ± 400	1240 ± 60	2.25 ± 0.09	17 ± 3	---	182 ± 9
87	0	20 ± 1	960 ± 50	1900 ± 500	1350 ± 60	1.94 ± 0.08	20 ± 4	---	181 ± 9
	6	22 ± 2	1270 ± 60	3400 ± 600	1330 ± 60	2.30 ± 0.10	21 ± 3	---	198 ± 9
89	0	25 ± 1	1220 ± 60	< 2000	1370 ± 60	2.16 ± 0.10	22 ± 4	---	169 ± 8
	6	29 ± 2	1450 ± 70	< 2000	1590 ± 70	2.13 ± 0.09	25 ± 4	---	174 ± 8
90	0	40 ± 2	1680 ± 80	3300 ± 600	1050 ± 50	1.88 ± 0.08	43 ± 6	---	162 ± 8
		38 ± 2	1550 ± 70	3500 ± 700	1070 ± 50	1.99 ± 0.09	33 ± 6	---	173 ± 8
		49 ± 3	1580 ± 80	3400 ± 600	1880 ± 80	2.11 ± 0.09	44 ± 6	---	193 ± 10
	6	38 ± 2	1540 ± 70	3500 ± 1000	989 ± 39	2.04 ± 0.07	46 ± 6	---	193 ± 9
		36 ± 2	1460 ± 70	3300 ± 600	800 ± 40	2.07 ± 0.09	35 ± 8	---	179 ± 9
		44 ± 2	2060 ± 100	3260 ± 480	990 ± 50	2.19 ± 0.09	< 45	---	202 ± 13
95	0	19 ± 1	1580 ± 70	< 3000	3010 ± 140	2.04 ± 0.09	20 ± 6	---	229 ± 11
	6	19 ± 1	1930 ± 90	2100 ± 600	1690 ± 80	2.21 ± 0.10	29 ± 6	---	233 ± 11
96	0	24 ± 1	1780 ± 90	< 2200	1810 ± 80	2.18 ± 0.09	< 23	---	217 ± 10
	6	22 ± 1	2380 ± 110	< 2200	1330 ± 60	2.18 ± 0.09	16 ± 5	---	254 ± 12
99	0	38 ± 2	868 ± 43	6400 ± 800	1360 ± 60	1.71 ± 0.07	51 ± 7	---	160 ± 8
	6	41 ± 2	1060 ± 50	4200 ± 600	1310 ± 60	1.82 ± 0.08	47 ± 7	---	152 ± 7

Table C-XIV. Individual Elemental Concentration in Soils under North Slope Douglas Fir, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
81	0	1.00 ± 0.10	10.2 ± 0.6	1.0 ± 0.4	---	9.3 ± 0.4	< 400	1.18 ± 0.09	1.5 ± 0.1
	6	0.71 ± 0.09	10.9 ± 0.6	2 ± 1	---	8.1 ± 0.4	< 300	1.07 ± 0.08	1.4 ± 0.1
84	0	0.8 ± 0.1	9.4 ± 0.5	2 ± 2	---	8.2 ± 0.4	< 400	1.9 ± 0.1	1.6 ± 0.2
	6	0.40 ± 0.09	9.2 ± 0.5	< 3	---	6.1 ± 0.3	< 400	4.3 ± 0.3	1.3 ± 0.1
85	0	0.8 ± 0.1	8.7 ± 0.5	1.6 ± 0.7	---	6.6 ± 0.3	< 400	1.24 ± 0.08	1.4 ± 0.1
	6	0.31 ± 0.07	9.7 ± 0.5	< 3	---	7.8 ± 0.3	< 300	1.44 ± 0.10	1.8 ± 0.2
86	0	0.48 ± 0.10	8.8 ± 0.5	1.0 ± 0.7	---	6.2 ± 0.3	< 400	1.8 ± 0.1	1.04 ± 0.10
	6	0.50 ± 0.09	9.0 ± 0.5	1.3 ± 1.0	---	5.5 ± 0.3	< 400	2.6 ± 0.2	1.1 ± 0.1
87	0	0.71 ± 0.10	7.9 ± 0.4	< 3	---	3.7 ± 0.2	< 400	1.8 ± 0.1	0.82 ± 0.08
	6	< 0.3	8.7 ± 0.5	0.8 ± 0.4	---	5.4 ± 0.3	< 300	2.2 ± 0.1	0.94 ± 0.09
89	0	0.55 ± 0.09	7.6 ± 0.4	< 3	---	5.0 ± 0.2	< 300	2.7 ± 0.2	1.2 ± 0.1
	6	0.28 ± 0.08	9.1 ± 0.5	< 3	---	6.5 ± 0.3	< 400	1.9 ± 0.1	1.4 ± 0.1
90	0	0.7 ± 0.1	9.9 ± 0.5	1.5 ± 0.7	---	8.1 ± 0.4	< 300	1.7 ± 0.1	1.6 ± 0.1
		0.7 ± 0.1	10.4 ± 0.5	1.8 ± 0.8	---	9.1 ± 0.4	< 400	3.4 ± 0.2	1.5 ± 0.1
		1.14 ± 0.14	11.3 ± 0.6	1.7 ± 1.1	---	10.6 ± 0.5	< 330	2.08 ± 0.14	1.76 ± 0.16
	6	0.44 ± 0.10	11.4 ± 0.6	< 2.7	---	7.84 ± 0.36	< 300	1.86 ± 0.13	1.55 ± 0.14
		< 0.35	10.5 ± 0.6	< 3.7	---	7.50 ± 0.35	< 280	3.23 ± 0.19	1.60 ± 0.16
		< 0.32	11.5 ± 0.6	2.1 ± 1.2	---	9.24 ± 0.43	< 290	1.71 ± 0.29	0.16 ± 0.15
95	0	0.58 ± 0.10	9.31 ± 0.49	0.7 ± 0.7	---	4.35 ± 0.20	< 400	1.5 ± 0.1	1.13 ± 0.11
	6	0.44 ± 0.09	12.0 ± 0.6	< 3.3	---	4.75 ± 0.22	< 400	3.05 ± 0.19	1.36 ± 0.14
96	0	0.53 ± 0.10	10.0 ± 0.5	< 3.9	---	5.62 ± 0.26	< 400	2.73 ± 0.20	1.33 ± 0.15
	6	< 0.31	11.3 ± 0.6	1.4 ± 0.8	---	4.91 ± 0.23	< 400	2.53 ± 0.16	1.53 ± 0.14
99	0	0.71 ± 0.12	9.7 ± 0.5	1.2 ± 1.2	---	7.47 ± 0.34	< 300	1.71 ± 0.12	1.17 ± 0.12
	6	0.67 ± 0.10	9.6 ± 0.5	0.9 ± 0.4	---	7.75 ± 0.36	< 400	1.08 ± 0.08	1.18 ± 0.11

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
81	0	19.2 ± 0.7	2400 ± 400	4.3 ± 0.2	40 ± 3	5 ± 3	8.5 ± 0.5	80 ± 10	220 ± 50
	6	18.8 ± 0.7	3400 ± 500	4.1 ± 0.1	47 ± 3	3.2 ± 0.7	7.4 ± 0.4	70 ± 20	280 ± 60
84	0	14.2 ± 0.6	1900 ± 300	4.5 ± 0.2	32 ± 3	1.8 ± 0.6	14.5 ± 0.7	64 ± 9	280 ± 40
	6	13.5 ± 0.5	2500 ± 400	4.5 ± 0.2	31 ± 3	2.1 ± 0.8	10.7 ± 0.6	24 ± 4	210 ± 30
85	0	14.3 ± 0.6	2400 ± 400	3.8 ± 0.1	33 ± 2	9 ± 3	10.8 ± 0.6	63 ± 9	290 ± 50
	6	18.8 ± 0.7	2200 ± 300	4.6 ± 0.2	37 ± 3	< 5	13.0 ± 0.7	40 ± 20	400 ± 100
86	0	11.2 ± 0.4	2200 ± 400	3.2 ± 0.1	31 ± 3	< 5	9.4 ± 0.5	56 ± 8	220 ± 40
	6	10.9 ± 0.4	1500 ± 300	4.5 ± 0.2	23 ± 2	7 ± 6	10.3 ± 0.5	37 ± 6	280 ± 50
87	0	8.6 ± 0.3	1700 ± 400	2.8 ± 0.1	26 ± 2	< 6	6.7 ± 0.4	40 ± 30	180 ± 40
	6	9.8 ± 0.4	1800 ± 300	3.1 ± 0.1	25 ± 2	< 5	8.5 ± 0.5	43 ± 6	180 ± 30
89	0	10.7 ± 0.4	2200 ± 400	8.6 ± 0.3	26 ± 2	< 6	8.6 ± 0.5	45 ± 7	220 ± 40
	6	11.3 ± 0.4	1800 ± 300	4.0 ± 0.1	23 ± 2	< 5	10.4 ± 0.5	42 ± 6	200 ± 40
90	0	17.0 ± 0.7	2800 ± 400	4.7 ± 0.2	38 ± 3	2 ± 1	11.9 ± 0.6	50 ± 30	430 ± 60
		16.7 ± 0.7	2900 ± 400	13.4 ± 0.5	41 ± 3	< 6	10.6 ± 0.6	70 ± 10	320 ± 50
		20.2 ± 0.8	3020 ± 430	5.05 ± 0.18	46.4 ± 2.9	2.3 ± 0.6	11.8 ± 0.7	43 ± 20	300 ± 60
	6	18.5 ± 0.7	2870 ± 400	5.07 ± 0.18	36.8 ± 2.5	4.9 ± 2.6	10.8 ± 0.6	55 ± 7	470 ± 150
		16.5 ± 0.6	3290 ± 470	11.9 ± 0.4	36.8 ± 2.6	< 5	10.9 ± 0.6	52 ± 7	430 ± 100
		20.4 ± 0.8	3270 ± 450	4.86 ± 0.17	40.6 ± 2.7	2.1 ± 1.1	14.2 ± 0.7	< 22	< 430
95	0	8.5 ± 0.3	1380 ± 270	3.24 ± 0.12	16.5 ± 2.2	< 5	10.3 ± 0.5	38 ± 6	140 ± 120
	6	9.72 ± 0.38	1390 ± 320	4.22 ± 0.15	18.5 ± 2.4	1.5 ± 0.5	12.8 ± 0.7	< 10	157 ± 44
96	0	10.9 ± 0.4	1430 ± 290	4.57 ± 0.16	25.2 ± 2.9	< 6	13.1 ± 0.7	41 ± 6	500 ± 90
	6	9.98 ± 0.39	1420 ± 290	5.32 ± 0.19	16.3 ± 2.3	< 5	17.2 ± 0.9	18 ± 15	251 ± 49
99	0	17.6 ± 0.7	2960 ± 440	5.12 ± 0.18	46.5 ± 3.0	< 5	6.45 ± 0.37	89 ± 12	460 ± 100
	6	17.6 ± 0.7	2700 ± 410	3.63 ± 0.13	52.3 ± 3.2	< 5	7.3 ± 0.4	69 ± 10	228 ± 42

Table C-XV. Individual Elemental Concentration in Soils under North Slope Ponderosa Pine, RMD, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (ug/g)	Ce (ug/g)
1	0	---	4.3 ± 0.2	---	---	294 ± 58	---	7900 ± 1000	31 ± 3
		---	4.8 ± 0.2	---	---	314 ± 72	---	7180 ± 890	30 ± 2
		---	7.8 ± 0.3	---	---	560 ± 90	---	10800 ± 1200	61 ± 6
	6	---	9.2 ± 0.3	---	---	510 ± 80	---	12000 ± 1000	72 ± 7
		---	8.9 ± 0.4	---	---	470 ± 80	---	10000 ± 1100	68 ± 7
		---	8.5 ± 0.4	---	---	440 ± 80	---	9300 ± 1200	70 ± 7
6	0	---	1.23 ± 0.15	---	---	227 ± 56	---	10100 ± 1500	12 ± 2
		---	3.42 ± 0.27	---	---	422 ± 71	---	11400 ± 1700	29 ± 3
		---	1.82 ± 0.16	---	---	214 ± 44	---	9700 ± 1300	20 ± 2
	6	---	9.2 ± 0.4	---	---	437 ± 60	---	11400 ± 1000	105 ± 11
		---	8.8 ± 0.3	---	---	520 ± 80	---	11000 ± 1100	92 ± 9
		---	9.6 ± 0.4	---	---	480 ± 72	---	12200 ± 1400	115 ± 12
12	0	---	6.2 ± 0.3	---	---	360 ± 70	---	10200 ± 1000	41 ± 4
		---	3.76 ± 0.19	---	---	280 ± 57	---	9600 ± 1200	33 ± 3
		---	7.7 ± 0.3	---	---	400 ± 100	---	14200 ± 1300	69 ± 7
	6	---	8.8 ± 0.4	---	---	280 ± 70	---	12500 ± 1200	64 ± 6
		---	8.5 ± 0.4	---	---	430 ± 100	---	9200 ± 1300	66 ± 7
		---	8.6 ± 0.4	---	---	550 ± 110	---	10400 ± 1200	80 ± 8
24	0	---	2.95 ± 0.16	---	---	206 ± 45	---	8600 ± 1000	23 ± 2
		---	3.5 ± 0.2	---	---	283 ± 43	---	9100 ± 1300	23 ± 2
		---	1.46 ± 0.17	---	---	158 ± 41	---	< 8000	14 ± 2
	6	---	10.0 ± 0.4	---	---	412 ± 58	---	12500 ± 1200	94 ± 10
		---	9.0 ± 0.3	---	---	410 ± 70	---	10900 ± 1000	95 ± 10
		---	8.5 ± 0.3	---	---	350 ± 70	---	8700 ± 1000	84 ± 8
53	0	---	8.3 ± 0.4	---	---	311 ± 75	---	11300 ± 1400	44 ± 4
		---	4.8 ± 0.2	---	---	257 ± 61	---	6800 ± 1000	23 ± 2
		---	5.1 ± 0.2	---	---	237 ± 50	---	7600 ± 800	28 ± 3
	6	---	9.2 ± 0.4	---	---	286 ± 49	---	8900 ± 1100	50 ± 5
		---	9.2 ± 0.4	---	---	337 ± 62	---	10300 ± 1300	54 ± 6
		---	9.39 ± 0.36	---	---	511 ± 67	---	11100 ± 1100	66 ± 7
	12	---	9.91 ± 0.39	---	---	332 ± 56	---	9900 ± 1000	72 ± 7
		---	9.65 ± 0.43	---	---	330 ± 55	---	8300 ± 1200	56 ± 6
		---	9.77 ± 0.39	---	---	253 ± 50	---	10600 ± 1100	77 ± 8
57	0	---	6.46 ± 0.26	---	---	327 ± 59	---	5560 ± 740	28 ± 3
		---	2.18 ± 0.15	---	---	186 ± 44	---	3780 ± 790	14 ± 2
		---	8.85 ± 0.43	---	---	351 ± 49	---	10900 ± 1400	69 ± 7
	6	---	10.07 ± 0.41	---	---	326 ± 64	---	9500 ± 1100	63 ± 6
		---	9.46 ± 0.37	---	---	411 ± 59	---	8570 ± 920	53 ± 5
		---	9.40 ± 0.39	---	---	379 ± 60	---	10000 ± 1100	70 ± 7
	12	---	9.29 ± 0.41	---	---	313 ± 56	---	7100 ± 1100	78 ± 8
		---	9.47 ± 0.38	---	---	293 ± 59	---	10800 ± 1100	64 ± 6

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	140 ± 40	2.53 ± 0.38	0.4 ± 0.2	19.7 ± 2.0	2.87 ± 0.42	---	3.2 ± 0.4	0.47 ± 0.09
		100 ± 50	3.64 ± 0.37	0.9 ± 0.2	23.1 ± 1.8	2.75 ± 0.51	---	4.7 ± 0.3	0.58 ± 0.10
		< 160	3.18 ± 0.74	0.6 ± 0.2	21.1 ± 2.6	5.65 ± 0.61	---	6.3 ± 0.6	0.87 ± 0.11
	6	40 ± 50	4.49 ± 0.50	1.0 ± 0.2	27.1 ± 2.2	4.63 ± 0.54	---	10.2 ± 0.8	1.19 ± 0.14
		10 ± 40	3.10 ± 0.63	0.6 ± 0.2	18.0 ± 2.2	4.93 ± 0.49	---	9.9 ± 0.8	1.06 ± 0.11
		170 ± 50	5.23 ± 0.57	0.6 ± 0.2	22.7 ± 1.9	4.74 ± 0.56	---	8.2 ± 0.8	0.83 ± 0.10
6	0	750 ± 90	12.6 ± 2.12	0.5 ± 0.2	21.0 ± 2.6	2.05 ± 0.37	---	< 6.2	0.28 ± 0.09
		320 ± 70	17.1 ± 1.7	0.5 ± 0.2	100 ± 7	2.92 ± 0.45	---	< 8.7	0.47 ± 0.09
		430 ± 60	46.2 ± 7.0	1.0 ± 0.2	47.4 ± 5.0	2.40 ± 0.35	---	1.6 ± 0.4	0.28 ± 0.08
	6	90 ± 50	4.59 ± 0.5	0.4 ± 0.2	23.7 ± 2.1	4.4 ± 0.5	---	< 7	1.23 ± 0.15
		20 ± 50	3.87 ± 0.72	0.8 ± 0.2	24.0 ± 2.8	4.58 ± 0.49	---	9.9 ± 0.9	1.28 ± 0.13
		< 200	4.82 ± 0.55	0.5 ± 0.2	23.9 ± 2.1	5.12 ± 0.59	---	12.7 ± 1.1	1.32 ± 0.16
12	0	130 ± 60	2.27 ± 0.34	1.0 ± 0.2	26.8 ± 2.7	4.25 ± 0.52	---	19.8 ± 1.6	0.62 ± 0.08
		800 ± 90	87 ± 8.7	0.4 ± 0.2	12.5 ± 0.9	3.93 ± 0.49	---	3.7 ± 0.5	0.44 ± 0.09
		230 ± 60	6.05 ± 1.08	0.3 ± 0.2	27.3 ± 3.1	5.85 ± 0.57	---	8.4 ± 0.8	0.80 ± 0.10
	6	80 ± 40	6.32 ± 0.68	2.0 ± 0.2	27.9 ± 2.3	6.24 ± 0.68	---	8.5 ± 0.8	0.89 ± 0.11
		110 ± 60	5.65 ± 1.01	0.5 ± 0.2	25.5 ± 3.0	6.86 ± 0.65	---	5.2 ± 0.6	0.82 ± 0.10
		190 ± 70	6.82 ± 0.73	0.6 ± 0.2	26.4 ± 2.2	5.49 ± 0.61	---	10.4 ± 1.1	1.15 ± 0.13

Table C-XV. Individual Elemental Concentration in Soils under North Slope Ponderosa Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
24	0	440 ± 70	101 ± 15.2	0.6 ± 0.2	95 ± 9.7	3.51 ± 0.43	---	3.6 ± 0.4	0.40 ± 0.08
		300 ± 60	61 ± 6.2	0.4 ± 0.2	94.6 ± 6.9	2.47 ± 0.35	---	2.4 ± 0.4	0.18 ± 0.07
		440 ± 60	16.7 ± 2.68	0.3 ± 0.2	25.6 ± 2.9	2.10 ± 0.30	---	< 8	0.13 ± 0.08
	6	180 ± 60	5.04 ± 0.56	0.4 ± 0.2	23.7 ± 2.1	4.95 ± 0.56	---	13.6 ± 1.1	1.16 ± 0.13
		150 ± 50	3.22 ± 0.62	0.7 ± 0.2	18.7 ± 2.2	4.71 ± 0.48	---	16.9 ± 1.4	1.11 ± 0.11
		230 ± 70	4.16 ± 0.48	0.5 ± 0.2	22.6 ± 2.1	4.08 ± 0.51	---	17.4 ± 1.4	0.95 ± 0.12
53	0	140 ± 70	1.58 ± 0.55	0.7 ± 0.2	19.0 ± 2.4	3.42 ± 0.41	---	7.4 ± 0.8	0.54 ± 0.08
		260 ± 60	1.07 ± 0.10	0.6 ± 0.2	13.5 ± 1.0	2.89 ± 0.44	---	3.5 ± 0.4	0.31 ± 0.07
		190 ± 50	2.30 ± 0.35	0.6 ± 0.2	19.0 ± 1.9	2.44 ± 0.44	---	3.3 ± 0.4	0.55 ± 0.08
	6	< 160	3.39 ± 0.41	0.6 ± 0.2	22.6 ± 2.1	3.62 ± 0.46	---	18.0 ± 1.6	0.73 ± 0.10
		< 300	1.85 ± 0.56	0.4 ± 0.2	15.1 ± 2.0	3.35 ± 0.39	---	7.1 ± 0.8	0.84 ± 0.10
		140 ± 50	3.98 ± 0.47	0.7 ± 0.2	17.6 ± 1.7	3.43 ± 0.45	---	9.5 ± 0.9	0.89 ± 0.12
	12	< 130	2.22 ± 0.53	0.3 ± 0.2	15.9 ± 2.1	3.90 ± 0.45	---	5.7 ± 0.6	0.95 ± 0.11
		< 250	3.32 ± 0.40	0.5 ± 0.2	17.5 ± 1.7	3.25 ± 0.45	---	6.0 ± 0.7	0.74 ± 0.10
		140 ± 30	2.16 ± 0.53	0.4 ± 0.2	21.2 ± 2.4	3.31 ± 0.38	---	6.5 ± 0.7	0.96 ± 0.11
57	0	245 ± 70	3.96 ± 0.39	0.5 ± 0.2	21.4 ± 1.5	2.71 ± 0.40	---	7.1 ± 0.7	0.47 ± 0.08
		310 ± 50	72 ± 11	0.7 ± 0.2	92 ± 9	1.48 ± 0.35	---	1.3 ± 0.2	0.24 ± 0.08
		< 270	4.30 ± 0.49	0.6 ± 0.2	21.5 ± 1.9	4.06 ± 0.48	---	9.9 ± 1.0	0.80 ± 0.10
	6	< 190	4.29 ± 0.80	0.8 ± 0.2	14.0 ± 1.8	3.65 ± 0.45	---	11.5 ± 1.0	0.67 ± 0.09
		< 190	4.50 ± 0.51	0.6 ± 0.2	17.2 ± 1.8	3.54 ± 0.43	---	7.7 ± 0.9	0.76 ± 0.10
		< 140	3.49 ± 0.67	0.6 ± 0.2	18.6 ± 2.4	4.04 ± 0.44	---	7.3 ± 0.7	0.80 ± 0.09
	12	< 250	3.88 ± 0.47	0.5 ± 0.2	15.9 ± 1.7	3.63 ± 0.49	---	6.7 ± 0.7	0.72 ± 0.10
		< 180	2.63 ± 0.57	0.6 ± 0.2	17.6 ± 2.3	3.05 ± 0.38	---	11.3 ± 1.1	0.95 ± 0.10

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ng/g)	K (%)
1	0	---	0.95 ± 0.08	< 58	13.6 ± 1.13	---	---	< 140	1.92 ± 0.28
		---	1.14 ± 0.08	< 50	17.8 ± 1.81	---	---	< 150	2.12 ± 0.21
		---	1.92 ± 0.15	< 49	6.78 ± 0.58	---	---	< 190	2.64 ± 0.31
	6	---	1.82 ± 0.13	< 40	8.73 ± 0.72	---	---	< 150	3.4 ± 0.4
		---	1.83 ± 0.15	< 60	6.61 ± 0.56	---	---	< 160	3.6 ± 0.3
		---	2.10 ± 0.15	< 70	7.66 ± 0.63	---	---	< 300	2.8 ± 0.3
6	0	---	0.47 ± 0.04	< 66	1.24 ± 0.16	---	---	< 180	< 0.54
		---	1.03 ± 0.07	< 85	2.89 ± 0.27	---	---	< 300	1.80 ± 0.33
		---	0.72 ± 0.06	< 58	3.51 ± 0.34	---	---	< 170	0.73 ± 0.17
	6	---	2.08 ± 0.15	< 50	9.36 ± 0.77	---	---	< 170	2.7 ± 0.3
		---	1.98 ± 0.16	< 60	8.04 ± 0.66	---	---	< 150	3.0 ± 0.3
		---	2.22 ± 0.16	< 70	7.74 ± 0.64	---	---	< 300	3.3 ± 0.3
12	0	---	1.33 ± 0.11	< 60	10.6 ± 0.87	---	---	< 180	3.1 ± 0.3
		---	1.11 ± 0.08	< 53	2.42 ± 0.24	---	---	< 190	1.37 ± 0.20
		791 ± 79	2.00 ± 0.16	< 60	12.9 ± 1.07	---	---	< 200	2.8 ± 0.4
	6	1150 ± 115	2.31 ± 0.16	< 70	5.82 ± 0.49	---	---	< 180	2.7 ± 0.3
		313 ± 31	2.19 ± 0.18	< 80	5.53 ± 0.47	---	---	< 300	2.4 ± 0.3
		---	2.22 ± 0.15	< 80	6.69 ± 0.56	---	---	< 200	2.7 ± 0.3
24	0	---	0.90 ± 0.07	< 40	4.47 ± 0.42	---	---	< 130	1.7 ± 0.2
		---	0.83 ± 0.06	< 80	2.71 ± 0.25	---	---	< 190	1.3 ± 0.2
		---	0.52 ± 0.04	< 60	1.88 ± 0.21	---	--	< 200	< 0.8
	6	---	1.87 ± 0.13	< 70	7.61 ± 0.63	---	---	< 200	3.3 ± 0.3
		---	1.88 ± 0.15	< 50	9.18 ± 0.76	---	---	< 160	3.6 ± 0.4
		---	1.62 ± 0.11	< 70	6.35 ± 0.53	---	---	< 170	3.1 ± 0.3
53	0	---	1.25 ± 0.10	< 57	3.74 ± 0.34	---	---	< 210	2.33 ± 0.29
		---	0.79 ± 0.06	< 57	3.67 ± 0.33	---	---	< 180	1.66 ± 0.21
		---	0.85 ± 0.07	< 40	7.77 ± 0.67	---	---	< 130	2.01 ± 0.24
	6	---	1.34 ± 0.09	< 80	6.47 ± 0.54	---	---	< 200	2.7 ± 0.3
		---	1.38 ± 0.11	< 80	5.01 ± 0.43	---	---	< 300	2.8 ± 0.3
		---	1.53 ± 0.11	< 54	4.04 ± 0.36	---	---	< 180	3.02 ± 0.36
	12	---	1.49 ± 0.12	< 56	4.09 ± 0.36	---	---	< 150	3.40 ± 0.27
		---	1.59 ± 0.11	< 85	5.98 ± 0.51	---	---	< 320	2.83 ± 0.35
		---	1.47 ± 0.12	< 66	6.63 ± 0.55	---	---	< 200	3.09 ± 0.27

Table C-XV. Individual Elemental Concentration in Soils under North Slope Ponderosa Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ng/g)	K (%)
57	0	---	1.03 ± 0.07	< 46	5.81 ± 0.49	---	---	< 160	2.5 ± 0.3
		---	0.48 ± 0.04	< 46	2.85 ± 0.31	---	---	< 120	1.05 ± 0.28
		411 ± 41	1.71 ± 0.12	< 90	5.44 ± 0.46	---	---	< 330	2.84 ± 0.39
	6	474 ± 47	1.62 ± 0.13	< 76	4.51 ± 0.39	---	---	< 230	2.93 ± 0.28
		---	1.51 ± 0.10	< 57	4.11 ± 0.36	---	---	< 190	3.00 ± 0.36
		---	1.80 ± 0.14	< 69	6.99 ± 0.58	---	---	< 180	3.06 ± 0.28
	12	---	1.65 ± 0.12	< 79	4.74 ± 0.41	---	---	< 300	2.75 ± 0.33
		---	1.55 ± 0.12	< 71	6.50 ± 0.55	---	---	< 220	2.88 ± 0.31

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
1	0	---	---	< 4000	420 ± 20	10300 ± 400	---	---	98 ± 15
		---	---	< 3500	425 ± 20	11400 ± 400	---	---	131 ± 16
		---	---	4000 ± 1200	860 ± 40	21300 ± 800	---	---	167 ± 18
	6	---	---	2400 ± 900	680 ± 30	25500 ± 900	---	---	217 ± 23
		---	---	4700 ± 1400	710 ± 40	24100 ± 800	---	---	175 ± 18
		---	---	< 6000	650 ± 30	23100 ± 800	---	---	215 ± 22
6	0	---	---	< 3700	490 ± 20	1840 ± 160	---	---	29 ± 7
		---	---	< 6600	1140 ± 60	8300 ± 400	---	---	104 ± 15
		---	---	< 3700	650 ± 30	4350 ± 160	---	---	52 ± 9
	6	---	---	4200 ± 1400	1420 ± 70	25400 ± 900	---	---	196 ± 21
		---	---	< 4000	790 ± 40	24000 ± 900	---	---	163 ± 18
		---	---	< 7000	830 ± 40	26000 ± 900	---	---	212 ± 22
12	0	---	---	< 4000	990 ± 50	16100 ± 600	---	---	160 ± 18
		---	---	< 4000	725 ± 33	8540 ± 300	---	---	108 ± 14
		---	---	7200 ± 1900	1490 ± 70	19800 ± 700	---	4.4 ± 0.3	170 ± 19
	6	---	---	< 5000	1210 ± 50	22900 ± 900	---	5.1 ± 0.3	215 ± 22
		---	---	< 7000	1010 ± 50	22800 ± 900	---	---	185 ± 20
		---	---	< 5000	1400 ± 60	25100 ± 900	---	---	208 ± 22
24	0	---	---	< 3000	470 ± 20	5710 ± 200	---	---	86 ± 13
		---	---	< 4000	1090 ± 50	4780 ± 180	---	---	81 ± 10
		---	---	< 5000	380 ± 20	1920 ± 110	---	---	35 ± 7
	6	---	---	< 4000	970 ± 40	21600 ± 700	---	---	216 ± 23
		---	---	< 4000	1070 ± 50	21200 ± 700	---	---	191 ± 20
		---	---	< 4000	890 ± 40	19600 ± 700	---	---	218 ± 23
53	0	---	---	< 4500	1320 ± 59	25600 ± 900	---	---	144 ± 16
		---	---	< 3800	560 ± 30	11600 ± 400	---	---	135 ± 16
		---	---	< 3000	450 ± 20	12700 ± 500	---	---	149 ± 18
	6	---	---	< 5000	1130 ± 50	29500 ± 1000	---	---	199 ± 21
		---	---	< 7000	980 ± 40	29500 ± 1000	---	---	171 ± 18
		---	---	< 4400	1248 ± 56	28900 ± 1000	---	---	225 ± 24
	12	---	---	< 4200	526 ± 24	26700 ± 900	---	---	204 ± 21
		---	---	< 7200	1367 ± 62	26700 ± 1000	---	---	226 ± 24
		---	---	< 4700	702 ± 32	30000 ± 1000	---	---	183 ± 19
57	0	---	---	< 3700	955 ± 45	19200 ± 700	---	---	196 ± 24
		---	---	< 3100	270 ± 13	4340 ± 170	---	---	68 ± 11
		---	---	< 8000	1074 ± 53	25600 ± 900	---	4.8 ± 0.3	219 ± 23
	6	---	---	< 5100	970 ± 44	30400 ± 1000	---	5.1 ± 0.3	193 ± 20
		---	---	< 4600	1183 ± 53	25900 ± 900	---	---	223 ± 23
		---	---	< 4900	806 ± 36	27400 ± 1000	---	---	184 ± 19
	12	---	---	< 7000	793 ± 36	26600 ± 1000	---	---	215 ± 23
		---	---	< 5000	1034 ± 49	30300 ± 1000	---	---	155 ± 17

Table C-XV. Individual Elemental Concentration in Soils under North Slope Ponderosa Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	0.97 ± 0.27	4.72 ± 0.33	---	20 ± 2	3.12 ± 0.47	< 300	4.33 ± 0.70	---
		1.30 ± 0.27	5.31 ± 0.37	---	22.7 ± 1.7	3.41 ± 0.34	< 220	5.94 ± 0.66	---
		0.19 ± 0.18	9.77 ± 0.69	---	28.2 ± 1.5	6.11 ± 0.92	< 300	1.30 ± 0.24	---
	6	0.35 ± 0.15	11.0 ± 0.56	---	30.1 ± 1.5	6.50 ± 0.65	< 200	0.91 ± 0.13	---
		0.51 ± 0.22	11.2 ± 0.79	---	28 ± 3	6.75 ± 1.01	< 300	1.06 ± 0.21	---
		0.53 ± 0.16	11.9 ± 0.60	---	28.8 ± 1.6	6.23 ± 0.62	< 300	1.11 ± 0.15	---
6	0	0.85 ± 0.29	1.68 ± 0.12	---	4.5 ± 0.5	1.06 ± 0.16	< 300	0.45 ± 0.19	---
		0.80 ± 0.28	4.19 ± 0.21	---	16 ± 2	2.41 ± 0.25	< 490	2.85 ± 0.34	---
		1.63 ± 0.40	2.66 ± 0.19	---	8.9 ± 1.2	1.61 ± 0.24	< 270	1.08 ± 0.22	---
	6	0.39 ± 0.16	9.28 ± 0.47	---	28.5 ± 1.5	8.38 ± 0.84	< 300	0.93 ± 0.13	---
		0.64 ± 0.21	10.4 ± 0.73	---	30 ± 2	8.07 ± 1.22	< 300	1.24 ± 0.23	---
		0.46 ± 0.19	11.4 ± 0.58	---	29.5 ± 1.7	9.38 ± 0.94	< 400	1.25 ± 0.17	---
12	0	0.42 ± 0.18	6.46 ± 0.45	---	30 ± 2	3.86 ± 0.58	< 300	4.20 ± 0.67	---
		1.33 ± 0.28	4.93 ± 0.25	---	30 ± 2	2.61 ± 0.27	< 330	1.73 ± 0.23	---
		1.46 ± 0.32	9.81 ± 0.69	---	26 ± 4	6.02 ± 0.90	< 400	1.48 ± 0.27	---
	6	0.88 ± 0.23	10.6 ± 0.54	---	28 ± 3	5.02 ± 0.50	< 300	1.17 ± 0.15	---
		0.68 ± 0.21	10.8 ± 0.76	---	29 ± 3	5.75 ± 0.86	< 400	1.64 ± 0.30	---
		0.93 ± 0.23	10.9 ± 0.55	---	28.6 ± 1.7	6.68 ± 0.67	< 300	4.41 ± 0.47	---
24	0	1.28 ± 0.30	3.36 ± 0.24	---	16.3 ± 1.2	2.02 ± 0.30	< 300	1.70 ± 0.32	---
		1.15 ± 0.24	3.05 ± 0.15	---	12.1 ± 0.7	1.73 ± 0.18	< 400	1.26 ± 0.20	---
		1.01 ± 0.26	1.84 ± 0.13	---	4.8 ± 0.4	1.13 ± 0.17	< 400	0.80 ± 0.22	---
	6	0.27 ± 0.10	10.9 ± 0.55	---	27.4 ± 1.8	8.07 ± 0.81	< 300	1.24 ± 0.17	---
		0.64 ± 0.20	10.3 ± 0.73	---	30 ± 3	8.61 ± 1.3	< 300	1.11 ± 0.22	---
		0.95 ± 0.22	9.98 ± 0.51	---	28 ± 3	6.97 ± 0.70	< 300	1.01 ± 0.16	---
53	0	0.89 ± 0.22	7.30 ± 0.51	---	23 ± 3	3.75 ± 0.56	< 350	0.83 ± 0.17	---
		0.97 ± 0.28	4.24 ± 0.22	---	21.3 ± 1.5	1.92 ± 0.20	< 290	1.98 ± 0.27	---
		1.33 ± 0.33	4.70 ± 0.33	---	22.0 ± 1.7	2.71 ± 0.41	< 200	3.89 ± 0.63	---
	6	0.62 ± 0.16	9.40 ± 0.48	---	27 ± 2	3.76 ± 0.38	< 400	1.31 ± 0.18	---
		0.69 ± 0.24	9.97 ± 0.70	---	25 ± 2	4.92 ± 0.74	< 400	1.92 ± 0.33	---
		0.51 ± 0.17	10.1 ± 0.51	---	26 ± 3	5.98 ± 0.60	< 330	3.38 ± 0.37	---
	12	0.45 ± 0.21	11.2 ± 0.79	---	28.9 ± 1.9	7.83 ± 1.18	< 270	1.62 ± 0.29	---
		0.52 ± 0.20	13.0 ± 0.66	---	28.2 ± 1.8	3.69 ± 0.37	< 470	2.94 ± 0.33	---
		1.06 ± 0.25	10.7 ± 0.75	---	28 ± 3	7.04 ± 1.06	< 260	1.54 ± 0.27	---
57	0	0.62 ± 0.19	5.28 ± 0.27	---	27.8 ± 1.5	2.34 ± 0.24	< 300	7.13 ± 0.75	---
		1.35 ± 0.33	2.39 ± 0.17	---	---	1.30 ± 0.21	< 200	1.52 ± 0.31	---
		0.87 ± 0.21	10.1 ± 0.51	---	25.4 ± 1.8	5.28 ± 0.53	< 480	1.38 ± 0.18	---
	6	0.76 ± 0.27	14.3 ± 1.02	---	28.1 ± 1.5	6.51 ± 0.98	< 310	1.96 ± 0.33	---
		0.53 ± 0.18	10.9 ± 0.56	---	30 ± 2	3.51 ± 0.36	< 350	1.44 ± 0.18	---
		0.54 ± 0.20	11.4 ± 0.80	---	23.4 ± 1.5	5.85 ± 0.88	< 340	2.15 ± 0.35	---
	12	0.50 ± 0.21	12.4 ± 0.63	---	24 ± 3	5.52 ± 0.57	< 400	1.82 ± 0.23	---
		0.42 ± 0.18	12.5 ± 0.88	---	25 ± 4	6.82 ± 1.03	< 300	3.06 ± 0.49	---

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	8.01 ± 0.66	1260 ± 290	2.05 ± 0.2	14.6 ± 2.5	1700 ± 200	4.1 ± 0.4	81 ± 17	---
		8.91 ± 0.73	1400 ± 200	2.01 ± 0.2	16 ± 2	2900 ± 400	4.63 ± 0.5	90 ± 16	---
		17.0 ± 1.3	2700 ± 300	4.55 ± 0.3	32 ± 3	< 170	7.11 ± 0.75	89 ± 18	---
	6	20.0 ± 1.6	2900 ± 500	4.16 ± 0.3	34 ± 3	< 130	9.8 ± 1.0	65 ± 10	---
		18.3 ± 1.4	2500 ± 300	3.58 ± 0.3	33 ± 3	< 130	8.07 ± 0.8[illegible]	82 ± 17	---
		19.1 ± 1.5	2200 ± 400	3.57 ± 0.3	24 ± 3	< 180	6.00 ± 0.62	75 ± 11	---
6	0	1.90 ± 0.20	650 ± 170	0.63 ± 0.1	9.6 ± 1.4	< 230	0.79 ± 0.22	61 ± 13	---
		6.63 ± 0.55	1120 ± 340	1.82 ± 0.15	17.8 ± 2.9	1990 ± 230	2.45 ± 0.29	114 ± 19	---
		3.59 ± 0.33	1060 ± 240	1.07 ± 0.1	17 ± 2	408 ± 63	0.82 ± 0.22	57 ± 12	---
	6	21.2 ± 1.72	2300 ± 400	4.68 ± 0.4	36 ± 3	< 180	10.7 ± 1.09	72 ± 11	---
		21.2 ± 1.7	2700 ± 300	5.17 ± 0.4	28 ± 2	< 130	11.6 ± 1.19	95 ± 19	---
		26.2 ± 2.1	3000 ± 400	5.72 ± 0.5	42 ± 4	< 200	9.72 ± 0.99	69 ± 11	---
12	0	9.40 ± 0.77	1900 ± 300	2.58 ± 0.2	22 ± 2	1700 ± 200	7.70 ± 0.81	91 ± 19	---
		7.40 ± 0.61	1600 ± 310	1.01 ± 0.1	20 ± 2	840 ± 50	3.24 ± 0.37	92 ± 15	---
		13.2 ± 1.0	2700 ± 400	3.67 ± 0.3	37 ± 3	< 200	6.00 ± 0.64	108 ± 22	---
	6	14.0 ± 1.14	2400 ± 300	4.38 ± 0.4	36 ± 3	< 160	9.70 ± 0.99	57 ± 9	---
		13.9 ± 1.1	3200 ± 400	7.62 ± 0.6	36 ± 4	< 200	7.86 ± 0.82	77 ± 16	---
		19.9 ± 1.6	2400 ± 400	4.38 ± 0.4	35 ± 3	< 200	7.30 ± 0.75	54 ± 8	---

Table C-XV. Individual Elemental Concentration in Soils under North Slope Ponderosa Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
24	0	4.30 ± 0.38	1200 ± 300	1.16 ± 0.1	20.8 ± 2.0	820 ± 110	2.06 ± 0.28	77 ± 17	---
		4.28 ± 0.36	1200 ± 300	1.39 ± 0.1	18 ± 2	420 ± 60	1.62 ± 0.22	59 ± 10	---
		2.19 ± 0.22	< 4000	0.64 ± 0.1	14 ± 2	< 200	0.66 ± 0.20	65 ± 14	---
	6	18.4 ± 1.4	3100 ± 400	4.38 ± 0.4	29 ± 3	< 170	12.3 ± 1.2	63 ± 10	---
		19.2 ± 1.5	2400 ± 400	5.65 ± 0.5	30 ± 3	< 160	9.67 ± 0.99	76 ± 16	---
		15.9 ± 1.3	2400 ± 300	3.77 ± 0.35	27 ± 3	< 150	8.87 ± 0.91	44 ± 7	---
53	0	8.13 ± 0.67	1500 ± 320	3.21 ± 0.3	26 ± 4	< 240	7.58 ± 0.79	116 ± 23	---
		4.95 ± 0.42	1240 ± 220	1.28 ± 0.1	13 ± 2	980 ± 130	3.39 ± 0.37	92 ± 16	---
		5.76 ± 0.49	1100 ± 200	2.06 ± 0.15	18.7 ± 1.8	2000 ± 300	2.85 ± 0.36	104 ± 22	---
	6	10.9 ± 0.8	1800 ± 300	3.43 ± 0.3	19 ± 3	< 170	11.3 ± 1.1	95 ± 15	---
		12.4 ± 1.0	1400 ± 300	2.89 ± 0.2	19 ± 4	< 200	8.36 ± 0.87	122 ± 24	---
		15.8 ± 1.2	1660 ± 410	6.04 ± 0.5	20.7 ± 2.4	< 180	8.73 ± 0.89	98 ± 15	---
	12	18.8 ± 1.5	2030 ± 350	3.33 ± 0.3	11.2 ± 2.3	< 120	11.2 ± 1.15	146 ± 29	---
		14.0 ± 1.1	1310 ± 300	3.65 ± 0.3	14.6 ± 3.4	< 250	8.69 ± 0.89	126 ± 19	---
		18.2 ± 1.4	1210 ± 270	4.23 ± 0.4	20.8 ± 2.9	< 160	13.4 ± 1.3	145 ± 29	---
57	0	7.23 ± 0.60	1150 ± 220	2.43 ± 0.2	16.1 ± 1.9	3330 ± 420	5.68 ± 0.59	151 ± 24	---
		2.37 ± 0.25	740 ± 180	0.76 ± 0.1	8.0 ± 1.6	706 ± 97	1.16 ± 0.25	77 ± 17	---
		13.5 ± 1.1	2180 ± 400	3.89 ± 0.3	21.7 ± 3.3	< 260	6.76 ± 0.69	109 ± 16	---
	6	12.9 ± 1.0	2590 ± 370	4.89 ± 0.4	23.0 ± 3.4	< 190	9.06 ± 0.93	118 ± 24	---
		11.5 ± 0.9	1990 ± 390	9.93 ± 0.7	24.0 ± 2.9	< 190	7.72 ± 0.79	115 ± 18	---
		14.4 ± 1.1	2210 ± 300	4.13 ± 0.35	27.9 ± 3.1	< 160	6.32 ± 0.66	119 ± 24	---
	12	16.9 ± 1.3	1980 ± 380	3.27 ± 0.3	20.8 ± 3.8	< 220	5.84 ± 0.61	103 ± 16	---
		14.4 ± 1.1	1450 ± 250	4.44 ± 0.4	21.0 ± 3.1	< 180	15.1 ± 1.5	111 ± 22	---

Note: Trees showing severe growth depression. 2, 2.5, 3, 4, 10, 11, 29, 32, 34, 34', 35, 36. (4).

Table C-XVI. Individual Elemental Concentration in Soils under North Slope White Pine, RMD, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
30	0	< 3.1	7.37 ± 0.21	7.4 ± 0.8	< 16	463 ± 49	2.74 ± 0.42	1.02 ± 0.08	79 ± 4
		< 3.3	6.54 ± 0.19	7.5 ± 0.9	< 16	425 ± 38	4.3 ± 0.6	1.03 ± 0.08	57 ± 3
		< 2.7	7.43 ± 0.21	8.3 ± 0.9	< 15	453 ± 38	4.0 ± 0.5	0.97 ± 0.07	68 ± 3
		< 2.7	7.28 ± 0.2	7.4 ± 0.8	< 15	456 ± 38	4.8 ± 0.7	1.11 ± 0.08	62 ± 3
	6	< 2.6	8.72 ± 0.24	1.9 ± 0.4	< 14	455 ± 34	2.4 ± 1.0	0.95 ± 0.06	58 ± 3
		< 3.4	9.01 ± 0.23	3.6 ± 0.5	< 11	459 ± 40	2.34 ± 0.36	1.00 ± 0.07	52 ± 3
		< 2.8	8.68 ± 0.24	2.82 ± 0.45	< 13	458 ± 37	1.7 ± 0.6	0.76 ± 0.06	63 ± 3
		< 2.7	8.64 ± 0.24	2.66 ± 0.41	< 15	422 ± 35	3.0 ± 0.6	1.10 ± 0.07	69 ± 3
41	0	< 4.4	7.58 ± 0.20	5.1 ± 0.6	< 11	362 ± 47	6.1 ± 0.7	1.40 ± 0.09	80 ± 4
	6	< 3.3	8.45 ± 0.24	4.4 ± 0.6	< 13	420 ± 50	---	0.89 ± 0.07	106 ± 5
42	0	< 3.2	7.98 ± 0.22	5.8 ± 0.6	< 11	391 ± 37	1.96 ± 0.3	0.62 ± 0.05	72 ± 3
	6	< 3.3	8.66 ± 0.24	2.54 ± 0.36	< 11	355 ± 36	---	0.57 ± 0.05	73 ± 3
43	0	< 3.7	7.39 ± 0.21	4.6 ± 0.6	< 11	460 ± 50	2.24 ± 0.43	1.02 ± 0.11	60 ± 3
		< 3.5	6.73 ± 0.20	6.6 ± 0.8	< 14	373 ± 47	4.2 ± 0.5	1.07 ± 0.08	69 ± 3
		< 2.9	7.07 ± 0.21	7.1 ± 0.8	< 14	430 ± 50	3.75 ± 0.48	1.02 ± 0.08	73 ± 3
	6	< 2.8	7.85 ± 0.22	1.77 ± 0.34	< 14	369 ± 37	2.6 ± 0.4	0.75 ± 0.06	74 ± 4
		< 3.3	8.10 ± 0.22	1.62 ± 0.30	< 9	381 ± 37	2.52 ± 0.37	0.60 ± 0.06	61 ± 3
		< 2.8	7.93 ± 0.22	2.15 ± 0.35	< 12	344 ± 35	2.34 ± 0.33	0.75 ± 0.06	66 ± 3
44	0	< 2.7	7.49 ± 0.21	4.7 ± 0.6	< 14	378 ± 44	2.88 ± 0.46	1.05 ± 0.08	62 ± 3
	6	< 2.7	8.33 ± 0.23	2.97 ± 0.41	< 13	342 ± 47	4.0 ± 0.5	0.72 ± 0.06	62 ± 3
45	0	< 3.6	7.42 ± 0.20	4.6 ± 0.6	< 11	360 ± 50	2.0 ± 0.3	1.07 ± 0.08	53 ± 3
	6	< 2.7	7.57 ± 0.21	1.96 ± 0.32	< 12	360 ± 60	2.41 ± 0.33	0.71 ± 0.06	58 ± 3
46	0	< 2.5	7.18 ± 0.21	3.7 ± 0.5	< 14	390 ± 70	1.92 ± 0.48	0.53 ± 0.06	55 ± 3
	6	< 2.5	8.01 ± 0.22	2.61 ± 0.4	< 15	319 ± 32	2.2 ± 0.5	0.81 ± 0.07	55 ± 3
47	0	< 3.3	7.72 ± 0.22	4.3 ± 0.5	< 15	513 ± 49	< 3.5	1.01 ± 0.07	86 ± 4
	6	< 3	8.34 ± 0.23	2.70 ± 0.39	< 11	468 ± 37	2.5 ± 0.7	0.78 ± 0.06	87 ± 4
48	0	< 2.8	7.63 ± 0.21	8.4 ± 1.0	< 14	551 ± 39	2.57 ± 0.5	1.12 ± 0.08	88 ± 4
	6	< 3	8.10 ± 0.23	4.3 ± 0.5	< 14	520 ± 50	4.8 ± 0.8	1.00 ± 0.07	107 ± 5
49	0	< 3.9	7.58 ± 0.21	5.9 ± 0.7	< 15	566 ± 48	2.58 ± 0.48	1.17 ± 0.08	112 ± 5
	6	< 3.1	8.17 ± 0.23	4.4 ± 0.6	< 11	535 ± 44	3.93 ± 0.48	1.10 ± 0.07	101 ± 5
50	0	< 2.8	7.64 ± 0.21	7.1 ± 0.8	< 14	542 ± 42	2.41 ± 0.43	1.13 ± 0.08	94 ± 4
	6	< 3	7.99 ± 0.22	3.0 ± 0.4	< 14	560 ± 100	3.9 ± 0.6	1.12 ± 0.07	103 ± 5

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
30	0	170 ± 80	5.99 ± 0.35	0.13 ± 0.1	23.1 ± 1.6	5.33 ± 0.34	< 300	9.3 ± 0.8	1.12 ± 0.07
		160 ± 50	5.22 ± 0.29	0.12 ± 0.1	20.7 ± 1.4	5.01 ± 0.34	< 300	6.4 ± 0.7	0.82 ± 0.05
		< 130	5.31 ± 0.29	0.58 ± 0.2	21.9 ± 1.5	4.95 ± 0.29	< 280	7.5 ± 0.8	0.95 ± 0.07
		90 ± 60	4.90 ± 0.28	0.36 ± 0.2	20.7 ± 1.4	4.78 ± 0.28	< 260	8.6 ± 0.7	0.96 ± 0.06
	6	< 90	4.14 ± 0.25	0.39 ± 0.2	18.7 ± 1.3	4.87 ± 0.33	< 250	8.7 ± 0.9	0.87 ± 0.04
		120 ± 60	4.35 ± 0.23	0.1 ± 0.1	35.6 ± 2.3	4.44 ± 0.28	< 260	10.4 ± 0.9	1.00 ± 0.08
		90 ± 60	4.68 ± 0.26	0.11 ± 0.1	20.5 ± 1.4	4.84 ± 0.29	< 260	9.1 ± 0.8	0.90 ± 0.04
		< 100	4.39 ± 0.24	0.15 ± 0.1	26.8 ± 1.7	4.32 ± 0.28	< 260	10.1 ± 0.9	1.02 ± 0.08
41	0	240 ± 70	6.13 ± 0.36	0.1 ± 0.1	19.1 ± 1.4	5.76 ± 0.35	< 360	9.0 ± 0.9	1.07 ± 0.06
	6	100 ± 40	6.51 ± 0.37	0.17 ± 0.1	28.1 ± 1.9	5.61 ± 0.35	< 300	13.8 ± 1.7	1.10 ± 0.05
42	0	< 100	13.8 ± 0.7	< 0.1	43.1 ± 2.7	13.5 ± 0.8	< 250	7.8 ± 0.7	1.04 ± 0.07
	6	72 ± 16	13.6 ± 0.7	< 0.1	42.6 ± 2.6	13.0 ± 0.7	< 250	7.5 ± 0.7	1.06 ± 0.08
43	0	130 ± 60	4.47 ± 0.25	< 0.1	19.4 ± 1.4	4.69 ± 0.3	< 320	13.4 ± 1.1	0.87 ± 0.06
		< 140	6.97 ± 0.4	0.21 ± 0.2	26.2 ± 1.8	5.94 ± 0.34	< 300	10.4 ± 2.1	0.94 ± 0.06
		60 ± 50	7.05 ± 0.38	< 0.1	24.7 ± 1.7	6.79 ± 0.41	< 300	8.8 ± 1.2	0.88 ± 0.06
	6	< 120	5.20 ± 0.28	0.18 ± 0.1	24.5 ± 1.6	5.45 ± 0.31	< 320	14.1 ± 1.2	0.97 ± 0.07
		70 ± 40	5.34 ± 0.3	0.12 ± 0.1	20.9 ± 1.5	5.38 ± 0.33	< 300	9.2 ± 0.8	0.88 ± 0.06
		110 ± 50	5.35 ± 0.3	0.2 ± 0.2	24.3 ± 1.6	5.28 ± 0.31	< 320	9.1 ± 0.8	0.89 ± 0.06

Table C-XVI. Individual Elemental Concentration in Soils under North Slope White Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
44	0	< 130	5.67 ± 0.3	< 0.1	22.1 ± 1.5	5.68 ± 0.32	< 300	8.3 ± 0.7	0.84 ± 0.06
	6	< 100	5.77 ± 0.31	0.28 ± 0.2	21.9 ± 1.4	6.00 ± 0.38	< 270	7.6 ± 0.7	0.81 ± 0.06
45	0	< 150	4.07 ± 0.22	0.26 ± 0.2	17.8 ± 1.3	4.24 ± 0.26	< 300	10.6 ± 0.9	0.89 ± 0.08
	6	60 ± 40	4.38 ± 0.25	0.16 ± 0.1	20.6 ± 1.4	4.94 ± 0.29	< 300	7.6 ± 0.6	0.76 ± 0.05
46	0	< 150	3.48 ± 0.19	0.26 ± 0.2	17.3 ± 1.2	3.90 ± 0.23	< 360	16.3 ± 1.3	0.78 ± 0.06
	6	< 130	3.10 ± 0.19	0.23 ± 0.2	18.6 ± 1.2	3.89 ± 0.23	< 300	11.5 ± 0.9	0.74 ± 0.04
47	0	< 100	4.91 ± 0.27	0.42 ± 0.2	20.0 ± 1.4	4.78 ± 0.3	< 280	13.0 ± 1.1	1.08 ± 0.06
	6	10 ± 50	5.86 ± 0.33	0.16 ± 0.1	27.1 ± 1.8	5.48 ± 0.31	< 270	12.0 ± 0.9	1.06 ± 0.07
48	0	< 100	6.16 ± 0.33	0.16 ± 0.1	24.4 ± 1.6	5.31 ± 0.3	< 300	10.1 ± 1.0	1.08 ± 0.07
	6	< 120	6.10 ± 0.34	0.25 ± 0.2	25.6 ± 1.7	6.09 ± 0.42	< 250	12.8 ± 1.0	1.15 ± 0.07
49	0	< 110	6.30 ± 0.33	0.2 ± 0.2	23.3 ± 1.6	5.75 ± 0.41	< 290	13.9 ± 1.1	1.42 ± 0.10
	6	< 120	6.66 ± 0.37	0.35 ± 0.2	42.0 ± 2.6	5.35 ± 0.32	< 270	10.9 ± 0.9	1.17 ± 0.08
50	0	< 120	6.10 ± 0.34	0.32 ± 0.2	25.8 ± 1.7	5.67 ± 0.35	< 300	13.4 ± 1.0	1.16 ± 0.08
	6	< 110	5.90 ± 0.32	0.11 ± 0.1	31 ± 2	5.95 ± 0.40	< 250	13.8 ± 1.1	1.29 ± 0.08

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ng/g)	I (ug/g)	In (ng/g)	K (%)
30	0	---	2.22 ± 0.11	< 23	10.3 ± 0.6	< 600	< 26	< 300	2.74 ± 0.18
		---	1.89 ± 0.10	< 25	6.65 ± 0.31	< 600	< 26	< 310	2.58 ± 0.18
		---	2.06 ± 0.10	23 ± 4	9.87 ± 0.49	< 500	< 26	< 290	2.85 ± 0.19
		---	1.98 ± 0.10	< 22	8.06 ± 0.40	< 500	< 15	< 260	2.95 ± 0.19
	6	---	2.10 ± 0.11	27 ± 4	8.45 ± 0.34	< 490	< 16	102 ± 40	3.34 ± 0.22
		---	1.91 ± 0.10	23 ± 5	7.8 ± 0.8	< 700	< 17	< 260	3.23 ± 0.21
		---	2.22 ± 0.12	18 ± 3	9.21 ± 0.47	< 470	< 14	135 ± 37	3.47 ± 0.23
		---	2.08 ± 0.11	20 ± 5	8.8 ± 0.8	< 500	< 18	< 250	2.94 ± 0.19
41	0	---	2.13 ± 0.11	15 ± 4	6.9 ± 0.6	< 800	< 30	< 340	2.76 ± 0.18
	6	---	2.52 ± 0.13	21 ± 4	7.69 ± 0.41	< 600	< 20	< 240	3.09 ± 0.20
42	0	---	4.63 ± 0.24	17 ± 3	9.9 ± 0.6	< 600	< 20	< 240	2.75 ± 0.18
	6	---	4.43 ± 0.23	25 ± 4	9.0 ± 0.8	< 600	< 21	< 240	2.53 ± 0.16
43	0	---	1.67 ± 0.09	16 ± 4	7.4 ± 0.3	< 700	< 27	< 300	3.27 ± 0.21
		---	2.08 ± 0.11	24 ± 5	6.87 ± 0.30	< 600	< 28	< 290	2.72 ± 0.18
		---	2.22 ± 0.11	< 22	7.74 ± 0.46	< 500	< 33	< 330	2.97 ± 0.20
	6	---	2.10 ± 0.11	16 ± 4	8.3 ± 0.7	< 500	< 26	< 300	3.34 ± 0.21
		---	1.9 ± 0.1	21 ± 4	6.9 ± 0.6	< 600	< 20	< 240	3.38 ± 0.22
		---	1.91 ± 0.10	20 ± 4	7.61 ± 0.39	< 470	< 20	< 230	3.45 ± 0.22
44	0	---	1.98 ± 0.10	22 ± 4	7.37 ± 0.35	< 500	< 28	< 300	2.86 ± 0.19
	6	---	2.21 ± 0.12	19 ± 4	6.9 ± 0.8	< 490	< 21	< 260	2.96 ± 0.19
45	0	---	1.44 ± 0.08	16 ± 4	6.7 ± 0.6	< 700	< 20	< 330	3.07 ± 0.20
	6	---	1.71 ± 0.09	14 ± 4	6.66 ± 0.31	< 460	< 20	< 230	3.37 ± 0.22
46	0	---	1.35 ± 0.07	22 ± 4	7.7 ± 0.6	< 470	< 35	< 350	3.34 ± 0.22
	6	---	1.36 ± 0.07	15 ± 3	6.64 ± 0.41	< 470	< 27	< 290	3.92 ± 0.25
47	0	---	1.95 ± 0.10	15 ± 3	9.41 ± 0.46	< 600	< 19	< 260	3.22 ± 0.21
	6	---	2.21 ± 0.11	14 ± 3	8.98 ± 0.43	< 500	< 20	< 250	2.98 ± 0.19
48	0	---	2.28 ± 0.11	22 ± 4	9.5 ± 0.5	< 500	< 19	< 220	3.21 ± 0.21
	6	---	2.61 ± 0.14	17 ± 3	9.73 ± 0.48	< 600	< 21	< 250	3.23 ± 0.21
49	0	---	2.33 ± 0.12	< 20	10.7 ± 0.9	< 700	< 20	< 270	3.00 ± 0.19
	6	---	2.33 ± 0.12	13 ± 3	8.88 ± 0.44	< 500	< 20	< 240	2.87 ± 0.18
50	0	---	2.31 ± 0.12	33 ± 5	9.7 ± 0.6	< 500	< 20	< 230	3.09 ± 0.27
	6	---	2.47 ± 0.13	< 18	10.1 ± 0.8	< 600	< 22	< 250	3.21 ± 0.21

Table C-XVI. Individual Elemental Concentration in Soils under North Slope White Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ng/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
30	0	39.8 ± 2.1	1200 ± 60	6100 ± 900	1540 ± 70	2.04 ± 0.09	41 ± 7	---	161 ± 8
		26.2 ± 1.5	883 ± 45	3200 ± 700	990 ± 40	1.69 ± 0.06	18 ± 6	---	149 ± 8
		32.4 ± 1.8	1180 ± 60	4400 ± 700	1230 ± 70	2.04 ± 0.09	< 18	---	153 ± 8
		31.9 ± 1.7	1260 ± 60	4400 ± 700	490 ± 20	2.09 ± 0.09	32 ± 6	---	160 ± 8
	6	29.3 ± 1.5	1280 ± 60	3900 ± 600	500 ± 20	2.21 ± 0.09	47 ± 7	---	169 ± 8
		28.7 ± 1.6	1270 ± 60	< 2600	660 ± 30	2.35 ± 0.10	38 ± 7	---	187 ± 9
		32.2 ± 1.9	1290 ± 60	3140 ± 460	490 ± 20	2.29 ± 0.10	36 ± 6	---	195 ± 9
		32.6 ± 1.9	1390 ± 70	3300 ± 500	580 ± 30	2.32 ± 0.10	48 ± 7	---	163 ± 8
41	0	35.6 ± 2.0	1050 ± 50	4300 ± 700	1450 ± 70	1.53 ± 0.06	42 ± 9	---	171 ± 9
	6	45.3 ± 2.7	1520 ± 70	4100 ± 600	1300 ± 60	1.72 ± 0.07	47 ± 7	---	213 ± 10
42	0	35 ± 2	918 ± 46	10500 ± 900	1560 ± 70	1.17 ± 0.05	36 ± 6	---	258 ± 12
	6	31.5 ± 1.7	916 ± 46	8900 ± 800	1270 ± 60	1.21 ± 0.04	55 ± 8	---	238 ± 11
43	0	29.0 ± 1.6	1840 ± 90	< 2700	1820 ± 80	1.90 ± 0.08	32 ± 7	---	210 ± 10
		31.1 ± 1.8	1440 ± 70	3200 ± 1100	1630 ± 70	1.59 ± 0.07	40 ± 7	---	208 ± 10
		33.9 ± 1.8	1290 ± 60	5200 ± 800	2880 ± 130	1.63 ± 0.07	39 ± 7	---	198 ± 10
	6	32.1 ± 1.8	2260 ± 110	3400 ± 700	1900 ± 90	2.10 ± 0.07	40 ± 7	---	197 ± 9
		30.7 ± 1.8	1420 ± 70	2150 ± 470	1550 ± 70	1.91 ± 0.08	36 ± 7	---	203 ± 10
		30.5 ± 1.7	1710 ± 80	3400 ± 600	1450 ± 70	1.96 ± 0.08	27 ± 6	---	223 ± 11
44	0	28.9 ± 1.7	1250 ± 60	3900 ± 700	1430 ± 60	1.85 ± 0.09	28 ± 6	---	192 ± 9
	6	25.7 ± 1.4	1200 ± 60	4300 ± 600	1780 ± 80	1.86 ± 0.08	36 ± 7	---	184 ± 9
45	0	26.1 ± 1.5	1530 ± 70	3600 ± 800	1440 ± 60	1.94 ± 0.08	43 ± 8	---	192 ± 9
	6	24.9 ± 1.4	1520 ± 70	2000 ± 500	1320 ± 60	1.77 ± 0.08	17 ± 5	---	220 ± 11
46	0	24.6 ± 1.3	2910 ± 140	< 3500	2500 ± 120	2.22 ± 0.10	32 ± 6	---	201 ± 10
	6	23.8 ± 1.3	2200 ± 100	< 2900	1660 ± 80	2.38 ± 0.11	30 ± 7	---	207 ± 10
47	0	38.9 ± 2.3	1750 ± 80	3600 ± 600	1090 ± 50	2.12 ± 0.09	41 ± 6	---	185 ± 9
	6	39.6 ± 2.2	1730 ± 80	4000 ± 600	1090 ± 50	2.06 ± 0.09	38 ± 5	---	191 ± 9
48	0	38.5 ± 2.0	1400 ± 70	2800 ± 490	1040 ± 50	1.89 ± 0.08	37 ± 6	---	190 ± 9
	6	43.4 ± 2.5	1820 ± 90	4400 ± 600	880 ± 40	1.91 ± 0.09	67 ± 9	---	183 ± 9
49	0	48.6 ± 2.8	1700 ± 80	3600 ± 600	1120 ± 50	1.93 ± 0.08	61 ± 9	---	189 ± 9
	6	45.5 ± 2.7	1320 ± 60	3400 ± 600	1100 ± 50	2.03 ± 0.09	38 ± 6	---	206 ± 10
50	0	41.6 ± 2.4	1810 ± 80	3700 ± 600	1170 ± 50	1.83 ± 0.08	38 ± 6	---	176 ± 9
	6	45.1 ± 2.5	1770 ± 80	4300 ± 600	970 ± 40	1.95 ± 0.09	51 ± 7	---	165 ± 8

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
30	0	0.98 ± 0.11	10.0 ± 0.5	41 ± 41	---	7.84 ± 0.36	< 400	1.17 ± 0.09	1.39 ± 0.13
		1.30 ± 0.14	8.10 ± 0.44	1.2 ± 0.5	---	4.67 ± 0.21	< 400	0.87 ± 0.08	1.00 ± 0.10
		1.06 ± 0.13	9.03 ± 0.48	77 ± 24	---	5.95 ± 0.27	< 400	1.03 ± 0.07	1.07 ± 0.12
		0.92 ± 0.11	9.05 ± 0.48	53 ± 22	---	6.05 ± 0.27	< 200	0.97 ± 0.07	1.17 ± 0.11
	6	< 0.34	10.3 ± 0.6	0.7 ± 0.5	---	5.68 ± 0.27	< 280	1.06 ± 0.07	1.10 ± 0.10
		0.34 ± 0.07	9.9 ± 0.5	2.1 ± 0.7	---	5.53 ± 0.25	< 200	1.10 ± 0.09	1.14 ± 0.12
		< 0.31	11.1 ± 0.6	1.5 ± 0.8	---	5.82 ± 0.26	< 200	1.35 ± 0.10	1.19 ± 0.11
		< 0.36	10.4 ± 0.6	0.4 ± 0.3	---	6.61 ± 0.31	< 300	1.31 ± 0.10	1.28 ± 0.12
41	0	0.6 ± 0.1	10.9 ± 0.6	< 4.5	---	6.92 ± 0.31	< 400	1.62 ± 0.12	1.14 ± 0.11
	6	0.43 ± 0.08	12.9 ± 0.7	< 2.7	---	8.70 ± 0.39	< 300	2.53 ± 0.16	1.56 ± 0.14
42	0	0.54 ± 0.07	14.2 ± 0.8	97 ± 29	---	6.59 ± 0.30	< 400	2.08 ± 0.13	1.09 ± 0.10
	6	0.35 ± 0.07	14.2 ± 0.8	< 3.9	---	6.25 ± 0.29	< 360	2.13 ± 0.14	1.01 ± 0.10
43	0	0.60 ± 0.11	9.11 ± 0.49	1.6 ± 0.6	---	6.14 ± 0.28	< 400	1.63 ± 0.11	1.57 ± 0.15
		1.00 ± 0.12	9.29 ± 0.49	1.7 ± 0.6	---	6.08 ± 0.27	< 460	1.43 ± 0.10	1.13 ± 0.11
		0.91 ± 0.11	9.5 ± 0.5	< 100	---	7.15 ± 0.33	< 500	2.25 ± 0.15	1.21 ± 0.11
	6	0.38 ± 0.09	10.2 ± 0.5	< 3.4	---	7.25 ± 0.33	< 440	2.76 ± 0.21	1.81 ± 0.17
		0.32 ± 0.08	10.0 ± 0.5	< 3.4	---	6.16 ± 0.28	< 300	2.77 ± 0.17	1.31 ± 0.12
		0.31 ± 0.07	10.4 ± 0.6	2.0 ± 0.6	---	5.76 ± 0.26	< 300	1.93 ± 0.13	1.39 ± 0.13

Table C-XVI. Individual Elemental Concentration in Soils under North Slope White Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
44	0	0.64 ± 0.10	9.35 ± 0.5	76 ± 23	...	5.63 ± 0.25	< 460	1.80 ± 0.12	1.16 ± 0.11
	6	0.42 ± 0.08	10.3 ± 0.5	< 3.2	...	5.33 ± 0.25	< 360	2.37 ± 0.17	0.98 ± 0.10
45	0	0.63 ± 0.10	8.59 ± 0.46	1.5 ± 0.6	...	5.69 ± 0.26	< 300	2.14 ± 0.17	1.38 ± 0.14
	6	< 0.28	9.7 ± 0.5	0.9 ± 0.5	...	4.82 ± 0.22	< 300	2.18 ± 0.15	1.16 ± 0.11
46	0	0.62 ± 0.10	8.91 ± 0.47	< 90	...	5.89 ± 0.28	< 600	1.89 ± 0.12	1.91 ± 0.18
	6	< 0.36	9.27 ± 0.49	< 3.1	...	5.19 ± 0.24	< 440	2.05 ± 0.13	1.53 ± 0.14
47	0	0.47 ± 0.10	9.5 ± 0.5	< 3.5	...	8.09 ± 0.37	< 300	1.68 ± 0.11	1.70 ± 0.16
	6	< 0.33	11.0 ± 0.6	0.9 ± 0.8	...	8.20 ± 0.38	< 300	2.84 ± 0.17	1.55 ± 0.14
48	0	0.69 ± 0.13	11.3 ± 0.6	2.1 ± 1.0	...	7.67 ± 0.35	< 320	1.41 ± 0.10	1.44 ± 0.14
	6	0.38 ± 0.09	11.9 ± 0.6	< 3.7	...	8.79 ± 0.40	< 360	1.79 ± 0.11	1.62 ± 0.15
49	0	0.66 ± 0.12	11.7 ± 0.6	< 4.1	...	10.0 ± 0.5	< 300	1.66 ± 0.11	1.97 ± 0.19
	6	0.46 ± 0.09	12.3 ± 0.7	0.7 ± 0.5	...	9.22 ± 0.42	< 300	1.73 ± 0.12	1.39 ± 0.13
50	0	0.95 ± 0.12	10.6 ± 0.6	1.9 ± 1.4	...	8.48 ± 0.39	< 320	1.41 ± 0.10	1.76 ± 0.17
	6	0.39 ± 0.09	11.4 ± 0.6	0.9 ± 0.5	...	8.54 ± 0.39	< 350	1.41 ± 0.12	1.73 ± 0.16

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
30	0	17.5 ± 0.7	3220 ± 460	4.39 ± 0.16	44.0 ± 2.8	4.2 ± 2.5	8.4 ± 0.5	87 ± 12	540 ± 100
		11.1 ± 0.9	1850 ± 320	2.53 ± 0.1	35.4 ± 2.7	5.4 ± 2.8	5.61 ± 0.34	74 ± 11	244 ± 47
		14.6 ± 0.6	2720 ± 410	3.17 ± 0.12	41.2 ± 3	2.4 ± 2	7.8 ± 0.42	85 ± 11	630 ± 130
		14.9 ± 0.6	3310 ± 470	3.04 ± 0.11	36.9 ± 2.6	< 6	8.28 ± 0.44	82 ± 11	510 ± 90
	6	16.5 ± 0.7	2980 ± 430	3.44 ± 0.12	35.9 ± 2.2	< 5	8.57 ± 0.46	53 ± 7	217 ± 38
		13.9 ± 0.5	2810 ± 410	3.32 ± 0.12	33.0 ± 2.2	< 5	10.0 ± 0.5	48 ± 7	450 ± 80
		17.5 ± 0.7	3280 ± 450	3.59 ± 0.13	40.8 ± 2.4	4.2 ± 2.4	9.02 ± 0.04	42 ± 15	306 ± 49
		17.9 ± 0.7	3010 ± 420	3.75 ± 0.14	33.0 ± 2.3	< 5	9.4 ± 0.5	44 ± 6	237 ± 41
41	0	15.8 ± 0.6	2550 ± 420	3.74 ± 0.14	40.5 ± 3.0	3.8 ± 0.7	7.51 ± 0.42	71 ± 10	360 ± 90
	6	21.2 ± 0.8	2420 ± 370	6.44 ± 0.23	41.4 ± 3	2.3 ± 1.2	10.8 ± 0.6	39 ± 17	220 ± 60
42	0	12.8 ± 0.5	4500 ± 600	4.72 ± 0.17	89.6 ± 4.2	3.8 ± 0.6	6.49 ± 0.34	69 ± 9	610 ± 110
	6	13.3 ± 0.5	4000 ± 500	4.26 ± 0.15	87.9 ± 4	5.0 ± 0.7	6.08 ± 0.33	< 12	273 ± 50
43	0	11.9 ± 0.4	2520 ± 440	4.83 ± 0.17	33.6 ± 3.1	< 5	14.2 ± 0.7	35 ± 6	410 ± 90
		12.6 ± 0.4	2490 ± 420	3.70 ± 0.14	40.2 ± 3.6	2.5 ± 0.6	9.9 ± 0.5	36 ± 26	150 ± 50
		15.6 ± 0.6	2330 ± 410	4.39 ± 0.16	39.7 ± 3.1	3.3 ± 0.9	8.83 ± 0.47	57 ± 8	510 ± 100
	6	14.4 ± 0.6	2950 ± 480	4.80 ± 0.17	38.5 ± 2.9	2.7 ± 2.3	15.5 ± 0.8	< 10	234 ± 43
		12.7 ± 0.5	2400 ± 370	4.38 ± 0.16	40.6 ± 3	3.8 ± 0.6	10.5 ± 0.5	36 ± 5	350 ± 70
		13.1 ± 0.5	2380 ± 360	4.93 ± 0.17	33.1 ± 2.5	3.2 ± 0.7	11.3 ± 0.7	24 ± 15	238 ± 46
44	0	11.9 ± 0.4	2620 ± 400	3.82 ± 0.14	39.3 ± 3.1	2.6 ± 0.6	8.30 ± 0.44	51 ± 7	440 ± 90
	6	12.0 ± 0.4	2300 ± 370	4.18 ± 0.15	37.4 ± 2.5	2.8 ± 0.5	7.74 ± 0.43	< 9	190 ± 100
45	0	10.7 ± 0.4	1960 ± 370	3.98 ± 0.15	28.4 ± 2.6	1.9 ± 1.1	11.3 ± 0.6	43 ± 6	400 ± 100
	6	11.5 ± 0.4	2170 ± 340	4.35 ± 0.15	32.0 ± 2.8	2.3 ± 0.9	9.9 ± 0.5	23 ± 15	179 ± 41
46	0	12.0 ± 0.5	1780 ± 350	4.90 ± 0.17	29.3 ± 3.3	3.5 ± 1.1	19.3 ± 1.0	42 ± 6	400 ± 120
	6	11.4 ± 0.4	2020 ± 350	4.11 ± 0.14	20.6 ± 2.4	3.5 ± 1.6	14.4 ± 0.7	< 9	146 ± 48
47	0	17.5 ± 0.7	2430 ± 370	4.75 ± 0.17	34.7 ± 2.6	< 4.9	12.8 ± 0.7	53 ± 7	440 ± 120
	6	17.4 ± 0.7	3070 ± 450	4.66 ± 0.16	40.6 ± 2.8	2.6 ± 0.7	12.3 ± 0.6	34 ± 16	300 ± 50
48	0	17.6 ± 0.7	3010 ± 440	4.19 ± 0.15	41 ± 3	< 4.9	9.8 ± 0.5	66 ± 9	650 ± 100
	6	22.3 ± 0.9	3430 ± 470	6.00 ± 0.21	45.3 ± 2.8	< 4.8	12.9 ± 0.7	54 ± 8	260 ± 50
49	0	22.1 ± 0.9	3340 ± 490	5.26 ± 0.18	43.8 ± 2.9	< 5	12.7 ± 0.7	60 ± 8	490 ± 90
	6	20.0 ± 0.8	3450 ± 500	4.11 ± 0.15	41.0 ± 2.8	3.4 ± 1.1	9.20 ± 0.49	42 ± 16	260 ± 90
50	0	19.2 ± 0.7	2920 ± 410	4.83 ± 0.17	47.9 ± 3.1	2.5 ± 0.7	12.2 ± 0.6	72 ± 10	660 ± 110
	6	20.7 ± 0.8	3220 ± 440	4.60 ± 0.16	43.0 ± 2.8	< 5	12.9 ± 0.7	55 ± 8	270 ± 70

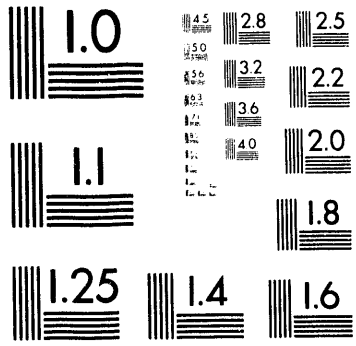
Table C-XVII. Individual Elemental Concentration in Soils in Nice Picnic Area, Rincon Mountain District

Site #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ce (%)	Ce (ug/g)
MPA-1	0	...	6.0 ± 0.2	...	...	570 ± 70	...	0.64 ± 0.06	121 ± 12
		...	6.1 ± 0.3	...	...	600 ± 80	...	0.56 ± 0.08	127 ± 13
		...	6.0 ± 0.3	...	...	531 ± 68	...	0.60 ± 0.06	122 ± 12
	15	...	6.7 ± 0.3	...	...	610 ± 75	...	0.76 ± 0.09	143 ± 14
		...	7.0 ± 0.3	...	...	560 ± 70	...	< 0.3	131 ± 13
		...	7.1 ± 0.3	...	...	440 ± 60	...	0.57 ± 0.07	120 ± 12

Site #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
MPA-1	0	< 100	4.73 ± 0.49	0.3 ± 0.2	34.7 ± 2.63	5.54 ± 0.58	...	13.2 ± 1.1	1.68 ± 0.17
		< 140	5.29 ± 0.55	0.4 ± 0.2	35.8 ± 2.74	5.75 ± 0.62	...	19.0 ± 1.5	1.73 ± 0.18
		10 ± 40	5.84 ± 0.61	0.4 ± 0.2	46.5 ± 3.52	5.65 ± 0.61	...	15.2 ± 1.2	1.67 ± 0.17
	15	< 100	6.17 ± 0.97	0.3 ± 0.2	39.8 ± 4.23	7.1 ± 0.6	...	13.3 ± 0.1	1.73 ± 0.15
		< 120	7.67 ± 1.21	0.4 ± 0.2	42.1 ± 4.51	8.16 ± 0.74	...	14.7 ± 1.3	1.78 ± 0.16
		< 150	8.24 ± 1.3	0.5 ± 0.2	40.8 ± 4.44	8.21 ± 0.73	...	15.3 ± 1.3	1.54 ± 0.14

Site #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (%)
MPA-1	0	...	3.04 ± 0.21	< 30	17.7 ± 1.4	...	...	< 0.10	3.1 ± 0.5
		...	3.08 ± 0.21	< 50	16.7 ± 1.3	...	...	< 0.19	2.7 ± 0.3
		...	4.23 ± 0.30	< 30	22.9 ± 1.8	...	...	< 0.11	2.8 ± 0.4
	15	...	3.87 ± 0.31	< 60	16.4 ± 1.3	...	...	< 0.14	3.0 ± 0.2
		...	3.83 ± 0.31	< 50	17.1 ± 1.4	...	...	< 0.16	2.6 ± 0.2
		...	3.59 ± 0.29	< 50	16.5 ± 1.3	...	...	< 0.13	2.9 ± 0.3

Note: This area has many dead and dying saguaro cacti


1.0
2.8
2.5
3.2
2.2
3.6
2.0
4.0
1.1
1.8
1.25
1.4
1.6

2 of 2

Table C-XVII. Individual Elemental Concentration in Soils in Mica Picnic Area, Rincon Mountain District (cont.)

Site #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ng/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
MPA-1	0	---	---	< 2000	720 ± 30	1.41 ± 0.05	---	---	150 ± 17
		---	---	< 4000	880 ± 40	1.37 ± 0.05	---	---	156 ± 17
		---	---	< 2000	880 ± 40	1.38 ± 0.05	---	---	143 ± 16
	15	---	---	4800 ± 1300	1060 ± 50	1.32 ± 0.05	---	---	137 ± 15
		---	---	< 3000	910 ± 40	1.13 ± 0.05	---	---	137 ± 15
		---	---	< 3000	1040 ± 50	1.21 ± 0.04	---	---	146 ± 16

Site #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
MPA-1	0	1.41 ± 0.20	7.94 ± 0.40	---	34.6 ± 1.6	13.3 ± 1.3	< 190	1.23 ± 0.14	---
		1.47 ± 0.22	7.85 ± 0.40	---	32 ± 2	14.0 ± 1.4	< 300	1.19 ± 0.15	---
		1.54 ± 0.22	8.99 ± 0.46	---	33 ± 2	13.3 ± 1.3	< 200	1.76 ± 0.20	---
	15	1.67 ± 0.31	9.39 ± 0.66	---	31 ± 2	14.2 ± 2.1	< 300	1.64 ± 0.27	---
		1.37 ± 0.29	11.1 ± 0.78	---	31 ± 2	13.0 ± 1.9	< 200	1.41 ± 0.25	---
		1.18 ± 0.27	9.54 ± 0.67	---	30 ± 2	10.3 ± 1.9	< 300	8.86 ± 1.35	---

Site #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
MPA-1	0	25.4 ± 2.0	4000 ± 600	3.78 ± 0.3	59 ± 3	< 110	11.0 ± 1.1	66 ± 10	---
		24.7 ± 2.0	3700 ± 300	4.33 ± 0.4	57 ± 4	< 140	11.5 ± 1.1	63 ± 10	---
		23.1 ± 1.8	5200 ± 700	4.99 ± 0.4	76 ± 4	< 110	15.5 ± 1.5	63 ± 10	---
	15	25.6 ± 2.0	4600 ± 400	3.75 ± 0.3	61 ± 4	< 130	10.6 ± 1.0	68 ± 14	---
		22.9 ± 1.8	4800 ± 400	3.72 ± 0.3	61 ± 3	< 140	10.2 ± 1.0	82 ± 16	---
		20.6 ± 1.6	4300 ± 300	3.86 ± 0.3	59 ± 3	< 120	9.42 ± 0.97	84 ± 17	---

Note: This is an area of many dead and dying saguaro cacti

Table C-XVIII. Individual Elemental Concentration in Soils in Mica Picnic Area, Rincon Mountain District

Site #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
MPA-2	0	---	7.0 ± 0.3	---	---	550 ± 70	---	0.86 ± 0.09	112 ± 11
		---	6.9 ± 0.3	---	---	510 ± 50	---	0.88 ± 0.07	136 ± 14
		---	6.1 ± 0.3	---	---	520 ± 70	---	0.69 ± 0.09	190 ± 19
	15	---	7.2 ± 0.3	---	---	510 ± 60	---	0.83 ± 0.09	107 ± 11
		---	7.6 ± 0.3	---	---	640 ± 70	---	1.29 ± 0.11	116 ± 12
		---	7.0 ± 0.3	---	---	560 ± 70	---	0.81 ± 0.08	129 ± 13
MPA-3	0	---	7.2 ± 0.3	---	---	590 ± 70	---	1.90 ± 0.12	149 ± 15
		---	6.8 ± 0.3	---	---	710 ± 90	---	0.79 ± 0.09	138 ± 14
		---	6.5 ± 0.2	---	---	590 ± 60	---	0.79 ± 0.07	112 ± 11
	15	---	7.8 ± 0.3	---	---	690 ± 90	---	1.53 ± 0.12	162 ± 16
		---	8.6 ± 0.3	---	---	540 ± 80	---	0.79 ± 0.09	130 ± 13
		---	8.6 ± 0.3	---	---	700 ± 80	---	0.68 ± 0.08	127 ± 13

Site #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
MPA-2	0	< 100	5.43 ± 0.57	0.4 ± 0.2	28.0 ± 2.32	5.53 ± 0.59	---	9.6 ± 0.9	1.54 ± 0.16
		< 100	6.24 ± 0.65	0.5 ± 0.2	34.9 ± 2.76	5.86 ± 0.62	---	11.5 ± 1.1	1.92 ± 0.20
		< 140	6.29 ± 0.64	0.5 ± 0.2	37.5 ± 2.77	4.78 ± 0.50	---	20.0 ± 1.6	2.42 ± 0.24
	15	< 120	5.43 ± 0.88	0.5 ± 0.2	34.8 ± 3.82	7.93 ± 0.70	---	9.6 ± 0.8	1.70 ± 0.15
		20 ± 40	7.43 ± 1.19	0.5 ± 0.2	37.3 ± 4.06	8.44 ± 0.75	---	8.3 ± 0.8	1.71 ± 0.16
		< 100	4.61 ± 0.72	0.4 ± 0.2	27.1 ± 2.86	6.81 ± 0.57	---	15.5 ± 1.2	1.76 ± 0.15
MPA-3	0	30 ± 40	7.65 ± 0.77	0.6 ± 0.2	29.0 ± 2.16	7.64 ± 0.78	---	< 5	2.26 ± 0.23
		< 140	5.86 ± 0.61	1.0 ± 0.2	38.8 ± 2.92	6.16 ± 0.65	---	10.9 ± 0.9	1.98 ± 0.20
		60 ± 30	4.98 ± 0.51	0.9 ± 0.2	31.8 ± 2.32	5.72 ± 0.58	---	9.9 ± 0.8	1.76 ± 0.18
	15	< 100	7.10 ± 1.09	0.3 ± 0.2	25.5 ± 2.71	6.99 ± 0.58	---	12.9 ± 1.1	2.55 ± 0.21
		60 ± 50	7.59 ± 1.21	0.5 ± 0.2	42.3 ± 4.54	11.1 ± 0.94	---	9.4 ± 0.8	1.72 ± 0.15
		< 100	9.15 ± 1.39	0.3 ± 0.2	39.6 ± 4.1	11.3 ± 0.93	---	10.3 ± 0.9	1.78 ± 0.15

Site #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (%)
MPA-2	0	---	2.32 ± 0.16	< 40	8.45 ± 0.69	---	---	< 0.17	2.7 ± 0.2
		---	2.8 ± 0.2	< 30	10.5 ± 0.86	---	---	< 0.11	2.7 ± 0.3
		---	5.67 ± 0.40	< 50	31.7 ± 2.56	---	---	< 0.19	3.0 ± 0.3
	15	---	2.50 ± 0.20	< 50	10.5 ± 0.86	---	---	< 0.14	2.6 ± 0.2
		---	3.17 ± 0.25	< 50	9.13 ± 0.76	---	---	< 0.12	2.7 ± 0.2
		---	2.76 ± 0.22	< 50	11.3 ± 0.91	---	---	< 0.15	2.7 ± 0.2
MPA-3	0	---	3.12 ± 0.22	< 30	11.4 ± 0.92	---	---	< 0.11	2.8 ± 0.3
		---	3.05 ± 0.21	< 50	16.8 ± 1.36	---	---	< 0.17	3.0 ± 0.2
		---	2.51 ± 0.17	< 30	13.0 ± 1.06	---	---	< 0.10	2.7 ± 0.3
	15	---	3.61 ± 0.29	< 50	13.5 ± 1.09	---	---	< 0.13	2.6 ± 0.2
		---	3.32 ± 0.26	< 50	12.2 ± 1.01	---	---	< 0.16	2.6 ± 0.2
		---	3.21 ± 0.26	< 50	11.5 ± 0.93	---	---	< 0.13	2.9 ± 0.2

Note: These wash sites contain many healthy saguaro cacti

Table C-XVIII. Individual Elemental Concentration in Soils in Mica Picnic Area, Rincon Mountain District (cont.)

Site #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ng/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
MPA-2	0	---	---	< 4000	520 ± 20	1.79 ± 0.06	---	---	147 ± 16
		---	---	5100 ± 900	700 ± 30	1.70 ± 0.06	---	---	147 ± 16
		---	---	< 4000	1070 ± 50	1.70 ± 0.06	---	---	152 ± 16
	15	---	---	< 3000	560 ± 30	1.75 ± 0.06	---	---	124 ± 14
		---	---	7900 ± 1300	680 ± 30	1.52 ± 0.05	---	---	131 ± 15
		---	---	3300 ± 1300	770 ± 30	1.73 ± 0.06	---	---	130 ± 14
MPA-3	0	---	---	5600 ± 1000	810 ± 40	1.52 ± 0.05	---	---	159 ± 16
		---	---	< 4000	700 ± 30	1.53 ± 0.06	---	---	151 ± 16
		---	---	4600 ± 1000	550 ± 30	1.60 ± 0.06	---	---	151 ± 16
	15	---	---	4800 ± 1300	950 ± 40	1.67 ± 0.06	---	---	137 ± 14
		---	---	6500 ± 1400	740 ± 30	1.18 ± 0.04	---	---	143 ± 16
		---	---	6700 ± 1300	680 ± 40	1.26 ± 0.04	---	---	133 ± 14

Site #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
MPA-2	0	0.91 ± 0.16	8.25 ± 0.42	---	31.4 ± 1.8	11.2 ± 1.1	< 200	0.84 ± 0.11	---
		1.17 ± 0.20	8.99 ± 0.46	---	31.2 ± 1.9	10.8 ± 1.9	260 ± 100	0.98 ± 0.13	---
		1.14 ± 0.17	9.63 ± 0.49	---	29 ± 3	14 ± 2	< 300	1.38 ± 0.15	---
	15	1.23 ± 0.26	8.97 ± 0.63	---	31 ± 2	9.4 ± 1.9	< 190	0.82 ± 0.17	---
		1.86 ± 0.38	9.91 ± 0.70	---	29 ± 3	11.8 ± 1.8	< 200	0.93 ± 0.19	---
		1.07 ± 0.20	8.53 ± 0.60	---	32 ± 3	13.2 ± 1.9	< 200	1.30 ± 0.21	---
MPA-3	0	0.53 ± 0.11	10.2 ± 0.52	---	30.7 ± 2.0	14.2 ± 1.4	< 200	1.18 ± 0.13	---
		1.03 ± 0.18	7.97 ± 0.40	---	29.6 ± 1.4	14.1 ± 1.4	< 200	0.97 ± 0.12	---
		0.96 ± 0.13	7.44 ± 0.38	---	33.1 ± 1.5	10.0 ± 1.7	< 180	1.01 ± 0.11	---
	15	0.56 ± 0.14	11.6 ± 0.82	---	27 ± 4	17.1 ± 2.5	< 300	1.54 ± 0.24	---
		1.15 ± 0.28	11.0 ± 0.7	---	30.5 ± 1.5	13.8 ± 2.1	< 200	1.34 ± 0.25	---
		1.05 ± 0.20	10.8 ± 0.7	---	29 ± 2	12.3 ± 1.8	< 200	1.25 ± 0.20	---

Site #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
MPA-2	0	19.7 ± 1.6	3200 ± 300	3.01 ± 0.25	43 ± 3	< 120	5.41 ± 0.56	65 ± 10	---
		23.0 ± 1.8	2700 ± 400	3.45 ± 0.3	52 ± 3	< 110	6.24 ± 0.64	67 ± 10	---
		33.5 ± 2.7	6000 ± 400	4.24 ± 0.3	79 ± 4	< 160	15.3 ± 1.54	73 ± 11	---
	15	18.1 ± 1.4	2900 ± 300	3.10 ± 0.25	45 ± 3	< 120	5.28 ± 0.56	70 ± 14	---
		20.8 ± 1.6	3500 ± 300	2.98 ± 0.25	55 ± 3	< 110	5.19 ± 0.56	78 ± 16	---
		22.6 ± 1.8	3400 ± 300	2.73 ± 0.2	53 ± 3	< 120	8.40 ± 0.85	72 ± 14	---
MPA-3	0	25.2 ± 2.0	3500 ± 500	3.72 ± 0.3	65 ± 4	< 110	7.37 ± 0.74	73 ± 11	---
		25.6 ± 2.0	3700 ± 300	4.75 ± 0.4	58 ± 4	< 130	7.09 ± 0.72	64 ± 10	---
		18.7 ± 1.5	3400 ± 500	3.57 ± 0.3	47 ± 3	< 100	7.43 ± 0.75	62 ± 9	---
	15	25.2 ± 2.0	4600 ± 400	3.90 ± 0.3	62 ± 4	< 120	6.48 ± 0.66	94 ± 19	---
		22.7 ± 1.8	4000 ± 300	3.04 ± 0.25	69 ± 4	< 130	8.49 ± 0.88	90 ± 18	---
		21.8 ± 1.7	3200 ± 300	3.31 ± 0.3	61 ± 4	< 110	5.43 ± 0.55	95 ± 19	---

Note: These wash sites contain many healthy saguaro cacti

Table C-XIX. Individual Elemental Concentration in Soils from San Manuel Smelter Canyon, North of Rincon Mountain District

Site Dist. (km)	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
0.5	0	---	5.6 ± 0.2	---	---	500 ± 70	---	1.13 ± 0.09	114 ± 11
		---	4.8 ± 0.2	---	---	437 ± 64	---	2.46 ± 0.17	104 ± 10
		---	5.2 ± 0.2	---	---	476 ± 55	---	3.61 ± 0.20	134 ± 13
		---	4.9 ± 0.2	---	---	466 ± 70	---	0.96 ± 0.10	87 ± 9
	15	---	5.3 ± 0.3	---	---	509 ± 84	---	1.58 ± 0.13	118 ± 12
		---	4.7 ± 0.2	---	---	459 ± 78	---	1.00 ± 0.30	109 ± 11
		---	5.6 ± 0.3	---	---	470 ± 58	---	1.08 ± 0.10	103 ± 10
		---	4.7 ± 0.2	---	---	647 ± 104	---	0.87 ± 0.09	108 ± 11
1.0	0	---	5.4 ± 0.2	---	---	606 ± 59	---	5.00 ± 0.30	71 ± 5
		---	6.0 ± 0.3	---	---	470 ± 80	---	0.98 ± 0.10	87 ± 6
	6	---	5.0 ± 0.2	---	---	524 ± 67	---	8.40 ± 0.40	72 ± 5
		---	7.2 ± 0.3	---	---	540 ± 70	---	1.76 ± 0.13	94 ± 7
2.0	0	---	5.6 ± 0.2	---	---	511 ± 80	---	1.11 ± 0.08	110 ± 11
		---	5.9 ± 0.3	---	---	485 ± 68	---	1.13 ± 0.11	118 ± 12
		---	5.7 ± 0.2	---	---	517 ± 59	---	0.97 ± 0.08	104 ± 10
	15	---	6.3 ± 0.3	---	---	450 ± 90	---	1.18 ± 0.10	143 ± 14
		---	6.1 ± 0.3	---	---	561 ± 88	---	0.87 ± 0.10	102 ± 10
		---	6.2 ± 0.3	---	---	516 ± 63	---	1.17 ± 0.11	169 ± 17
5.0	0	---	6.6 ± 0.3	---	---	569 ± 66	---	0.97 ± 0.09	63 ± 6
		---	5.8 ± 0.2	---	---	460 ± 60	---	0.83 ± 0.07	88 ± 9
		---	5.8 ± 0.3	---	---	591 ± 74	---	0.86 ± 0.09	74 ± 7
	15	---	6.0 ± 0.3	---	---	619 ± 82	---	0.70 ± 0.08	136 ± 14
		---	6.2 ± 0.3	---	---	691 ± 81	---	1.05 ± 0.10	126 ± 13
		---	6.3 ± 0.3	---	---	520 ± 70	---	0.86 ± 0.09	87 ± 9

Site Dist. (km)	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
0.5	0	50 ± 40	17.7 ± 1.8	0.3 ± 0.2	79.6 ± 5.91	8.92 ± 0.96	---	9.20 ± 0.8	1.76 ± 0.19
		< 140	16.7 ± 1.69	1.9 ± 0.2	71.8 ± 5.25	7.07 ± 0.76	---	10.0 ± 0.9	1.65 ± 0.18
		10 ± 40	14.4 ± 1.45	3.2 ± 0.2	57.5 ± 4.15	6.80 ± 0.70	---	< 6	1.55 ± 0.16
		< 150	14.2 ± 1.45	0.6 ± 0.2	63.9 ± 4.77	7.23 ± 0.79	---	10.9 ± 1.0	1.73 ± 0.18
	15	< 100	17.7 ± 2.7	0.5 ± 0.2	66.6 ± 7.07	8.44 ± 0.79	---	13.0 ± 1.1	1.63 ± 0.15
		50 ± 50	22.3 ± 3.37	0.4 ± 0.2	81.9 ± 8.45	8.38 ± 0.80	---	10.4 ± 1.0	1.66 ± 0.15
		< 100	14.1 ± 2.13	0.6 ± 0.2	68.4 ± 6.97	9.34 ± 0.78	---	10.7 ± 1.0	1.58 ± 0.13
		20 ± 50	15.4 ± 2.36	0.2 ± 0.2	66.3 ± 7.03	7.99 ± 0.75	---	12.3 ± 1.0	1.98 ± 0.18
1.0	0	120 ± 30	12.0 ± 1.23	5.6 ± 0.6	44 ± 2	6.55 ± 0.51	---	6.9 ± 0.6	1.34 ± 0.10
		70 ± 30	18.9 ± 1.92	0.8 ± 0.2	63 ± 3	7.51 ± 0.59	---	7.4 ± 0.7	1.61 ± 0.12
	6	100 ± 20	13.9 ± 1.47	9.9 ± 1.0	48 ± 3	6.87 ± 0.57	---	10.9 ± 1.0	1.48 ± 0.12
		110 ± 30	19.7 ± 2.04	1.3 ± 0.2	59 ± 3	8.50 ± 0.73	---	9.4 ± 0.8	1.62 ± 0.13
2.0	0	< 110	16.1 ± 1.64	0.6 ± 0.2	59.8 ± 4.52	8.45 ± 0.89	---	< 6	1.78 ± 0.19
		< 150	13.8 ± 1.41	0.4 ± 0.2	54.5 ± 4.17	8.6 ± 0.92	---	9.0 ± 0.9	1.68 ± 0.18
		90 ± 40	15.4 ± 1.55	0.4 ± 0.2	58.4 ± 4.22	8.48 ± 0.87	---	< 5	1.75 ± 0.18
	15	10 ± 40	14.5 ± 2.22	0.3 ± 0.2	57.8 ± 6.19	10.2 ± 0.91	---	12.8 ± 1.1	1.97 ± 0.18
		< 140	16.5 ± 2.52	0.3 ± 0.2	46.2 ± 5.1	9.85 ± 0.89	---	14.2 ± 1.2	1.72 ± 0.16
		110 ± 70	14.7 ± 2.22	0.2 ± 0.2	56.6 ± 5.78	9.08 ± 0.76	---	9.3 ± 0.8	1.90 ± 0.16
5.0	0	< 130	9.58 ± 0.97	0.4 ± 0.2	33.3 ± 2.5	7.01 ± 0.73	---	4.7 ± 0.4	1.46 ± 0.15
		30 ± 30	11.8 ± 1.19	0.9 ± 0.2	65.0 ± 4.6	7.25 ± 0.74	---	7.1 ± 0.6	1.87 ± 0.19
		< 140	11.0 ± 1.13	0.5 ± 0.2	47.0 ± 3.5	8.04 ± 0.86	---	6.6 ± 0.6	1.54 ± 0.17
	15	80 ± 50	16.0 ± 2.43	0.3 ± 0.2	64.9 ± 6.7	8.39 ± 0.75	---	7.1 ± 0.6	1.83 ± 0.16
		20 ± 40	16.0 ± 2.41	0.4 ± 0.2	61.9 ± 6.3	9.61 ± 0.8	---	10 ± 2	1.79 ± 0.15
		< 110	15.0 ± 2.29	0.3 ± 0.2	64.9 ± 6.7	9.43 ± 0.86	---	10.6 ± 0.9	1.70 ± 0.15

Table C-XIX. Individual Elemental Concentration in Soils from San Manuel Smelter Canyon, North of Rincon Mountain District (cont.)

Site Dist. (km)	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	H2O- (%)	Hf (ug/g)	Hg (ug/g)	In (ug/g)	K (%)
0.5	0	---	12.7 ± 0.9	< 40	---	21.2 ± 1.73	---	1.07 ± 0.16	2.5 ± 0.3
		---	13.6 ± 0.9	< 70	---	17.9 ± 1.46	---	0.45 ± 0.10	2.6 ± 0.3
		---	10.0 ± 0.7	< 40	---	17.3 ± 1.4	---	0.31 ± 0.06	1.9 ± 0.2
		---	12.4 ± 0.9	< 70	---	20.0 ± 1.63	---	< 0.2	2.7 ± 0.3
	15	---	14.7 ± 1.2	< 70	---	20.0 ± 1.63	---	< 0.17	2.1 ± 0.3
		---	19.0 ± 1.5	< 80	---	27.6 ± 2.24	---	< 0.2	1.8 ± 0.3
		---	13.5 ± 1.1	< 70	---	19.7 ± 1.59	---	< 0.17	2.6 ± 0.3
		---	13.9 ± 1.1	< 70	---	28.0 ± 2.28	---	< 0.19	2.3 ± 0.3
1.0	0	435 ± 43	5.31 ± 0.32	< 30	1.38 ± 0.1	13.3 ± 1.0	---	0.42 ± 0.07	2.5 ± 0.3
		300 ± 30	8.13 ± 0.50	< 50	---	20.1 ± 1.4	---	0.53 ± 0.11	2.7 ± 0.3
	6	458 ± 46	6.46 ± 0.40	< 50	---	17.1 ± 1.2	---	< 0.12	2.4 ± 0.2
		336 ± 34	7.27 ± 0.44	70 ± 20	---	18.8 ± 1.4	---	< 0.15	2.3 ± 0.2
2.0	0	---	9.97 ± 0.71	< 40	---	28.5 ± 2.3	---	0.38 ± 0.07	2.6 ± 0.3
		---	9.91 ± 0.70	< 60	---	30.1 ± 2.4	---	< 0.2	2.9 ± 0.3
		---	10.3 ± 0.7	< 40	---	25.5 ± 2.0	---	0.23 ± 0.05	2.7 ± 0.3
	15	---	10.4 ± 0.8	< 60	---	36.8 ± 2.9	---	< 0.16	2.5 ± 0.3
		---	8.47 ± 0.68	< 70	---	21.1 ± 1.7	---	< 0.2	2.5 ± 0.3
		---	10.7 ± 0.8	< 70	---	21.0 ± 1.7	---	< 0.17	2.6 ± 0.3
5.0	0	---	3.51 ± 0.24	< 40	---	9.39 ± 0.77	---	< 0.18	3.0 ± 0.3
		---	8.59 ± 0.60	< 30	---	19.6 ± 1.5	---	0.32 ± 0.06	2.7 ± 0.3
		---	6.24 ± 0.44	< 50	---	12.7 ± 1.0	---	< 0.2	2.8 ± 0.3
	15	---	9.89 ± 0.79	< 50	---	19.2 ± 1.5	---	< 0.16	2.8 ± 0.2
		---	8.42 ± 0.67	< 60	---	21.1 ± 1.7	---	< 0.15	2.6 ± 0.2
		---	8.66 ± 0.70	< 50	---	20.1 ± 1.6	---	< 0.16	2.7 ± 0.2

Site Dist. (km)	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
0.5	0	---	---	6500 ± 1200	1380 ± 60	1.09 ± 0.04	---	---	164 ± 18
		---	---	< 5000	2590 ± 110	0.93 ± 0.04	---	---	158 ± 17
		---	---	6800 ± 1000	1920 ± 80	0.97 ± 0.03	---	---	161 ± 17
		---	---	< 5000	2310 ± 100	1.31 ± 0.05	---	---	192 ± 21
	15	---	---	< 4000	2610 ± 110	1.05 ± 0.04	---	---	153 ± 17
		---	---	< 4000	2910 ± 130	1.02 ± 0.04	---	---	142 ± 17
		---	---	6700 ± 1700	2140 ± 100	1.20 ± 0.04	---	---	148 ± 16
		---	---	6000 ± 1300	2260 ± 100	1.20 ± 0.04	---	---	140 ± 16
1.0	0	---	---	9300 ± 1000	890 ± 40	1.08 ± 0.04	---	7.72 ± 0.3	124 ± 13
		---	---	5600 ± 1300	1270 ± 60	1.16 ± 0.04	---	6.69 ± 0.3	126 ± 14
	6	---	---	9100 ± 1300	970 ± 40	0.78 ± 0.03	---	7.98 ± 0.3	98 ± 12
		---	---	9800 ± 1400	1100 ± 50	1.02 ± 0.04	---	7.71 ± 0.3	124 ± 14
2.0	0	---	---	< 3000	1840 ± 80	1.44 ± 0.05	---	---	184 ± 20
		---	---	< 5000	1580 ± 70	1.50 ± 0.06	---	---	206 ± 22
		---	---	6100 ± 1100	1630 ± 70	1.34 ± 0.05	---	---	185 ± 19
	15	---	---	6000 ± 1600	1870 ± 80	1.46 ± 0.05	---	---	154 ± 17
		---	---	< 4000	2250 ± 100	1.40 ± 0.05	---	---	179 ± 20
		---	---	4400 ± 1500	1900 ± 90	1.42 ± 0.05	---	---	147 ± 15
5.0	0	---	---	< 4000	640 ± 30	1.41 ± 0.05	---	---	171 ± 18
		---	---	3900 ± 900	1300 ± 60	1.23 ± 0.04	---	---	167 ± 17
		---	---	< 4000	1240 ± 60	1.13 ± 0.04	---	---	202 ± 22
	15	---	---	< 4000	1220 ± 50	1.08 ± 0.04	---	---	140 ± 15
		---	---	5100 ± 1300	1560 ± 70	1.10 ± 0.04	---	---	159 ± 16
		---	---	< 4000	1230 ± 60	1.13 ± 0.04	---	---	148 ± 16

Table C XIX. Individual Elemental Concentration in Soils from San Manuel Smelter Canyon, North of Rincon Mountain District (cont.)

Site Dist. (km)	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
0.5	0	7.90 ± 0.88	16.9 ± 0.86	---	24 ± 3	11.6 ± 1.1	< 300	4.45 ± 0.48	---
		3.55 ± 0.47	17.4 ± 0.89	---	20 ± 2	10.2 ± 1.0	< 400	4.27 ± 0.45	---
		3.61 ± 0.40	13.8 ± 0.70	---	25.1 ± 1.2	9.93 ± 1.0	< 300	2.79 ± 0.29	---
		3.17 ± 0.42	16.3 ± 0.83	---	23.7 ± 1.7	10.1 ± 1.03	< 400	4.42 ± 0.47	---
	15	1.68 ± 0.39	22.2 ± 1.57	---	21 ± 3	12.0 ± 1.8	< 400	6.19 ± 0.95	---
		2.46 ± 0.51	23.3 ± 1.65	---	21.7 ± 1.5	12.3 ± 1.8	< 300	7.29 ± 1.12	---
		1.44 ± 0.26	16.4 ± 1.16	---	25 ± 2	10.5 ± 1.59	< 400	3.90 ± 0.59	---
		1.68 ± 0.38	20.4 ± 1.44	---	26.2 ± 1.3	14.2 ± 2.15	< 300	6.51 ± 1.01	---
1.0	0	4.29 ± 0.50	10.7 ± 1.1	---	26.8 ± 1.6	5.83 ± 0.58	< 200	2.07 ± 0.33	1.08 ± 0.23
		6.32 ± 0.74	13.2 ± 1.3	---	28.1 ± 2.0	8.10 ± 0.81	< 300	2.37 ± 0.38	1.02 ± 0.25
	6	1.42 ± 0.27	10.1 ± 1.0	---	22.9 ± 1.2	7.40 ± 0.74	< 300	2.49 ± 0.40	1.62 ± 0.36
		2.78 ± 0.42	12.7 ± 1.3	---	27.6 ± 1.4	9.23 ± 0.93	< 200	2.50 ± 0.42	1.80 ± 0.39
2.0	0	3.87 ± 0.48	16.7 ± 0.85	---	27.7 ± 1.3	10.4 ± 1.07	< 300	4.63 ± 0.49	---
		3.18 ± 0.41	15.6 ± 0.79	---	25 ± 2	10.5 ± 1.08	< 300	4.00 ± 0.43	---
		2.76 ± 0.31	15.8 ± 0.80	---	26.7 ± 1.8	9.96 ± 1.01	< 300	3.83 ± 0.39	---
	15	1.74 ± 0.37	18.6 ± 1.32	---	25.3 ± 2.0	13.9 ± 2.12	< 300	5.08 ± 0.78	---
		1.64 ± 0.36	15.8 ± 1.12	---	29.0 ± 1.7	10.7 ± 1.64	< 300	4.11 ± 0.65	---
		1.61 ± 0.28	17.4 ± 1.23	---	28 ± 2	12.9 ± 1.95	< 400	4.28 ± 0.65	---
5.0	0	2.55 ± 0.30	9.44 ± 0.48	---	30 ± 2	6.74 ± 0.68	< 200	1.93 ± 0.21	---
		4.18 ± 0.44	12.9 ± 0.65	---	29.3 ± 1.3	9.49 ± 0.96	< 200	3.23 ± 0.33	---
		2.51 ± 0.34	13.1 ± 0.66	---	28.7 ± 1.4	6.98 ± 0.75	< 300	3.06 ± 0.33	---
	15	1.99 ± 0.38	16.3 ± 1.15	---	28.3 ± 1.5	11.3 ± 1.72	< 200	4.38 ± 0.68	---
		2.44 ± 0.40	15.0 ± 1.06	---	29 ± 3	10.1 ± 1.52	< 300	3.58 ± 0.54	---
		2.13 ± 0.42	14.2 ± 1.01	---	29.3 ± 1.4	8.50 ± 1.33	< 200	2.84 ± 0.45	---

Site Dist. (km)	Depth (in)	Th (ug/g)	Ti (%)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
0.5	0	24.6 ± 2.0	1.10 ± 0.14	4.25 ± 0.35	238 ± 10	< 150	8.36 ± 0.86	428 ± 64	---
		17.7 ± 1.4	1.96 ± 0.11	3.95 ± 0.3	331 ± 14	< 200	7.73 ± 0.79	234 ± 35	---
		22.4 ± 1.8	1.39 ± 0.18	3.84 ± 0.3	241 ± 10	< 160	5.34 ± 0.54	177 ± 26	---
		28.2 ± 2.2	1.84 ± 0.10	3.69 ± 0.3	308 ± 13	< 200	7.52 ± 0.77	154 ± 23	---
	15	54.4 ± 4.4	1.80 ± 0.1	5.92 ± 0.4	357 ± 15	< 180	7.81 ± 0.83	166 ± 33	---
		21.8 ± 1.7	2.24 ± 0.12	5.71 ± 0.4	419 ± 18	< 200	9.20 ± 0.95	190 ± 38	---
		17.1 ± 1.3	1.40 ± 0.08	4.75 ± 0.4	279 ± 12	< 170	7.53 ± 0.76	111 ± 22	---
		30.5 ± 2.4	1.85 ± 0.10	5.84 ± 0.4	364 ± 15	< 190	9.74 ± 1.01	154 ± 31	---
1.0	0	12.1 ± 0.6	0.82 ± 0.11	2.83 ± 0.2	115 ± 5	< 110	4.60 ± 0.47	205 ± 21	---
		23.0 ± 1.2	1.15 ± 0.07	3.76 ± 0.3	169 ± 8	< 160	4.93 ± 0.52	243 ± 25	---
	6	14.0 ± 0.7	0.94 ± 0.05	3.54 ± 0.3	142 ± 6	< 120	4.22 ± 0.47	94 ± 14	---
		16.4 ± 0.9	1.09 ± 0.06	3.5 ± 0.3	182 ± 8	< 140	5.33 ± 0.58	149 ± 23	---
2.0	0	23.2 ± 1.8	1.45 ± 0.19	4.36 ± 0.35	231 ± 10	< 150	7.81 ± 0.80	172 ± 26	---
		21.7 ± 1.7	1.15 ± 0.07	4.31 ± 0.35	221 ± 10	< 180	7.17 ± 0.74	204 ± 31	---
		44.7 ± 3.6	1.26 ± 0.16	4.28 ± 0.35	245 ± 10	< 150	7.30 ± 0.74	169 ± 25	---
	15	26.8 ± 2.1	1.35 ± 0.08	3.76 ± 0.3	230 ± 10	< 150	9.52 ± 0.99	120 ± 24	---
		26.1 ± 2.1	1.26 ± 0.07	4.35 ± 0.3	187 ± 8	< 200	6.56 ± 0.70	104 ± 21	---
		27.0 ± 2.1	1.50 ± 0.09	4.55 ± 0.4	211 ± 9	< 160	7.08 ± 0.72	112 ± 22	---
5.0	0	10.3 ± 0.8	0.93 ± 0.06	4.74 ± 0.4	92 ± 5	< 120	4.03 ± 0.41	74 ± 11	---
		32.1 ± 2.5	1.48 ± 0.19	3.26 ± 0.3	216 ± 9	< 130	6.23 ± 0.63	118 ± 17	---
		13.6 ± 1.1	1.29 ± 0.07	2.72 ± 0.2	168 ± 8	< 160	4.09 ± 0.44	105 ± 16	---
	15	21.0 ± 1.7	1.52 ± 0.08	3.47 ± 0.3	217 ± 9	< 150	5.32 ± 0.56	103 ± 20	---
		20.2 ± 1.6	1.61 ± 0.09	3.43 ± 0.3	204 ± 9	< 150	5.12 ± 0.53	98 ± 19	---
		13.5 ± 1.1	1.28 ± 0.07	4.35 ± 0.35	180 ± 8	< 150	5.53 ± 0.59	140 ± 28	---

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument

Site #	Depth (in)	Particle Size (mesh)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
TMD-1B	0	All	< 2.7	6.16 ± 0.17	4.5 ± 0.6	< 11	460 ± 50	< 2.7	0.77 ± 0.05	233 ± 10
TMD-2B	0	25-45	---	7.84 ± 0.22	---	---	630 ± 70	---	0.57 ± 0.07	---
		60	---	7.95 ± 0.22	---	---	530 ± 80	---	0.79 ± 0.11	---
		100	---	7.62 ± 0.22	---	---	530 ± 50	---	0.74 ± 0.08	---
		< 100	---	8.06 ± 0.22	---	---	530 ± 60	---	1.15 ± 0.08	---
	6	20-45	---	7.84 ± 0.24	---	---	680 ± 80	---	0.53 ± 0.07	---
		60	---	7.84 ± 0.23	---	---	560 ± 80	---	0.80 ± 0.10	---
		100	---	7.73 ± 0.21	---	---	540 ± 60	---	0.94 ± 0.09	---
		< 100	---	7.28 ± 0.22	---	---	570 ± 60	---	1.42 ± 0.10	---
TMD-2C	0	All	---	7.84 ± 0.22	---	---	570 ± 70	---	0.73 ± 0.07	---
	6	20-45	---	7.50 ± 0.23	---	---	540 ± 60	---	0.47 ± 0.06	---
		60	---	8.18 ± 0.24	---	---	560 ± 80	---	< 0.4	---
		100	---	9.63 ± 0.33	---	---	650 ± 70	---	1.02 ± 0.09	---
		< 100	---	8.29 ± 0.37	---	---	660 ± 80	---	1.10 ± 0.08	---
TMD-3B	0	20-45	---	7.84 ± 0.22	---	---	510 ± 60	---	0.47 ± 0.06	---
		60	---	8.06 ± 0.22	---	---	470 ± 90	---	0.71 ± 0.09	---
		100	---	9.41 ± 0.34	---	---	620 ± 70	---	0.78 ± 0.08	---
		< 100	< 3	7.06 ± 0.22	4.1 ± 0.5	< 9	650 ± 40	< 2.4	0.94 ± 0.06	97 ± 5
	6	20-45	< 1.6	8.06 ± 0.22	1.9 ± 0.4	< 15	490 ± 40	< 3	0.53 ± 0.07	79 ± 4
		60	---	8.06 ± 0.22	---	---	510 ± 80	---	< 0.4	---
		100	---	7.73 ± 0.26	---	---	710 ± 80	---	0.89 ± 0.08	---
		< 100	---	7.28 ± 0.22	---	---	630 ± 60	---	0.93 ± 0.07	---
TMD-3C	0	20-45	---	9.18 ± 0.34	---	---	680 ± 70	---	0.55 ± 0.06	---
		60	---	7.95 ± 0.22	---	---	480 ± 80	---	0.67 ± 0.09	---
		100	---	7.95 ± 0.22	---	---	460 ± 50	---	0.80 ± 0.08	---
		< 100	---	7.28 ± 0.22	---	---	700 ± 70	---	1.02 ± 0.08	---
	6	20-45	---	7.95 ± 0.27	---	---	510 ± 60	---	0.54 ± 0.06	---
		60	---	8.85 ± 0.36	---	---	520 ± 80	---	0.68 ± 0.09	---
		100	---	7.17 ± 0.20	---	---	440 ± 50	---	0.72 ± 0.07	---
		< 100	---	7.73 ± 0.25	---	---	560 ± 60	---	1.03 ± 0.08	---
TMD-4B	0	25-40	---	8.18 ± 0.22	---	---	570 ± 60	---	0.62 ± 0.07	---
		60	---	9.97 ± 0.34	---	---	450 ± 90	---	0.97 ± 0.11	---
		100	---	8.06 ± 0.24	---	---	640 ± 70	---	0.86 ± 0.08	---
		< 100	---	7.17 ± 0.25	---	---	690 ± 70	---	1.04 ± 0.08	---
	6	20-45	---	8.40 ± 0.36	---	---	540 ± 60	---	0.47 ± 0.07	---
		60	---	8.62 ± 0.33	---	---	540 ± 70	---	0.56 ± 0.09	---
		100	---	9.97 ± 0.39	---	---	530 ± 60	---	0.88 ± 0.09	---
		< 100	---	7.73 ± 0.22	---	---	680 ± 80	---	1.09 ± 0.08	---
TMD-4C	0	20-45	---	7.95 ± 0.22	---	---	530 ± 60	---	0.47 ± 0.06	---
		60	---	9.97 ± 0.34	---	---	520 ± 70	---	0.71 ± 0.09	---
		100	---	8.18 ± 0.34	---	---	570 ± 60	---	0.82 ± 0.08	---
		< 100	---	8.40 ± 0.34	---	---	560 ± 50	---	1.02 ± 0.08	---
	6	20-45	---	7.62 ± 0.21	---	---	500 ± 60	---	0.62 ± 0.07	---
		60	---	8.29 ± 0.38	---	---	480 ± 80	---	0.80 ± 0.09	---
		100	---	7.84 ± 0.22	---	---	560 ± 60	---	0.84 ± 0.08	---
		< 100	---	7.73 ± 0.21	---	---	510 ± 60	---	0.92 ± 0.08	---
TMD-5B	0	20-45	< 1.6	7.99 ± 0.22	2.05 ± 0.38	< 18	518 ± 32	< 4	0.52 ± 0.05	93 ± 4
		60	< 2.6	8.26 ± 0.23	4.4 ± 0.6	< 19	591 ± 39	< 4.4	0.71 ± 0.05	120 ± 6
		100	< 2.3	8.07 ± 0.23	3.9 ± 0.6	< 13	660 ± 90	< 3.1	0.76 ± 0.06	127 ± 6
		< 100	< 2.1	6.84 ± 0.19	4.7 ± 0.6	< 12	610 ± 70	< 2.4	0.93 ± 0.06	105 ± 5
	6	20-45	< 1.5	7.71 ± 0.22	2.0 ± 0.4	< 17	520 ± 32	< 3.9	0.42 ± 0.06	100 ± 5
		60	---	8.74 ± 0.31	---	---	460 ± 80	---	0.76 ± 0.10	---
		100	---	8.51 ± 0.36	---	---	510 ± 60	---	0.80 ± 0.09	---
		< 100	< 3.2	7.67 ± 0.21	4.5 ± 0.5	< 13	597 ± 44	3.8 ± 0.6	1.00 ± 0.06	115 ± 5

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle Size (mesh)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
TMD-5C	0	20-45	---	7.95 ± 0.21	---	---	480 ± 60	---	0.58 ± 0.07	---
		60	---	8.29 ± 0.33	---	---	510 ± 80	---	0.50 ± 0.08	---
		100	---	7.95 ± 0.25	---	---	570 ± 60	---	0.68 ± 0.07	---
		< 100	---	7.95 ± 0.22	---	---	580 ± 70	---	1.04 ± 0.08	---
	6	20-45	---	7.62 ± 0.24	---	---	---	---	---	---
		60	---	7.62 ± 0.26	---	---	490 ± 70	---	0.72 ± 0.09	---
		100	---	7.17 ± 0.22	---	---	470 ± 50	---	0.69 ± 0.07	---
		< 100	---	8.18 ± 0.22	---	---	540 ± 70	---	0.94 ± 0.08	---
TMD-6	0	20-45	< 1.3	6.82 ± 0.19	1.79 ± 0.35	< 11	529 ± 33	< 2.8	0.53 ± 0.06	48 ± 2
		60	< 1.6	7.14 ± 0.20	2.28 ± 0.38	< 14	504 ± 31	< 2.8	0.67 ± 0.05	82 ± 4
		100	< 2	6.93 ± 0.19	4.2 ± 0.5	< 15	580 ± 60	< 3.4	0.69 ± 0.05	117 ± 5
		< 100	< 2	6.67 ± 0.19	4.3 ± 0.5	< 12	700 ± 70	< 2.3	1.00 ± 0.06	85 ± 4
	6	20-45	< 1.5	6.80 ± 0.19	3.18 ± 0.43	< 14	525 ± 30	< 3.2	0.47 ± 0.04	61 ± 3
		60	---	7.39 ± 0.22	---	---	410 ± 70	---	< 0.4	---
		100	< 2.9	7.28 ± 0.20	3.76 ± 0.49	< 15	628 ± 46	< 3.6	0.78 ± 0.05	115 ± 5
		< 100	< 2.5	7.13 ± 0.20	5.7 ± 0.6	< 9	658 ± 43	< 2.2	0.90 ± 0.06	101 ± 5
TMD-7	0	20-45	< 1.8	6.47 ± 0.18	2.73 ± 0.40	< 14	551 ± 34	< 2.7	0.57 ± 0.05	104 ± 5
		60	< 2.5	6.51 ± 0.18	4.7 ± 0.6	< 15	514 ± 43	< 3.3	0.79 ± 0.06	134 ± 6
		100	< 3.4	6.64 ± 0.19	4.9 ± 0.6	< 14	630 ± 90	< 3.5	0.82 ± 0.06	126 ± 6
		< 100	< 2.5	6.58 ± 0.18	5.3 ± 0.6	< 9	600 ± 80	1.1 ± 0.3	0.99 ± 0.06	102 ± 5
	6	20-45	< 1.7	6.82 ± 0.19	2.84 ± 0.43	< 13	554 ± 35	1.6 ± 0.7	0.49 ± 0.04	96 ± 4
		60	< 2.5	6.81 ± 0.19	5.4 ± 0.6	< 14	480 ± 38	2.0 ± 0.5	0.79 ± 0.05	126 ± 6
		100	< 3.5	6.80 ± 0.19	5.9 ± 0.7	< 14	600 ± 120	1.8 ± 0.3	0.71 ± 0.05	130 ± 6
		< 100	< 2.7	7.26 ± 0.20	6.5 ± 0.7	< 8	566 ± 40	2.8 ± 0.4	0.96 ± 0.06	99 ± 5

Site #	Depth (in)	Particle Size (mesh)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
TMD-1B	0	25-40	---	---	0.12 ± 0.2	---	---	---	---	---
		60	---	---	0.32 ± 0.2	---	---	---	---	--
		100	---	---	0.3 ± 0.2	---	---	---	---	--
		< 100	---	---	0.44 ± 0.2	---	---	---	---	---
	6	20-45	---	---	0.16 ± 0.2	---	---	---	---	---
		60	---	---	0.49 ± 0.2	---	---	---	---	---
		100	---	---	0.47 ± 0.2	---	---	---	---	---
		< 100	---	---	0.36 ± 0.2	---	---	---	---	---
TMD-1C	0	All	76 ± 18	7.2 ± 0.4	0.22 ± 0.2	43 ± 3	4.15 ± 0.25	< 230	9.2 ± 1.0	1.46 ± 0.07
	6	20-45	---	---	0.09 ± 0.2	---	---	---	---	---
		60	---	---	0.31 ± 0.2	---	---	---	---	---
		100	---	---	0.19 ± 0.2	---	---	---	---	---
		< 100	---	---	0.24 ± 0.2	---	---	---	---	---
TMD-2B	0	20-45	80 ± 50	---	0.15 ± 0.2	---	---	< 300	2.5 ± 0.3	0.72 ± 0.15
		60	70 ± 70	---	0.53 ± 0.2	---	---	< 400	4.9 ± 0.5	0.90 ± 0.20
		100	150 ± 50	---	0.21 ± 0.2	---	---	< 200	5.3 ± 0.3	1.00 ± 0.20
		< 100	50 ± 40	---	0.34 ± 0.2	---	---	< 200	6.6 ± 0.6	1.2 ± 0.2
	6	20-45	110 ± 40	---	0.64 ± 0.2	---	---	< 300	2.9 ± 0.3	0.54 ± 0.17
		60	< 100	---	1.1 ± 0.2	---	---	< 400	5.4 ± 0.4	1.2 ± 0.2
		100	110 ± 40	---	0.55 ± 0.2	---	---	< 200	6.6 ± 0.3	1.1 ± 0.2
		< 100	50 ± 30	---	0.53 ± 0.2	---	---	< 200	5.7 ± 0.9	1.2 ± 0.3
TMD-2C	0	All	80 ± 50	---	0.22 ± 0.2	---	---	< 200	4.5 ± 0.5	0.88 ± 0.19
	6	20-45	50 ± 40	---	0.16 ± 0.2	---	---	< 200	1.71 ± 0.18	0.57 ± 0.12
		60	170 ± 60	---	0.23 ± 0.2	---	---	< 400	3.0 ± 0.3	1.0 ± 0.3
		100	100 ± 40	---	0.74 ± 0.2	---	---	< 200	5.8 ± 0.3	1.4 ± 0.2
		< 100	30 ± 40	---	0.16 ± 0.2	---	---	< 200	5.7 ± 0.6	1.1 ± 0.2

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle Size (mesh)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
TMD-3B	0	20-45	120 ± 40	---	0.31 ± 0.2	---	---	< 300	3.3 ± 0.3	0.56 ± 0.15
		60	170 ± 80	---	0.2 ± 0.2	---	---	< 400	4.2 ± 0.3	0.70 ± 0.19
		100	140 ± 50	---	0.26 ± 0.2	---	---	< 200	5.0 ± 0.3	---
		< 100	20 ± 30	5.5 ± 0.3	0.53 ± 0.2	35.5 ± 2.2	5.9 ± 0.3	< 210	5.6 ± 0.5	1.09 ± 0.06
	6	20-45	110 ± 30	2.57 ± 0.18	0.49 ± 0.2	9.2 ± 0.6	5.0 ± 0.3	< 200	3.7 ± 0.3	0.63 ± 0.04
		60	< 100	---	0.46 ± 0.2	---	---	< 400	4.1 ± 0.4	0.69 ± 0.19
		100	20 ± 30	---	0.67 ± 0.2	---	---	< 200	4.5 ± 0.3	1.2 ± 0.2
		< 100	30 ± 30	---	0.34 ± 0.2	---	---	< 200	5.3 ± 0.5	1.08 ± 0.18
TMD-3C	0	20-45	100 ± 40	---	0.12 ± 0.2	---	---	< 200	---	1.21 ± 0.17
		60	80 ± 50	---	0.08 ± 0.2	---	---	< 400	5.1 ± 0.7	1.1 ± 0.2
		100	40 ± 50	---	0.3 ± 0.2	---	---	< 200	5.4 ± 0.3	1.07 ± 0.17
		< 100	60 ± 40	---	0.5 ± 0.2	---	---	< 200	6.3 ± 0.6	1.4 ± 0.3
	6	20-45	50 ± 70	---	0.35 ± 0.2	---	---	< 300	4.3 ± 0.3	0.91 ± 0.15
		60	100 ± 60	---	0.2 ± 0.2	---	---	< 400	7.4 ± 0.4	1.4 ± 0.5
		100	130 ± 50	---	0.18 ± 0.2	---	---	< 200	9.3 ± 0.4	1.7 ± 0.3
		< 100	40 ± 30	---	0.26 ± 0.2	---	---	< 200	7.9 ± 0.9	1.5 ± 0.4
TMD-4B	0	20-45	70 ± 50	---	0.32 ± 0.2	---	---	< 300	2.7 ± 0.3	0.70 ± 0.16
		60	< 100	---	0.29 ± 0.2	---	---	< 400	4.1 ± 0.4	1.2 ± 0.2
		100	100 ± 60	---	0.72 ± 0.2	---	---	< 200	4.8 ± 0.3	1.2 ± 0.2
		< 100	60 ± 30	---	0.32 ± 0.2	---	---	< 200	6.0 ± 0.6	1.1 ± 0.2
	6	20-45	100 ± 80	---	0.37 ± 0.2	---	---	< 300	2.1 ± 0.2	0.56 ± 0.16
		60	< 100	---	0.37 ± 0.2	---	---	< 400	2.4 ± 0.3	1.0 ± 0.2
		100	40 ± 40	---	0.49 ± 0.2	---	---	< 200	5.4 ± 0.3	1.08 ± 0.18
		< 100	90 ± 50	---	0.48 ± 0.2	---	---	< 200	5.8 ± 0.5	1.2 ± 0.2
TMD-4C	0	20-45	80 ± 40	---	0.25 ± 0.2	---	---	< 300	1.9 ± 0.2	0.85 ± 0.15
		60	< 100	---	0.5 ± 0.2	---	---	< 400	3.7 ± 0.3	---
		100	100 ± 40	---	0.4 ± 0.2	---	---	< 200	7.6 ± 0.4	1.5 ± 0.2
		< 100	50 ± 40	---	0.75 ± 0.2	---	---	< 200	8.5 ± 0.7	1.5 ± 0.3
	6	20-45	70 ± 40	---	0.31 ± 0.2	---	---	< 200	2.2 ± 0.2	0.65 ± 0.13
		60	70 ± 60	---	0.37 ± 0.2	---	---	< 400	3.8 ± 0.4	0.65 ± 0.17
		100	70 ± 50	---	0.33 ± 0.2	---	---	< 200	7.5 ± 0.4	1.4 ± 0.2
		< 100	60 ± 40	---	0.42 ± 0.2	---	---	< 200	6.0 ± 1.1	1.4 ± 0.3
TMD-5B	0	20-45	85 ± 25	2.42 ± 0.14	0.3 ± 0.2	9.2 ± 0.7	5.15 ± 0.29	< 250	3.15 ± 0.32	0.76 ± 0.04
		60	82 ± 24	3.75 ± 0.20	0.35 ± 0.2	13.0 ± 0.9	6.28 ± 0.36	< 280	3.95 ± 0.40	1.12 ± 0.06
		100	140 ± 60	4.63 ± 0.26	0.65 ± 0.2	18.4 ± 1.2	6.28 ± 0.36	< 200	5.17 ± 0.43	1.13 ± 0.07
		< 100	60 ± 30	5.87 ± 0.31	0.47 ± 0.2	37.8 ± 2.3	6.38 ± 0.43	< 200	3.9 ± 0.7	1.17 ± 0.06
	6	20-45	80 ± 50	2.04 ± 0.12	0.28 ± 0.2	6.1 ± 0.5	4.99 ± 0.29	< 240	2.87 ± 0.29	0.70 ± 0.03
		60	< 100	---	0.23 ± 0.2	---	---	< 400	4.9 ± 0.4	1.0 ± 0.2
		100	80 ± 60	---	0.2 ± 0.2	---	---	< 300	6.0 ± 0.4	1.5 ± 0.3
		< 100	40 ± 40	7.04 ± 0.39	0.66 ± 0.2	37.2 ± 2.3	8.05 ± 0.45	< 200	5.58 ± 0.5	1.31 ± 0.08
TMD-5C	0	20-45	110 ± 50	---	0.88 ± 0.2	---	---	< 300	2.08 ± 0.2	0.54 ± 0.15
		60	< 100	---	0.5 ± 0.2	---	---	< 400	3.8 ± 0.4	0.8 ± 0.2
		100	140 ± 50	---	0.7 ± 0.2	---	---	< 200	5.6 ± 0.5	1.3 ± 0.3
		< 100	50 ± 30	---	0.58 ± 0.2	---	---	< 200	6.4 ± 0.6	1.3 ± 0.3
	6	20-45	---	---	0.32 ± 0.2	---	---	< 200	---	---
		60	< 100	---	0.47 ± 0.2	---	---	< 400	8.9 ± 0.5	1.7 ± 0.3
		100	< 100	---	0.31 ± 0.2	---	---	< 200	10.4 ± 0.5	1.5 ± 0.2
		< 100	30 ± 30	---	0.41 ± 0.2	---	---	< 200	7.1 ± 0.6	1.4 ± 0.2
TMD-6	0	20-45	142 ± 20	1.42 ± 0.12	0.41 ± 0.2	3.73 ± 0.39	3.71 ± 0.22	< 200	1.74 ± 0.30	0.54 ± 0.03
		60	70 ± 60	3.55 ± 0.19	0.29 ± 0.2	12.3 ± 0.9	4.15 ± 0.24	< 260	3.46 ± 0.31	0.90 ± 0.05
		100	80 ± 60	4.58 ± 0.25	0.5 ± 0.2	19.7 ± 1.3	4.34 ± 0.28	< 200	4.69 ± 0.42	1.12 ± 0.06
		< 100	< 80	5.34 ± 0.28	0.86 ± 0.2	32 ± 2	5.16 ± 0.31	< 220	4.9 ± 0.8	1.03 ± 0.05
	6	20-45	156 ± 25	2.78 ± 0.16	0.41 ± 0.2	9.4 ± 0.7	4.36 ± 0.26	< 210	2.18 ± 0.24	0.67 ± 0.04
		60	170 ± 70	---	0.4 ± 0.2	---	---	< 400	2.7 ± 0.3	---
		100	76 ± 21	5.90 ± 0.32	0.45 ± 0.2	27.8 ± 1.8	5.22 ± 0.32	< 240	6.5 ± 0.6	1.20 ± 0.07
		< 100	20 ± 40	7.46 ± 0.40	0.47 ± 0.2	44.2 ± 2.7	6.26 ± 0.45	< 190	5.67 ± 0.46	1.08 ± 0.05

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle Size (mesh)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
TMD-7	0	20-45	76 ± 16	4.66 ± 0.25	0.22 ± 0.2	15.1 ± 1.0	4.65 ± 0.27	< 200	3.11 ± 0.31	0.81 ± 0.05
		60	108 ± 27	6.50 ± 0.36	0.34 ± 0.2	30.6 ± 1.9	4.66 ± 0.29	< 220	5.25 ± 0.48	1.13 ± 0.07
		100	80 ± 40	8.17 ± 0.43	0.33 ± 0.2	40.3 ± 2.5	4.85 ± 0.28	< 200	6.3 ± 0.7	1.11 ± 0.05
		< 100	30 ± 30	6.93 ± 0.37	0.35 ± 0.2	41.6 ± 2.5	5.44 ± 0.34	< 200	5.9 ± 0.5	1.09 ± 0.05
	6	20-45	103 ± 16	4.44 ± 0.24	0.27 ± 0.2	15.9 ± 1.1	4.75 ± 0.27	< 240	3.42 ± 0.32	0.81 ± 0.05
		60	< 100	7.70 ± 0.41	0.34 ± 0.2	34.7 ± 2.2	5.33 ± 0.31	< 220	5.1 ± 0.6	1.03 ± 0.05
		100	< 90	9.17 ± 0.49	0.54 ± 0.2	46.5 ± 2.9	5.62 ± 0.35	< 200	6.1 ± 0.6	1.27 ± 0.07
		< 100	70 ± 40	8.42 ± 0.45	0.29 ± 0.2	46.7 ± 2.8	6.50 ± 0.39	< 200	5.92 ± 0.48	1.15 ± 0.05

Site #	Depth (in)	Particle Size (mesh)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ng/g)	I (ug/g)	In (ug/g)	K (%)
TMD-1C	0	All	8.67 ± 0.45	13 ± 4	22 ± 1	< 500	< 12	< 170	2.52 ± 0.17
	6	All	---	---	---	---	---	---	---
TMD-2B	0	20-45	---	---	---	---	< 14	< 0.13	3.4 ± 0.3
		60	---	---	---	---	< 20	< 0.2	2.5 ± 0.2
		100	---	---	---	---	< 13	< 0.14	3.1 ± 0.2
		< 100	---	---	---	---	< 13	< 0.1	2.6 ± 0.4
	6	20-45	---	---	---	---	< 14	< 0.13	3.4 ± 0.3
		60	---	---	---	---	< 20	< 0.2	2.8 ± 0.3
		100	---	---	---	---	< 14	< 0.15	2.9 ± 0.2
		< 100	---	---	---	---	< 14	< 0.1	2.8 ± 0.3
TMD-2C	0	All	---	---	---	---	< 12	< 0.1	2.9 ± 0.3
	6	20-45	---	---	---	---	< 13	< 0.13	3.3 ± 0.2
		60	---	---	---	---	< 20	< 0.2	2.9 ± 0.3
		100	---	---	---	---	< 13	< 0.15	3.1 ± 0.2
		< 100	---	---	---	---	< 15	< 0.11	2.8 ± 0.3
TMD-3B	0	20-45	---	---	---	---	< 13	< 0.13	4.0 ± 0.3
		60	---	---	---	---	< 20	< 0.2	2.8 ± 0.2
		100	---	---	---	---	< 13	< 0.15	2.8 ± 0.2
		< 100	2.56 ± 0.13	12 ± 3	16.6 ± 1.0	< 0.6	< 13	< 0.1	2.8 ± 0.3
	6	20-45	1.16 ± 0.06	< 23	4.49 ± 0.19	< 0.3	< 12	< 0.14	3.5 ± 0.3
		60	---	---	---	---	< 20	< 0.2	3.1 ± 0.3
		100	---	---	---	---	< 13	< 0.14	2.9 ± 0.2
		< 100	---	---	---	---	< 14	< 0.11	2.7 ± 0.3
TMD-3C	0	20-45	---	---	---	---	< 13	< 0.13	3.4 ± 0.3
		60	---	---	---	---	< 19	< 0.2	2.7 ± 0.2
		100	---	---	---	---	< 13	< 0.15	3.2 ± 0.3
		< 100	---	---	---	---	< 14	< 0.1	2.7 ± 0.3
	6	20-45	---	---	---	---	< 14	< 0.13	3.5 ± 0.3
		60	---	---	---	---	< 19	< 0.2	2.5 ± 0.2
		100	---	---	---	---	< 13	< 0.14	2.6 ± 0.2
		< 100	---	---	---	---	< 15	< 0.11	2.7 ± 0.3
TMD-4B	0	25-40	---	---	---	---	< 16	< 0.15	2.7 ± 0.2
		60	---	---	---	---	< 20	< 0.2	2.2 ± 0.2
		100	---	---	---	---	< 14	< 0.16	2.9 ± 0.2
		< 100	---	---	---	---	< 14	< 0.1	2.5 ± 0.3
	6	20-45	---	---	---	---	< 14	< 0.14	3.2 ± 0.3
		60	---	---	---	---	< 20	< 0.2	3.2 ± 0.3
		100	---	---	---	---	< 14	< 0.15	3.0 ± 0.2
		< 100	---	---	---	---	< 14	< 0.11	3.0 ± 0.3

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle Size (mesh)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ng/g)	I (ug/g)	In (ug/g)	K (%)
TMD-4C	0	20-45	---	---	---	---	< 13	< 0.13	3.4 ± 0.3
		60	---	---	---	---	< 19	< 0.2	3.0 ± 0.3
		100	---	---	---	---	< 13	< 0.14	3.1 ± 0.2
		< 100	---	---	---	---	< 13	< 0.1	2.5 ± 0.3
	6	20-45	---	---	---	---	< 13	< 0.13	2.9 ± 0.2
		60	---	---	---	---	< 20	< 0.2	2.7 ± 0.2
		100	---	---	---	---	< 14	< 0.15	2.9 ± 0.2
		< 100	---	---	---	---	< 14	< 0.11	2.7 ± 0.3
TMD-5B	0	20-45	1.29 ± 0.07	< 24	4.85 ± 0.21	< 340	< 15	< 0.14	3.1 ± 0.3
		60	2.00 ± 0.11	< 26	5.79 ± 0.49	< 500	< 16	< 0.2	2.8 ± 0.2
		100	2.81 ± 0.15	18 ± 4	6.82 ± 0.31	< 410	< 14	< 0.15	2.8 ± 0.2
		< 100	2.87 ± 0.14	18 ± 3	20.4 ± 1.3	< 420	< 12	< 0.1	2.4 ± 0.3
	6	20-45	1.15 ± 0.06	< 24	4.03 ± 0.16	< 320	< 14	< 0.14	3.2 ± 0.3
		60	---	---	---	---	< 20	< 0.2	3.1 ± 0.3
		100	---	---	---	---	< 15	< 0.16	3.4 ± 0.3
		< 100	3.26 ± 0.17	20 ± 4	17.6 ± 1.5	< 700	< 15	< 0.11	2.6 ± 0.3
TMD-5C	0	20-45	---	---	---	---	< 14	< 0.14	3.4 ± 0.3
		60	---	---	---	---	< 20	< 0.2	2.4 ± 0.2
		100	---	---	---	---	< 13	< 0.15	2.6 ± 0.2
		< 100	---	---	---	---	< 14	< 0.11	2.5 ± 0.3
	6	20-45	---	---	---	---	---	---	---
		60	---	---	---	---	< 20	< 0.2	2.7 ± 0.2
		100	---	---	---	---	< 14	< 0.14	2.6 ± 0.2
		< 100	---	---	---	---	< 16	< 0.12	2.8 ± 0.3
TMD-6	0	25-40	0.81 ± 0.04	< 21	2.49 ± 0.14	< 240	< 12	< 0.13	3.12 ± 0.2
		60	2.22 ± 0.11	< 20	3.84 ± 0.40	< 300	< 12	< 0.2	2.83 ± 0.19
		100	3.55 ± 0.19	< 21	5.77 ± 0.38	< 410	< 12	< 0.14	3.06 ± 0.2
		< 100	2.67 ± 0.13	< 16	15.3 ± 1.0	< 380	< 12	< 0.10	2.68 ± 0.17
	6	20-45	1.23 ± 0.06	< 20	3.91 ± 0.27	< 310	< 13	< 0.13	3.23 ± 0.21
		60	---	---	---	---	< 20	< 0.20	2.9 ± 0.3
		100	3.75 ± 0.19	14 ± 4	7.5 ± 0.7	< 600	< 13	< 0.14	2.82 ± 0.19
		< 100	3.22 ± 0.16	11 ± 2	17.7 ± 1.2	< 450	< 13	< 0.11	2.59 ± 0.17
TMD-7	0	20-45	2.27 ± 0.11	20 ± 4	5.8 ± 0.3	< 330	< 12	< 0.13	3.14 ± 0.21
		60	5.25 ± 0.29	< 20	7.9 ± 0.6	< 470	< 16	< 0.20	2.78 ± 0.18
		100	7.05 ± 0.39	17 ± 3	9.87 ± 0.44	< 700	< 14	< 0.15	2.59 ± 0.17
		< 100	3.61 ± 0.19	10 ± 2	21.0 ± 1.4	< 450	< 13	< 0.10	2.53 ± 0.16
	6	20-45	1.99 ± 0.10	14 ± 3	4.93 ± 0.3	< 330	< 12	< 0.13	3.13 ± 0.2
		60	5.77 ± 0.32	14 ± 3	7.87 ± 0.31	< 490	< 16	< 0.20	2.94 ± 0.19
		100	6.89 ± 0.37	24 ± 4	12.6 ± 0.6	< 700	< 14	< 0.14	2.57 ± 0.17
		< 100	3.53 ± 0.19	22 ± 5	18.5 ± 1.1	< 470	< 14	< 0.10	2.72 ± 0.18

Site #	Depth (in)	Particle Size(mesh)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	Rb (ug/g)
TMD-1B	0	All	---	---	---	---	---	---	---
	6	All	---	---	---	---	---	---	---
TMD-1C	0	All	136 ± 8	1050 ± 50	1970 ± 390	389 ± 16	2.32 ± 0.10	78 ± 9	134 ± 7
	6	All	---	---	---	---	---	---	---
TMD-2B	0	20-45	---	---	< 3000	320 ± 15	2.87 ± 0.09	---	---
		60	---	---	< 5000	392 ± 19	2.88 ± 0.10	---	---
		100	---	---	4100 ± 1200	425 ± 20	2.35 ± 0.08	---	---
		< 100	---	---	4500 ± 800	470 ± 20	1.79 ± 0.06	---	---
	6	20-45	---	---	33000 ± 12000	314 ± 14	2.77 ± 0.09	---	---
		60	---	---	< 5000	380 ± 30	2.86 ± 0.10	---	---
		100	---	---	< 3000	431 ± 20	2.35 ± 0.08	---	---
		< 100	---	---	4300 ± 700	470 ± 20	1.68 ± 0.06	---	---

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle Size(mesh)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	Rb (ug/g)
TMD-2C	0	All	---	---	< 2000	309 ± 14	2.63 ± 0.09	---	---
	6	20-45	---	---	< 3000	147 ± 7	2.89 ± 0.10	---	---
		60	---	---	< 5000	239 ± 12	3.25 ± 0.11	---	---
		100	---	---	< 3000	344 ± 16	2.67 ± 0.07	---	---
		< 100	---	---	4200 ± 800	510 ± 20	2.07 ± 0.07	---	---
TMD-3B	0	20-45	---	---	< 3000	175 ± 9	2.94 ± 0.10	---	---
		60	---	---	< 5000	307 ± 14	3.04 ± 0.10	---	---
		100	---	---	< 3000	361 ± 17	2.59 ± 0.09	---	---
		< 100	52 ± 3	0.55 ± 0.03	4600 ± 700	434 ± 20	1.89 ± 0.08	44 ± 7	133 ± 7
	6	20-45	48 ± 3	0.281 ± 0.015	< 1200	261 ± 13	2.95 ± 0.11	24 ± 4	187 ± 9
		60	---	---	< 5000	346 ± 16	3.02 ± 0.11	---	---
		100	---	---	4400 ± 1000	490 ± 20	2.13 ± 0.07	---	---
		< 100	---	---	4300 ± 700	520 ± 20	1.72 ± 0.06	---	---
TMD-3C	0	20-45	---	---	< 3000	148 ± 7	3.04 ± 0.11	---	---
		60	---	---	< 5000	264 ± 13	3.18 ± 0.12	---	---
		100	---	---	< 3000	299 ± 14	2.8 ± 0.1	---	---
		< 100	---	---	3400 ± 900	480 ± 20	1.90 ± 0.06	---	---
	6	20-45	---	---	< 3000	215 ± 10	3.09 ± 0.10	---	---
		60	---	---	< 5000	306 ± 15	2.99 ± 0.10	---	---
		100	---	---	< 3000	430 ± 20	2.40 ± 0.08	---	---
		< 100	---	---	3500 ± 700	590 ± 30	1.90 ± 0.06	---	---
TMD-4B	0	25-40	---	---	< 3000	440 ± 20	2.99 ± 0.11	---	---
		60	---	---	4800 ± 1500	440 ± 20	3.03 ± 0.10	---	---
		100	---	---	< 3000	450 ± 20	2.47 ± 0.08	---	---
		< 100	---	---	4000 ± 700	510 ± 20	1.72 ± 0.06	---	---
	6	20-45	---	---	< 3000	237 ± 13	3.26 ± 0.11	---	---
		60	---	---	< 5000	323 ± 15	3.41 ± 0.12	---	---
		100	---	---	3700 ± 1200	470 ± 20	2.49 ± 0.08	---	---
		< 100	---	---	3900 ± 700	560 ± 30	1.66 ± 0.06	---	---
TMD-4C	0	20-45	---	---	< 3000	165 ± 9	3.18 ± 0.11	---	---
		60	---	---	< 5000	242 ± 12	3.51 ± 0.12	---	---
		100	---	---	< 3000	321 ± 17	2.83 ± 0.10	---	---
		< 100	---	---	3900 ± 800	490 ± 20	1.90 ± 0.06	---	---
	6	20-45	---	---	< 3000	233 ± 11	2.81 ± 0.10	---	---
		60	---	---	< 5000	371 ± 17	2.95 ± 0.11	---	---
		100	---	---	< 3000	450 ± 20	2.27 ± 0.08	---	---
		< 100	---	---	4700 ± 900	500 ± 20	1.70 ± 0.06	---	---
TMD-5B	0	20-45	54.2 ± 2.9	0.31 ± 0.02	< 2400	397 ± 19	3.30 ± 0.15	41 ± 6	167 ± 8
		60	65.5 ± 3.5	0.36 ± 0.02	< 1900	314 ± 15	3.21 ± 0.13	47 ± 7	167 ± 8
		100	67.3 ± 3.8	0.48 ± 0.03	3500 ± 500	357 ± 17	2.86 ± 0.12	40 ± 5	173 ± 8
		< 100	54.0 ± 3.5	0.64 ± 0.03	4330 ± 420	441 ± 20	1.88 ± 0.08	43 ± 6	133 ± 9
	6	20-45	52.4 ± 2.8	0.31 ± 0.02	< 2300	219 ± 10	3.26 ± 0.15	45 ± 6	164 ± 8
		60	---	---	< 5000	364 ± 20	3.47 ± 0.13	---	---
		100	---	---	< 3000	440 ± 20	2.75 ± 0.09	---	---
		< 100	65.9 ± 3.5	0.59 ± 0.03	5400 ± 800	560 ± 20	1.81 ± 0.08	57 ± 8	142 ± 7
TMD-5C	0	20-45	---	---	< 3000	235 ± 13	3.15 ± 0.11	---	---
		60	---	---	< 5000	259 ± 12	3.41 ± 0.13	---	---
		100	---	---	< 3000	327 ± 15	2.74 ± 0.09	---	---
		< 100	---	---	4600 ± 900	480 ± 20	1.92 ± 0.07	---	---
	6	20-45	---	---	---	---	---	---	---
		60	---	---	< 5000	407 ± 19	2.82 ± 0.10	---	---
		100	---	---	< 3000	480 ± 20	2.10 ± 0.07	---	---
		< 100	---	---	6000 ± 800	670 ± 30	1.66 ± 0.06	---	---
TMD-6	0	20-45	31.4 ± 1.8	0.17 ± 0.01	< 1100	183 ± 9	2.67 ± 0.11	19 ± 3	173 ± 8
		60	43.0 ± 2.4	0.38 ± 0.02	< 1200	192 ± 12	2.57 ± 0.11	42 ± 5	157 ± 8
		100	62.0 ± 3.4	0.44 ± 0.02	< 2200	306 ± 14	2.55 ± 0.11	52 ± 7	138 ± 7
		< 100	45.5 ± 2.7	0.54 ± 0.03	3270 ± 390	405 ± 18	1.87 ± 0.08	32 ± 5	119 ± 6
	6	20-45	32.7 ± 1.7	0.21 ± 0.01	1900 ± 600	204 ± 8	2.50 ± 0.11	31 ± 4	154 ± 7
		60	---	---	< 5000	350 ± 16	2.57 ± 0.09	---	---
		100	65.3 ± 3.4	0.48 ± 0.03	2510 ± 490	405 ± 19	2.27 ± 0.10	53 ± 7	140 ± 7
		< 100	54.1 ± 3.2	0.61 ± 0.03	4700 ± 500	530 ± 20	1.62 ± 0.07	40 ± 5	135 ± 7

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle Size(mesh)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	Rb (ug/g)
TMD-7	0	20-45	62.2 ± 3.6	0.38 ± 0.02	< 1200	284 ± 13	2.22 ± 0.09	40 ± 5	155 ± 7
		60	70.5 ± 3.8	0.55 ± 0.03	< 2200	520 ± 30	2.17 ± 0.10	60 ± 9	122 ± 6
		100	73.6 ± 4.0	0.57 ± 0.03	2550 ± 440	480 ± 20	2.02 ± 0.08	59 ± 8	135 ± 7
		< 100	54.6 ± 3.1	0.67 ± 0.03	4890 ± 380	510 ± 20	1.65 ± 0.07	44 ± 6	131 ± 7
	6	20-45	55.3 ± 2.9	0.49 ± 0.02	1520 ± 320	342 ± 19	2.32 ± 0.08	36 ± 6	150 ± 7
		60	67.9 ± 3.5	0.58 ± 0.03	< 2200	450 ± 20	2.10 ± 0.10	62 ± 8	137 ± 7
		100	75.9 ± 4.1	0.62 ± 0.03	2900 ± 500	530 ± 20	1.82 ± 0.08	78 ± 10	127 ± 7
		< 100	54.5 ± 3.2	0.66 ± 0.04	5200 ± 600	560 ± 30	1.43 ± 0.06	33 ± 5	134 ± 7

Site #	Depth (in)	Particle size(mesh)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
TMD-1B	0	All	---	---	---	---	---	---	---
	6	All	---	---	---	---	---	---	---
TMD-1C	0	All	1.20 ± 0.11	6.42 ± 0.34	< 2	13.1 ± 0.6	< 200	4.32 ± 0.28	1.32 ± 0.12
	6	All	---	---	---	---	---	---	---
TMD-2B	0	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 190	---	---
		< 100	---	---	---	---	< 200	---	---
	6	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	330 ± 150	---	---
		100	---	---	---	---	< 200	---	---
		< 100	---	---	---	---	< 200	---	---
TMD-2C	0	All	---	---	---	---	< 190	---	---
	6	20-45	---	---	---	---	260 ± 80	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 190	---	---
		< 100	---	---	---	---	< 200	---	---
TMD-3B	0	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 190	---	---
		< 100	1.48 ± 0.12	7.3 ± 0.4	< 3	6.5 ± 0.3	390 ± 100	1.64 ± 0.10	0.78 ± 0.08
	6	20-45	0.91 ± 0.11	3.25 ± 0.18	< 1.7	4.02 ± 0.19	< 200	1.58 ± 0.10	0.39 ± 0.04
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 190	---	---
		< 100	---	---	---	---	< 200	---	---
TMD-3C	0	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 190	---	---
		< 100	---	---	---	---	< 200	---	---
	6	20-45	---	---	---	---	340 ± 110	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 190	---	---
		< 100	---	---	---	---	< 200	---	---
TMD-4B	0	25-40	---	---	---	---	< 300	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 300	---	---
		< 100	---	---	---	---	230 ± 80	---	---
	6	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	300 ± 110	---	---
		< 100	---	---	---	---	< 200	---	---
TMD-4C	0	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	< 190	---	---
		100	---	---	---	---	< 180	---	---
		< 100	---	---	---	---	270 ± 90	---	---
	6	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	260 ± 80	---	---
		< 100	---	---	---	---	400 ± 110	---	---

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle size(mesh)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
TMD-5B	0	20-45	0.91 ± 0.13	3.01 ± 0.16	< 2.3	4.53 ± 0.21	< 300	1.51 ± 0.11	0.40 ± 0.03
		60	0.97 ± 0.14	4.49 ± 0.24	< 2.9	6.38 ± 0.30	< 280	2.21 ± 0.14	0.66 ± 0.07
		100	1.06 ± 0.12	5.34 ± 0.28	0.7 ± 0.3	7.87 ± 0.36	< 190	2.19 ± 0.14	0.73 ± 0.08
		< 100	1.60 ± 0.12	7.89 ± 0.42	< 80	6.14 ± 0.28	310 ± 60	1.97 ± 0.13	0.88 ± 0.08
	6	20-45	0.57 ± 0.10	2.78 ± 0.15	< 1.9	4.14 ± 0.19	< 200	1.51 ± 0.10	0.43 ± 0.04
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 200	---	---
		< 100	1.52 ± 0.13	8.36 ± 0.45	< 3.7	7.92 ± 0.36	< 200	1.96 ± 0.12	0.97 ± 0.09
TMD-5C	0	20-45	---	---	---	---	< 200	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	300 ± 80	---	---
		< 100	---	---	---	---	< 200	---	---
	6	20-45	---	---	---	---	< 300	---	---
		60	---	---	---	---	< 300	---	---
		100	---	---	---	---	< 180	---	---
		< 100	---	---	---	---	< 200	---	---
TMD-6	0	20-45	0.62 ± 0.10	1.62 ± 0.09	< 1.2	2.79 ± 0.13	< 180	1.05 ± 0.07	0.29 ± 0.03
		60	0.68 ± 0.11	2.85 ± 0.15	17 ± 8	3.93 ± 0.18	< 200	1.90 ± 0.12	0.73 ± 0.09
		100	1.28 ± 0.12	4.09 ± 0.22	< 2.2	7.52 ± 0.35	< 180	2.03 ± 0.13	0.78 ± 0.08
		< 100	1.46 ± 0.12	6.87 ± 0.36	< 70	6.11 ± 0.28	290 ± 100	1.40 ± 0.09	0.69 ± 0.07
	6	20-45	0.73 ± 0.11	2.63 ± 0.14	< 2	3.08 ± 0.14	< 200	1.00 ± 0.06	0.30 ± 0.03
		60	---	---	---	---	< 300	---	---
		100	1.02 ± 0.12	5.38 ± 0.29	< 3.4	7.70 ± 0.35	< 190	2.04 ± 0.13	0.73 ± 0.07
		< 100	1.71 ± 0.12	8.22 ± 0.44	< 2.2	7.21 ± 0.33	< 200	1.54 ± 0.10	0.81 ± 0.08
TMD-7	0	20-45	0.72 ± 0.10	3.95 ± 0.21	< 15	4.82 ± 0.23	< 200	1.66 ± 0.11	0.67 ± 0.08
		60	1.11 ± 0.11	5.33 ± 0.29	< 2.8	7.38 ± 0.34	< 270	2.12 ± 0.16	0.79 ± 0.08
		100	1.30 ± 0.13	6.01 ± 0.32	< 4.1	8.34 ± 0.38	< 200	2.42 ± 0.15	0.92 ± 0.09
		< 100	1.82 ± 0.12	7.91 ± 0.42	< 2.3	6.84 ± 0.31	165 ± 50	1.73 ± 0.11	0.82 ± 0.08
	6	20-45	0.73 ± 0.11	4.08 ± 0.22	22 ± 21	4.47 ± 0.21	< 200	1.64 ± 0.11	0.52 ± 0.06
		60	1.14 ± 0.10	5.82 ± 0.31	< 3.3	7.34 ± 0.34	< 270	2.37 ± 0.16	0.79 ± 0.07
		100	1.57 ± 0.14	6.89 ± 0.37	< 4	8.88 ± 0.41	< 200	2.29 ± 0.15	0.95 ± 0.10
		< 100	1.55 ± 0.11	8.80 ± 0.47	< 2.3	7.47 ± 0.34	< 200	1.63 ± 0.11	0.88 ± 0.08

Site #	Depth (in)	Particle size(mesh)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
TMD-1B	0	All	---	---	---	---	---	---	---	---
	6	All	---	---	---	---	---	---	---	---
TMD-1C	0	All	181 ± 7	4400 ± 600	30 ± 1	158 ± 6	8.9 ± 1.2	7.3 ± 0.7	24 ± 11	690 ± 120
	6	All	---	---	---	---	---	---	---	---
TMD-2B	0	20-45	---	1700 ± 200	2.7 ± 0.2	27 ± 2	---	---	---	---
		60	---	2500 ± 300	24.1 ± 0.7	53 ± 4	---	---	---	---
		100	---	3100 ± 300	5.1 ± 0.3	85 ± 4	---	---	---	---
		< 100	---	4700 ± 600	8.4 ± 0.3	81 ± 4	---	---	---	---
	6	20-45	---	1900 ± 300	2.8 ± 0.2	32 ± 3	---	---	---	---
		60	---	2400 ± 300	11.3 ± 0.4	65 ± 5	---	---	---	---
		100	---	3300 ± 300	20.0 ± 0.6	77 ± 4	---	---	---	---
		< 100	---	4000 ± 600	6.8 ± 0.3	67 ± 3	---	---	---	---
TMD-2C	0	All	---	3000 ± 400	7.4 ± 0.3	50 ± 3	---	---	---	---
	6	20-45	---	900 ± 200	1.37 ± 0.17	13 ± 2	---	---	---	---
		60	---	2000 ± 300	10.9 ± 0.4	24 ± 3	---	---	---	---
		100	---	3100 ± 300	15.1 ± 0.5	64 ± 4	---	---	---	---
		< 100	---	3100 ± 500	9.5 ± 0.4	67 ± 3	---	---	---	---

Table C-XX. Individual Elemental Concentration in Soils from Tucson Mountain District, Saguaro National Monument (cont.)

Site #	Depth (in)	Particle size(mesh)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
TMD-3B	0	20-45	---	900 ± 200	3.4 ± 0.2	16 ± 2	---	---	---	---
		60	---	2300 ± 400	8.7 ± 0.3	41 ± 4	---	---	---	---
		100	---	2700 ± 300	12.0 ± 0.4	61 ± 3	---	---	---	---
		< 100	31.6 ± 1.3	3800 ± 500	6.33 ± 0.22	56 ± 3	3.9 ± 0.6	3.7 ± 0.3	56 ± 8	1070 ± 140
	6	20-45	14.0 ± 0.5	1660 ± 250	4.56 ± 0.16	19 ± 4	16.0 ± 1.6	1.79 ± 0.19	< 4	90 ± 40
		60	---	2300 ± 300	4.3 ± 0.2	48 ± 4	---	---	---	---
		100	---	2900 ± 200	4.8 ± 0.2	51 ± 3	---	---	---	---
		< 100	---	3400 ± 500	6.1 ± 0.3	60 ± 3	---	---	---	---
TMD-3C	0	20-45	---	< 3000	1.92 ± 0.18	14 ± 3	---	---	---	---
		60	---	2200 ± 300	4.8 ± 0.2	26 ± 3	---	---	---	---
		100	---	2500 ± 200	6.9 ± 0.3	28 ± 2	---	---	---	---
		< 100	---	4400 ± 600	13.2 ± 0.4	82 ± 4	---	---	---	---
	6	20-45	---	1030 ± 170	3.1 ± 0.2	27 ± 3	---	---	---	---
		60	---	3900 ± 400	15.2 ± 0.5	142 ± 8	---	---	---	---
		100	---	3700 ± 300	26.5 ± 0.8	169 ± 7	---	---	---	---
		< 100	---	4400 ± 600	19.2 ± 0.6	123 ± 5	---	---	---	---
TMD-4B	0	25-40	---	1600 ± 300	2.4 ± 0.2	26 ± 3	---	---	---	---
		60	---	2400 ± 300	5.5 ± 0.3	38 ± 4	---	---	---	---
		100	---	2800 ± 300	5.0 ± 0.3	60 ± 3	---	---	---	---
		< 100	---	4100 ± 600	6.6 ± 0.3	63 ± 3	---	---	---	---
	6	20-45	---	1500 ± 200	3.0 ± 0.2	22 ± 3	---	---	---	---
		60	---	2100 ± 300	3.6 ± 0.2	22 ± 3	---	---	---	---
		100	---	2800 ± 300	10.3 ± 0.4	52 ± 3	---	---	---	---
		< 100	---	3700 ± 500	6.7 ± 0.3	63 ± 3	---	---	---	---
TMD-4C	0	20-45	---	1800 ± 300	4.9 ± 0.2	13 ± 3	---	---	---	---
		60	---	1600 ± 400	3.0 ± 0.2	23 ± 4	---	---	---	---
		100	---	2800 ± 300	13.9 ± 0.5	41 ± 3	---	---	---	---
		< 100	---	5600 ± 800	13.4 ± 0.4	101 ± 4	---	---	---	---
	6	20-45	---	1130 ± 160	4.2 ± 0.2	21 ± 3	---	---	---	---
		60	---	2300 ± 300	3.9 ± 0.2	48 ± 4	---	---	---	---
		100	---	3900 ± 300	12.0 ± 0.4	95 ± 4	---	---	---	---
		< 100	---	4200 ± 600	9.9 ± 0.4	77 ± 4	---	---	---	---
TMD-5B	0	20-45	16.2 ± 0.6	1440 ± 230	5.82 ± 0.2	27 ± 2	2.7 ± 1.0	2.14 ± 0.21	30 ± 4	100 ± 34
		60	23.2 ± 0.9	1970 ± 300	6.39 ± 0.22	35.6 ± 2.2	3.7 ± 1.3	2.59 ± 0.24	39 ± 6	320 ± 80
		100	46.3 ± 1.8	2760 ± 380	7.22 ± 0.25	50.4 ± 2.6	4.9 ± 0.9	4.12 ± 0.39	39 ± 15	230 ± 60
		< 100	39.1 ± 1.5	3690 ± 480	7.24 ± 0.25	60.8 ± 2.9	4.2 ± 0.8	3.91 ± 0.41	66 ± 9	1280 ± 150
	6	20-45	20.7 ± 0.8	1430 ± 220	4.2 ± 0.2	19.4 ± 1.8	4.1 ± 1.2	1.95 ± 0.2	26 ± 4	86 ± 32
		60	---	2100 ± 300	13.4 ± 0.5	36 ± 4	---	---	---	---
		100	---	3300 ± 300	11.3 ± 0.4	49 ± 3	---	---	---	---
		< 100	51.4 ± 2	3700 ± 490	8.66 ± 0.29	66.9 ± 3.1	4.1 ± 0.9	5.06 ± 0.32	69 ± 9	1110 ± 140
TMD-5C	0	20-45	---	1600 ± 200	3.0 ± 0.2	26 ± 3	---	---	---	---
		60	---	1900 ± 300	5.4 ± 0.3	53 ± 4	---	---	---	---
		100	---	2600 ± 300	7.0 ± 0.3	86 ± 4	---	---	---	---
		< 100	---	4000 ± 60	11.6 ± 0.4	86 ± 4	---	---	---	---
	6	20-45	---	---	---	---	---	---	---	---
		60	---	4400 ± 400	19.8 ± 0.6	126 ± 7	---	---	---	---
		100	---	4200 ± 300	18.3 ± 0.6	196 ± 8	---	---	---	---
		< 100	---	4800 ± 700	15.5 ± 0.5	117 ± 5	---	---	---	---
TMD-6	0	20-45	17.0 ± 0.7	1100 ± 180	3.68 ± 0.13	10.5 ± 1.4	1.7 ± 0.4	1.18 ± 0.16	< 3.1	64 ± 27
		60	13.4 ± 1.1	1480 ± 220	7.09 ± 0.24	31.5 ± 1.9	2.2 ± 1.0	2.22 ± 0.2	31 ± 4	240 ± 70
		100	42.4 ± 1.6	2430 ± 340	7.73 ± 0.26	60.2 ± 2.8	3.7 ± 0.6	3.05 ± 0.24	33 ± 5	156 ± 39
		< 100	30.4 ± 1.2	3570 ± 470	5.86 ± 0.2	59.6 ± 2.8	3.7 ± 0.6	3.19 ± 0.24	56 ± 7	990 ± 130
	6	20-45	11.6 ± 0.4	1250 ± 200	2.12 ± 0.08	19.5 ± 1.6	< 5	1.68 ± 0.16	19 ± 3	103 ± 24
		60	---	2000 ± 300	2.5 ± 0.2	34 ± 4	---	---	---	---
		100	50.4 ± 2.0	2680 ± 370	8.48 ± 0.29	72.2 ± 3.3	3.6 ± 0.8	3.32 ± 0.24	37 ± 6	340 ± 80
		< 100	34.8 ± 1.3	4100 ± 500	6.41 ± 0.22	72.8 ± 3.3	4.6 ± 0.7	4.30 ± 0.27	47 ± 14	640 ± 80
TMD-7	0	20-45	13 ± 1	1950 ± 280	7.78 ± 0.26	34.8 ± 2.1	3.5 ± 0.6	2.36 ± 0.22	33 ± 4	380 ± 80
		60	16.8 ± 0.7	2990 ± 410	9.77 ± 0.33	83.4 ± 3.7	4.1 ± 1.2	3.40 ± 0.23	45 ± 7	203 ± 48
		100	79.3 ± 3.0	2960 ± 410	13.4 ± 0.4	116 ± 4	3.8 ± 0.6	4.54 ± 0.3	49 ± 7	650 ± 110
		< 100	47.5 ± 1.8	4200 ± 500	7.90 ± 0.27	75.5 ± 3.3	4.0 ± 0.6	4.88 ± 0.28	57 ± 14	670 ± 80
	6	20-45	15.4 ± 0.6	1750 ± 260	12.2 ± 0.4	30.5 ± 2.0	2.1 ± 0.7	3.24 ± 0.23	32 ± 4	350 ± 90
		60	35.1 ± 1.3	2900 ± 390	10.7 ± 0.3	93.9 ± 4.0	3.4 ± 0.7	3.37 ± 0.22	41 ± 6	230 ± 50
		100	64.6 ± 2.5	3380 ± 460	12.3 ± 0.4	121 ± 4	4.7 ± 0.7	4.95 ± 0.38	46 ± 7	780 ± 130
		< 100	35.0 ± 1.3	4000 ± 500	6.16 ± 0.21	72.0 ± 3.2	4.0 ± 0.6	4.43 ± 0.25	50 ± 14	630 ± 80

Table C-XXI. Individual Elemental Concentration in Soils under Tucson Side Ponderosa Pine, RMD, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
1	0	---	8.5 ± 0.3	---	---	210 ± 52	---	1.38 ± 0.12	58 ± 4
		---	5.9 ± 0.3	---	---	271 ± 54	---	0.88 ± 0.11	32 ± 2
		---	6.2 ± 0.3	---	---	339 ± 56	---	0.84 ± 0.10	32 ± 2
	6	---	8.6 ± 0.3	---	---	311 ± 42	---	1.09 ± 0.09	31 ± 2
		---	9.0 ± 0.4	---	---	414 ± 51	---	1.01 ± 0.11	35 ± 2
		---	9.5 ± 0.4	---	---	315 ± 38	---	1.17 ± 0.13	34 ± 2
6	0	---	6.0 ± 0.3	---	---	385 ± 71	---	0.65 ± 0.08	71 ± 5
		---	6.2 ± 0.2	---	---	381 ± 69	---	0.72 ± 0.07	51 ± 4
		---	8.0 ± 0.3	---	---	321 ± 52	---	1.01 ± 0.10	42 ± 3
	6	---	9.3 ± 0.4	---	---	337 ± 58	---	1.09 ± 0.12	129 ± 9
		---	8.4 ± 0.3	---	---	440 ± 63	---	0.71 ± 0.09	74 ± 5
		---	9.0 ± 0.3	---	---	333 ± 47	---	1.04 ± 0.09	70 ± 5
9	0	---	7.2 ± 0.3	---	---	489 ± 86	---	0.87 ± 0.10	68 ± 5
		---	7.3 ± 0.4	---	---	399 ± 57	---	1.19 ± 0.14	59 ± 4
		---	6.0 ± 0.3	---	---	454 ± 62	---	1.32 ± 0.13	58 ± 4
		---	3.75 ± 0.18	---	---	186 ± 35	---	0.75 ± 0.09	28 ± 3
	6	---	7.9 ± 0.3	---	---	419 ± 56	---	1.09 ± 0.12	85 ± 8
		---	5.31 ± 0.28	---	---	628 ± 90	---	1.09 ± 0.15	132 ± 13
		---	8.2 ± 0.3	---	---	412 ± 57	---	1.01 ± 0.10	78 ± 8
		---	7.0 ± 0.3	---	---	637 ± 71	---	1.21 ± 0.10	79 ± 6

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
1	0	40 ± 50	3.4 ± 0.5	0.4 ± 0.2	16.6 ± 1.66	3.43 ± 0.33	---	3.9 ± 0.4	0.75 ± 0.08
		< 190	219 ± 22	0.3 ± 0.2	213 ± 17.3	2.08 ± 0.28	---	3.1 ± 0.4	0.46 ± 0.07
		140 ± 50	143 ± 14	0.7 ± 0.2	175 ± 12.6	3.35 ± 0.33	---	4.5 ± 0.5	0.54 ± 0.07
	6	10 ± 40	2.76 ± 0.30	0.6 ± 0.2	17.6 ± 1.64	3.07 ± 0.26	---	4.3 ± 0.5	0.62 ± 0.06
		70 ± 50	2.64 ± 0.39	0.4 ± 0.2	22.5 ± 1.97	3.61 ± 0.33	---	11.4 ± 1.0	0.84 ± 0.08
		< 200	3.12 ± 0.34	0.4 ± 0.2	18.6 ± 1.69	3.14 ± 0.26	---	8.4 ± 0.8	0.65 ± 0.07
6	0	80 ± 60	276 ± 27.8	0.4 ± 0.2	271 ± 19.3	4.79 ± 0.50	---	8.5 ± 0.8	0.78 ± 0.09
		120 ± 40	188 ± 18.9	0.4 ± 0.2	248 ± 20.1	5.39 ± 0.48	---	< 6	0.66 ± 0.08
		< 130	3.89 ± 0.51	0.4 ± 0.2	28.0 ± 2.4	5.03 ± 0.43	---	7.6 ± 1.3	0.83 ± 0.08
	6	< 200	6.58 ± 0.7	0.5 ± 0.2	29.0 ± 2.7	6.31 ± 0.51	---	17.9 ± 1.8	1.48 ± 0.14
		< 140	4.19 ± 0.55	0.7 ± 0.2	37.1 ± 3.05	6.52 ± 0.54	---	16.0 ± 1.4	0.94 ± 0.09
		20 ± 40	5.02 ± 0.53	0.5 ± 0.2	30.5 ± 2.74	6.34 ± 0.50	---	< 7	0.84 ± 0.08
9	0	80 ± 40	4.49 ± 0.64	0.5 ± 0.2	20.3 ± 2.25	4.84 ± 0.48	---	6.8 ± 0.7	0.74 ± 0.09
		180 ± 70	5.84 ± 0.63	0.2 ± 0.2	28.7 ± 2.72	5.12 ± 0.43	---	3.8 ± 0.5	0.79 ± 0.09
		170 ± 60	6.49 ± 0.79	0.5 ± 0.2	32.5 ± 2.74	6.00 ± 0.53	---	5.0 ± 0.5	0.79 ± 0.09
		320 ± 60	158 ± 15.9	0.6 ± 0.2	138 ± 10	2.65 ± 0.41	---	3.0 ± 0.4	0.33 ± 0.09
	6	< 140	3.31 ± 0.61	0.7 ± 0.2	43.6 ± 4.58	4.49 ± 0.47	---	9.7 ± 0.9	1.34 ± 0.13
		240 ± 60	35.7 ± 3.65	0.4 ± 0.2	43.9 ± 3.61	5.24 ± 0.64	---	13.0 ± 0.9	3.31 ± 0.36
		< 160	4.77 ± 0.80	0.6 ± 0.2	29.4 ± 3.18	5.08 ± 0.49	---	12 ± 1	0.96 ± 0.10
		60 ± 50	7.79 ± 0.81	0.8 ± 0.2	45.9 ± 3.91	5.95 ± 0.65	---	11.3 ± 0.9	1.09 ± 0.11

Table C-XXI. Individual Elemental Concentration in Soils under Tucson Side Ponderosa Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ng/g)	K (%)
1	0	357 ± 36	1.29 ± 0.09	< 70	4.21 ± 0.45	---	---	< 180	1.9 ± 0.2
		---	0.86 ± 0.06	< 60	1.73 ± 0.20	---	---	< 200	2.9 ± 0.3
		---	1.10 ± 0.08	< 60	3.20 ± 0.35	---	---	< 180	2.4 ± 0.3
	6	344 ± 34	1.08 ± 0.08	< 40	4.51 ± 0.46	---	---	< 140	2.0 ± 0.2
		---	1.20 ± 0.09	< 60	3.95 ± 0.41	---	---	< 150	2.4 ± 0.2
		---	1.16 ± 0.08	< 70	2.80 ± 0.29	---	---	< 300	2.1 ± 0.3
6	0	---	1.55 ± 0.11	< 60	5.34 ± 0.56	---	---	< 170	2.4 ± 0.3
		---	1.59 ± 0.11	< 40	5.00 ± 0.52	---	---	< 150	3.1 ± 0.4
		---	1.71 ± 0.12	< 60	5.88 ± 0.61	---	---	< 160	2.4 ± 0.2
	6	---	2.22 ± 0.15	< 80	7.74 ± 0.79	---	---	< 300	2.4 ± 0.3
		---	2.06 ± 0.14	< 60	9.84 ± 1.01	---	---	< 190	2.6 ± 0.2
		---	1.95 ± 0.13	< 50	6.72 ± 0.69	---	---	< 190	3.0 ± 0.4
9	0	---	1.55 ± 0.11	< 70	5.35 ± 0.56	---	---	< 170	2.4 ± 0.2
		---	1.89 ± 0.13	< 80	4.51 ± 0.47	---	---	< 300	2.5 ± 0.3
		---	2.18 ± 0.15	< 70	6.72 ± 0.69	---	---	< 200	1.7 ± 0.2
		---	1.01 ± 0.07	< 39	2.71 ± 0.28	---	---	< 130	1.6 ± 0.2
	6	---	1.65 ± 0.13	< 90	8.08 ± 0.67	---	---	< 200	3.8 ± 0.4
		---	1.84 ± 0.13	< 84	2.48 ± 0.25	---	---	< 230	0.89 ± 0.27
		---	1.89 ± 0.15	< 70	6.54 ± 0.55	---	---	< 200	2.7 ± 0.3
		---	2.60 ± 0.18	< 50	8.54 ± 0.87	---	---	< 160	2.7 ± 0.3

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (ug/g)	Mn (ug/g)	Na (ug/g)	Nd (ug/g)	pH (units)	Rb (ug/g)
1	0	---	---	< 5000	1290 ± 60	33100 ± 1100	---	5.1 ± 0.3	122 ± 11
		---	---	< 6000	840 ± 40	20200 ± 700	---	---	131 ± 13
		---	---	< 4000	1030 ± 50	20600 ± 700	---	---	137 ± 14
	6	---	---	< 4000	820 ± 40	33300 ± 1100	---	5.4 ± 0.3	122 ± 10
		---	---	< 4000	740 ± 30	32000 ± 1100	---	---	124 ± 11
		---	---	< 6000	1200 ± 60	35100 ± 1200	---	---	130 ± 11
6	0	---	---	< 4000	1210 ± 50	14400 ± 500	---	---	163 ± 16
		---	---	< 3000	1150 ± 50	15400 ± 500	---	---	172 ± 16
		---	---	< 4000	1320 ± 60	25900 ± 900	---	---	163 ± 14
	6	---	---	< 7000	1800 ± 80	24600 ± 900	---	---	161 ± 14
		---	---	< 4000	1390 ± 60	21100 ± 700	---	---	183 ± 16
		---	---	< 4000	2300 ± 110	24600 ± 800	---	---	184 ± 16
9	0	---	---	< 4000	1210 ± 60	20500 ± 700	---	---	172 ± 16
		---	---	< 7000	1360 ± 70	17100 ± 700	---	---	147 ± 13
		---	---	4500 ± 1500	1120 ± 50	14800 ± 500	---	---	139 ± 13
		---	---	5300 ± 1300	407 ± 19	8700 ± 300	---	---	122 ± 16
	6	---	---	< 5000	3110 ± 140	24100 ± 800	---	---	192 ± 20
		---	---	7100 ± 1500	1690 ± 80	3550 ± 140	---	---	83 ± 12
		---	---	< 4000	2110 ± 90	24600 ± 800	---	---	194 ± 20
		---	---	6400 ± 1200	1390 ± 60	19000 ± 600	---	---	169 ± 18

Table C-XXI. Individual Elemental Concentration in Soils under Tucson Side Ponderosa Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
1	0	1.28 ± 0.25	5.55 ± 0.28	---	27 ± 2	7.63 ± 1.08	< 300	0.90 ± 0.18	1.05 ± 0.16
		0.83 ± 0.29	4.27 ± 0.22	---	24.6 ± 1.6	4.26 ± 0.63	< 300	4.11 ± 0.45	1.15 ± 0.22
		1.57 ± 0.32	4.90 ± 0.25	---	27.4 ± 1.6	3.61 ± 0.62	< 300	2.83 ± 0.45	0.69 ± 0.16
	6	0.42 ± 0.12	6.16 ± 0.31	---	31.9 ± 1.5	3.48 ± 0.48	< 200	1.05 ± 0.13	1.02 ± 0.14
		0.60 ± 0.21	6.14 ± 0.31	---	28 ± 2	5.74 ± 0.80	< 300	1.10 ± 0.19	2.15 ± 0.30
		0.47 ± 0.14	6.56 ± 0.33	---	30.7 ± 1.5	3.49 ± 0.48	< 400	1.21 ± 0.14	1.08 ± 0.16
6	0	0.64 ± 0.27	5.82 ± 0.29	---	28.9 ± 1.4	11.2 ± 1.54	< 300	5.64 ± 0.88	2.36 ± 0.37
		0.76 ± 0.27	5.94 ± 0.30	---	28.2 ± 1.5	6.89 ± 0.96	< 300	3.83 ± 0.43	1.72 ± 0.28
		0.91 ± 0.21	7.02 ± 0.36	---	31 ± 3	5.26 ± 0.80	< 300	1.58 ± 0.27	1.32 ± 0.20
	6	0.46 ± 0.24	9.15 ± 0.46	---	26 ± 2	15.5 ± 2.06	< 400	2.05 ± 0.25	2.24 ± 0.32
		0.83 ± 0.20	8.58 ± 0.44	---	32 ± 2	8.85 ± 1.25	< 300	2.09 ± 0.34	1.34 ± 0.21
		0.65 ± 0.19	8.91 ± 0.45	---	28.7 ± 2.0	8.74 ± 1.18	< 400	2.07 ± 0.24	1.54 ± 0.22
9	0	1.37 ± 0.28	9.35 ± 0.47	---	27 ± 2	7.87 ± 1.16	< 300	1.56 ± 0.28	1.29 ± 0.21
		1.01 ± 0.27	9.74 ± 0.49	---	25.4 ± 1.6	7.71 ± 1.07	< 400	1.27 ± 0.17	1.27 ± 0.21
		1.12 ± 0.24	9.37 ± 0.48	---	24 ± 2	5.32 ± 0.90	< 300	1.25 ± 0.23	0.91 ± 0.17
		1.23 ± 0.31	4.68 ± 0.24	---	13.4 ± 0.7	2.44 ± 0.25	< 200	3.26 ± 0.40	---
	6	0.52 ± 0.17	10.9 ± 0.77	---	31 ± 3	10.2 ± 1.54	< 500	1.61 ± 0.27	---
		1.36 ± 0.33	8.26 ± 0.42	---	10.7 ± 0.6	21.1 ± 2.13	< 460	0.95 ± 0.20	---
		0.48 ± 0.18	11.8 ± 0.83	---	31 ± 3	7.49 ± 1.13	< 300	2.47 ± 0.40	---
		0.29 ± 0.15	12.5 ± 0.88	---	31.9 ± 1.6	9.64 ± 0.97	< 300	5.61 ± 0.58	---

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
1	0	13.3 ± 1.0	1400 ± 300	3.46 ± 0.3	23 ± 3	< 160	5.63 ± 0.48	56 ± 11	---
		7.11 ± 0.58	< 4000	2.03 ± 0.2	17 ± 3	1600 ± 200	5.76 ± 0.49	67 ± 14	---
		5.87 ± 0.49	1200 ± 300	2.02 ± 0.2	21 ± 2	1100 ± 140	3.90 ± 0.35	69 ± 14	---
	6	5.89 ± 0.48	1500 ± 300	3.21 ± 0.3	20 ± 2	< 130	7.69 ± 0.63	25 ± 5	---
		7.52 ± 0.61	1500 ± 300	2.84 ± 0.2	21 ± 3	< 130	13.4 ± 1.1	58 ± 12	---
		6.1 ± 0.5	1900 ± 400	3.56 ± 0.3	21 ± 3	< 190	6.79 ± 0.55	36 ± 7	---
6	0	10.2 ± 0.8	1200 ± 200	3.37 ± 0.3	26 ± 2	1600 ± 200	7.97 ± 0.66	82 ± 17	---
		16.8 ± 1.3	1400 ± 200	3.4 ± 0.3	23 ± 2	2000 ± 300	6.28 ± 0.53	117 ± 24	---
		7.51 ± 0.62	1800 ± 300	4.89 ± 0.4	28 ± 3	< 150	10.5 ± 0.86	61 ± 12	---
	6	23.6 ± 1.9	2800 ± 400	9.99 ± 0.7	44 ± 4	< 200	7.88 ± 0.66	64 ± 13	---
		14.5 ± 1.1	2600 ± 300	4.28 ± 0.3	39 ± 3	< 160	7.65 ± 0.64	66 ± 13	---
		13.3 ± 1.0	1700 ± 300	5.95 ± 0.4	34 ± 3	< 200	8.76 ± 0.72	62 ± 12	---
9	0	10.9 ± 0.8	2400 ± 300	4.92 ± 0.4	31 ± 3	< 160	6.21 ± 0.55	72 ± 14	---
		9.76 ± 0.80	2100 ± 300	7.04 ± 0.5	32 ± 3	< 200	8.42 ± 0.70	80 ± 16	---
		8.74 ± 0.72	3100 ± 300	3.3 ± 0.3	55 ± 3	< 180	4.92 ± 0.43	99 ± 20	---
		4.99 ± 0.44	1210 ± 250	2.06 ± 0.2	20.7 ± 1.8	< 160	2.98 ± 0.36	67 ± 12	---
	6	18.2 ± 1.4	2000 ± 400	17 ± 1	26 ± 3	< 200	36.0 ± 3.6	61 ± 12	---
		10.1 ± 0.8	1390 ± 280	51 ± 3	34 ± 4	210 ± 50	7.44 ± 0.79	85 ± 14	---
		14.5 ± 1.1	2700 ± 300	23.1 ± 1.5	34 ± 3	< 200	15.1 ± 1.5	64 ± 13	---
		15.7 ± 1.2	3200 ± 500	5.04 ± 0.4	62 ± 4	< 160	16.2 ± 1.6	60 ± 9	---

Note: Trees showing evidence of severe growth depression. 4, 6, 7, 8, 9.5 (4).

Table C-XXII. Individual Elemental Concentration in Soils under Tucson Side White Pine, RMD, Saguaro National Monument

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
A	0	< 4.3	6.85 ± 0.20	6.1 ± 0.7	< 15	380 ± 60	3.82 ± 0.49	1.26 ± 0.09	85 ± 4
	6	< 3	7.58 ± 0.21	3.1 ± 0.5	< 14	340 ± 100	3.3 ± 0.6	0.91 ± 0.07	80 ± 4
B	0	< 2.7	7.93 ± 0.22	4.5 ± 0.6	< 15	410 ± 110	2.48 ± 0.39	1.20 ± 0.09	80 ± 4
	6	< 2.8	7.81 ± 0.22	1.78 ± 0.38	< 15	430 ± 130	2.2 ± 0.9	0.95 ± 0.07	88 ± 4
9	0	< 2.2	7.10 ± 0.21	< 2.1	< 11	410 ± 100	< 2.7	0.91 ± 0.07	78 ± 4
		< 2.4	7.01 ± 0.20	1.48 ± 0.31	< 14	391 ± 35	1.09 ± 0.41	1.07 ± 0.08	83 ± 4
		< 3.2	7.65 ± 0.21	2.22 ± 0.38	< 14	425 ± 37	2.2 ± 0.6	0.95 ± 0.07	66 ± 3
		< 3.1	6.80 ± 0.19	2.08 ± 0.34	< 14	337 ± 44	< 3.1	0.97 ± 0.08	70 ± 3
	6	< 2.6	7.53 ± 0.21	2.71 ± 0.45	< 14	430 ± 110	1.4 ± 0.4	0.96 ± 0.08	64 ± 3
		< 2.4	7.51 ± 0.21	3.44 ± 0.48	< 10	460 ± 70	1.32 ± 0.37	0.93 ± 0.07	65 ± 3
		< 2.8	7.83 ± 0.22	4.4 ± 0.6	< 14	508 ± 38	2.0 ± 0.4	0.90 ± 0.07	75 ± 4
		< 2.5	7.68 ± 0.22	2.47 ± 0.38	< 13	461 ± 33	2.4 ± 0.8	0.76 ± 0.06	63 ± 3
10	0	< 3	8.30 ± 0.23	5.7 ± 0.7	< 12	415 ± 39	2.28 ± 0.36	0.97 ± 0.07	82 ± 4
		< 3.1	8.27 ± 0.23	5.9 ± 0.7	< 14	420 ± 50	2.10 ± 0.34	0.91 ± 0.07	82 ± 4
		< 3.7	7.56 ± 0.22	1.76 ± 0.33	< 14	370 ± 120	1.78 ± 0.41	1.07 ± 0.34	94 ± 5
		< 3.5	7.70 ± 0.22	6.2 ± 0.7	< 14	404 ± 45	2.81 ± 0.46	1.01 ± 0.08	71 ± 4
	6	< 3.3	8.33 ± 0.23	4.2 ± 0.5	< 13	340 ± 80	4.7 ± 1.3	1.04 ± 0.07	88 ± 5
		< 3.2	8.39 ± 0.23	4.9 ± 0.6	< 9	255 ± 30	3.0 ± 0.4	2.19 ± 0.12	61 ± 3
		< 2.5	6.71 ± 0.19	0.79 ± 0.26	< 14	270 ± 140	< 2.7	0.74 ± 0.09	66 ± 3
		< 3.1	7.93 ± 0.22	2.87 ± 0.39	< 13	320 ± 50	2.97 ± 0.44	1.42 ± 0.09	85 ± 4
11	0	< 3.9	7.47 ± 0.22	9.4 ± 1.0	< 9	591 ± 47	4.4 ± 0.5	1.48 ± 0.09	74 ± 3
	6	< 3.9	7.63 ± 0.21	2.54 ± 0.36	< 10	546 ± 43	2.9 ± 0.4	1.33 ± 0.09	83 ± 4
20	0	< 4.1	8.29 ± 0.22	4.8 ± 0.6	< 12	319 ± 46	3.58 ± 0.49	1.12 ± 0.09	94 ± 5
	6	< 3.3	7.95 ± 0.23	2.92 ± 0.48	< 15	288 ± 47	5.2 ± 0.9	0.81 ± 0.09	106 ± 5
21	0	< 2.8	7.51 ± 0.21	10.2 ± 1.1	< 15	630 ± 80	5.4 ± 0.8	1.17 ± 0.08	97 ± 4
	6	< 2.9	8.16 ± 0.23	3.1 ± 0.4	< 14	580 ± 80	4.1 ± 0.7	0.89 ± 0.06	103 ± 5
22	0	< 4.6	7.46 ± 0.2	6.5 ± 0.7	< 11	486 ± 46	4.2 ± 0.5	1.66 ± 0.11	62 ± 3
	6	< 3.6	7.19 ± 0.21	4.6 ± 0.6	< 13	515 ± 42	6.2 ± 0.7	1.58 ± 0.10	68 ± 3
23	0	< 3.2	7.50 ± 0.21	6.7 ± 0.8	< 14	370 ± 50	6.7 ± 0.8	1.48 ± 0.09	57 ± 3
	6	< 3.6	7.38 ± 0.21	5.2 ± 0.6	< 15	310 ± 100	10.0 ± 1.2	< 0.49	55 ± 3
24	0	< 5	7.55 ± 0.20	6.8 ± 0.8	< 10	450 ± 60	5.2 ± 0.8	1.78 ± 0.11	63 ± 3
	6	< 4	7.57 ± 0.21	3.08 ± 0.44	< 12	370 ± 70	3.43 ± 0.44	1.76 ± 0.10	57 ± 3

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
A	0	< 140	6.42 ± 0.35	0.14 ± 0.2	24.7 ± 1.7	5.81 ± 0.35	< 300	8.8 ± 0.8	1.10 ± 0.06
	6	< 110	5.85 ± 0.33	0.3 ± 0.2	39.1 ± 2.4	5.70 ± 0.32	< 310	11.1 ± 0.9	1.07 ± 0.07
B	0	< 140	5.85 ± 0.31	< 0.1	25.4 ± 1.7	5.72 ± 0.34	< 320	10.6 ± 0.9	1.14 ± 0.09
	6	80 ± 50	4.72 ± 0.3	0.13 ± 0.1	35.7 ± 2.2	5.09 ± 0.30	< 380	15.0 ± 1.2	1.05 ± 0.08
9	0	70 ± 60	3.92 ± 0.21	0.32 ± 0.2	17.9 ± 1.2	3.27 ± 0.2	< 330	14.2 ± 1.1	1.02 ± 0.07
		60 ± 50	3.77 ± 0.21	0.29 ± 0.2	18.5 ± 1.3	3.45 ± 0.22	< 360	14.3 ± 1.2	0.95 ± 0.05
		40 ± 40	4.09 ± 0.23	0.24 ± 0.2	19.1 ± 1.3	5.69 ± 0.32	< 280	12.9 ± 1.0	0.99 ± 0.07
		< 120	3.99 ± 0.22	< 0.1	16.8 ± 1.2	3.68 ± 0.24	< 300	14.6 ± 1.2	0.96 ± 0.06
	6	< 100	4.27 ± 0.26	0.22 ± 0.2	20.9 ± 1.4	4.93 ± 0.28	< 320	9.3 ± 0.9	0.84 ± 0.04
		< 150	4.85 ± 0.26	0.35 ± 0.2	22.2 ± 1.4	5.08 ± 0.29	< 300	10.1 ± 0.8	0.87 ± 0.06
		90 ± 60	5.41 ± 0.29	0.36 ± 0.2	29.9 ± 1.9	6.72 ± 0.38	< 300	9.7 ± 0.8	0.97 ± 0.07
		< 100	4.41 ± 0.25	0.1 ± 0.1	21.5 ± 1.4	5.08 ± 0.29	< 290	7.8 ± 0.7	0.81 ± 0.05
10	0	< 150	6.29 ± 0.35	0.37 ± 0.2	26.9 ± 1.7	5.66 ± 0.33	< 300	9.4 ± 0.9	1.06 ± 0.07
		90 ± 50	5.73 ± 0.31	0.11 ± 0.1	23.2 ± 1.6	5.41 ± 0.31	< 320	8.4 ± 0.7	1.13 ± 0.06
		< 120	8.15 ± 0.43	0.12 ± 0.1	26.7 ± 1.8	5.79 ± 0.33	< 300	19.5 ± 1.5	1.24 ± 0.07
		< 130	5.19 ± 0.28	< 0.1	21.8 ± 1.5	4.79 ± 0.29	< 300	11.3 ± 0.9	1.01 ± 0.07
	6	< 110	12.5 ± 0.7	0.29 ± 0.2	33.4 ± 2.2	7.79 ± 0.44	< 320	12.6 ± 1.3	1.02 ± 0.06
		< 130	18.3 ± 1.0	0.23 ± 0.2	45.3 ± 2.8	5.46 ± 0.34	< 290	8.9 ± 0.8	0.95 ± 0.08
		< 170	2.69 ± 0.16	0.15 ± 0.1	16.7 ± 1.2	2.79 ± 0.2	< 480	14.8 ± 1.4	0.76 ± 0.03
		< 130	11.6 ± 0.6	0.25 ± 0.2	35.4 ± 2.2	6.07 ± 0.36	< 350	10.0 ± 1.1	0.85 ± 0.04

Table C-XXII. Individual Elemental Concentration in Soils under Tucson Side White Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
11	0	100 ± 50	17.3 ± 0.9	0.16 ± 0.2	56.2 ± 3.5	12.8 ± 0.7	< 290	4.94 ± 0.48	1.04 ± 0.06
	6	100 ± 40	20.6 ± 1.1	0.43 ± 0.2	57.1 ± 3.5	13.8 ± 0.8	< 300	5.15 ± 0.46	1.18 ± 0.07
20	0	< 160	5.67 ± 0.31	0.45 ± 0.2	20.5 ± 1.5	5.18 ± 0.32	< 420	19.0 ± 1.8	1.38 ± 0.09
	6	< 190	5.51 ± 0.31	0.2 ± 0.2	27.1 ± 1.8	4.55 ± 0.3	< 500	17.4 ± 1.5	1.30 ± 0.08
21	0	< 130	8.58 ± 0.46	0.51 ± 0.2	40.7 ± 2.5	8.03 ± 0.47	< 280	8.5 ± 0.7	1.34 ± 0.09
	6	40 ± 50	8.19 ± 0.45	0.07 ± 0.2	44.8 ± 2.7	8.35 ± 0.47	< 260	7.5 ± 0.7	1.44 ± 0.07
22	0	150 ± 50	12.8 ± 0.7	0.22 ± 0.2	33.4 ± 2.2	7.60 ± 0.44	< 300	6.3 ± 0.7	1.04 ± 0.06
	6	< 120	12.7 ± 0.7	0.18 ± 0.1	48.1 ± 3.0	7.46 ± 0.44	< 370	4.4 ± 0.6	1.08 ± 0.07
23	0	60 ± 50	12.9 ± 0.7	0.25 ± 0.2	29.3 ± 1.9	7.70 ± 0.44	< 280	6.3 ± 0.6	0.96 ± 0.07
	6	160 ± 50	11.3 ± 0.6	0.4 ± 0.2	38.0 ± 2.4	7.42 ± 0.45	< 300	6.7 ± 0.7	0.86 ± 0.07
24	0	100 ± 50	17.4 ± 1.0	0.41 ± 0.2	31.2 ± 2.1	8.9 ± 0.5	< 300	5.6 ± 0.5	1.03 ± 0.06
	6	< 100	18.5 ± 1.0	0.53 ± 0.2	34.7 ± 2.3	8.24 ± 0.47	< 290	5.16 ± 0.48	0.99 ± 0.06

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ng/g)	I (ug/g)	In (ng/g)	K (%)
A	0	---	1.88 ± 0.10	20 ± 4	6.42 ± 0.26	< 800	< 30	< 320	2.35 ± 0.16
	6	---	2.03 ± 0.10	19 ± 4	7.80 ± 0.34	< 500	< 25	< 300	2.77 ± 0.18
B	0	---	2.02 ± 0.10	< 21	8.0 ± 0.8	< 500	< 20	< 310	2.82 ± 0.18
	6	---	2.01 ± 0.11	18 ± 4	8.1 ± 0.7	< 500	< 30	< 350	2.73 ± 0.18
9	0	---	1.85 ± 0.09	< 21	8.9 ± 0.6	< 420	< 27	< 300	3.14 ± 0.20
		---	1.73 ± 0.09	14 ± 4	7.68 ± 0.44	< 460	< 20	< 260	3.21 ± 0.21
		---	1.62 ± 0.08	< 21	7.2 ± 0.7	< 600	< 20	< 270	3.06 ± 0.20
		---	1.69 ± 0.09	< 20	7.91 ± 0.43	< 600	< 29	< 310	3.14 ± 0.20
	6	---	1.71 ± 0.09	18 ± 4	5.79 ± 0.34	< 440	< 25	< 300	2.84 ± 0.19
		---	1.87 ± 0.10	26 ± 4	7.19 ± 0.42	< 440	< 20	< 280	3.01 ± 0.20
		---	1.91 ± 0.10	20 ± 4	6.6 ± 0.7	< 500	< 20	< 230	2.98 ± 0.20
		---	1.77 ± 0.09	14 ± 4	6.37 ± 0.35	< 420	< 22	< 280	3.27 ± 0.21
10	0	---	2.11 ± 0.11	22 ± 4	6.86 ± 0.43	< 500	< 20	< 300	2.55 ± 0.17
		---	2.01 ± 0.10	< 22	5.61 ± 0.49	< 600	< 20	< 240	2.69 ± 0.18
		---	2.52 ± 0.14	18 ± 4	9.46 ± 0.46	< 700	< 30	< 360	2.77 ± 0.18
		---	1.9 ± 0.1	22 ± 4	7.4 ± 0.7	< 700	< 28	< 290	2.73 ± 0.18
	6	---	3.05 ± 0.16	24 ± 12	6.6 ± 0.6	< 600	< 27	< 300	2.52 ± 0.17
		---	4.19 ± 0.21	25 ± 4	5.4 ± 0.6	< 600	< 20	< 260	2.33 ± 0.15
		---	1.70 ± 0.09	18 ± 4	6.04 ± 0.28	< 470	< 20	< 350	2.91 ± 0.19
		---	3.20 ± 0.16	16 ± 4	6.20 ± 0.27	< 500	< 30	< 330	2.53 ± 0.17
11	0	---	4.53 ± 0.23	8.7 ± 3.6	6.94 ± 0.28	< 700	< 24	< 260	2.03 ± 0.14
	6	---	4.89 ± 0.27	22 ± 3	6.4 ± 0.5	< 700	< 20	< 220	2.24 ± 0.15
20	0	---	2.37 ± 0.12	19 ± 5	8.9 ± 0.7	< 800	< 40	< 400	2.99 ± 0.20
	6	---	2.76 ± 0.15	26 ± 4	10.8 ± 0.6	< 600	< 38	< 390	3.06 ± 0.20
21	0	---	2.54 ± 0.13	26 ± 4	8.49 ± 0.45	< 500	< 27	< 290	2.08 ± 0.14
	6	---	2.78 ± 0.14	17 ± 4	8.1 ± 0.5	< 500	< 19	< 250	2.11 ± 0.14
22	0	---	3.05 ± 0.16	20 ± 4	5.64 ± 0.43	< 900	< 30	< 350	2.04 ± 0.14
	6	---	3.10 ± 0.16	25 ± 4	5.9 ± 0.6	< 600	< 26	< 270	2.42 ± 0.16
23	0	---	3.27 ± 0.17	< 19	5.7 ± 0.6	< 600	< 20	< 280	2.16 ± 0.14
	6	---	3.09 ± 0.18	16 ± 4	5.3 ± 0.5	< 600	< 20	< 290	2.15 ± 0.15
24	0	---	3.75 ± 0.20	24 ± 4	5.05 ± 0.42	< 900	< 30	< 310	1.84 ± 0.13
	6	---	3.99 ± 0.21	20 ± 4	5.15 ± 0.49	< 600	< 19	< 210	2.08 ± 0.14

Table C-XII. Individual Elemental Concentration in Soils under Tucson Side White Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ng/g)	Mg (ug/g)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Rb (ug/g)
A	0	42.8 ± 2.2	1040 ± 50	4300 ± 800	2130 ± 100	1.67 ± 0.08	59 ± 10	---	172 ± 9
	6	38.5 ± 2.0	1910 ± 90	4000 ± 700	1260 ± 60	1.98 ± 0.08	37 ± 7	---	215 ± 11
B	0	36.8 ± 2.1	1900 ± 90	3700 ± 700	1290 ± 60	2.26 ± 0.10	40 ± 7	---	212 ± 10
	6	34.2 ± 1.8	3020 ± 140	3900 ± 1200	2530 ± 100	2.22 ± 0.08	44 ± 9	---	196 ± 10
9	0	34.6 ± 2.0	2660 ± 130	2000 ± 600	2630 ± 120	2.31 ± 0.10	45 ± 6	---	205 ± 10
		33.7 ± 1.9	2440 ± 110	< 2200	1660 ± 70	2.28 ± 0.10	46 ± 7	---	190 ± 9
		31.6 ± 1.7	1900 ± 90	< 2700	920 ± 40	2.42 ± 0.11	31 ± 6	---	214 ± 10
		33.2 ± 1.9	2460 ± 120	7100 ± 1700	1940 ± 90	2.23 ± 0.10	33 ± 6	---	204 ± 10
	6	29.2 ± 1.6	1780 ± 80	< 2600	1320 ± 60	2.23 ± 0.09	33 ± 6	---	218 ± 10
		29.7 ± 1.7	1940 ± 90	2700 ± 600	1700 ± 80	2.09 ± 0.09	26 ± 5	---	212 ± 10
		31.9 ± 1.8	1510 ± 70	3200 ± 500	1240 ± 60	2.06 ± 0.09	38 ± 7	---	204 ± 10
		28.8 ± 1.5	1460 ± 70	2800 ± 600	1510 ± 70	2.12 ± 0.09	24 ± 4	---	225 ± 11
10	0	37.4 ± 2.4	1570 ± 80	3800 ± 700	1590 ± 70	2.12 ± 0.09	47 ± 7	---	196 ± 10
		34.3 ± 1.9	1230 ± 60	3300 ± 600	1470 ± 70	2.09 ± 0.09	45 ± 8	---	175 ± 8
		44.9 ± 2.3	3320 ± 160	5400 ± 1000	2260 ± 100	2.04 ± 0.07	51 ± 9	---	181 ± 9
		35.0 ± 1.9	1690 ± 80	3800 ± 800	2140 ± 100	2.17 ± 0.10	42 ± 8	---	181 ± 9
	6	33.2 ± 1.8	1900 ± 90	8800 ± 900	2620 ± 130	1.69 ± 0.07	21 ± 7	---	204 ± 10
		23.5 ± 1.4	1520 ± 70	10600 ± 900	1930 ± 90	1.80 ± 0.08	21 ± 6	---	163 ± 8
		26.0 ± 1.4	4130 ± 190	< 3000	4160 ± 190	2.46 ± 0.11	43 ± 7	---	185 ± 9
		35.7 ± 2.0	2240 ± 110	5500 ± 800	2320 ± 100	1.81 ± 0.08	34 ± 6	---	183 ± 9
11	0	35.3 ± 2.1	517 ± 30	12900 ± 1200	1350 ± 60	1.04 ± 0.04	36 ± 7	---	160 ± 8
	6	35.9 ± 2.2	561 ± 31	10900 ± 800	1660 ± 70	1.00 ± 0.03	40 ± 8	---	162 ± 8
20	0	42.5 ± 2.5	3110 ± 150	< 4000	4600 ± 200	2.44 ± 0.10	64 ± 10	---	206 ± 10
	6	46.6 ± 2.8	4220 ± 190	< 3400	3800 ± 180	2.39 ± 0.10	47 ± 7	---	209 ± 10
21	0	46.8 ± 2.7	845 ± 42	5500 ± 800	1740 ± 80	1.93 ± 0.09	46 ± 6	---	153 ± 8
	6	46.2 ± 2.5	732 ± 37	6500 ± 700	820 ± 40	1.86 ± 0.08	57 ± 7	---	159 ± 8
22	0	30.6 ± 1.7	774 ± 41	8800 ± 1000	1800 ± 80	1.55 ± 0.07	41 ± 8	---	158 ± 8
	6	32.3 ± 1.8	643 ± 35	5500 ± 700	1890 ± 90	1.52 ± 0.07	30 ± 6	---	180 ± 9
23	0	27.9 ± 1.6	783 ± 39	8300 ± 1800	1070 ± 50	1.71 ± 0.08	24 ± 5	---	159 ± 12
	6	24.1 ± 1.2	792 ± 41	7200 ± 800	870 ± 40	1.58 ± 0.07	22 ± 8	---	144 ± 7
24	0	28.8 ± 1.6	611 ± 35	11800 ± 1000	1870 ± 80	1.33 ± 0.06	42 ± 9	---	179 ± 9
	6	26.8 ± 1.5	535 ± 30	8200 ± 700	1060 ± 50	1.37 ± 0.06	27 ± 6	---	185 ± 9

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
A	0	0.82 ± 0.10	9.7 ± 0.5	0.6 ± 0.5	---	8.91 ± 0.41	< 500	1.82 ± 0.12	1.30 ± 0.12
	6	0.45 ± 0.09	11.5 ± 0.6	< 1.1	---	8.33 ± 0.39	< 400	2.71 ± 0.18	1.57 ± 0.14
B	0	0.7 ± 0.1	10.9 ± 0.6	< 90	---	7.82 ± 0.36	< 300	2.19 ± 0.14	1.58 ± 0.15
	6	< 0.37	11.6 ± 0.6	< 3.2	---	9.03 ± 0.42	< 400	3.18 ± 0.22	1.88 ± 0.17
9	0	0.42 ± 0.10	8.21 ± 0.44	< 5	---	7.67 ± 0.35	< 400	2.11 ± 0.13	1.82 ± 0.17
		0.36 ± 0.09	7.51 ± 0.41	< 3.1	---	6.99 ± 0.31	< 390	1.76 ± 0.11	1.70 ± 0.16
		0.53 ± 0.10	9.29 ± 0.49	< 3.4	---	6.92 ± 0.32	< 300	1.94 ± 0.12	1.55 ± 0.15
		< 0.33	8.16 ± 0.44	< 3.4	---	7.80 ± 0.36	< 400	2.20 ± 0.14	1.89 ± 0.17
	6	0.49 ± 0.10	8.93 ± 0.47	0.8 ± 0.8	---	6.08 ± 0.29	< 400	1.80 ± 0.12	1.19 ± 0.11
		0.34 ± 0.10	9.6 ± 0.5	34 ± 31	---	6.11 ± 0.28	< 300	1.71 ± 0.11	1.40 ± 0.13
		0.52 ± 0.10	10.0 ± 0.5	< 3.5	---	6.06 ± 0.27	< 330	1.82 ± 0.11	1.40 ± 0.13
		0.45 ± 0.10	9.01 ± 0.48	< 0.8	---	6.12 ± 0.29	< 390	1.84 ± 0.11	1.06 ± 0.10
10	0	0.72 ± 0.11	11.3 ± 0.6	31 ± 15	---	8.19 ± 0.38	< 390	1.96 ± 0.12	1.40 ± 0.13
		0.62 ± 0.11	10.9 ± 0.6	< 3.7	---	6.87 ± 0.32	< 330	2.03 ± 0.13	1.23 ± 0.11
		< 0.33	11.6 ± 0.6	0.8 ± 0.5	---	9.70 ± 0.45	< 500	3.16 ± 0.20	2.43 ± 0.23
		0.63 ± 0.09	9.9 ± 0.5	< 3.7	---	7.61 ± 0.35	< 450	2.62 ± 0.16	1.40 ± 0.13
	6	0.74 ± 0.11	13.4 ± 0.7	< 1.9	---	7.01 ± 0.33	< 460	10.9 ± 0.7	1.84 ± 0.19
		0.47 ± 0.08	18.7 ± 1.0	< 100	---	5.43 ± 0.25	< 300	1.49 ± 0.10	1.21 ± 0.12
		< 0.32	9.04 ± 0.48	0.9 ± 0.8	---	6.87 ± 0.32	< 500	2.23 ± 0.14	2.03 ± 0.19
		< 0.31	14.1 ± 0.7	1.4 ± 0.7	---	7.93 ± 0.36	< 500	1.94 ± 0.12	1.42 ± 0.13

Table C-XXII. Individual Elemental Concentration in Soils under Tucson Side White Pine, RMD, Saguaro National Monument (cont.)

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
11	0	0.94 ± 0.10	16.5 ± 0.9	93 ± 29	---	5.84 ± 0.26	< 360	1.18 ± 0.10	0.86 ± 0.08
	6	0.39 ± 0.09	18.2 ± 1.0	< 4.3	---	5.91 ± 0.27	< 360	1.26 ± 0.12	0.78 ± 0.08
20	0	< 0.37	12.1 ± 0.7	1.2 ± 0.7	---	10.3 ± 0.48	< 700	2.71 ± 0.17	2.64 ± 0.25
	6	< 0.36	12.9 ± 0.7	2.4 ± 1.3	---	10.5 ± 0.47	< 600	3.32 ± 0.23	2.69 ± 0.25
21	0	0.97 ± 0.11	9.4 ± 0.5	< 100	---	8.43 ± 0.39	< 400	1.33 ± 0.09	1.18 ± 0.11
	6	0.35 ± 0.11	10.1 ± 0.5	< 3.5	---	8.18 ± 0.38	< 300	1.21 ± 0.09	1.11 ± 0.10
22	0	0.82 ± 0.11	12.0 ± 0.6	1.7 ± 0.7	---	5.67 ± 0.26	< 500	1.33 ± 0.10	0.83 ± 0.10
	6	0.61 ± 0.09	11.9 ± 0.6	0.8 ± 0.4	---	5.41 ± 0.24	< 420	1.26 ± 0.09	0.83 ± 0.08
23	0	0.75 ± 0.10	12.8 ± 0.7	< 100	---	4.93 ± 0.22	< 300	1.53 ± 0.10	0.87 ± 0.09
	6	0.50 ± 0.11	11.8 ± 0.6	< 4.1	---	4.67 ± 0.22	< 300	1.50 ± 0.13	0.80 ± 0.08
24	0	0.65 ± 0.10	14.7 ± 0.8	1.9 ± 0.8	---	5.18 ± 0.23	< 450	1.39 ± 0.10	0.91 ± 0.10
	6	0.45 ± 0.08	15.6 ± 0.8	< 3	---	4.70 ± 0.21	< 310	1.48 ± 0.11	0.65 ± 0.07

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
A	0	14.1 ± 0.6	2660 ± 430	9.26 ± 0.32	35.8 ± 3.2	2.2 ± 1.0	8.10 ± 0.44	64 ± 9	490 ± 120
	6	14.2 ± 0.6	2550 ± 440	16.9 ± 0.6	37.6 ± 3	< 5	13.5 ± 0.7	35 ± 16	190 ± 60
B	0	15.4 ± 0.6	2440 ± 430	12.6 ± 0.4	38.4 ± 2.9	1.7 ± 0.6	13.5 ± 0.7	60 ± 8	540 ± 120
	6	19.1 ± 0.8	2100 ± 440	24.3 ± 0.8	31.2 ± 3.2	< 5	20.7 ± 1.1	47 ± 7	250 ± 70
9	0	16.0 ± 0.6	2040 ± 400	5.86 ± 0.21	26.3 ± 2.6	< 5	18.4 ± 1.0	41 ± 6	380 ± 130
		16.0 ± 0.7	1880 ± 350	6.66 ± 0.23	27.2 ± 2.9	< 5	16.7 ± 0.9	34 ± 5	203 ± 42
		12.7 ± 0.5	2710 ± 400	6.26 ± 0.22	26.4 ± 2.5	< 5	14.4 ± 0.7	39 ± 6	350 ± 80
		14.3 ± 0.6	2000 ± 360	7.46 ± 0.25	28.0 ± 2.8	< 5	18.8 ± 0.9	43 ± 6	350 ± 80
	6	11.7 ± 0.4	1990 ± 330	6.19 ± 0.22	26.1 ± 2.5	< 5	11.6 ± 0.6	29 ± 15	177 ± 44
		12.4 ± 0.4	1940 ± 370	4.61 ± 0.16	31.9 ± 3	< 5	13.1 ± 0.7	50 ± 7	290 ± 110
		13.7 ± 0.5	2550 ± 380	4.78 ± 0.17	36.3 ± 2.9	1.7 ± 0.5	9.7 ± 0.5	48 ± 7	229 ± 44
		11.6 ± 0.4	2060 ± 330	4.15 ± 0.15	26.9 ± 2.2	1.5 ± 0.6	10.3 ± 0.5	26 ± 14	236 ± 43
10	0	15.1 ± 0.6	2860 ± 460	7.37 ± 0.26	40.3 ± 3.2	< 6	10.5 ± 0.6	56 ± 8	390 ± 100
		13.0 ± 0.5	2580 ± 390	7.01 ± 0.25	43.5 ± 3.1	2.3 ± 0.6	8.27 ± 0.46	58 ± 8	126 ± 44
		18.7 ± 0.7	2000 ± 400	15.6 ± 0.5	40.7 ± 3.5	< 5	26.5 ± 1.3	53 ± 8	430 ± 100
		13.7 ± 0.5	2400 ± 390	9.85 ± 0.33	36.9 ± 2.9	< 5	12.7 ± 0.6	54 ± 8	390 ± 90
	6	18.5 ± 0.7	2940 ± 470	35.2 ± 1.2	51 ± 7	< 4.7	13.5 ± 0.7	58 ± 16	190 ± 80
		12.7 ± 0.5	3600 ± 500	6.82 ± 0.23	117 ± 5	5.6 ± 2.2	10.5 ± 0.5	72 ± 10	370 ± 90
		15.2 ± 0.7	1400 ± 300	8.35 ± 0.28	27 ± 3	< 5	27.0 ± 1.3	< 9	90 ± 60
		16.4 ± 0.6	3000 ± 480	8.62 ± 0.29	62.8 ± 3.8	1.7 ± 1.0	14.5 ± 0.7	52 ± 15	210 ± 50
11	0	12.2 ± 0.4	4700 ± 600	3.12 ± 0.12	110 ± 5	2.9 ± 0.6	3.34 ± 0.22	119 ± 16	550 ± 110
	6	12.3 ± 0.4	4400 ± 600	2.97 ± 0.11	116 ± 5	2.3 ± 1.0	4.09 ± 0.27	107 ± 14	209 ± 42
20	0	17.6 ± 0.7	2070 ± 380	12.1 ± 0.42	30.9 ± 2.8	< 6	24.6 ± 1.2	75 ± 10	380 ± 100
	6	21.9 ± 0.9	1690 ± 420	15.1 ± 0.5	25.6 ± 3.9	< 3.4	29.6 ± 1.5	57 ± 18	270 ± 70
21	0	14.3 ± 0.6	3210 ± 480	4.14 ± 0.15	52.0 ± 3.1	< 5	6.14 ± 0.34	92 ± 12	620 ± 100
	6	13.8 ± 0.6	3100 ± 440	3.79 ± 0.14	53.3 ± 2.9	2.3 ± 0.5	5.13 ± 0.31	57 ± 8	260 ± 50
22	0	10.2 ± 0.4	3000 ± 490	3.28 ± 0.12	76.2 ± 4.2	2.6 ± 0.6	5.60 ± 0.32	113 ± 15	280 ± 100
	6	10.5 ± 0.4	3280 ± 490	3.18 ± 0.12	69.8 ± 3.8	2.6 ± 0.5	4.89 ± 0.31	103 ± 24	134 ± 40
23	0	10.7 ± 0.4	2740 ± 410	3.20 ± 0.12	80 ± 4	6.3 ± 2.5	5.36 ± 0.31	91 ± 12	450 ± 80
	6	10.4 ± 0.4	3280 ± 480	3.76 ± 0.14	82.4 ± 4.2	2.8 ± 0.7	5.46 ± 0.32	79 ± 11	146 ± 50
24	0	9.99 ± 0.4	4000 ± 600	2.88 ± 0.11	95.1 ± 4.8	< 4.8	4.59 ± 0.3	94 ± 13	370 ± 140
	6	9.23 ± 0.37	3650 ± 500	2.69 ± 0.1	104 ± 4	< 4.6	3.95 ± 0.25	80 ± 22	< 190

Table C-XXIII. Individual Elemental Concentration in Soils under Ponderosa Pine, Walnut Canyon National Monument, AZ

Tree #	Depth (in)	Ag (ug/g)	Al (%)	As (ug/g)	Au (ng/g)	Ba (ug/g)	Br (ug/g)	Ca (%)	Ce (ug/g)
21	0	...	4.98 ± 0.21	...	...	521 ± 64	...	1.42 ± 0.12	60 ± 6
		...	4.58 ± 0.23	...	...	438 ± 77	...	1.64 ± 0.16	50 ± 5
		...	5.45 ± 0.23	...	...	460 ± 60	...	1.24 ± 0.12	56 ± 6
	6	...	7.4 ± 0.3	...	...	470 ± 60	...	1.04 ± 0.09	77 ± 8
		...	6.9 ± 0.3	...	...	430 ± 50	...	0.76 ± 0.08	71 ± 7
		...	7.5 ± 0.3	...	...	440 ± 60	...	0.81 ± 0.09	70 ± 7
22	0	...	4.18 ± 0.19	...	...	500 ± 60	...	1.35 ± 0.10	56 ± 6
		...	5.0 ± 0.2	...	...	450 ± 70	...	1.26 ± 0.11	56 ± 6
		...	5.1 ± 0.2	...	...	490 ± 60	...	1.44 ± 0.12	70 ± 7
	6	...	5.9 ± 0.2	...	...	450 ± 50	...	1.22 ± 0.09	71 ± 7
		...	6.33 ± 0.24	...	...	476 ± 55	...	1.23 ± 0.09	67 ± 7
		...	6.94 ± 0.27	...	...	556 ± 71	...	1.32 ± 0.11	73 ± 7

Tree #	Depth (in)	Cl (ug/g)	Co (ug/g)	CO2 (%)	Cr (ug/g)	Cs (ug/g)	Cu (ug/g)	Dy (ug/g)	Eu (ug/g)
21	0	159 ± 58	18.4 ± 1.9	0.3 ± 0.2	96.2 ± 7.1	5.19 ± 0.62	...	3.8 ± 0.5	1.17 ± 0.15
		69 ± 68	11.9 ± 1.9	0.2 ± 0.2	81.3 ± 8.42	4.61 ± 0.48	...	2.3 ± 0.3	0.81 ± 0.10
		80 ± 40	16.9 ± 1.73	0.7 ± 0.2	81.1 ± 5.96	5.16 ± 0.59	...	3.2 ± 0.3	1.14 ± 0.13
	6	60 ± 30	22.3 ± 3.39	0.6 ± 0.2	116 ± 11.8	7.41 ± 0.69	...	5.1 ± 0.5	1.44 ± 0.14
		< 60	17.9 ± 1.82	0.2 ± 0.2	88.4 ± 6.45	8.15 ± 0.87	...	4.4 ± 0.4	1.32 ± 0.14
		40 ± 30	19.3 ± 2.93	0.5 ± 0.2	95.3 ± 9.75	8.71 ± 0.77	...	4.3 ± 0.5	1.32 ± 0.12
22	0	70 ± 40	17.8 ± 1.82	0.7 ± 0.2	93.4 ± 6.75	3.98 ± 0.47	...	4.1 ± 0.5	1.10 ± 0.12
		40 ± 30	18.5 ± 2.82	0.4 ± 0.2	93.8 ± 9.6	4.56 ± 0.48	...	3.8 ± 0.4	1.17 ± 0.11
		< 100	23.1 ± 2.35	0.6 ± 0.2	120 ± 8.67	4.85 ± 0.56	...	4.1 ± 0.4	1.34 ± 0.15
	6	30 ± 40	21.2 ± 3.23	0.4 ± 0.2	110 ± 11.2	6.49 ± 0.62	...	4.1 ± 0.4	1.48 ± 0.14
		40 ± 40	19.1 ± 1.94	0.4 ± 0.2	97.4 ± 7.03	5.82 ± 0.64	...	4.2 ± 0.4	1.35 ± 0.15
		< 100	22.7 ± 3.44	0.5 ± 0.2	115 ± 11.7	6.94 ± 0.63	...	4.3 ± 0.4	1.45 ± 0.13

Tree #	Depth (in)	F (ug/g)	Fe (%)	Ga (ug/g)	Hf (ug/g)	Hg (ug/g)	I (ug/g)	In (ug/g)	K (%)
21	0	...	3.59 ± 0.25	< 37	7.68 ± 0.66	...	...	< 0.12	1.28 ± 0.17
		...	2.88 ± 0.23	< 55	7.11 ± 0.61	...	...	< 0.13	1.25 ± 0.20
		386 ± 39	3.39 ± 0.24	< 40	8.26 ± 0.69	...	...	< 0.13	1.53 ± 0.18
	6	481 ± 48	4.78 ± 0.38	< 30	7.93 ± 0.67	...	...	< 0.10	1.7 ± 0.2
		...	4.00 ± 0.28	< 40	7.74 ± 0.64	...	...	< 0.09	1.70 ± 0.18
		...	4.50 ± 0.36	67 ± 17	8.21 ± 0.68	...	...	< 0.12	1.59 ± 0.16
22	0	...	3.09 ± 0.22	< 30	9.93 ± 0.81	...	...	< 0.10	1.54 ± 0.19
		...	3.16 ± 0.25	< 40	7.90 ± 0.65	...	...	< 0.11	1.25 ± 0.17
		...	4.00 ± 0.28	< 40	9.88 ± 0.82	...	...	< 0.13	1.31 ± 0.16
	6	...	3.98 ± 0.32	< 30	10.5 ± 0.8	...	...	< 0.10	1.52 ± 0.19
		...	3.87 ± 0.27	< 28	10.0 ± 0.8	...	...	< 0.09	1.34 ± 0.18
		...	4.57 ± 0.37	< 42	9.62 ± 0.79	...	...	< 0.10	1.46 ± 0.16

Table C-XXIII. Individual Elemental Concentration in Soils under Ponderosa Pine, Walnut Canyon National Monument, AZ (cont.)

Tree #	Depth (in)	La (ug/g)	Lu (ug/g)	Mg (%)	Mn (ug/g)	Na (%)	Nd (ug/g)	pH (units)	Pb (ug/g)
21	0	---	---	0.77 ± 0.10	622 ± 28	0.45 ± 0.02	---	---	81 ± 12
		---	---	0.84 ± 0.15	590 ± 27	0.42 ± 0.02	---	---	64 ± 10
		---	---	1.11 ± 0.13	580 ± 30	0.42 ± 0.02	---	6.5 ± 0.3	84 ± 11
	6	---	---	1.26 ± 0.10	680 ± 30	0.34 ± 0.01	---	6.2 ± 0.3	80 ± 11
		---	---	0.74 ± 0.09	560 ± 30	0.29 ± 0.01	---	---	101 ± 12
		---	---	1.01 ± 0.11	580 ± 30	0.29 ± 0.01	---	---	81 ± 10
22	0	---	---	1.12 ± 0.09	610 ± 30	0.59 ± 0.02	---	---	68 ± 10
		---	---	1.03 ± 0.12	660 ± 30	0.55 ± 0.02	---	---	62 ± 8
		---	---	1.06 ± 0.11	690 ± 30	0.59 ± 0.02	---	---	79 ± 11
	6	---	---	1.05 ± 0.09	630 ± 30	0.51 ± 0.02	---	---	66 ± 9
		---	---	1.22 ± 0.11	599 ± 27	0.48 ± 0.02	---	---	95 ± 11
		---	---	1.19 ± 0.11	649 ± 30	0.50 ± 0.02	---	---	66 ± 9

Tree #	Depth (in)	Sb (ug/g)	Sc (ug/g)	Se (ug/g)	Si (%)	Sm (ug/g)	Sr (ug/g)	Ta (ug/g)	Tb (ug/g)
21	0	1.16 ± 0.28	11.1 ± 0.56	---	22 ± 3	5.20 ± 0.68	< 250	1.03 ± 0.19	---
		1.74 ± 0.39	9.44 ± 0.67	---	20.9 ± 1.0	4.82 ± 0.88	< 290	1.06 ± 0.22	---
		1.07 ± 0.27	11.0 ± 0.5	---	24 ± 3	5.09 ± 0.61	< 200	0.98 ± 0.15	---
	6	1.04 ± 0.30	16.3 ± 1.15	---	24.9 ± 1.6	8.70 ± 1.41	< 200	1.55 ± 0.26	---
		0.84 ± 0.18	13.8 ± 0.70	---	27.5 ± 1.8	6.53 ± 0.72	< 200	1.37 ± 0.17	---
		1.55 ± 0.36	15.0 ± 1.06	---	26 ± 3	7.05 ± 1.16	< 170	1.35 ± 0.24	---
22	0	0.63 ± 0.17	9.78 ± 0.5	---	29 ± 2	4.92 ± 0.57	320 ± 60	1.02 ± 0.14	---
		1.24 ± 0.33	10.5 ± 0.7	---	27 ± 2	5.03 ± 0.88	< 200	0.90 ± 0.18	---
		1.27 ± 0.24	12.6 ± 0.6	---	29 ± 2	6.29 ± 0.72	< 200	1.02 ± 0.15	---
	6	0.71 ± 0.23	13.5 ± 0.9	---	27 ± 2	6.61 ± 1.11	< 190	1.43 ± 0.26	---
		0.76 ± 0.17	12.9 ± 0.66	---	28 ± 2	5.98 ± 0.67	< 190	1.07 ± 0.14	---
		0.94 ± 0.24	15.4 ± 1.09	---	28.4 ± 2.0	6.82 ± 1.13	< 220	1.19 ± 0.22	---

Tree #	Depth (in)	Th (ug/g)	Ti (ug/g)	U (ug/g)	V (ug/g)	W (ug/g)	Yb (ug/g)	Zn (ug/g)	Zr (ug/g)
21	0	8.08 ± 0.67	4190 ± 590	2.24 ± 0.2	79.0 ± 3.9	< 140	2.59 ± 0.31	136 ± 21	---
		7.04 ± 0.60	4370 ± 360	1.78 ± 0.15	70.2 ± 3.9	< 130	1.62 ± 0.27	143 ± 29	---
		7.86 ± 0.65	4000 ± 300	2.13 ± 0.18	88 ± 5	< 120	2.49 ± 0.29	79 ± 12	---
	6	10.3 ± 0.8	5100 ± 700	2.44 ± 0.2	128 ± 6	< 110	2.56 ± 0.34	79 ± 16	---
		10.3 ± 0.8	4600 ± 300	2.48 ± 0.2	111 ± 5	< 90	2.69 ± 0.32	72 ± 11	---
		10.9 ± 0.8	5000 ± 400	2.55 ± 0.2	122 ± 6	< 110	2.60 ± 0.33	97 ± 19	---
22	0	7.34 ± 0.60	4500 ± 600	2.27 ± 0.18	83 ± 4	< 100	2.19 ± 0.26	60 ± 9	---
		6.85 ± 0.57	4700 ± 300	1.97 ± 0.15	78 ± 4	< 110	2.38 ± 0.30	88 ± 18	---
		8.09 ± 0.66	4500 ± 300	2.05 ± 0.16	86 ± 4	< 120	3.01 ± 0.34	95 ± 15	---
	6	8.98 ± 0.74	4600 ± 600	2.20 ± 0.18	99 ± 4	< 100	2.92 ± 0.36	80 ± 16	---
		8.76 ± 0.71	4470 ± 610	2.21 ± 0.18	98 ± 4	< 100	3.01 ± 0.32	75 ± 11	---
		9.78 ± 0.80	5380 ± 370	2.25 ± 0.19	102 ± 5	< 100	2.65 ± 0.35	109 ± 22	---

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